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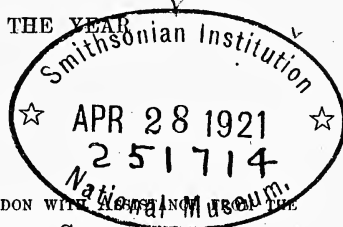
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## EXPLANATORY.

This Volume is printed in the Divisions enumerated on p. iv.

The pagination of each Division is separate, and is given at the left-hand top corner of the pages. The number and name of the Division is given as a heading on each left-hand page. The Registration Numbers when of importance are given at the right-hand top corner of the right-hand pages. The date 1918 corresponding to the bulk of the literature indexed is given at the right-hand top corner of the left-hand page.

In the Subject Index of each Division authors are quoted by name only. The full references will be found in the Title Section of the Division.

The Literature indexed is mainly that of 1918 but includes entries for earlier years that have been received too late for inclusion in previous volumes.

On account of the international situation, the Royal Society of London found itself unable to undertake at present any financial responsibility for any volumes of the International Catalogue subsequent to those of the Fourteenth Annual Issue.

Under these circumstances the Zoological Society of London arranged to undertake the issue of the present volume, which is the fifty-fifth of the Zoological Record, and would have been N. Zoology of the Eighteenth Annual Issue of the International Catalogue. Its preparation has been conducted as closely as possible on the model of the previous volumes prepared jointly by the International Catalogue and the Zoological Society.

It can now be purchased from the Zoological Society of London at the price of £2, either in the binding of the Zoological Record or in series with the International Catalogue.

Volume 56, dealing with the Literature of 1919, is in preparation.

## CONTENTS.

- I. COMPREHENSIVE AND GENERAL ZOOLOGY.
  - II. PROTOZOA.
  - III. PORIFERA OR SPONGIAE.
  - IV. COELENTERATA.
  - V. ECHINODERMATA.
  - VI. VERMIDEA: including GEPHYREA AND PTEROBRANCHIATA
  - VII. BRACHIOPODA AND BRYOZOA OR POLYZOA.
  - VIII. MOLLUSCA.
  - IX. ARTHROPODA (GENERAL).
  - X. CRUSTACEA.
  - XI. ARACHNIDA AND MYRIOPODA; including also GIGANT-  
OSTRACA, EURYPTERIDA, PROTOTRACHEATA.
  - XII. INSECTA.
  - XIII. PROCHORDATA = TUNICATA, CEPHALOCHORDATA, ENTERO-  
PNEUSTA.
  - XIV. VERTEBRATA (GENERAL).
  - XV. PISCES.
  - XVI. REPTILIA AND BATRACHIA.
  - XVII. AVES.
  - XVIII. MAMMALIA.
- ALPHABETICAL INDEX OF NEW NAMES OF GENERA AND SUBGENERA.

# I. COMPREHENSIVE ZOOLOGY

BY

D. SHARP

This section includes works that deal with more than one branch of Zoology, or that are of general interest to Zoologists. It is, therefore, not complete in itself as regards any one subject included in it. The special records complete each subject. A few memoirs included in the special records are repeated in this division.

## CONTENTS

	PAGE
I. TITLES .. .. .	4
II. SUBJECT-INDEX:—	
Hyperzoology :—	
Philosophical=0000 .. .. .	13
Historical=0010 :	
Biography, Obituary notices .. .. .	13
Reports=0020 (vacant)	
General Treatises, Text-books=0030 (vacant)	
Bibliography=0032 .. .. .	13
Addresses, Lectures, &c.=0040 .. .. .	13
Pedagogy=0050 .. .. .	13
Institutions, Museums, Economic=0060 .. .. .	13
Nomenclature=0070 .. .. .	13
Methods, Technique=0090 .. .. .	13

	PAGE
<b>Morphology = 0207—</b>	
General, Miscellaneous .. .. .	13
External .. .. .	13
Myology .. .. .	13
Nervous System .. .. .	14
<b>Physiology = 0211—</b>	
General .. .. .	14
Cytological. Protoplasm and cell .. .. .	14
Sex .. .. .	14
Metabolic (vacant)	
Function .. .. .	14
Colour .. .. .	14
Environment, Adaptation .. .. .	14
Vitality, Senescence, Death .. .. .	14
Chemical .. .. .	14
<b>Development = 0215—</b>	
General .. .. .	14
Ovum, oogenesis (vacant)	
Spermatozoon, spermatogenesis .. .. .	14
Fertilization .. .. .	14
Parthenogenesis .. .. .	14
Embryology. Metamorphosis .. .. .	14
Regeneration (vacant)	
<b>Ethology = 0219—</b>	
General .. .. .	14
Phenology .. .. .	14
Migration, Flight .. .. .	14
Food-habits .. .. .	14
Parental (vacant)	
Sexual (vacant)	
Social (vacant)	
Luminosity (vacant)	
Parasitism .. .. .	14
Voice (vacant)	
Habitat, incl. Speleology .. .. .	14
Oceanic, Plankton general .. .. .	14
Psychology, Tropisms .. .. .	15
<b>Actiology and Variation = 0223—</b>	
General .. .. .	15
Variation, Mutation: .. .. .	15
Teratology .. .. .	15
Hybrids } (vacant)	
Telegony }	
Heredity .. .. .	15
Evolution. Origin of species .. .. .	15
Phylogeny .. .. .	15

	PAGE
Geography=0227—	
General .. .. .	15
Faunae :—	
Ocean .. .. .	15
Europe and Mediterranean .. .. .	15
Asia, Malay Archipelago .. .. .	15
Africa .. .. .	16
North America .. .. .	16
South America, etc. .. .. .	16
Australasia .. .. .	16
Arctic .. .. .	16
Taxonomy (or Systematic)=0231 .. .. .	16

## I.—TITLES.

- Adams, C. C.** Migration as a factor in evolution: its ecological dynamics. *Amer. Nat.* New York **52** 1918 (465-490). 1
- Aggazzotti, A.** Influenza dell'aria rarefatta sull'ontogenesi. Nota iii. Le modificazionè che avvengono nei gas della camera d'aria dell'ovo durante lo sviluppo. *Arch. Entwicklunsmech.* Leipzig **40** 1914 (65-97). 2
- Anderson, R. M.** The Canadian arctic expedition of 1913. Report of the southern division. Rep. dep. Naval Service Ottawa 1917 (28-70) 1918 (18-31). 3
- Annandale, N.** Zoological results of a tour in the Far East. *Mem. Asiat. Soc. Bengal Calcutta* **6** 1916-1918 (1-320) 10 pls. [*Cf.* *Nature* **102** p. 116.] 4
- Annandale, N.** Fauna of the Inle lake. Introduction. *Rec. Ind. Mus. Calcutta* **14** 1918 (1-8). 5
- [Anon.] The international rules of zoological nomenclature, with appendix and summaries of opinions. No. 1 to No. 67. Extracted from the proceedings of the ninth international zoological congress, Monaco 1913. Washington (Smallwood) 1918 (30 pp.). 6
- Antipa, G.** Die Lebensbedingungen in den Gewässern Rumäniens und die Aufgaben hydrobiologischen Forschung. *Bull. Ae. Română Sci.* **5** 1918 (165-211). 7
- Araujo, H. C. de Souza,** *vide* Lutz, Araujo and Filho.
- Aschner, B.** Über den Kampf der Teile im Ovarium. *Arch. Entwicklunsmech.* **40** Leipzig 1914 (565-570). 8
- Babcock, E. B.** The role of factor mutations in evolution. *Amer. Nat.* New York **52** 1918 (116-128). 9
- Babcock, E. B. and Clausen, R. E.** Genetics in relation to agriculture. New York 1918 (xx + 675) figs. and pls. 10
- Baltzer, F.** Ueber die Entwicklung und Vererbung bei Bastarden. *Verh. Schweizer Ges. Aarau* **1917** 1918 (53-67). 11
- Beauchamp, P. de.** Notes faunistiques: Quelques formes rares ou interessantes de la région parisienne. *Bull. Soc. zool. France* **43** 1918 (78-82). 12
- Bequaert, M.,** *vide* Schmitz and Bequaert.
- Bianchi, V.** Révision des données dans son article "Considérations générales sur les divisions zoogéographiques" [in Russian]. *Bull. Ac. Sci. Russie Petrograd* **1918** 1918 (29-56). 13
- Blanc, H.** Planche murale de la répartition des principaux parasites animaux dans le corps de l'homme en Europe. *Bull. Soc. Vaud. Lausanne* **51** 1917 (335-340). 14
- Bohn, G.** Les forces internes, régulatrices des formes végétales et animales. *C. R. Soc. Biol. Paris* **81** 1918 (220-223). 15
- Bolton, Edith.** Lower coal measures in relation to fossil plants and animals. *Rep. Bristol Nat. Soc. Ser.* **4** **5** 1919 (30-37). 16
- Bonatelli, G.** La mandibula humana de Bañolas. *Physis Buenos Aires* **2** 1916 (399-406). 17
- Borja-Tarrius, D. C. C.** Las manifestaciones del instinte en los articulados. *Mem. Ac. Ci. Barcelona* **14** No. 3 1918 (3-12). 18
- Boule, —,** *vide* Sergi, G.
- Brammertz, W.** Ueber das normale Vorkommen von Glykogen in der Retina. *Arch.-mikr. Anat. Bonn* **86** 1 1914 (1-7) pl. i. 19



- Bruno, G.** Nuovo metodo di viraggio per i preparati impregnati con i sali di argento. *Monit. zool. ital.* Firenze **29** 1918 (155-156). **20**
- Buddenbrock, W. v.** Die Tropismen-theorie von Jacques Loeb. Ein Versuch ihrer Widerlegung. *Biol. Centralbl.* Leipzig **35** 1915 (481-506). **21**
- Butterfield, W. R.** Notes on the local fauna, flora, etc., for the year 1917. *Hastings Nat.* **3** No. 1 1918 (74-81). **22**
- Buytendyk, F. J. J.** Proeven over gewoontevorming by dieren. [Expériences sur la formation des habitudes chez les animaux]. Amsterdam (Wed. G. van Soest) 1918 (219). 24 cm. **23**
- Cameron, J.** The histogenesis of vertebrate striated muscle, including a contribution to our knowledge regarding the structure and functions of the cell-nucleus. *Tr. R. Soc. Canada Ottawa* **11** 1918 (81-98) 14 pls. **24**
- Carpenter, G. H.** William Francis de Vismes Kane. *Irish Nat.* **27** 1918 (97-103) port. **25**
- Cayeux, L.** Introduction à l'étude pétrographique des roches sédimentaires. *Mem. explic. Carte géol. France Paris* 1916 (viii + 524). [Organismes (310-499)]. **26**
- Chambers, R.** Microdissection studies. ii. The cell aster: a reversible gelation phenomenon. *J. Exper. Zool. Philadelphia* **23** 1917 (483-504) pl. 1. **27**
- Chambers, R.** The microvivisection method. *Biol. Bull. Woods Hole* **34** 1918 (121-136). **28**
- Chapman, H. G.** Presidential address. *P. Linn. Soc. N.S.W. Sydney* **43** 1918 (1-31). **29**
- Chumley, J.** The fauna of the Clyde sea area, being an attempt to record the zoological results obtained by the late Sir John Murray and his assistants on board the S.Y. "Medusa," during the years 1884 to 1892. *Glasgow Univ. Press* 1918 (1-200 + vi) map. **30**
- Clark, A. H.** The circulation of the abyssal water of the oceans [and its effect on the fauna]. *Washington D.C. J. Acad. Sci.* **4** 1914 (1-3). **31**
- Clausen, R.E.** *vide* Babcock and Clausen.
- Cos, W. R.** A century of zoology in America. *Amer. J. Sci.* **46** 1918 (355-398). **32**
- Cohn, E. J.** Studies in the physiology of spermatozoa. *Biol. Bull. Woods Hole* **34** 1918 (168-218). **33**
- Conklin, E. G.** Why polar bodies do not develop. *Washington, Proc. Nat. Acad. Sci.* **1** 1915 (491-496). **34**
- Craig, W.** Appetites and aversions as constituents of instinct. *Biol. Bull. Woods Hole* **34** 1918 (91-107). **35**
- Curtis, W. P.** Phenological report on first appearances of birds, insects, etc., and first flowering of plants in Dorset for 1916. *Proc. Dorset N. H. Club* **38** 1918 (133-232). **36**
- Curtis, W. P.** Phenological report of first appearances of birds, insects, etc., and first flowering of plants in Dorset during 1917. *Proc. Dorset N. H. Club Dorchester* **39** 1918 (85-96). **37**
- Cutler, D. W.** Natural and artificial parthenogenesis in animals. *Mem. Proc. Manchester Lit. Phil. Soc.* **62** 1918 (1-42). **38**
- Deegener, P.** Versuch zu einem system der Monogonie im Tierreiche. *Zeitschr. wiss. Zool. Leipzig* **113** 1915 (578-673). **39**
- Delphy, J.** Influence des agents climatiques sur les variations de faune. *Bull. Mus. Paris* **23** 1917 (78-82). **40**
- Delphy, J.** Nouvelles observations sur les variations de faune. *Bull. Mus. Paris* **23** 1917 (461-465). **41**
- Demoli, R.** Der Flug der Insekten und der Vögel. *Jena* 1918 (67 pp.) 5 pls. **42**
- Dewitz, J.** Die für die künstliche Parthenogenesis angewandten Mittel als Erreger für andere biologische Vorgänge. *Biol. Centralbl. Leipzig* **37** 1917 (498-508). **43**
- Dollfuss, —, vide** Larger, L.
- Driesch, H.** Gibt es harmonisch-äquipotentielle Systeme? *Biol. Centralbl. Leipzig* **35** 1915 (545-555). **44**
- Driesch, H.** Noch einmal das harmonisch-äquipotentielle System. *Biol. Centralbl.* **36** 1916 (472-475). **45**

- East, E. M.** The rôle of reproduction in evolution. *Amer. Nat.* New York 1918 (273-289). 46
- Engel, C. S.** Ueber die Gesetzmässigkeit in der Aufeinanderfolge der Erythrozyten während des embryonalen Lebens der Wirbeltiere. *Arch. mikr. Anat.* Bonn 86 1 1915 (345-370) pls. xiii-xv. 47
- Esterly, C. O.** Specificity in behaviour and the relation between habits in Nature and reactions in the laboratory. *Univ. California Publ. zool.* Berkeley 16 1917 (381-393). 48
- Evans, W.** Insects and other terrestrial invertebrates from the Bass rock. *Scott. Natural Edinburgh* 1918 (259-265). 49
- Fantham, H. B.** Evolution and mankind. *S. Afric J. Sci.* 15 1918 Cape Town (287-305). 50
- Ferdinandsen, C., Rostrup, Sofie and Ravn, F. K.** Oversigt over Landbrugsplanternes Sygdomme i 1917. Attacks of parasites on the agricultural plants in Denmark in the year 1917. *København, Tids. Planteavl* 25 1918 (314-340). 51
- Filho, O. da Fonseca, vide Lutz, Araujo and Filho.**
- Franz, V.** Die Zeiträume der Phylogenese. *Biol. Centralbl. Leipzig* 37 1917 (148-155). 52
- Fuchs, H. M.** The action of egg-secretions on the fertilising power of sperm. *Arch. Entwicklungsmech. Leipzig* 40 1914 (205-252). 53
- Ghigi, A.** Repertorio di specie nuove di animali trovate in Italia e descritte nell'anno 1913. *Monit. Zool. ital.* Firenze 28 1917 (63-80). 54
- Giglio-Tos, E.** Lorenzo Camerano. *Boll. Mus. Torino* 33 No. 725 1918 (1-14) port. 55
- Göldi, E. A.** Die Tierwelt der Schweiz in der Gegenwart und in der Vergangenheit. Band I. Wirbeltiere. Bern 1914 (xvi + 654) 5 pls. 2 maps. 56
- Göthlin, G. F.** Relation entre le fonctionnement et la structure des éléments nerveux. *Upsala Läkareför. Förh.* 22 1917 (Sep. 21 pp.). 57
- Gold Schmidt, R.** Vorläufige Mitteilung über weitere Versuche zur Vererbung und Bestimmung des Geschlechts. *Biol. Centralbl. Leipzig* 35 1915 (565-570). 58
- Gold Schmidt, R.** A further contribution to the theory of sex. *J. Exper. Zool. Philadelphia* 22 1917 (593-611) 3 pls. 59
- Gold Schmidt, R.** A preliminary report on some genetic experiments concerning evolution. *Amer. Nat.* New York 52 1918 (28-50). 60
- Green, F. W. E., vide Mottram and Green.**
- Haecker, V.** Entwicklungsgeschichtliche Eigenschaftsanalyse (Phaenogenetik). Gemeinsame Aufgaben der Entwicklungsgeschichte, Vererbungs- und Rassenlehre. Jena 1918 [not seen by Recorder]. 61
- Hance, R. T.** Variations in somatic chromosomes. *Biol. Bull. Woods Hole* 35 1918 (33-37). 62
- Hartog, M.** The true mechanism of mitosis. *Arch. Entwicklungsmech.* 40 1914 (33-64). 63
- Heikertinger, F.** Das Scheinproblem von der Zweckmässigkeit im Organischen. Ein Beitrag zur Kritik selektionstheoretischer Probleme. *Biol. Centralbl. Leipzig* 37 1917 (333-352). With remarks by R. Hertwig (353-357). 64
- Heikertinger, F.** Nomenklatorischen Reformen. ii. Das Patriazeichen beim Artenamen. *Zool. Anz. Leipzig* 50 1918 (41-54). 65
- Heikertinger, F.** Die Nichteignung des Prioritätsprinzips zur Stabilisierung der Nomenklatur. Das Kontinuitätsprinzip in der Tier- und das Utilitätsprinzip in der Autornennung. *Wiener ent. Zeit. Wien* 37 1918 (129-147). 66
- Henning, H.** Zur Ameisenpsychologie. Eine kritische Erörterung über die Grundlagen der Tierpsychologie. *Biol. Zentralbl. Leipzig* 38 1918 (208-220). 67
- Herdman, W. A.** Periodic change in nature. *Ann. Rep. Liverpool Mar. Biol. Comm.* 32 1918 (17-28). 68

- Herdman, W. A.** An address upon Sir John Murray, K.C.B., F.R.S., the pioneer of modern oceanography. Proc. Liverpool Biol. Soc. 32 1918 (31-60) **69**
- Herlant, M.** Comment agit la solution hypertonique dans la parthénogenèse expérimentale. i. Arch. Zool. exp. Paris 58 1918 (511-533). **70**
- Herlant, M.** Variations cycliques de la perméabilité chez l'oeuf activé. C. R. Soc. Biol. Paris 81 1918 (151-155). **71**
- Hertwig, O.** Das Werden der Organismen. Eine Widerlegung von Darwins Zufallstheorie. Jena 1916 (710 pp.) 115 text-figs. **72**
- Hertwig, O.** Das genealogische Netzwerk und seine Bedeutung für die Frage der monophyletischen oder der polyphyletischen Abstammungshypothese. Arch. mikr. Anat. Bonn 89 2 1916 (227-242). **73**
- Hertwig, O.** Dokumente zur Geschichte der Zeugungslehre. Eine historische Studie als Abschluss eigener Forschung. Arch. mikr. Anat. Bonn 90 2 1918 (1-168). **74**
- Hertwig, R.** [Review of] Becher, E. Die fremddienliche Zweckmäßigkeit der Pflanzengallen und die Hypothese eines überindividuellen Seelischen. Biol. Zentralbl. Leipzig 38 1918 (315 and 316). **75**
- Hilton, W. A.** Suggestions from the study of the central nervous systems of invertebrates. J. Ent. Zool. Claremont 9 1917 (141-146). **76**
- Hirsch, G. C.** Der Arbeitsrhythmus der Verdauungsdrüsen. Biol. Zentralbl. Leipzig 38 1918 (41-100). **77**
- Hirschler, J.** Ueber die theoretische Fassung des Problems der Vererbung erworbener Eigenschaften. Arch. mikr. Anat. Bonn. 89 2 1917 (243-278). **78**
- Hofsten, N. von.** Zur älteren Geschichte des Diskontinuitätsproblems in der Biogeographie. Zool. Ann. Würzburg 7 1916 (197-353). **79**
- Jacobs, M. H.** Acclimatization as a factor affecting the upper thermal death points of organisms. J. Exper. Zool. 27 Philadelphia 1919 (427-442). **80**
- Järnefelt, H.** Pieni liisä potamoplanktonin tuntemiseksi. [Beitrag zur Kenntnis des Potamoplanktons.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (4-5) [Dutches Ref. 166]. **81**
- Järnefelt, H.** Zur Kenntnis des Lebens in einem Brunnen. Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (10-13). **82**
- Janet, C.** Sur la phylogénèse de l'orthobionte. Limoges 1916 (1-72) 8 tabl. and 6 pls. **83**
- Jeannel, R. et Racovitza, E. G.** Biospeologica. xxxix. Enumération des grottes visitées 1913-1917 (sixième série). Arch. Zool. exp. Paris 57 1918 (203-470). **84**
- Jennings, H. S.** Disproof of a certain type of theories of crossing over between chromosomes. Amer. Natural. New York 52 1918 (247-261). **85**
- Johannsen, W.** Om Weismann's Kimplasma-Laere. Nath. Medd. Copenhagen 69 1918 (153-164). **86**
- Johansen, A. C.** Randers Fjords Naturhistorie. The natural history of the firth of Randers (Jutland). With contributions by Hj. Ditlevsen, F. Heerfordt, J. P. Jacobsen, A. Jessen, Knud Jessen, M. Klinge, P. Kramp, J. Chr. Løfting, C. H. Ostenfeld, K. Stephensen, Hj. Ussing. København C. A. Reitzel 1918 (pp. iii + 520) 5 maps 236 figs. 26 × 21 cm. Price Kr. 12.00. **87**
- Johansen, A. C.** Oversigt over Dyrelivet i Randers Fjord. A general view of the animal life in the firth of Randers. København Randers Fjords Naturhistorie 1918 (273-294) 4 figs. **88**
- Johnston, T. H.** A census of the endoparasites recorded as occurring in Queensland, arranged under their hosts. Proc. R. Soc. Queensland Brisbane 28 1916 (31-79). **89**
- Jordan, H.** Die vergleichende Physiologie in die Geschichte der Zoologie. Biol. Zentralbl. 36 1916 (219-234). **90**
- Jordan, H.** Über besondere Muskeln und Muskeleigenschaften bei Tieren mit echtem Hautmuskelschlauch. Ein Beitrag zur physiologischen Charakterisierung von Tiergruppen. Biol. Zentralbl. Leipzig 37 1917 (578-583). **91**

- Jordan, H. Die Zoophysologie in ihrem Verhältnis zur medizinischen Physiologie. Zool. Zentralbl. Leipzig 38 1918 (133-139). 92
- Jordan, H. J. Het leven der dieren in het zoete water. [La vie des animaux dans l'eau douce.] Utrecht (A. Oosthoek) 1918 (95) 19 Textfig. 20 cm. 93
- Keibel, F. Zu Carl Rabl's „Edouard van Beneden und der gegenwärtige Stand der wichtigsten von ihm behandelten Probleme.“ Arch. mikr. Anat. Bonn 89 1 1916 (1-14). 94
- Kindle, E. M. and Whittaker, E. J. Bathymetric check list of the marine invertebrates of Eastern Canada with an Index to Whiteave's Catalogue. Contrib. Canad. Biol. 1917 1918 (229-294). 95
- Kobelt, A. Die physiologische Ursache von Zeichnung und Farbe in der Tierwelt. ii. Mitteilung. Zeitschr. Naturw. Leipzig 86 1916 (152-183). 96
- Kohlbrugge, J. H. F. War Darwin ein originelles Genie? Biol. Centralbl. Leipzig 35 1915 (93-111). 97
- Korschelt, E. Zum Wesen der ungeschlechtlichen Fortpflanzung, nebst Bemerkungen über ihre Beziehungen zur geschlechtlichen Fortpflanzung. Zeitschr. wiss. Zool. Leipzig 117 1917 (361-459). 98
- Krausse, A. Ein vereinfachtes Verfahren zur systematischen Charakterisierung der Gattungsnamen. Zool. Anz. Leipzig 50 1918 (56-58). 99
- Krogh, A. Vævenes Forsyning med Ht og Kapillaerkredsløbets Regulering. The supply of the tissue with oxygen and the regulation of the capillary circulation. København Vid. Selsk. Biologiske Meddelelser 1 6 1918 (1-29) pl. and 6 figs. 101
- Krogh, A. Tale ved Afsløringen af Mindestenen paa dr. phil. William Sørensen's Grav. A memorial address with a biographical sketch of the Danish zoologist William Sørensen [1848-1916]. København Naturens Verden 2 1918 (520-523). 102
- Larger, L. Théorie de la contre evolution ou dégénérescence par l'hérédité pathologique. Paris 1917. cf. Dollfuss Rev. crit. Paléozool. Paris 21 1917 (115-122). 103
- Le Souef, W. H. D. Wild life preservation and extinction in Australia. Zool. Soc. Bull. New York 21 1918 (1629-1632). 104
- Levander, K. M. Zur Kenntnis des Küstenplanktons im Weissen Meer. Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (150-158). 105
- Levander, K. M. Meddelande om Helsingfors hamnplankton. [Über das Hafenplankton von Helsingfors.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 44 1918 (217-219) [Deutsches Ref. 256]. 106
- Levander, K. M. Kortomus eläintieteilisistä kesäharjoituksista Kuopiossa. [Bericht über zoologische Sommerübungen in Kuopio.] Helsinki. Luonnon Ystävä 20 1916 (227-234). 107
- Levander, K. M. und Wuorentaus, Y. Redögorelse afgifven of arbetsutskottet för undersökning af de finska insjöarnas vatten och plankton III. Plankton-sammansättningen i Kemi, Uleå och Kumo ålf samt Kymmene och Saima system på grund af från juni 1913 till juni 1914 månatligen utförda häfningar. [Bericht abgegeben vom Arbeitsausschuss zur Untersuchung des Wassers und des Planktons der finnischen Binnenseen III. Die Zusammensetzung des Planktons in den Kemi-, Uleå- und Kumo-Flüssen und in den Kymmene- und Saima-Grvässern auf Grund der vom Juni 1913 bis Juni 1914 monatlich gemachten Planktonfänge.] Helsingfors Fennia 39 No. 2 1915 (1-35) [Ref. 35-36]. 108
- Levander, K. M. und Wuorentaus, Y. Plankton-sammansättningen i finska insjöar och floder på grund af häfningar utförda om sommaren 1913. [Die Zusammensetzung des Planktons in finländischen Binnenseen und Flüssen auf Grund von Proben im Sommer 1913.] Helsingfors Fennia 40 No. 6 1917 (1-93) [Deutsches Ref. 94-95]. 109
- Levi, G. L'individualità delle cellule persiste in potenza nei sincizi. Monit. zool. ital. Firenze 29 1918 (150-155). 110
- Lillie, R. S. Heredity from the physico-chemical point of view. Biol. Bull. Woods Hole 34 1918 (65-90). 111

- Lippincott, W. A. Modifications of 9 : 3 : 3 : 1 ratio. *Amer. Natural.* New York 52 1918 (353-365). 112
- Lipschütz, A. Bemerkungen zur Frage über die Ernährung der Wassertiere. *Biol. Centralbl. Leipzig* 38 1918 (196-207). 113
- Loeb, J. Forced movements, tropisms and animal conduct. Philadelphia and London 1918 Lippincott Co. (1-209). 114
- Loeb, J. Über den Mechanismus der heterogenen Befruchtung. *Arch. Entwicklunsmech. Leipzig* 40 1914 (310-321). 115
- Loeb, J. and Wasteneys, H. A re-examination of the applicability of the Bunsen-Roscoe Law to the phenomena of animal heliotropism. *J. Exper. Zool. Philadelphia* 22 1917 (187-192). 116
- Lubosch, W. Der Akademiestreit zwischen Geoffroy St.-Hilaire und Cuvier im Jahre 1830 und seine leitenden Gedanken. *Biol. Zentralbl. Leipzig* 38 1918 (357-384 397-456). 117
- Lundblad, O. Om djupfaunan i svenska insjöar ur djurgografisk synpunkt. *Fauna och Flora Uppsala* 13 1918 (97-122). 118
- Lutz, A., Araujo, H. C. de Souza and Filho, O. da Fonseca. Vaigem scientifica no Rio Paraná e a Assuncion com volta por Buenos Aires, Montevideo e Rio Grande. *Mem. Inst. Oswaldo Cruz Rio de Janeiro* 10 1918 (104-199). English summary (83-100) pls. 119
- Macfarlane, J. M. The causes and course of organic evolution. New York (Macmillan) 1918 (x + 875) 2 cm. 17s. 120
- Madsen, V. Om Tertiæret ved Mariager Fjord. The tertiary deposits in the environs of Mariager Fjord (Jutland). København Danm. *Geol. Unders.* 4 Raekke I 8 1918 (1-41) pl. and 7 figg. 121
- Markle, M. S. Notes on microscopic technique. *Proc. Indiana Ac. Indianapolis* 1917 1918 (115-117). 122
- Mast, S. O. The relative stimulating efficiency of spectral colors for the lower organisms. *Washington Proc. Nation. Acad. Sci.* 1 1915 (622-625). 123
- Mast, S. O. The relation between spectral color and stimulation in the lower organisms. *J. Exper. Zool. Philadelphia* 22 1917 (471-528). 124
- Mast, S. O. What are tropisms? *Arch. Entwicklunsmech. Leipzig* 41 1915 (251-263). 125
- Matsumoto, H. Tsugaru-kaikyo no igi. [Significance of the Strait of Tsugaru.] *Dobuts. Z. Tokyo* 30 1918 (466-468). 126
- Matthew, W. D. Climate and evolution. *New York Ann. Acad. Sci.* 24 1915 (171-318) ff. 1-33. 127
- Meek, A. [and others]. Dove Marine Laboratory Report for the year ending June 30th, 1918. Newcastle-on-Tyne 1918 (1-67). 128
- Meves, F. Was sind die Plastosomen? Antwort auf die Schrift gleichen Titels von G. Retzius. *Arch. mikr. Anat. Bonn* 85 1 1914 (279-302). 129
- Meves, F. Was sind die Plastosomen? *Arch. mikr. Anat. Bonn* 87 1 1915 (286-308). 130
- Meyer, A. Die biologische Bedeutung der Nucleolen. *Zool. Anz. Leipzig* 49 1918 (309-314). 131
- Meyer, A. W. Curves of prenatal growth and autocatalysis. *Arch. Entwicklunsmech. Leipzig.* 40 1914 (497-525). 132
- Meyer, F. J. Die Generationswechsel bei Pflanzen und Tieren als Wechsel verschiedener Morphoden. *Biol. Zentralbl. Leipzig* 38 1918 (505-522). 133
- Meyer, M. *vide* Neumann and Meyer.
- Michaelsen, W. Beiträge zur Kenntnis der Land- und Süßwasserfauna. Deutsch-Südwestafrika. Hamburg 1 Lief. 1 & 2 1914 3 1915 4 1916 (1-452) 8 pls. 134
- Moellendorff, W. v.o. Zur Morphologie der vitalen Granulafärbung. *Arch. mikr. Anat. Bonn* 90 1 1918 (463-502) pls. xv and xvi. 135
- Moellendorff, W. von. Die Bedcutung von sauren Kolloiden und Lipoiden für die vitale Farbstoffbindung in den Zellen. *Arch. mikr. Anat. Bonn* 90 1 1918 (503-542). 136

- Mortensen, Th.** Observations on protective adaptations and habits, mainly in marine animals. *København Nath. Medd.* **69** 1918 (57-96) pl. and 19 figs. 137
- Mortensen, Th.** En skandinavisk Havforsknings-Station i Tropicerne. A proposal for a scandinavian station of marine biology in the tropics. *København Naturens Verden* **2** 1918 (471-475). 138
- Mottram, J. C. and Green, F. W. E.** Some aspects of animal colouration from the point of view of colour vision. *Sci. Progr. London* **13** 1918 (253-264). 139
- Mühlmann, M.** Ueber die chemischen Bestandteile der Nisslkörper. *Arch. mikr. Anat. Bonn* **85** 1 1914 (361-363). 140
- Naumann, E.** Beiträge zur Kenntnis des Teichnannoplanktons. ii. Über das Neuston des Süßwassers. *Biol. Centralbl. Leipzig* **37** 1917 (98-106). 141
- Neumann, R. O. and Meyer, M.** Atlas und Lehrbuch wichtiger tierischer Parasiten und ihrer Ueberträger mit besonderer Berücksichtigung der Tropenpathologie. *Lehmanns medizinische Atlanten* **11** München 1914 45 pls. = 1,537 figs. 142
- Neuville, H.** Quelques remarques sur la formaldéhyde et son emploi. *Bull. Mus. Paris* **23** 1917 (58-77). 143
- Osborn, H. F.** The origin and evolution of life on the theory of action, reaction and interaction of energy. *London* 1918 (xxxi + 322). 144
- Parshad, B.** The seasonal conditions governing the pond life in the Punjab. *J. Asiat. Soc. Bengal Calcutta* **12** 1916 (143-145). 145
- Paulsen, O.** Plankton and other biological investigations in the sea around the Faeroes in 1913. *København Medd. Havunders. Serie Plankton* **1** 13 1918 (1-27) 6 figs. 146
- Pax, F.** Die Tierwelt Polens. Handbuch von Polen Berlin 1917 (213-240). 147
- Pax, F.** Versuch einer tiergeographischen Gliederung Polens. *Zeitschr. Ges. Erdkunde Berlin* 1917 (9 pp.). 148
- Pearl, R.** The experimental modification of germ cells. i. General plan of experiments with ethyl alcohol and certain related substances. *J. Exper. Zool. Philadelphia* **22** 1917 (125-164). 149
- Pearl, R.** The experimental modification of germ cells. iii. The effect of parental alcoholism, and certain other drug intoxications, upon the progeny. *J. Exper. Zool. Philadelphia* **22** 1917 (241-310). 150
- Pearl, R.** Studies on inbreeding. 6. Some further considerations regarding cousin and related kinds of mating. *Amer. Nat. New York* **49** 1915 (570-575) tables chart. 151
- Pearse, A. S.** Recent literature on the behaviour of the lower invertebrates. *Psych. Bull. Princeton N.J.* **9** 1912 (281-290). 152
- Pearse, A. S.** Tropical nature in Colombia. *Pop. Sci. Mon. New York* **84** 1914 (290-305). 153
- Perrier, E.** Le Muséum pendant et après la guerre. *Bull. Mus. Paris* **23** 1917 (357-365). 154
- Poisson, J.** Humboldt, Naturaliste-voyageur (1883-1917). *Bull. Mus. Paris* **23** 1917 (216-218). 155
- Pouillaude, J.** Animaux nuisibles aux soldats en campagne. *Bull. Soc. Ouest Rennes* **24** 1915 (94-101). 156
- Rabl, C.** Edouard van Beneden und der gegenwärtige Stand der wichtigsten von ihm behandelten Probleme. *Arch. mikr. Anat. Bonn* **88** 1915 (1-464) 7 pls. 157
- Razzauti, A.** Contributi alla conoscenza faunistica delle isole toscane. i. Isola di Capraia. *Atti Soc. Toscana Pisa* **31** 1917 (196-224). 158
- Reagan, F. P.** The rôle of the auditory sensory epithelium in the formation of the stapodial plate. *J. Exper. Zool. Philadelphia* **23** 1917 (85-108). 159
- Richardson, N. M.** Address of the President. *Proc. Dorset Nat. Hist. Club Dorchester* **38** 1918 (1-22) 160
- Richardson, N. M.** Address of the President. *Proc. Dorset N.H. Club Dorchester* **39** 1918 (1-19) 161

- Ritchie, J. Cave-hunting in Scotland. *Scott. Natural. Edinburgh* 1918 1918 (97-102). 162
- Rohde, E. Histogenese, Furchung und multiple Teilung. *Zeitschr. wiss. Zool. Leipzig* 115 1916 (129-154). 163
- Rohde, E. Histologische Differenzierung, Zellbildung und Entwicklung bei Protozoen bzw. Protophyten und Metazoen bzw. Metaphyten. *Zeitschr. wiss. Zool. Leipzig* 115 1916 (155-200). 164
- Romyn, G. Maas-Expeditie 8 tot 12 Juli 1918. *Hydrobiologisch gedeelte. [Maas-Expedition vom 8ten bis zum 12ten Juli 1918. Hydrobiologischer Teil.] Heerlen, Natuurhist. Genootschap Limburg Jaarboek* 1918 (124-145). 165
- Roosevelt, T. Common sense and animal coloration. *Amer. Mus. J. New York* 18 1918 (211-218). 166
- Rosa, D. Ologenesi: nuova teoria dell'evoluz. e della distrib. geogr. dei viventi. Firenze 1918 Edit. Bemporad. 167
- Rosenstadt, B. Zellstudien. i. Epidermiszelle. *Arch. mikr. Anat. Bonn* 91 1 1918 (182-207) pl. vii. 168
- Roule, L. La vie et l'oeuvre de Lacépède. *Mem. Soc. zool. Franco Paris* 27 1918 (139-237) port. 169
- Roux, W. Albert Oppel. *Arch. Entwickmeh. Leipzig* 42 1917 (261-266). 170
- Roux, W. Nekrolog. Professor Otto Maas. *Arch. Entwickmeh. Leipzig* 42 1917 (508-515). 171
- Roux, W. [Review of] Hertwig, Das Werden der Organismen, eine Widerlegung von Darwins Zufalltheorie. *Arch. Entwickmeh.* 43 1917 (391-397). 172
- Saltus, J. S. Some of Shakespeare's animals. *New York* 1918 (79 pp.) 173
- Schaepfi, T. Ueber die Anheftungsweise und den Bau der Darmepithelzellen. *Arch. mikr. Anat. Bonn* 87 1 1915 (341-363) pl. vii. 174
- Schaxel, J. Die Leistungen der Zellen bei der Entwicklung der Metazoen. *Jena* 1915 (vii + 336) 49 Abb. [*Cf. A. Fischel Biol. Centralbl.* 35 1915 p. 574-577]. 175
- Schaxel, J. Namen und Wesen des harmonisch-äquipotentiellen Systems. *Biol. Centralbl.* 36 1916 (374-383). 176
- Schaxel, J. Mechanismus, Vitalismus und kritische Biologie. *Biol. Centralbl. Leipzig* 37 1917 (188-196). 177
- Schmidt, J. Report on the Danish oceanographical expeditions 1908-1910 to the Mediterranean and adjacent seas. Published under the superintendence of Joh. Schmidt. No. 4-5 (Vol. 2 *Biology A* 3-7, *D* 2, *K* 3). Copenhagen, Andr. Fred. Høst & Søn 1918 (238-262). 34½ × 27 cm. Price Kr. 22,50 + 27,00. 178
- Schmitz, H. et Bequaert, M. Contribution à l'étude de la faune cavernicole de la Belgique. *Ann Zool. malacol. Belgique* 48 1914 (67-84). 179
- Šecerov, S. Ueber einige Farbenwechselsfragen. 3. Ueber den Einfluss der Nahrungsmenge auf den Kontraktionszustand der Melanophoren. *Arch. Entwicklunsmeh. Leipzig* 40 1914 (98-103, pl. 2, 3). 180
- Seifeiz, W. Observations on the structure of protoplasm by aid of microdissection. *Biol. Bull. Woods Hole* 34 1918 (307-324). 181
- Sellards, E. H. Human remains and associated fossils from the pleistocene of Florida. *Rep. Florida Geol. Surv. Tallahassee* 8 1916 (121-160) pls. xv-xxxi. 182
- Sergi, G. Problemi di scienza contemporanea. Torino 1916 (320 pp.) [*Cf. Boule L'Anthropologie Paris* 29 1919 (105-107).] 183
- Seytre, A. B. Fauna valenciana (on resumon). *Barcelona* 1916 (1-132). 184
- Shelford, V. E. Physiological problems in the life-histories of animals with particular reference to their seasonal appearance. *Amer. Natural. New York* 52 1918 (129-154). 185
- Shimek, B. Early Iowa locality records. *Proc. Iowa Acad. Des Moines* 22 1915 (105-119). 186
- Slotopolsky, B. Die Begriffe der Cytometagenesis und der geschlechtlichen Fortpflanzung und ihre Anwendung in der Biologie. *Biol. Centralbl. Leipzig* 37 1917 (277-282). 187

- Spemann, H.** Zur Geschichte und Kritik des Begriffs der Homologie. Kultur Gegenwart Allg. Biol. 1915 (63-86). 188
- Spemann, H.** Theodor Boveri. Arch. Entwicklmech. Leipzig 42 1917 (243-260). 189
- Spillman, W. J.** A method of calculating the percentage of recessives from incomplete data. [With reference to inheritance of left-handedness by F. Ramaley.] Amer. Nat. New York 49 1915 (383-384). 190
- Stephenson, K.** Zoogeographical investigation of certain fjords in Southern Greenland, with special reference to Crustacea, Pycnogonida and Echinodermata. Including a list of Alcyonaria and Pisces. København, Medd. Grøn. 53 1917 (229-378) map 30 figs. 191
- Studnička, F. K.** Die Reduktion und die Regeneration des Cytoplasmas. Eine Theorie der Plasmogenese. Zeitschr. wiss. Zool. Leipzig 117 1918 (654-726). 192
- Szymanski, J. S.** Das Prinzip der kürzesten Bahn in der Lehre von der Handlung. Biol. Centralbl. Leipzig 37 1917 (282-287). 193
- Szymanski, J. S.** Das Prinzip der raumausfüllenden Rezeptionsfähigkeit. Biol. Centralbl. Leipzig 37 1917 (471-476). 194
- Thulin, I.** Ist die Grundmembran eine konstant vorkommende Bildung in den quer gestreiften Muskelfasern? Arch. mikr. Anat. Bonn 86 1915 (318-327) pl. vii. 195
- Torraca, L.** La rigenerazione delle cellule pigmentate cutanee. Arch. Entwicklmech. Leipzig 40 1914 (131-150) pl. 196
- Turner, C. H.** Recent literature on the behaviour of the higher invertebrates. Psych. Bull. Princeton N.J. 9 1912 (290-300). 197
- Unna, P. G.** Die Sauerstofforte und Reduktionsorte. Eine histochemische Studie. Arch. mikr. Anat. Bonn 87 1 1915 (96-150) pls. vii-xii. 198
- Ussing, Hj.** Gopler, Koraller, Pighude, Havsvampe og Sjøpunge fra Randers Fjord. The Coelenterata, Echinoderma, Porifera and Tunicata of the firth of Randers. København Randers Fjords Naturhistorie 1918 (295-312) 8 figs. 199
- Vries, H. de.** Van amoëbe tot mensch. [De l'amibe à l'homme.] Utrecht (A. Oosthoek) 1913 (18) 24 cm. 200
- Vries, H. de.** Intracellulaire pangeneses. Nederlandsche bewerking door F. H. van Hengelaar naar de Duitse en Amerikaanse uitgave onder toezicht van den auteur. [La pangénèse intracellulaire. Traduction Hollandaise par F. H. van Hengelaar d'après les éditions allemande et américaine sous la surveillance de l'auteur.] Amsterdam (Scheltema en Holkema) 1918 (71) 26 cm. 201
- Walker, E. M.** Bibliography of Canadian zoology (exclusive of entomology). Trans. R. Soc. Canada 10 1917 sect. 4 (201-215). 202
- Walton, C. L.** Some results of a survey of the agricultural zoology of the Aberystwyth area. Parasitology Cambridge 10 1918 (206-266). 203
- Walton, L. B.** Organic evolution and the significance of some new evidence bearing on the problem. Amer. Nat. New York 52 1918 (521-547). 204
- Ward, H. B. and Whipple, G. C.** [and others]. Fresh-water biology. New York 1918 (viii + 1111). 205
- Wasteneys, H.** *vide* Loeb and Wasteneys.
- Werber, E. I.** Experimental studies on the origin of monsters. ii. Regarding the morphogenesis of duplicities. J. Exper. Zool. Philadelphia 24 1917 (409-436) 4 pls. 206
- Werber, E. I.** Critical notes on the present status of the lens-problem. Biol. Bull. Woods Hole 34 1918 (219-249). 207
- Wesenberg-Lund, C.** Om Planktonolien og dens eventuelle Betydning i fedtstoffattige Tider. The plankton oil and its contingent importance in times poor in fats. København Natursv. Verden 2 1918 (9-19). 208
- Wesenberg-Lund, C.** Furesøens Bundfauna. The bottom-fauna of the Furesø, Sealand. København Vid. Selsk. Skr., Række 8 3 1 1918 (135 174) 2 figs. 209



Wesenberg-Lund, C. Furesøstudier. En bathymetrisk, botanisk, zoologisk Undersøgelse af Mølleaaens Søer. The lake Furesø in Northern Sealand. A bathymetrical, botanical and zoological study on the lakes of the Mølleaa system. With assistance of M. J. Sand, J. Boye Petersen, A. Seidelin-Raunkiaer and C. M. Steenberg. København Vid. Selsk. Skr. Raekke 8 3 1 1918 (pp. 208) 8 pls. 14 maps and 58 figs. 210

West, P. A. A method for imbedding small objects. Science, New York 41 1915 (898-899). 211

Whipple, G. C. *vide* Ward and Whipple.

Whittaker, E. J. *vide* Kindle and Whittaker.

With, C. and Dahl, S. Vore naturhistoriske Museer og Biblioteker. Forslag til et Centralinstitut. The museums and libraries of natural history in Copenhagen. A proposal of a central institution. København, J. L. Lybecker 1918 (40) 19½ × 13 cm. Price Kr. 0,75. 212

Wuorentaus, Y. v., Levander, K. M.

Bibliography. 0032

Walker, Canadian, 202.

Addresses, Essays. 0040

Chapman, 29; Hertwig, Darwin's theory, 72; Le Soeuf, Preservation of life, Australia, 104; Pearl, germ cell modification, 149, 150; Richardson, 160, 161; Studnička, Plasmas, 192; Vries, H. de, Pangénèse, 201.

Pedagogy. 0050

Saltus, extracts from Shakespeare, 173.

Economics, Museums, Institutions, 0060

Economics.

Babcock & Clausen, 10; Ferdinandsen, etc., 51; Pouillaude, 156; Walton, 203.

Institutions, Museums.

Mortensen, Scandinavian station in the tropics, 138; Perrier, 154; With & Dahl, The museums and libraries in Copenhagen, 212.

Nomenclature. 0070

Anon., rules, 6; Heikertinger, 66.

Technique, Methods. 0090

Bruno, Staining, 20; Chambers, minute dissection, 28; Markle, staining, 122; Neuville, preservatory fluids, 143; West, imbedding small objects, 211.

## II.—SUBJECT INDEX.

*The author's name and the number refer to Titles, where the full reference will be found.*

### HYPERZOOLOGY.

Philosophical. 0000

Spemann, homology, 188.

History, Biography. 0010

#### History.

Coe, 32; Jordan, 90; Kohlbrugge, Darwin, 97; Lubosch, St.-Hilaire and Cuvier, 117; Shimek, Iowa, 186.

#### Biography.

Carpenter, W. F. de V. Kane, 25; Giglio-Tos, Lorenzo Camerano, 55; Herdman, Sir John Murray, 69; Krogh, 102; Poisson, Humblot, 155; Roule, Lacépède, 169; Roux, A. Oppel, with bibliography, 170; Roux, O. Maas, with bibliography, 171; Spemann, Th. Boveri, with bibliography, 189.

MORPHOLOGY. 0207

Cytology *vide* Physiology.

General.

Seifriz, Protoplasm, 181.

External.

Rosenstadt, epidermis, 168; Schaeppi, epidermis, 174.

Myology.

Cameron, 24; Thulin, histology, 195.

Sense Organs.

Brammertz, retina, 19; Werber, lens, 207.

## PHYSIOLOGY. 0211

## General.

(Jordan, 90, 91, 92.

## Cytological.

Cameron, nucleus, 24; Chambers, cell aster, 27; Hance, somatic chromosomes, 62; Hartog, mitosis, 63; Levi, individuality, 110; Meves, plastosomes, 129, 130; Meyer, nucleolus, 131; Schaxel, 175.

## Sex.

Goldschmidt, 58, 59.

## Function.

Göthlin, nervous, 57; Hilton, nervous, 76; Hirsch, digestion, 77; Krogh, respiration, 101.

## Colour.

Kobelt, Colour and pattern, 96; Mottram & Green, 139; Roosevelt, 166; Secerov, 180.

## Environment.

Delphy, 40.

## Death.

Jacobs, thermal death point, 80.

## Chemical.

Moellendorff, 135, 136; Mühlmann, 140; Unna, 198.

## DEVELOPMENT. 0215

## General. Miscellaneous.

Aschner, Kampf der Teile, 8; Bohn, 15; Deegener, Monogony, the forms of asexual reproduction, 39; Driesch, 44, 45; Haecker, 61; Herlant, 71; Janet, 83; Keijbel, 94; Korschelt, asexual and sexual reproduction, 98; Meyer, prenatal growth, 132; Meyer, alternation of generations, 133; Rabl, 157; Rohde, 163, 164; Schaxel, 175, 176, 177; Slotopolsky, Cytometagenesis, 187.

## Spermatozoa.

Cohn, 33.

## Fertilization.

Fuchs, 53; Hertwig, 74; Loeb, heterogeneous, 115.

## Parthenogenesis.

Cutler, 38; Dewitz, 43; Herlant, artificial, 70.

## Embryology. Organogeny.

Aggazzotti, rarified air, 2; Conklin, polar bodies, 34; Engel, blood, 47; Reagan, auditory, 159; Torraca, cutaneous pigment cells, 196.

## ETHOLOGY. 0219

## General.

Buytendyk, Formation des habitudes, 23; Esterly, 48; Hertwig, Becher, Galls, 75; Mortensen, protective adaptations and habits, 187; Fears, Recent literature on the behaviour of the lower invertebrates, 152; Szymanski, 193, 194; Turner, Recent literature on the behaviour of the higher invertebrates, 197.

## Phenology.

Curtis, 36, 37; Herdman, Seasonal, 68; Shelford, 185.

## Migration, Flight.

Adams, 1; Demoli, 42.

## Food-habits.

Lipschütz, 113.

## Parasitism.

Blanc, 14; Johnston, 89; Neumann & Meyer, 142.

## Habitat.

Antipa, Rumania aquatic, 7; Jordan, La vie dans l'eau douce, 93; Schmitz & Bequaert, cave 179; Ward & Whipple, 205.

## Plankton (General).

Naumann, freshwater plankton, Neuston, 141; Wesenberg-Lund, 208.

**Psychology. Tropisms.**

Borja-Tarruis, 18; Buddenbrock, tropisms, 21; Craig, 35; Henning, mneme, etc., 87; Loeb, 114; Loeb & Wasteneys, heliotropism, 116; Mast, spectral colour, 123, 124, 125.

**AETIOLOGY. VARIATION. 0223****General.**

See Evolution, below.

**Variation.**

Babcock, 9.

**Teratology.**

Werber, duplicities, 206.

**Heredity.**

Babcock & Clausen, 10; Baltzer, 11; Goldschmidt, of sex, 58; Goldschmidt, 60; Haecker, 61; Hirschler, of acquired characters, 78; Jennings, 85; Johannsen, 86; Lillie, 111; Lippincott, 112; Meves, plastosomes, 129, 130; Pearl, inbreeding, 151; Spillmann, 190.

**Evolution. Origin of Species.**

Adams, 1; Babcock, 9; Bonarelli, descent of man, 17; Delphy, variations of faunae, 41; East, 46; Fantham, 50; Franz, antiquity, 52; Goldschmidt, 60; Heikertinger, 64; Hertwig, 72; Hertwig, polyphyletism, 73; Janet, 83; Larger, 103; Macfarlane, 120; Matthew, 127; Osborn, 144; Rosa, ologenesis, 167; Roux, Darwin, 172; Sergi, descent of man, 183; Vries, 200; Walton, 204.

**Phylogeny.**

Janet, 83.

**GEOGRAPHY. 0227****General.**

Bianchi, The zoogeographical divisions, 13; Heikertinger, geographical labelling, 65; Hofsten, Discontinuity, 79; Rosa, ologenesis, 167.

**Ocean.**

Clark, H., The circulation of the abyssal water of the oceans and its effect on the fauna, 31.

**Europe.***d*

Jeannel & Racovitza, Caverns, 84.

**Scandinavia, Denmark. da**

Johansen, firth of Randers, 87, 88; Ussing, 199; Wesenberg-Lund, C., 209, 210; Jarnefelt, Potamoplankton, Finland, 81; Jarnefelt, Tierleben in einem Brunnen, 82; Levander, Hafenplankton Helsingfors, 106; Levander, 107; Levander & Wuorentaus, Süßwasserplankton aus Finland, 108; Levander & Wuorentaus, Plankton in finländischen Binnenseen und Flüssen, 109; Lundblad, 118; Madsen, 121.

**Poland.***db*

Pax, 147, 148.

**Belgium, Holland. dd**

Romyn, 165; Schmitz & Bequaert, Belgium caves, 179.

**British Islands. de**

†Bolton, Lancashire coal measures, 16; Butterfield, Hastings, 22; Chumley, Glasgow, 30; Evans, Scotland, 49; Meek, Northumberland, 128; Ritchie, Scotland, 162.

**France.***df*

Beauchamp, 12; Cayeux, 26.

**Spain.***dg*

Seytre, 184.

**Italy.***dh*

Ghigi, 54.

**Switzerland.***di*

Göldi, 56.

**Rumania.***dl*

Antipa, 7.

**Mediterranean.***dm*

Razzauti, Isola Capraia, 158; Schmidt, Med. sea, 178.

**North Sea.***dp*

Paulsen, 146.

**Japan.***ec*

Matsumoto, 126.

India.	<i>ef</i>	Australia.	<i>i</i>
Annandale, 4, 5; Parshad, 145.		Johnston, 89; Le Souef, 104.	
Africa.	<i>f</i>	Arctic.	<i>k</i>
Michaelsen, 134.		Levander, Plankton im Weissen Meere, 105; Stephensen, Greenland, 191.	
North America.	<i>g</i>		
Anderson, arctic exp., 3; Kindle & Whittaker, Canada, 95; Walker, Canada, bibliography, 202; Sellards, Florida, 182.			
South America.	<i>h</i>	TAXONOMY.	0231
Lutz, Araujo & Filho, 119; Pearse, Columbia, 153.		Krausse, classifying by generic names,	99.

# II. PROTOZOA

ARRANGED BY

II. M. WOODCOCK, D.Sc.

## CONTENTS.

	PAGE
I. TITLES .. .. .	4
II. SUBJECT INDEX:—	
Comprehensive and General = 0403:—	
Addresses, Reviews.. .. .	13
Economics .. .. .	13
Applied Protozoology .. .. .	13
Protozoa and disease .. .. .	13
Amoebosis .. .. .	13
Gregarinosis .. .. .	13
Coccidiosis .. .. .	13
Malaria .. .. .	13
Piroplasmosis .. .. .	13
Sarcosporidiosis .. .. .	13
Rhinosporidiosis .. .. .	13
Trypanosomosis .. .. .	13
Leishmaniosis .. .. .	13
Flagellosis .. .. .	13
Balantidiosis .. .. .	13
Miscellaneous .. .. .	13
Experimental infection .. .. .	13
Cultivation .. .. .	13
Technique.. .. .	13
Structure = 0407:—	
General Anatomy, Morphology .. .. .	13
(a) of Sarcodina .. .. .	13
(b) of Sporozoa .. .. .	14
(c) of Mastigophora .. .. .	14
(d) of Ciliophora .. .. .	14

<b>Minute Structure; Special Anatomy:—</b>						
(a) Shell, envelope, etc. . . . .	..	..	..	..	..	14
(b) Organellae of locomotion . . . . .	..	..	..	..	..	14
(c) Nucleus and cytoplasm . . . . .	..	..	..	..	..	14
(d) Nuclear division-mechanisms . . . . .	..	..	..	..	..	14
<b>Physiology = 0411 :—</b>						
Nutrition, excretion. . . . .	..	..	..	..	..	14
Locomotion . . . . .	..	..	..	..	..	14
Depression-periods; recuperation . . . . .	..	..	..	..	..	14
Sexuality . . . . .	..	..	..	..	..	14
Vitality . . . . .	..	..	..	..	..	14
Immortality . . . . .	..	..	..	..	..	14
Environmental effects; response to stimuli . . . . .	..	..	..	..	..	14
Effects of reagents . . . . .	..	..	..	..	..	14
<b>Development and reproduction = 0415 :—</b>						
(a) Mycetozoa . . . . .	..	..	..	..	..	14
(b) Sarcodina . . . . .	..	..	..	..	..	14
(c) Sporozoa . . . . .	..	..	..	..	..	14
(d) Mastigophora . . . . .	..	..	..	..	..	14
(e) Ciliophora . . . . .	..	..	..	..	..	14
<b>Ethology = 0419 :—</b>						
Biology, habits . . . . .	..	..	..	..	..	15
Plankton . . . . .	..	..	..	..	..	15
Parasitism . . . . .	..	..	..	..	..	15
(a) Natural Transmission . . . . .	..	..	..	..	..	15
(b) Carriers . . . . .	..	..	..	..	..	15
(c) Hosts . . . . .	..	..	..	..	..	15
Protozoa . . . . .	..	..	..	..	..	15
Annelida . . . . .	..	..	..	..	..	15
Echinodermata . . . . .	..	..	..	..	..	15
Insecta . . . . .	..	..	..	..	..	15
Arachnida . . . . .	..	..	..	..	..	15
Mollusca . . . . .	..	..	..	..	..	15
Pisces . . . . .	..	..	..	..	..	15
Amphibia . . . . .	..	..	..	..	..	15
Reptilia . . . . .	..	..	..	..	..	15
Aves . . . . .	..	..	..	..	..	15
Mammalia . . . . .	..	..	..	..	..	15
Variation, Phylogeny = 0423. . . . .	..	..	..	..	..	15
<b>Distribution, Geography = 0427 :—</b>						
Geographical. . . . .	..	..	..	..	..	15
Europe . . . . .	..	..	..	..	..	15
Africa . . . . .	..	..	..	..	..	15
America . . . . .	..	..	..	..	..	15
Australasia . . . . .	..	..	..	..	..	15
Antarctic. . . . .	..	..	..	..	..	15

	PAGE
Geological :—	
General .. .. .	15
Tertiary .. .. .	15
Secondary .. .. .	16
III. SYSTEMATIC = 0431 :—	
1. Mycetozoa .. .. .	16
2. Sarcodina .. .. .	16
(a) Amoebaea .. .. .	16
(b) Foraminifera .. .. .	16
(c) Heliozoa .. .. .	18
(d) Radiolaria .. .. .	18
3. Sporozoa .. .. .	19
(a) Gregarinidea .. .. .	19
(b) Coccidiidea .. .. .	19
(c) Haemosporidia .. .. .	19
(d) Myxosporidia .. .. .	20
(e) Actinomyxidia (vacant)	
(f) Sarcosporidia .. .. .	20
(g) Haplosporidia .. .. .	20
Incertae sedis .. .. .	21
4. Mastigophora .. .. .	21
(a) Flagellata .. .. .	21
(b) Silicoflagellata (vacant)	
(c) Dinoflagellata .. .. .	22
(d) Rhynchoflagellata (vacant)	
5. Ciliophora .. .. .	22
(a) Ciliata .. .. .	22
(b) Suctoria .. .. .	22

## 1.—TITLES.

- Alexeieff, A. Sur un Flagellé coprozoïte *Alphamonas coprocola* n.g., n.sp. Arch. Zool. exp. Paris 57 1918 N. et R. (1-11). 1
- Anderson, A. G. *vide* Falconer, A. W.
- Appel, Leo and Heinrich, Hans v. Ueber das Wesen der Restkörper bei Malaria tropica. (Vorl. Mitth.). Centralbl. Bakt. Jena Abth. 1 81 Orig. 1918 (341-346) 2 pls. 2
- Aravantinos, A. et Michailidis, N. Un cas de cystite amibienne. Paris Bull. Soc. path. exot. 11 1918 (685-687). 3
- Bahr, P. H. On the transmission of the subtertian malarial parasite (*Plasmodium falciparum*, Welch 1897) by Egyptian *Anopheles*. London J.R.A.M.C. 30 1918 (606-608). 4
- Barnard, J. E. *vide* Heron-Allen, E.
- Bassett-Smith, P. W. A case of trypanosomiasis with other protozoal infections contracted in the Cameroons, and some observations on the relationship of *Filaria diurna* with Calabar swellings. J. trop. Med. London 21 1918 (93 and 94) 1 pl. 5
- Bayer *vide* Kuenen, W. A.
- Beauchamp, P. de. Notes faunistiques; quelques formes rares ou intéressantes de la région parisienne. Paris Bull. Soc. Zool. France 43 1918 (78-83). 6
- Behrens, C. A. and Travelbee, H. C. The Erdmann new culture-medium for Protozoa. Proc. Indiana Acad. Sci. 1917 (1918) (297-299). 7
- Bentham, T. *vide* Watson-Wemyss, H. L.
- Blanc Georges, *vide* Chatton, E.
- Boney, T. K., Crossman, L. G. and Boulenger, C. L. Report of a base laboratory in Mesopotamia for 1916, with special reference to water-borne diseases. London J.R.A.M.C. 30 1918 (409-423). 8
- Boulenger, C. L. *vide* Boney, T. K.
- Boyd, Mark. A note on the cultivation of *Trichomonas intestinalis*. J. Parasitol. Urbana 4 1918 (168-170). 9
- Brindley, H. H. Notes on certain parasites, food, and capture by birds of the common earwig (*Forficula auricularia*). Cambridge Proc. Phil. Soc. 19 1918 (167-177). 10
- Brown, James M. On *Pyxidicula invisitata*, a Rhizopod new to Britain, and *Hedriocystis spinifera*, a new Heliozoon. London J.R. Microsc. Soc. 1918 (170-172) 1 pl. 11
- Brug, S. L. The genus *Endoplasma*, Castellani 1914. J. trop. Med. London 21 1918 (114 and 115) 1 pl. 12
- Brug, S. L. Some critical remarks on "a Study of Entamoebic Cysts," by Capt. R. Knowles and Capt. A. F. Cole (Indian Journal of Medical Research, Vol. IV., 1917, page 498). Ind. J. Med. Res. Calcutta 5 1918 (491-496). 13
- Brug, S. L. Een paar nieuw ontdekte darmparasieten. [Ein Paar neu entdeckte Darmparasiten.] Batavia Geneesk. Tydschr. Ned. Ind. 57 1917 570-578) 2 Taf. 14
- Brug, S. L. De parasitaire Protozoën van den menschelyken darm. [Die parasitären Protozoen des menschlichen Darmes.] Batavia (Javasche Boekh. & Drukk) 1918 (1-72) 12 Taf. 15
- Brumpt, E. Protozoaires et Helminthes des selles aux armées. Paris. C.R. Soc. Biol. 81 1918 (1044-1052). 16
- Buhigas, Ramon S. La purga del mar ó hematomalasia. Madrid Mem. Soc. espan. hist. nat. 10 1918 (407-458) 5 pls. 17



- Cardamatis, Jean P. Mode d'action de la quinine sur les diverses formes d'Hématozoaires; traitement prophylactique et curatif le plus efficace du paludisme. - Paris Bull.-Soc. path. exot. 11 1918 (648-662). 18
- Cayeux, L. Introduction à l'étude pétrographique des roches sédimentaires. Mem. Carte Geol. dét. France 1916 (1-524). 19
- Chalmers, A. J. The classification of Trypanosomes. J. trop. Med. London 21 1918 (221-224). 20
- Chalmers, A. J. and Pekkola, Waino. *Entomonas hominis* and *Protetramitus testudinis*. J. trop. Med. 21 1918 (129-133) 1 pl. 21
- Chalmers, A. J. and Pekkola, W. *Chilomastix mesnili* (Wenyon, 1910). Ann. trop. Med. Parasitol. Liverpool 11 1918 (213-264) pls. vi and vii. 22
- Chapman, F. Report on the Foraminifera and Ostracoda from elevated deposits on the shores of the Ross Sea. Brit. Antarct. Exped. 1907-1909. Rep. Sci. Invest. Geology 2 1916 (1917) (25-52) 6 pls. 23
- Chapman, F. Report on the Foraminifera and Ostracoda out of marine muds from soundings in the Ross Sea. Brit. Antarct. Exped. 1907-1909. Rep. Sci. Invest. Geology 2 1916 (1917) (53-80) 6 pls. 24
- Chapman, F. Palaeontological Contributions to the Geology of Western Australia. Series VI. No. 11. Monograph of the Foraminifera and Ostracoda of the Gingin chalk. Perth Geol. Surv. W. Austral. Bull. 72 1917 (8-87) pls. i-xiv. 25
- Chatton, Edouard. Les caractères de l'amibiase intestinale du cobaye à *Entamoeba dysenteriae*; localisation caecale, absence de dysenterie, importantes réactions hyperplasiques. Paris Bull. Soc. path.-exot. 11 1918 (23-26). 26
- Chatton, Edouard. Mon dernier mot au sujet des enclaves kystiques des Entamibes. Paris Bull. Soc. path. exot. 11 1918 (66 and 67). 27
- Chatton, Edouard. Présence d'un Flagellé intestinal du genre *Trichomastix* dans le sang et les organes du Gecko, *Tarentola mauritanica*. Cultures sur gélose au sang N.N.N. Paris C.R. Soc. Biol. 81 1918 (343-346). 28
- Chatton, Edouard. Culture pure et indéfinie d'un Flagellé intestinal du genre *Trichomastix*, sur organes en autolyse aseptique. Paris C.R. Soc. Biol. 81 1918 (346-349). 29
- Chatton, Edouard. Principaux facteurs physiques qui conditionnent la culture pure des Flagellés intestinaux du genre *Trichomastix*. Paris C.R. Soc. Biol. 81 (714-717). 30
- Chatton, Edouard. La nutrition des Flagellés intestinaux du genre *Trichomastix*, en cultures pures. Simplifications rationnelles de la méthode de culture: les tissus coagulés. Paris C.R. Soc. Biol. 81 1918 (774-777). 31
- Chatton, Edouard and Blanc, Georges. Culture du Trypanosome du Gecko chez la punaise des lits. Paris Bull. Soc. path.-exot. 11 1918 (387-390). 32
- Chatton, Edouard et Blanc, Georges. Le *Leptomonas* de la Tarente dans une région indemne de Bouton d'Orient. Observations et expériences. Paris Bull. Soc. path. exot. 11 1918 (595-609). 33
- Checchia-Rispoli, G. L'Eocene ed il Miocene di Sciaccia. Roma. Rend. Acc. Lincei 27 i 1918 (252-255). 34
- Checchia-Rispoli, G. Su alcune rocce a Foraminiferi dell' Eocene medio della Capitanata. Roma Boll. Soc. Geol. ital. 35 1916 (1917) (235-238). 35
- Checchia-Rispoli, G. L'Eocene dei dintorni di Roseto Valfortore e considerazioni sulla sua fauna. Roma Boll. R. Comitato Geol. 46 1917 (155-282) 10 pls. 36
- Chelliah, S. *Rhinosporidium kinealyi*. J. trop. Med. London 21 1918 (247 and 248). 37
- Cleve-Euler, Astrid. Quantitative Plankton researches in the Skager-Rak. Stockholm K. Svenska Vet. Ak. Handl. 57 No. 7 1917 (1-130) many tables. 38
- Cognetti de Martiis, L. Nuove Grogarine monocistidee (nota prel.). Monit. Zool. ital. Firenze 29 1918 (147-149). 39

- Commes, Ch.** *Leucocytozoon* et Microfilaire d'un rapace diurne (*Astur badius* var. *sphenurus*). Paris Bull. Soc. path. exot. 11 1918 (31-34). 40
- Commes, C.** *Haemoproteus* d'oiseaux du Haut-Sénégal et Niger. Paris Bull. Soc. path. exot. 11 1918 (443-445). 41
- Connor, F. P. and Shortt, H. E.** *Leishmania tropica*-infections in Mesopotamia. Ind. J. Med. Res. Calcutta 6 1918 (162-173). 42
- Cornwall, J. W. and Menon, Kesava.** A contribution to the study of Kala-Azar. (IV). Ind. J. Med. Res. Calcutta 5 1918. (541-547). 43
- Cowan, John M. and Miller, Hugh.** Dysentery—a clinical study. London J.R.A.M.C. 31 1918 (217-228, 277-295). 44
- Cowdry, N. H.** The cytology of the Myxomyocytes, with special reference to mitochondria. Biol. Bull. Wood's Hole 35 1918 (71-94) 3 pls. 45
- Cragg, F. W. and Naidu, G. K.** A case of malaria showing atypical parasites. Ind. J. Med. Res. Calcutta 5 1918 (458-462) pls. xlv and xlv. 46
- Copper, J. W.** New counting chamber for the enumeration of Protozoa and other organisms. Lancet London 1918 i (337). 47
- Crossman, L. G. vide Boney, T. K.**
- Cunha, A. da.** Contribuição para o conhecimento da fauna de Protozoários do Brazil. Rio de Janeiro Mem. Inst. Oswaldo Cruz 10 1918 (192 and 193). Also in English translations T.c. (111 and 112). 48
- Cunha, A. da and Fonseca, O. da.** Sobre a *Entamoeba serpentis*. Rio de Janeiro Mem. Inst. Oswaldo Cruz 10 1918 (95-98), pl. xix. Also in English translations T.c. (75-77). 49
- Cunha, A. da and Fonseca, O. da.** O microplankton das costas meridionaes do Brazil. Rio de Janeiro Mem. Inst. Oswaldo Cruz 10 1918 (99-103). Also in English translations T.c. (78-82). 50
- Cunha, A. da vide Faria, G. de.**
- Cunningham, R. A. vide Rawnsley, G. T.**
- Cushman, J. A.** The smaller fossil Foraminifera of the Panama Canal zone. (Contributions to the Geology and Palaeontology of the Canal Zone, Panama, and geologically related areas in Central America and the West Indies.) Smithsonian Inst. U.S. Nat. Mus. Bull. 103 1918 (45-102) pls. xix-xlv. 51
- Cushman, J. A.** Some Pliocene and Miocene Foraminifera of the coastal plain of the United States. Washington U.S. Geol. Surv. Bull. 676 1918 (1-100) pls. i-xxxii. 52
- Davis, H. S.** Myxosporidia of the Beaufort region. A systematic and biologic study. Washington Bull. U.S. Bur. Fish. 35 1915-1916 (1918) (203-243) pls. xvi-xxiv. 53
- Delsman, H. C.** The egg-cleavage of *Volvox globator* and its relation to the movement of the adult form and to the cleavage-types of Metazoa. Amsterdam K. Akad. Wet. Proc. 21 Nos. 1 and 2 1918 (243-251). 54
- Dobell, C.** Examinations for amoebic dysentery-infections. Lancet London 1918 i (275-276). 55
- Dobell, Clifford.** Are *Entamoeba histolytica* and *Entamoeba ranarum* the same species? An experimental inquiry. Parasitol. Cambridge 10 1918 (294-310). 56
- Dobell, Clifford and Jepps, Margaret.** A study of the diverse races of *Entamoeba histolytica* distinguishable from one another by the dimensions of their cysts. Parasitol. Cambridge 10 1918 (320-351) pl. vi. 57
- Dobell, C. and Stevenson, A. C.** A note on the duration of infections with *Entamoeba histolytica*. London Trans. Soc. trop. Med. 11 1918 (168-175). 58
- Dobell, C. vide Jepps, M.**
- Doflein, F.** Die vegetative Fortpflanzung von *Amoeba proteus* Pall. Zool. Anz. Leipzig 49 1918 (257-268). 59
- Doflein, F.** Beiträge zur Kenntniss von Bau und Theilung der Protozoenkerne. Zool. Anz. Leipzig 49 1918 (289-306). 60
- Doflein, F.** Theilung und Tod der Einzelligen. Zool. Anz. Leipzig 49 1918 (306-308). 61
- Dons, Carl.** Neue marine Ciliaten und Suctorien. Tromsø Mus. Aarsh. 38-39 1915-1916 (1918) (75-100). 62

- Dons, Carl.** Heliozoen *Wagnerella borealis*. Tromsø Mus. Aarsh. 38-39 1915-1916 (1918) (101-116). 63
- Douvillé, H.** Les Foraminifères, sont-ils toujours unicellulaires? Paris C.R. Acad. Sci. 167 1918 (146-151). 64
- Douvillé, H.** Les couches à Orbitoides de l'Amérique du Nord. Paris C.R. Acad. Sci. 167 1918 (261-267). 65
- Duboscq, O.** *Selysina perforans* Dub. Description des stades connus du Sporozoaire de *Stolonica*, avec quelques remarques sur le pseudovitellus des statoblastes et sur les cellules géantes. Arch. Zool. exp. Paris 58 1918 (1-53) pl. i. 66
- Duthie, A. V.** African Myxomycetes. Cape Town Trans. R. Soc. S. Africa 6 1917 (297-310). 67
- Duthie, A. V.** South African Myxomycetes. S. Afr. Journ. Sci. Cape Town 14 1918 (456-460). 68
- Engel, C. S.** Beitrag zum Verhalten der Parasiten und der Blutzellen bei Malaria. Centralbl. Bakt. Jena Abth. I 81 Orig. 1918 (558-565). 69
- Enriques, Paolo.** Due mila cinquecento generazioni in un Infusorio, senza coniugazione nè partenogenesi, nè depressioni. Bologna Rend. Acc. Sci. N.S. 20 1916 (67-76). 70
- Enriques, Paolo.** La coniugazione e il differenziamento sessuale negli Infusori. VI. Condizioni che determinano la coniugazione ripetuta nel *Chilodon uncinatus*. Bologna Mem. Acc. Sci. ser. 7 3 1916 (15-20). 71
- Falconer, A. W. and Anderson, A. G.** Notes on the treatment of subtertian cerebral malaria with quinine and galyol. London J.R.A.M.C. 31 1918 (83-89). 72
- Fantham, H. B.** Parasitic Protozoa in relation to the war. S. Afr. Journ. Sci. Cape Town 14 1918 (297-311). 73
- Fantham, H. B.** Some parasitic Protozoa found in South African fishes and amphibians (abstract). S. Afr. Journ. Sci. Cape Town 15 1918 (337 and 338). 74
- Faria, Gomes de, Cunha, A. da & Fonseca, O. da.** Protozoarios paraziticos de *Polydora socialis*. Rio de Janeiro Mem. Inst. Oswaldo Cruz 10 1918 (17-19) pl. iii. Also in English translations T.c. (3 & 4). 75
- Flu, P.** Onderzoekingen over Protozoën uit den menschelyken darm. [The Protozoa in the human intestine.] Weltevreden, Meded. Genesck. lab. 6 1918 (164-187) 1 pl. (Dutch and English.) Batavia, Genesck. Tydschr. Ned. Ind. 58 1918 (85-112) 1 pl. (Dutch.) 75a
- Fonseca, O. da vide Faria, G. de, also Cunha, A. da.**
- Franca, Carlos.** Notes sur la biologie des Hémosporidies. La schizogonie des Hémo-grégaires. Paris Bull. Soc. path. exot. 11 1918 (171-173).
- Franca, Carlos.** Observations sur les Trichonymphides, Lisbonne Bull. Soc. port. Sci. Nat. 8 1918 (94-103) pl. ii. 77
- Franca, Carlos.** Quelques considérations sur la classification des Hématozoaires. Lisboa Journ. Sci. mat. fis. e nat. Ser. 3 1 1917 (221-229). 78
- Franca, Carlos.** Classificação dos Triconinfídios. Lisboa Journ. Sci. mat. fis. e nat. Ser. 3 1 1918 (293-298). 79
- Georgévitch, J.** Esquisses protistologiques. III. Sur *Chloromyxum leydigi*. Paris Bull. Soc. Zool. Franco 42 1918 (182-189). 80
- Georgévitch, J.** Esquisses protistologiques. Monaco Bull. Inst. Ocean. No. 328 1917 (1-12). [Vide Zool. Rec. 1917 Protozoa (96)]. 81
- Ghosh, E.** Studies on Infusoria. Calcutta Rec. Ind. Mus. 15 1918 (129-134). 82
- Gillies, C. D.** The components per month of the Rhizopodan Fauna of a Brisbane Lagoon. Brisbane Proc. R. Soc. Queensland 30 1918 (79-83). 83
- Goodey, T.** A successful method of obtaining Amœbae for class-purposes. Nature London 101 1918 (405). 84
- Graham, Duncan.** Some points in the diagnosis and treatment of dysentery occurring in the British Salonica Force. Lancet London 1918 i (51-55). 85
- Graybill, H. W. vide Smith, T.**

- Gros, H.** L'unité des Protozoaires du paludisme. Paris Bull. Soc. path. exot. 11 1918 (624-641). 86
- Haeberli, Adolf.** Biologische Untersuchungen im Löhrmoos. Ein Beitrag zur Kenntniss der schweizerischen Moorfauna. Rev. Suisse Zool. Genève 26 1918 (147-231). 87
- Heinrich, H. von** *vide* Appel, L.
- Heron-Allen, E., & Barnard, J. E.** Demonstration on the application of X-rays to the determination of the interior structure of microscopic fossils, particularly with reference to the dimorphism of the Nummulites. Geol. Mag. London Dec. 6 5 1918 (90-92). Also in Abstr. Proc. Geol. Soc. 1013 1918 (10-12). 88
- Hesse, Edmond.** *Caulleryella anophelis* n.sp., Schizogregarine parasite des larves d' *Anopheles bifurcatus* L. Paris C.R. Acad. Sci. 166 1918 (569-572.) 89
- Hirst, L. F.** *vide* Thomson, J. G.
- Hornell, James.** A new Protozoan cause of widespread mortality among marine fishes. Madras Fisheries Dept. Bull. No. 11 Rep. No. 2 1917 (1918) (53-66). Also in Calcutta J. Proc. As. Soc. N.S. 13 1917 (elxxxii & elxxxiii). 90
- Ikeda, I. and Ozaki, Y.** Note on a new *Boveria*-species, *Boveria labialis* n.sp. Tokyo J. Coll. sci. 40 1918 Art. 6 (1-25). 91
- Jepps, Margaret and Dobell, Clifford.** *Dientamoeba fragilis* n.g., n.sp., a new intestinal Amoeba from Man. Parasitol. Cambridge 10 1918 (352-367) pl. vii. 92
- Jepps, Margaret** *vide* Dobell, C.
- Jonesco-Mihaiesti, C.** Nouvelle formule d'une solution panchromatique pour la coloration du sang et des Protozoaires. Paris C.R. Soc. Biol. 81 1918 (1088-1090). 93
- Jonesco-Mihaiesti, C.** Technique de la coloration du sang et des Protozoaires par le mélange panchromatique de bleu éosine. Paris C.R. Soc. Biol. 81 1918 (1090-1092). 94
- Jorgensen, Olga.** Occurrence of *Amphidinium operculatum* at Cullercoats. Cullercoats Rep. Dove Mar. Lab. N.S. 7 1918 (57-59). 95
- Kamm, Minnie Watson.** New Gregarines from Coleoptera. J. Parasitol. Urbana 4 1918 (159-163). 96
- Kamm, Minnie Watson.** The development of Gregarines and their relation to the host-tissues: (II) in *Cephaloidophora delphinia* (Watson) J. Parasitol. Urbana 5 1918 (35-40) pl. iv. 97
- Kanda, Sakyō.** Further studies on the geotropism of *Paramœcium caudatum*. Biol. Bull. Woods Hole 34 1918 (108-119). 98
- Keilin, D.** On the occurrence of a Cephaline Gregarine, *Leidyana tinei* n.sp., in Lepidopterous larvae. Parasitol. (Cambridge 10 1918 (406-410) pl. ix. 99
- Kennedy, J. C.** Six cases of Kala-Azar. (1) Their treatment with intravenous injections of tartar emetic; (2) notes on the epidemiology. London J.R.A.M.C. 30 1918 (209-215). 100
- Kerr, J. Graham.** Supplies of *Amoeba proteus* for laboratories. Nature London 102 1918 (166). 101
- Knowles, R.** Notes on some results in Kala-Azar. Ind. J. Med. Res. 5 1918 (548-566). 102
- Kudo, Rokusaburo.** Experiments on the extrusion of polar filaments of Cnidosporidian spores. J. Parasitol. Urbana 4 1918 (141-147) 1 pl. 103
- Kudo, Rokusaburo.** Contributions to the study of parasitic Protozoa IV. Note on some Myxosporidia from certain fish in the vicinity of Woods Hole. J Parasitol. Urbana 5 1918 (11-16) pls. i & ii. 104
- Kuenen, W. A.** Mededeelingen omtrent de protozoen uit den menschelyken darm on hun opsporing (ook namens Dr. Bayer). [Mitteilungen über die Protozoen des menschlichen Darmes und das Auffinden derselben: (auch im Namen Dr. Bayers)]. Ned. Tydschr. Geneesk. Amsterdam 62 2 1918 (114-126). 105
- Kuenen, W. A., en Swellengrebel, N. H.** Korte beschrijving van enkele minder bekende Protozoën uit den menschelyken darm. [Kurze Beschreibung einiger weniger bekannten Protozoen aus dem menschlichen Darm.] Batavia Geneesk. Tydschr. Ned. Ind. 57 1917 (496-506). 106

- Lagriffoul, A. and Picard, F.** Mode d'action du climat sur la répartition géographique du paludisme. Paris Bull. Soc. path. exot. 11 1918 (73-77) : Discussion, T.c. (77-80). 107
- Lanfranchi, Alessandro.** Sul possibile passaggio dei Tripanosomi nel latte. Roma Rend. Acc. Lincei 27 i 1918 (62-67). 108
- Langenberg, A.** Un cas de balantidiose autochtone. Son traitement. Paris Bull. Soc. path. exot. 11 1918 (558 & 559). 109
- Lapparent, Jacques de.** Étude lithologique des terrains Crétacés de la région d'Hendaye. Mém. Carte Géol. dét. France 1918 (1-158) 10 pls. 110
- Laveran, A.** Boutons d'Orient expérimentaux chez un *Cercopithecus mona*; multiplication des boutons primaires par auto-inoculations. Le *C. mona* et un mangabey, morts au cours d'infections cutanées, ne présentent pas trace d'infection viscérale. Paris Bull. Soc. path. exot. 11 1918 (130-136) pls. iii & iv. 111
- Laveran, A.** Sur les leishmanioses expérimentales, et en particulier sur la leishmaniose canine, chez la souris blanche. Paris Bull. Soc. path. exot. 11 1918 (205-216). 112
- Laveran, A.** Infections du loir par *Leishmania tropica* et par l'agent de la leishmaniose naturelle du chien. Paris Bull. Soc. path. exot. 11 1918 (445-448). 113
- Laveran, A.** Boutons d'Orient expérimentaux chez un Chimpanzé. Paris Bull. Soc. path. exot. 11 1918 (561-562). 114
- Lawson, Mary.** Aestivo-autumnal malaria. The extraocular relation of the crescentic bodies to the red corpuscle and their method of securing attachment. J. exp. med. New York 27 1918 (739-748). pls. xxxiii-xxxv. 115
- Lawson, Mary.** Aestivo-autumnal parasites. Multiple infection of red corpuscles and the various hypotheses concerning it. J. exp. med. New York 27 1918 (749-761) pls. xxxvi-xxxix. 116
- Léger, M.** Infection sanguine par *Leptomonas* chez un Saurien. Paris C.R. Soc. Biol. 81 1918 (772-774). 117
- Léger, Marcel.** Documents hématologiques relatifs au paludisme à la Guyane française. Paris Bull. Soc. path. exot. 11 1918 (67-73). 118
- Léger, Marcel.** Parasites sanguicoles d'oiseaux de la Guyane. Paris Bull. Soc. path. exot. 11 1918 (124-130). 119
- Léger, Marcel.** Epizootie chez le cobaye paraissant due à une amibiase intestinale. Paris Bull. Soc. path. exot. 11 1918 (163-166). 120
- Léger, Marcel.** Flagellés intestinaux de l'homme à la Guyane. Paris Bull. Soc. path. exot. 11 1918 (368-372). 121
- Léger, Marcel.** Hémogrégarine de *Bufo marinus* L. Paris Bull. Soc. path. exot. 11 1918 (687-690). 122
- Léger, Marcel.** Hémogrégarines de crapauds à la Guyane française. Paris Bull. Soc. path. exot. 11 1918 (788-791). 123
- Léger, Marcel.** Paludisme congénital; un cas d'infection sanguine du foetus par *Plasmodium vivax*. Paris Bull. Soc. path. exot. 11 1918 (841-845). 124
- Léger, M. et Porry, E.** Trypanosomes nouveaux de deux singes de la Guyane française. Paris C.R. Soc. Biol. 81 1918 (180-183). 125
- Legras, Suzannec.** Sur des formes hémogrégariniennes vues dans le sang et dans le tissu ganglionnaire des Bovidés d'Algérie. Paris Bull. Soc. path. exot. 11 1918 (274-278). 126
- Leiper, R. T.** The "new" rabbit disease. London Proc. Zool. Soc. 1918 ii (308). 127
- Lillie, D. G.** *vide* Shephard, S.
- Lund, Barbara.** The toxic action of KCN and its relation to the state of nutrition and age of the cell, as shown by *Paramæcium* and *Didinium*. Biol. Bull. Woods Hole 35 1918 (211-231). 128
- Lyon, E. P.** Note on the geotropism of *Paramæcium*. Biol. Bull. Woods Hole 34 1918 (120). 129
- MacAdam, William.** *Entamoeba histolytica*-infections: their prevalence among British troops in India and Mesopotamia, with special reference to the question of "clearing." Lancet London 1918 i (15-19). 130

- MacAdam, W.** Examinations for amoebic dysentery-infections. *Lancet* London 1918 ii (724). 131
- Mackinnon, D. L.** Notes on the intestinal Protozoal infections of 1,680 men examined at the University Hospital, Southampton. *Lancet* London 1918 ii (386-389). 132
- Marchoux, E.** Influence du milieu extérieur sur la résistance de l'organisme au paludisme. *Paris Bull. Soc. path. exot.* 11 1918 (1-3). 133
- Marchoux, E.** L'amibe dysenterique est elle bien la cause de la dysenterie ? *Paris Bull. Soc. path. exot.* 11 1918 (837-839). 134
- Martin, K.** On the Miocene Fauna of the West-Progo Mountains in Java. *Amsterdam K. Akad. Wet. Proc.* 20 No. 6 1918 (800-804). 135
- Martin, K.** Die altmiocäne Fauna des West-Progogebirges auf Java. B. Scaphopoda, Lamellibranchiata, Rhizopoda u. allgemeiner Theil. *Leiden Samml. Geol. R. Mus. N.F.* 2 H. 7 1917 (262-296) pls. iv & v. 136
- Mathis, C.** Sur le danger des infections intestinales à Protozoaires aux armées. *Paris C.R. Soc. Biol.* 81 1918 (1041-1043). 137
- Mathis, C.** *vide* Mercier, L.
- Mathews, J. R.** Observations on the cysts of the common intestinal Protozoa of Man. *Ann. Trop. Med. Parasitol.* Liverpool 12 1918 (17-26) pl. i. 138
- Mercier, L.** and **Mathis, C.** Kystes gamogoniques et schizogoniques chez *Entamoeba ranarum*. *Paris Bull. Soc. path. exot.* 11 1918 (47-54). 139
- Meylan, Ch.** Myxomycètes nouveaux. *Lausanne Bull. Soc. Vaud. Sei. Nat.* 52 No. 194 1918 (95-97). 140
- Michailidis, N.** *vide* Aravantinos, A.
- Miller, Hugh,** *vide* Cowan, J. M.
- Monard, A.** Sur la faune profonde du Lac de Neuchâtel. Description de quelques nouvelles espèces. *Rev. Suisse Zool. Genève* 26 1918 (341-359). 141
- Müller, Robert.** Der Eichener See. *Biologisches von Tanyrastix lacunae* Guérin. *Rev. Suisse Zool. Genève* 26 1918 (361-408). 142
- Naidu, G. K.** *vide* Cragg, F. W.
- Newton, R. B.** Foraminiferal and Nullipore structures in some Tertiary Limestones from New Guinea. *Geol. Mag. London* Dec. 6 5 1918 (203-212) pls. viii & ix. 143
- Nieuwenhuys, P.** Sur *Lymphocystis johnstonei*. *Haarlem Arch. Néerl. de Physiol. Sér. IIIe* 2 1918 (552-555) 3 fig. 144
- Oppenoorth, W. F.** Foraminiferen van de Noordkust van Atjeh. 's-Gravenhage Verh. Geol.-Mijn. Gen. Ned. en Kol. Geol. Ser. Deel 2 1918 (249-258) pls. viii & ix. 145
- Ozaki, Y.** *vide* Ikeda, I.
- Paillot, A.** Deux Microsporidies nouvelles parasites des chenilles de *Pieris brassicae*. *Paris C.R. Soc. Biol.* 81 1918 (66-68). 146
- Paillot, A.** *Perezia legeri* nov. sp., Microsporidie nouvelle, parasite des chenilles de *Pieris brassicae*. *Paris C.R. Soc. Biol.* 81 1918 (187-189). 147
- Pekkola, Waino,** *vide* Chalmers, A. J.
- Penard, E.** A new type of Infusorian *Arachnidiopsis paradoxa*. *London J. R. Microsc. Soc.* 1918 (283-289) 1 pl. 148
- Penard, E.** Sur un Tentaculifère peu connu, *Podophrya soliformis* (Lauterborn). *Rev. Suisse Zool. Genève* 26 1918 (1-16). 149
- Picard, F.** *vide* Lagriffoul, A.
- Pinto, C. F.** Contribuição para o conhecimento dos Ciliados parasitos. Rio de Janeiro Mem. Inst. Oswaldo Cruz 10 1918 (194-199) pl. lxxvi. Also in English translations T.c. (113-117). 150
- Porry, E.** *vide* Léger, M.
- Porter, Annie.** Leucocytogregarines, and their occurrence in South Africa (abstract). *South African Journ. Sci.* Cape Town 15 1918 (335 & 336). 151
- Prashad, B.** *vide* Southwell.
- Rawnsley, G. T., Cunningham, R. A.** and **Warnock, J.** The prophylaxis of malaria. *London J.R.A.M.C.* 31 1918 (60-75 272-276). 152
- Rogers, Leonard.** Twenty Years' Research on Kala-Azar. [Annual Address 1917.] *Calcutta J. Proc. Asiat. Soc. N.S.* 13 1917 (xx-xxix). 153

- Roubaud, E.** Disparition du pouvoir infectant chez l'Anophèle paludéen, au cours de l'hibernation. Paris C.R. Acad. Sci. **166** 1918 (264-266). 154
- Roubaud, E.** Recherches sur la transmission du paludisme par les Anophèles français de régions non palustres (Yonne et région parisienne). Paris Ann. Inst. Pasteur **32** 1918 (430-462). 155
- Roubaud, E.** Le rôle des mouches dans la dispersion des Amibes dysentériques et autres Protozoaires intestinaux. Paris Bull. Soc. path. exot. **11** 1918 (166-171). 156
- Rousseau, L.** Maladies parasitaires à Douala (Cameroun). Paris Bull. Soc. path. exot. **11** 1918 (744-759). 157
- Sanderson, A. R.** Mycetozoa of the Austwick District. Naturalist London **1918** (62-65). 158
- Scott, John W.** Notes and experiments on *Sarcocystis tenella* Railliet. II Seasonal infection. J. Parasitol. Urbana **5** 1918 (45-60). 159
- Sergent, Edmond and Sergent, Etienne.** Disparition de la virulence du *Plasmodium relictum* chez le moustique après plusieurs mois d'hibernation. Paris Bull. Soc. path. exot. **11** 1918 (281). 160
- Sergent, Edmond, and Sergent, Et.** Sur le paludisme des oiseaux dû au *Plasmodium relictum* (vel *Prôteosoma*). Paris Ann. Inst. Pasteur **32** 1918 (382-388). 161
- Sergent, Etienne.** Une Hémogrégarine de *Vipera lebetina* L. d'Algérie. Début de l'évolution de cette Hémogrégarine chez un Acarien. Paris Bull. Soc. path. exot. **11** 1918 (278-280). 162
- Shearman, C. H.** *vide* Willmore, J. G.
- Shephard, J., Searle, J. and Stickland, J.** One year's collecting micro-fauna, Botanic Gardens lake, Melbourne. Victorian Nat. Melbourne **35** 1918 (79-84). 163
- Shepherd, S., and Lillie, D. G.** Persistent carriers of *Entamoeba histolytica*; treatment with "chaparro amargosa" and simaruba. Lancet London **1918** (501 & 502). 164
- Shimura, Sohei.** A new non-pathogenic tetragenous Amoeba. I. J. exp. Med. New York **28** 1918 (415-428) pls. xlv & xlv. 165
- Shortt, H. E.** Note on Romanowsky-staining. Ind. J. Med. Res. Calcutta **6** 1918 (124-126). 166
- Shortt, H. E.** *vide* Connor, F. P.
- Sidebottom, Henry.** Report on the Recent Foraminifera dredged off the East Coast of Australia. H.M.S. "Dart" Station 19 (14th May, 1895), Lat. 29° 22' S., Long. 153° 51' E., 465 fathoms. Pteropod ooze. London J. R. Microsc Soc. **1918** (1-25 122-152 249-264) 6 pls. 167
- Skupienski, F. X.** Sur la sexualité chez les champignons Myxomycètes. Paris C.R. Acad. Sci. **167** 1918 (31-33). 168
- Skupienski, F. X.** Sur la sexualité chez une espèce de Myxomycète Acrasiée *Dictyostelium mucoroides*. Paris C.R. Acad. Sci. **167** 1918 (960-962). 169
- Smith, A. Malins.** Measurements of and observations upon the cysts of *Entamoeba histolytica* and of *Entamoeba coli*. Ann. trop. Med. Parasitol. Liverpool **12** 1918 (27-69). 170
- Smith, Theobald and Graybill, H. W.** Coccidiosis in young calves. J. exp. Med. New York **28** 1918 (89-108) pls. i-iii. 171
- Southwell, T. and Prashad, Bainsi.** Notes from the Bengal Fisheries Laboratory. No. 5. Parasites of Indian fishes. Calcutta Rec. Ind. Mus. **15** 1918 (341-355) pls. x-xiv. 172
- Stach, Z.** Neue Methode zur Färbung der Malariaparasiten. Centralbl. Bakt. Jena Abth. I **81** Orig. 1918 (476 and 477). 173
- Stempel, W.** Ueber *Leptotheca coris* n.sp. und *Nosema marionis* Thél. Münster i/W. Mitth. Zool. Inst. Univ. **1** 1918 (1-6). 174
- Stevenson, A. C.** The presence of Trypanosomes in brain-substance. J. trop. Med. London **21** 1918 (17) 1 pl. 175
- Stevenson, A. C.** *vide* Dobell, C.

- Swellengrebel, N. H. en Mangkoe Winoto, M. Amoeben van het „*limax-type*“ uit den menschelyken darm. [Amöben vom „*limax*-Typus“ im menschlichen Darne.] Tydschrift verg. genoeskunde, Leiden 2 1917 (175-179) 1 Taf. [*Vide Zool. Rec.* 1917 *Protozoa* (254).] 176
- Swellengrebel, N. H. *vide* Kuenen, W. A.
- Thomson, J. G. and Hirst, L. F. Reports from the pathological Laboratories of No. — General Hospital, Alexandria. III-V. *Lancet* London 1918 ii (448-451). 177
- Trégouboff, G. Étude monographique de *Gonospora testiculi* Trég. Grégarine parasite du testicule de *Cerithium vulgatum* Brug. *Arch. Zool. exp.* Paris 57 1918 (471-509) pls. vi-viii. 178
- Tribondeau, L. Two new French methods for staining blood-films and blood-parasites. *Lancet* London 1918 ii (142 & 143). 179
- Tribondeau, L. Préparation facile et rapide d'un colorant genre Giemsa. *Paris C.R. Soc. Biol.* 81 1918 (594-597). 180
- Tribondeau, L. Coloration du sang à l'aide de deux colorants de préparation rapide et facile, genre May-Grünwald et genre Giemsa. *Paris C.R. Soc. Biol.* 81 1918 (639 & 640). 181
- Tribondeau, L. Coloration du sang à l'aide d'un colorant de préparation rapide et facile, genre biéosinate. *Paris C.R. Soc. Biol.* 81 1918 (641 & 642). 182
- Tribondeau, L. Sur la recherche de l'Hématozoaire de Laveran. *Paris Bull. Soc. path. exot.* 11 1918 (196-205). 183
- Tribondeau, L. Sur la coloration de l'Hématozoaire de Laveran. *Paris Bull. Soc. path. exot.* 11 1918 (440-443). 184
- Vonwiller, P. Neue Ergebnisse der Mitochondrienforschung bei den niedersten Thieren. Zürich Verh. Schweiz. natf. Ges. 1917 (1918) (267 & 268). 185
- Vryburg, A. Babesiose en babesia-parasieten in Nederland. [Babesiosis and Babesiaparasiten in den Niederländern.] Tydschr. Diergen. Utrecht 45 1918 (535-549, 564-578) 4 pls. 185a
- Wallengren, Hans. Biologisch-faunistische Untersuchungen aus dem Öresund. IV. Die Infusoriengattungen *Lembus* Cohn und *Plagiopylla* Stein. *Lund Univ. Arsskr. N.F. Avd.* 2 14 No. 30 [=Fysiogr. Sillok. Handl. N.F. 29 No. 30] 1918 (25) 1 pl. 186
- Warnock, J. *vide* Rawnsley, G. T.
- Watson-Wemyss, H. L. and Benthams, T. Protozoological affections of the intestine: the treatment of the amoebic carrier. *Lancet* London 1918 i (403-404). 187
- West, G. S. A further contribution to our knowledge of the two African species of *Volvox*. *London J. Quek. Microsc. Cl. Ser.* 2 13 1918 (425-428) pls. xxix & xxx. 188
- Willmore, J. G. and Shearman, C. H. On the differential diagnosis of the dysenteries. *Lancet* London 1918 ii (200-206). 189
- Winoto, M. *vide* Swellengrebel, N. H.
- Woodcock, H. M. Note on the epidemiology of dysentery. *London J.R.A.M.C.* 30 1918 (110 & 111). 190
- Woodcock, H. M. The "thick drop" method for the detection of scanty Spirochaetes in the blood. *Brit. Med. J.* London 1918 i (589). 191
- Woodcock, H. M. Note on the epidemiology of amoebic dysentery. *Brit. Med. J.* London 1918 ii (710 & 711). 192
- Wright, E. T. A case of blackwater fever with *Prowazekia* in the urine. *J. trop. Med.* London 21 1918 (113 & 114). 193
- Yabé, Hisakatsu. Notes on *Operculina*-rocks from Japan, with remarks on "*Nummulites*" *cumingi* Carpenter. *Sandai Sci. Rep. Imp. Univ. Japan* 4 1918 (105-126) pl. xvii. 194
- Yabe, H. Notes on a *Carpenteria*-limestone from B. N. Borneo. *Sandai Sci. Rep. Imp. Univ. Japan* 5 1918 (15-34) pls. iii-v. 195
- Yakimoff, W. L. and others. Trypanosomiasis of camels in Russian Turkestan. *Parasitol. Cambridge* 11 1918 (35-80) pls. iii-v. 196
- Yendo, Kichisaburo. Rikushoku no yakochu ni tsuite. [On green-coloured *Noctiluca*.] *Dobuts. Z. Tokyo* 30 1918 (31-33). 197



Yorke, Warrington. The presence of *Entamoeba histolytica* and *E. coli*-cysts in people who have not been out of England. London Trans. Soc. Trop. Med. 11 1918 (291-294). 198

Yoshida, Kazuyoshi. The encystment of dysentery-Amoebae in vitro. J. exp. Med. New York 28 1918 (387-413) pls. xxx-xliii. 199

Young, R. T. The relation of rhythms and endomixis, their periodicity and synchronism in *Paramoecium aurelia*. Biol. Bull. Woods Hole 35 1918 (38-47). 200

Yuill, J. L. A method of staining blood-films. London J.R.A.M.C. 30 1918 (227 & 228). 201

(e) *Piroplasmosis*.

Vryburg, 185a.

(f) *Sarcosporidiosis*.

Scott, 159.

(g) *Rhinosporidiosis*.

Chelliah, 37.

(h) *Trypanosomosis*.

Bassett-Smith, 5; Rousseau, 157; Stevenson, 175; Yakimoff and others, 196.

(i) *Leishmaniosis*.

Knowles, 102.

(j) *Flagellosis*.

Flagellate diarrhoea: Boney, Crossman and Boulenger, 8; Cowan and Miller, 44.

Flagellates in urine: Wright, 193.

(k) *Balantidiosis*.

Lanzenberg, 109.

#### Miscellaneous.

[Transmission—*vide* ETHOLOGY.]

*Experimental infection, etc.*

Chatton, 26; Laveran, 111-114; Yakimoff and others, 196.

*Cultivation.*

Boyd, 9; Chatton, 28-31; Chatton and Blanc, 32 and 33; Connor and Shortt, 42; Cornwall and Menon, 43; Yoshida, 199.

*Technique.*

Behrens and Travelbee, 7; Connor and Shortt, 42; Cropper, 47; Goodey, 84; Jonesco-Mihaesti, 93 and 94; Shortt, 166; Stack, 173; Tribondeau, 179-184; Woodcock, 191; Yuill, 201.

## II.—SUBJECT INDEX.

### COMPREHENSIVE AND GENERAL.

0403

#### Addresses, Reviews.

Brug, 15; Fantham, 73; Rogers, 153.

#### Economics.

##### APPLIED PROTOZOLOGY.

Contamination of water: Hornell, 90.

##### PROTOZOA IN RELATION TO DISEASE.

(a) *Amoebosis*. (See also under "Carriers," 0419.)

Human, intestinal: Boney, Crossman and Boulenger, 8; Cowan and Miller, 44; Graham, 85; Marchoux, 134; Rousseau, 157; Thomson and Hirst, 177; Willmore and Shearman, 189.

Human, urinary: Aravantinos and Michailidis, 3.

Animal: Chatton, 26; Léger, 120.

(b) *Gregarinosis*.

Kamm, 97

(c) *Coccidiosis*.

Leiper, 127; Smith and Graybill, 171.

(d) *Malaria*.

Engel, 69; Lawson, 115; Léger, 118; Sergent and Sergent, 161.

### STRUCTURE. 0407

#### Morphology and general Anatomy.

(a) of SARODINA.

Brown, 11; Dons, 63; Jepps and Dobell, 92.

(b) of SPOROZOA.

Cragg and Naidu, 46.

(c) of MASTIGOPHORA.

Alexeieff, 1; Chalmers and Pekkola, 21 and 22; Chatton and Blanc, 33; Franca, 77; Yakimoff and others, 196.

(d) of CILIOPHORA.

Penard, 148 and 149; Wallengren, 186.

Minute Structure; special Anatomy.

(a) *Shell, envelope.*

Cayeux, 19; Lapparent, 110.

(b) *Organellae of locomotion.*

Penard, 148.

(c) *Nucleus and cytoplasm.*

Chatton, 27; Cowdry, 45; Cunha and Fonseca, 49; Doflein, 60; Douvillé, 64 and 65; Vonwiller, 185.

(d) *Nuclear division and division-mechanisms.*

Doflein, 60; Ikeda and Ozaki, 91; Pinto, 150.

## PHYSIOLOGY. 0411

Nutrition, Excretion.

Chatton, 30; Lund, 128.

Locomotion.

Davis, 53.

Depression; Recuperation.

Enriques, 70 and 71; Young, 200.

Sexuality.

Skupienski, 168 and 169.

Vitality.

Roubaud, 154; Sergent and Sergent, 160.

Immortality.

Doflein, 61.

Environmental effects; Response to stimuli.

Chatton, 30 and 31; Enriques, 71; Kanda, 98; Kudo, 103; Lagriffoul and Picard, 107; Lyon, 129; Léger, 118; Marchoux, 133; Rawnsley, Cunningham and Warnock, 152; Roubaud, 155.

Effects of Reagents, Medicaments, etc.

Cardamatis, 18; Falconer and Anderson, 72; Kennedy, 100; Lanzenberg, 109; Lund, 128; Shephard and Lillie, 164; Watson-Wemyss and Bentham, 187.

## REPRODUCTION AND LIFE-CYCLE. 0415

(a) MYCETOZOA.

Skupienski, 168 and 169.

(b) SARCODINA.

*Amoebae.*

Brumpt, 16; Doflein, 59; Mercier & Mathis, 139; Shimura, 165; Smith, 170; Yoshida, 199.

*Heliozoa.*

Dons, 63.

(c) SPOROZOA.

*Gregarines.*

Hesse, 89; Kamm, 97; Keilin, 99; Trégouboff, 178.

*Coccidia.*

Duboscq, 66; Smith &amp; Graybill, 171.

*Haemosporidia.*

Appel & Heinrich, 2; Roubaud, 155; Sergent, 162.

*Myxosporidia.*

Georgévitch, 80; Kudo, 104; Paillot, 146 & 147; Southwell & Prashad, 172; Stempell, 174.

(d) MASTIGOPHORA.

*Flagellates.*

Alexeieff, 1; Delsman, 54; Doflein, 60.

(e) CILIOPHORA.

*Ciliates.*

Enriques, 70 & 71; Ikeda & Ozaki, 91; Penard, 148; Wallengren, 186; Young, 200.

## ETHOLOGY. 0419

**Bionomics; behaviour, habits.**

Buhigas, 17; França, 76; Gillies, 83; Haerberli, 87; Kerr, 101; Roubaud, 155; Sergent & Sergent, 160; Wallengren 186; Yendo, 197.

**Plankton.**

Cleve-Euler, 38; Cunha & Fonseca, 50.

**Parasitism.**(a) NATURAL TRANSMISSION;  
INFECTIVITY.

Bahr, 4; Brumpt, 16; Chatton & Blanc, 32; Cornwall & Menon, 43; Davis, 53; Kennedy, 100; Knowles, 102; Lanfranchi, 108; Léger, 124; Mathis, 137; Roubaud, 154-156; Scott, 159; Sergent, 162; Woodcock, 190 & 192.

## (b) "CARRIERS."

Brumpt, 16; Dobell & Stevenson, 58; MacAdam, 130 & 131; Mackinnon, 132; Thomson & Hirst, 177; Yorke, 198.

## (c) LIST OF HOSTS.

*Protozoa.*

Stempell, 174.

*Annelida.*

Cognetti de Martiis, 39; Ghosh, 82.

*Echinodermata.*

Ikeda & Ozaki, 91.

*Insecta.*

Brindley, 10; Chatton & Blanc, 32; Franca, 77; Hesse, 89; Kamm, 96; Keilin, 99; Paillot, 146 & 147.

*Arachnida.*

Sergent, 162.

*Mollusca.*

Ghosh, 82.

*Pisces.*

Davis, 53; Fantham, 74; Kudo, 104; Southwell & Prashad, 172; Stempell, 174.

*Amphibia.*

Léger, 122 & 123; Pinto, 150.

*Reptilia.*

Chatton, 28; Léger, 117; Sergent, 162.

*Aves.*

Commes, 40 & 41; Léger, 119.

*Mammalia.*

Brug, 14; Jepps & Dobell, 92; Flu, 75a; Kuenen, 105; Kuenen & Swellengrebel, 106; Léger, 121; Léger, & Porry, 125; Legras, 126; Shimura, 165.

## VARIATION, PHYLOGENY. 0423

**Variation.**

Lapparent, 110.

**Classification, Phylogeny.**

Chalmers, 20; Chalmers & Pekkola, 21 & 22; Davis, 53; Franca, 78 & 79.

## DISTRIBUTION (GEOGRAPHY)

0427

[See also under "Parasitism," 0419.]

**Geographical.***Europe.*

Brown, 11; Dons, 62; Haerberli, 87; Jorgensen, 95; Monard, 141; Müller, 142; Sanderson, 158.

*Africa.*

Duthie, 67 & 68; Porter, 151.

*America.*

Cunha, 48.

*Australasia.*

Shephard, Searle & Strickland, 163; Sidebottom, 167.

*Antarctic.*

Chapman, 24.

**Geological.***General.*

Cayeux, 19.

*Tertiary and Post-Tertiary.*

Chapman, 23; Checchia-Rispoli, 34-36; Cushman, 51 & 52; Douvillé, 65; Martin, 135 & 136; Newton, 143; Oppenoorth, 145; Yabe, 194 & 195.

*Secondary.*

Chapman, 25; Lapparent, 110.

III.—SYSTEMATIC.

0431

1.—MYCETOZOA.

*Dictyostelium mucoroides*, sexual phenomena in, SKUPIENSKI C.R. Acad. Sci. 167 pp. 960-962.

*Didymium nigripes*, sexuality in, SKUPIENSKI t.c. pp. 31-33.

*Lamproderma crucheti* sp. n., occurrence and diagnosis, MEYLAN Bull. Soc. Vaud. Sci. Nat. 52 No. 194 p. 96.

*Stemonitis hyperopta* nom. nov. for *S. virginiensis* var. *heterospora*, MEYLAN t.c. p. 97.

2. SARCODINA (= GYMNOXYXA).

(a) Amœbaea (Reticulosa + Lobosa).

*Dientamoeba* gen. n., *fragilis* sp. n., from Man, described, JEPPE & DOBELL Parasitol. 10 pp. 352-367 pl. vii.

*Entamoebae*, common intestinal of Man, cysts characterised and figured, MATTHEWS Ann. trop. Med. Parasitol. 12 pp. 17-22 pl. i.—*E. histolytica*, different races or strains, DOBELL & JEPPE Parasitol. 10 pp. 320-351 pl. vi.—*E. h.*, developmental changes, cyst-formation, etc., *in vitro*, YOSHIDA J. exp. Med. 28 pp. 387-413 pls. xxx-xliii.—*E. h.* and *E. coli*, detailed comparison of cysts, SMITH Ann. trop. Med. Parasitol. 12 pp. 27-69.—*E. h.* and *E. ranarum*, distinct species, DOBELL Parasitol. 10 pp. 294-310.—*E. minutissima*, sp. n., Java, BRUG Gen. Tyds. Ned. Ind. 57 p. 570.—*E. ranarum*, gamogonic and schizogonic cysts, MERCIER & MATHIS Bull. Soc. path. exot. 11 pp. 47-54 25 text-figs.—*E. serpentis*, nuclear structure and changes described, CUNHA & FONSECA Mem. Inst. Oswaldo Cruz 10 pp. 95-98 (in translations, pp. 75-77) pl. xix.—*E.* sp., a new, non-pathogenic, tetra-

genous form from Man, morphology and life-cycle, SHIMURA J. exp. Med. 28 pp. 415-428 pls. xlv and xlv.—*E.* sp., distinct from *histolytica* (probably *urogenitalis* Bälz), in urine, note on; ARAVANTINOS & MICHAELIDIS Bull. soc. path. exot. 11 pp. 685-687.

*Pyxidicula invisitata* Averintz., new to Britain, described, BROWN J. R. Microsc. Soc. 1918 p. 171 figs. 1-4.

(b) Foraminifera.

Foraminifera, East Coast of Australia, collected by H.M.S. "Dart," 1895, notes on, SIDEBOTTOM J. R. Microsc. Soc. 1918 pp. 1-25 122-152 and 249-264 6 pls.

Foraminifera, marine muds, Ross Sea soundings, CHAPMAN Brit. Antarct. Exped. 1907-1909 Geol. 2 pp. 55-71 pls. i-v.

†Foraminifera, general notes on, considered as elements in the constitution of sedimentary rocks, CAYEUX Mem. Carte Geol. dét. France 1916 pp. 352-380.

†Foraminifera, elevated marine deposits, shores of the Ross Sea, notes, CHAPMAN Brit. Antarct. Exped. 1907-1909. Geology 2 pp. 25-36 pls. i-iii.—†F., elevated deposits, slopes of Mt. Erebus, ID. T.c. pp. 41-48 pl. v.

†Foraminifera, Gingin Chalk, W. Australia, notes, CHAPMAN Geol. Surv. W. Austral. Bull. No. 72 pp. 8-51 pls. i-xii.

†Foraminifera, Eocene, Capitanata, notes on, CHECCHIA-RISPOLI Boll. R. Comitato Geol. 46 pp. 155-282 10 pls.

†Foraminifera, Oligocene and Miocene, Panama Canal zone, with new forms, diagnosed, CUSHMAN Smithsonian Inst. U.S. Nat. Mus. Bull. 103 pp. 45-102 pls. xix-xlvi.

†Foraminifera, Pliocene and Miocene, Coastal plain, U.S.A., diagnosed, CUSHMAN U.S. Geol. Surv. Bull. 676 pp. 1-100 31 pls.

†Foraminifera, question of unicellularity of certain, DOUVILLÉ C. R. Acad. Sci. 167 pp. 146-151 7 text-figs.

†Foraminifera, Tertiary Limestones, New Guinea, notes, NEWTON Geol. Mag. Dec. 6 5 pp. 207-210 pls. viii and ix.

†Foraminifera, from *Carpenteria*—limestone, B. N. Borneo, YABE Sci. Rep. Imp. Univ. Japan 5 pp. 15–34 pls. iii–v,

†*Alveolina globulosa* sp. n., Miocene Java, diagnosed, MARTIN Samml. geol. R. Mus. N.F. 2 H. 7 p. 277 pl. v figs. 140 and 141.

*Anomalina sinuosa* sp. n., Australia, SIDEBOTTOM J. R. Microsc. Soc. 1918 p. 258 pl. vi figs. 22–25.

*Bifarina mackinnonii* Millett var. n. *robusta*, Australia, SIDEBOTTOM T.c. p. 125 pl. iii figs. 17, 18.

†*Bigenerina compressiuscula* sp. n., Cretaceous, W. Australia, CHAPMAN Geol. Surv. W. Austral. Bull. 72 p. 19 figs. 13, 14.

†*Bolivina marginata* p. 48 pl. x fig. 1, *floridana* p. 49, fig. 4, spp. n., *B. aenariensis* var. n. *multicostata*, p. 48 fig. 2, Miocene, CUSHMAN U.S. Geol. Surv. Bull. 676.

*Bulimina elegantissima* d'Orb. var. n. *fusiformis*, Australia, SIDEBOTTOM J. R. Microsc. Soc. 1918 p. 123 pl. iii figs. 8–10.

†*Chrysalidina pulchella* sp. n., Panama; CUSHMAN Bull. U.S. Nat. Mus. 103 p. 54 pl. xx fig. 2.

†*Cristellaria americana* p. 50 pl. x figs. 5, 6, with var. n. *spinosa*, p. 51, fig. 7, *floridana* pl. xi fig. 1, *catenulata* fig. 2, p. 51, spp. n., Miocene, CUSHMAN U.S. Geol. Surv. Bull. 676.—†*C. protuberans* pl. xxii fig. 2, *vaughani* fig. 3, p. 61, spp. n., Panama, CUSHMAN Bull. U.S. Nat. Mus. 103.

*Dimorphina milletti* sp. n., Australia, SIDEBOTTOM J. R. Microsc. Soc. 1918 p. 145 pl. v figs. 15 and 16.

*Discorbina circularis* p. 253 p. vil figs. 4 and 5, *involuta* p. 255 figs. 15–17, spp. n., *D. bertheloti* (d'Orb.) var. n. *complanata* p. 253 figs. 1–3, *tuberculata* B. and W. var. n. *acuta* p. 254 figs. 6–8, *lingulata* B. and H. var. n. *unguiculata* p. 255 figs. 12–14, Australia, SIDEBOTTOM T.c.

†*Discorbis subrugosa* sp. n. Pliocene, CUSHMAN U.S. Geol. Surv. Bull. 676 p. 14 pl. v fig. 4.—†*D. turrata* sp. n., Miocene, Virginia, CUSHMAN T.c. p. 59 pl. xiv fig. 2.

(N-5464 e)

*Fronicularia pacifica* sp. n., Australia, SIDEBOTTOM J. R. Microsc. Soc. 1918 p. 136 pl. iv figs. 16 17.

†*Globigerina apertura* sp. n., Miocene, Virginia, CUSHMAN U.S. Geol. Surv. Bull. 676 p. 57 pl. xii fig. 8.

†*Heterosteginoides* gen. n. (*Nummulitidae*), *panamensis* sp. n., Panama, CUSHMAN Bull. U.S. Nat. Mus. 103 p. 97 pl. xliii figs. 1–8.

†*Lepidocyclus vaughani*, p. 93, pl. xxxvii figs. 1–5, pl. xxxviii, *macdonaldi*, pl. xl figs. 1–6 *panamensis* pl. xxxix figs. 1–6, pl. xlii, p. 94, *L. (Multicyclus) subgen. n.* type *duplicata*, p. 96, pl. xli figs. 2–4, spp. n., Panama, CUSHMAN T.c.—†*L. (Eulepidina) stercolata* p. 254, pl. viii figs. 1–6, *planata* p. 254 figs. 7–10, *L. (Nephrolepidina) parva* p. 255 pl. viii figs. 11, 12, pl. ix fig. 9, *atjehensis* p. 255 pl. ix figs. 1–3, spp. n. Tertiary, Sumatra, OPPEORTH Verh. Geol.-Mijn. Gen. Ned. Geol. Ser. Deel 2 1918.

†*Massilina ginginensis* sp. n., Cretaceous, W. Australia, CHAPMAN Geol. Surv. W. Australia Bull. 72 p. 16 fig. 3.

*Miliolina subrotunda* var. n. *striata*, p. 58 fig. 3, *M. oblonga* var. n. *arenacea* p. 59, fig. 7, Ross Sea, CHAPMAN Brit. Antarct. Exped. Geol. 2.

*Nonionina scapha* var. n. *bradlii*, Ross Sea, CHAPMAN Brit. Antarct. Exped. geology 2 p. 71 fig. 42.

†*N. anomalina* pl. xxvi fig. 2, *panamensis* fig. 1, p. 74 spp. n., Panama, CUSHMAN Bull. U.S. Nat. Mus. 103. †*N. extensa* sp. n., Miocene, S. Carolina, CUSHMAN U.S. Geol. Surv. Bull. 676 p. 69 pl. xxv fig. 4.

†*Nummulites panamensis* p. 98 pl. xliii figs. 9, 10, *dauidensis* p. 98, fig. 11, spp. n., Panama, CUSHMAN Bull. U.S. Nat. Mus. 103.

*Operculina ammonoides* d'Orb. var. n. *inaequilateralis*, Australia, SIDEBOTTOM J. R. Microsc. Soc. 1918 p. 264 pl. vi figs. 30–34.

†*O.* spp. from Tertiary rocks, Japan, notes on, YABE Sci. Rep. Univ. Japan 4 pp. 111–122 pl. xvii figs. 1–7.

†*Operculinella* gen. n. for “*Nummulites*” *cumingi* Carp., comparison with other allied forms, YABE T.c. pp. 122–126 pl. xvii figs. 8–12.

†*Orbitolites americana* sp. n. p. 99 pl. xliii figs. 12-14, pl. xlv figs. 1, 2, pl. xlv, Panama, CUSHMAN Bull. U.S. Nat. Mus., 103.

†*Orthophragmina minima* sp. n., Panama, CUSHMAN T.c. p. 97 pl. xli fig. 1.

†*Polystomella fimbriatula* sp. n., Pliocene, Florida, CUSHMAN Bull. U.S. Geol. Surv. 676 p. 20 pl. viii fig. 5.

†*Pulvinulina marcellae* sp. n., Cretaceous, Hendaye, LAPPARENT Mém. Carte géol. dét. France 1918 p. 43 text-figs. 12 and 13.

†*Quinqueloculina panamensis* sp. n., Panama, CUSHMAN Bull. U.S. Nat. Mus. 103 p. 80 pl. xxxi fig. 1.—†*Q. subdecorata* sp. n., Miocene, Virginia, CUSHMAN U.S. Geol. Surv. Bull. 676 p. 71 pl. xxix fig. 3.

*Reophax longiscatiformis* fig. 18, *murrayana* fig. 19, p. 63, spp. n., Ross Sea, CHAPMAN Brit. Antarct. exped. geol. 2.

*Rhabdogonium carinatum* sp. n., Australia, SIDEBOTTOM J. R. Microsc. Soc. 1918 p. 138 pl. iv figs. 20-25.

†*Rosalina linnei* d'Orb., Cretaceous Hendaye, notes on varieties, mutations, p. 1, pl. 1 figs. 1-4, *R. stuarti* sp. n., compared, p. 11, figs. 5 and 6, LAPPARENT Mém. Carte Geol. dét. 1918.

†*Rotalia reticulata* sp. n., Miocene, N. Carolina, CUSHMAN U.S. Geol. Surv. Bull. 676 p. 66 pl. xxiv fig. 3.—†*R. beccarii* d'Orb. var. n. *ornata*, Pliocene, Florida, CUSHMAN T.c. p. 18 pl. viii fig. 7.

†*Rotalina cayeuxi* sp. n. Cretaceous, Hendaye, LAPPARENT Mém. Carte géol. dét. France 1918 p. 89 text-figs. 25 and 26.

†*Saccamina glabra* sp. n., Miocene, Virginia, CUSHMAN U.S. Geol. Surv. Bull. 676 p. 45 pl. ix fig. 1.

†*Sagraina maitlandiana* p. 41, fig. 97, *monile* p. 42, fig. 99, spp. n., Cretaceous, W. Australia, CHAPMAN Geol. Surv. W. Austral. Bull. 72.

†*Siphogenerina lamellata* sp. n. Miocene, Florida, CUSHMAN U.S. Geol. Surv. Bull. 676 p. 55 pl. xii fig. 3.—

†*S. raphanus* P. and J. var. n. *transversus*, Panama, CUSHMAN Bull. U.S. Nat. Mus. 103 p. 64 pl. xxii fig. 8.

†*Spiroloculina reticulosa* p. 21, pl. vi fig. 4, *glabrata* p. 22 fig. 3, spp. n. Pliocene, Florida, CUSHMAN U.S. Geol. Surv. Bull. 676.

†*Textularia virginiana* sp. n., Miocene, CUSHMAN T.c. p. 48 pl. ix fig. 7.—†*T. laminata* pl. xix fig. 4, *subagglutinans* fig. 5, p. 52, *panamensis* p. 53, pl. xx fig. 1, spp. n., Panama, CUSHMAN Bull. U.S. Nat. Mus. 103.

†*Triloculina bulbosa* pl. xxxii fig. 3, *projecta* pl. xxxiii fig. 1, p. 83, spp. n., Panama, CUSHMAN T.c.—†*T. asperula* sp. n., Miocene, Florida, CUSHMAN Bull. U.S. Geol. Surv. No. 676 p. 72 pl. xxx fig. 3.

†*Truncatulina americana*, p. 68 pl. xxiii fig. 2, *culebrensis* p. 70 pl. xxiv fig. 4, spp. n., Panama, CUSHMAN Bull. U.S. Nat. Mus. 103.—†*T. subloba* pl. xix fig. 1, *floridana* fig. 2, p. 62, *americana* p. 63, pl. xx figs. 2, 3, pl. xxi fig. 1, *basiloba* fig. 2, *concentrica* fig. 3, p. 64, spp. n., *T. lobatula* var. n. *ornata* p. 61, pl. xviii figs. 1 and 2, Miocene, CUSHMAN Bull. U.S. Geol. Surv. 676.

*Uvigerina porrecta* Brady var. n. *fimbriata*, Australia, SIDEBOTTOM J. R. Microsc. Soc. 1918 p. 147 pl. v. fig. 23.

*Vaginulina rheophagica* sp. n., Australia, SIDEBOTTOM T.c. p. 139 pl. v. figs. 6-7.

†*Verneuilina glabrata* sp. n. Pliocene, N. Carolina, CUSHMAN U.S. Geol. Surv. Bull. 676 p. 9 pl. i fig. 2.

### (c) Heliozoa.

*Hedriocystis spinifera* sp. n., Scotland, diagnosed, BROWN J. R. Microsc. Soc. 1918 p. 172 figs. 5-7.

*Wagnerella borealis*, described, and notes on life-cycle, DONS Tromsø. Mus. Aarsh. 38-39 pp. 101-116 6 text-figs.

### (d) Radiolaria.

†Radiolaria, general notes on, considered as elements in the constitution of sedimentary rocks, CAYEUX Mém. Carte géol. dét. France 1916 pp. 380-390.

## SPOROZOA.

## (a) Gregarinidea.

*Astrocystella* gen. n. *lobosa* sp. n. from *Pheretima beaufortii*, Dutch New Guinea, briefly diagnosed, COGNETTI DE MARTIIS Monit. Zool. Ital. 29 p. 147.

*Caulleryella anophelis* sp. n., from larvae of *A. bifurcatus*, notes on life-cycle, HESSE C. R. Acad. Sci. 166 pp. 569-572.

*Cephaloidophora delphinia* Watson, early stages in development, relation to host cells, KAMM J. Parasitol. 5 pp. 35-40 pl. iv.

*Choanocystis* gen. n. *tentaculata* sp. n., from *Pheretima beaufortii*, Dutch New Guinea, diagnosed, COGNETTI DE MARTIIS Monit. Zool. Ital. 29 p. 147.

*Clepsydrina orata*, infection of earwig with, has apparently no influence on sexual dimorphism, BRINDLEY Proc. Camb. Phil. Soc. 19 pp. 167-169.

*Craterocystis* gen. n. *papua* sp. n. from *Pheretima wendessiana*, briefly diagnosed, COGNETTI DE MARTIIS Monit. Zool. Ital. 29 p. 149.

*Gonospora testiculi* Trég., life-cycle described, systematic position, TREGOUBOFF Arch. Zool. exp. 57 pp. 471-509 pls. vi-viii.

*Gregarina platydema*, from *Platydema excavatum*, p. 159 text-figs. 1-4, *diabrotica*, from *Diabrotica vittata*, p. 162 text-figs. 5 and 6, spp. n., diagnosed, KAMM J. Parasitol. 4.

*Leidyana linei* sp. n., from larvae of a moth (*Endrosia fenestrella*), morphology and cysts, KEILIN Parasitol. 10 pp. 406-410 pl. ix.

*Monocystis beaufortii*, *ambigua*, spp. n., *tricuspidata* (n. sp. or a form of *ambigua*), from *Pheretima beaufortii*, diagnosed, COGNETTI DE MARTIIS Monit. Zool. Ital. 29 p. 148.

*Nematocystis ceconii* sp. n., from *Pheretima wendessiana*, COGNETTI DE MARTIIS T.c. p. 149.

*Selenidium cruzi*, from *Polydora socialis*, described, FARIA, CUNHA & FONSECA Mem. Inst. Oswaldo Cruz 10 p. 18 (in translations, p. 4) pl. iii figs. 1 and 2.

(N-5464 e)

## (b) Coccidiidea.

*Coccidium zürni* from cattle, notes on oocysts and spores, SMITH & GRAYBILL J. exp. Med. 28 pp. 89-108 pls. i-iii.

*Selysina perforans* Dub., relation to host's tissues, known stages in life-cycle described, affinities, DUBOSCQ Arch. Zool. exp. 58 pp. 1-53 pl. i and 11 text-figs.

## (c) Haemosporidia.

*Haemosporidia*, notes on classification, FRANÇA Journ. sci. mat. fis. nat. ser. 3 1 pp. 221-227.

*Haemogregarina cayennensis* sp. n. from *Bufo marinus*, French Guiana, note; LÉGER Bull. Soc. path. exot. 11 pp. 687-690.—*H. darlingi* sp. n. and *H.* sp. (cf. *minima* = *Drepanidium ranarum*), from *Bufo marinus*, pp. 789-791, *H.* sp. from *Pipa americana*, p. 788, French Guiana, notes, LÉGER Bull. Soc. path. exot. 11.—*H.* sp. from *Vipera lebetina*, Algeria, morphology, early stages of development in a mite (*Ophionyssus natricis*), SERGENT Bull. Soc. path. exot. 11 pp. 278-280 23 text-figs.

Haemogregarines, biological conditions affecting schizogony, FRANÇA Bull. Soc. path. exot. 11 pp. 171-173.—A Haemogregarine (?) (provisionally named *H. boum* sp. n.), from Bovidae in Algeria, LEGRAS Bull. Soc. path. exot. 11 pp. 274-278 3 figs.

*Halteridium* spp. from various birds (*Meloenornis edoloides*, *Cynnis senegalensis*, *Pyromelana franciscana*, *Lagonosticta senegala*), Upper Senegal and Niger, notes on; COMMES Bull. Soc. path. exot. 11 pp. 443-445.

*Laverania malariae*, behaviour and significance of "residual body" in, APPEL & HEINRICH Centralbl. Bakt. Abth. 1 81 Orig. pp. 341-346 2 pls.—*L. m.*, relation of crescents to host-cells, double infections, LAWSON J. exp. med. 27 pp. 739-761 pls. xxxiii-xxxix.—*L. m.* and *Plasmodium vivax*, atypical rings and *tenuis* forms, CRAIG & NAIDU Ind. J. Med. Res. 5 pp. 458-462 pls. xliiv and xlv.

*Leucocytozoon martyi* sp. n., from *Astur badius* var. *sphenurus*, notes; COMMES Bull. Soc. path. exot. 11 p. 31.

Malarial parasites, notes on morphology and relation to host-cells, ENGEL Centrallbl. Bakt. Abth. 1 81 Orig. pp. 558-565.—Malarial parasites regarded as all belonging to one and the same species, GROS Bull. Soc. path. exot. 11 pp. 624-641.—Malarial parasites, degeneration and disappearance of sporozoites in hibernating *Anopheles*, ROUBAUD C. R. Acad. Sci. 166 pp. 264-266.

*Plasmodium vivax* and *P. praecox* (*Laverania malariae*), notes on oocysts, transmission, factors affecting, ROUBAUD Ann. Inst. Pasteur 32 pp. 430-462 2 text-figs.—[*P. vide etiam Laverania*.]

(d) Myxosporidia (including Microsporidia).

Myxosporidia of fishes, Beaufort region, systematic and biological account, DAVIS Bull. U.S. Bur. Fish. 35 pp. 215-237 pls. xvi-xxiv.

*Ceratomyxa drepanopsettae* Averintzeff, from gall-bladder of *Paralichthys dentatus*, notes on; KUDO J. Parasitol 5 pl. ii.—*C. mesospora* p. 223, figs. 14-16, *sphaerophora* figs. 17-23, *taenia* figs. 24-26, p. 224, *attenuata* figs. 27, 28, *recurvata* figs. 29-33, p. 225, *lunata* p. 226, figs. 34-37, *abbreviata* figs. 38-41, *flagellifera* figs. 42, 43, p. 227, *agglomerata* figs. 44, 45, *amorpha* figs. 46, 47, *monospora* figs. 48-57, p. 228, *streptospora* figs. 58-60, *aggregata* figs. 61-64, p. 229, *undulata* figs. 65, 66, *navicularia* figs. 67-70, *spinosa* figs. 71, 72, p. 230, spp. n., occurrence and diagnosis, DAVIS Bull. U. S. Bur. Fish. 35.

*Chloromyxum granulosum* sp. n. p. 237, figs. 136-138, occurrence and diagnosis, DAVIS T.c.—*C. leydigi*, note on life-cycle and development of spores, GEORGÉVITCH Bull. Soc. Zool. 42 pp. 182-189 18 text-figs.

*Leptotheca coris* sp. n., from gall-bladder of *C. julis* and *giofredi*, notes on life-cycle, infection of, with *Nosema marionis* Thél., STEMPPELL Mitth. Zool. Inst. Univ. Münster 1 pp. 1-6 1 fig.—*L. fusiformis* figs. 1 and 2, *scissura* figs. 3-8, p. 222, *lobosa* figs. 9-11, *glomerosa* figs. 12, 13, p. 223, spp. n., occurrence and diagnosis, DAVIS Bull. U.S. Bur. Fish. 35.

*Myxidium glutinosum* figs. 122-124, *phyllium* figs. 125-127, p. 235, spp. n., occurrence and diagnosis, DAVIS T.c.

*Myxobolus capsulatus* sp. n., p. 237, fig. 139, occurrence and diagnosis, DAVIS T.c.—*M. rohila* p. 344 pl. xi figs. 1-27, *seni* p. 347 figs. 28-31, both from *Labeo rohila*, *nodularis* p. 347 figs. 32, 33, from *Rasbora daniconius*, spp. n., diagnosis and notes on sporogony, SOUTHWELL & PRASHAD Rec. Ind. Mus. 15.

*Myxoproteus cordiformis* figs. 73-80, *cornutus* figs. 81-85, p. 231, spp. n., occurrence and diagnosis, DAVIS Bull. U.S. Bur. Fish. 35.

*Myxosoma funduli* sp. n. from gills of *F. heteroclitis* and *majalis*, diagnosed, KUDO J. Parasitol. 5 p. 12 pl. i.

*Perezia mesnili* sp. n., from Malpighian tubules of *Pieris brassicae*, notes on life-history, PAILLOT C. R. Soc. Biol. 81 pp. 66-68 22 text-figs.—*P. legeri* sp. n., same habitat, described, PAILLOT T.c. pp. 187-189 26 text-figs.

*Sinuolinea* gen. n. (*Sphaerosporidae*), p. 219, *dimorpha* Davis, p. 232, figs. 95-100, *capsularis* figs. 101-107, *arborescens* figs. 108-110, p. 233, *opacita*, figs. 111, 112, *brachiophora* fig. 113, p. 234, spp. n., occurrence and diagnosis, DAVIS Bull. U.S. Bur. Fish. 35.

*Sphaerospora polymorpha* sp. n. p. 231, figs. 86-94, occurrence and diagnosis, DAVIS T.c.

*Sphaerosporidae* fam. n., diagnosed, p. 219, DAVIS T.c.

*Zschokkella globulosa* sp. n., p. 236, figs. 132-135, occurrence and diagnosis, DAVIS T.c.

(e) Actinomyxidia.

[Vacant.]

(f) Sarcosporidia.

*Sarcocystis tenella* Railliet, seasonal infection of sheep, theories of transmission discussed, SCOTT J. Parasitol. 5 pp. 45-60.

(g) Haplosporidia.

*Rhinosporidium kinealyi*, notes on, CHELLIAH J. trop. Med. 21 pp. 247- and 248.



## SPOROZOA INCERTAE SEDIS.

*Lymphocystis johnstonei*, from *Pleurococcus flectus*, Holland, notes on, NIEUWENHUYSE Arch. Néerl. de Physiol. Sér. IIIc 2 p. 552.

## 4. MASTIGOPHORA.

## (a) Flagellata.

Flagellates, human intestinal, occur. ring in Guiana, notes, LÉGER Bull. Soc. path. exot. 11 pp. 368-372.

Binucleate Flagellates, notes on classification, FRANÇA Journ. Sci. mat. fis. nat. Sér. 3 1 pp. 227-229.

*Alphamonas* gen. n. *coprocola* sp. n., described, ALEXEIEFF Arch. Zool. exp. 57 N. et R. pp. 1-11 3 text-figs.

*Bodo* (syn. *Prowazekia*) cf. *asiaticus*, from urine, note on, WRIGHT J. trop. Med. 21 pp. 113 and 114 12 text-figs.

*Caduceia* gen. n. (*Lophomonadidae*) *theobromae* sp. n., from *Neotermes gestri*, morphology and relationships, FRANÇA Bull. Soc. port. sci. nat. 8 pp. 97-103 pl. ii.

*Castellanella* gen. n. proposed for Trypanosomes of type *brucei*, *gambiense*, etc. CHALMERS J. trop. Med. 21 p. 223.

*Chilomastix mesnili* (Wenyon), synonymy, description, affinities, CHALMERS & PEKKOLA Ann. trop. Med. Parasitol. 11 pp. 213-264 pls. vi and vii.

*Duttonella* gen. n., proposed for Trypanosomes of type *pecorum*, *uniforme*, *vivax*, etc., CHALMERS J. trop. Med. 21 p. 223.

*Endoplasma Castellani*, probably a *Macrostoma* (*Chilomastix*), BRUG J. trop. Med. 21 pp. 114 and 115 1 pl.

*Euglenac.* enormous numbers of, as a cause of fish-mortality, HORNEILL Madras Fisheries Dept. Bull. No. 11 pp. 53-66.

*Leptomonas henrici* sp. n., from blood as well as intestine of a lizard (*Anolis* cf. *carolinensis*), morphology, LÉGER C. R. Soc. Biol. 81 pp. 772-774.—*L.* sp. of geckos (*Tarentola*), question of possible connection with *Leishmania tropica* (evidence negative), CHATTON & BLANC Bull. Soc. path. exot. 11 pp. 595-609.

*Lewissonella* gen. n. proposed for Trypanosomes of type *levisi*, etc., CHALMERS J. trop. Med. 21 p. 222.

*Ochromonas granularis* sp. n., nuclear and cell-division, DOFLEIN Zool. Anz. 49 p. 297 text-fig. 2.

*Protetramitus* gen. n. (*Tetramitidae*) *testudinis* sp. n., from *Testudo calcarata*, description and affinities, CHALMERS & PEKKOLA J. trop. Med. 21 pp. 129-132 1 pl.

*Tetramitidae*, constituent genera and their relations, CHALMERS AND PEKKOLA J. trop. Med. 21 pp. 129-132 1 diagram.

*Trichomastix* sp., from intestine of gecko (*Tarentola mauritanica*), living in blood, cultivation, CHATTON C. R. Soc. Biol. 81 pp. 343-346 and 346-349.

*Trichonymphidae*, classification of, FRANÇA Journ. Sci. mat. fis. e nat. Sér. 3 1 pp. 293-298.

*Trypanosoma ardeae* sp. n. from *Nyctanassa violacea* and other *Ardeidae*, LÉGER Bull. Soc. path. exot. 11 p. 125.—*T. a.* var. n. *major*, from *A. carule-scens*, LÉGER T.c. p. 126.—*T. lecourdi*, from *Ateles pentadactylus* and *devei* from *Midas midas*, spp. n., notes on, LÉGER & PORRY C. R. Soc. Biol. 81 pp. 180-183.—*T. platydactyli* of geckos, "culture" in bugs (*Cimex*); CHATTON & BLANC Bull. Soc. path. exot. 11 pp. 387-390.—*T.* sp. (cf. *gambiense*), from Man, Cameroons, very slightly toxic, BASSETT-SMITH J. trop. Med. 21 pp. 93 and 94 fig. 1.—*T.* spp., from canary (*Serinus canarius*) and *Passer domesticus*, sparrow, notes on, SERGENT & SERGENT Ann. Inst. Pasteur 32 pp. 387 and 388.—*T.* sp. (compared with *T. evansi* and *soudanense*) from camels, Russian Turkestan, morphology in different animals, biological notes, YAKIMOFF and others Parasitol. 11 pp. 35-80 pls. iii-v.

*Volvox africanus* and *rousseletii*, notes on, comparison with European forms, WEST J. Quak. Microsc. Cl. ser. 2 13 pp. 425-428 pls. xxix and xxx.—*V. globator*, account of the egg-cleavage, DELSMAN Proc. Akad. Wet. Amsterdam 21 Nos. 1 and 2 pp. 243-251 16 text-figs.

## (b) Silicoflagellata.

[Vacant.]

(c) **Dinoflagellata.**

*Gonyaulax polyedra*, as a cause of red discolouration of sea, notes on structure, BUIIGAS Mem. Soc. espan. hist. nat. 10 pp. 407-458 5 pls.

(d) **Rhynchoflagellata**

[Vacant.]

## 5. CILIOPHORA (INFUSORIA).

Allied to the Infusoria?—*Arachni-diopsis* gen. n. *paradoxa* sp. n., a remarkable free-living form, Geneva, described, PENARD J. R. Microsc. Soc. 1918 pp. 283-289 1 pl.

(a) **Ciliata.**

*Anoplophrya lloydi* sp. n., from *Pherelima posthuma* diagnosed, GHOSH Rec. Ind. Mus. 15 p. 129 text-fig. 1.—*A. polydora*, described, FARIA, CUNHA & FONSECA Mem. Inst. Oswaldo Cruz 10 p. 18 (in translations, p. 4) pl. iii figs. 3-5.

*Boveria labialis* sp. n., from Holothurians, morphology and life-cycle, IKEDA & OZAKI J. Coll. Sci. 40 Art. 6 25 pp. 21 text-figs.

*Chilodon uncinatus*, repeated conjugation, factors inducing, ENRIQUES Mem.-Acc. Sci. Bologna ser. 7 3 pp. 15-20.

*Conchophthirus elongatus* text-fig. 2, *lamellidens* fig. 3, p. 132, spp. n., from *Lamellidens marginalis*, GHOSH Rec. Ind. Mus. 15.

*Cothurnia pedunculata* sp. n., occurrence and diagnosis, DONS Tromsø Mus. Aarsh. 38-39 p. 92 text-fig 14.

*Cothurniopsis canthocampli* sp. n., Lake Neuchâtel, MONARD Rev. Suisse Zool. 26 p. 345 figs. 2 and 3.

*Epistylis violacea* sp. n., Lake Neuchâtel, diagnosed, MONARD Rev. Suisse Zool. 26 p. 343 text-fig. 1.

*Glaucoma pyriformis*, continuous cultivation of, for 2,500 generations, without conjugation or similar process, or depression-periods, ENRIQUES Rend. Acc. Bologna 20 pp. 67-76.

*Lembus sarcophagus* p. 4 text-figs. A-E, pl. i figs. 1-3, *elongatus* p. 10

text-figs. F-I pl. i figs. 4-6, WALLENGREN Lund Univ. Årsskr. N. F. Avd. 2 14 No. 30.

*Opalina brasiliensis* sp. n., from *Leptodactylus ocellatus*, morphology and nuclear division, PRINTO Mem. Inst. Oswaldo Cruz 10 pp. 194-199 (in translations, pp. 113-117) pl. lxxvi.

*Ophrydium versatile*, occurrence, neighbourhood of Paris, BEAUCHAMP Bull. Soc. Zool. 43 p. 79.

*Plagiopyla cucullio*, WALLENGREN, Lund Univ. Årsskr. N. F. Avd. 2 14 No. 30 p. 19 text-figs. J-L pl. i fig. 7.

*Pseudofolliculina arctica* Dons, diagnosed, DONS Tromsø Mus. Aarsh. 38-39 p. 81 text-fig. 4.

*Rhabdostylus variabilis* sp. n., occurrence and diagnosis, DONS T.c. p. 83 text-fig. 5.

*Semifolliculina mirabilis*, p. 79 text-fig. 3, *simplex* p. 78, fig. 2, spp. n., *similis* Dons, p. 77 fig. 1, N. Norway-diagnosed, DONS T.c.

*Vorticella striatula* p. 85, text-fig. 7, *subsphaerica* p. 86 [see correction at end of paper] fig. 8, *cylindrica* p. 87 fig. 9, *verrucosa* p. 88 fig. 10, *conica* p. 89 fig. 11, *elegans* p. 90, fig. 12, *fornicata* p. 91, fig. 13, spp. n., N. Norway, DONS T.c.

*Vorticellopsis* gen. n. (*Vorticellidae*) *undulata* sp. n., N. Norway, diagnosed, DONS T.c. p. 84 text-fig. 6.

(b) **Tentaculifera (Suctorina).**

*Acineta laevis* sp. n., occurrence and diagnosis, DONS Tromsø Mus. Aarsh. 38-39 p. 93 text-fig. 15.

*Dendrosomides truncata* sp. n., Tromsø, DONS T.c. p. 94 text-fig. 16.

*Ephelota mammilata* p. 97, text-fig. 19, *cothurnata* p. 98, fig. 20, spp. n., occurrence and diagnosis, DONS Tromsø Mus. Aarsh. 38-39.

*Paracineta oviformis* sp. n., occurrence and diagnosis, DONS T.c. p. 96 text-fig. 18.

*Podophrya tortuosa* sp. n., Tromsø, DONS T.c., p. 96 text-fig. 17.—*P. soliformis* (Lauterb.), description, notes on life-cycle, PENARD Rev. Suisse Zool. 26 pp. 1-16 9 text-figs.

# III. PORIFERA OR SPONGIDA

ARRANGED BY

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## CONTENTS

	PAGE
I. TITLES .. .. .	2
II. SUBJECT INDEX:—	
General works, economics, and technique = 0603 ..	3
Anatomy = 0607 .. .. .	3
Physiology = 0611.. .. .	3
Development and growth = 0615.. .. .	3
Ethology = 0619 .. .. .	3
Variation, Phylogeny = 0623 .. .. .	3
Distribution, Geography = 0627 .. .. .	3
III. SYSTEMATIC = 0631	
Porifera, general .. .. .	3
Calcarea .. .. .	3
Non-Calcarea .. .. .	4
Myxospongida (vacant)	
Hexactinellida (vacant)	
Tetragonida .. .. .	4
Homosclerophora (vacant)	
Astrotetragonida .. .. .	4
Sigmatotetragonida .. .. .	4
Lithistida (vacant)	
Euceratosa .. .. .	4
Incertae sedis .. .. .	4

## I.—TITLES.

- Allemand-Martin, A. *vide* Vaney, C.**
- Annandale, N.** Zoological Results of a Tour in the Far East, Sponges. Calcutta Mem. As. Soc. Bengal **6** 1918 (193-218) pl. ix. **1**
- Annandale, N.** Sponges, Hydrozoa and Polyzoa of the Inlé Lake. Calcutta Rec. Ind. Mus. **14** 1918 (75-80) pl. xxi. **2**
- Cayeux, L.** Introduction à l'étude pétrographique des roches sédimentaires. Mem. Carte Géol. dét. France **1916** (1-524). **3**
- Cole, L. J. *vide* Sumner, F. B.**
- Crozier, Blanche B.** Bermudian species of *Donatia* (*Tethya*). Ann. Mag. Nat. Hist. London ser. 9 **1** 1918 (11-18). **4**
- Gravier, Ch.** Note sur une Actinie (*Thoracactis* n.g. *topsentii* n.sp.) et un Annélide Polychète (*Hermadion fauveli* n.sp.) commensaux d'une éponge siliceuse (*Sarostegia oculata* Topsent). Monaco Bull. Inst. Ocean. No. **344** 1918 (1-20). [*Vide etiam* Zool. Rec. **54** *Protozoa* (5)] **5**
- Hayasaka, Ichiro.** *Amblysiphonella* from Japan and China. Sendai Sci. Rep. Imp. Univ. Japan **5** 1918 (1-14) pls. i and ii. **6**
- Hentschel, Ernst.** Zoologische Ergebnisse der schwedischen Expedition nach Spitzbergen 1908 unter Leitung von Prof. G. de Geer. Teil II: 3. Die Spongien des Eisfjords. Stockholm Vet.-Ak. Handl. **54** No. 3 1916 (1-18) figs. **7**
- Hernandez, F. F.** Esponjas del litoral de Asturias. Madrid Trabaja. Mus. Nat. Ci. (Ser. Zool.) No. **36** 1918 (1-39). **8**
- Hernandez-Pacheco, Ed.** Les *Archaeocyatidac* de la Sierra de Cordoba (Espagne). Paris C.R. Acad. Sci. **166** 1918 (691-694). **9**
- Jorgensen, Olga.** Note on the larvae of *Grantia compressa*. Cullercoats Rep. Dove Mar. Lab. N.S. **7** 1918 (60 and 61) 1 pl. **10**
- Osburn, R. C. *vide* Sumner, F. B.**
- Parshad, Bainsi.** The seasonal conditions governing the pond life in the Punjab. Calcutta J. Proc. Asiat. Soc. N.S. **12** 1916 (141-145). **11**
- Sumner, F. B., Osburn, R. C. and Cole, L. J.** A biological Survey of the waters of Woods Hole and vicinity. Washington, Bull. U.S. Bur. Fisheries **31** 1911 (11-442, 549-794) charts. **12**
- Topsent, E.** Éponges de San Thomé. Essai sur les genres *Spirastrella*, *Donatia* et *Chondrilla*. Arch. Zool. exp. Paris **57** 1918 (535-618). **13**
- Trigt, H. van.** A contribution to the physiology of the fresh-water sponges (*Spongillidae*). Amsterdam K. Akad.-Wet. Proc. **20** No. 7 1918 (1061-1075). **14**
- Trigt, H. van.** Un phénomène remarquable des cellules vivantes des gemmules d'éponges d'eau douce. Haarlem Arch. Néerl. de Physiol. sér. IIIc **2** 1918 (594-601) 3 fig. **15**
- Vaney, C. and Allemand-Martin, A.** Contribution à l'étude de la larve de *Hippospongia equina* des côtes de Tunisie. Paris C.R. Acad. Sci. **166** 1918 (82-84). **16**

- II.—SUBJECT INDEX. GEOLOGICAL (FOSSIL).
- GENERAL, ECONOMICS AND General.  
TECHNIQUE. 0603 Cayeux, 3.  
[Vacant.]
- ANATOMY. 0607 Primary.  
Hayasaka, 6.
- Skeleton.  
Cayeux, 3.
- PHYSIOLOGY. 0611
- General.  
v. Trigt, 14 & 15.
- Nutrition.  
v. Trigt, 14.
- Movements.  
v. Trigt, 14.
- DEVELOPMENT AND GROWTH. 0615
- Larval Forms.  
Jorgensen, 10; Vaney & Allemand-  
Martin, 16.
- ETHOLOGY. 0619
- Bionomics.  
Annandale, 1; Parshad, 11.
- VARIATION, PHYLOGENY. 0623  
Hernandez-Pacheco, 9.
- DISTRIBUTION (GEOGRAPHY). 0627
- GEOGRAPHICAL (RECENT).
- Europe.  
Hernandez, 8.
- Asia.  
Annandale, 1 & 2.
- America.  
Crozier, 4; Sumner, Osburn & Cole  
12; Topsent, 13;
- Arctic.  
Hentschel, 7.
- III.—SYSTEMATIC. 0431
- PORIFERA, GENERAL.
- Sponges, mostly fresh-water, from  
Japan, China and Malay Peninsula;  
ANNANDALE Mem. As. Soc. Bengal  
6 pp. 193-218 pl. ix.
- Sponges, from Asturian littoral,  
notes; HERNANDEZ Trabaj. Mus.  
nat. Ci. (Ser. Zool.) No. 36 39 pp. 6  
text-figs.
- Sponges, Woods Hole and vicinity,  
notes; SUMNER, OSBURN & COLE,  
Bull. U.S. Bur. Fisheries 31 pp. 93-  
95 and 556-559.
- Sponges from San Thomé, mostly  
silicious forms, described; TOPSENT  
Arch. Zool. exp. 57 pp. 635-618 29  
text-figs.
- †Sponges, general notes on spicules  
of, considered as elements in the con-  
stitution of sedimentary rocks; CAY-  
EUX Mem. Carte Géol. dét. France  
1916 pp. 390-412.
- CALCAREA.
- †*Amblysiphonella chinense* p. 7 pl.  
i. fig. 16, pl. ii figs. 12, 13, *planorbis*  
p. 9 pl. i fig. 18, pl. ii fig. 14, spp. n.,  
Permian, China and Japan; HAYA-  
SAKA Sci. Rep. Univ. Jap. 5.
- Grantia compressa*, note on larvae;  
JORGENSEN Rep. Dove Mar. Lab.  
N.S. 7 pp. 60 and 61 1 pl.
- Vosmaeropsis oructai* sp. n., diag-  
nosed; HERNANDEZ Trabaj. Mus-  
Nat. Ci. (Ser. Zool.) No. 36 p. 13  
text-fig. 2.

## NON-CALCAREA.

## (a) Myxospongiada.

[Vacant.]

## (b) Hexactinellida.

[Vacant.]

## (c) Tetraxonida.

## (i) HOMOSCLEROPHORA.

[Vacant.]

## (ii) ASTROTETRAXONIDA.

*Chondrilla nucula*, description and comparison with other forms; TOPSENT Arch. Zool. exp. 57 p. 601.

## (iii) SIGMATOTETRAXONIDA.

*Amorphinopsis excavans* Carter var. n. *robinsonii*, Malay Peninsula, described; ANNANDALE Mem. Asiat. Soc. 6 p. 198 pl. ii fig. 3, pl. ix fig. 1.

*Donatia diploderma*, description and comparison with other species; TOPSENT Arch. Zool. exp. 57 p. 563 text-figs. 22-24.—*D. (Tethya) seychellensis*, *lyncurium*, and *ingalli* vars. A and B, from Bermuda, notes on; CROZIER Ann. Mag. Nat. Hist. Ser. 9 1 pp. 11-18.

*Ephydatia fluviatilis* var. n. *intha*, Inlé Lake, diagnosed; ANNANDALE Rec. Ind. Mus. 14 p. 76 pl. xxi figs. 2 and 3 and text-fig. 2.

*Gellius abbreviatus* sp. n. p. 538; TOPSENT Arch. Zool. exp. 57.—*G. arcticus* sp. n. Spitzbergen; HENTSCHEL Vet.-Ak. Handl. 54 No. 3 p. 12 fig. 2.

*Menanetia topsenti* sp. n.; HERNANDEZ TRABAJ. Mus. Nat. Ci. (Ser. Zool.) No. 36 p. 26 text-fig. 4.

*Reniera glacialis* p. 15 fig. 3, *spitzbergensis* p. 16 fig. 4 spp. n., Spitzbergen; HENTSCHEL Vet.-Ak. Handl. 54 No. 3.—*R. neens* p. 536, *coerulescens*, p. 537, spp. n.; TOPSENT Arch. Zool. exp. 57.

*Spirastrella cunctatrix*, description and comparison with other species; TOPSENT T.C. p. 542 text-figs. 1-3.

*Spongillidae*, physiological observations on; v. TRIGT Proc. Akad. Wet. Amsterdam 20 No. 7 pp. 1061-1075 6 text-figs.

*Spongilla inarmata*, p. 200 pl. ix fig. 2, *geei* p. 202, *potamolepis* p. 208 pl. ii fig. 5, spp. n., occurrence and notes; ANNANDALE Mem. Asiat. Soc. 6.

*Trochospongilla sol* sp. n., China, diagnosed; ANNANDALE T.C. p. 205 pl. ix fig. 6.

## (iv) LITHISTIDA.

[Vacant.]

## (d) Euceratosa.

*Hippospongia equina* var. *elastica* Lendenf., notes on larval forms; VANEY & ALLEMAND-MARTIN C.R. Acad. Sci. 166 pp. 82-84.

*Thorectandra diversispiculifera* sp. n.; HERNANDEZ TRABAJ. Mus. Nat. Ci. No. 36 p. 34.

## PORIFERA.

## INCERTAE SEDIA.

†*Archaeocyatidae*, Cambrian, Cordoba, note on structure, regarded as a group allied to sponges; HERNANDEZ-PACHECO C.R. Acad. Sci. 166 pp. 691-694.

# IV. COELENTERATA

ARRANGED BY

A. KNYVETT TOTTON.

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## CONTENTS

	PAGE
I. TITLES .. .. .	2
II. SUBJECT INDEX :—	
General and Miscellaneous = 0803 .. .. .	6
Structure = 0807 .. .. .	6
Physiology = 0811.. .. .	6
Development = 0815 .. .. .	6
Ethology = 0819 .. .. .	7
Variation and Phylogeny = 0823.. .. .	7
Distribution = 0827 :—	
Geographical .. .. .	7
Geological .. .. .	8
III. SYSTEMATIC INDEX = 0831 :—	
Hydrozoa (= Hydromedusae) .. .. .	9
Graptolithida .. .. .	12
Scyphozoa (= Scyphomedusae) .. .. .	12
Anthozoa :—	
Alcyonaria .. .. .	12
Zoantharia .. .. .	12
Ctenophora .. .. .	15

## I.—TITLES.

- Annandale, N.** Zoological results of a tour in the far East part ii. Hydrozoa and Ctenophora. Calcutta Mem. Asiatic Soc. Bengal **6** (101-117) 5 text-figs. **1**
- Annandale, N.** Sponges, *Hydrozoa* and *Polyzoa* of the Inle Lake. Rec. Ind. Mus. **14** (75-79) pl. **2**
- Bannwerth.** Biologische Riff-Untersuchungen im Golf von Suez. Abh. Senckenb. Gesell. **36** 1 1914 (41-50) chart. **3**
- Bigelow, H. B.** Some *Medusae* and *Siphonophorae* from the Western Atlantic. Bull. Mus. Comp. Zool. **62** No. 8 (365-442) 8 pls. **4**
- Billard, A.** Note sur les Hydroïdes de la collection Westendorp du Musée Royal d'Histoire Naturelle de Belgique. Ann. Zool. et Malacol. Belgique **48** (1863-1913) 1914 (27-30) pl. ii. **5**
- Broch, Hj.** Den Zoologiske samling Aarsberetning for 1917. K. Norske Vid. Selsk. **1917** 1918. **6**
- Billard, A.** Note sur quelques espèces d'Hydroïdes libres. Bull. Mus. d'Hist. Nat. Paris. **23** (1917) 1917 (539-546) text figs. **7**
- Billard, A.** Notes sur quelques espèces d'hydroïdes de l'expédition du "Siboga." Arch. Zool. Exp. Notes et Rev. Paris **57** (21-27) text-figs. **8**
- Boecker, E.** Die geschlechtliche Fortpflanzung der deutschen Süßwasserpolypen. Biol. Centralbl. **38** 11 (479-499). **9**
- Bourne, G. C.** On some new *Phellinae* from New Guinea. Quart. Journ. Microsc. Sci. **63** (31-90) pls. iii-v. **10**
- Branson E. B. and Greger, D. K.** Amsden formation of the East Slope of the Wind River Mountains of Wyoming and its fauna. Bull. Geol. Soc. America **29** (309-326) pls. xviii-xix. **11**
- Briggs, E. A.** Descriptions of two new Hydroïds, and a revision of the hydroïd-fauna of Lord Howe Island. Rec. Austr. Mus. Sydney **12** No. 3 (27-47) pls. v-vi. **12**
- Broch, H.** Hydroïdenuntersuchungen. V Studien über die Coppinia von *Grammaria abietina*. Medd. Trondhjems Biol. Stat. Nr. 11 Norske Selsk. Skr. (1916) No. 1 1917 (16 pp.) 2 taf. **13**
- Broch, H.** *Hydroïda* (Part 2). Danish Ingolf Exp. **5** 7 (207 pp.) pl. map text-figs. charts. **14**
- Brückner, E.** Beitrag zur Kenntniss von *Perigonimus cidaritis*, Weismann und *Gemmaria implexa* var. *neapolitana*, Hargitt. Zeitschr. Wiss. Zool. **111** 1914 (445-505) Taf. viii-ix text-figs. **15**
- Cary, L. R.** Observations upon the growth-rate and oecology of gorgonians. Washington Carnegie Inst. Pub. No. **182** (Papers Tortugas Lab. 5) 1914 (79-90) pls. i-ii. **16**
- Cary, L. R.** The influence of the marginal sense organs on functional activity in *Cassiopea xamachana*. Washington Proc. Nat. Acad. Sci. **1** 1915 (611-616) figs. **17**
- Cary, L. R.** The *Gorgonaceae* as a factor in the formation of coral reefs. Papers from the Dept. of Mar. Biol. Carnegie Inst. Washington **9** (341-362) pls. c-cv. **18**
- Carligen, O.** Die Mesenterienanordnung der Haleuriiden. Lund Univ. Årsskr. N.F. Avd. 2 **14** No. 29 [= Fysiogr. Sällsk. Handl. N.F. **29** No. 29] 1918 (37) pl. 25 text figs. **19**



- Cayeux, L.** Introduction à l'étude Pétrographique des roches sédimentaires. Franco Minist. Trav. Pub. Mém. Explicat. Carte Géol. Dét. de la France Paris 1916 (viii + 524). 20
- Chapman, F.** Note on a new species of *Chaetetes*. (The geology and petrology of the great serpentine belt of New South Wales, Appendix 2.) Proc. Linn. Soc. N.S.W. Sidney 43 (392-4) pl. xlii. 21
- Child, C. M.** Physiological senescence in *Hydromedusae*. Biol. Bull. Woods Hole Mass. 34 No. 1 (49-63). 22
- Chumley, J.** The fauna of the Clyde sea area. . . 1918 Glasgow (1-200 + vi) map. 23
- Clarke, F. W. and Wheeler, W. C.** The inorganic constituents of *Alcyonaria*. Washington Proc. Nat. Acad. Sci. 1 1915 (552-556) tables. 24
- Cleve-Euler.** Quantitative Plankton researches in the Skager Rak. Part 1. K. Svenska Vet. Akad. Handl. 57 No. 7 Stockholm 1917 (1-130) 25 Tables 7 text-figs. 25
- Cole, G. A. J.** The Coral-Reef problem. Nature London 100 No. 2520 (474-475). 26
- Couffon, O.** Le Callovien du Chalet, commune de Montreuil-Belloy (M.-et-L.) Bull. Soc. d'Études. Sci. Angers (N.S.) 47 (1917) 1918 (65-131) text figs. 27
- Crane, G.** *vide* Thomson and Crane.
- Daly, R. A.** The glacial-control theory of coral reefs. P. Amer. Acad. 51 4 1915. (155-251) figs. 28
- Dehorne, Y.** Sur les analogies de la forme branchue chez les polypiers constructeurs des récifs actuels avec celle des Stromatopores des terrains secondaires. C. R. Acad. Sci. Paris 166 No. 5 (219-222). 29
- De Stephani, C.** Fossili carboniferi dell'Isola d'Elba. Palaeontogr. Italica Pisa 23 1917 (1-53) Tav. i-iv. 30
- Dietrich, W. O.** Zur Kenntnis des Persischen Miocènes (Korallen). Centralbl. Min. Stuttgart 1918 1918 (98-104). 31
- Dollé, L.** Notes sur les Graptolites du "Vall de Ribes" Pyrénées-Orientales (Espagne). Ann. Soc. Géol. Nord 43 1914 (295-301 + 348) pl. iii. 32
- Dumble, E. T.** Geology of the Northern end of the Tampico embayment area. Proc. California Acad. Sci. San Francisco (4) 8 (113-156). 33
- Etheridge, R.** Two remarkable corals from the Devonian of New South Wales. Rec. Australian Mus. Sydney 12 No. 4 (49-51) pls. vii-ix. 34
- Fraser, C. McL.** Hydroids of Eastern Canada. Ottawa Contrib. Canadian biol. 1917 1918 xvi (329-366) 2 pls. 35
- Garcia-Barnus, M.** Is the Theory of Axial gradient in the regeneration of *Tubularia* supported by facts? J. Exper. Zool. 26 (265-273). 36
- Gemmill, J. F.** Ciliary action in the internal cavities of the Ctenophore *Pleurobrachia pileus* Fabr. Proc. Zool. Soc. London. 1918 1919 (263-5) figs. 37
- Gilchrist, J. D. F.** On a species of the crawling medusa *Eleutheria*, from the Cape of Good Hope (*Cnidonema capensis*, g. et sp. n.) and the Southern *Eleutheriae*. Quart. Journ. Microscop. Sci. 63 (509-529) pl. xxx. 38
- Girty, G. H.** Invertebrate Palaeontology (of the Pennsylvanian series). Missouri Bureau of Geology and Mines (2) 13 1915 (263-375) pl. xxxii. 39
- Goetsch, W.** Beobachtungen und Versuche an *Hydra*. Biol. Centralb. 37 10 1917 (465-471) text figs. 40
- Gravier, C.** Note sur les Antipathaires du Golfe de Naples. Pubblicazioni Staz. Zool. Napoli 2 fasc. 2 (223-239) pls. xii-xiii). 41
- Gravier, Ch.-J.** Sur les actinies des grandes profondeurs de l'atlantique provenant des croisières de la Princesse-Alice et sur quelques traits de la biologie de ces animaux. C. R. Acad. Sci. Paris 167 No. 18 (655-657). 42
- Gravier, Ch.-J.** Sur l'adaptation du pied au milieu ambiant chez les actinies des grands fonds sous-marins. C. R. Acad. Sci. Paris 167 No. 25 (1009-1012). 43

- Gravier, Ch.** Note préliminaire sur les Antipathaires recueillis par la Princesse-Alice, de 1903 à 1913 inclusivement. *Bull. Inst. Océanographique Monaco* No. 343 1918 (4 pp.) 3 text-figs. 44
- Gravier, Ch.** Note sur une Actinie (*Thoracactis* n.g., *topsenti* n.sp.) et un Annélide Polychète (*Hermadion Faureli* n.sp.), commensaux d'une Éponge silicieuse (*Sarostegia oculata* Topsent). *Bull. Inst. Océanographique Monaco* No. 344 1918 (20 pp.) 12 text-figs. 45
- Gravier, Ch.** Note préliminaire sur les Hexactiniaires recueillis au cours des croisières de la Princesse-Alice et de l'Hirondelle de 1888 à 1913 inclusivement. *Bull. Inst. Océanographique* No. 346 1918 (24 pp.) 9 text figs. 46
- Haeberli, A.** Biologische Untersuchungen im Löhrmoos, ein Beitrag zur Kenntnis der schweizerischen Moorfauna. *Rev. Suisse Zool.* 26 No. 6 (147-31) text figs. 47
- Hargitt, G. T.** Germ cells of Coelenterates. V *Eudendrium ramosum*. *Philadelphia, Journ. Morph.* 31 (17-24) pls. i-iii). 48
- Hatschek, E.** Production of medusoid forms from Gels. *London Nature* 101 (p. 504). 49
- Hundt, R.** Die ostthüringer Graptolithen, ihre Erhaltung und Bedeutung für die Zonenforschung. *Zs. Natw. Leipzig* 86 2-3 1916 (184-194). 50
- Hundt, R.** [*Graptolitoidea*.] *Centralb. Min. Stuttgart* 1918 1918 (p. 284). 51
- Hundt-Gera, R.** Der "Eisenbahnbruch" bei Raitzhain, die Fundstelle der Zone 10 des Mittelsilurs, unweit von Ronneburg. *Mt. Osterlande Altenburg S.A. N.F.* 15 (19-22) fig. 52
- Jäderholm, E.** Die Hydroiden des Eisfjords. *K. Svenska. Vet. Akad. Handl.* 54 4 teil 2, 4 1916 (14 pp.). 53
- Jäderholm, E.** Hydroids from the South Seas. Redogörelse för Norrköpings H. Allm. Läröverk Läsåret 1916-1917 (Reprint 25 pp.) 2 pls. 54
- Jäderholm, E.** Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia 1910-1913 xii. *Hydroiden* (9 pp.) 5 text-figs. 55
- Komai, T.** Kuragemushi no hassai no taiyo. [On the development of *Coeloplana*.] *Dobuts. Z. Tokyo* 30 1918 (484-489). 56
- Komai, T.** On Ctenophores of the neighbourhood of Misaki. *Annot. Zool. Jap. Tokyo* 9 1918 (451-473) pl. 57
- Lightbown, C.** On the dorsal mesenteric filaments in the siphonozooids of *Pennatulacea*. *Mem. and Proc. Manchester Lit. and Phil. Soc.* 62 1917 No. 4 (20 pp.) pl. 58
- Lundblad, O.** Om djupfaunan i svenska insjöar ur djurgeografisk synpunkt. *Upsala Fauna och Flora* 3 (97-122). 59
- Manck, E.** Die Graptolithen der Zone 18, sowie *Retiolites Eiseli* spec. nov., *Monogr. bispinosus* spec. nov. und *Diplograptus radiculatus* spec. nov. *Zs. Naturw. Leipzig* 86 5-6 1918 (337-344) text-figs. 60
- Matthai, G.** On reactions to stimuli in Corals. *Proc. Cambridge Phil. Soc.* 19 part iv (164-166). 61
- Matthai, G.** Is the Madreporarian skeleton an extraprotoplasmic secretion of the Polyps? *Proc. Cambridge Phil. Soc.* 19 part iv 1918 (160-163). 62
- Mavor, J. W.** On the development of the coral *Agaricia fragilis*, Dana. *P. Amer. Acad.* 51 9 1915 (483-511) 6 pls. text-figs. 63
- Mayer, A. G.** An expedition to the coral reefs of Torres Straits. *Pop. Sci. Mon. New York* 85 1914 (209-231) figs. 64
- Mayer, A. G.** Ecology of the Murray Island coral reef. *Papers from the Dept. of Mar. Biol. Carnegie Inst. Washington* 9 1918 (1-48) text-figs pls. i-xix. 65
- Molander, A. R.** Zoologische Ergebnisse der schwedischen Expedition nach Spitzbergen 1908 unter Leitung von Prof. G. De Geer, Teil 2, 9 Die Aleyonaccen des Eisfjords. *Stockholm Vet.-Ak. Handl.* 54 No. 9 (1918) 1919. 66

- Molander, A. R.** Membranöse Ausbildung der Kolonien bei *Gorgonacea* [nebst einigen Bemerkungen über *Rhizoxenia alba* Grieg.] Ark. Zool. Stockholm 11 No. 21 1918 (1-19) text-figs. 67
- Molander, A. R.** Der Kelch als systematischen Charakter bei den Alcyonaceen. Arkiv. för Zoologi 11 No. 22 (12 pp.). 68
- Moreau, L.** Les récifs coralliens. Rev. scientifique 56 1918 1918 (548-557) map. 69
- Mortensen, Th.** Papers from Dr. Th. Mortensen's Pacific Expedition 1914-16) I. Observations on protective adaptations and habits, mainly in marine animals. vii. Coelenterates. Vid. Medd. Copenhagen 69 1918 (82-83). 70
- Neppi, V.** Osservazioni sui polipi idroidi del golfo di Napoli. Pubblicazioni Staz. Zool. Napoli 2 fasc. 1 1917 (29-65) text figs pls. iv-v. 71
- Neppi, V.** Sulla rigenerazione nelle idromeduse. Boll. Soc. dei Naturalisti Naples 30 (S. ii, vol. x) (1917) 1918 Comunicazioni verbali (3-4). 72
- Neppi, V.** Sulla rigenerazione nelle idromeduse. Pubblicazioni Staz. Zool. Napoli 2 fasc. 2 (191-207) 13 text figs. 73
- Oppenheim, P.** Die cocäne Invertebraten-Fauna des Kalksteins in Togo. Beiträge Geol. Deutschen Schutzgebiete 12 1915 (1-126) 5 pls. 74
- Parsons, L. M.** The Carboniferous Limestone bordering the Leicestershire Coalfield. Q. J. Geol. Soc. 73 pt. 2 (84-110) pls. vii-xi). 75
- Sangiori, D.** Fossili tortoniani dell' Alta Valle dell' Idice. Riv. Italiana palaeont. Parma 23 (11-25). 76
- Stephenson, Ll. W.** North American Upper Cretaceous corals of the genus *Micrabacia*. Prof. Papers U.S. Geol. Survey 98-J 1916 (115-125) pls. xx-xxiii. 77
- Stephenson, L. W.** *Coelenterata*. Systematic palaeontology. Maryland Geological Survey. Upper Cretaceous Baltimore 1916 (343-5, 752-757) pls. xlviii-xlix. 78
- Stephenson, T. A.** On certain *Actiniaria* collected off Ireland by the Irish Fisheries Department during the years 1899-1913. Proc. R. Irish Academy, Dublin 34 Section B, No. 7 1918 (106-164) pls. xiv-xx. 79
- Stephenson, T. A.** *Coelenterata*. Part 1—*Actiniaria*. B.M. (N.H.) British Antarctic ("Terra Nova") Exped. 1910 Nat. Hist. Rep. Zoology 5, No. 1 (p. 68) 5 pls. 80
- Thomas, A. O.** A large colony of fossil coral. Proc. Iowa Acad. 24 1917 (105-109) pl. iv. 81
- Thompson, D'A. W.** Medusoid bells. London Nature 101 (p. 444). 82
- Thomson, S.** The occurrence of *Cavernularia lutenii*, Köll. in the seas of Natal. Mem. and Proc. Manchester Lit. and Phil. Soc. 62 1917 No. 7 (5 pp.) ii pls. 83
- Thomson, J. A. and Crane, G. VI.** The Alcyonarians of Okhamandal. Hornell, J. Report Govt. Baroda Mar. Zool. Okhamandal in Kattiawar part i. London 1909 (125-135) text figs, pl. 84
- Vaughan, T. W.** Some shoal-water corals from Murray Island (Australia) Cocos-Keeling Islands, and Fanning Island. Papers from the Dept. Mar. Biol. Carnegie Inst. Washington 9 1918 (49-234) pls. xx-xxciii. 85
- Vinassa de Regny, P.** Coralli Devoniani della Carnia. Riv. Ital. palaeont. Parma 23 (45-51). 86
- Weistermel, W.** Tabulaten und Hydrozoen. Beitr. geol. Erforsch. Deutschen Schutzgebiete 5 1913 (84-111) figs. 87
- Wheeler, W. C. vide Clarke, F. W.**
- Willem, V.** Considérations sur la rigidité et la taille chez les coelentérés. Haarlem, Arch. Néerl. de Physiol. Ser. iiii des Arch. Néerl. 2 1918 (477-483) 6 figs. 88
- Yabe, H.** Notes on a *Carpenteria*-limestone from B. N. Borneo. Sci. Rep. Tôhoku Imp. Univ. Sendai (2) Geol. 5 No. 1 1918 (15-30) pls. iii-v. 89

II.—SUBJECT INDEX.  
GENERAL AND MISCELLANEOUS.  
0803

- The coral-reef problem; **Cole, 26.**
- Les récifs coralliens; **Moreau, 69.**
- An expedition to the coral reefs of Torres straits; **Mayer, 64.**
- The glacial-control theory of coral reefs; **Daly, 28.**
- The *Gorgonaceae* as a factor in the formation of coral reefs; **Cary, 18.**
- Biologische Riff-Untersuchungen im Golf von Suz; **Bannwarth, 3.**
- Ecology of the Murray Island coral reef; **Mayer, 65.**
- Corals from Murray, Cocos-Keeling, Fanning Islands, and some corals from Kermadec Islands; **Vaughan, 85.**
- Die ostthüringer Graptolithen, ihre Erhaltung und Bedeutung für die Zonenforschung; **Hundt, 50.**
- The inorganic constituents of *Alecyonaria*; **Clarke and Wheeler, 24.**
- Rigidité et taille chez les coelentérés; **Willem, 88.**
- Medusoid bells and vibration phenomena; **Thompson, 82.**
- Production of Medusoid forms from gels; **Hatschek, 49.**
- Note on relative values of the different characters in the *Actiniaria*; **Stephenson, 80.**
- Staining sections of *Actiniaria* for nematocysts; **Stephenson, 79.**
- Der Kelch als systematische Charakter bei den Alecyonaceen; **Molander, 68.**
- La Fossilisation des Zoanthaires; **Cayeux, 20.**
- Weight per acre of spicules in tissues of living colonies of *Gorgonaceae*; **Cary, 18.**
- Gorgonaceae* of Florida-Antillean region; **Cary, 18.**
- Association of *Diphasia digitalis* and *Plumularia badia*; **Jäderholm, 55.**
- Zooanthellae* in mesogloea of *Actiniaria*; **Stephenson, 80.**
- Note sur une Actinic (*Thoracactis* n.g. *topseuti* n. sp.) et un Annélide

polychète (*Hermadion fauveli* n. sp. commensaux d'une Éponge siliceuse (*Sarostegia oculata* Topsent); **Gravier, 45.**

STRUCTURE. 0807

General.

Comparative anatomy of the nourishing individuals, and systematic division of the thecaphore hydroids; **Broch, 14.**

Structure and histology of *Perigonimus cidaritis* and *gemmae implexa* var. *neapolitana*; **Brückner, 15.**

*Hulcuriidae*; **Carlgren, 19.**

*Alcyonaria*; **Molander, 66.**

Special Organs.

Nature of Madreporarian skeleton; **Matthai, 62.**

The dorsal mesenteric filaments in the siphonozooids of *Pennatulacca*; **Lightbown, 58.**

La microstructure du squelette des *Stromatoporidae*; **Cayeux, 20.**

Chemical composition of skeletons of *Alcyonaria*; **Cayeux, 20.**

Note on structure of mesogloea of certain Irish *Actiniaria*; **Stephenson, 79.**

PHYSIOLOGY. 0811

Physiological senescence in *Hydro-medusae*; **Child, 22.**

Function of stellate cells of mesogloea cell-plexus of *Actiniaria*; **Stephenson, 80.**

Ciliary action in the internal cavities of *Pleurobrachia pileus*; **Gemmill, 37.**

The influence of the marginal sense organs on functional activity in *Cassiopea zamachana*; **Cary, 17.**

Note on presence of *zooxanthellae* in the gonads of *Actiniaria*; **Stephenson, 80.**

DEVELOPMENT. 0815

General.

Die geschlechtliche Fortpflanzung der deutschen Süßwasserpolypen; **Boecker, 9.**

Sexual dimorphism in *Grammaria*; **Broch, 13.**

Growth-rate and oecology of gorgonians; **Cary, 16.**

*Halcuriidae*; **Carlgren, 19.**

Reproductive periods of *Hydra viridissima*; **Haerberli, 47.**

**Komai, *Cocloplana* sp.,** Development of, **56.**

Development of *Agaricia*; **Mavor, 63.**

Membranöse Ausbildung der Kolonien bei *Gorgonacea*; **Molander, 67.**

On the probable order of appearance of the tentacles in the *Phelecinæ*; **Bourne, 10.**

### Ovum and Oogenesis.

Germ cells of *Eudendrium ramosum*; **Hargitt, 48.**

Nature of gonophores of *Eudendrium ramosum*; **Hargitt, 48.**

### Regeneration and Experimental.

Sulla rigenerazione nelle idromeduse; **Neppi, 72.**

Lacération chez les *Sagartia*; **Gravier, 43.**

Regeneration in *Hydra fusca*; **Göetsch, 40.**

Sulla rigenerazione nelle idromeduse; **Neppi, 73.**

Refutation of Child's theory of "Metabolic gradients" as applied to *Tabularia*; **Garcia-Banus, 36.**

Result of reducing specific gravity of water on a hydroid living in brackish water; **Annandale, 1.**

### ETHOLOGY. 0819

On Reactions to stimuli in Corals; **Matthai, 61.**

Note on habits of *Obelia longissima*; **Neppi, 73.**

Notes sur quelques espèces d'Hydroides libres; **Billard, 7.**

Habits of *Cnidonema capensis*; **Gilchrist, 38.**

Breeding season for *Agaricia fragilis* at the Bermuda Islands; **Mavor, 63.**

Protective resemblance in an Actinian from New Zealand; **Mortensen, 70.**

Ecology of the Murray Island coral reef; **Mayer, 65.**

Corals from Murray, Cocos-Keeling and Fanning Islands; **Vaughan, 85.**

### VARIATION AND PHYLOGENY. 0823

Environmental modifications of *Chondractinidae* living at great depths; **Gravier, 42.**

Effect of environment on growth of corals and stromatoporoids; **Dehorne, 29.**

### DISTRIBUTION. 0827

#### 1. Geographical.

##### A.—MARINE.

#### General.

Note on distribution in depth of certain actinians; **Gravier, 43.**

*Hydroïda* from Southern Seas; **Jäderholm, 54.**

#### Atlantic (including Mediterranean).

Note sur les Antipathaires du Golfe de Naples; **Gravier, 41.**

Hydroids from Gulf of Naples; **Neppi, 71.**

Mediterranean Actinians; **Gravier, 46.**

Zoogeographical observations on the hydroid fauna of the North Atlantic; **Broch, 14.**

*Coelenterata* of the Clyde sea area; **Chumley, 23.**

*Halcuriidae*; **Carlgren, 19.**

Hydroids of Eastern Canada; **Fraser, 35.**

*Medusae* and *Siphonophoræ*; **Bigelow, 4.**

L'Atlantique septentrional Actinians; **Gravier, 46.**

Récifs de l'Atlantique; **Moreau, 69.**

New species of *Medusa*; **Gilchrist 38.**

## Indian Ocean.

Occurrence of *Cavernularia lütkenii*; Köll.; Thomson, 83.

Aleyonarians of Okhamandal W. Coast India; Thomson and Crane, 84.

Australian *Hydroïda*; Jäderholm, 55.

*Halcuriidae*; Carlgren, 19.

Torres Straits, coral reefs; Mayer, 64.

## Pacific Ocean,

A revision of the hydroid fauna of Lord Howe Island; Briggs, 12.

*Halcuriidae*; Carlgren, 19.

Ctenophores of Misaki; Komai, 57.

Les récifs coralliens; Moreau, 69.

## Antarctic.

*Actiniaria*; Stephenson, 80.

*Halcuriidae*; Carlgren, 19.

*Aleyonaria*; Molander, 66.

Remarks on geographical distribution of Arctic *Aleyonacea*; Molander, 66.

*Aleyonaria* from Swedish Expedition to Spitzbergen 1908; Molander, 66.

Die Hydroiden des Eisfjords; Jäderholm, 53.

## Malay Archipelago.

New *Phelliinae*; Bourne, 10.

Notes sur quelques espèces d'hydroides de l'expédition du "Siboga"; Billard, 8.

B.—FRESH OR BRACKISH WATER.

*Hydra* in deep water of Swedish Lochs; Lundblad, 59.

Moorfauna: *hydrozoa*; Haerberli, 47.

*Hydrozoa* of Inle Lake, Shan Plateau, India; Annandale, 2.

A new genus of *medusae* from the Gangetic delta; Annandale, 1.

*Hydrozoa* and *Ctenophora* from Talé sap Gulf of Siam; Annandale, 1.

*Cordylophera lacustris* from Kiangsu province of China; Annandale, 1.

## 2. Geological.

## Cainozoic.

Fossili Tortoniani dell'Alta Valle dell'Idice; Sangiorgi, 76.

List of corals from the San Rafael beds 65 miles N. of Tampico, Mexico; Dumble, 33.

Corals from *Carpenteria* limestone; Yabe, 89.

Tabulaten und Hydrozoen; Weisfermel, 87.

Die eocäne Invertebraten-Fauna des Kalksteins in Togo; Oppenheim, 74.

## Mesozoic.

*Anthozoa* from Chalet; Couffon, 27.

*Coelenterata*; Stephenson, 78.

N. American corals of the genus *Micrabacia*; Stephenson, 77.

Zur Kenntnis des persischen Miocäns (Korallen); Dietrich, 31.

## Palaeozoic.

Coralli Devoniani della Carnia; Vinassa de Regny, 86.

A large colony of fossil coral from Jones County, Iowa; Thomas, 81.

Lower Carboniferous Corals Leicester-shire; Parsons, 75.

Die Fundstelle der Zone 10 des Mittelsilurs unweit von Ronneburg; Hundt-Gera, 52.

Corals from Pennsylvanian series; Girty, 39.

Two remarkable corals from the Devonian of N.S. Wales; Etheridge, 34.

Les Graptolites du "Vall de Ribes"; Dollé, 32.

*Sphaeractinidae* from the Carboniferous of Elba; De Stephani, 30.

New species of coral from the Loomberah Limestone; Chapman, 21.

Corals of the Amsden formation of Wyoming; Branson and Greger, 11.

Die Graptolithen der Zone 18 . . . ; Manck, 60.

## III.—SYSTEMATIC. 0831

## HYDROZOA (=HYDROMEDUSÆ).

*Abietinaria abietina* p. 117; *flicula* p. 119; *fusca* p. 120; M. Atlantic, BROCH Danish Ingolf Exp. 5 7.

*Abyla trigona* p. 408; *leuckartii* p. 409; *dentata* sp.n. p. 409 figs., W. Atlantic, BIGELOW Bull. Mus. Comp. Zool. 62.

*Aglantha*, note on genus, BIGELOW p. 388 T.c.—*A. digitalis* Skager Rak, CLEVE-EULER K. Svenska Vet. Akad. 57 No. 7 p. 127.

*Aglaophenia divaricata* p. 18; var. *acanthocarpa* p. 18; *sinuosa* p. 19; *macrocarpa* p. 19; figs., JÄDERHOLM Redgö. Norrköpings H. Allm. Lärov. Läsår. 1916–17.—*A. hoveensis* sp. n. Lord Howe Island, BRIGGS Rec. Austr. Mus. 12 No. 3 p. 27 pls. v, iv.—*A. helleri*, NEPPI Pub. Staz. Napoli 2 fasc. 1 p. 55.

*Aglaophenopsis cornuta* p. 77 figs.; *pharetra* sp. n. p. 80 fig. N. Atlantic, BROCH Danish Ingolf. Exp. 5 7.—*A. vaga* sp. n. Lord Howe Island, BRIGGS Sydney Rec. Austr. Mus. 12 No. 3 p. 29 pls. v, vi.

*Antennella secundaria*, NEPPI Pub. Staz. Napoli 2 fasc. i p. 54.

*Bimeria brevis* sp. n. E. Canada, FRASER Centr. Canad. biol. 1917 p. 338 pl. i.—*B. fluminatis* Gulf of Siam, ANNANDALE Mem. Asiatic Soc. Bengal 6 p. 111 fig.

*Bonneviella grandis* p. 173, BROCH Danish Ingolf. Exp. 5 7.

*Bougainvillea niobe*, BIGELOW Bull. Mus. Comp. Zool. 62 p. 368.

*Branchiocerianthus reniformis* sp. n., Davis Strait, BROCH Danish Ingolf. Exp. 5 7 p. 176.

*Calyropsis papillata* sp. n. W. Atlantic, BIGELOW Bull. Mus. Comp. Zool. 62 p. 378 figs.

*Campanularia volubilis* p. 153; *verticillata* p. 155; *groenlandica* p. 157; *speciosa* p. 158; *integra* p. 159; *hincksii* p. 163; *johnstoni* p. 163; N. Atlantic, BROCH Danish Ingolf. Exp. 5 7.—*C. serrulata* Gulf of Siam, ANNANDALE Mem. Asiatic Soc. Bengal 6 p. 111 fig.

*Campanulariidae*, systematics, BROCH Danish Ingolf. Exp. 5 7 p. 149.

*Campanulina turrita*, Greenland, BROCH p. 31 T.c.—*C. hincksii*, free living, BILLARD Bull. Mus. d'Hist. Nat. p. 542 fig.—*C. ceylonensis* Bay of Bengal, ANNANDALE Mem. Asiatic Soc. Bengal 6 p. 112.

*Ceratocymba sagittata* W. Atlantic, BIGELOW Bull. Mus. Comp. Zool. 62 p. 411 figs.

*Chlorohydra viridissima*, BOECKER Biol. Centrabl. 38 11 p. 496.

†*Circopora savii* carboniferous of Elba, DE STEPHANI Palacont. Italica 23 p. 13.

*Cladocarpus integer* p. 82 fig.; *formosus* p. 85 figs.; *diana* sp. n. p. 87 figs.; *bicuspis* p. 89 figs.; N. Atlantic, BROCH Danish Ingolf. Exp. 5 7.—*C. sibogae*, BILLARD Arch. Zool. Exp. N. et Rev. 57 p. 26 fig.—*C. bicuspis* Trondjhemfjord, BROCH K. Norske Vid. Selsk 1917 p. 26.

*Clytia pelagica*, free living, BILLARD Bull. Mus. d'Hist. Nat. 1917 No. 7 p. 539 fig.—*C. sibogae* sp. n. Binongka, BILLARD p. 543 fig. T.c.—*C. noliformis*, Madagascar, Falkland Is.; JÄDERHOLM Redgö. Norrköpings H. Allm. Lärov. Läsår. 1916–1917 p. 4.—*C. johnstoni*, FRASER Centr. Canad. biol. 1917 p. 345 pl. xi.

*Cnidonema* gen. n., *capensis* sp. n. Cape of Good Hope, GILCHRIST Q.J. M.S. 63 p. 509 figs.

*Cordylophora lacustris* China, ANNANDALE Mem. Asiatic Soc. Bengal 6 p. 110.

*Corydendrium parasiticum*, NEPPI Pub. Staz. Napoli 2 fasc. 1 p. 43 figs.

*Corymorpha groenlandica*, Danmark Strait, BROCH Danish Ingolf. Exp. 5 7.

*Cyclocanna* gen. n. p. 383, *welshi* sp. n. p. 384 figs, W. Atlantic, BIGELOW Bull. Mus. Comp. Zool. 62.

*Cytaeis tetrastyla* W. Atlantic, BIGELOW Bull. Mus. Comp. Zool. 62 p. 367.

*Dendroclava dohrni*, NEPPI Pub. Staz. Napoli 2 fasc. 1 p. 42 figs.

†*Diamantopora* gen. n. *lotzi* sp. n. Tertiary S.W. Africa p. 108, WEISFERMEL Beitr. geol. deutsch. Schutzgeb. 5 1913.

*Diphasia fallax* p. 108; *wandeli* p. 111; *rosacea* p. 112; *attenuata* p. 113; *alata* p. 114; N. Atlantic, BROCH Danish Ingolf. Exp. 5 7.

*Diphyes appendiculata* p. 420; *folereri* p. 422, W. Atlantic, BIGELOW Bull. Mus. Comp. Zool. 62.

*Diphyopsis disyar* p. 422; *mitra* p. 423; *bojani* p. 424 figs.; W. Atlantic, BIGELOW T.c.

*Disertasia* gen. n.; *cavolini* sp. n. Bay of Naples, NEPPI Pub. Staz. Napoli 2 fasc. 1 p. 50 figs.

*Eucopella caliculata*, FRASER Centr. Canad. biol. 1917 p. 347.

*Eudendrium capillare* var. *mediterraneum* p. 30 figs.; *racemosum* p. 33 figs.; *rameum* p. 36 figs., NEPPI Pub. Staz. Napoli 2 fasc. 1.—*E. ramosum*, HARGITT J. Morph. 31 p. 1-16.

*Euliara* gen. n. p. 374; *mayeri* sp. n. p. 374 figs., BIGELOW Bull. Mus. Comp. Zool. 62.

*Galeolaria quadridentata* p. 417 figs.; *monoica* p. 418; *australis* p. 419, W. Atlantic, BIGELOW T.c.

*Gemmaria implexa* Naples, BRÜCKNER Zeitschr. Wiss. Zool. 111 1914 p. 460 text figs. pls. viii, ix.

*Grammaria abietina*, BROCH Medd. Trondhjems Biol. Stat. Nr. 11 Norske Selsk. Skr. (1916) No. 1.—*G. abietina* Spitzbergen, JÄDERHOLM K. Svenska Vet. Akad. Handl. 54 p. 10.—*G. serpens* p. 16; *conferta* p. 17; *abietina* p. 18; *immersa* p. 22; N. Atlantic, BROCH Danish Ingolf. Exp. 5 7.

*Halecium halecinum* p. 36; *beanii* p. 38; *scutum* p. 39; *curvicaule* p. 41; *muricatum* p. 43; *labrosum* p. 45; *tenellum* p. 46; *minutum* p. 50; N. Atlantic, BROCH, T.c., figs.—*H. tenellum* var. *mediterranea*, NEPPI Pub. Staz. Napoli 2 fasc. 1 p. 56 fig.

Family series *Halecina* nom. nov.; BROCH Danish Ingolf. Exp. 5 7 p. 35.

*Halicornaria campanulata* p. 72 fig. N. Atlantic, BROCH, T.c.—*H. pennatula* (Ellis et Solander) nom. nov., BILLARD Ann. Zool. et Malacol. Belgique 48 1914 p. 27 pl. xi.—*H. sibogae* sp. n. Dutch Indies, BILLARD Arch. Zool. Exp. N. et Rev. 57 p. 25 fig.

Family series *Hebestina* nom. n., BROCH Danish Ingolf. Exp. 5 7 p. 6.

*Hincksella* gen. n., *sibogae* sp. n. Dutch Indies, BILLARD Arch. Zool. exp. N. et Rev. 57 p. 23 fig.

*Hydra* Swedish Lochs, LUNDBLAD Upsala Fauna och Flora 3.—*H. viridissima*, HAEBERLI Rev. Suisse. zool. 26 p. 164.—*H. vulgaris* Inlé Lake, ANNANDALE Rec. Ind. Mus. 14 p. 78, 198.—*H. attenuata*, BOECKER Biol. Centralbl. 38 11 p. 494.—*H. fusca*, GOETSCH Bioli Centralbl. 37 1917 p. 465.

*Hydractinia carnea* var. *mediterranea* p. 39; *pruvoti* p. 40 figs., NEPPI Pub. Staz. Napoli 2 fasc. i.

*Hydrallmania falcata* N. Atlantic, BROCH Danish Ingolf. Exp. 5 7 p. 135 fig.

*Idia pristis*, boule ovoïde et boyau irrégulier, BILLARD Bull. Mus. d'Hist. Nat. 1917 No. 7 p. 545.

*Kirchenpaueria*, Nomenclature, BROCH Danish Ingolf. Exp. 5 7 p. 52.

*Lafoča dumosa*, p. 7; *gracillima* p. 9; *fruticosa* p. 12; N. Atlantic, BROCH T.c.

*Lafoëina maxima* N. Atlantic, BROCH p. 30 T.c.—*L. tenuis* p. 11; *maxima* p. 12; Spitzbergen, JÄDERHOLM K. Svenska Vet. Akad. Handl. 54.

*Laomedea flexuosa* p. 165; *geniculata* p. 166; *longissima* p. 167; *hyalina* p. 169; *gracilis* p. 170; N. Atlantic, BROCH Danish Ingolf. Exp. 5 7.

*Lictorella pinnata* N. Atlantic, BROCH p. 22 T.c.

*Muggiaca spiralis* W. Atlantic, BIGELOW Bull. Mus. Comp. Zool. 62 p. 402.

*Nematocarpus* gen. n., *ramuliferus* N. Atlantic figs., BROCH p. 74 Danish Ingolf. Exp. 5 7.

*Nemertesia antennina* p. 64; *ramosa* p. 66 figs. N. Atlantic, BROCH T.c.

*Obelia articulata*, FRASER Centr. Canad. biol. 1917 p. 348 pl. i.—*O. geniculata*, NEPPI Pub. Staz. Napoli 2 fasc. ii p. 192 figs.

*Opercularella pumila*, FRASER Centr. Canad. biol. 1917 p. 351.



*Ophiodes dichotomus* Cape Jaubert Australia, JÄDERHOLM K. Sv. Vet. Akad. Handl. 52 No. 12 p. 4 text fig.

*Pasythea quadridentata*, BRIGGS Rec. Austr. Mus. 12 No. 3 p. 39.

*Pelmatohydrn oligactis*, BOECKER Biol. Centralb. 33 11 p. 485.

*Perigonimus cidaritis* Naples, BRÜCKNER Zeitschr. Wiss. Zool. 111 1914 p. 448 text-figs. pl. 8

*Phialidium variabile*, NEPPI Pub. Staz. Napoli 2 fasc. ii. p. 202 figs.

*Plumularia bavia* Cape Jaubert Australia, JÄDERHOLM K. Sv. Vet. Akad. 52 No. 12 p. 7 fig.—*P. balei* Lord Howe Id., BRIGGS Rec. Austr. Mus. 12 No. 3 p. 41.—*P. buskii* Lord Howe Id., BRIGGS p. 42 T.c.—*P. catharina* N. Atlantic, BROCH Danish Ingolf. Exp. 5 7 p. 56 fig.—*P. jäderholmi* p. 17, JÄDERHOLM Redgör. Norrköppings H. Allm. Lärov. Läsår. 1916–17.—*P. regressa* sp. n. Dutch Indies, BILLARD Arch. Zool. exp. N. et Rev. 57 p. 24.—*P. spinulosa* Lord Howe Id., BRIGGS Rec. Austr. Mus. 12 No. 3 p. 43.

*Podocoryne carnea* Skagerk Rak, CLEVE-EULER K. Svenska Vet. Akad. Handlingar 57 No. 7 p. 93 113.

*Polymeresia* gen. n. *gracillima* p. 70 figs. N. Atlantic, BROCH Danish Ingolf. Expl 5 7.

*Polyplumaria frutescens* p. 59; *stabelleata* p. 59; *profunda* p. 60 fig., BROCH T.c.

*Protohydra leuckartii*, tidal pools, River Tavy, Bere Ferrers, BAKER Trans. Plymouth District Field Club No. 1 (1912–13) 1913 Records p. 23.

*Sertularella macrocarpa* sp. n. Dutch Indies, BILLARD Arch. Zool. exp. N. et Rev. 57 p. 23 fig.—*S. mediterranea*, NEPPI Pub. Staz. Napoli 2 fasc. i. p. 48 figs.—*S. tamarisca* p. 96; *tricuspidata* p. 98; *amphorifera* p. 100 figs.; *polyzonias* p. 101; *gayi* p. 102; *tenella* p. 104; *fusiformis* p. 105; *rugosa* p. 106 fig.; N. Atlantic, BROCH Danish Ingolf. Exp. 5 7.—*S. tenella* p. 7; *indivisa* p. 8; *arborea* p. 8; *neglecta* p. 9; *articulata* p. 9; *divaricata* var. *subdichotoma* p. 9; *johnstoni* p. 10; *plectilis* p. 10; *glacialis* p. 11; *curvata*

sp. n. p. 11; *adpressa* p. 12; *aggregata* sp. n. *tridentata* p. 13; South Seas, JÄDERHOLM Redgör. Norrköppings H. Allm. Lärov. Läsår. 1916–17.—*S. quadridentata*, JÄDERHOLM K. Svensk. Vet. Akad. 52 No. 12 p. 6 fig.

*Sertularia cupressina* p. 124 figs.; *tenera* p. 127 fig.; *fabricii* p. 130 figs.; *tubuliformis* p. 132 figs.; *mirabilis* p. 133, N. Atlantic, BROCH Danish Ingolf. Exp. 5 7.—*S. maplestoni* p. 17; *bidens* p. 17; *tubuliformis* p. 14 Madagascar, JÄDERHOLM Redgör. Norrköppings H. Allm. Lärov. Läsår. 1916–1917 figs.—*S. decipiens* Australia, JÄDERHOLM K. Svensk. Vet. Akad. 52 No. 12 p. 6.

Family series *Sertulariina* nom. nov., BROCH Danish Ingolf. Exp. 5 7 p. 94.

*Stegopoma plicatile* N. Atlantic, BROCH p. 26 T.c.—*S. plicatile* Spitzbergen, JÄDERHOLM K. Svenska Vet. Akad. Handl. 54 p. 11.

*Stromatopora* spp., DEHORNE C. R. Acad. Sci. Paris 166 p. 219.

*Thecocarpus myriophyllum* N. Atlantic, BROCH Danish Ingolf. Exp. 5 7 p. 92.

*Thuiaria interrupta* Australia, JÄDERHOLM K. Svensk. Vet. Akad. 52 No. 12 p. 5.—*T. tubuliformis*, BRIGGS Rec. Austr. Mus. 12 No. 3 p. 38.—*T. thuja* p. 139; sp. aff. *hippuris* p. 141 fig.; *laxa* p. 142; *alternithea* p. 143; *variabilis* nom. nov. p. 145; *lonchitis* p. 146; *carica* p. 148; sp. aff. *distans* p. 148 fig., BROCH Danish Ingolf. Exp. 5 7.

*Toichopoma obliquum* Spitzbergen, JÄDERHOLM K. Svenska Vet. Akad. Handl. 54 p. 10.

*Tubiclava fruticosa*, NEPPI Pub. Staz. Napoli 2 fasc. 1 p. 47 figs.

*Tubularia mesembryanthemum*, SALENSKY Mem. Acad. Imp. Sci. St. Petersburg 1911 (8) 30 No. 6 p. 49.

*Voglia pentacantha* p. 406 pl. iv.; *glabra* sp. n. p. 407 pl. iv.; W. Atlantic, BIGELOW Bull. Mus. Comp. Zool. 62.

*Zygophylax biarmata* N. Atlantic, BROCH Danish Ingolf. Exp. 5 7 p. 24.—*Z. sibogae* sp. n. Dutch E. Indies, BILLARD Arch. Zool. exp. N. et Rev. 57 p. 21 fig.

## GRAPTOLITOIDEA.

†*Diplograptus radiculatus* sp. n.,  
MANCK Zs. Naturw. 86 p. 343.

*Graptolitoidea*, HUNDT Centrallb. Min.  
Stuttgart 1918 p. 284.

†*Monograptus dubius* p. 296;  
*capillaceus* p. 297; *priodon* p. 298;  
*vomerinus* p. 300; Vall de Ribes,  
DOLLÉ Ann. Soc. Géol. Nord 43 1914  
figs.—†*M. bispinosus* sp. n., MANCK  
Zs. Naturw. 86 p. 343 figs.

†*Retiolites Eisei* sp. n., MANCK p.  
338 T.c.

## SCYPHOZOA (= SCYPHOMEDUSÆ).

*Charybdea marsapialis* var. *Xaymac-*  
*hana* p. 399; *alata* p. 400, W. Atlantic,  
BIGELOW Bull. Mus. Comp. Zool. 62.

## ANTHOZOA.

## ALCYONARIA.

*Alcyonaria*, systematics, MOLANDER  
Ark. Zool. 11 No. 22.

*Anthelia*, diagnosis, MOLANDER Ark.  
Zool. 11 No. 21 p. 2.—*A. borealis* p. 8  
fig. 2, *fallax* p. 10 fig. 3, MOLANDER  
Ark. Zool. 11 No. 22.

*Anthothela grandiflora*, MOLANDER  
p. 6 fig. 1 T.c.

*Asenathia* gen. n. *piscatoris* sp. n.  
gangetic delta, ANNANDALE Mem.  
Asiatic Soc. Bengal 6 p. 114 figs.

*Astromuricea stellifera* sp. n. India,  
THOMSON and CRANE Hornell Rept.  
Govt. Baroda pt. 1 p. 130 pl. fig. 1-3  
text fig. 2.

*Cavernularia lutkenii* Köhl, Seas of  
Natal, THOMSON Manchester Memoirs  
62 1917 No. 7.

†*Chaetetes stelliformis* sp. n. Loom-  
berah Limestone Australia, CHAPMAN  
Proc. Linn. Soc. N.S.W. 43 p. 392 fig.

*Clavularia*, diagnosis, MOLANDER Ark.  
Zool. 11 No. 21 1918 p. 3.

*Dendronephthya* (*Spongodes*) *dend-*  
*rophyta* p. 127 fig. 4; *brevirama* p.  
128 textfig. 1, 1 fig. 6, THOMSON  
and CRANE Hornell Rept. Govt.  
Baroda pt. 1.

†*Diplochaetetes longitibus*, sp. n. S.W.  
Africa Tertiary p. 84 figs., WEISFERMEL  
Beitr. Geol. Deutschen Schutzgeb. 5  
1913.

*Echinomuricea uliginosa* var. *tenerior*  
var. n. India, THOMSON and CRANE  
Hornell Rept. Govt. Baroda pt. 1  
p. 131 pl. figs. 9, 10, 13.

*Eunepthyn glomerata* Spitzbergen,  
MOLANDER K. Svenska Vet. Akad.  
Handl. 54 No. 9 p. 11.

*Gersemia rubiformis* p. 4; *uvaeformis*  
p. 6; *clavata* p. 7; *clavata* f. *crassa* p.  
8; *fruticosa* p. 9; *fruticosa* var. *rigida*  
p. 10; *mirabilis* p. 11; Spitzbergen,  
MOLANDER T.c.

*Juncella juncea* India, THOMSON and  
CRANE HORNELL Rept. Govt. Baroda  
pt. 1 p. 133 pl. fig. 14.

*Lophogorgia lutkeni* India, THOMSON  
and CRANE HORNELL p. 132 text fig. pl.  
fig. 11 T.c.

†*Monotrypa carnica* forma n.,  
VINASSA DE REGNY Riv. Ital. pal. 23  
p. 51.

*Rhizozenia alba* Grieg, MOLANDER  
Ark. Zool. 11 No. 21 p. 14 figs.

*Sclerophytum polydactylum* India,  
THOMSON and CRANE HORNELL Rept.  
Govt. Baroda pt. 1 p. 126 fig. 5.

*Stichopathes robustus* sp. n. p. 3 text  
figs., GRAVIER Bul. Inst. Océanographi-  
que Monaco No. 343.

†*Syringopora carnica* forma n.,  
VINASSA DE REGNY Riv. Ital. pal. 23  
p. 50.

*Virgularia rumphii* India, THOMSON  
and CRANE HORNELL Rept. Govt.  
Baroda pt. 1 p. 134 pl. figs. 7, 8, 12.

## ZOANTHARIA.

*Acropora murrayensis* sp. n. p. 183,  
VAUGHAN Carnegie Inst. Papers 9.

*Actinauge richardi* (Marion) p. 148  
pls. xiv, xv, xvi, STEPHENSON Proc.  
R. Irish Acad. 34.

*Actinernus michaelisarsis* sp. n. Atlantic  
Ocean, p. 33. p. i. fig. 6.—*A. nobilis*  
p. 32 textfig. 25; *elongatus* p. 33;  
*robustus* p. 34 pl. i. fig. 9; *antarcticus*  
p. 35, CARLGVEN T.c.—*A. verrilli*

- sp. n. p. 2, 6, GRAVIER Bul. Inst. Océanogr. No. 346.—*A. saginatus* p. 128, pls. xv, xvi, xviii; *aurelia* sp. n. p. 131, pls. xv, xvi, xvii, xviii, STEPHENSON Proc. R. Irish Acad. 34.
- Actinopora* gen. n., *carnica* forma n. p. 48, VINASSA DE REGNY Riv. Ital. pal. 23.
- Actinostola atrostoma* sp. n. Ireland, STEPHENSON Proc. R. Irish Acad. 34 p. 118.
- Agaricia fragilis* development, MAVOR P. Amer. Acad. 51 9 p. 483.
- Aiptasia minima* sp. n. New Zealand, STEPHENSON "Terra Nova" Rep. Zool. 5 1 p. 49 figs.
- Aiptasioides* gen. n. (*Metridiinae*), *prima* sp. n. S. Trinidad, STEPHENSON p. 51 figs. T.c.
- †*Alveolites collinensis*; *crinalis*; *Julica* formae n., VINASSA DE REGNY Riv. Ital. pal. 23 p. 50.
- Anemonia insessa* sp. n. p. 1, 3, GRAVIER Bul. Inst. Océanogr. No. 346.
- Antipathella subpinnata* Naples, GRAVIER Pub. Staz. Napoli 2 fasc. 2 p. 234 pl. xiii figs. 8-9.
- Antipathes dichotoma* Naples p. 227 pl. 13 fig. 3, *fagilis (gracilis)* p. 229 pl. xii fig. 2 pl. 13 fig. 3 Naples, GRAVIER T.c.
- Artemidactis* gen. n. (*Sagartiinae*), *victrix* sp. n. Ross Sea, STEPHENSON "Terra Nova" Rep. Zool. 5 p. 41 figs.
- †*Axophyllum* p. 308; *Cylindricum* p. 310 sp. n., Pennsylvanian, GIRTY Missouri Bur. Geol. and Mines (2) 13 1915.
- Bolocera tuediae* p. 112 pls. xiv, xx, STEPHENSON Proc. R. Irish Acad. 34.—*B. longicornis*, STEPHENSON "Terra Nova" Rep. Zool. 5 1 p. 20 figs.
- Calliactis reticulata* sp. n., STEPHENSON p. 53 figs. T.c.
- †*Campophyllum torquium* p. 320, Pennsylvanian, GIRTY Missouri Bureau Geol. and Mines (2) 13 1915.
- Carlgrenia* gen. n., *desiderata* sp. n. p. 109 pls. xiv xvi xix xx Ireland, STEPHENSON Proc. R. Irish Academy 34.
- Chitonanthus incubans* p. 11; *indutus* p. 12; *abyssorum* p. 13; spp. n., GRAVIER Bul. Inst. Océanogr. No. 346.
- Chondrodactis coccinea* p. 136 pls. xvi xviii; *pulchra* p. 139 pls. xiv xvi xviii; *duplicata* p. 142 pls. xiv xv xviii xix spp. n., STEPHENSON Proc. R. Irish Acad. 34.
- Cocloseris* gen. n. *mayeri* sp. n. Murray Id., VAUGHAN Carnegie Inst. Papers 9 p. 139.
- †*Coenites carnica, mariae* formae n., VINASSA DE REGNY Riv. Ital. pal. 23 p. 50.
- †*Columnaria neminghensis* N.S. Wales, ETHERIDGE Rec. Austr. Mus. 12 p. 50 pls. viii ix.
- †*Conoclyathus togoënsis* sp. n., OFFENHEIM Beitr. geol. Deutsch. Schutzgeb. 12 1915 p. 12 figs.
- Corallimorphus ingens* sp. n. p. 23, GRAVIER Bul. Inst. Océanogr. No. 346.
- Cyathophyllidae* gen. Jones County Iowa, THOMAS Proc. Iowa Acad. 24 1917 p. 105 fig.
- Cymbactis gossei* sp. n. Ireland, STEPHENSON Proc. R. Irish Acad. 34 p. 123 pls. xiv, xvii.—*C. selaginella* sp. n. McMurdo Sound, STEPHENSON "Terra Nova" Rep. Zool. 5 1 p. 36 figs.
- DecapHELLIA* gen. n. p. 60, *psammomitra* sp. n. p. 60 New Guinea, BOURNE Q.J. M.S. 63.
- Epiactis novo-zealandica* sp. n. STEPHENSON "Terra Nova" Rep. Zool. 5 1 p. 24 figs.
- Favia stelligera* var. *fanningensis* var. n. Fanning Id., p. 103; *Matthai* sp. n. Indian Ocean, VAUGHAN Carnegie Inst. Papers 9 p. 109 figs.
- †*Favosites volaica, forojuliensis*; formae n., *forojuliensis* var. *pinnata* var. n.; *robiniaefolia*; *italica*; formae n., VINASSA DE REGNY Riv. Ital. pal. 23 p. 47.
- Gliactis* gen. n., *crassa* sp. n. p. 7, GRAVIER Bul. Inst. Océanogr. No. 346.
- Halcurias pilatus* p. 25; *carlgreni* p. 26 text fig. 22, CARLGREN Lund Univ. Årsskr. N.F. Avd. 2 14 No. 29.—*H. endocoelactis* sp. n. New Zealand, STEPHENSON "Terra Nova" Rep. Zool. 5 1 p. 14 figs.
- Halcuriidae*, Revision of the family, CARLGREN Lund Univ. Årsskr. N.F. Avd. 2 14 No. 29 pp. 1-37.

*Halcampoides aspera* sp. n. McMurdo Sound, STEPHENSON "Terra Nova" Rep. Zool. 5 1 p. 10 figs.

*Hormathia* (?) *musculosa* sp. n. p. 15, GRAVIER Bul. Inst. Océanogr. No. 346.

*Hormosoma* gen. n. (*Paraactinac*), *scotti* sp. n. McMurdo Sound, STEPHENSON "Terra Nova" Rep. Zool. 5 p. 29 figs.

*Isactineruus* gen. n., 4-lobatus sp. n. Japan, CARLGREN Lund Univ. Årsskr. N.F. Avd. 2 14 No. 29 p. 29 textfigs. 23-24, pl. i figs. 4-5.

*Leiopathes glaberrima* Naples, GRAVIER Pub. Staz. Napoli 2 fasc. 2 p. 225.

*Leptastraea purpurea* Dana, VAUGHAN Carnegie Inst. Papers 9 p. 91 figs.

*Leptoteichus* gen. n. (*Chondractiniinae*), *insignis* sp. n. McMurdo Sound, STEPHENSON "Terra Nova" Rep. Zool. 5 1 p. 57 figs.

*Lillicella* gen. n. (*Paraactinac*) *lacunifera* sp. n. McMurdo Sound, STEPHENSON p. 33 figs. T.c.

†*Lophophyllum alleni* p. 317; *distortum* p. 318; Pennsylvanian, Girty Missouri Bur. Geol. and Mines (2) 13 1915.

†*Micrabacea rotatilis* p. 753 pl. xlix figs. 1-4; *marylandica* p. 755 pl. xlvi figs. 1-4 spp. n. Maryland upper cretaceous, STEPHENSON Maryland Geol. Survey upper Cretaceous.—†*M. cribraria* p. 117 sp. n. *americana* p. 118; *americana* var. *multicostata* var. n. p. 119; *rotatilis* p. 119; *rotatilis* var. *georgiana* var. n. p. 120; *marylandica* p. 121; *mincolensis* sp. n. p. 122; *mississippiensis* sp. n. p. 123; *coronula* p. 124; America, STEPHENSON Prof. Papers U.S. Geol. Survey 98-J figs.

*Montipora cocosensis* p. 152 figs.; *elschneri* Fanning Id. p. 154 figs., VAUGHAN Carnegie Inst. Papers 9.

†*Montivallia ardnennensis* p. 85; *regularis* p. 85, COUFFON Bull. Soc. d'Ét. Sci. Angiers (n.s.) 1917.

*Nectactis* gen. n., *singularis* sp. n. p. 18 text-figs., GRAVIER Bul. Inst. Océanogr. No. 346.

*Orbicella gravieri* nom. nov., VAUGHAN Carnegie Inst. Papers 9 p. 86.—†*O.* sp. Oligocene B.N. Borneo, YABE Sci. Rep. Tôhoku Imp. Univ. 5 p. 18 pl. iv.

†*Pachypora coralloides* forma n., VINASSA DE REGNY Riv. Ital. pal. 23 p. 49.

*Pachyseris torresiana* sp. n. Torres St., VAUGHAN Carnegie Inst. Papers 9 p. 132 figs.

*Paraclidae*, key to family, STEPHENSON "Terra Nova" Rep. Zool. 5 1 p. 27.

*Paraclis flava* p. 2, 4; *vestita* p. 2, 5 spp. n., GRAVIER Bul. Inst. Océanogr. No. 346.

*Parantipathes larix* Naples, GRAVIER Pub. Staz. Napoli 2 fasc. 2 p. 236 pl. vii fig. 1.

*Phellia castanea* p. 35; *phassonesioides* p. 48; *allantoides* p. 53; *cylicodes* p. 57; spp. n., BOURNE Q.J. Micr. Sci. 63.

*Phellinae*, systematics, BOURNE p. 77 T.c.

†*Plasmopora carnica*, forma n., VINASSA DE REGNY Riv. Ital. pal. 23 p. 47.

*Pocillopora woodjonesi* sp. n. Cocos-Keeling Id., VAUGHAN Carnegie Inst. Papers 9 p. 80 figs.

*Polysiphonia*, CARLGREN Lund Univ. Årsskr. N.F. Avd. 2 14 No. 29 p. 36 pl. i fig. 1.

†*Porites* sp. Oligocene B.N. Borneo, YABE Sci. Rep. Tôhoku Imp. Univ. 5 p. 18 pl. iv.—*P. murrayensis* p. 192; *australiensis* p. 194; *mayeri*, Murray Id. p. 196; *haddoni*, Murray Id. p. 197; *densa*, Murray Id. p. 201; *andrewsi*, Murray Id. p. 203, spp. n., VAUGHAN Carnegie Inst. Papers 9.

*Pterogorgia pinnata* Trondhjemsfjord, BROCH K. Norske Vid. Selsk. 1917 1918 p. 26.

*Sagartia sociabilis* p. 10; *sobolescens* p. 11; spp. n., GRAVIER Bull. Inst. Océanogr. No. 346.

*Sagartiadae* from 100—6035 metres in the Atlantic, GRAVIER C. R. Acad. Sci. Paris 167 p. 655.

*Sicyôpidae* fam. n., *sicyopus* gen. n., *commensalis* sp. n., p. 21, GRAVIER Bul. Inst. Océanogr. No. 346.

†*Spongophyllum halysitoides* N.S. Wales, ETHERIDGE Rec. Austr. Mus. 12 p. 49 pl. vii.

*Stephanactis impedita* p. 16; *inornata* p. 17; spp. n., GRAVIER Bul. Inst. Océanogr. No. 346.

†*Stromatopora cadornai*; *forojuliensis* forma n., VINASSA DE RÉGNY Riv. Ital. pal. 23 p. 51.

*Synactineruus* gen. n. p. 30, *flavus* sp. n. Japan, CARLGREN Lund Univ. Arsskr. N.F. Avd. 2 14 No. 29 p. 31, pl. i. figs. 7 and 8.

*Synhalcurias elegans*, CARLGREN p. 27 T.c.

†*Thamnophyllum carnicum*, forma n., VINASSA DE RÉGNY Riv. Ital. pal. 23 p. 47.

*Thoracactis* gen. n. *topsendi* sp. n. Iles du Cap. Vert., GRAVIER p. 1 Bul. Inst. Océanogr. Monaco No. 344.

†*Trochocyathus* (?) *vaughani* sp. n. p. 752 pl. xlviii figs. 5-6 upper Cretaceous Maryland, STEPHENSON Maryland geol. Survey upper Cretaceous.—†*T. magnevilliamus* p. 82, fig. 1; *proximus* p. 83; *deltimontanus* p. 84; COUFFON Bull. Soc. d'Ét. Sci. Argers (n.s.) 1917.

†*Zaphrentis amsdenensis* sp. n. Amsden of Wyoming, BRANSON and GREGER Bull. Geol. Soc. Amer. 29 p. 313 pl. xix figs. 19-20.

#### CTENOPHORA.

*Beroë campana* sp. n., KOMAI Annot. Zool. Jap. 9.

*Leucothea japonica* sp. n., KOMAI, p. 451-473 pl. T.c.

*Pleurobrachia globosa ceylonensis* Bay of Bengal, ANNANDALE Mem. Asiatic Soc. Bengal 6 p. 116.—*P. pileus* Skager Rak, CLEVE-EULER K. Svenska Vet. Akad. 57 No. 7 p. 93, 113, 127.



# V. ECHINODERMA

ARRANGED BY

II. B. PRESTON.

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## CONTENTS.

	PAGE
I. TITLES .. .. .	4
II. SUBJECT INDEX :—	
General = 1003 :—	
1. Historical .. .. .	10
2. General treatises and Monographs (vacant)	
3. Bibliography .. .. .	10
4. Pedagogy .. .. .	10
5. Museums .. .. .	10.
6. Technique .. .. .	10
7. Nomenclature (vacant)	
8. Local lists (vacant)	
9. Ethnology .. .. .	10
Structure = 1007 :—	
1. General accounts .. .. .	10
2. Symmetries .. .. .	10
3. Homologies of classes.. .. .	10
4. Skeletal tissue or Stereom (vacant)	
5. Skeletal anatomy .. .. .	10
6. Hydrocoel, Respiratory organs, etc. .. .. .	10
7. Other body cavities and their contents (vacant)	
8. Digestive system, Cuvierian organs .. .. .	10
9. Nervous system and sense-organs (vacant)	
10. Mesodermal tissues (vacant)	
11. Axial organ .. .. .	10
12. Generative organs and gonads (vacant)	

## Physiology = 1011:—

1. General .. .. .	10
2. Circulation .. .. .	10
3. Respiration .. .. .	10
4. Alimentation (vacant)	
5. Excretion (vacant)	
6. Sensation .. .. .	10
7. Experimental .. .. .	10

## Development = 1015:—

1. General principles (vacant)	
2. General accounts .. .. .	11
3. Formation of gonads .. .. .	11
4. Oviposition, Fertilisation, Segmentation .. .. .	11
5. Larval stages .. .. .	11
6. Organogeny .. .. .	11
7. Post-larval growth-stages .. .. .	11
8. Experimental embryology .. .. .	11

## Ethology = 1019:—

1. General accounts (vacant)	
2. Special habits .. .. .	11
3. Habitat .. .. .	11
4. Feeding .. .. .	11
5. Defence and protection .. .. .	11
6. Locomotion .. .. .	11
7. Autotomy and regeneration .. .. .	11
8. Parasites and commensals .. .. .	11
9. Protection of young .. .. .	11
10. Sexual dimorphism .. .. .	} (vacant)
11. Relation to other animals .. .. .	
12. Geological aspect .. .. .	
13. Phenology .. .. .	11
14. Hybridization .. .. .	11
15. Echinoderms as food (vacant)	

## Variation and Aetiology = 1023:—

1. Variation in form .. .. .	11
2. Variation in colour .. .. .	11
3. Variation, meristic, numerical .. .. .	11
4. Variation, meristic, homoeotic (vacant)	
5. Variation, teratological .. .. .	11
6. Variation, bionomic .. .. .	} (vacant)
7. Variation, mutational .. .. .	
8. Evolution .. .. .	
9. Relations to other phyla	
10. Phylogeny .. .. .	11



## Distribution = 1027 :—

A. Geographical—							
i. General (vacant)							
ii. Atlantic Ocean, etc. . . . .	..	..	..	..	..	..	11
iii. Indian Ocean, etc. . . . .	..	..	..	..	..	..	11
iv. Pacific Ocean, etc. . . . .	..	..	..	..	..	..	11
v. Arctic Ocean, etc. (vacant)							
vi. Antarctic Ocean, etc. . . . .	..	..	..	..	..	..	11
vii. Malaysia . . . . .	..	..	..	..	..	..	11
B. Geological—							
i. General . . . . . 12							
ii. Cainozoic—							
(a) General (vacant)							
(b) Pleistocene . . . . .	..	..	..	..	..	..	12
(c) Pliocene . . . . .	..	..	..	..	..	..	12
(d) Miocene . . . . .	..	..	..	..	..	..	12
(e) Oligocene . . . . .	..	..	..	..	..	..	12
(f) Eocene . . . . .	..	..	..	..	..	..	12
iii. Mesozoic—							
(a) General . . . . .	..	..	..	..	..	..	12
(b) Cretaceous (1. Upper; 2. Lower)	..	..	..	..	..	..	12
(c) Jurassic (1. Upper; 2. Lower) . .	..	..	..	..	..	..	12
(d) Lias (and Rhaetic) (vacant)	..	..	..	..	..	..	12
(e) Trias . . . . .	..	..	..	..	..	..	12
iv. Palaeozoic—							
(a) General . . . . .	..	..	..	..	..	..	12
(b) Permian (vacant)							
(c) Permo-Carboniferous . . . . .	..	..	..	..	..	..	12
(d) Upper Carboniferous . . . . .	..	..	..	..	..	..	12
(e) Lower Carboniferous . . . . .	..	..	..	..	..	..	12
(f) Devonian . . . . .	..	..	..	..	..	..	12
(g) Silurian . . . . .	..	..	..	..	..	..	12
(h) Ordovician . . . . .	..	..	..	..	..	..	12
(k) Cambrian . . . . .	..	..	..	..	..	..	12
III. SYSTEMATIC INDEX = 1031 :—							
A. General . . . . .	..	..	..	..	..	..	12
B. Holothurioidea . . . . .	..	..	..	..	..	..	12
C. Echinoidea . . . . .	..	..	..	..	..	..	13
D. Asteroidea . . . . .	..	..	..	..	..	..	16
E. Ophiuroidea . . . . .	..	..	..	..	..	..	18
F. Crinoidea . . . . .	..	..	..	..	..	..	19
G. Cystidea and Edrioasteroidea . .	..	..	..	..	..	..	23
H. Blastoidea . . . . .	..	..	..	..	..	..	24
K. Incertae sedis (vacant)							

## I.—TITLES.

- [ANON.] Alfred Merle Norman. London Mus. J 18 1918 (98-100) [03,3]. 1
- [ANON.] Sea-Studies. Nature London 102 1918 (453-454) [19, 13]. 2
- [ANON.] Methods of preserving certain marine biological specimens. Trans. Amer. Microsc. Soc. Menasha Wis. 37 1918 (134-136). [03, 6.] 3
- Barton, D. C. Notes on the Mississippian Chert of the St. Louis area. J. Geol. Chicago Ill. 26 1918 (361-374). [27 B iv (e); 31 F.] 4
- Bather, F. A. Protoëchinus Austin. Ann. Mag. Nat. Hist. London 1 ser. 9 1918 (40-48) pl. ii. [27 B iii d; 31 C F.] 5
- Bather, F. A. The Homologies of the Anal Plate in *Antedon*. Ann. Mag. Nat. Hist. London 1 ser. 9 1918 (294-302). [07, 3.] 6
- Bather, F. A. The Triassic Crinoids from New Zealand, collected by Dr. C. T. Trechmann. London Q. J. Geol. Soc. 73 1918 (247-256). [23 10; 27 B iii (e); 31 F.] 7
- Bather, —. *Eocystis*, I, *Eocystites primaevus*. Hartt. Geol. Mag. London 5 1918 (49-56) pl. v. [07 1; 27 B iv (k); 31 G.] 8
- Bather, F. A. Notes on Yunnan Cystidea. I. *Sinocystis* and *Ovocystis*. Geol. Mag. London Dec. vi 5 1918 (507-515). [03 4; 07 1; 27 B iv (h); 31 G.] 9
- Bather, F. A. Notes on Yunnan Cystidea. II. The Species of *Sinocystis*. Geol. Mag. London Dec. vi 5 1918 (532-540). [07 1; 31 G.] 10
- Bedar, R. and Windhausen, A. Sobre la Presencia del Devonico en la Parte Media de la República del Paraguay. Bol. Ac. Nac. Ci. Cordoba (Repub. Argentina) 23 1918 (255-262). [27 B iv (f).] 11
- Benjamin, M. Richard Rathbun. Science New York N.Y. 48 1918 (231-235). [03 3.] 12
- Benson, W. N. The Geology and Petrology of the Great Serpentine Belt of New South Wales. Part vii. The Geology of the Loomberah District and a portion of th Goonoo Goonoo Estate. With two Palaeontological Appendices by F. Chapman. Sydney N.S.W. Proc. Linn. Soc. N.S. Wales 43 1918 (320-360 363-384 385-394) pls. xxxi-xli. [27 B iv (f); 31 F.] 13
- Branson, E. B. and Greger, D. K. Amsden Formation of the East Slope of the Wind River Mountains of Wyoming and its Fauna. Washington D.C. Geol. Soc. 29 1918 (309-326) pl. xviii-xix. [27 B iv (e).] 14
- Brydone, R. M. The Thickness of the Zone of *Belemnitella mucronata* in the Isle of Wight. Geol. Mag. London Dec. vi 5 1918 (350-354). [27 B iii (b) 1; 31 C.] 15
- Bush, M. Key to the Echinoderms of Friday Harbor, Washington. Pub. Puget Sound Biol. Station 2 1918 (17-44 including pls. vi-xi). [03 4; 19 3 14; 27 A iv; 31 B C D E.] 16
- Bustamante, M. El petroleo en la Republica Mexicana. Estudio geologico economico sobre los yacimientos petroliferos mexicanos. Mexico Bol. Inst. Geol. 35 pt i 1917 1918 (1-126). [27 B ii (a) iii (b) 1.] 17
- Chadwick, G. H. Stratigraphy of the New York Clinton. Washington D.C. Geol. Soc. 29 1918 (327-368). [27 B iv (g).] 18

- Chapman, F.** Report on a collection of Cainozoic fossils from the Oil-fields of Papua. Melbourne Bull. Ter. Papua 5 1918 (8-17). [27 B ii (d).] 19
- Checchia-Rispoli, G.** L'Eocene ed il Miocene di Sciaeca. Roma, Rend. Acc. Lincei 27 1918 (252-255). [27 B ii (d) (f).] 20
- Checchia-Rispoli, G.** Sull' Estensione del Miocene nella Regione Settentrionale del Promontorio Garganico. Roma, Boll. Soc. geol. ital. 36 (1917) 1918 (lxxxii-lxxxvii). [27 B ii (d).] 21
- Checchia-Rispoli, G.** Su alcuni Echinidi eocenici del Monte Gargano. Roma Boll. Soc. geol. ital. 35 1916 (81-94) pl. i. [27 B ii (f); 31 C.] 22
- Checchia-Rispoli, G.** Gli Echinidi viventi fossile della Sicilia. Parte quinta: Echinidi miocenici. Palaeontogr. Pisa 23 1917 (54-79) pls. v-x [x-xv.]. [27 B ii (d); 31 F.] 23
- Checchia-Rispoli, G.** Gli Echinidi viventi e fossili della Sicilia. Parte sesta: Echinidi eocenici. Palaeontogr. Italica Pisa 23 1917 (79-92) pls. xi xiii [xvi xviii]. [27 B ii (f); 31 C.] 24
- Clark, A. H.** A new unstalked Crinoid from the Philippine Islands. Washington D.C. Proc. Biol. Soc. 31 1918 (37-38) [27 A iv; 31 F.] 25
- Clark, A. H.** A new Crinoid from New Zealand, and another from Tasmania. Washington D.C. Proc. Biol. Soc. 31 1918 (41-44) [27 A iv; 31 F.] 26
- Clark, A. H.** The unstalked Crinoids of the Siboga expedition. Uitkomsten op zoöl., botan., ocean. en geol. gebied., verzameld in Ned. Oost-Indië 1899-1900 aan boord H. M. Siboga onder commando van Lt. t.z. 1<sup>o</sup> kl. G. F. Tydeman, uitgegeven door Dr. Max Weber. [Résultats des explorations zoöl., botan., océan. et geol. entreprises aux Indes Néerlandaises orientales en 1899-1900, à bord du Siboga sous le commandement de G. F. Tydeman publiées par Max Weber.] Mon. 42<sup>e</sup> Livr. 83 Lieden (E. J. Brill) 1918 (1-300) 28 pls. [27 A vii; 31 F.] 27
- Clark, A. H.** A new genus and species of multibrachiate Ophiuran of the Family Gorgonocephalidae from the Caribbean Sea. Washington D.C. Proc. U. S. Nation. Mus. 54 1918 (637-640) pl. xevi. [27 A ii; 31 E.] 28
- Clark, B. L.** Moganos Group, a newly recognised Division in the Eocene of California. Washington D.C. Bul. Geol. Soc. 29 1918 (281-296). [27 B ii (f).] 29
- Clark, H. L.** Brittle-stars, new and old. Bull. Mus. Comp. Zool. Harvard 62 1918 (263-338) pls. i-viii. [27 A ii iv vii; 31 E.] 30
- Clark, H. L.** Report on the Crinoidea and Echinoidea collected by the Bahama Expedition from the University of Iowa in 1893. Bull. Lab. Nat. Hist. Univ. Iowa 7 No. 5 1918 (1-38) pls. i-v. [27 A ii; 31 C F.] 31
- Coe, W. R.** Richard Rathbun and his contributions to Zoology. Amer. J. Sci. New Haven Conn. 46 1918 (757-762). [03, 3.] 32
- Cohn, E. J.** Studies in the physiology of spermatozoa. Biol. Bull. Wood's Hole Mass. 34 1918 (167-218). [11 7; 31 C.] 33
- Cotter, G. de P.** The geotectonics of the Tertiary Irrawaddy Basin. Calcutta J. As. Soc. Beng. 14 1918 (409-420). [27 B iii (b) 1.] 34
- Couffon, O.** Le Callovien du Chalet Commune de Montreuil Bellay (M.-et-L.). Angers Bul. soc. étud. sci. 47 1917 1918 (65-131). [27 B iii (e) 2; 31 C D F.] 35
- Cox, A. H.** Excursion to Nutfield and Redhill (Lower Greensand Beds). London Proc. Geol. Ass. 29 1918 (150-152). [27 B iii (b) 2; 31 C.] 36
- Crozier, W. J.** On the pigmentation of a Clypeastroid, *Mellita sesquiporatus*, Leske. Amer. Nat. New York N.Y. 52 1918 (552-556). [03 6; 23 2; 31 C.] 37
- Cutler, D W.** Natural and Artificial Parthenogenesis in Animals. Manchester Mem. Lit. Phil. Soc. 62 1918 No. 2 (1-42). [15 4 8; 31 C.] 38
- Dibley, G. E.** Additional notes on the Chalk of the Medway Valley, Gravesend, West Kent, North East Surrey, and Grays (Essex). London Proc. Geol. Ass. 29 1918 (68-93) pls. vii-x. [27 B iii (b) 1; 31 C D E F.] 39

- Drz., A.** Variations cycliques de l'œuf activé. *Rev. sci. Paris* 1918 1918 (307-308). [15 4 8.] 40
- Dumble, E. T.** Geology of the Northern End of the Tampico Embayment Area. *San Francisco Proc. Cal. Acad. Sci.* 8 1918 (113-156) pls. iii-vi. [27 B ii (b) (c) (e) (f); 31 C.] 41
- Dunbar, C. O.** Stratigraphy and Correlation of the Devonian of Western Tennessee. *Amer. J. Sc. New Haven Conn.* 46 1918 (732-756). [27 B iv (f).] 42
- Eckman, S.** Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia, 1910-1913. 19. *Holothurioidea*. *Stockholm Vet.-Ak. Handl.* 58 No. 6 1918 (1-70) pls. [07 1; 27 A iii; 31 B.] 43
- Fisher, W. K.** Notes on Asteroidea. *Ann. Mag. Nat. Hist. London* 1 ser. 9 1918 (103-111) pl. xiii. [07 1 5; 31 D.] 44
- Foerste, A. F.** The Richmond Faunas of Little Bay De Noquette, in Northern Michigan. *Ottawa Nat.* 31 1917 1918 (97-103 121 -127) pls. iv-vi. [27 B iv (h); 31 F.] 45
- Foerste, A. F.** Upper Ordovician Formations in Ontario and Quebec. *Ottawa Canada Dept. Mines Geol. Surv. Mem.* 83 1916 (i-viii 1-279). [27 B iv (h); 31 D F G.] 46
- Fourtau, R.** Les Echinides des "Bagh Beds." *Rec. Geol. Surv. Calcutta* 49 1918 (34-53) pls. i-ii. [07 1; 27 B iii (b) 2; 31 C.] 47
- Gemmill, J. F.** Rhythmic pulsation in the madreporic vesicle of young Ophiuroids. *Quarterly Journ. Microsc. Sci.* 63 1918 (537-540). [07 11; 11 2; 15 5 7; 31 E.] 48
- Gentil, L.** Sur les depots néogenes du détroit Nord-Bétique (Espagne méridionale). *Paris C. R. Acad. sci.* 167 1918 (299-302). [27 B ii (c) (d).] 49
- Gentil, L.** Sur l'âge du détroit Sud-Rifain. *Paris C.R. Acad. sci.* 166 1918 (418-420.) [27 B ii (d); 31 C.] 50
- Goldfarb, A. J.** Effects of Aging upon germ cells and upon early development. Part iii. Changes in very aged eggs. *Biol. Bull. Wood's Hole Mass* 35 1918 (1-32). [11 7; 31 C.] 51
- Goldfarb, A. J.** Effects of aging upon germ cells and upon early development. Part ii. Changes in moderately aged eggs and sperm. *Biol. Bull. Wood's Hole Mass.* 34 1918 (372-409). [11 7; 31 C.] 52
- Gravier, C. J.** Sur l'adaptation du pied au milieu ambiant chez les Actinies des grands fonds sous-marins. *Paris C. R. Acad. Sci.* 167 1918 (1009-1012). [19 8; 31 B.] 53
- Greger, D. K.** *vide* Branson, E. B.
- Greig, A.** Nogen asterideris alder og aarsklasser. *Kristiania Bergens Museums Aarbok*, 1916-17. *Naturv. rackke* No. 1 (1-24). [15 7; 31 D.] 54
- Gruenberg, B. C.** Some protective activities of organisms. How Nature protects its weaker creations. *Scient. Amer. Suppl.* 80 1915 (404-40). [19 5.] 55
- Gudex, M. C.** The Succession of Tertiary Beds in the Pareora District, South Canterbury. *Wellington Trans. and Proc. N. Zeal. Inst.* 50 1918 (244-262). [27 B ii (d) iii (b) 1.] 56
- Hawkins, H. L.** Morphological Studies on the *Echinoidea Holecypoida* and their Allies. *Geol. Mag. London Dec. vi* 5 1918 (4-14) pl. ii. [07 5; 31 C.] 57
- Hawkins, H. L.** Morphological Studies on the the *Echinoidea Holecypoida* and their Allies. *Geol. Mag. London Dec. vi* 5 1918 (489-500) pl. xvii. [07 5; 15 7; 23 10; 27 A ii; 31 C.] 58
- Hawkins, H. L.** Notes on the geological structure of the Valc of Kingsclere. *Proc. Hampshire Field Club* 8 1918 (191-212). [27 B iii (1).] 59
- Hawkins, H. L.** Note on the Occurrence of the Zone of *A. quadratus* (Sub-zone of *Offaster pilula*) near Inkpen, Berks. *Geol. Mag. London Dec. vi* 5 1918 (214-215). [27 B iii (b) 1; 31 C D.] 60
- Herdman, W. A.** The Marine Biological Station at Port Erin, being the thirty-first Annual Report of the Liverpool Marine Biology Committee. *Liverpool Proc. Trans. Biol. Soc.* 32 1918 (15-29). [03 5.] 61

- Herlant, M.** Comment agit la solution hypertonique dans la parthénogenèse expérimentale (méthode de Loeb) I. Origine et signification des astères accessoires. *Arch. Zool. Paris* 57 1918 (511-533). [11 7.] 62
- Herlant, M.** Un cas d'hermaphroditisme complet et fonctionnel chez *Paracentrotus lividus*. *Arch. Zool. Paris* 57. Notes et Revue No. 2 1918 (28-31). [15 3 4 5 ; 31 C.] 63
- Herlant, M.** Variations cycliques de la perméabilité chez l'œuf activé. *Paris C. R. soc. biol.* 81 1918 (151-155). [15 4 8.] 64
- Herlant, M.** L'action des sels de l'eau de mer sur la perméabilité de l'œuf activé. *Paris C. R. soc. biol.* 81 1918 (384-388). [15 4 8.] 65
- Herlant, M.** Action des bases, des acides et les anesthésiques, sur la perméabilité de l'œuf activé. *Paris C. R. soc. biol.* 81 1918 (443-446). [15 4 8.] 66
- Herlant, M.** Sur quelques facteurs de la toxicité des solutions salines. *Paris C. R. soc. biol.* 81 1918 (746-748). [15 4 8.] 67
- Howchin, W.** A new locality for Older Tertiary (Miocene) fossiliferous Beds. *Adelaide Trans. Proc. R. Soc. S. Aust.* 42 1918 (294-295). [27 B ii (d).] 68
- Howorth, H. H.** The Recent Geological History of the Baltic and Scandinavia and its importance in the Post-Tertiary History of Western Europe. *Geol. Mag. London Dec.* vi 5 1918 (354-367, 397-409, 451-461). [27 A ii B ii (b).] 69
- J., J.** Production in the Sea. *Nature London* 102 1918 (216). [03 6 ; 19 3 ; 31 C E.] 70
- Jackson, R. T.** Contributions to the geology and palontology of the canal zone, Panama, and geologically related areas in Central America and the West Indies. Fossil Echini of the Panama Canal Zone and Costa Rica. *Washington D.C. Smithsonian Inst. Mus. Bull.* 103 1918 (103-116) pls. 46-52. [27 B ii (d) (e) ; 31 C.] 71
- Jaekel, O.** Phylogenie und System der Pelmatozoen. *Palacont. Zs. Berlin* 3 1918 (1-128) text figs. [07 1 ; 23 10 ; 27 B iii (a) iv (a) (c) ; 31 A.] 72
- Johnson, W. F.** The Purple Sea-Urchin at Inishkeel, Co. Donegal. *Irish Nat. Dublin* 27 1918 (10-11). [27 A ii ; 31 C.] 73
- Jordan, H.** Tonus en tonusfunction by de Holothurien. [Tonus et fonction tonique chez les Holothuries.] *Amsterdam Werk. Gen. Nat. Genees. Heekl.* 8 1917 (618-619). [11 1 ; 31 B.] 74
- Kilian, W.** Contributions à la connaissance du Crétacé inférieur delphinoprovençal et rhodanien (étages valanginien et hauterivien). *Paris C. R. Acad. Sci.* 166 1918 (337-340). [27 B iii (b) 2.] 75
- Kindle, E. M. and Whittaker, E. J.** Bathymetric check-list of the marine invertebrates of Eastern Canada with an index to Whiteaves' Catalogue. *Sessional Paper Dept. Naval Service Ottawa No. 38a* 1918 (227-294). [03 3 ; 19 3 ; 27 A ii ; 31 A.] 76
- Kjerskog-Agersborg, H. P.** Bilateral tendencies and habits in the Twenty-rayed Starfish *Pycnopodia heliethoides* (Stimpson). *Biol. Bull. Wood's Hole Mass.* 35 1918 (232-253) pl. i. [19 3 4 6 ; 23 3 ; 27 A iv ; 31 C D.] 77
- Klüpfel, W.** Über den Lothringer Jura. *Berlin Jahrb. geol. Landesanst.* 38 1917 1918 (252-346). [27 B iii (c) 1 2.] 78
- L., P.** L'histoire géologique de la Mer Rouge. *Rev. sci. Paris* 1918 1918 (276). [27 B ii c d.] 79
- Lambert, J.** Sur la présence d'un fasciole chez un *Procassidulidae*. *Paris C. R. Acad. Sci.* 166 1918 (759-760). [07 5 ; 31 C.] 80
- Lambert, J.** Revision des Echinides du Nummulitique de la Provence et des Alpes françaises. *Mém. Soc. Pal. Suisse* 43 1918 (1-161) pls. i, ii. [27 B ii (e) (f) ; 31 C.] 81
- Lillie, R. S.** Comparative permeability of fertilized and unfertilized eggs to water. *Science New York N. Y.* 47 1918 (147-149). [15 8 ; 31 C.] 82

- Macbride, E. W.** The artificial production of Echinoderm larvae with two water-vascular systems, and also of larvae devoid of a water-vascular system. *London Proc. R. Soc.* **90** 1918 (323-348) pls. iv-x. [15 5 8; 31 C.] **83**
- MacBride, E. W.** The development of *Echinocardium cordatum*. Part ii. The development of the internal organs. *Q. J. Microsc. Soc. London* **63** 1918 (259-282) pl. xix. [15 2; 31 C.] **84**
- MacBride, E. W.** The artificial production of Echinoderm larvae with two water-vascular systems, and also of larvae devoid of a water-vascular system. *Nature London* **100** 1918 (517). [07 2 6; 15 5.] **85**
- MacGaughey, V.** A Survey of the Hawaiian Coral Reefs. *Amer. Nat. New York N. Y.* **52** 1918 (409-438). [27 A iv.] **86**
- Mansuy, H.** Étude géologique du Yun-nan oriental II<sup>e</sup>. *Partie Paléontologie Mem. Serv. géol. Indochine* **1** 1912 (1-146) pls. i-xxv. [27 B iii (e) iv (e); 31 C F.] **87**
- Matsumoto, H.** On a collection of Ophiurans from the vicinity of Kinkwasan, with description of a new species. *Annot. Zool. Jap. Tokyo* **9** 1918 (475-480). [27 A iv; 31 E.] **88**
- Matsumoto, H.** Kinkwasan fukin no dabiko, tsuketari ichi shin shu no kisai. [Ophiuroidea from the neighbourhood of Kinkwasan, with description of a new species.] *Dobuts. Z. Tokyo* **30** 1918 (146-154). [27 A iv; 31 E.] **89**
- Mayer, A. G.** Department of Marine Biology [Report on Investigations and Projects.] *Washington D.C. Carnegie Inst. Year Book No. 16* 1917 1918 (161-167). [Echinoderma at p. 164.] [27 A ii.] **90**
- Mayer, A. G.** On the Non-Existence of Nervous Shell-Shock in Fishes and Marine Invertebrates. *Washington D.C. Carnegie Inst. Year Book No. 16* 1917 1918 (185-186). [11 6.] **91**
- Meunier, S.** Observations sur la composition des pièces squelettiques des Echinodermes. *Bul. Muséum Paris* **1918** 1918 (90-91). [07 5; 31 C.] **92**
- Moodie, R. L.** On the Parasitism of Carboniferous Crinoids. *Urbana J. Parasitol* **4** 1918 (174-176). [19 8; 27 B iv (e); 31 F.] **93**
- Mortensen, T.** The Crinoidea of the Swedish Antarctic expedition. *Wissenschaftl. Ergebnisse der Schwed. Südpolar-Exped. 1901-1903* **6** Lief. 8 Stockholm 1918 (1-23) 5 pls. [27 A vi; 31 F.] **94**
- Mortensen, T.** Results of Dr. E. Mjöberg's Swedish scientific expeditions to Australia 1910-1913. *Echinoidea. Stockholm Vet.-Ak. Handl.* **58** No. 9 1918 (1-22) 5 pls. [27 A iv; 31 C.] **95**
- Mortensen, T. and Stephenson, K.** Papers from Dr. Th. Mortensen's Pacific Expedition 1914-16. II. On a gall-producing parasitic Copepod, infesting an Ophiurid. *Medd. Dansk. Naturhist. Foren Kjöbenhavn* **69** 1918 (263-275). [19 8; 27 A iv; 31 E.] **96**
- Nutting, C. C.** The Barbados-Antigua Expedition from the State of Iowa. *Science New York N. Y.* **48** 1918 (238-240). [27 A ii.] **97**
- Ohshima, H.** Notes on the development of *Cucumaria echinata*. *Annot. Zool. Jap. Tokyo* **9** 1918 (377-388). pl. [15 5.] **98**
- Olavarrieta, J. A. de.** Excursiones por el plioceno de Cantillana (Sevilla) y cuenca del Biar. *Madrid Bol. Soc. Esp. Hist. Nat.* **18** 1918 (523-529). [27 B ii (c).] **99**
- Oppenheim, P.** Ueber Fossilien aus dem Ostlichen Kleinasien. *Zeitschr. deutsch. Geol. Gesell. Monatsber.* **69** 1917 1917 (72-84). 27 B ii (d); 31 C.] **100**
- Osterud, H. L.** Preliminary Observations on the Development of Leptasterias hexactis. *Pub. Puget Sound Biol. Station* **2** 1918 (1-15 including pls. i-v). [15 4 5 6 7; 19 3 9; 23 1; 27 A iv; 31 D.] **101**
- Priest, S.** Excursion to Eynsford and Hulbury. *London Proc. Geol. Ass.* **29** 1918 (29-31). [27 B ii (f); 31 C.] **102**
- Ravn, J. P. J.** Kridtaflejringerne paa Bornholms Sydvestkyst og deres Fauna. II. *Turonet. Danmarks Geol. Unders. Ser ii* **31** 1918 (1-37) pls. i-ii. [27 B iii (b) 1; 31 C D.] **103**

- Ravn, J. P. J. De Marino Kridtaflejringer i Vest-Grønland og deres Fauna. Kjøbenhavn Medd. Grøen. 56 1918 (1-366) pls. v-ix. [27 B iii (b) 1; 31 C.] 104
- Reed, F. R. C. Ordovician and Silurian fossils from Yun-nan. Pal. Ind. Calcutta new ser. 6 No. 3 1917 (i-viii, 1-84) pls. i-viii. [27 B iv (g) (h); 31 F G.] 105
- Runnström, J. Zur Biologie und Physiologie der Scieglarve. Bergens Mus. Aarb. 1917-1918 1918 No. 1 (1-64) pls. i-iii. [07 8; 11 7; 15 5 8; 31 C.] 106
- Runnström, J. Studien über die vegetative Kerntätigkeit bei jungen *Cacumaria frondosa*. Bergens Mus. Aarb. 1917-1918 1918 No. 6 (1-6) pls. i-ii. [07 1; 15 7; 31 B.] 107
- Sarasin, F. Die steinzeitlichen Stationen des Birstales zwischen Basel und Delsberg. Zürich Nouv. Mem. Soc. Helv. Sci. Nat. 54 1918 (77-290) pls. i-xxxii. [Echinoderma at pp. 248 259 pls. xxiv-xxviii.] [03 9.] 108
- Scalia, S. Osservazioni stratigrafiche e geotettoniche nella Provincia di Messina. II. Il Neocomiano in provincia di Messina. Catania Bul. Acc. Gioenia fasc. 44 Second Ser. 1918 (25-44). [27 B iii (b) 2 (c) 1; 31 F.] 109
- Scalia, S. Sulla Fauna degli Strati a *Spirigera trigonella* Schloth. Sp. della Val di Sinello, presso Camposilvano in Vallarsa (Trentino meridionale). Roma. Boll. Soc. geol. ital. 36 (1917) 1918 (205-215). [27 B iii (c).] 110
- Shideler, W. H. A primitive type of Agelacrinites from the Richmond. Ohio J. Science, Columbus Ohio 19 1918 (58). [27 B iv (b); 31 G.] 111
- Spencer, W. K. A monograph of the British Palæozoic *Asterozoa*. London Palæont. Soc. 1916 Pt. iii 1918 1918 (109-168) pls. vi-xiii. [03 1; 07 1; 19 4 7; 23 10; 27 B iv (f) (g) (h); 31 D.] 112
- Springer, F. A new species of fossil *Pentacrinus* from the East Indies. Jaarb. Mynw. Ned.-Indie. Batavia 45 1916 (57-64) pl. [B iii (c) 1 2; 31 F.] 113
- Springer, F. On *Mysticocrinus* a new genus of Silurian *Crinoidea*. Amer. J. Sci. New Haven Conn. 46 1918 (666-668) pl. ii. [27 B iv (g); 31 F.] 114
- Stauffer, C. R. Descriptions of some new species of Devonian fossils. J. Geol. Chicago Ill. 26 1918 (555-560) pls. i-iii. [27 B iv (f); 31 F.] 115
- Stefani, C. de. Fossili carboniferi dell'Isola d'Elba. Palacontogr. Italica Pisa 23 1917 (1-53) pls. i-iv. [27 B iv (c) (d) (e); 31 C F.] 116
- Stephensen, K. *vide* Mortenson, T.
- Trueman, A. E. The Lias of South Lincolnshire. Geol. Mag. London Dec. vi 5 1918 (64-73 101-111). [27 B iii (c) 2.] 117
- Ulrey, A. B. The Starfishes of Southern California. Los Angeles Bul. So. Cal. Acad. Sci. 17 1918 (39-51) pls. i-xiii. [19 4 7 9; 27 A iv; 31 D.] 118
- Vadász, M. E. Magyarországi mediterrán tuskésbőrűi. Geol. Hungarica 1 1914-1915 (67-227) pls. i-vi. [27 B ii (a); 31 C D E F.] 119
- Whittaker, E. J. *vide* Kindle, E. M.
- Williams, S. R. Concerning the structure of *Agelacrinites* and *Streptaster*. Edriasteroidea of the Richmond and Maysville Divisions of the Ordovician. Ohio J. Science, Columbus Ohio 19 1918 (59-82) pls. i-ix. [07 1; 11 3; 15 7; 19 2 3 6; 27 B iv (h); 31 B G.] 120
- Willy, E. Holothurioidea. W. Michaelens. Dio Fauna Südwest-Australiens. 4 Lief 9 1913 1913 (349-402) pls. v-viii. [27 A iii; 31 B.] 121
- Windhausen, A. The Problem of the Cretaceous Tertiary Boundary in South America and the Stratigraphic Position of the San Jorge Formation in Patagonia. Amer. J. Sci. New Haven Conn. 45 1918 (1-53). [27 B iii (b) 1.] 122
- Windhausen, A. *vide* Bodor, R.
- Winterfeld, F. Über die Altersbestimmung des obersten Lenno-schiefers. Stuttgart N. Jahrb. Min. Geol. Pal. 1918 1918 (113-132) pl. vi. [27 B iv (f).] 123

Wintzell, J. Bidrag till de skandinaviska ophiuridernas biologi och fysiologi. [Contributions to the biology and physiology of the Scandinavian *Ophiuridae*.] Uppsala 1918 (i-viii 1-147) 1. pl. [07 5; 11 1 6 7; 19 4 6; 31 E.] 124

Woodward, H. George Jennings Hinde, Ph.D. (Munich), F.R.S., F.G.S., V.P.Pal. Soc. Born March 24, 1839. Died March 18, 1918. Geol. Mag. London Dec. vi 5 1918 (233-240) pl. x. [03 3.] 125

Zirpolo, G. Notizia di alcuni Asteroidi anomali pescati nel Golfo di Napoli. *Echinaster sepositus* Gray o *Asterias glacialis* O. F. Müller. Napoli Boll. Soc. nat. 30 1917 1918 (20-27). [19 7; 23 5; 31 D.] 126

Zirpolo, G. Un caso di rigenerazione parziale delle braccia in un *Astropecten aurantiacus* L. Pub. Staz. Zool. Napoli Milano 2 1918 (169-175) pl. x. [19 7; 31 D.] 127

## II.—SUBJECT INDEX.

N.B.—*The number in Clarendon type quoted after the author's name, in the Subject and Systematic Indices, refers to "Titles," where a fuller reference will be found.*

### GENERAL. 1003

1. Historical.  
Spencer, 112.
3. Bibliography.  
[ANON.] 1; Benjamin, 12; Coe, 32; Kindle & Whittaker, 36; Woodward, 125.
4. Pedagogy.  
Bather, 9; Bush, 16.
5. Museums.  
Herdman, 61.
6. Technique.  
[ANON.] 3; Crozier, 37; J, 70.

### 9. Ethnology. Sarasin, 108.

### STRUCTURE. 1007

1. General accounts.  
Bather, 8, 9 & 10; Eckman, 43; Fisher, 44; Fourtau, 47; Jaekel, 72; Runnström, 107; Spencer, 112; Williams, 120.
2. Symmetries.  
MacBride, 85.
3. Homologies of Classes.  
Bather, 6.
5. Skeletal Anatomy.  
Fisher, 44; Hawkins, 57 & 58; Lambert, 80; Meunier, 92; Wintzell, 124.
6. Hydrocoel, Respiratory organs, etc.  
MacBride, 85.

### 8. Digestive System, Cuvierian organs. Runnström, 106.

### 11. Axial organ. Germill, 48.

### PHYSIOLOGY. 1011

1. General.  
Jordan, 74; Wintzell, 124.
2. Circulation.  
Gemmill, 48.
3. Respiration.  
Williams, 120.
6. Sensation.  
Mayer, 91; Wintzell, 124.
7. Experimental.  
Cohn, 33; Goldfarb, 51 & 52; Herlant, 62; Runnström, 106; Wintzell, 124.



## DEVELOPMENT. 1015

2. General accounts.  
Macbride, 84.
3. Formation of gonads.  
Herlant, 63.
4. Oviposition, etc.  
Cutler, 38; Drz, 40; Herlant, 63,  
64, 65, 66 & 67; Osterud, 101.
5. Larval stages.  
Gemmil, 48; Herlant, 63; Macbride,  
83 & 85; Ohshima, 98; Osterud, 101;  
Runnström, 106.
6. Organogeny.  
Osterud, 101.
7. Post-larval growth-stages.  
Gemmil, 48; Greig, 54; Hawkins,  
58; Osterud, 101; Runnström, 107;  
Williams, 120.
9. Experimental Embryology.  
Cutler, 38; Drz, 40; Herlant, 64, 65,  
66 & 67; Lillie, 82; MacBride, 83;  
Runnström, 106.

## ETHOLOGY. 1019

2. Special habits.  
Williams, 120.
3. Habitat.  
Bush, 16; J., 70; Kindle & Whittaker,  
76; Kjerskog-Agersborg, 77; Osterud,  
101; Williams, 120.
4. Feeding.  
Kjerskog-Agersborg, 77; Spencer,  
112; Ulrey, 118; Wintzell, 124.
5. Defence and Protection.  
Gruenberg, 55.
6. Locomotion.  
Kjerskog-Agersborg, 77; Williams,  
120; Wintzell, 124.
7. Autotomy and Regeneration.  
Spencer, 112; Ulrey, 118; Zirpolo,  
126 & 127.

8. Parasites and Commensals.  
Gravier, 53; Moodie, 93; Mortensen,  
and Stephensen, 96.

9. Protection of young.  
Osterud, 101; Ulrey, 118.

13. Phenology.  
[ANON.] 2.

14. Hybridization.  
Bush, 16.

## VARIATION AND ÆTIOLGY. 1023

1. Variation in form.  
Osterud, 101.
2. Variation in colour.  
Crozier, 37.
3. Variation, meristic, numerical.  
Kjerskog-Agersborg, 77.
5. Variation, teratological.  
Zirpolo, 126.
10. Phylogeny.  
Bather, 7; Hawkins, 58; Jaekel,  
72; Spencer, 112.

## DISTRIBUTION. 1027

## A. GEOGRAPHICAL.

- ii. Atlantic Ocean, etc.  
Clark, 28, 30 & 31; Hawkins, 58;  
Howarth, 69; Mayer, 90; Nutting,  
97.
- iii. Indian Ocean.  
Eckman, 43; Johnson, 73; Kindle  
& Whittaker, 76; Willy, 131.
- iv. Pacific Ocean, etc.  
Bush, 16; Clark, 26 & 30; Kjerskog-  
Agersborg, 77; MacCaughey, 86;  
Matsumoto, 88 & 89; Mortensen, 95;  
Mortensen & Stephensen, 96; Osterud;  
101; Ulrey, 118.
- vi. Antarctic Ocean, etc.  
Mortensen, 94.
- vii. Malaysia.  
Clark, 25, 27 & 30.

## B. GEOLOGICAL.

## 1. General.

Bustamante, 17; Vadasz, 119.

## ii. Cainozoic.

## b. Pleistocene.

Dumble, 41; Howarth, 69.

## c. Pliocene.

Dumble, 41; Fourtau, 47; Gentil, 49; L., 79; Olavarrieta, 99.

## d. Miocene.

Chapman, 19; Checchia-Rispoli, 20, 21 &amp; 23; Gentil, 49 &amp; 50; Gudex, 56; Howchin, 68; Jackson, 71; L., 79; Oppenheim, 100.

## e. Oligocene.

Dumble, 41; Jackson, 71; Lambert, 81.

## f. Eocene.

Checchia-Rispoli, 20, 22 &amp; 24; Clark, 29; Dumble, 41; Lambert, 81; Priest, 102.

## iii. Mesozoic.

## a. General.

Jaekel, 72.

## b. Cretaceous.

## 1. Upper Cretaceous.

Brydone, 15; Bustamante, 17; Coiter, 34; Dibley, 39; Gudex, 56; Hawkins, 59 &amp; 60; Ravn, 103 &amp; 104; Windhausen, 122.

## 2. Lower Cretaceous.

Cox, 36; Kilian, 75; Scalia, 109.

## c. Jurassic.

## 1. Upper Jurassic.

Klüpfel, 78; Scalia, 109; Springer, 113.

## 2. Lower Jurassic.

Couffon, 35; Klüpfel, 78; Springer, 113; Trueman, 117.

## e. Trias.

Bather, 7; Mansuy, 87; Scalia, 110.

## iv. Palaeozoic.

## a. General.

Jaekel, 72.

## c. Permo-Carboniferous.

De Stefani, 116.

## d. Upper Carboniferous.

De Stefani, 116.

## e. Lower Carboniferous.

Barton, 4; Bather, 5; Branson &amp; Greger, 14; Mansuy, 87; Moodie, 93; De Stefani, 116.

## f. Devonian.

Beder, &amp; Windhausen, 11; Benson, 13; Dunbar, 42; Spencer, 112; Stauffer, 115; Winterfeld, 123.

## g. Silurian.

Chadwick, 18; Reed, 105; Spencer, 112; Springer, 114.

## h. Ordovician.

Bather, 9; Foerste, 45 &amp; 46; Reed, 105; Shideler, 111; Spencer, 112; Williams, 120.

## k. Cambrian.

Bather, 8.

## III. SYSTEMATIC INDEX. 1031

## A. GENERAL.

*Echinodermata*, KINDLE & WHITTAKER 76.†*Pelmatozoa*, JAEKEL 72.

## B.—HOLOTHUROIDEA.

*Actinocucumis typicus*, ECKMAN 43.—*A. t.*, WILLY 121.*Caudina*, BUSH 16.*Chiridota*, BUSH 16.—*C.*, WILLY 121.*Chondrocloea*, WILLY 121.

*Colochirus* with *C. crassus*, *robustoides* spp. n., Australia, ECKMAN Stockholm Vet.-Ak. Handl. 58 pp. 6-32 pls. i figs. 1-10; ii figs 1-3; iii figs 1-22, 25; iv figs. 23-24, 26.—C., WILLY 121.

*Cucumaria* with *C. areolata* sp. n. Australia, ECKMAN Stockholm Vet.-Ak. Handl. 58 pp. 35, 39 pls. ii figs. 4-5; iii fig. 28; iv figs 27, 29-34.—*C. frondosa*, RUNNSTRÖM 107.—C., BUSH 16.

*Holothuria* with *H. hartmeyeri*, *michaelseni*, spp. n., W. Australia, WILLY W. Michaelsen Fauna S.W. Austral. 4 pp. 369-384 pls. vi figs 13 a-b, 14, a-b, 15 a-b, 16 a-d; vii figs. 17, 18 a-e, 19 a-d, 20 a-c.—*H. vagabunda*, ECKMAN 43.

*Holothuroidea*, JAEKEL 72.—H., JORDAN 74.

*Mulleria*, WILLY 121.

*Stichopus* with *S. ludwigi* sp. n. S.W. Australia, WILLY W. Michaelsen Fauna S.W. Austral. 4 pp. 385-388 pls. vii figs 21, 22; viii figs 23 a-d, 24 a-f.

*Theelia ambulatrix*, WILLY 121.

*Thyone sacellus*, ECKMAN 43.—T. WILLY 121.

*Phyllophorus holothurioides* and *hamatus*, ECKMAN 43.

*Pseudocucumis africana*, WILLY 121.—P. *intercedens*, ECKMAN 43.

*Pseudostichopus villosus* Theel, GRAVIER 53.

*Psolus*, WILLIAMS 120.

#### C.—ECHINOIDEA.

†*Agassizia*, DUMBLE 41.

†*Amblypygus pellati*, CHECCHIA-RISPOLI Pal. Ital. 23 p. 84 pl. xi [xvi] fig. 3.—*A. dilatatus*, LAMBERT 81.

†*Amphiope bioculata*, VADASZ Geol. Hung. 1 p. 225 text fig.

†*Ananchytes ovata*, PRIEST 102.

*Aræosoma fenestratum*, CLARK Bull. Lab. Nat. Hist. Univ. Iowa 7 No. 5 p. 26 pl. iv fig. 2.

*Arbacia punctulata*, CLARK 31.—*A. punctulata*, COHN 33.—*A. p.*, CUTLER 38.—*A.*, GOLDFARB 51.—*A.*, LILLIE 82.

†*Arbacina*, VADASZ 119.

†*Archaeocidaris* sp. ? Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 97 pl. xviii figs. 3 a-e.

†*Atelospatangus*, LAMBERT 81.

†*Breynia*, LAMBERT 81.

†*Brissoides segrei*, CHECCHIA-RISPOLI Pal. Ital. 23 p. 91 pls. xi [xvi] fig. 2; xii [xvii] fig. 4.—*B.* with *B. oosteri, lorioli*, LAMBERT Mem. Soc. Pal. Suisse 43 pp. 48-54 pl. ii figs. 12-14.

*Brissopsis sarsii, chiajei*, J. 70.

†*Brissopsis (Kleinia) scyponlinus*, CHECCHIA-RISPOLI Boll. Soc. geol. ital. 35 p. 90 pl. i figs. 2 a-b.—*B.* with *B. guebhardi*, LAMBERT Mem. Soc. Pal. Suisse 43 pp. 44-46 pl. ii fig. 4.—*B. (Brisoma) othnangensis, crescenticus, consobrinus*, VADASZ Geol. Hung. 1 pp. 203-204 pl. iii figs 14-16.

*Cænopedina cubensis*, CLARK 31.

†*Cassiduloida*, HAWKINS 57.—C., LAMBERT 81.

†*Cardiaster groenwalli* sp. n. Upper Cretaceous Bornholm RAVN Danmarks Geol. Unders. Ser. ii 31 p. 20 pl. ii fig. 3.—C., DIBLEY 39.

*Centrechinus antillarum*, CLARK 31.

†*Centrostephanus* with *C. calarensis, airaghi* VADASZ Geol. Hung. 1 p. 90 pl. ii figs. 11, 12.

*Cidaris abyssicola*, CLARK 31.

†*Cidaris* with *C. subularis*, CHECCHIA-RISPOLI Pal. Ital. 23 pp. 80-81 pl. xi [xvi] figs. 7, 8.—C. with *C. daquini, C. sp. taramellii, gastralddi*, LAMBERT Mem. Soc. Pal. Suisse 43 pp. 6-10 pl. i figs. 1, 2, 5, 6, 7, 9, 10, 11.—*C. melitensis, desmoulini, zeamays, C. (Cyathocidaris) avenionensis, C. (Dorocidaris) papillata* VADASZ Geol. Hung. 1 pp. 88-90 pl. ii figs. 4-6, 8, 10, 15-17.—C., *dissimilis*, DIBLEY 39.—C., DUMBLE 41.—C., RAVN 103.

*Clypeaster rosaceus, subdepressus*, CLARK 31.

†*Clypeaster*, CHECCHIA-RISPOLI Pal. Ital. 23 pp. 59-66 pls. v [x] fig. 4; vi [xi] figs. 1, 2; viii [xiii] figs. 1, 2; x [xv] figs. 7, 8; ix [xiv] figs. 1, 3; vii [xii] fig. 1.—*C. lanceolatus*, Cotteau pl. 46 figs. 1, 2; *gatuni* Jackson pl.

47 fig. 1; pl. 48 fig. 1, JACKSON Smiths. Inst. Washington Mus. Bull. 103 1918.—*C.* with *C. boussaci*, *toxopetalum* LAMBERT Mem. Soc. Pal. Suisse 43 pp. 15–17 pl. i figs. 12, 14, 15.—*C.* with *C. scillæ*, *crassus*, *danubicus* sp. n. *digitalis* sp. n., *acclivis*, *sardinensis*, *crassicosatus*, *C.* cfr. *gregoryi*, *inflatus* sp. n. *coronalis*, *campanulatus*, *delgadoi*, *myriophytha*, *acuminatus*, *depressus* sp. n., *altus*, *gauthieri*, *hungaricus* sp. n., *sequenzai* nom. n. for *C. insignis*, *magnus* sp. n., *subacutus*, *agassizii*, *subconoideus* sp. n., *dacicus* sp. n., *hemisphaericus* sp. n., *transylvanicus* sp. n., *lamberti*, Lov. var. *extensus* var. n., *almerai*, *angulatus* sp. n., *convexus* sp. n., *subaltus* sp. n., *suboblongus*, *fulménésensis* sp. n., *partschii*, *tenuiplicatus* var., *petaliferus*, *gracilis* sp. n., *periplanus* sp. n., *folium*, *subfolium* sp. n., *C.* sp. n. VADASZ Geol. Hung. 1 pp. 105–106, 109–112, 114–175 figs. in text.—*C. grandiflorus*, *eccentricus* sp. n., *sublaganoides* sp. n., VADASZ Geol. Hung. 1 pp. 106–109, 113, 175 pl. v figs. 5, 9; vi fig. 4 and figs. in text.—*C.*, DUMBLE 41.—*C.*, GENTIL 50.

*Clypeastroïda*, HAWKINS 58.

†*Clypeastroïda*, HAWKINS 57.

*Coelopleurus floridanus*, CLARK 31.

†*Collyrites elliptica*, COUFFON 35.—*C.*, LAMBERT 80.

†*Conoclypus*, LAMBERT 81.

†*Conulopsis*, HAWKINS Geol. Mag. London 5 pl. ii fig. 1.

†*Conulus*, DIBLEY 39.

†*Corthya*, LAMBERT 80.

†*Cyathocidaris avenionensis*, CHECCHIA-RISPOLI Pal. Ital. 23 p. 56 pl. v [x] fig. 1.

†*Cyphosoma cenomanense* Dun. & Cott. fig. FOURTAU Rec. Geol. Surv. Calcutta 49 pp. 41–44 pl. i fig. 4.—*C.*, DIBLEY 39.

†*Disaster*, LAMBERT 80.

†*Discoïda*, DIBLEY 39.

†*Dorocidaris namadica* Duncan fig. FOURTAU Rec. Geol. Surv. Calcutta 49 pp. 35–38 pl. i figs. 1–2.

†*Echinanthus*, CHECCHIA-RISPOLI Pal. Ital. 23 pp. 85–88 pls. xi [xvi] figs. 4, 5; xii [xvii] fig. 2, 3.—*E.* with *E. kiliani*, Lambert & varr. n. *lonigensis* & *annotensis* LAMBERT Mem. Soc. Pal. Suisse 43 pp. 19–28 pl. i fig. 22.

*Echinarachnus*, BUSH 16.—*E.*, CROZIER 37.—*E. parma*, LILLIE 82.

†*Echinobrissus haydeni* R. Fourtau fig. FOURTAU Rec. Geol. Surv. Calcutta 49 pp. 44–46 pl. ii fig. 1.

*Echinocardium cordatum*, MACBRIDE 84.

†*Echinocardium*, HAWKINS Geol. Mag. London 5 pl. ii fig. 3.—*E. intermedium* pl. iii figs. 20–24, *E.* sp. n. text fig. VADASZ Geol. Hung. 1 pp. 206–207.

*Echinocardium filiformis*, J. 70.

†*Echinocorys*, HAWKINS Geol. Mag. London 5 pl. ii fig. 2.—*E. vulgaris*, PRIEST 102.—*E.*, HAWKINS 60.—*E.*, BRYDENE 15.

*Echinoïda*, JAEKEL 72.

†*Echinoïda*, DE STEFANI Pal. Ital. 23 p. 19 pl. i [i] figs. 29–30.

†*Echinolampas*, CHECCHIA-RISPOLI Pal. Ital. 23 pp. 70–72 pl. v [x] fig. 10; vii [xii] figs. 2, 3; viii [xiii] figs. 3–5; x [xv] figs. 2–6; ix [xiv] fig. 2.—*E.*, CHECCHIA-RISPOLI Pal. Ital. 23 pp. 89–90 pl. xii [xvii] figs. 1, 5.—*E.* with *E. colloti*, *ventiensis*, *varusensis*, *sarasini* LAMBERT Mem. Soc. Pal. Suisse 43 pp. 29–35 pls. i figs. 20, 21, 23, 24; ii figs. 1, 2, 3.—*E.* with *E. (Heteroclypeus) subpentagonalis*, *neviamii*, *hungaricus* sp. n., *hemisphaericus* sp. n., *barcinensis*, *italicus* VADASZ Geol. Hung. 1 pp. 176–189 figs. in text.—*E. dacicus*, *subconoideus* *transylvanicus*, spp. n., *E. dumasi* VADASZ Geol. Hung. 1 pp. 187, 189, 190, 191 pls. iv fig. 5; vi figs. 5–8.—*E. semiorbis* Cooper, JACKSON 71.—*E.*, OPPENHEIM 100.

*Echinometra lucunta*, viridis, CLARK 31.

*Echinoneus*, HAWKINS 58

*Echinus miliaris*, MACBRIDE 83.—*E. gracilis*, CLARK 31.

†*Enallaster*, COX 36.

*Eucidaris tribuloides*, CLARK 31.

†*Encope annectens*, JACKSON pl. 49 figs. 1, 2 pl. 50 fig. 1; *platytata* JACKSON pl. 51 figs. 1, 2; *magatrema* pl. 52 fig. 1, JACKSON Smiths Inst. Washington Mus. Bull. 103 1918.—*E.*, DUMBLE 41.

†*Epiaster distinctus* DIBLEY London Proc. Geol. Ass. 29 p. 85 pl. vii A.

†*Eupatagus*, DUMBLE 41.

*Fibularia volva*, MORTENSEN 95.

†*Fibularia* with *F. guehardi* LAMBERT Mem. Soc. Pal. Suisse 43 pp. 14–15 pl. i figs. 16, 19.—*F.* with *F. pusilla*, *stellata*, *calcariensis* VADASZ Geol. Hung. 1 pp. 96–98 pls. ii fig. 22; iii figs. 5–9.—*F. affinis*, CHECCHIA-RISPOLI 34.

†*Glyphocyphus*, DIBLEY 39.

*Gonocidaris maculata*, CLARK 31.

†*Gregoryaster mortenseni*, CHECCHIA-RISPOLI Pal. Ital. 23 p. 73 pl. v [x] fig. 3.

†*Gualteria*, CHECCHIA-RISPOLI Boll. Soc. geol. ital. 35 p. 92 pl. fig. 1.

†*Hemiaster loveni*, CHECCHIA-RISPOLI Pal. Ital. 23 p. 75 pl. v [x] fig. 7.—*H.* (*Trachyaster*) *pillai*, CHECCHIA-RISPOLI Boll. Soc. geol. ital. 35 p. 86 pl. i figs. 4, 4a.—*H. oldhami*, R. Dun. fig. FOURTAU Rec. Geol. Surv. Calcutta 49 pp. 46–49 pl. ii figs. 2, 3.—*H. humphreysanus* M. & H. RAVN Kjöbenhavn Medd. Groenl. 56 pl. vii figs. 1–2.—*H.*, DIBLEY 39.

†*Hemipatagus ocellatus* text fig., *H.* sp. n. pl. iv fig. 14 VADASZ Geol. Hung. 1 pp. 210–211.

*Hipponoë*, GOLDFARB 51.

*Histocidaris sharreri*, CLARK Bull. Univ. Lab. Nat. Hist. Univ. Iowa 7 No. 5 p. 21 pl. iv fig. 1.

†*Holaster*, DIBLEY 39.

†*Holectypoida*, HAWKINS 57, 58 & 59.

†*Holectypus depressus*, *sarthacensis*, COUFFON 35.

†*Hypsoclypeus*, CHECCHIA-RISPOLI Pal. Ital. 23 pp. 68, 69 pl. x [vi] fig. 1; v [x] fig. 8.

†*Lambertiella* gen. n. with *L. pulchra*. Checch.-Risp. CHECCHIA-RISPOLI Pal. Ital. 23 pp. 57–58 pl. v [x] fig. 2.

†*Lepidesthes*, BATHER 5.

†*Leiopedina*, LAMBERT 81.

†*Lepidechinus*, BATHER 5.

†*Linthia inflata*, CHECCHIA-RISPOLI Boll. Soc. geol. ital. 35 p. 88 pl. i figs. 3, 3a.

†*Lovenia*, DUMBLE 41.

*Lytechinus euerces*, *variegatus*, v. *carolinus*, CLARK 31.

†*Macropneustes* with *M. ingens* LAMBERT Mem. Soc. Pal. Suisse 43 pp. 46–47 pl. ii figs. 5, 6.

†*Marelia hungarica* sp. n. VADASZ Geol. Hung. 1 p. 210 pl. iii figs. 17, 18.

†*Maropneustes*, DUMBLE 41.

†*Meekechinus*, BATHER 5.

*Mellita sesquiporatus*, CROZIER 37.

†*Melonechinus*, BATHER 5.

*Meoma ventricosa*, CLARK 31.

†*Metalia*, DUMBLE 41.

†*Micraster*, DIBLEY 39.

†*Milletia angulosa*, VADASZ 119.

†*Nucleolitoida*, HAWKINS 57.

†*Offaster pilula*, HAWKINS 60.

†*Opisaster subsimilis*, R. Fourtau and O. sp. fig., FOURTAU Rec. Geol. Surv. Calcutta 49 pp. 50–52 pl. ii figs. 2–6.—*O. nux*, LAMBERT 81.

†*Orthopsis indica*, FOURTAU 47.

†*Palaechinus*, BATHER 5.

*Palaeotropus josephinae*, CLARK 31.

*Paracentrotus lividus*, HERLANT 63. *P. l.*, RUNNSTRÖM 106.

*Parechinus microtuberculatus*, *miliaris*, RUNNSTRÖM 106.

†*Pericosmus latus* figs. VADASZ Geol. Hung. 1 p. 201.—*P. spatangoides*, LAMBERT 81.

†*Perischodomus*, BATHER 5.

*Peronella tuberculata* sp. n. Australia, MORTENSEN Stockholm Vet.-Ak. Handl. 58 p. 16 pl. iv figs. 10–10; v. figs. 4, 6, 7, 11, 23, 24, 26.

†*Phalacrocidaris nummulitica*, LAMBERT 81.

†*Pholidocidaris* with *P. anceps* nom. nov. for *Protoëchinus anceps* Austin, BATHER Ann. Mag. Nat. Hist. 1 1918 pp. 40–48 pl. ii.

*Phyllacanthus longispinus* sp. n. N. W. Australia, MORTENSEN Stockholm Vet.-Ak. Handl. 58 p. 4 pls. i-ii; iii fig. 2; v fig. 15.

†*Plagiobrissus grandis*, CLARK 31.

†*Plagiobrissus hungaricus* sp. n. VADASZ Geol. Hung. 1 p. 205 pl. iv figs. 11-13.

†*Plagiocidaris peroni* VADASZ Geol. Hung. 1 p. 88 pl. ii figs. 13, 18, 19.

†*Pliolampas* VADASZ 119.

†*Porosoma*, LAMBERT 81.

†*Prionechinus* with *P. felmènesensis* VADASZ Geol. Hung. 1 p. 91 pl. iii figs. 1-4.

*Prionocidaris bispinosa*, MORTENSEN 95.

†*Procidaris schmideli*, LAMBERT Mem. Soc. Pal. Suisse 43 p. 5 pl. i figs. 3, 4.

†*Prospatangus* with *P. hungaricus* sp. n. and *P. delphinus* VADASZ Geol. Hung. 1 pp. 208-209 pl. v. figs. 1, 2, and text figs.

†*Proterocidaris*, BATHER 5.

†*Protoechinus anceps*, BATHER 5.

†*Psammechinus*, VADASZ 119.

†*Pseudodiadema*, DIBLEY 39.

†*Pygstrides relictus*, HAWKINS 59.

†*Radiocyphus arenatus*, LAMBERT 81.

†*Rhabdocidaris mespilum*, CHECCHIA-RISPOLI Pal. Ital. 23 p. 80 pl. xi [xvi] fig. 6.—*R. copeoides*, COUFFON 35.

*Salenia pattersoni*, CLARK Bull. Lab. Nat. Hist. Univ. Iowa 7 No. 5 p. 22 pl. v.

†*Salenia keatingei*, R. Fourtau fig. FOURTAU Rec. Geol. Surv. Calcutta 49 pp. 38-41 pl. i fig. 3.—*S.*, DIBLEY 39.

†*Schizaster* with *S. desori*, CHECCHIA-RISPOLI Pal. Ital. 23 pp. 76-77 pl. v [x] figs. 5, 6.—*S. Di-Stefanoi*, CHECCHIA-RISPOLI Boll. Soc. geol. ital. 35 p. 82 pl. i figs. 5, 6, 7, 8a-d.—*S. armiger*, W. B. Clark; *cristatus*, JACKSON pl. 52 figs. 2, 4; *panamensis*, JACKSON pl. 50 figs. 2, 3, JACKSON Smiths. Inst. Washington Mus. Bull. 103 1918.—*S.* with *S. cazioti*, *thieryi* LAMBERT Mem. Soc. Pal. Suisse 43 pp. 39-43 pl. ii figs. 8-11.—*S. calcolus* fig. in text VADASZ Geol. Hung. 1 p. 195.—*S.*, DUMBLE 41.

†*Schizechinus hungaricus* VADASZ Geol. Hung. 1 p. 94 pl. iv fig. 1.

†*Schizobrissus cruciatus* fig. VADASZ Geol. Hung. 1 p. 202.

†*Scutella* with *S. vindobonensis*, *gibbercula*, *leognanensis*, *paulenses* figs. in text *S. pygmaea* VADASZ Geol. Hung. 1 pp. 98-104 pl. iii figs. 10, 11.—*S.*, DUMBLE 41.

†*Scutellina hungarica* sp. n. VADASZ Geol. Hung. 1 p. 96 pl. iv fig. 2.—*S. rotunda*, CHECCHIA-RISPOLI 24.

†*Spatangoida*, HAWKINS 57.

*Strongylocentrotus dröbachiensis*, KJERSKOG-AGERSBORG 77.—*S. lividus*, JOHNSON 73.—*S.*, BUSH 16.—*S.*, MEUNIER 92.

*Stylocidaris affinis*, CLARK 31.

*Temnopteurus scalaris* sp. n. Australia, MORTENSEN Stockholm Vet.-Ak. Handl. 58 p. 9 pls. iv figs. 7-9; v. figs. 8, 14, 17.

*Temnotrema elsgams* sp. n. Australia, MORTENSEN Stockholm Vet.-Ak. Handl. 58 p. 12 pls. iv. figs. 4-5; v fig. 3; text figs. 1-2.

*Toxopneustes*, GOLDFARB 51.

†*Trachyaster lovisatoi* and *T.* sp. n. figs. in text, *T. cotteai* pl. vi fig. 9 VADASZ Geol. Hung. 1 pp. 199-200.

*Tretocidaris bartletti*, CLARK 31.

*Trigonocidaris albida*, CLARK 31.

†*Triplacidia van den Heckeï*, CHECCHIA-RISPOLI Pal. Ital. 23 p. 81 pl. xi [xvi] fig. 1.—*T. v-d-h*, LAMBERT 81.

*Tripneustes esculentus*, CLARK 31.

†*Tripneustes*, VADASZ N 9.

†*Tristomanthus pantanellii*, Stef. CHECCHIA-RISPOLI Pal. Ital. 23 p. 68 pl. v [x] fig. 9.

#### D.—ASTEROIDEA.

†*Arthrasteridae* fam. n., SPENCER London Pal. Soc. 1916 1918 p. 162.

†*Arthrasterinae* subfam. n., SPENCER London Pal. Soc. 1916 1918 p. 168.

*Asterias glacialis*, ZIRPOLO 126.—*A.*, BUSH 16.—*A.*, ULREY 118.

*Asterina coronata* with subsp. n. *fascicularis*; *A. cristata*, FISHER Ann. Mag. Nat. Hist. 1 pp. 108-111 pl. xiii.—*A.*, ULREY 118.

- Asterioidea*, JAEKEL 72.  
*Asteropecten*, ULREY 118.  
†*Asteroida*, DIBBLEY 39.  
*Astrogoniam pareli*, GRIEG 54.  
*Astropecten auranticus*, ZIRPOLO 127.—  
A., VADASZ 119.  
*Bathyiaster robustus*, *vexillifer*,  
GRIEG 54.  
*Benthopecten spinosus*, GRIEG 54.  
*Brisinga*, FISHER 44.  
*Brisingella*, FISHER 44.  
†*Calliasterellinae* subfam. n., SPEN-  
CER London Pal. Soc. 1916 1918  
p. 166.  
†*Cnemidactinidae* fam. n., SPENCER  
London Pal. Soc. 1916 1918 p. 125.  
*Ceramaster*, BUSH 16.—C., ULREY,  
118.  
†*Cnemidactis* gen. n. with *C. gir-*  
*vanensis*, SPENCER London Pal. Soc.  
1916 1918 pp. 156–162 pls. viii figs.  
5, 6; xi figs. 1, 2; xii figs. 1–5; xiii figs.  
1, 2.  
*Coronaster*, FISHER 44.  
*Cribrella*, ULREY 118.  
*Crossaster*, BUSH 16.  
*Cryptopeltatus*, ULREY 118.  
*Ctenodiscus crispatus*, GRIEG 54.  
*Dermasterias imbricata*, KJERSKOG-  
AGERSBORG 77.—D., BUSH 16.  
*Dipsacaster*, ULREY 118.  
*Dytaster agassizi*, GRIEG 54.—D.,  
ULREY 118.  
*Echinaster sepositus*, ZIRPOLO 126.—  
E., ULREY 118.  
*Evasterias troschelii*, KJERSKOG-  
AGERSBORG 77.—E., BUSH 16.  
*Freyella* Fisher = *Freyellidea* Fisher,  
FISHER Ann. Mag. Nat. Hist. 1 p. 104.  
*Freyellaster* gen. n. type *Freyella*  
*fecunda* Fisher, FISHER Ann. Mag. Nat.  
Hist. London 1 p. 104.  
*Freyellidea*, FISHER 44.  
*Gastraster*, FISHER 44.  
†*Goniaster impressae*, COUFFON 35.  
*Gymnobrisinga sarsii*, FISHER 44.  
*Heliaster*, FISHER 44.—H., ULREY  
118.  
*Henricia sanguineolenta*, GRIEG 54.—  
H., BUSH 16.—H., ULREY 118.  
*Heterozonias*, ULREY 118.  
*Hippasteria*, ULREY 118.  
*Hymenaster pellucidus*, GRIEG 54.—  
H., ULREY 118.  
*Hymenodiscus*, FISHER 44.  
*Labidiaster radiosus*, KJERSKOG-  
AGERSBORG 77.—L., FISHER 144.  
†*Lepidactinidae* fam. n., SPENCER  
London Pal. Soc. 1916 1918 p. 112.  
†*Lepidactis* gen. n. with *L. wenlocki*  
sp. n. Silurian England, SPENCER  
London Pal. Soc. 1916 1918 pp. 113–  
116 pl. vi. fig. 5.  
†*Lepidaster grayi*, SPENCER London  
Pal. Soc. 1916 1918 p. 106 pl. vi. fig. 6;  
vii figs. 1–6.  
*Leptasterias hexactis*, OSTERUD 101.—  
L., BUSH 16.—L., ULREY 118.  
*Leptychaster arcticus*, GRIEG 54.—  
L., ULREY 118.  
*Linkia*, ULREY 118.  
*Luidia*, BUSH 16.—L., ULREY 118.  
*Lytaster*, FISHER 44.  
*Mediaster*, BUSH 16.—M., ULREY  
118.  
†*Metopaster parkinsoni* Ed. Forb.,  
RAVN 103.  
*Nearchaster*, ULREY 118.  
*Odinia*, FISHER 44.  
*Odontaster*, ULREY 118.  
*Orthasterias*, BUSH 16.—O., ULREY  
118.  
*Patiria*, ULREY 118.  
*Pectinaster*, ULREY 118.  
*Pedicellaster*, FISHER 44.  
†*Pentagonaster mulleri*, VADASZ geol.  
Hung. 1 p. 81 pl. ii figs. 20–21.  
*Peribolaster*, ULREY 118.  
*Phataria*, ULREY 118.  
*Pisaster ochraceus*, KJERSKOG-AGERS-  
BORG 77.—P., BUSH 16.—P., ULREY  
118.  
*Plutonaster bifrons*, GRIEG 54.  
*Pontaster tenuispinus*, GRIEG 54.  
*Poraniopsis*, ULREY 118.

†*Protarthraster* gen. n. with *P. longimanus*, SPENCER London Pal. Soc. 1916 1918 p. 164 pl. xiii figs. 3-5.

†*Protarthrasteridae* fam. n., SPENCER London Pal. Soc. 1916 1918 p. 125.

†*Protarthrasterinae* subfam. n., SPENCER London Pal. Soc. 1916 1918 p. 164.

*Pseudarchaster*, ULREY 118.

*Psilaster andromeda*, GREIG 54.

*Pteraster*, BUSH 16.—*P.*, ULREY 118.

*Pycnopodia heliethoides* Stimpson, KJERSKOG-AGERSBERG 77.—*P.*, BUSH 16.—*P.*, ULREY 118.

*Rathbunaster*, FISHER 44.

†*Salteraster* with *S. asperrimus* (Salter), *S. ? imbricatus* (Salter), *S. ? coronella* (Salter), SPENCER London Pal. Soc. 1916 1918 pp. 149-156 pl. xi figs. 3, 4, 5, 6.

*Solaster*, BUSH 16.—*S.*, ULREY 118.

†*Stauranderaster bulbiformis*, HAWKINS 60.

†*Taeniaster*, FOERSTE 46.

*Thrissacanthius*, ULREY 118.

†*Uranasteridae* with *U. ramseyensis*, SPENCER London Pal. Soc. 1916 1918 pp. 109-112 pl. vi. figs., 1-4.

†*Urastrella* with *U. thraivensis* sp. n. Ordovician Scotland; *U. ruthveni* with *U. r.* var. *leintwardinensis* var. n. Silurian England; *U. gutterfordensis* sp. n. Silurian Scotland, SPENCER London Pal. Soc. 1916 1918 pp. 135-148 pls. viii. figs. 1-3; ix. figs., 1-5; x. figs., 1-6.

†*Urastrellidae*, SPENCER 112.

#### E. OPHIUROIDEA.

*Amphilepis pecten*, J. 70.

*Amphiodia* with *A. mesopoma* fig., *rhabdota*, *trychna*, *tymbara*, *coniortodes*, *thrombodes* spp. n. W. Indies CLARK Bull. Mus. Comp. Zool. Harvard 62 pp. 285-292 pls. ii. fig. 6; iii. figs. 7, 1-3; vii. figs., 3, 4; viii. fig. 4.—*A.*, BUSH 16.

*Amphiopholis pachybaetra* sp. n. West Indies CLARK Bull. Mus. Comp. Zool. Harvard 62 p. 284 pl. i. figs., 3-5.

*Amphioplus*, BUSH 16.

*Amphiura* with *A. vivipara* and var. *annulata* sp. and var. n. W. Indies CLARK Bull. Mus. Comp. Zool. Harvard 62 pp. 267-269 pl. i figs., 1, 2.—*A. chiajei* and *filiformis* WINTZELL 124.

*Asthrombus chrysanthi* sp. n. Japan MATSUMOTO Dobuts. Z., Tokyo 30 pp. 146-154.—*A. chrysanthi* sp. n. Japan MATSUMOTO Annot. Zool. Jap., Tokyo 9 pp. 475-480.

*Astrocharis gracilis* sp. n. Mortensen off Philippines in MORTENSEN & STEPHENSEN Med. Dansk. Natur hist. Foren Kjøbenhavn 69 pp. 264-267.

*Astrocynodus* gen. n. *A. herrerae* sp. n. W. Indies CLARK Proc. U. S. Nation. Mus. 54 p. 638 pl. xcvi.

*Gorgonocephalidae*, CLARK 28.

*Gorgonocephalus*, BUSH 16.

*Ophiactis* with *O. lymani* fig. *cyano-ticta* sp. n. W. Indies CLARK Bull. Mus. Comp. Zool. Harvard 62 pp. 295-312 pl. iv. figs., 3-6.

*Ophiocantha oligacantha* sp. n. W. Indies CLARK Bull. Mus. Comp. Zool. Harvard 62 p. 265 pl. vii fig. 5.

*Ophiocoma nigra* WINTZELL 124.

*Ophiocryptus dubius* sp. n. West Indies CLARK Bull. Mus. Comp. Zool. Harvard p. 336 pl. iii. figs. 4, 5.

*Ophioderma phoenium*, *squamosissimum* CLARK Bull. Mus. Comp. Zool. Harvard 62 pp. 333-335 pls. iv. fig. 1; vi figs., 1, 2, 3, 4.

*Ophionephthys* with *O. intricata* fig. CLARK Bull. Mus. Comp. Zool. Harvard 62 pp. 278-282 pl. ii. figs. 1-3.

*Ophioneuris*, CLARK 30.

*Ophiopholis aculeata* WINTZELL.—*O.* BUSH 16.

*Ophiophragmus* with *O. flograneus* fig., *pulcher* sp. n. W. Indies CLARK Bull. Mus. Comp. Zool. Harvard 62 pp. 270-278 pls. ii. figs., 4, 5; viii fig. 1.

*Ophioplocus bispinosus* sp. n. Victoria [Australia] CLARK Bull. Mus. Comp. Zool. Harvard 62 p. 337 pl. iv. fig. 2.

*Ophiopsila* with *O. vittata* sp. n. West Indies CLARK Bull. Mus. Comp. Zool. Harvard 62 pp. 326-332 pl. viii fig. 2.



*Ophiostigma rugosum* sp. n. Philippines CLARK Bull. Mus. Comp. Zool. Harvard 62 p. 285 pl. iii fig. 6.

*Ophiolthrix* with *O. ørstedii* var. n. *lutea*, *angulata* varr. n. *atrolineata*, *megalaspis*, *phoinissa*, *phlogina* and *pocila* West Indies, *O. dirrhabdota*, *eurycolpodes*, *leucotrigona* spp. n., Philippines, CLARK Bull. Mus. Comp. Zool. Harvard 62 pp. 312-324 pls. v figs. 1, 2, 3, 4; viii fig. 3.—*O. fragilis* WINTZELL 124.

*Ophiura ciliaris*, *albida* WINTZELL 124.—*O.*, BUSH 16.

*Ophiurodon cupida*, CLARK 30.

*Ophiuroidea*, GEMMILL 48.—*O.*, JAEKEL 72.

†*Ophiuroidea*, DIBLEY 39.—*O.*, VADASZ 119.

#### F. CRINOIDEA.

†*Abacocrinus erraticus* sp. n. Upper Silurian N. Europe JAEKEL Palaeont. Zs. Berlin 3 pp. 29 text fig., 31.

†*Acanthocystis briareus*, Barr. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 14.

†*Acrococrinus amphora*, W. & Sp. fig. JAEKEL Palaeont. Zs. Berlin 3 p. 39.

†*Actinometra hungarica*, *miocaenica*, spp. n. VADASZ Geol. Hung. 1 pp. 76-77 pls. i figs. 27-32; ii figs. 1-3.

*Analcidometra armata*, CLERK 31.

†*Anarchocrinus rossicus* gen. & sp. n. Lower Silurian Esthonia JAEKEL Palaeont. Zs. Berlin 3 pp. 50 text fig., 51.

†*Angelinocrinus* gen. n. Upper Silurian Gotland JAEKEL Palaeont. Zs. Berlin 3 p. 38.

†*Antedon* with *A. hungaricus*, *panonicus* spp. n. & *A. allardi*, *taurinensis*, *rhodanicus* fig., *fontannesi* VADASZ Geol. Hung. 1 p. 72 pl. i figs. 4-14, 2-26.—*A.* fig. JAEKEL Palaeont. Zs. Berlin 3 p. 70.—*A.*, BATHER 6.

†*Anthemocrinus minor*, Ang. sp. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 40.

†*Apiocrinus* fig., JAEKEL Palaeont. Zs. Berlin 3 p. 70.—*A.*, SCALIA 109.

†*Apsidocrinus remesi* fig.; JAEKEL Palaeont. Zs. Berlin 3 p. 75.

†*Arachnocrinus ignotus* sp. n. Devonian Canada STAUFFER J. Geol. Chicago Ill. 26 p. 555 pl. i fig. 1.

*Argyrometra*, CLARK 26.

†*Ascocrinus bohemicus* gen. and sp. n. Devonian Bohemia JAEKEL Palaeont. Zs. Berlin 3 p. 54 text fig.

†*Ascocystites barrandei* sp. n. Lower Silurian Bohemia JAEKEL Palaeont. Zs. Berlin 3 pp. 17 text fig., 18, 25.—*A. drabowiensis*, Barr. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 17.

†*Atelocrinus belgicus*, Jkl. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 73.

*Austrometra*, CLARK 26.

†*Balanocrinus pentagonalis*, COUFFON 35.

†*Bathericrinus* gen. n. Upper Silurian England JAEKEL Palaeont. Zs. Berlin 3 p. 58.

†*Beyrichocrinus* gen. n. Trias C. Europe JAEKEL Palaeont. Zs. Berlin 3 pp. 32, 67.

†*Bichirocrinus* gen. n. Upper Silurian N. America and Europe, JAEKEL Palaeont. Zs. Berlin 3 p. 88.

†*Bourgueticrinus hagenowii*, Golf. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 73.—*B.*, DIBLEY 39.

†*Burdigalocrinus lorioli* gen. and sp. n. Upper Jurassic JAEKEL Palaeont. Zs. Berlin 3 p. 71 text fig.

†*Camarocrinus asiaticus*, REED 105.

†*Carabocrinus esthonus* sp. n. Lower Silurian Esthonia JAEKEL Palaeont. Zs. Berlin 3 p. 50 text fig.

*Chondrometra rugosa* sp. n. Malay Archipelago, CLARK Rés. expl. Mon. 42b Siboga Leiden p. 188.

†*Chytrocrinus* gen. n. for *Stelidiocrinus laevis* Ang. JAEKEL Palaeont. Zs. Berlin 3 p. 33.

†*Cladocrinoidea*, JAEKEL 72.

†*Clonocrinus klinbergi* sp. n. Upper Silurian Gotland JAEKEL Palaeont. Zs. Berlin 3 p. 31 text fig.

*Coccometra guttata*, *nigrolineata* spp. n. Malay Archipelago, CLARK Rés. Expl. Mon. 42b Leiden pp. 219, 220.—*C. hagenii* CLARK 31.

- Comactinia echinoptera*, CLARK 31.
- Comanthus* with *C. tasmaniae* Tasmania; *C. novaezealandiae* New Zealand spp. n. CLARK Washington Proc. Biol. Soc. 31 pp. 41-43.
- Comatonia cristata*, CLARK 31.
- Comissia*, CLARK 26.
- Compsometra*, CLARK 26.
- Cosmiometra*, CLARK 26.
- † *Costalocrinus* gen. n. for *Poteriocrinus dilatatus*, L. Sch. Devonian Germany, JAEKEL Palaeont. Zs. Berlin 3 p. 61.
- † *Cremacrinus* gen. n. Trias Italy, JAEKEL Palaeont. Zs. Berlin 3 p. 70.
- Crinoidea*, BENSON 13.—C., JAEKEL 72.
- † *Crinoidea*, MOODIE 93.—C., JAEKEL 72.
- † Crinoid stems, BARTON 4.
- Crinometra gracilis, ornata*, CLARK 31.
- † *Cromyocrinus geminatus*, Trtsch. fig. JAEKEL Palaeont. Zs. Berlin 3 p. 65.
- † *Cryptocrinus laevis*, Pander fig., JAEKEL Palaeont. Zs. Berlin 3 p. 21.
- † *Culmicrinus* gen. n. Carboniferous Germany, JAEKEL Palaeont. Zs. Berlin 3 p. 62.—*C. regularis*, H. v. Meyer sp. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 62.
- † *Cupressocrinus abbreviatus* Goldf. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 82.
- † *Cyathidium holopus*, St. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 76.
- † *Cyatocrinus*, DE STEFANI Pal. Ital. 23 p. 16 pl. i [i] figs. 23-27.
- † *Cyclocrinus macrocephalus*, COUFFON 35.
- † *Dadocrinus kunischi* W. & Sp. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 65.
- Democrinus rawsonii*, CLARK 31.
- † *Dendrocrinus acutidactylus*, Bill. fig. JAEKEL Palaeont. Zs. Berlin 3 p. 53.
- † *Dichirocrinus* gen. n. Lower Carboniferous N. America, JAEKEL Palaeont. Zs. Berlin 3 p. 88.
- † *Dichocrinus* fig., JAEKEL Palaeont. Zs. Berlin 3 p. 39.
- † *Dictenocrinus* gen. n. Upper Silurian JAEKEL Palaeont. Zs. Berlin 3 p. 59.—*D. fig.*, JAEKEL Palaeont. Zs. Berlin 3 p. 68.
- Dorometra clymene* sp. n. Malay Archipelago, CLARK Rés. expl. Mon. 42b. Siboga Leiden p. 217.
- † *Drepanocrinus sessilis* gen. and sp. n. Upper Cretaceous, JAEKEL Palaeont. Zs. Berlin 3 p. 72 text fig.
- † *Echinocrinus anceps*, BATHER 5.
- † *Encrinus* fig. JAEKEL Palaeont. Zs. Berlin 3 p. 70.—*E. hyatti*, BATHER 7.
- † *Entrochus* with *E. undatus*, *ternio* spp. n. Trias New Zealand BATHER Q. J. Geol. Soc. 73 pp. 247-252.
- † *Eocrinoidea*, JAEKEL 72.
- † *Eocrinus* gen. n. for *Ecocystites*. JAEKEL Palaeont. Zs. Berlin 3 p. 24.
- Erythrometra australis* sp. n. Malay Archipelago, CLARK Rés. Expl. Mon. 42b Siboga, Leiden p. 235.
- † *Esthonocrinus laevior* gen. & sp. n. Lower Silurian Esthonia, JAEKEL, Palaeont. Zs. Berlin 3 p. 52 text fig. 53.
- Eudoxocrinus parrae*, CLARK Bull. Lab. Nat. Hist. Univ. Iowa No. 5 p. 13 pls. i, ii.
- † *Eugeniocrinites caryophyllatus* v. Schloth, sp. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 75.
- † *Eupachycrinus geminatus* Trtsch. fig. JAEKEL Palaeont. Zs. Berlin 3 p. 65.
- Evantedon tahitiensis* sp. n. Malay Archipelago. CLARK Rés. Expl. Mon. 42b Siboga Leiden p. 200.
- Extracrinus*, fig., JAEKEL, Palaeont. Zs. Berlin 3 p. 70.
- Fariometra scutifera, diome* spp. n. Malay Archipelago, CLARK Rés. Expl. Mon. 42b Siboga Leiden pp. 249, 250.
- † *Geroldicrinus* gen. n. Devonian, JAEKEL Palaeont. Zs. Berlin 3 p. 80.
- † *Glyptocrinus*, FOERSTE 46.
- † *Haplocrinus*, SPRINGER 114.
- † *Heterocrinus pachydactylus*, Sandb. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 53.—*H.*, FOERSTE 46.
- † *Holocrinus* fig., JAEKEL Palaeont. Zs. Berlin 3 p. 70.

†*Homocrinus rhenanus* sp. n. Lower Devonian Germany, JAEKEL Palaeont. Zs. Berlin 3 p. 54 text fig.

†*Hypalocrinus* fig., JAEKEL Palaeont. Zs. Berlin 3 p. 68.

*Isocrinus asteria, decorus* CLARK Bull. Lab. Nat. Hist. Univ. Iowa 7 No. 5 p. 14 pls. i; iii, figs. 1-3.

†*Isocrinus* with *I. trechmanni* Trias New Zealand; *I. argenteus, cupreus gravinae* Trias Alaska spp. n. BATHER Q. J. Geol. Soc. 73 pp. 252-256 figs.—*I. hungaricus* sp. n. VADASZ Geol. Hung. 1 p. 78 pl. i figs. 33-35.—†*I.* fig., JAEKEL Palaeont. Zs. Berlin 3 p. 70.—*I.* (*Pentacrinus*), DIBLEY 39.

*Isometra vivipara*, MORTENSEN 94.

†*Jahnocrinus minutus* gen. and sp. n. Devonian Bohemia, JAEKEL Palaeont. Zs. Berlin 3 p. 54 text fig.

†*Jenaicrinus* gen. n. Trias, JAEKEL Palaeont. Zs. Berlin 3 p. 67.

†*Lecanocrinus*, SPRINGER 114.

†*Lenneocrinus cirratus* gen. and sp. n. Lower Devonian Germany, JAEKEL Palaeont. Zs. Berlin 3 p. 35 text fig.

†*Lichenocrinus tuberculatus*, Miller, FOERSTE Ottawa Nat. 31 p. 99 pl. iv fig. 3.

†*Lichenoides priscus* Barr fig., JAEKEL Palaeont. Zs. Berlin 3 p. 25.

†*Lindstroemiocrinus* gen. n. with text fig of *L. gottlandicus* Ang. Upper Silurian Gotland, JAEKEL Palaeont. Zs. Berlin 3 p. 31.—*L. gottlandicus* Ang. sp. fig. JAEKEL Palaeont. Zs. Berlin 3, p. 31.

†*Loriolicrinus* gen. n. Upper Jurassic JAEKEL Palaeont. Zs. Berlin 3 p. 71 text fig., 72.—*L. insuetus*, de Lor. sp. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 71.

†*Loveniocrinus gottlandicus* gen. and sp. n. Upper Silurian Gotland JAEKEL Palaeont. Zs. Berlin 3 p. 36 text fig.

†*Macrostylocrinus anglicus* sp. n. Upper Silurian England, JAEKEL Palaeont. Zs. Berlin 3 p. 36 text fig.

*Mastigometra pacifica* sp. n. Malay Archipelago, CLARK Rés. expl. Mon. 42b Siboga Leiden p. 199.

†*Metabolocrinus ressicus*, Jkl. [*?rossicus*. Jkl.] fig., JAEKEL Palaeont. Zs. Berlin 3 p. 84.

*Metacrinus*, CLARK 26.

†*Metapiocrinus minutus* gen. and sp. n. Cretaceous Germany, JAEKEL Palaeont. Zs. Berlin 3 pp. 70, 71, text fig.

†*Methabocrinus erraticus* gen. and sp. n. Upper Silurian Germany, JAEKEL Palaeont. Zs. Berlin 3 p. 37 text fig.

†*Millericrinus* fig., JAEKEL Palaeont. Zs. Berlin 3 p. 70.—*M. granulatus*, COUFFON 35.

†*Moscovicrinus* gen. n. Carboniferous Russia, JAEKEL Palaeont. Zs. Berlin 3 p. 62.

†*Mysticocrinus* gen. n. *M. Wilsoni* sp. n. Silurian. S. Indiana, SPRINGER Amer. J. Sci. New Haven Conn. 46 p. 666.

†*Nassoviocrinus* gen. n. Lower Devonian Germany, JAEKEL Palaeont. Zs. Berlin 3 pp. 53 text fig., 54.

*Nemaster insolitus* and *iowensis*, CLARK 31.

*Neocomatella alata*, CLARK 31.

*Notocrinidae* fam. n. Antarctic Sea, MORTENSEN Wissenschaftl. Ergebnisse Schwed. Südpolar-Exp. 6 8 p. 2 pls. and text figs.

*Notocrinus virilis*, MORTENSEN 94.

†*Ohiocrinus*, FOERSTE 46.

†*Ontariocrinus deviatu*s gen. and sp. n. Lower Silurian Canada, JAEKEL Palaeont. Zs. Berlin 3 p. 83 text fig.

†*Ophiurocrinus* gen. n. Carboniferous Russia, JAEKEL Palaeont. Zs. Berlin 3 p. 62.

†*Ottawacrinus tenuis*, Bill. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 85.

†*Palermocrinus* gen. n. Permian Sicily, JAEKEL Palaeont. Zs. Berlin 3 pl 67.

†*Pandoracrinus pinnulatus* gen. and sp. n. Lower Silurian Bohemia, JAEKEL Palaeont. Zs. Berlin 3 pp. 56 text fig., 57.

†*Paractocrinus tuberculatus, laevis* gen. and spp. n. Lower Silurian Russia, JAEKEL Palaeont. Zs. Berlin 3 pp. 22 text figs., 25.

- †*Parorthocrinus liber* gen. and sp. n. Lower Silurian Russia, JAEKEL Palaeont. Zs. Berlin 3 pp. 25, 26 text fig.
- †*Patinocrinus* gen. n. for *Stelidocrinus* W. and Sp. non Ang., JAEKEL Palaeont. Zs. Berlin 3 p. 36.
- †*Pentacrinites asteriscus* ? Hall and Whitfield 1877, BATHER 7.
- †*Pentacrinoidea*, JAEKEL 72.
- †*Pentacrinus rotiensis* sp. n. Jurassic East Indies, SPRINGER Jaarb. Mynw. Ned.-Indie Batavia 45 p. 59.—*P. fossilis*, Blum. sp. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 69.—*P. fig.*, JAEKEL Palaeont. Zs. Berlin 3 p. 70.—*P.*, SCALIA 109.
- †*Pentamerocrinus praematurus* gen. and sp. n. Lower Silurian Russia, JAEKEL Palaeont. Zs. Berlin 3 p. 79 text fig.
- Perissometra gorgonia* sp. n. Malay Archipelago, CLARK Rés. Expl. Mon. 42b Siboga Leiden p. 179.
- †*Peritocrinus* with *P. transit* sp. n. Lower Silurian Russia, JAEKEL Palaeont. Zs. Berlin 3 pp. 21, 43, 46, 47, 49 text fig., 50.
- †*Pisocrinus*, SPRINGER 114.
- †*Polycrinus ramulatus, kosoviensis* gen. and spp. n. Lower Silurian, JAEKEL Palaeont. Zs. Berlin 3 p. 55, text figs.
- †*Polyptychella esthona* sp. n. Lower Silurian, JAEKEL Palaeont. Zs. Berlin 3 pp. 26 text fig., 27.
- †*Poteriocrinus dilatatus*, L. Sch., JAEKEL 72.
- †*Procupressocrinus* gen. n. Devonian, JAEKEL Palaeont. Zs. Berlin 3 p. 82.
- Prometra longipinna* sp. n. Philippine Isds., CLARK Washington Proc. Biol. Soc. 31 p. 37.—*P. longipinna* sp. n. Malay Archipelago, CLARK Rés. expl. Mon. 42b Siboga Leiden, p. 125.
- †*Protencrinus moscoviensis* gen. n. and sp. n. Lower Carboniferous, JAEKEL Palaeont. Zs. Berlin 3 pp. 66 text fig., 67.
- Ptilometra*, CLARK 26.
- †*Ravelocrinus costatus* gen. and sp. n. Lower Silurian Esthonia, JAEKEL Palaeont. Zs. Berlin 3 p. 90 text fig.
- †*Rhenocrinus ramosus* gen. and sp. n. Lower Devonian Germany, JAEKEL Palaeont. Zs. Berlin 3 p. 59 text fig.
- †*Saccaoma* gen. n. var. for *Saeccocoma tenella* (Gold), Jaekel Upper Jurassic, JAEKEL Palaeont. Zs. Berlin 3 p. 92 text fig.
- †*Scaphiocrinus depressus* sp. n. Carboniferous Indo-China MANSUY Mem. Serv. géol. Indochine p. 97 pl. xviii. figs., 2 a-e.
- †*Solanocrinus scrobiculatus*, Goldf. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 73.
- †*Springericrinus* gen. n. Carboniferous N. America Belgium, JAEKEL Palaeont. Zs. Berlin 3 p. 62.
- †*Stelidocrinus capitulum*, Ang. fig. JAEKEL Palaeont. Zs. Berlin 3 p. 33.
- Stylometra spinifera*, CLARK 31.
- †*Symbathocrinus*, SPRINGER 114.
- †*Synchirocrinus anglicus* gen. and sp. n. Upper Silurian England, JAEKEL Palaeont. Zs. Berlin 3 pp. 86, 88 text figs.
- †*Tetractocrinus compactus* gen. and sp. n. [Lower Silurian, Russia], JAEKEL Palaeont. Zs. Berlin 3 p. 26 text fig.
- †*Thiolliericrinus ribeiroi*, de Lor. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 71.
- Thaumatometra nutrix* sp. n. Antarctic Sea, MORTENSEN Wissenschaftl. Ergebnisse der Schwed. Südpolar-Exped. 1901-1903 6 p. 15 pl. v text figs. 14-15.
- †*Thuringocrinus saalfeldianus* gen. and sp. n. Upper Devonian Germany, JAEKEL Palaeont. Zs. Berlin 3 pp. 61, 62 text fig.
- †*Thylacocrinus vannioti*, Oehl. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 41.
- †*Timorechinus mirabilis*, Wanner fig., JAEKEL Palaeont. Zs. Berlin 3 p. 64.
- †*Torynocrinus granulatus* fig., JAEKEL Palaeont. Zs. Berlin 3 p. 75.
- †*Traumatocrinus perforatus* sp. n. Trias Indo-China MANSUY Mem. Serv. géol. Indochine 1 pp. 15, 121 pl. xxii figs., 3a-b.

†*Voseocrinus granulatus* gen. and sp. n. Lower Silurian Bohemia JAEKEL Palaeont. Zs. Berlin 3 pp. 56 text fig. 57.

†*Whiteocrinus* gen. n., JAEKEL Palaeont. Zs. Berlin 3 p. 58.

†*Xenocrinus*, FOERSTE 45.

#### G. CYSTIDEA AND EDRIOASTEROIDEA.

†*Agelacrinites rectiradiatus* sp. n. Ordovician U.S.A., SHIDELER Ohio J. Sci. 19 p. 58.—A., WILLIAMS 120.

†*Agelacrinus*, WILLIAMS 120.

†*Amygdolocystis florealis*, BATHER 8.

†*Anomocystis* gen. n. Lower Silurian Bohemia, JAEKEL Palaeont. Zs. Berlin 3 p. 122 text fig.

†*Asteroblastus regularis* sp. n. Lower Silurian Russia, JAEKEL Palaeont. Zs. Berlin 3 pp. 100 text fig., 101.—*A. regularis* fig., JAEKEL Palaeont. Zs. Berlin 3 p. 100.

†*Asterocystis globulus* sp. n. Lower Silurian Esthonia, JAEKEL Palaeont. Zs. Berlin 3 p. 100 text fig.—*A. fig.*, JAEKEL Palaeont. Zs. Berlin 3 p. 100.

†*Callocystites jewetti*, Hall fig., JAEKEL Palaeont. Zs. Berlin 3 p. 96.

†*Carpoida*, JAEKEL 72.

†*Caryocrinus*, REED 105.

†*Caryocystis bicompressa* sp. n. Ordovician Yun-nan REED Pal. Ind. Calcutta 6 p. 13 pl. iv figs., 6, 6a, 6b.

†*Chirocrinus insignis*, Jkl. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 94.

†*Cigara dusli*, Barr. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 15.

†*Cothurnocystis*, BATHER 8.

†*Cyathocystis corallum* sp. n. Lower Ordovician Russia, JAEKEL Palaeont. Zs. Berlin 3 p. 112, text fig.

†*Cyclocystoides huronensis*, FOERSTE 46.

*Cystoidea*, JAEKEL 72.

†*Cystoidea*, JAEKEL 72.

†*Dendrocystis*, BATHER 8.

†*Dendrocystoides* gen. n. Lower Silurian Scotland, JAEKEL Palaeont. Zs. Berlin 3 pp. 123, 124 text fig.

†*Dichoporita*, JAEKEL 72.

†*Diploporita*, JAEKEL 72.

†*Echinocentrinus* REED Pal. Ind. Calcutta 6 p. 19 pl. iv fig. 7.

†*Echinospheæ* with *E. asiatica*, *sinensis*, spp. n. Ordovician Yun-nan REED Pal. Ind. 6 pp. 13-15 pls. iii. figs. 12-14a; v. figs., 1, 1a.

†*Eocystites primævus*, *E. (?) longidactylus*, BATHER 8.

†*Estonocystis antropoffi* gen. and sp. n. Silurian Esthonia, JAEKEL Palaeont. Zs. Berlin 3 pp. 101 102 text fig.

†*Encystis* cf. *rariopunctata*, REED Pal. Ind. Calcutta 6 p. 11 pl. iii. figs. 3 3a.

†*Gyrocystis platessa* gen. and sp. n. Cambrian France, JAEKEL Palaeont. Zs. Berlin 3 pp. 114 (with text fig.) 120.

†*Heliocrinus* with *H. fiscella*, Bather, *H. qualus*, Bather and *H. subovatis* sp. n. Ordovician Yun-nan, REED Pal. Ind. Calcutta 6 pp. 15 16 pl. iv figs. 2 2a 3 4 5 5a.

†*Hemicosmites altus* sp. n. Lower Silurian Esthonia, JAEKEL Palaeont. Zs. Berlin 3 p. 97 text fig.

†*Lagynocystis* gen. n. Lower Silurian Bohemia, JAEKEL Palaeont. Zs. Berlin 3 pp. 121 122 text fig.—*L. pyramidalis*, Barr. sp. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 122.

†*Lichenocrinus*, WILLIAMS 120.

†*Macrocytella mariae*, BATHER 8.

†*Metasterocystis micropella* gen. and sp. n., JAEKEL Palaeont. Zs. Berlin 3 p. 101.

†*Mitrocystella barrandei*, Jkl. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 121.

†*Mitrocystites latus* sp. n. Lower Silurian Bohemia, JAEKEL Palaeont. Zs. Berlin 3 p. 121 text fig.

†*Ovocystis* gen. n. with *O. mansuyi* sp. n. Ordovician Yun-nan, REED Pal. Ind. Calcutta p. 7 pl. ii figs. 2-11.—*O.*, Reed = *Sinocystis*, Reed, BATHER Geol. Mag. London 5 p. 515.

†*Polycosmites bohemicus* gen. and sp. n. Lower Silurian Bohemia, JAEKEL Palaeont. Zs. Berlin 3 p. 98 text fig.

†*Procystis* ? *orientalis* sp. n. Ordovician Yun-nan, REED Pal. Ind. Calcutta 6 p. 10 pl. iii figs. 1 2.

†*Schizocystinae* subfam. n., JAEKEL Palaeont. Zs. Berlin 3 p. 96.

†*Shufferia* gen. n. [vide Zool. Record 1917 p. 24] erroneously recorded as a Cystid is a Crustacean.

†*Sinocystis* gen. n. with *S. loczyi*, *yunnanensis*, spp. n. Ordovician Yun-nan, REED Pal. Ind. Calcutta 6 pp. 3-6 pls. i figs. 1-10; ii. figs. 1 1a 16.—*S.* with *S. loczyi* Genotype, BATHER Geol. Mag. London 5 p. 515.—*S. loczyi*, *mansuyi*, *yunnanensis*, BATHER 10.

†*Sphaeronis lobiferus*, *shihtiensis*, spp. n. Ordovician Yun-nan, REED Pal. Ind. Calcutta 6 p. 12 pl. iii figs. 4-11.

†*Streptaster*, WILLIAMS 120.

†*Stromatocystites balticus*, Jaekel fig., JAEKEL Palaeont. Zs. Berlin 3 p. 112.

†*Thecoidea*, JAEKEL 72.

†*Trochocystis*, BATHER 8.

†*Trochocystites longifossatus* sp. n. Cambrian Bohemia, JAEKEL Palaeont. Zs. Berlin 3 pp. 114 (with text fig.)

120.—*T. bohemicus*, Barr., JAEKEL Palaeont. Zs. Berlin 3 p. 62.

†*Trochocystoides parvus* gen. and sp. n. Cambrian, JAEKEL Palaeont. Zs. Berlin 3 p. 120 text fig.

## II. BLASTOIDEA.

†*Agelacrinites lebouri*, P. Sladen, fig., JAEKEL Palaeont. Zs. Berlin 3 p. 112.

†*Blastocystis* gen. n. Silurian Russia, JAEKEL Palaeont. Zs. Berlin 3 pp. 106 107.

†*Blastoidea*, JAEKEL 72.

†*Blastoidocrinus carchariaedeus*, Bill. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 166.

†*Cyathocystis plautinae*, F. Schm. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 112.

†*Mespilocystites bohemicus*, Barr. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 110.

†*Stephanoblastus* gen. n. Silurian Bohemia, JAEKEL Palaeont. Zs. Berlin 3 p. 110 text fig.—*S. mirus*, Barr. fig., JAEKEL Palaeont. Zs. Berlin 3 p. 110.

†*Troostocrinus reinwardti* Shum. fig. JAEKEL Palaeont. Zs. Berlin 3 p. 107.

# VI. VERMIDEA

ARRANGED BY

H. M. WOODCOCK.

## CONTENTS

	PAGE
TITLES (for all groups) .. .. .	3
<b>PLATYHELMINTHIA, NEMERTINEA, MESOZOA.</b>	
SUBJECT-INDEX :—	
Comprehensive and General=1203 .. .. .	12
Structure=1207 .. .. .	12
Physiology=1211 .. .. .	12
Development=1215 .. .. .	12
Ethology=1219 .. .. .	13
Variation, Phylogeny=1223 .. .. .	13
Distribution (Geography)=1227 .. .. .	13
SYSTEMATIC=1231 :—	
Platyhelminthia .. .. .	13
Turbellaria .. .. .	13
Trematoda .. .. .	14
Cestoda .. .. .	16
Nemertinea (vacant).	
Mesozoa .. .. .	17
<b>NEMATHELMINTHIA.</b>	
SUBJECT-INDEX :—	
Comprehensive and General=1403 .. .. .	17
Structure=1407 .. .. .	17
Physiology=1411 .. .. .	17
Development=1415 .. .. .	17
Ethology=1419 .. .. .	17
Variation, Phylogeny=1423 .. .. .	18
Distribution (Geography)=1427 .. .. .	18
SYSTEMATIC=1431 :—	
Nematoda .. .. .	18
Nematomorpha .. .. .	20
Acanthocephala .. .. .	20
(N-5464 o)	a 8

## CHAETOGNATHA, GASTROTRICHA, ROTIFERA.

	PAGE
<b>SUBJECT-INDEX :—</b>	
Comprehensive and General=1603 .. .. .	20
Structure=1607 .. .. .	20
Physiology=1611 .. .. .	20
Development=1615 .. .. .	20
Ethology=1619 .. .. .	20
Variation, Phylogeny=1623 .. .. .	20
Distribution (Geography)=1627 .. .. .	21
 <b>SYSTEMATIC=1631 :—</b>	
Chaetognatha .. .. .	21
Gastrotricha .. .. .	21
Rotifera .. .. .	21

ANNELIDA, GEPHYREA, PHORONIDEA,  
PTEROBRANCHIATA.

<b>SUBJECT-INDEX :—</b>	
Comprehensive and General=1803 .. .. .	21
Structure=1807 .. .. .	21
Physiology=1811 .. .. .	21
Development=1815 .. .. .	22
Ethology=1819 .. .. .	22
Variation, Phylogeny=1823 .. .. .	22
Distribution (Geography)=1827 .. .. .	22
 <b>SYSTEMATIC=1831 :—</b>	
Annelida .. .. .	22
Archannelida (vacant).	
Polychaeta .. .. .	22
Myzostomida (vacant).	
Oligochaeta .. .. .	25
Hirudinea .. .. .	25
Echiuroidea (vacant).	
Gephyrea (vacant).	
Phoronidea (vacant).	
Pterobranchiata (vacant).	



## I—TITLES.

- Ackert, James. On the life-cycle of the fowl-Cestode, *Davainca cesticillus* (Molin). *J. Parasitol. Urbana* 5 1918 (41-43) pl. v. 1
- Arndt, W. Zur Kenntniss der Verbreitung von *Planaria alpina* Dana. *Zool. Anz. Leipzig* 50 1918 (100-105). 2
- Augener, H. Polychaeta. (In: Beiträge zur Kenntniss der Meeresfauna West-Afrikas. Herausgeg. v. W. Michaelsen, Band 2 Lief. 2). Hamburg (L. Friederichsen) 1918 (67-625) pls. ii-vii. 3
- Baermann, G. Ueber Ankylostomiasis, deren Ausbreitungsbedingungen durch die Bodeninfektion und deren Bekämpfung. *Batavia, Geneesk. Tydschr. Ned. Ind.* 57 1917 (579-669) mit Tafeln. 4
- Baldasseroni, Vincenzo. Chetognati. (Racc. plancton. fatte dalla R. Nave "Liguria" nel viaggio di circumnavigazione del 1903-05.) Firenze Pubb. Ist. stud. sup. 2 No. 5 1915 (85-118) tav. vi and vii. 5
- Bassett-Smith, P. W. A case of trypanosomiasis with other protozoal infections contracted in the Cameroons, and some observations on the relationship of *Filaria diurna* with Calabar swellings. *J. trop. Med. London* 21 1918 (93 and 94) 1 pl. 6
- Baylis, H. A. Is *Dicrocoelium lancetum* a parasite of the cat? A note on a new variety. *Ann. Mag. Nat. Hist. London Ser. 9* 2 1918 (111-114) pl. xiv. 7
- Beauchamp, P. de. Notes faunistiques; quelques formes rares ou intéressantes de la région parisienne. *Paris Bull. Soc. Zool. France* 43 1918 (78-83). 8
- (N-5464 o)
- Beauchamp, P. de. Sur quelques parasites provenant du Congo Belgo. *Paris Bull. Soc. Zool. France* 43 1918 (14-20). 9
- Behre, Ellinor. An experimental study of acclimation to temperature in *Planaria dorotocephala*. *Biol. Bull. Woods Hole* 35 1918 (277-317). 10
- Biggs, J. M. Pharyngeal haemorrhage due to leeches. *Brit. Med. J. London* 1918 i (287). 11
- Blanc, H. Présence de l'*Apsilus vorax* dans le lac Léman. (C.R.) *Arch. Sci. Phys. Genève* 36 1913 (389-390). 12
- Brindley, H. H. Notes on certain parasites, food, and capture by birds of the common earwig (*Forficula auricularia*). *Cambridge Proc. Phil. Soc.* 19 1918 (167-177). 13
- Brumpt, E. Protozoaires et Helminthes des selles aux armées. *Paris C.R. Soc. Biol.* 81 1918 (1044-1052). 14
- Buri, Rud. Beitrag zur Kenntnis der lokalen Verbreitung von *Pentastoma denticulatum* beim Rindvieh. *Schweiz. Arch. Tierheilk.* 55 1913 (585-611) 4 figs. 14a
- Camerano, Lorenzo. Revisione dei *Gordii*. *Torino Mem. Acc. Sci. Ser. 2* 66 No. 1 1915 (1-66). 15
- Caulery, M. et Mesnil, F. Dimorphisme évolutif chez les Annélides polychètes. *Paris C.R. Soc. Biol.* 81 1918 (707-709). 16
- Cawston, F. G. Some South African snails and the *Cercariae* which attack them (abstract). *S. Afr. Journ. Sci. Cape Town* 15 1918 (375-377). 17
- Cawston, F. G. Bilharziasis in Natal. *Parasitol. Cambridge* 11 1918 (83-93). 18

- Cawston, F. G.** The *Cercariae* of the Transvaal. Parasitol. Cambridge **11** 1918 (94-97). **19**
- Cawston, F. G.** The possible intermediary hosts of *Schistosoma* in South Africa. J. trop. Med. London **21** 1918 (69 & 70). **20**
- Cawston, F. G.** Some observations on blood-parasites. J. trop. Med. London **21** 1918 (241). **21**
- Chatton, Edouard.** Microfilaire du chat domestique dans le Sud-Tunisien. Paris Bull. Soc. path. exot. **11** 1918 (571-573). **22**
- Chatton, Edouard.** Observations sur le ver de Guinée. Preuve expérimentale de l'infestation des *Cyclops* par voie digestive. Paris Bull. Soc. path. exot. **11** 1918 (338-348). **23**
- Christopherson, J. B. and Izzedin,** Mustapha. Acute intestinal obstruction by tape-worms (*T. saginata*). Brit. Med. J. London **1918** i (697 and 698). **24**
- Christopherson, J. B. and Newlove,** J. R. The passing of *Bilharzia*-worms in the urine. J. trop. Med. London **21** 1918 (180). **25**
- Colledge, W. R.** Notes on a new Rotifer, *Melicerta coloniensis*. Brisbane Proc. R. Soc. Queensland **30** 1918 (171-174) pl. xi. **26**
- Commes, Ch.** *Leucocytozoon* et Microfilaire d'un rapace diurne (*Astur badius* var. *sphenurus*). Paris Bull. Soc. path. exot. **11** 1918 (31-32). **27**
- Cooper, A. R.** A morphological study of Bothriocephalid Cestodes from fishes. J. Parasitol. Urbana **4** 1917 (33-39) 2 pls. **28**
- Cordero, E. H.** Notes sur les Gastrotriches. Buenos Aires Physis Rev. Soc. Arg. Ci. Nat. **4** 1918 (241-255). **29**
- Cort, W. W.** Homologies of the excretory system of the fork-tailed *Cercariae*. J. Parasitol. Urbana **4** 1917 (49-57). **30**
- Cort, W. W.** The excretory system of *Agamodistomum marcianae* (La Rue), the Agamodistome-stage of a forked-tailed Cercaria. J. Parasitol. Urbana **4** 1918 (130-134). **31**
- Cort, W. W.** Adaptability of Schistosome-larvae to new hosts. J. Parasitol. Urbana **4** 1918 (171-173). **32**
- Cort, W. W.** A new *Cercariaeum* from North America. J. Parasitol. Urbana **5** 1918 (86-91) pl. vii. **33**
- Couffon, Olivier.** Le Callovien du Chalet. Commune de Montreuil-Bellay (M. & L.). Angers Bull. Soc. d'Etudes Scientif. **47** 1917 (1918) (65-131). **34**
- Dehorne, Lucienne.** Fausse incubation chez un Eumicien. Paris C.R. Acad. Sci. **167** 1918 (1085-1088). **35**
- Dévé, F.** Des kystes hydatiques orbitaires envisagés comme critérium de l'âge de l'infestation échinococcique chez l'homme. Paris C.R. Soc. Biol. **81** 1918 (111-113). **36**
- Dévé, F.** Echinococcose cérébrale métastatique. Paris C.R. Soc. Biol. **81** 1918 (633-635). **37**
- Ditlevsen, Hjalmar.** Ueber *Gongylonema neoplasticum* (*Spiroptera* [*Gongylonema*] *neoplasticum*) Fibiger Ditlevsen, 1914. Centralbl. Bakt. Jena Abth. **1** **81** Orig. 1918 (565-576). **38**
- Ditlevsen, Hj.** Børsteorme og Igler i Randers Fjord. The Polychaeta and Hirudinea of the Firth of Randers. Kobenhavn Randers Fjords Naturhistorie, **1918** (321-323). **39**
- Dreyer, T. F.** *Mestoma* [sic] *antarcticum* (sp. nov.) from Bloemfontein. Cape Town Trans. R. Soc. S. Africa **7** 1918 (1-4). **40**
- Dujarric de la Rivière, R.** Nodules pseudo-tuberculeux dans le foie d'un herisson infecté par des œufs de Trichosomes. Paris, C.R. Soc., Biol. **81** 1918 (825-827). **41**
- Elders, C.** Over Oesophagostomiasis. [Ueber Oesophagostomiasis.] Tydschrift verg. geneeskunde, Leiden **2** 1917 (170-174) 2 Taf. **42**
- Eliasson, And.** Biologisch-faunistische Untersuchungen aus dem Oresund. 3. Zwei für unsere Fauna neue Polychaeten, *Sphaerodorum philippi* Fauvel und *Apistobranchus tullbergi* Thécl. Lund Univ. Arsskr. N.F. Avd. **2** **12** No. **10** [= Fysiogr. Sällsk. Handl. N.F. **27** No. **10**] 1916 (1-10) 1 pl. **43**
- Elliot, R. H.** Removal of worm (*Filaria loa*) from the eye. Brit. Med. J. London **1918** i (502-504). **44**

- Essenberg, Christine.** On some new species of *Aphroditidae* from the coast of California. Berkeley Calif. Univ. Publ. Zool. **16** 1917 (401-430) pls. xxxi-xxxvii. **45**
- Essenberg, Christine.** Description of some new species of *Polynoidae* from the coast of California. Berkeley Calif. Univ. Publ. Zool. **18** 1917 (45-60) pls. ii and iii. **46**
- Essenberg, Christine.** New species of *Amphinomidae* from the Pacific coast. Berkeley Calif. Univ. Publ. Zool. **18** 1917 (61-74) pls. iv and v. **47**
- Faust, Ernest C.** Studies on Illinois Cercariae. J. Parasitol. Urbana **4** 1918 (93-110) 2 pls. **48**
- Faust, E. C.** Two new cystocercous Cercariae from North America. J. Parasitol. Urbana **4** 1918 (148-153) pl. ii. **49**
- Faust, E. C.** The anatomy of *Tetracotyle iturbei* Faust, with a synopsis of described tetracotyloform larvae. J. Parasitol. Urbana **5** 1918 (69-79) pl. vi. **50**
- Faust, E. C.** Life-history studies on Montana Trematodes. Urbana Illinois Biol. Monographs **4** 1917 No. 1 (1-120) 9 pls. **51**
- Faust, E. C.** Eye-spots in Digenea. Biol. Bull. Woods Hole **35** 1918 (117-127). **52**
- Fauvel, Pierre.** Tableaux analytiques des Annélides Polychètes des côtes de France. Monaco Bull. Inst. Ocean. No. **347** 1918 (1-20). **53**
- Fibiger, Johannes.** Investigations on the *Spiroptera*-cancer, III-V. Kobenhavn Danske Vid. Selsk. Biol. Medd. **1**. Nos. 9-11 1918 (1-30, 1-35, 1-27) 5 plates. **54**
- Forbes, J. G.** Filarial infection in Macedonia. Report of two cases of *Filaria conjunctivae* (Addario) in Man, with the first recorded discovery of the male worm. London Trans. Soc. Trop. Med. **12** 1918 (11-16). **55**
- Friend, Hilderic.** Oligochaete worms from Dumbartonshire. Scottish Nat. Edinburgh **1918** (19 and 20). **56**
- Fronville, G.** *Vide* Mouchet, R.
- Fuhrmann, O.** Die Bandwürmer der höheren Wirbelthiere. Bern Mittheil. Natf. Ges. **1917** (1918) (xii and xiii). **57**
- Fujita, Tsunenobu.** Kyuchu-rui *Azygia* no ichi shin shu ni tsuite. [On a new species of the Trematode genus *Azygia*.] Dobuts. Z., Tokyo **30** 1918 (269-274) pl. **58**
- Gardner, Julia.** Systematic Palaeontology—Vermes. (In: Maryland Geological Survey; Upper Cretaceous) Baltimore (John Hopkins) **1916** (745-749). **59**
- Gaüd, Fernand.** Sur quelques points de la biologie des Microfilaires. Paris C.R. Acad. Sci. **167** 1918 (696-698). **60**
- Gertz, Otto.** Skånes zoocœcidier. Ett bidrag till kannedomen om Sveriges gallbildande flora och fauna. Lund Univ. Årsskr. N.F. Avd. 2 **14** No. 26 [= Fysiogr. Sällsk. Handl. N.F. **29** No. 26] 1918 (1-72). **61**
- Gilchrist, J. D.** The life-history of *Distoma luteum* n. sp., with notes on some *Cercariae* and *Rediae* found in S. Africa. Parasitol. Cambridge **10** 1918 (311-319). **62**
- Girard, —.** Sur l'existence à Madagascar de la dysentérique bilharziennne a *Schistosoma americanum* ou *mansoni*. Paris Bull. Soc. path. exot. **11** 1918 (34-36). **63**
- Goto, S. & Matsudaira, Y.** On *Dissotrema papillatum* n.g., n. sp., an Amphistomid parasite from a marine fish. Tokyo J. Coll. Sci. **39** 1918 Art. 8 (1-20) 1 pl. **64**
- Gravier, Ch.** Note sur une Actinie (*Thoracactis* n.g. *topsenti* n. sp.) et un Annélide Polychète (*Hermadion fauveli* n. sp.) commensaux d'une éponge silicicuse (*Sarostegia oculata* Topsent). Monaco Bull. Inst. Ocean. No. **344** 1918 (1-20). [*Vide* Zool. Rec. **54** 1917 *Vermidea* (80)]. **65**
- Haeberli, A.** Biologische Untersuchungen im Löhrmoos. Ein Beitrag zur Kenntniss der schweizerischen Moorfauna. Rev. Suisse Zool. **26** 1918 (147-231). **66**

- Hammarsten, Olof D.** Beitrag zur Embryonalentwicklung der *Malacobdella grossa* (Müll.). Uppsala 1918 (195) pls. text figs. (Thesis for the doctor's degree in Stockholm.) 67
- Henry, A.** *vide* Railliet, A.
- Hescheler, K.** Neue Untersuchungen zur Kenntniss der Entwicklung des Stomodaeums der Lumbriciden. Zürich Verh. Schweiz. Natf. Ges. 1917 (1918) (271 and 272). 68
- Higley, Ruth.** Morphology and biology of some Turbellaria from the Mississippi basin. Urbana Illinois Biol. Monographs 4 No. 3 1918( 1-94) 3 pls. 69
- Hilgermann and Weissenberg, Richard.** Nematodenzüchtung auf Agarplatten. Centralbl. Bakt. Jena Abth. 1 80 Orig. 1918 (467-472). 70
- Hill, Gerald.** Relationship of Insects to parasitic diseases in stock. Melbourne Proc. R. Soc. Victoria 31 1918 (11-107) pls. ii-viii. 71
- Hoffmaenner.** Les Nématodes libres du Léman (C.R.). Arch. Sci. Phys. Genève. 35 1913 (184-186). 71a
- Holmgren, Nils.** Zur vergleichenden Anatomie des Gehirns von Polychaeten, Onychophoren, Xiphosuren, Arachniden, Crustaceen, Myriapoden und Insekten. Stockholm K. Svenska Vet.-Ak. Handl. 56 No. 1 1916 (1-303) 12 pls. 72
- Horst, R.** A contribution towards our knowledge of the Polychaeta of South Africa. Zool. Med. Leiden 4 1918 (63-66). 73
- Horst, R.** On a remarkable freshwater Polychaete, *Nereis nouhuysi* from the East Indies. Zool. Med. Leiden 4 1918 (143-145). 74
- Horst, R.** On the supposed identity of *Bathynoe nodulosus* Dtl. and *Weberia pustulata* Horst. Zool. Med. Leiden 4 1918 (178). 75
- Horst, R.** On a species of *Lycastis* and three aberrant forms of *Nereidae* from the Dutch East Indies. Leiden, Zool. Med. 4 1918 (246-250). 76
- Horst, R.** On a gigantic *Nereis* (*N. ijimai* Iz.) from Japan. Leiden, Zool. Med. 4 1918 (258) 77
- Ihle, J. E.** *Strongyloides westeri* n. sp. Centralbl. Bakt. Jena Abth. 1 80 Orig. 1918 (372 and 373). 78
- Ihle, J. E.** Ueber die geographische Verbreitung von *Ankylostoma ceylanicum* Looss. Centralbl. Bakt. Jena Abth. 1 82 Orig. 1918 (306-308). 79
- Izzedin, M.** *vide* Christopherson, J. B.
- Janicki, C. and Rosen, F.** Le cycle évolutif du *Dibothriocephalus latus* L. Neuchâtel Bull. Soc. Sci. 42 1916-1917 (1918) 19-53) pls. i and ii. 80
- Joan, Teresa.** Nota preliminar sobre la anatomia del *Oncocerca bovis* Piettre. Buenos Aires Physis Rev. Soc. Arg. Ci. Nat. 3 1917 (446-448). 81
- Joan, Teresa** *vide* Lahille, F.
- Johnston, T. Harvey.** Notes on certain Entozoa of rats and mice. Together with a catalogue of the internal parasites recorded as occurring in Rodents in Australia. Brisbane Proc. R. Soc. Queensland 30 1918 (53-78). 82
- Johnston, J. Harvey.** Notes on miscellaneous endoparasites. Brisbane Proc. R. Soc. Queensland 30 1918 (209-218). 83
- Kaburaki, T.** Zoological Results of a Tour in the Far East. Brackish water Polyclads. Calcutta Mem. Asiat. Soc. 6 1918 (183-192) pl. viii. 84
- Kaburaki, T.** Freshwater Triclads from the basin of the Inlé Lake. Calcutta Rec. Ind. Mus. 14 1918 (187-195) pl. xxvii. 85
- Kaburaki, T.** Notes on Japanese Triclads II. Annot. Zool. Jap., Tokyo 9 1918 (443-449). 86
- Kaburaki, T.** *vide* Yori, M.
- Kepner, W. A. and Lawrence, J. S.** The eye of *Polycystis goettei* (Bresslau). J. Morphol. Philadelphia 30 1918 (465-473) 1 pl. 87
- Kepner, W. A. and Scott, W. J.** Cushion-cells of the pharynx of *Pro-rhynchus applanatus* Kennel. J. Morphol. Philadelphia 30 1918 (475-481) 1 pl. 88
- Kindred, James.** A representative of the genus *Trichodrilus* from Illinois. Urbana Bull. State Illinois 13 Art. 4 1918 (49-52). 89

- Klarenbeek, A.** Därrparasieten by den hond, een geval van *Taenia echinococcus*. [Därrparasiten beim Hunde, ein Fall von *Taenia echinococcus*.] Tydschr. Diergen. Utrecht, 45 1918 (307-317) 1 Taf. 90
- Kobayashi, Harujiro.** Gyu-sui-tetsu no shin shikushu. [On a new host of *Eurytrema pancreaticum*.] Dobuts. Z., Tokyo 30 1918 (422). 91
- Kramp, Paul L.** Chaetognatha collected by the "Tjalfe" Expedition to the West coast of Greenland in 1908 and 1909. Kjøbenhavn, Nath. Medd. 69 1918 (17-55). 92
- Kulmatycki, W. J.** Bericht über die Regenerationsfähigkeit der *Spadella cephaloptera* Busch. Zool. Anz. Leipzig 49 1918 (281-284). 93
- Lahille, Fernando.** Nota sobre *Monostoma mutabile* y la clasificacion general de los Trematodes. Buenos Aires Physis Rev. Soc. Arg. Ci. Nat. 4 1918 (328-331). 94
- Lahille, Fernando and Joan, Teresa.** Nota preliminar sobre un nuevo género de Trematodes. Buenos Aires Physis Rev. Soc. Arg. Ci. Nat. 3 1917 (216-219). 95
- Lameere, A.** Le cycle évolutif des Dicyémides. Paris Bull. Soc. Zool. France 42 1918 (122-126). 96
- Lameere, A.** Les Dicyémides. Paris C.R. Acad. Sci. 167 1918 (1058-1062). 97
- Lane, Clayton.** Methods, old and new, for the detection of hookworm-infection. Ind. J. Med. Res. Calcutta 6 1918 (1-25) pl. i. 98
- Lawrence, J. S.** *vide* Kopnor, W. A.
- Lebour, Maric.** A Trematode-larva from *Buccinum undatum* and notes on Trematodes from post-larval fish. Plymouth J. Mar. Biol. Ass. 11 1918 (514-518). 99
- Léger, Marcel.** Parasites sanguicoles d'oiseaux de la Guyane. Paris Bull. Soc. path. exot. 11 1918 (124-130). 100
- Léger, Marcol.** Microfilaire et Filairo du crapaud, *Bufo marinus* L. Paris Bull. Soc. path. exot. 11 1918 (182-187). 101
- Léger, Marcel.** Microfilaires animales en Guyane française. Paris Bull. Soc. path. exot. 11 1918 (392-395). 102
- Leiper, R. T.** Diagnosis of Helminth-infections. London Proc. Zool. Soc. 1918 ii (308). 103
- Leiper, R. T.** Report on the results of the Bilharzia Mission to Egypt, 1915. Pt. V. Adults and ova. London J.R.A.M.C. 30 1918 (235-260) 1 pl. 104
- Liston, Glen and Soparkar, M. B.** Bilharziosis among animals in India. The life-cycle of *Schistosoma spindalis*. Ind. J. Med. Res. Calcutta 5 1918 (567-569). 105
- Lobetta-Bodoni, Luisa.** Influenza della stagione, della temperatura, della nutrizione sulla moltiplicazione per scissione spontanea della *Planaria subtentaculata* Drap. Torino Boll. Mus. Zool. Anat. Comp. 33 1918 No. 729 (1-6). 106
- Lobetta-Bodoni, Luisa.** Sulla *Planaria subtentaculata* Drap. e sulla sua divisione spontanea. Torino Boll. Mus. Zool. Anat. comp. 33 1918 No. 728 (1-12). 107
- Lopez-Neyra, R.** Sur un nouveau *Cyrnea* de la perdrix. Paris C.R. Acad. Sci. 166 1918 (79-82). 108
- Low, G. C.** The life-history of *Ascaris lumbricoides*. Brit. Med. J. London 1918 i (286). 109
- Luther, A.** Vorläufiges Verzeichnis der rhabdocölen und allocoölen Turbellarien Finnlands. Helsingfors Medd. Soc. Fauna et Fl. Fenn 44 1918 (47-52) 2 figs. 110
- MacCallum, G. A.** [non MacCullum]. Notes on the genus *Camallanus* and other Nematodes from various hosts. Zoopatholog. New York 1 No. 5 1918 (123-134) 5 pls. (figs. 61-68). 111
- MacCallum, G. A.** Notes on the genus *Telorchis* and other Trematodes. Zoopatholog. New York 1 No. 3 1918 (79-98) 14 pls. (figs. 37-51). 112
- MacCallum, G. A.** Studies on the *Polystomidae*. Zoopatholog. New York 1 No. 4 1918 (103-120) 9 pls. (figs. 52-60). 113
- Macfie, J. W.** *vide* Yorke, W.
- Magath, Thomas B.** The morphology and life-history of a new Trematode parasite *Lissorchis fairporti*, nov. gen. et nov. sp., from the buffalo fish, *Ictiobus*. J. Parasitol. Urbana 4 1917 (58-69) 2 pls. 114

- Matsudaira, Y.** *vide* Goto, S.
- Mesnil, F. and Caullery, M.** Sur l'organisation et la biologie d'un Syllidien [*Exogone* (*Paraxogone* n.s.g.) *hebes* Webst. et Ben. var. *hibernica* South.] habitant un sable compact. Paris Bull. Soc. Zool. France **42** 1918 (126-132). **115**
- Mesnil, F. et Caullery, M.** Notes biologiques sur les mares à *Lithothamnion* de la Hague. IV Famille des Syllidiens: A. Groupe des Autolytés et des Exogonés, avec observation d'un Orthoncotide parasite d'une *Sphaerosyllis* et d'un stolon sexué de *Grubea*. Paris Bull. Soc. Zool. France **43** 1918 (34-40). **116**
- Mesnil, F.** *vide* Caullery, M.
- Michaelsen, W.** Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia 1910-1913. XIII Oligochäten. Stockholm K. Svenska Vet.-Ak. Handl. **52** No. 13 1917 (1-74) 1 plate. **117**
- Michaelsen, W.** Vers. II Oligochètes (In. Résultats scientifiques, voyage de Ch. Alluaud and R. Jeannel en Afrique orientale, 1911-1912.) Paris 1915 (23-42) pl. ii. **118**
- M'Intosh, —.** Notes from the Gatty Marine Laboratory, St. Andrews.—No. XLI. Ann. Mag. Nat. Hist. London Ser. 9 **2** 1918 (1-59) pls. i-vi. **119**
- Mita, Genshiro.** Beiträge zur Kenntnis des Echinococcus mit besonderer Berücksichtigung des Alveolärechinococcus. Fukuoka, Mit. Med. Fak. **4** 1918 (156-393) 2 pls. **120**
- Monard, A.** Sur la faune profonde du Lac de Neuchâtel. Description de quelques nouvelles espèces. Rev. Suisse Zool. Genève **26** 1918 (341-359). **121**
- Monticelli, F. S.** Di un caso di parasitismo accidentale di *Limnatis nilotica* Savigny nell'uomo. Napoli Boll. Soc. Nat. **30** 1917 (1918) (124-129). **122**
- Morgera, A.** Di un nuovo Polinoide del Golfo di Napoli. Milano Pubbl. Staz. Zool. Napoli **2** 1917 (1-14) pl. i. **123**
- Mouchet, R.** Sur des lésions anatomiques produites par des Nématodes. Paris Bull. Soc. path. exot. **11** 1918 (573-575) 1 pl. **124**
- Mouchet, R. et Fronville, G.** Bilharziose et tumeurs. Paris Bull. Soc. path. exot. **11** 1918 (710-712). **125**
- Müller, Robert.** Der Eichener See. Biologisches von *Tanytastix lacunae* Guérin. Rev. Suisse Zool. Genève **26** 1918 (361-408). **126**
- Nagakura, Kaiichiro.** *Heterodera radicolica* no kaibo to seikatsu-shi ni tsuite. [On the anatomy and life-history of *H. radicolica*.] Dobuts. Z., Tokyo **30** 1918 (199-204, 253-255, 296-300, 331-339, 413-421). **127**
- Neveu-Lemaire, M.** Contribution à l'étude des organes reproducteurs et de la reproduction chez les Strongyles dépourvus de capsule buccale (*Metastrongylidae*). Paris Mem. Soc. Zool. France **27** 1918 (5-126) pls. i-xii. **128**
- Newlove, J. R.** *vide* Christopherson, J. B.
- Nicoll, William.** On the occurrence of hydatid cysts in monkeys. Parasitol. Cambridge **10** 1918 (288 and 289). **129**
- Nicoll, William.** *Dolichopera macalpinii* n. sp., a Trematode parasite of Australian poisonous snakes. Parasitol. Cambridge **10** 1918 (290-293). **130**
- Nicoll, William.** The Trematode parasites of North Queensland. IV Parasites of reptiles and frogs. Parasitol. Cambridge **10** 1918 (368-374) pl. viii. **131**
- Nybelin, O.** Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia, 1910-1913. XIV. Australische Cestoden. Stockholm K. Svenska Vet.-Ak. Handl. **52** No. 14 1917 (1-48) 3 pls. **132**
- O'Farrell, T.** Note on a case of infection with *Bothriocephalus latus*. Lancet London **1918** i (570). **133**
- Oka, Asajiro.** Zoological Results of a Tour in the Far East. Hirudinea. Calcutta Mem. Asiat. Soc. Bengal **6** 1917 (157-176) pl. vii. **134**
- Olofsson, Ossian.** Studien über die Süßwasserfauna Spitzbergens. Beitrag zur Systematik, Biologie und Tiergeographie der Crustaceen und Rotatorien. Zool. Beiträge aus Uppsala **6** 1918 (183-646) text figs. **135**

- Onorato-de Cillis, Maria.** Nuovi generi e nuove specie di Nematodi liberi d'acqua dolce. (Nota prel.) *Monit. Zool. ital. Firenze* **28** 1917 (57-62). 136
- Packard, Charles.** The effect of radium-radiations on the development of *Chaetopterus*. *Biol. Bull. Woods Hole* **35** 1918 (50-70) 2 pls. 137
- Paes, Isaura.** Sur la fréquence des vers intestinaux chez les enfants de Lisbonne. *Lisbonne Arq. Inst. Bact. Cam. Pest.* **5** 1918 (17-27). 138
- Pantin, Mabel.** The life-history of *Ascaris lumbricoides*. *Brit. Med. J. London* **1918** ii (287). 139
- Parodi, S. E. and Widakowich, V.** La trichocephalosis en un *Camelus bactrianus* de nuestro zoologico. *Rev. Jardin Zool. Buenos Aires* **II** **13** 1917 (215-221). 140
- Parodi, S. E. and Widakowich, V.** Cestodes del género *Bothriocephalus*, parásitos de algunas especies de nuestros felinos salvajes. *Rev. Jardin Zool. Buenos Aires* **II** **13** 1917 (222-227). 141
- Parodi, S. E. and Widakowich, V.** Acción traumática del *Strongylus equinus*. *Rev. Jardin Zool. Buenos Aires* **II** **14** 1918 (16-27). 142
- Prashad [or Parshad], B. vide** Southwell, T. 143
- Railliet, A.** Le genre *Dicheilonema* Diesing 1861 (Nematoda, *Filarioidea*) *Paris Bull. Soc. Zool. France* **43** 1918 (104-109). 144
- Railliet, A.** Sur un Strongylidé vivant dans des kystes intestinaux chez les grands Félidés. *Paris Bull. Soc. path. exot.* **11** 1918 (86-93). 145
- Railliet, A.** Un Bunostomien pathogène, parasite de la vésicule biliaire d'un rongeur africain. *Paris Bull. Soc. path. exot.* **11** 1918 (93-98). 146
- Railliet, A. and Henry, A.** Nématodes parasites du Congo belge. *Paris Bull. Soc. path. exot.* **11** 1918 (82-86). 147
- Razzauti, A.** Contributi alla conoscenza faunistica delle isole toscane. *I. Isola di Capraia.* *Pisa Mem. Soc. Toscana* **31** 1917 (196-224). 148
- Rioja, Enrique.** Datos para el conocimiento de la fauna de Anélidos poliquetos del Cantábrico (2 parte). *Madrid Trabaja. Mus. Nat. Ci. (Ser. Zool.) No.* **37** 1918 (1-99). 149
- Rosen, F. vide** Janicki, C.
- Roubaud, E.** Recherches sur la transmission de la Bilharziose en France. (Essais d'infection de Mollusques autochtones.) *Paris Bull. Soc. path. exot.* **11** 1918 (854-859). 150
- Rousseau, L.** Maladies parasitaires à Douala (Cameroun). *Paris Bull. Soc. path. exot.* **11** 1918 (744-759). 151
- Rudin, Eduard.** Ueber ein eigenartiges Drüseorgan bei Ophiotänien. *Centralbl. Bakt. Jena Abth.* **1** **80** Orig. 1918 (465-467). 152
- Saceghem, R. van.** Contribution à l'étude du *Gastrodiscus aegyptiacus* (Cobbold 1876). *Paris Bull. Soc. path. exot.* **11** 1918 (396 and 397). 153
- Sæmundsson, Bjarni.** Bidrag til Kundskaben om Islands polychaete Børstecorme. (Annulata polychaeta Islandiae). *The Polychaeta of Iceland.* *København Nath. Medd.* **69** 1918 (165-241) I plate. 154
- Salm, A. J.** Deux Nématodes de Java. *Paris Bull. Soc. path. exot.* **11** 1918 (705-710). 155
- Schneider, G.** Synopsis öfver de i östra, norra och mellersta Europas färskvatten fritt lefvande nematoderna. [Synopsis der in den süßen Gewässern von Ost.- Nord- und Mitteleuropa frei lebenden Nematoden]. *Helsingfors Acta Soc. Fauna et Fl. Fenn.* **44** No. 5 1916 (1-85) mit Taf. 156
- Seurat, L. G.** Sur les conditions de la ponte chez les Nématodes. *Paris C.R. Soc. Biol.* **81** 1918 (279-281). 157
- Seurat, L. G.** Sur la morphologie de l'appareil génital femelle des Nématodes. *Paris C.R. Biol.* **81** 1918 (577-581). 158
- Seurat, L. G.** Extension de l'habitat du *Spirura gastrophila* (Mueller). *Paris C.R. Soc. Biol.* **81** 1918 (789-791). 159
- Seurat, L. G.** Dimorphisme sexuel chez les Nématodes. *Paris C.R. Soc. Biol.* **81** 1918 (1099-1101). 160

- Seurat, L. G.** Sur la variation chez les Nématodes. Paris C.R. Soc. Biol. **81** 1918 (1101-1104). 161
- Shepherd, J., Searle, J. and Stickland, J.** One year's collecting micro-fauna, Botanic Gardens lake, Melbourne. Victorian Nat. Melbourne **35** 1918 (79-84). 162
- Shull, Franklin.** Effect of environment upon inherited characters of *Hydatina senta*. Biol. Bull. Woods Hole **34** 1918 (335-350). 163
- Shull, A. F.** Cell-inconstancy in *Hydatina senta*. J. Morphol. Philadelphia. **30** 1918 (455-464). 164
- Sierra, J. M. Romero.** Contribución al estudio de la parasitología en Venezuela. Estudio y clasificación de un *Distoma*. J. Parasitol. Urbana **5** 1918 (80-83). 165
- Smit, J. H.** Een drietal wormen van het varken. [Drei Würmer vom Schweine.] Ned. Ind. Blad. Diergeneesk. **30** 1918 (592-600) 3 figs. 166
- Smit, J. H.** Eenige by ingevoerde Bengaalsche geiten waargenomen Parasieten. [Einige bei importierten bengalischen Ziegen beobachtete Parasiten.] Ned. Ind. Blad. Diergen. **30** 1918 (601-609) 3 figs. 167
- Smit, J. H.** Een tweetal filariën uit den conjunctivaalzak. [Zwei Filarien aus dem Conjunctivalsacke.] Batavia Ned. Ind. Blad. Diergen. **30** 1918 (196-201). 167a
- Smit, J. H.** Een tweetal Nematoden uit den darm van kippen. [Zwei Nematoden aus dem Darne von Hühnern.] Batavia Ned. Ind. Blad. Diergeneesk. **30** 1918 (202-207). 167b
- Smith, Bertram.** The occurrence of a supernumerary ocellus in *Planaria maculata*. Lansing Rep. Michigan Acad. Sci. **19** 1917 (43 and 44) pl. i. 168
- Smith, Frank.** A new North American Oligochaete of the genus *Haplotaxis*. Urbana Bull. Illinois State **13** 1918 Art. 3 (43-48) pl. ii. 169
- Soparkar, M. B.** "A Trematode parasite of Anopheline mosquitoes." Ind. J. Med. Res. Calcutta **5** 1918 (512-515). 170
- Soparkar, M. B. vide** Liston, Glen.
- Soulier, A.** La croix et la rosette chez *Protula meithaci*. Arch. Zool. exp. Paris **57** 1918 N. et R. (14-20). 171
- Southwell, T. and Prashad, Bains.** Notes from the Bengal Fisheries Laboratory. No. 4 Cestode parasites of *Ilisa ilisha* (Ham. Buch.). Calcutta Rec. Ind. Mus. **15** 1918 (77-88) pls. iv and v. 172
- Southwell, T. and Prashad, Bains.** Notes from the Bengal Fisheries Laboratory. No. 5. Parasites of Indian fishes. Calcutta Rec. Ind. Mus. **15** 1918 (341-355) pls. x-xiv. 173
- Southwell, T. and Prashad, Bains.** Methods of asexual and parthenogenetic reproduction in Cestodes. J. Parasitol. Urbana **4** 1918 (122-129). 174
- Stefani, C. de.** Fossili carboniferi dell' Isola d'Elba. Palaeontogr. ital. Pisa **23** 1917 (1-53) pls. i-iv. 175
- Steiner, G.** Bemerkungen über die von der Deutschen Tiefsee-Expedition (Valdivia) gesammelten Nematoden. Zürich Verh. Schweiz. Naturf. Ges. **1917** (1918) (270 and 271). 176
- Steiner, G.** Nematoda. (In: Beiträge zur Kenntniss d. Land- u. Süßwasserfauna Deutsch-Südwestafrikas. Herausgeg. v. W. Michaelsen.) Lief. 4 Hamburg (Friedrichsen) 1916 (377-411). 177
- Steiner, G.** Bemerkungen über eine Mermithidenlarve aus Kamerun. Zool. Anz. Leipzig **50** 1918 (1-4). 178
- Steiner, G.** Neue und wenig bekannte Nematoden von der Westküste Afrikas. Zool. Anz. Leipzig **50** 1918 (4-18). 179
- Stephenson, J.** Zoological Results of a Tour in the Far East. Aquatic Oligochaeta from Japan and China. Calcutta Mem. Asiatic Soc. Bengal **6** 1917 (83-100) pl. iv. 180
- Stephenson, J.** Aquatic Oligochaeta of the Inlé Lake. Calcutta Rec. Ind. Mus. **14** 1918 (9-18). 181
- Stewart, F. H.** On the life-history of *Ascaris lumbricoides* L. Parasitol. Cambridge **10** 1918 (197-205). 182
- Stewart, F. H.** On the development of *Ascaris lumbricoides* and *A. mystax* in the mouse. Parasitol. Cambridge **10** 1918 (189-196) pl. iv. 183



- Stunkard, H. W.** Studies on North American *Polystomidae*, *Aspidogastriidae*, and *Paramphistomidae*. Urbana Illinois Biol. Monographs 3 No. 3 1917 (1-114) 11 pls. 184
- Thapar, Gobind Singh.** The lymph glands in the genus *Pheretima* with a note on the coelomic organ of Beddard. Calcutta Rec. Ind. Mus. 15 1918 (69-76) pl. vi. 185
- Tozawa, Tomiju.** Nihon-san boch-ourei no shin shu ni tsuite. [On new species of Rhabdocoelida.] Dobuts. Z. Tokyo 30 1918 (77-80, 111-115, 196-199) 2 pls. 186
- Van Cleave, H. J.** *Centrorhynchus pinguis* n. sp. from China. J. Parasitol. Urbana 4 1918 (164-167) pl. iii. 187
- Van Cleave, H. J.** Acanthocephala of the sub-family *Rhadinorhynchinae* from American fish. J. Parasitol. Urbana 5 1918 (17-24) pl. iii. 188
- Veenstra, R. H.** Een geval van taeniae echinococcus by een hond, over echinococcosis en vleeschkeuring. [Ein Fall von *Taenia echinococcus* bei einem Hunde; über Echinococcosis und Fleischprüfung.] Tydschr. Diergen. Utrecht 45 1918 (672-681). 189
- Walton, A. C.** The oogenesis and early embryology of *Ascaris canis* Werner. J. Morphol. Philadelphia 30 1918 (527-603) 9 pls. 190
- Walton, C. L.** Some results of a survey of the agricultural zoology of the Aberystwith area. Parasitol. Cambridge 10 1918 (206-231). 191
- Walton, C. L.** Liver-rot of sheep, and bionomics of *Limnaca truncatula* in the Aberystwith area. Parasitol. Cambridge 10 1918 (232-266). 192
- Weidman, Fred. D.** A contribution to the anatomy and embryology of *Cladorchis (Stichorchis) subtriquetrus* Rudolphi 1814 (Fischoeder, 1901). Parasitol. Cambridge 10 1918 (267-279) pl. v. 193
- Weissenberg, R.** vide Hilgermann.
- Wester, J.** Ein neuer *Strongyloides* bei Füllen. Centralbl. Bakt. Jena Abth. 1 80 Orig. 1918. (370-372). 194
- Wharton, Lawrence.** The intestinal worms of dogs in the Philippine Islands. J. Parasitol. Urbana 4 1917 (80-82). 195
- Wharton, L. D.** Note on two species of Nematodes [*Gongylonema ingluvicola* Ransom 1904, and *Capillaria strumosa* [Reibisch, 1893]], parasitic in the crop of chickens. J. Parasitol. Urbana 5 1918 (25-28). 196
- Whitney, D. D.** Further studies on the production of functional and rudimentary spermatozoa in Rotifers. Biol. Bull. Woods Hole 34 1918 (325-334). 197
- Widakowich, V.** vide Parodi, S. E.
- Wigdor, Meyer.** Two new Nematodes common in some fishes of Cayuga Lake. J. Parasitol. Urbana 5 1918 (29-34). 198
- Wilhelmi, J.** Über die Begründung eines hydrobiologischen Instituts am Bosphorus, nebst Bemerkungen zur Tricladenfauna des Bosphorus und Marmorameeres. Zool. Anz. Leipzig 50 1918 (58-63). 199
- Würgler, Ernst.** Beiträge zur Kenntnis der Reparationsprozesse bei Hirudineen. Zürich Vierteljahrsschr. naturf. Gesellsch. 63 1918 (552-565). 200
- Wundsch, H. H.** Zur Frage des zweifachen Zwischenwirths bei Cestoden. Münster i/W. Mitth. Zool. Inst. Univ. 1 1918 (13-16). 201
- Yeri, M. and Kaburaki, T.** Bestimmungsschlüssel für die japanischen Polycladen. Annot. Zool. Jap., Tokyo 9 1918 (431-442). 202
- Yeri, M. and Kaburaki, T.** Description of some Japanese Polyclad Turbellaria. Tokyo J. Coll. Sci. 39 1918 Art. 9 (1-58) 2 pls. 203
- Yorke, Warrington and Macfie, J. W.** *Strongylidae* in horses. I. *Cylicostomum longibursatum* sp. n. Ann. trop. Med. Parasitol. Liverpool 11 1918 (399-404). 204
- Yorke, Warrington and Macfie, J. W.** *Strongylidae* in horses. II. *Cylicostomum minutum* sp. n. Ann. trop. Med. Parasitol. Liverpool 11 1918 (405-409). 205
- Yorke, Warrington and Macfie, J. W.** *Strongylidae* in horses. III. *Cylicostomum nassatum* Looss var. *parvum*. Ann. trop. Med. Parasitol. Liverpool 11 1918 (411-416). 206

Yorke, Warrington and Macfie, J. W.  
*Strongylidae* in horses. IV. *Gyalo-*  
*cephalus capitatus* Looss. Ann. Trop.  
Med. Parasitol. Liverpool 12 1918 (79-  
90). 207

Yorke, Warrington and Macfie, J. W.  
*Strongylidae* in horses. V. *Gyalo-*  
*cephalus equi* sp. n. Ann. trop. Med.  
Parasitol. Liverpool 12 1918 (91 and 92).  
208

Yoshida, Sadao. Kaichu no hat-  
suiku ni tsuite. [On the development  
of *Ascaris lumbricoides*.] Dobuts. Z.  
Tokyo 30 1918 (1-13). 209

Yoshida, Sadao. Kaichu no yochu  
shiken hokoku. [Report on experi-  
ments with the larva of *Ascaris*  
*lumbricoides*.] Dobuts. Z. Tokyo 30  
1918 (100-102). 210

PLATYHELMINTHIA,  
NEMERTINEA,  
MESOZOA.

SUBJECT INDEX.

COMPREHENSIVE AND GENERAL.  
1203

Lectures, Addresses.  
Fuhrmann, 57.

Economics.

RELATION TO DISEASE.

TREMATODA :—

Sierra, 165; Walton, 192

Bilharziosis: Cawston, 18; Christo-  
pherson and Newlove, 25; Mouchet and  
Fronville, 125; Rousseau, 151.

CESTODA :—

Christopherson and Izzedin, 24;  
O'Farrell, 133.

Echinococcosis: Dévé, 36 and 37;  
Klarenbeek, 90; Veenstra, 189.

STRUCTURE. 1207

General Morphology.

TURBELLARIA :—

Higley, 69; Tozawa, 186.

TREMATODA :—

Faust, 48-50; Goto and Matsudaira,  
64; Leiper, 104; Magath, 114;  
Nicoll, 130 and 131; Stunkard, 184;  
Weidman, 193.

CESTODA :—

Cooper, 28; Nybelin, 132; Southwell  
and Prashad, 172 and 173.

MESOZOA :—

Lameere, 96 and 97.

Excretory Organs.

Cort, 30 and 31.

Sense-Organs, Glands.

Faust, 52; Kepner and Lawrence, 87;  
Rudin, 152; Smith, 168.

Histology.

Kepner and Scott, 88.

PHYSIOLOGY. 1211

General.

Kepner and Scott, 88.

Environmental Effects.

Behre, 10.

DEVELOPMENT. 1215

General, Life-Cycle.

TURBELLARIA :—

Kaburaki, 86.

TREMATODA :—

Gilchrist, 62; Liston and Soparkar,  
105; Magath, 114; Soparkar, 170.

CESTODA :—

Janicki and Rosen, 80; Mita, 120;  
Southwell and Prashad, 172 and 173.

MESOZOA :—

Lameere, 96 and 97.

**Asexual Reproduction.**

Lobetta-Bodoni, 106 and 107 ;  
Southwell and Prashad, 174.

**Parthenogenesis.**

Southwell and Prashad, 174.

**Sexual Organs.**

Kaburaki, 86.

**Oogenesis. Embryology.**

Hammarsten, 67 ; Leiper, 104.

**Larval forms.**

Lebour, 99 ; Leiper, 104 ; van Saceghem, 153 ; Walton, 192.

**ETHOLOGY. 1219****Bionomics, General Biology.**

Cawston, 19 and 20 ; Cort, 32 ;  
Dévé, 37 ; Higley, 69.

**Transmission.**

Ackert, 1 ; Cawston, 17 and 20 ;  
Janicki and Rosen, 80 ; Roubaud, 150.

**Parasitism.**

Hosts.

*General.*

Cort, 32 ; Wundsch, 201.

*Annelida.*

Mesnil and Caullery, 116.

*Mollusca*

Cawston, 17 and 20 ; Cort, 32 ; Faust, 49, 51 ; Gilchrist, 62 ; Magath, 114 ; Liston and Soparkar, 105 ; Soparkar, 170.

*Pisces.*

Goto and Matsudaira, 64 ; Lebour, 99 ; MacCallum, 112 ; Magath, 114 ; Southwell and Prashad, 172 and 173.

*Amphibia.*

Nicoll, 131.

*Reptilia.*

MacCallum, 113 ; Nicoll, 130 and 131 ; Nybelin, 132.

*Mammalia.*

Baylis, 7 ; Johnston, 82 ; Kobayashi, 91 ; Lahille and Joan, 95 ; Nicoll, 129 ; Nybelin, 132 ; Wharton, 195.

**VARIATION, PHYLOGENY.**

1223

**Phylogeny, classification.**

Lahille, 94 ; Lameere, 96 and 97  
Stunkard, 184.

**DISTRIBUTION (GEOGRAPHY).**

1227

[*Vide etiam* Parasitism 1219.]

*General.*

Arndt, 2.

*Europe.*

Beauchamp, 8 ; Haeberli, 66 ; Luther, 110 ; Wilhelmi, 199.

*Africa.*

Girard, 63.

*Asia.*

Kaburaki, 84 and 85 ; Yeri and Kaburaki, 203.

**SYSTEMATIC. 1231****PLATYHELMINTHIA.****(a) Turbellaria.**

Turbellaria from Mississippi basin, with new forms, described, HIGLEY Illinois Biol. Monographs 4 No. 3 pp. 1-94 3 pls.

Rhabdocoele and Alloiocoele Turbellaria, Finland, brief diagnoses, LUTHER Medd. Soc. Faun. et Fl. Fenn. 44 pp. 47-52 2 figs.

Polyclads, brackish water, Siam, key to different species, KABURAKI Mem. As. Soc. Bengal 6 pp. 183-192 pl. viii.

Polyclad Turbellaria, Japan, with new forms described, YERI & KABURAKI J. Coll. Sci. 39 Art. 9 58 pp. 2 pls. & 48 text-figs.

Polycladida, key to Japanese species, YERI & KABURAKI Annot. Zool. Jap 9 pp. 431-442.

*Bergendalia diversa* sp. n. Japan, YERI & KABURAKI J. Coll. Sci. 39 Art. 9 p. 8 pl. ii fig 15 and text-figs. 6-8.

*Dalyellia alba* p. 47 figs. 24, 26, *megacephala* p. 49 figs. 23, 25, 39, spp. n., Mississippi, HIGLEY Illinois Biol. Monogr. 4 No. 3.

*Discocelis japonica* sp. n., YERI & KABURAKI J. Coll. Sci. 39 Art. 9 p. 3 pl. ii fig. 3, text-fig. 1.

*Hoploplana ornata* sp. n., YERI & KABURAKI T.c. p. 15 pl. ii fig. 7 and text-figs. 14-16.

*Macrostoma album* sp. n., Mississippi, HIGLEY Illinois Biol. Monogr. 4 No. 3 p. 39 fig. 21.

*Mesostoma angulare* p. 74 figs. 29, 41, 45 & 55, *simplex* p. 77 figs 32-38, 40 & 42, spp. n., Mississippi, diagnosed, HIGLEY T.c.—*Mestoma* [= *Mesostoma* ?] *antarcticum* sp. n. from Bloemfontein, note on, DREYER Trans. R. Soc. Afr. 7 pp. 1-4.

*Neoplanocera* gen. n. (*Planoceridae*) *elongata* sp. n., Japan, diagnosed, YERI & KABURAKI J. Coll. Sci. 39 Art. 9 p. 17 pl. ii fig. 4 and text-figs. 17-19.

*Notoplana delicata* sp. n. Japan, YERI & KABURAKI T.c. p. 13 pl. ii fig. 14 and text-figs 11-13.

*Paraplanocera misakiensis* sp. n., YERI & KABURAKI T.c. p. 23 pl. ii fig. 5 and text-figs. 24-26.

*Planaria burmaensis* p. 187 pl. xxvii figs. 1, 4, 5, *annandalei* p. 191 figs. 2, 6, 7, *bilineata* p. 193 fig. 3 spp. n. Inlé Lake, diagnosed, KABURAKI Rec. Ind. Mus. 14.—*P. subtentaculata* Drap. spontaneous division and influence of environmental conditions upon, LOBETTA-BODONI Boll. Mus. Zool. Comp. Anat. 33 Nos. 728 & 729.

*Planocera purpurea* sp. n. Japan, YERI & KABURAKI J. Coll. Sci. 39 Art. 9 p. 22 pl. i fig. 7 and text-fig. 23.

*Promesostoma balticum* sp. n. S.-Finland, LUTHER Medd. Soc. Fauna et Fl. Fenn. 44 p. 52.

*Prosthlostomum marmoratum* p. 43 pl. i fig. 8 and text-figs. 45, 46, *awaense* p. 44 pl. ii fig. 12 and text-fig. 47, *rubropunctatum* p. 45 fig. 9 and text-fig. 48, spp. n. Japan, YERI & KABURAKI J. Coll. Sci. 39 Art. 9.

*Provortex brevitubus* sp. n. S.-Finland LUTHER Medd. Soc. Fauna et Fl. Fenn. 44 p. 51.

*Pseudoceros reticulatus* p. 35 pl. i fig. 3 and text-figs. 38, 39, *luteomarginatus* p. 37 fig. 5 and text-fig. 40 *nigromarginatus* p. 39, fig. 2 and text-figs. 41, 42, spp. n. Japan, YERI & KABURAKI J. Coll. Sci. 39 Art. 9.

*Pseudostylochus* gen. n. (*Diplosolenididae*) diagnosed p. 25, *takeshitai* p. 26 pl. ii fig. 11 and text-figs 27-29, *fulvus* p. 28 fig. 10 and text-figs. 30-32, spp. n. Japan, YERI & KABURAKI T.c.

*Shelfordia annandalei*, p. 185 pl. viii figs. 1-5, *amara* p. 188 text-fig. 2, spp. n. Siam, KABURAKI Mem. Asiat. Soc. 6.

*Stenostoma giganteum* p. 30 figs. 46, 48, *glandiferum* p. 35 fig. 47, spp. n., Mississippi, HIGLEY Illinois Biol. Monogr. 4 No. 3.

*Strongylostoma rosaceum* sp. n. Mississippi, described, HIGLEY T.c. p. 52 figs. 1-20, 28 & 54.

*Stylochus rutilus* p. 5 pl. ii fig. 1, text-fig. 2, *ijimai* p. 6 fig. 8 and text-figs. 3-5 spp. n. Japan, YERI & KABURAKI J. Coll. Sci. 39 Art. 9.

*Vorticeros ijimai* and *V. lobatum* spp. n. from Misaki, (TOZAWA Dobuts. Z. 30 pp. 77-80 111-115 and 196-199 2 pls.

## (b) Trematoda.

*Polystomidae*, *Aspidogastridae* and *Paramphistomidae*, morphology and relationships of members of these families discussed, STUNKARD Illinois Biol. Monographs 3 No. 3 pp. 1-114 11 pls.

*Acanthodiscus* gen. n. *mirabile* sp. n. from *Caranx hippos* diagnosed, MACCALLUM Zoopatholog. 1 No. 3 p. 93 fig. 49.

*Agamodistomum marciae* (La Rue) from *Thamnophis marciae* the Agamodistome-stage of a forked-tailed Cercaria, excretory system, CORT J. Parasitol. 4 pp. 130-134 3 text-figs.

*Axine carangis* sp. n. from *C. hippos* diagnosed, MACCALLUM Zoopatholog. 1 No. 3 p. 90 fig. 46.

*Azygia perryi* sp. n. from the gills of *Hucho perryi* Brev., FUJITA Dobuts. Z. 30 pp. 269-274 with pl.

*Brachysaccus juvenilis* sp. n. from *Chiroleptes brevipalmatus* Queensland, NICOLL Parasitol 10 p. 368 pl. viii fig. 1.

"*Cercaria*" *arcuata*, *frondosa* and *gladii* "spp. n." from *Isidora* spp. Transvaal, notes, CAWSTON Parasitol 11 pp. 94-97; "*C.*" *elephantis* p. 52, *emarginatae*, *douglasi* p. 53 "spp. n." and other Cercariae, notes on excretory system, CORT J. Parasitol 4; "*C.*" *neptuni* Lebour, described, LÉBOUR J. Mar. Biol. Ass. 11 pp. 514-518 7 figs.; "*C.*" *robusta* p. 94 figs. 1-5, *aurita* p. 96 figs. 6-8, *chisolonata* p. 98 figs. 9-13, *acanthostoma* p. 99 figs. 14-17, *stilifera* p. 101 figs. 18, 19, *gigas*, p. 105 figs. 25-30, *minor* p. 107 figs. 31-33 "spp. n." Molluscan hosts and description, FAUST J. Parasitol 4; "*C.*" *brookoveri*, p. 148 figs. 1-6, *macrostoma* p. 149, figs. 7-11 "spp. n." occurrence and morphology, FAUST T.c.; "*C.*" various, from South African snails, notes, the possible hosts of *Schistosoma*, CAWSTON J. trop. Med. 21 pp. 69-70 7 text-figs.; "*C.*" infecting Mollusca, Montana, comprehensive comparative account, FAUST Illinois Biol. Monographs 4 No. 1 120 pp. 9 pls.; "*C.*" (probably belonging to *Clinostomum* sp.), encysted forms in mosquitoes, SOPARKAR Ind. J. Med. Res. 5 pp. 512-515.

"*Cercariaeum*" (prov.) *mutabile* "sp. n.," from *Planorbis campanulatus smithii*, morphology, CORT, J. Parasitol. 5 pp. 86-91 pl. vii.

*Cladorchis* (*Stichorchis*) *subtriquetrus*, anatomy, WEIDMAN Parasitol. 10 pp. 267-279 pl. v.

*Clinostomum piscidium* sp. n., from *Trichogaster fasciatus*, diagnosed, SOUTHWELL & PRASHAD Rec. Ind. Mus. 15 p. 348 pl. xii.

*Dicrocoelium lanceatum* var. n. *symmetricum*, from cat, note on anatomy, BAYLIS Ann. Mag. Nat. Hist. Ser. 9 2 pp. 111-114 pl. xiv.

*Dissotrema* gen. n. (*Dissotrematidae* fam. n., allied to *Paramphistomidae*),

*papillatum* sp. n. from rectum of *Siganus fuscescens*, description, GOTO & MATSUDAIRA J. Coll. Sci. 39 Art. 8 20 pp. 1 pl.

*Distomum auritus* p. 84, fig. 41, *spiculiferum* p. 85, fig. 42, spp. n. from fishes, diagnosed, MACCALLUM Zoopatholog. 1 No. 3; *D. tropidonoti* sp. n. from *T. trianguligerus*, diagnosed, MACCALLUM T.c. p. 96, fig. 51; *D. luteum* sp. n., from frogs, S. Africa, intermediate host, *Physa tropica*, notes on life-cycle, GILCHRIST Parasitol. 10 pp. 311-319.

*Dolichopera macalpinii* sp. n. from poisonous snakes (*Notechis scutatus* and *Denisonia superba*), described, NICOLL Parasitol. 10 pp. 290-293 & p. 374 pl. viii fig. 4.

*Echinostomum herodiae* sp. n. from *H. timoriensis*, diagnosed, MACCALLUM Zoopatholog. 1 No. 3 p. 89 fig. 45.

*Eurema* gen. n. *keksooni* sp. n. from a small ray, described, MACCALLUM, T.c. p. 86 fig. 43.

*Gastrodiscus aegyptiacus*, note on development of egg and miracidium, VAN SACRHEM, Bull. Soc. path. exot. 11 pp. 396 & 397.

*Hemistomum haustum* sp. n. from *Alutera schoepfi*, diagnosed, MACCALLUM Zoopatholog. 1 No. 3 p. 91 fig. 47.

*Lecithochirium dillaneii* sp. n. from a sea-snake (*Distira* sp.), NICOLL Parasitol. 10 p. 373 pl. viii fig. 3.

*Lissorchis* gen. n. (*Lissorchiinae* subfam. n.), *fairporti* sp. n. from intestine of *Ictiobus cyprinella* and *I. bubulus*, life-history, MAGATH J. Parasitol. 4 pp. 58-69 2 pl.

*Microcotyle spinicirrus* sp. n. from *Aplodinotus grunniens*, diagnosed, MACCALLUM Zoopatholog. 1 No. 3 p. 95 fig. 50.

*Monostoma mutabile* Zeder, from *Fulica* sp. Argentina, note on, and classification of Trematodes, LAHILLE Physis Rev. Soc. Arg. Ci. Nat. 4 pp. 328-331 2 text-figs.

*Paramphistomum chelydrae* sp. n. from *C. serpentina*, diagnosed, MACCALLUM Zoopatholog. 1 No. 3 p. 88 fig. 44.

*Polystoma troosti* p. 107 fig. 52, *inermis* p. 109 fig. 53, *albicollis* p. 110 fig. 54, *elegans* p. 112 fig. 55, *spinulosum* p. 113 fig. 56, *chelodinae* p. 114 fig. 57, *digitatum* p. 115 fig. 58, *aspidonectis* p. 117 fig. 59, *rugosa* p. 118 fig. 60 spp. n. from various reptiles, diagnosed, MACCALLUM T.C. No. 4.

*Schistosoma haematobium* and *mansoni*, morphology compared, ova and *Cercariae*, LEIPER J.R.A.M.C. 30 pp. 235-260 1 pl.; *S. spindalis*, note on life-cycle, *Cercariae* in *Planorbis exustus*, LISTON & SOPARKAR Ind. J. Med. Res. 5 pp. 567-569.

*Sigmaopera* gen. n. *cincta* sp. n. from *Emydura latisternum* N. Queensland, NICOLL Parasitol. 10 p. 371 pl. viii fig. 2.

*Spirorchis* gen. n. et sp. n. (specific name not given), from *Chelopus insculptus*, note on, MACCALLUM Zootopatholog. 1 No. 3 p. 92 fig. 48.

*Telorchis insculpti* p. 81 fig. 37, *pallidus* p. 82 fig. 38, *chelopi* p. 83 fig. 39, *guttati* p. 83 fig. 40 spp. n. from *Chelopus* spp., diagnosed, MACCALLUM T.C.

*Tetracotyle iturbei* sp. n. (the redia of *Schistosoma mansoni*, according to Iturbe & Gonzalez), diagnosed, FAUST J. Parasitol. 4 p. 109; *T. i.*, FAUST, described, synopsis of other species, including *T. phoxini* sp. n., FAUST *op. cit.* 5 pp. 69-79 pl. vi.

*Verodunia* gen. n. (changed from *Verdunia*, footnote p. 219) (*Amphistomatidae*) *tricornata* sp. n. from *Bos taurus*, diagnosed, LAHILLE & JOAN Physis Rev. Soc. Arg. Ci. Nat. 3 pp. 216-219 3 text-figs.

### (c) Cestoda.

Cestodes of fishes, morphological characters in connection with classification, COOPER J. Parasitol. 4 pp. 33-39 2 pls.

Cestodes from Australian Reptiles and Mammals, with new forms, described, NYBELIN K. Svenska Vet.-Ak. Handl. 52 No. 14 pp. 1-48 3 pls.

*Bertiella undulata* p. 17 figs. 11, 12, *pellucida* p. 18 fig. 13, both from *Pseudochirus lemuroides*, *pseudochiri*

p. 20 fig. 14, *aberrata* p. 21 figs. 15, 16, both from *P. herbertensis* spp. n. diagnosed, NYBELIN T.C.

*Bothriocephalus cuspidatus* sp. n. from *Stizostedion vitreum*, diagnosed, COOPER J. Parasitol. 4 p. 37 figs. 14-17; *B. longicollis* sp. n. from *Felis yaguarandi*, note on, PARODI & WIDAKOWICH Rev. Jardin Zool. II 13 pp. 224-227 text-figs. 4-6.

*Crepidobothrium mjobergi* from *Diemenia psammophis*, p. 9 figs. 4 & 5, *amphiboluri* from *Amphibolurus barbatus*, p. 11 figs. 6 & 7 spp. n., NYBELIN K. Svenska Vet.-Ak. Handl. 52 No. 14.

*Cyathocephalus americanus* sp. n. from *Coregonus clupeiformis*, COOPER J. Parasitol. 4 p. 35.

*Davainea cesticillus* (Molin), note on life-cycle, transmission probably by *Musca domestica*, ACKERT J. Parasitol. 5 pp. 41-43 pl. v.

*Dibothriocephalus latus*, transmission, developmental cycle, discussed, JANICKI & ROSEN Bull. Soc. Sci. Neuchâtel 42 pp. 19-53 pls. i & ii.

*Hepatotaenia* gen. n. for *Taenia festiva* Rud., p. 25 fig. 18, *felicola* sp. n. from *Macropus agilis*, p. 28 fig. 19, diagnosed, NYBELIN K. Svenska Vet.-Ak. Handl. 52 No. 14.

*Hymenolepis peramelidarum* sp. n. from *Perameles macrura*, diagnosed, NYBELIN T.C. p. 34 figs. 27-32.

*Ilisha* gen. n. (of uncertain position) *parthenogenetica* sp. n. from *Hilsa ilisha*, anatomy and development, SOUTHWELL & PRASHAD Rec. Ind. Mus. 15 p. 83 pl. v.

*Linstovia semoni* Zschokke var. n. *acanthocirrota* from *Perameles macrura*, diagnosed, NYBELIN K. Svenska Vet.-Ak. Handl. 52 No. 14 p. 33 figs. 25 & 26.

*Marsipometra* gen. n. (*Marsipometrinae*, subfam. n.) for *Dibothrium hastatum*, notes on, COOPER J. Parasitol. 4 p. 35 figs. 10-13.

*Parabertiella* gen. n. *campanulata* sp. n. from *Pseudochirus lemuroides*, diagnosed, NYBELIN K. Svenska Vet.-Ak. Handl. 52 No. 14 p. 23 fig. 17.

*Progamotuenia* gen. n. for *Cittotuenia bancrofti* Johnston p. 30 figs. 20-24 and other species, described, NYBELIN T.c.

*Protocephalus sulcatus* (Klaptocz), from *Chrysichthys*, note on, BEAUCHAMP Bull. Soc. Zool. 43 p. 14 text-fig. 1.

*Rhynchobothrius ilisha* sp. n. from *Hilsa ilisha* and *Carcharinus gangeticus*, notes on anatomy and life-history, SOUTHWELL & PRASAD Rec. Ind. Mus. 15 p. 78 pl. iv figs. 1-7.

## NEMATINEA.

[Vacant.]

## MESOZOA.

*Dicyemidae*, life-cycle of, phylogeny (regarded as derived from Echiuroid worms), LAMEERE C. R. Acad. Sci. 167 pp. 1058-1062; *D.*, notes on life-cycle, LAMEERE Bull. Soc. Zool. 42 pp. 122-126.

*Rhopalura* cf. *pelseneeri* from *Sphacro-syllis*, note on, MESNIL & CAULLERY Bull. Soc. Zool. 43 p. 36.

## NEMATHELMINTHIA.

## SUBJECT INDEX.

COMPREHENSIVE AND GENERAL.  
1403

## Economics.

RELATION TO DISEASE.

*Ankylostomiasis*.

Rousseau, 151.

*Oesophagostomiasis*.

Elders, 42.

*Filariasis*.

Bassett-Smith, 6; Forbes, 55; Rousseau, 151.

*Various*.

Dujarric de la Rivière, 41; Mouchet, 124; Paes, 138; Parodi and Widakowich, 142; Seurat, 159.

(N-5464 o)

## Technique.

Lane, 98.

## STRUCTURE. 1407

## General.

## NEMATODA.

Chatton, 22; Ditlevsen, 38; Ihle, 78; Joan, 81; Lopez-Neyra, 108; Nagakura, 127; Neveu-Lemaire, 128; Parodi and Widakowich, 140 and 141; Railliet, 146; Salm, 155; Steiner, 177, 179; Wester, 194; Yorke and Macfie, 204-208.

## ACANTHOCEPHALA.

Van Cleave, 187 and 188.

## Reproductive Organs.

Neveu-Lemaire, 128; Seurat, 158 and 160.

## PHYSIOLOGY. 1411

[Vacant.]

## DEVELOPMENT. 1415

## General, Life-Cycle.

Hill, 71; Nagakura, 127; Seurat, 157 and 160; Yoshida, 209.

## Oogenesis, Fertilization.

Seurat, 158; Walton, 190.

## Larval Forms.

Steiner, 178; Stewart, 182 and 183; Yoshida, 210.

## ETHOLOGY. 1419

## Bionomics, Habits.

Elliot, 44; Gaud, 60; Steiner, 177.

## Transmission: Mode of Infection.

Baermann, 4; Chatton, 23; Hill, 71; Low, 109; Pantin, 139.

## "CARRIERS."

Brumpt, 14.

**Parasitism.** (*Vide etiam* Relation to disease, 1403.)

SYSTEMATIC. 1431

NEMATHELMINTHIA.

*General: Biological Effects of.*

**Brindley, 13; Railliet and Henry, 147; Seurat, 159.**

*Plantae.*

**Gertz, 61.**

*Insecta.*

**Ditlevsen, 38.**

*Pisces.*

**Van Cleave, 188; Wigdor, 198.**

*Amphibia.*

**Léger, 101.**

*Reptilia.*

**Léger, 102; MacCallum, 111.**

*Aves.*

**Commes, 27; Léger, 100 and 102; Lopez-Neyra, 108; Smit, 167b; Van Cleave, 187.**

*Mammalia.*

**Buri, 14a; Chatton, 22; Dujarric de la Rivière, 41; Ihle, 78; Johnston, 82; Léger, 102; Neveu-Lemaire, 128; Railliet, 145 and 146; Salm, 155; Seurat, 159; Smit, 166 and 167; Stewart, 183; Wester, 194; Wharton, 195; Yorke and Macfie, 204-208.**

VARIATION, PHYLOGENY. 1423

**Variation**

**Seurat, 161.**

**Classification.**

**Camerano, 15.**

DISTRIBUTION (GEOGRAPHY).

1427

[*Vide etiam* Parasitism, 1419.]

*Europe.*

**Hoffmaenner, 71a; Ihle, 79; Onorato de Gillis, 136; Schneider, 156.**

*Africa.*

**Steiner, 177-179.**

(a) **Nematoda.**

Nematodes, free-living, fresh water, E., N. and Central Europe, synopsis; SCHNEIDER Acta Soc. Faun. et Fl. Fenn. 44 No. 5 pp. 1-85, pls.

Nematoda, land and fresh-water, S.W. Africa, notes on; STEINER, Hamburg (Friederichsen) Lfg. 4 1916 pp. 377-411.

*Acheilostoma morchei* sp. n. from gall-bladder of a Rodent (*Thryonomys swinderianus*) diagnosed; RAILLIET Bull. Soc. path. exot. 11 pp. 93-98 3 text-figs.

*Actinolaimus michaelsoni* sp. n. S.W. Africa; STEINER Hamburg (Friederichsen) Lfg. 4 p. 399 text-figs. 13-17.

*Ascaris lumbricoides* and *A. mystax*, larval development in mouse; STEWART Parasitol. 10 pp. 189-196 pl. iv; *A. l.*, notes on life-history; STEWART T.c. pp. 197-205.—*A. ogcocephali* sp. n. from a bat-fish (*O. radiatus*), diagnosed, MACCALLUM Zoopatholog. 1 No. 5 p. 132 fig. 67.

*Camallanus cabrae* p. 127 fig. 61, *troosti, floridianae* fig. 62 p. 128, *elegans, ptychozoondis* fig. 63 p. 129, *cyathocephalus* fig. 64, *bungari* fig. 65, p. 130, spp. n. from various reptiles, diagnosed; MACCALLUM Zoopatholog. 1 No. 5.

*Capillaria strumosa* (Reibisch), note; WHARTON J. Parasitol. 5 p. 27.

*Contortospiculum americanum* nom. nov. (*Filaria* sp. Leidy), from *Asio accipitrinus*; RAILLIET Bull. Soc. Zool. 43 p. 107.

*Cylicostomum longibursatum* p. 400 7 text-figs., *minutum* p. 405 7 text-figs., spp. n., *nassutum* LCOSS. var. n. *parvum*, p. 411 7 text-figs. from horses, diagnosed, YORKE & MACFIE Ann. trop. Med. Parasitol. 11.

*Cyrnea seuratii* sp. n. from *Caccabis rufa*, morphology; LOPEZ-NEYRA, C.R. Acad. Sci. 166 pp. 79-82 2 text-figs.

*Desmodora conocephala* p. 16, text-fig. 7, *michaelsoni* p. 16, fig. 8, *megalosoma* p. 18, fig. 9, spp. n., Africa STEINER Zool. Anz. 50.



*Dicheilonema*, question of type-species and the desirability of maintaining provisionally the genus *Contorlospiculum* (g.v.): RAILLIET Bull. Soc. Zool., 43 pp. 104-109.

*Diplogaster laevis* sp. n. Astroni; ONORATO-DE CILLIS Monit. Zool. Ital. 28 p. 61.

*Diphlostera* gen. n. p. 58, *inflata* sp. n., Astroni, diagnosed; ONORATO-DE CILLIS T.c.

*Dorylaimus merogaster* sp. n. W. Africa, described; STEINER Hamburg (Friederichsen) Lfg. 4 p. 389, text-figs. 6-12.

*Ethmolaimus distephanus* sp. n., Astroni; ONORATO-DE CILLIS Monit. Zool. Ital. 28, p. 61.

*Euchromadora*, genus characterized, p. 5, *dubia*, p. 9 text-fig. 2, *lüderitzi* p. 11, fig. 3, *hupferi* p. 12, fig. 4, *enumeca* p. 13, fig. 5, *longicaudata* p. 14 fig. 6, spp. n. Africa; STEINER Zool. Anz. 50.

*Filaria* (*Microfilaria*) *bernardi* sp. n., from *Astur badius* var. *sphenurus*; COMMES Bull. Soc. path. exot. 11 p. 33.—*F. columbi*, and *Microfilaria* from *Bufo marinus*, Guiana, note and comparison with other forms; LÉGER Bull. Soc. path. exot. 11 pp. 182-187.—*F. conjunctivae*, Addario, male form recorded from Macedonia, note on morphology; FORBES Trans. Soc. Trop. Med. 12 pp. 11-16; *F. diurna*, Cameroons, associated with Calabar swellings; BASSETT-SMITH J. trop. Med. 21 pp. 93 & 94 figs. 2 & 3.

*Galonchus* gen. n. (*Strongyliidae*) for *G. perniciosus* (Linstow), from a leopard, redescribed; RAILLIET Bull. Soc. path. exot. 11 pp. 86-93 3 text-figs.

*Gongylonema ingluvicola* Ransom, note on; WHARTON J. Parasitol. 5 p. 25 text-figs. 1 & 2.—*G. neoplasticum* (*Spiroptera* [*Gongylonema*] *neoplasticum*), anatomy described, larval form in *Periplaneta americana*; DITLEVSEN Centralbl. Bakt. Abth. 1 81 Orig. pp. 565-576 8 text-figs.—*G. (Spiroptera) neoplasticum*, variation in; SEURAT C.R. Soc. Biol. 81 pp. 1102-1104 1 text-fig.

*Gyalocephalus capitatus* Looss, from horses, described; YORKE & MACFIE

Ann. trop. Med. Parasitol. 12 pp. 79-90 9 text-figs.—*G. equi* sp. n. diagnosed; YORKE & MACFIE T.c. pp. 91 & 92 3 text-figs.

*Habronema muscae, microstoma* and *megastoma*, morphology, life-history, transmission, HILL Proc. R. Soc. Victoria 31 pp. 11-76 pls. ii-viii.

*Helalaimus* gen. n. *psilocephalus* sp. n., Astroni, diagnosed; ONORATO-DE CILLIS Monit. Zool. Ital. 28 p. 58.

*Heligmosomum braziliense* Trav., from brown rat, Sydney, described; JOHNSTON Proc. R. Soc. Queensland 30 p. 56 text figs. 1-9.

*Hysterothylacium cayugensis* sp. from *Esox lucius* and *Ameiurus nebulosus*, diagnosed; WIGDOR J. Parasitol. 5 p. 31 text-fig. 2.

*Mecistocirrus digitatus* (v Linst.) var. n. *javanica*, from ox, morphology; SALM Bull. Soc. path. exot. 11 pp. 705-708 9 text-figs.

*Mermis damarensis* sp. n., S.W. Africa, diagnosed; STEINER Hamburg (Friederichsen) Lfg. 4 p. 408 text-figs. 24-26.

*Metastrongylidae*, genera and species comprising, hosts, anatomy, reproductive organs, and reproduction, described; NEVEU-LEMAIRE Mem. Soc. Zool. France 27 pp. 5-126 12 pls. and 35 text-figs.

*Metastrongylus elongatus* (Duj.), from pig, morphology; SALM Bull. Soc. path. exot. 11 pp. 708-710 10 text-figs.

*Microfilaria* sp. (cf. *immitis*) from cat, Tunis, notes; CHATTON Bull. Soc. path. exot. 11 pp. 571-573 1 text-fig.—*M. savourei*, from *Dasyops* sp., p. 394, *petgesi* from *Myrmecophaga jubata*, p. 395, spp. n., *M. marchouzi*, Mesnil & Brimont, note on, p. 393, *M.* spp. from *Ateles pentadactylus*, p. 392, *Iguana tuberculata*, p. 395, and *Catharista atrata*, p. 395, notes; LÉGER Bull. Soc. path. exot. 11 [Vide etiam *Filaria*].

*Microilaimus lepturus* sp. n. Astroni, ONORATO-DE CILLIS Monit. Zool. Ital. 28 p. 60.

*Monohystera frequens* sp. n., Astroni, diagnosed; ONORATO-DE CILLIS T.c. p. 59.—*M. bothriolaima* sp. n., W. Africa, diagnosed; STEINER Hamburg (Friederichsen) Lfg. 4 p. 387 text-figs. 3-5.

*Onchocerca bovis*, note on anatomy; JOAN Rev. Soc. Arg. Ci. Nat. 3 pp. 446-448.

*Rhabdochona Railliet cascadilla* sp. n., from *Semotilus atromaculatus* and *Notropis cayuga* diagnosed; WIGDOR J. Parasitol. 5 p. 29 text-fig. 1.

*Strongyloides westeri* sp. n. from horses, described; IHLE Centralb. Bakt. Abth. 1 80 Orig. pp. 372 & 373. *Vide* also WESTER T.c. pp. 370-372.

*Trichocephalus affinis*, from *Camelus bactrianus*, note on morphology, PARODI & WIDAKOWICH, Rev. Jardin Zool. II 13 pp. 215-221 6 text-figs.

*Trilobus medius* Finland sp. n., SCHNEIDER Acta Soc. Fauna et Fl. Fenn. 44 No. 5 p. 70.

*Tripyla gracilis* sp. n. Astroni. ONORATO-DE CILLIS Monit. Zool. Ital. 28 p. 60.

*Tropidocerca fissipina*, sexual dimorphism, note on; SEURAT C.R. Soc. Biol. 81 pp. 1100 & 1101 3 text-figs.

#### (b) *Nematomorpha.*

*Chordodes madagascariensis* (Camerano) note on; BEAUCHAMP Bull. Soc. Zool. 43 p. 16 text-fig. 2.

*Gordiidae*, classification, diagnoses of constituent genera and species, CAMERANO Mem. Acc. Sci. Torino Ser. 2 66 No. 1.

*Gordius californicus* sp. n., CAMERANO T.c. p. 59.

#### (c) *Acanthocephala.*

*Centrorhynchus pinguis* sp. n., from magpie, China, described; VANCELEAVE J. Parasitol. 4 pp. 164-167 pl. iii.

*Echinorhynchus gaboes* sp. n., from a Siluroid fish (unspec.), diagnosed; MACCALLUM Zoopatholog. 1 No. 5 p. 132 fig. 68.

*Rhadinorhynchinae*, note on subfamily; VANCELEAVE J. Parasitol. 5 p. 18.

*Rhadinorhynchus ornatus* p. 19 pl. iii fig. A, *tenuicornis* p. 20 pl. iii figs. B & 1-4, spp. n., diagnosed; VANCELEAVE T.c.

## CHAETOGNATHA, GASTRO-TRICHA, ROTIFERA.

### SUBJECT INDEX.

#### COMPREHENSIVE AND GENERAL.

1603

[Vacant.]

#### STRUCTURE. 1607

##### General.

##### ROTIFERA.

Colledge, 26; Olofsson, 135.

##### Sexual Organs.

Whitney, 197.

##### Cytology.

Shull, 164.

#### PHYSIOLOGY. 1611

##### Environmental Effects.

Shull, 163.

#### DEVELOPMENT. 1615

##### Life History.

Olofsson, 135.

##### Regeneration.

Kulmatycki, 93.

#### ETROLOGY. 1619

##### Plankton.

Baldasseroni, 5; Olofsson, 135.

#### VARIATION, PHYLOGENY. 1623

##### Heredity.

Shull, 163.

##### Variation.

Olofsson, 135.

## DISTRIBUTION (GEOGRAPHY).

## Arctic.

Kramp, 92; Olofsson, 135.

## Europe.

Blanc, 12; Haerberli, 66; Müller, 126

## America.

Cordero, 29.

## Australia.

Shephard, Searle and Stickland, 162.

*Catypyna rotundata* sp. n. Spitzbergen; OLOFSSON Zool. Beiträge aus Uppsala 6 p. 593 fig. 53.

*Diurella longistyla* p. 582 fig. 38, *obtusidens* p. 582 fig. 39, *minuta* p. 582, fig. 40 spp. n. Spitzbergen, OLOFSSON T.c.

*Melicerta coloniensis* sp. n., Brisbane, described; COLLEDGE Proc. R. Soc. Queensland 30 pp. 171-174 pl. xi.

*Notholca acuminata* var. *extensa* var. n. Spitzbergen, OLOFSSON Zool. Beiträge aus Uppsala 6 p. 606 fig. 65. —*N. foliacea* var. *latistyla* var. n. Spitzbergen, OLOFSSON T.c., p. 609, fig. 66.

## SYSTEMATIC. 1631

## (a) Chaetognatha.

Chaetognatha, from plankton (R. Nave "Liguria"), with notes on certain forms, BALDASSERONI Pubbl. Ist. stud. sup. 2 No. 5 pp. 85-118 pls. vi and vii.

Chaetognatha collected by the "Tjalfe" Expedition to the West Coast of Greenland, 1908 and 1909; KRAMP Nath. Medd. 79 pp. 17-55.

## (b) Gastrotricha.

Gastrotricha, from Montevideo, notes; CORDERO Physis Rev. Soc. Arg. Ci. Nat. 4 pp. 241-255 5 text-figs.

*Chaetonotus montevidensis* sp. n.; CORDERO Rev. Soc. Arg. Ci. Nat. 4 p. 244 text-fig. 2.

*Lepidodermidae* fam. n., for *L.* and *Aspidiophorus*, characterized; CORDERO T.c. p. 253.

*Proichthyidium* gen. n. (*Ichthyidiidae* emend.), *coronatum* sp. n., Montevideo, diagnosed; CORDERO T.c. p. 250 text-fig. 5.

## (c) Rotifera.

Rotifera, fresh-water, Spitzbergen notes on; OLOFSSON Zool. Beitr. Uppsala 6 pp. 580-609 text-figs. 36-66.

*Callidina progonidia* sp. n., Lake Neuchâtel; MONARD Rev. Suisse Zool. 26 p. 347 text-figs. 4-7.

(N-5464 o)

ANNELIDA, GEPHYREA,  
PHORONIDEA,  
PTEROBRANCHIATA.

## SUBJECT INDEX.

## COMPREHENSIVE AND GENERAL. 1803

## Economics.

RELATION TO DISEASE.

Biggs, 11; Monticelli, 122.

## STRUCTURE. 1807

## General Anatomy.

Mesnil and Caullery, 115; M'Intosh, 119; Morgera, 123.

## Nervous System.

Holmgren, 72.

## Reproductive Organs.

Michaelsen, 117; Smith, 169.

## Histology.

Thapar, 185.

## PHYSIOLOGY. 1811

## Environmental Effects. Response to Stimuli.

Packard, 137.

- DEVELOPMENT. 1815                      2. Fossil (Geological).
- General.**  
**Caullery and Mesnil, 16; Hescheler, 68.**  
*Secondary.*  
**Couffon, 34; Gardner, 59.**
- Budding. Gemmation.**  
**Mesnil and Caullery, 115.**  
*Primary.*  
**Stefani, 175.**
- Regeneration.**  
**Würgler, 200.**
- SYSTEMATIC. 1831
1. ANNELIDA.
- Embryogeny.**  
**Packard, 137; Soulier, 171.**  
 †*Lumbricaria* (= *Lumbricites*) sp., Carboniferous, Elba, note; DE STEFANI *Palaeont. ital.* 23 p. 15 pl. iv. fig. 36.
- ETHOLOGY. 1819
- Incubation. Broods.**  
**Dehorne, 35.**
- Commensalism.**  
**Gravier, 65.**
- VARIATION, PHYLOGENY. 1823
- Phylogeny.**  
**Michaelsen, 117.**
- DISTRIBUTION (GEOGRAPHY.) 1827
1. Recent (Geographical).
- Europe.*  
**Ditlevsen, 39; Eliason, 43; Friend, 56; Haerberli, 66; Mesnil and Caullery, 116; Razzauti, 148; Rioja, 149; Saemundsson, 154.**
- Asia.*  
**Horst, 74, 76, and 77; Oka, 134; Stephenson, 180 and 181.**
- Australia.*  
**Michaelsen, 117.**
- Africa.*  
**Augener, 3; Horst, 73; Michaelsen, 118.**
- America.*  
**Essenberg, 45-47; Kindred, 89; Smith, 169.**
- (a) Archiannelida.**  
 [Vacant.]
- (b) Polychaeta.**  
 Polychaeta, marine, W. African coasts, described, AUGENER in: *Beitr. Kenntn. Meeresfauna Westafrika* 2 Lfg. 2 pp. 67-625 pls. ii-vii & 110 text-figs.  
 Polychaeta (Fams. *Aphroditidae*, *Amphinomidae*, *Hesionidae*, *Sphaerodoridae* and *Alciopidae*) from French coasts, systematic tables, FAUVEL *Bull. Inst. Ocean* No. 347 20 pp.  
 Polychaetes, coasts of N. Spain, described; RIOJA *Trabaj. Mus. Nat. Ci. (Ser. Zool.)* No. 37 99 pp. 20 text-figs.  
 Polychaeta of Iceland (Danish), SAEMUNDSSON *Nath. Medd.* 69 pp. 165-241 1 pl.  
*Amaea accraënsis* sp. n., p. 561, fig. 246, W. African coast, diagnosed, AUGENER *Beitr. Kenntn. Meeresfauna W.-Afrika* 2 Lfg. 2.  
*Aphrodite longipalpa* p. 403, figs. 1-14, 77 & 78, *californica* p. 406, figs. 15-26, 79 & 80, *solitaria* p. 408, figs. 81, 82, 27-38, *cryptomata* p. 409, figs. 39-50, 83, *brevitentaculata* p. 411, figs. 51-63, 84, *raripectata* p. 413, figs. 64-76, 85 & 86, spp. n., California; ESSENBERG *Univ. Cal. Publ. Zool.* 16 No. 22.  
*Aricia angrapequensis*, p. 413, figs. 146, 225, *liberiana* p. 416, figs. 167, 209, 210, spp. n. W. Africa; AUGENER *Beitr. Kenntn. Meeresfauna* 2 Lfg. 2.

*Bathynoe nodulosus* vide also *Weberia pustulata*.

*Bispira volutacornis* Mont., note on anatomy, M'INTOSH Ann. Mag. Nat. Hist. Ser. 9 2 pp. 1-32 pls. i-iii.

*Ceratonereis tripartita* sp. n. Malay Archipelago, HORST Zool. Med. 4, p. 249.

*Demonax puncturatus* sp. n., p. 576, figs. 170, 171; AUGENER Beitr. Kenntn. Meeresfauna W. Afrika 2 Lfg. 2.

*Diopatra monroviensis* p. 343, figs. 139-141, 208, *musseracensis* p. 347, figs. 134, 195, spp. n., AUGENER T.c.

*Dodecaceria afra* sp. n. p. 468 figs. 254, 255; AUGENER T.c.

*Epidiopatra* gen. n. (*Eunicidae*) *hupferiana* p. 355 figs. 104-106, 212, *drewinensis* p. 359 figs. 90, 114-116, spp. n. AUGENER T.c.

*Euclymene lüderitziana* sp. n., p. 481, figs. 144, 145, 186, 215, AUGENER T.c.

*Euprosyne calypta* p. 63 figs. 1-3, 6 & 7, 13 & 14, *multibranchiata* p. 65 figs. 4, 5, 8-12, *kylosetosa* p. 68 figs. 24-31, spp. n., California coast, ESSENBERG Univ. Cal. Publ. Zool. 18 No. 4.

*Eurythoe spirocirrata* sp. n. Pacific coast, diagnosed, ESSENBERG T.c. p. 66, figs. 15-23.

*Eusigalion* gen. n. (*Sigalionidae*) *vazensis* sp. n. W. Africa, described, AUGENER Beitr. Kenntn. Meeresfauna 2 Lfg. 2 p. 113 figs. 14, 44-46.

*Euthelopus* (?) *kinsemboënsis* sp. n., p. 548, figs. 161, 250; AUGENER T.c.

*Exogone* (*Parexogone* sub. gen. n.) *hebes* Webster & Ben. var. *hibernica* South., described; MESNIL & CAULLERY, Bull. Soc. Zool. 42 pp. 126-132 5 text-figs.

*Glycera convoluta* var. n. *uncinata*; RIOJA Trabaja Mus. Nat. Ci. (Ser. Zool.) No. 37 p. 85 text-fig. 20—*G. guinensis* sp. n. p. 389, figs. 128-130; AUGENER Beitr. Kenntn. Meeresfauna W. Afrika 2 Lfg. 2.

*Glycinde kameruniana* sp. n. p. 398, figs. 93, 211; AUGENER T.c.

*Grubea limbata*, sexual stolon; MESNIL & CAULLERY Bull. Soc. Zool. 43 p. 38 2 text-figs.

*Grubeosyllis jonssonii* n. sp. Iceland, p. 202, pl. ii, fig. 1; SAEMUNDSSON Nath. Medd. 69.

*Gymnorhynchus* gen. n. (*Nereidae*), *sibogae* sp. n., Malay Archipelago; HORST Zool. Med. 4 p. 247.

*Halosydna macrocephala* sp. n., California, diagnosed; ESSENBERG Univ. Cal. Publ. Zool. 18 No. 3 p. 53 figs. 22-33.

*Harmothoe africana* p. 139, figs. 15-19, *goreensis* p. 142, figs. 4-6, 42, spp. n. W. Africa, diagnosed; AUGENER Beitr. Kenntn. Meeresfauna 2 Lfg. 2—*H. bonitensis* p. 48 figs. 1-11, *johnsoni* p. 50 figs. 12-21, spp. n., California; ESSENBERG Univ. Cal. Publ. Zool. 18 No. 3;—*H. trilobocephala* sp. n. Bay of Naples, described; MORGERA Pubbl. Staz. Zool. Napoli 2 pp. 1-14 pl. i.

*Hermadion fauveli* sp. n., commensal with a silicious sponge (*Sarostegia*), occurrence and diagnosis; GRAVIER Bull. Inst. Ocean No. 344 pp. 14-19 text-figs. 6-12.

*Hololepidella greeffi* sp. n., W. Africa; AUGENER Beitr. Kenntn. Meeresfauna 2 Lfg. 2 p. 148 figs. 22-24 fig. 2.

*Hyalinoecia fauveli* sp. n., N. Spanish coasts, RIOJA Trabaja Mus. Nat. Ci. (Ser. Zool.) No. 37 p. 45 text-fig. 12.

*Hydroides arnoldi* sp. n. p. 595, figs. 151, 152, W. Africa, described; AUGENER Beitr. Kenntn. Meeresfauna 2 Lfg. 2.

*Isolda whydahensis* sp. n., p. 514, fig. 216; AUGENER T.c.

*Leiochridis africanus* sp. n. p. 472 figs. 199 & 200, AUGENER T.c.

*Leocrates greeffianus* sp. n. p. 219 figs. 31, 74, AUGENER T.c.

*Lepidonotus hupferi* sp. n. W. Africa; AUGENER T.c. p. 133 figs. 7-11.

*Lumbriconereis africana* sp. n. p. 367, figs. 261 & 262; AUGENER T.c.

*Lycastis meraukensis* sp. n., New Guinea; HORST Zool. Med. 4 p. 246.

*Malmgrenia micropoides* sp. n., W. Africa; AUGENER Beitr. Kenntn. Meeresfauna 2 Lfg. 2 p. 146 figs. 21, 43.

*Marphysa mangeri* sp. n., p. 330, figs. 79, 122; AUGENER T.c.

*Melinna islandica* sp. n., p. 220 pl. ii fig. 2; SAEMUNDSSON Nath. Medd. 69.

*Microspio rolusiana* sp. n., p. 408 figs. 181, 205-207, W. Africa; AUGENER Beitr. Kenntn. Meeresfauna 2 Lfg. 2.

*Myriamida phyllocera* sp. n., p. 301, figs. 87-89, AUGENER T.c.

*Mystides angolaensis* sp. n., AUGENER T.c. p. 178 figs. 32-34.

*Myxicola michaelseni* sp. n., p. 589, figs. 263, 264; AUGENER T.c.

*Nephthys ambrizettana* sp. n., AUGENER T.c. p. 166, figs. 13, 60 & 61.

*Nereis onychophora* sp. n., Malay Archipelago, HORST Zool. Med. 4 p. 248.—*N. ijimai* notes on, HORST T.c. p. 258.—*N. nouhuysi* sp. n. fresh-water, East Indies, HORST T.c. pp. 143-145 1 fig.—*N. victoriana* p. 180, figs. 29, 30, 72, 73, *N. (Alitta) agnesiae* p. 194, figs. 69-71, 76, 77, *N. (Ceratoneis) dualaensis* p. 197, figs. 36, 62, 63, *rolasiensis* p. 200, figs. 64, 65, 78, spp. n., W. Africa; AUGENER Beitr. Kenntn. Meeresfauna 2 Lfg. 2.—*N. (Neanthioides* subgen. n.) *bolivari* sp. n., described; RIOJA Trab. Mus. Nat. Ci. (Ser. Zool.) No. 37 p. 67 text-fig. 16.—*N.* spp. from South Africa, notes, HORST Zool. Med. 4 pp. 63-66 2 text-figs.

*Nicolea quadrilobata* sp. n., p. 532, figs. 183, 226, 227, *venustula* var. n. *africana* p. 524, fig. 242, W. Africa, AUGENER Beitr. Kenntn. Meeresfauna 2 Lfg. 2.

*Ninoe digitatissima* p. 369, figs. 117-121, *lagosiana* p. 371 figs. 123-127, 213, spp. n.; AUGENER T.c.

*Onuphis africana* p. 335, figs. 109-112, 251, *landanaensis* p. 339, figs. 135-138, 197, spp. n.; AUGENER T.c.

†*Ornatopora* gen. n. (*Serpulidae*?) *marylandica*, sp. n. Cretaceous; GARDNER Maryland Geol. Survey 1916 p. 748 pl. xlvii figs. 16-19.

*Petaloclymene* gen. n. (*Maldanidae*) *notocera* sp. n. p. 488, figs. 168, 201-204, W. Africa; AUGENER Beitr. Kenntn. Meeresfauna 2 Lfg. 2.

*Phyllamphicleis* gen. n. (*Ampharetidae*) *collaribranchis* sp. n., p. 509, figs. 239-241; AUGENER T.c.

*Phyllodoce (Anatides) africana* sp. n.; AUGENER T.c. p. 171 figs. 25, 49-51.

*Pista grubei* sp. n. p. 542, figs. 252, 253, W. Africa; AUGENER T.c.

*Polycirrus swakopianus* sp. n., p. 563, fig. 228; AUGENER T.c.

*Polydora goreensis* sp. n., p. 411, figs. 168, 198; AUGENER T.c.

*Pomatocerus triquetter*, L., notes on anatomy; MINTOSH Ann. Mag. Nat. Hist. Ser. 9 2 pp. 32-55 pls. iv-vi.

*Prinospio africana*, p. 402, figs. 162, 163, *sexoculata* p. 405, figs. 159, 172, spp. n., W. Africa; AUGENER Beitr. Kenntn. Meeresfauna 2 Lfg. 2.

*Pseudotholepus* gen. n. (*Terebellidae*) *nyanganus* sp. n. p. 552, figs. 257, 258; AUGENER T.c.

*Pterampharete* gen. n. (*Ampharetidae*) *luderitzi* sp. n. p. 505, figs. 222-224; AUGENER T.c.

*Pterolysippe* gen. n. (*Ampharetidae*) *bipennata* sp. n. p. 512, figs. 173, 174; AUGENER T.c.

*Pycnoderma fernandense* sp. n. p. 448, figs. 148, 182, 237, 238; AUGENER T.c.

*Sabella guinensis* sp. n., p. 565, figs. 149, 247-249; AUGENER T.c.

*Sabellaria fucicola* p. 496, fig. 158, *guinensis* p. 498 text-fig. lxxxii, *eupomatoides* p. 503 fig. 186, spp. n., W. Africa; AUGENER T.c.

†*Serpula trigonalis* sp. n., Cretaceous, Maryland; GARDNER Maryland Geol. Surv. 1916 p. 746 pl. xlvii fig. 15.

*Spirobranchus eitzeni* sp. n., p. 599, figs. 178-180, 231, W. Africa; AUGENER Beitr. Kenntn. Meeresfauna 2 Lfg. 2.

*Stauronereis angolana* sp. n. p. 380, figs. 132, 133, 217; AUGENER T.c.

*Sternaspis fossor* var. n. *africana*, p. 608 text-fig. cix; AUGENER T.c.

*Stylarioides swakopianus* p. 433, fig. 234, *tropicus* p. 437, figs. 220, 221, *kinsemboanus* p. 440, figs. 150, 214, *incertus* p. 442, figs. 156, 235, 236, *scutigeroïdes* p. 444, figs. 155, 185, spp. n.; AUGENER T.c.

*Syllis (Typosyllis) melanopharyngea* sp. n., p. 257, figs. 81 & 82; AUGENER T.c.

*Terebellides stroeni* var. n. *africana*, p. 555, fig. 245; AUGENER T.c.

*Thelepus pequenianus* sp. n., p. 545, fig. 259, W. Africa; AUGENER T.c.

*Trypanosyllis prampramensis* p. 276, figs. 91 & 92, *gemmaifera* p. 278, figs. 99-101, spp. n.; AUGENER T.c.

*Vermiliopsis prampramiana* sp. n., p. 603, fig. 256; AUGENER T.c.

*Weberia pustulata* Horst, probably identical with *Bathynoe nodulosus* Dntl.; HORST Zool. Med. 4 p. 178.

(c) Myzostomida.

[Vacant.]

(d) Oligochaeta.

Oligochaeta, aquatic, Japan and China, notes on; STEPHENSON Mem. Asiat. Soc. Bengal 6 pp. 83-100 pl. iv.

Oligochaeta, aquatic, Inlé Lake, notes on; STEPHENSON Rec. Ind. Mus. 14 pp. 9-18.

*Chaetogaster annandalei* sp. n., Japan, diagnosed; STEPHENSON Mem. As. Soc. Bengal 6 p. 88.

*Criodrilus bathybatés* sp. n., Japan, diagnosed; STEPHENSON T.c. p. 96, fig. 8.

*Dichogaster kenyae* sp. n., Brit. East Africa, diagnosed; MICHAELSEN Vers. II Oligochaeta 1915 p. 30 pl. ii figs. 4 & 5.

*Digaster lamingtonensis* sp. n., Queensland, described; MICHAELSEN K. Svenska Vet.-Ak. Handl. 52 No. 13 p. 20, pl. i figs. 1 & 2.

*Haplotaxis forbesi* sp. n. Illinois, diagnosed; SMITH Bull. State Illinois 13 art. 3 pp. 43-48 pl. ii.

*Kawamuraia* gen. n. (*Tubificidae*) *japonica* sp. n., description and affinities; STEPHENSON Mem. As. Soc. Bengal 6 p. 89 figs. 1-5.

*Megascolex fuscus* p. 24, pl. i fig. 20, *heterochaetus* p. 25, fig. 15, *mjöbergi* p. 28, figs. 18 & 19, *parvus* p. 30, figs. 16 & 17, spp. n., occurrence and description; MICHAELSEN K. Svenska Vet.-Ak. Handl. 52 No. 13.

*Ocnodrilus (Ilyogenia) jeanneli* sp. n., Brit. E. Africa; MICHAELSEN Voyage Alluand et Jeannel Vers. 1915 p. 33.

*Perionyx* (subgen. *Diporochaeta*) *athertonensis* p. 7, pl. i figs. 6 & 7, *erici* p. 12, fig. 8, *phalacrus* p. 14, fig. 5, with var. n. *atavia*, p. 16, *P (D.) sigillatus* p. 16, figs. 3 & 4, spp. n., occurrence and description, MICHAELSEN K. Svenska Vet.-Ak. Handl. 52 No. 13.

*Platydrilus collinus* sp. n., E. Africa; MICHAELSEN Voyage Alluand et Jeannel, Vers. II 1915 p. 34 pl. ii figs. 1-3.

*Polytoreutus alluandi* sp. n. p. 39 pl. ii fig. 9, *montis kenyae* Bedd. var. n. *jeanneli*, p. 37, fig. 8, Brit. E. Africa, MICHAELSEN T.c.

*Rhododrilus queenslandicus* sp. n., described; MICHAELSEN K. Svenska Vet.-Ak. Handl. 52 No. 13 p. 4 pl. i figs. 9-11.

*Trichodrilus allobrogum* Clap., from Illinois, notes on; KINDRED Bull. State Illinois 13 art. 4 pp. 49-52.

(e) Hirudinea.

Hirudinea, Japan, China and Siam, notes on; OKA Mem. As. Soc. Bengal 6, pp. 157-176 pl. vii.

*Ancyrobdella biwae* Oka, further notes on; OKA Mem. As. Soc. 6 p. 169 figs. 9-12.

*Hemiclepsis siamensis* sp. n., occurrence and diagnosis; OKA T.c. p. 167 pl. vii figs. 6-8.

*Myxobdella* gen. n. (*Hirudinidae*) *annandalei* sp. n., Hong-Kong, diagnosed; OKA T.c. p. 161 pl. vii figs. 1-5.

(f) Echiuroidea.

[Vacant.]

2. GEPHYREA (SIPUNCULOIDEA).

[Vacant.]

3. PHORONIDEA.

[Vacant.]

4. PTERORANCHIATA.

[Vacant.]





# VII. BRACHIOPODA AND BRYOZOA

BY

F. W. EDWARDS.

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## (a) BRACHIOPODA

### CONTENTS.

	PAGE
I. TITLES=2000 .. .. .	2
II. SUBJECT INDEX..	4
General = 2003 .. .. .	4
Structure = 2007 .. .. .	4
Physiology = 2011 (vacant)	
Development = 2015.. .. .	4
Ethology = 2019 (vacant)	
Aetiology = 2023 .. .. .	4
Distribution = 2027 :—	
(a) Recent .. .. .	4
(β) Fossil .. .. .	4
III. SYSTEMATIC INDEX = 2031 .. .. .	4

## 1.—TITLES.

- Asselbergs, E.** Observations sur le Frasnien des environs d'Holton (bord oriental du bassin de Dinant). Bruxelles Bull. Soc. Géol. **28** 1914 P.y. (47-56). 1
- Branson, E. B. and Greger, D. K.** Amsden Formation of the east slope of the Wind River Mountains of Wyoming and its fauna. Bull. Geol. Soc. Amer. **29** 1918 (309-326) pls. xviii-xix. 2
- Cayeux, L.** Introduction à l'étude pétrographique des roches sédimentaires. Texte. Paris Mém. Carte géol. France **1916** (1-524). 3
- Chapman, F.** On the occurrence of *Acrotreta* in Lower Palaeozoic (Lancefieldian and Heathcoteian) shales in Victoria. Melbourne Proc. R. Soc. Vict. **30** 1918 (145-148) pl. xxvi. 4
- Chumley, J.** The fauna of the Clyde sea area. Being an attempt to record the zoological results obtained by the late Sir John Murray and his assistants on board the S. Y. "Medusa" during the years 1884 to 1892. Glasgow Univ. Press **1918** (1-200). 5
- Clarke, J. M.** El Devoniano de la Argentina occidental (sobre la base de los materiales recogidos por los Dres. Bodenbender y Stappenbeck). Buenos Ayres An. Min. Agric. Sec. Geol. **8** 2 1912 (1-19) iii pls. 7
- Couffon, O.** Le Callovien du Chalet, Commune de Montreuil-Bellay (M.-et-L.). Bull. Soc. Et. Sci. Angers **47** 1917 [1918] (65-131). 8
- Delépine, —.** La faune des calc-schistes tournaisiens à Irchonwelz (près Ath). Ann. Soc. Bruxelles **38** 1914 (185-190). 9
- Dixey, F. and Sibly, T. F.** The carboniferous limestone series on the south-eastern margin of the South Wales coalfield. London Quart. Journ. Geol. Soc. **73** 1918 (111-160) pls. xii-xvi. 10
- Fredericks, G.** [On some Upper Palaeozoic *Brachiopoda* from Eurasia.] Mém. Com. Géol. Petrograd n.s. **156** 1916 (55). [Reviewed by **Hayasaka, 14.**] 11
- Gardner, J. C.** Systematic palaeontology of the Upper Cretaceous deposits of Maryland. Maryland Geol. Surv. **1916** Upper Cret. (734-736) pl. xlvii. 12
- Hayasaka, I.** Palaeozoic Brachiopods from Nügata-ken. J. Geol. Soc. Tokyo **25** 1918 (304-310) pl. i. [Japanese] 13
- Hayasaka, J.** A supplementary note to the study of *Lyttonia*. J. Geol. Soc. Tokyo **25** 1918 (445-451). [Japanese and Engl. Res.] 14
- Hayasaka, J.** A preliminary record of the Permian Brachiopods from the Feng-Cheng Coalfield, Prov. Kiang-hsi, China. J. Geol. Soc. Tokio **25** 1918 (505-516). [Japanese and Engl. Res.] 15
- Jackson, J. W.** British Antarctic ("Terra Nova") Expedition, 1910. Nat. Hist. Rept. Zoology, *Brachiopoda*. Brit. Mus. (N.H.) **2** 1918 (177-202) i pl. 16
- Jackson, J. W.** The new Brachiopod genus *Liothyrella*, of Thomson. London Geol. Mag. Ser. 6 **5** 1918 (73-79). 17
- Jackson, J. W.** On *Terebratula grayi*, Davidson. London Geol. Mag. (6) **5** 1918 (479-480). 18
- Jeannet, A.** Monographie géologique des Tours d'Ai et des régions avoisinantes (Préalpes Vaudoises). Deuxième Partie: Fin de la Stratigraphie: Dogger, Malm, Cretacé, Flysch et Quaternaire. Mat. Carte géol. Suisse N.S. **34** 2 1918 (467-701) i pl. 19

- Jimenez de Cisneros, D.** Especies nuevas o poco conocidas de Braquiopodos liásicos del S.E. de España. Madrid Bol. Soc. Esp. Hist. Nat. **18** 1918 (319-322). **20**
- Kiær, J.** The Lower Cambrian *Holmia* fauna at Tømten in Norway. Skrift. Vid. Christiania **1916** 2 [1917] No. 10 (12-17). **21**
- Kilian, W.** Sur la présence de calcaires à Brachiopodes dans les environs d'Agadir (Maroc), d'après les échantillons recueillis par M. André Roboul. Paris C.R. Soc. géol. **1917** 1 (32-33). **22**
- Lees, J. H. and Thomas, A. O.** The Ste. Genevieve marls near Fort Dodge and their fauna. Proc. Iowa Acad. **25** 1918 (599-616) pl. xii. **23**
- Maillieux, E.** Observations sur *Cyrtina undosa* Schnur sp. et description d'une variété nouvelle. Bruxelles Bull. Soc. Géol. **28** 1914 P.-v. (2-6). **24**
- Maillieux, E.** Quelques remarques sur la faune du Hundsrückien inférieur du bassin du Luxembourg. Bruxelles Bull. Soc. Géol. **28** 1914 P.-v. (77-79). **25**
- de Morgan, J.** Considérations générales sur les Mégathyridés, leur origine et leur croissance. Bull. Mus. d'Hist. Nat. Paris **1918** (187-195) 24 figs. **26**
- Oppenheim, P.** Über die Erhaltung der Färbung bei fossilen Molluskenschalen. Centralbl. Min. Stuttgart **1918** (344-360, 368-392). **27**
- Parsons, L. M.** The carboniferous limestone bordering the Leicestershire coalfield. London Quart. Journ. Geol. Soc. **73** 1918 (84-110) pls. vii-xi. **28**
- Reboul, P. et Faure-Marguerit, G.** Sur un niveau à Brachiopodes du Tithonique supérieur dans le Massif de la Grande Chartreuse. Paris C.R. Soc. géol. **1917** (126-127). **29**
- Rollier, L.** Synopsis des Spirobranches (Brachiopodes) Jurassiques Cello-Souabes. Mém. Soc. pal. Suisse **43** 1918 (187-275). **30**
- Savage, T. E.** Correlation of the early Silurian rocks in the Hudson Bay region. J. Geol. Chicago **26** 1918 (334-340). **31**
- Scalia, S.** Fauna degli Strati a *Spirigera trigonella* Schloth. sp. della val di Sinello, presso Camposilvano, in Vallarsa (Trentino Meridionale). Roma Boll. Soc. geol. ital. **36** 1918 (205-215). **32**
- Smith, G. L.** The palaeontology and stratigraphy of the Upper Carboniferous of Iowa. Proc. Iowa Acad. **22** 1915 [1916] (273-283). **33**
- Smith, G. L.** Contributions to the geology of south-western Iowa. Proc. Iowa Acad. **23** 1916 (77-89). **34**
- Smith, G. L.** Contributions to the geology of south-western Iowa. Proc. Iowa Acad. **25** 1918 (521-537). **35**
- Stauffer, C. R.** Descriptions of some new species of Devonian fossils. J. Geol. Chicago **26** 1918 (555-560) pls. i-iii. **36**
- de Stefani, C.** Fossili carboniferi dell'Isola d'Elba. Pal. Ital. Pisa **23** 1917 (1-53) Tav. i-iv. **37**
- Thomas, A. O.** A highly slate specimen of *Atrypa reticularis* (Linn). Proc. Iowa Acad. **23** 1916 (173-176) pl. vc. **38**
- Thomson, J. A.** Australasian Antarctic Expedition, 1911-14, under the leadership of Sir. Douglas Mawson, D. Sc., B.E. *Brachiopoda*. Sci. Repts. Ser. C 4 part iii 1918 (1-76) pls. i-iv. **39**
- Thomson, J. A.** The genus *Bouchardia* (Brachiopoda) and the age of the younger beds of Seymour Island, West Antarctic. London Geol. Mag. Ser. 6 **5** 1918 (258-263). **40**
- Trechmann, C. T.** The Trias of New Zealand. London Quart. Journ. Geol. Soc. **73** 1918 (165-246) pls. xvii-xxv. **41**
- Troedsson, Gustaf T.** Om Skånes brachiopod-skiffer. [The Scanian Brachiopod beds.] Lund Univ. Arsskr. N.F. Avd. 2 **15** No. 3 [=Fysiogr. Sällsk. Handl. N.F. **30** No. 3] 1918 (110; English summary 86 99) ii pls., 13 text-figs. (Thesis for the doctor's degree). **42**
- de Wittenburg, P.** [La description géologique de la presqu'île de Mouraviev-Amourski et de l'Archipel de l'Impératrice Eugénie.] Mém. Soc. Et Région de l'Amour **15** 1916 (372-373). [Reviewed by Hayasaka, 14.] **43**

## II.—SUBJECT INDEX.

GENERAL. 2003  
Preservations of colour in fossil  
Brachiopods; **Oppenheim, 27.**

STRUCTURE. 2007  
Spicules and shell structure; **Thomson, 39; Cayeux, 3.**

ÆTIOLOGY. 2015  
Variation, *Atrypa reticularis*;  
**Thomas, 38.**

EVOLUTION. 2023  
Evolution, *Megathyris*; **de Morgan, 26.**

DISTRIBUTION. 2027  
(a) RECENT.  
Antarctic and New Zealand; **Jackson, 16; Thomson, 39.**  
Distribution in southern seas;  
**Thomson, 39.**  
Scotland; **Chumley, 5.**

(b) FOSSIL.  
Palaeozoic.  
Japan; **Hayasaka, 13-15.**

Cambrian.  
Norway; **Kier, 21.**

Ordovician.  
Australia; **Chapman, 4.**

Silurian.  
Sweden; **Troedsson, 42.**  
Hudson's Bay; **Savage, 31.**

Devonian.  
Belgium; **Asselbergs, 1; Maillieux, 24, 25.**  
Michigan; **Stauffer, 36.**  
Iowa; **Thomas, 38.**  
Argentina; **Clarke, 7.**

## Carboniferous.

England; **Parsons, 28.**  
Wales; **Dixey and Sibly, 10.**  
Belgium; **Delépine, 9.**  
Elba; **de Stefani, 37.**  
Iowa; **Lees and Thomas, 23;**  
**Smith, 33-35.**  
Wyoming; **Branson and Greger, 2.**

## Permian.

Japan; **Hayasaka, 15.**

## Triassic.

Italy; **Scalia, 32.**  
New Zealand; **Trechmann, 41.**

## Jurassic.

Morocco; **Kilian, 22.**  
France; **Reboul and Faure-Marguerit, 29;**  
**Couffon, 8.**  
England, France and Germany;  
**Rollier, 30.**  
Spain; **Jimenez de Cimeros, 20.**

## Cretaceous.

Maryland; **Gardner, 12.**

## Tertiary.

Antarctic; New Zealand; **Thomson, 39.**

## III.—SYSTEMATIC. 2031

†*Acrotreta antipodum* sp. n. Victoria  
Ordovician, **CHAPMAN Proc. R. Soc.  
Vict. 30 p. 145.**

*Amphithyris* gen. n. p. 20 for *buckmani*  
sp. n. New Zealand p. 22, **THOMSON  
Australian Antarctic Exp. C 4 p. 3.**

*Atrypa reticularis*, **THOMAS 38.**

†*Bouchardia*, generic chars., *minima*  
sp. n. New Zealand Miocene, **THOMSON  
Geol. Mag. 5 p. 260.**

†*Callonema perlata* sp. n. Michigan  
Devonian, **STAUFFER J. Geol. Chicago  
26 p. 559.**

*Compsothyris* gen. n. for *Rhynchonella racovitzae*, JACKSON Brit. Antarctic Exp. 2 p. 188.

†*Conchidium decussatum* a *Virgiana*, SAVAGE 31.

†*Conotreta acuta* sp. n. Sweden Silurian, TROEDSSON Lund Univ. Arsskr. N.F. Avd. 2 15 No. 3 p. 34 pl. i figs. 3-4.

†*Coptothyris* gen. n. type *Terebratula grayi*, for *Thomsonia* Jackson preocc., JACKSON Geol. Mag. (6) 5 p. 479.

*Crania joubini* sp. n. Antarctic, THOMPSON Australian Antarctic Exp. C 4 part 3 p. 10.

†*Cyrtina undosa* var. n. *brachyptera* Belgium Devonian, MAILLIEUX Bruxelles Bull. Soc. géol. 28 1914 p.-v. p. 5.

†*Dictyothyris bathiensis*, *bourneensis* p. 267, *luszowicensis laevis* p. 268, *struckmanni*, *birmensdorfensis* p. 271, *alba*, *badensis*, *danubiana*, *schlosseri* p. 272, *balinensis* p. 274, spp. n. England France and Germany Jurassic, ROLLIER Mém. Soc. pal. Suisse 43.

†*Dielasma juresanensis* var. n. *globosa*, Japan Permian, HAYASAKA 15.

†*D. zealandica* sp. n. New Zealand Trias, TRECHMANN Q. J. Geol. Soc. 73 p. 217.

†*Discina (Orbiculoidea) radiata* sp. n. Sweden Silurian, TROEDSSON Lund Univ. Arsskr. N.F. Avd. 2 15 No. 3 p. 35 pl. i figs. 6-7.

†*Disculina douvilléi* sp. n. France Jurassic, ROLLIER Mém. Soc. pal. Suisse 43 p. 191.

†*Glossothyris buckmani* p. 258, *quens-tedti* p. 259, *grossouvrei* p. 260, *dalensis*, *favrei*, p. 261, spp. n. England, France and Germany Jurassic, ROLLIER Mém. Soc. pal. Suisse 43.

*Gyrothyris* gen. n. p. 23 for *mawsoni* sp. n. Macquarrie Island p. 28, THOMPSON Australian Antarctic Exp. C 4 part 3.

†*Halorella zealandica* sp. n. New Zealand Trias, TRECHMANN Q. J. Geol. Soc. 73 p. 216.

†*Hectoria* gen. n. near *Spirigera* p. 233, *bisulcata* p. 235, *tumida* p. 236, *cuneiformis* p. 237, spp. n. New Zealand, Trias, TRECHMANN, Q. J. Geol. Soc. 73.

*Hemithyris striata* sp. n. Antarctic, THOMPSON Australian Antarctic Exp. C. 4 part 3 p. 11.

†*Lingula foresii* sp. n. Elba Carboniferous, DE STEFANI Pal. Ital. Pisa 23 1917 p. 20.

*Leiothyrella* and *Leiothyrina*, generic chars., JACKSON 17.

*Liothyrella ovata* p. 15, *neozelanica* p. 17, spp. n. Antarctic and New Zealand, THOMPSON Australian Antarctic Exp, C 4 p. 3.

†*Loxanema inculta* sp. n. Michigan. Devonian, STAUFFER J. Geol. Chicago 26 p. 559.

*Lyttonia*, HAYASAKA 14.

*Macandrevia lata* sp. n. Antarctic THOMPSON Australian Antarctic Exp., C 4 part 3 p. 33.

*Magellania macquariensis* sp. n. Macquarie I., THOMPSON Australian Antarctic Exp. C 4 part 3 p. 30.

†*Meckella amsdenensis* sp. n. Wyoming Carboniferous, BRANSON & GREGER Bull. Geol. Soc. Amer. 29 p. 316.

†*Megathyris*, evolution, DE MORGAN 26.

†*Mentzelopsis* gen. n. near *Mentzelia* p. 229, *spinosa*, *horrida*, spp. n. New Zealand Trias p. 230, TRECHMANN Q. J. Geol. Soc. 73.

†*Nucleospira livingstonensis* sp. n. Michigan Devonian, STAUFFER J. Geol. Chicago 27 p. 558.

†*Obolella rotundata* sp. n. Norway Cambrian, KIAER Skrift. Vid. 1916 2 No. 10 p. 12.

†*Oldhamina mira*, sp. n., FREDERICKS 11; see HAYASAKA, 14.

†*Orbiculoidea wyomingensis* sp. n. Wyoming Carboniferous, BRANSON & GREGER Bull. Geol. Soc. Amer. 29 p. 314.

†*Plectothyris* subgen. n. (*Terebratula*) for group of *T. fimbria*, ROLLIER Mém. Soc. pal. suisse 43 p. 252.

†*Rhipidomella intermedia* sp. n. Michigan Devonian, STAUFFER J. Geol. Chicago 27 p. 556.

†*Rhynchonella dal-piazi* sp. n. (sine descr.) Spain Jurassic, JIMENEZ DE CISNEROS Bol. Soc. Esp. Hist. Nat. 18 p. 319.

†*Schizophoria prima* sp. n. Michigan Devonian, STAUFFER J. Geol. Chicago 27 p. 557.

†*Spirifer welleri* p. 317, *shoshonensis* p. 318, spp. n. Wyoming Carboniferous, BRANSON & GREGER Bull. Geol. Soc. Amer. 29.

†*Spiriferina browni* sp. n. Wyoming Carboniferous, BRANSON & GREGER Bull. Geol. Soc. Amer. 29 p. 316.

†*S. kaihikuana* p. 220, *gyphaetus*, *acutissima* p. 221, *diomedea* p. 222, *nelsonensis* p. 223, *otamitensis* p. 225, *carolinae* p. 226, spp. n., *suessi* var. n. *australis* p. 225, New Zealand Trias, TRECHMANN Q.J. Geol. Soc. 73.

†*Spirigera kaihikuana* p. 231, *manzavinoides* p. 232, spp. n. New Zealand Trias, TRECHMANN Q.J. Geol. Soc. 73.

*Stethothyris* gen. n. p. 23 for *utleyi* sp. n. New Zealand p. 27, *antarctica* sp. n. Antarctic p. 27, THOMSON Australian Antarctic Exp. C 4 part 3.

†*Stropheodonta delicatula* sp. n. Michigan Devonian, STAUFFER J. Geol. Chicago 26 p. 558.

†*Terebratulina dundriensis* p. 187, *birmensdorfensis*, *suffieldensis*, p. 188, *engeli* p. 189, *silicea*, *moravica*, *marmorea*, p. 180, spp. n. England and Germany Jurassic, ROLLIER Mém. Soc. pal. suisse 43.

†*Terebratula pachydentata* sp. n. New Zealand Trias, TRECHMANN Q.J. Geol. Soc. 73 p. 218.

†*T. feydeyi* sp. n. Switzerland Jurassic, JEANNET Mon. géol. Tours d'Al pl. B, fig. 2-8 [1913] and p. 578 [1918].

†*T. falsani* p. 194, *vari*, *havesfeldensis*, p. 198, *eugenii*, *subferryi*, p. 200, *birdlipensis* p. 201, *oppeli* p. 202, *denticulata*, *perloricata*, *polonica*, p. 205, *alemanica*, *badensis*, *sabaudiana*, *pilleti*, p. 207, *perrieri*, *excavata*, p. 208, *rauraciensis inaequiplicata* p. 211, *constantini*, *ampla*, *clemminshawi*, p. 212, *niortensis*, *marbachensis*, *douéensis*, *tenniensis*, *subequestris*, p. 213, *langtonensis* p. 217, *haasi* p. 219, *quenstedti*, *eggensis* p. 221, *germanica* p. 222, *dorsetensis* p. 223, *roettingensis* p. 224, *dencyriazensis* p. 225, *macrocephalites* p. 226, *stufensis*, p. 229, *walkeri*, *dilatata*, p. 230, *ingens* p. 231, *subingens* p. 232, *pelagica* p. 233, *perfarcta*, *engeli*, *lochensis*, p. 234, *bessersteinensis* p. 236, *hossingensis*, *biturigensis*, *breviplicata*, p. 237, *foraminata*, *thurmanni*, *zweifallensis*, p. 238, *lithographica*, *danubiensis*, *fritzoviensis*, p. 239, *ulmensis* p. 240, *capitanea* p. 241, *pronutans* p. 243, *censoriensis* p. 244, *praesella*, *etalloni*, *guirandi*, p. 245, *feldstettensis*, *cervicula*, p. 246, *jucunda* p. 248, *laufonensis* p. 250, *rauraca* p. 251, *bullingdonensis* p. 252, spp. n. England, France and Germany Jurassic, ROLLIER Mém. Soc. Pal. Suisse 43.

†*Thomsonia* gen. n. for *Terebratula grayi*, JACKSON Geol. Mag. (6) 3 1916 p. 22 [omitted from Z.R. Vol. liii].

†*Triplecia schucherti* sp. n. New York Ordovician, CLARK Bull. Mus. Comp. Zool. Harv. Coll. 63 p. 15.

## VII (b) BRYOZOA

## CONTENTS.

	PAGE
I. TITLES .. .. .	8
II. SUBJECT INDEX.	
General = 2003 .. .. .	9
Structure = 2007 .. .. .	9
Physiology = 2011 (vacant)	
Development = 2015 .. .. .	9
Ethology = 2019 .. .. .	9
Variation and Aetiology = 2023 .. .. .	9
Distribution = 2027 :—	
(a) Recent :—	
( $\alpha$ ) Marine .. .. .	9
( $\beta$ ) Non-Marine .. .. .	9
(b) Fossil .. .. .	9
III. SYSTEMATIC INDEX .. .. .	10

## I.—TITLEES.

- Annandale, N.** Sponges, *Hydrozoa* and *Polyzoa* of the Inle Lake. Rec. Ind. Mus. Calcutta **14** 1918 (75-79). 1
- Barroso, M. G.** Notas sobre briozoos. Boll. R. Soc. esp. Hist. Nat. **18** 1918 (206-210 307-309 407-409). 2
- Bassler, R. S.** Systematic palaeontology of the Upper Cretaceous deposits of Maryland. Maryland Geol. Surv. **1916** Upper Cret. (736-745) pl. xlvi. 3
- de Beauchamp, P.** Notes fauniques: quelques formes rares ou intéressantes de la région Parisienne. Paris Bull. Soc. Zool. **43** 1918 (79-83). 4
- Brydone, R. M.** New and imperfectly known chalk *Polyzoa*. London Geol. Mag. ser. 6 **5** 1918 (1-4, 97-100) pls. i and vi. 5
- Buchner, P.** Über totale Regeneration bei chilostomen Bryozoen. Biol. Zentralbl. **38** 1918 (457-461). 6
- Canu, F.** Les ovicelles des Bryozoaires cyclostomes. Études sur quelques familles nouvelles et anciennes. Paris Bull. Soc. géol. (4) **16** 1916 [1918] (324-335) pl. ix. 7
- Canu, F.** Études sur les ovicelles des Bryozoaires Cyclostomes. Paris Bull. Soc. géol. (4) **17** 1917 [1918] (345-347) pl. x. 8
- Canu, F.** Étude sur les ovicelles de la famille des *Corynuboporidae* Smitt, 1866. Paris Bull. Soc. géol. (4) **17** 1917 [1918] (348-349) pl. xi. 9
- Canu, F.** Les Bryozoaires fossiles des terrains du Sud-Ouest de la France. XI. Rupélien (= Stampien). Paris Bull. Soc. Géol. (4) **17** 1917 [1918] (350-361) pls. xii-xiii. 10
- Canu, F. and Bassler, R. S.** *Bryozoa* of the Canal Zone and related areas. Washington D.C. Bull. U.S. Nat. Mus. **103** 1918 (117-122) pl. liii. 11
- Cayeux, J.** Introduction à l'étude pétrographique des roches sédimentaires. Texte. Paris Mém. Carte. géol. France **1916** (1-524). 12
- Chumley, J.** The fauna of the Clyde sea area. Being an attempt to record the zoological results obtained by the late Sir John Murray and his assistants on board the S.Y. "Medusa" during the years 1884 to 1892. Glasgow Univ. Press **1918** (1-200). 13
- Friedl, P. H.** Bryozoen der Adria (Schluss). Zool. Anz. Leipzig **49** 1918 (268-280). 14
- Henchman, Annie P. and Davenport, C. B.** Clonal variation in *Pectinatella*. Amer. Nat. **47** 1913 (361-371). 15
- Klähn, H.** Die Fossilien des Tertiärs zwischen Lauch und Fecht. II. Bryozoa. Colmar Mitt. Nat. Ges. **14** 1917 (61) Taf. xiv. 16
- Kramp, P. L.** Om Mosdyr (Bryozoa) i Randers Fjord. The Bryozoa of the firth of Randers. København, Randers Fjords Naturhistorie, 1918 (313-320) 1 fig. 17
- Lees, J. H. and Thomas, A. O.** The Ste. Genevieve marls near Fort Dodge and their fauna. Proc. Iowa Acad. **25** 1918 (599-616) pl. xii. 18
- Lundblad, O.** Om djupfaunan i svenska insjöar ur djurgeografisk synpunkt. Fauna och Flora **1918** (97-122). 19
- Nordgaard, O.** Bryozoa in the papers and Collections of Dr. J. E. Gunnor. K. Norske Vid. Selsk. Skr. **1917** [1918] No. 5 (1-5). 20
- Nordgaard, O.** Bryozoa from the Arctic regions. Tromsø Mus. Aarsheft. **40** 1917 [1918] No. 1 (1-99). 21
- Okada, Yaichiro.** Kamtschatka Kishika kako fukin no senchu-rui. [Polyzoa from near the mouth of R. Kishika in Kamtschatka.] Dobuts. Z. Tokyo **30** 1918 (119-124, 376-384). [2031]. 22



**Okada, Yaichiro** *vide* Yanagi, Naokatsu.

**Parshad, B.** The seasonal conditions governing the pond life of the Punjab. J. Proc. Asiatic Soc. Bengal 12 1916 (141-145). 23

**Searle, J.** The pond and its inhabitants. Vict. Nat. Melbourne 34 1917 (22-24). 24

**Shimer, H. W.** Post-glacial history of Boston. P. Amer. Acad. Arts Sci. 53 1918 (441-463). 25

**Smith, G. L.** The palaeontology and stratigraphy of the Upper Carboniferous of Iowa. Proc. Iowa Acad. 22 1915 [1916] (273-283). 26

**Smith, G. L.** Contributions to the geology of south-western Iowa. Proc. Iowa Acad. 23 1916 (77-89). 27

**Walkom, A. B.** *Fenestella* and *Polyppora* (?) in south-eastern Queensland. Proc. R. Soc. Queensland 28 1916 (101-103). 28

**Waters, A. W.** Some collections of the littoral marine fauna of the Cape Verde Islands made by Cyril Crossland, M.A., B.Sc., F.Z.S., in the summer of 1904. *Bryozoa*. London J. Linn. Soc. Zool. 34 1918 (1-45) pls. i-iv. 29

**Waters, A. W.** Some Mediterranean *Bryozoa*. London Ann. Nat. Hist. Ser. 9 2 1918 (96-102) pl. xii. 30

**Yanagi, Naokatsu** and **Okada, Yaichiro.** On a collection of Japanese cheilostomatous *Bryozoa* I. Annot. Zool. Jap. Tokyo 9 1918 (407-429) pl. i [2031]. 31

DEVELOPMENT. 2015  
Regeneration; **Buchner, 6.**

ETHOLOGY. 2019  
Pond life; **Parshad, 23.**

VARIATION. 2023  
Seasonal, *Pectinatella*; **Henchman, 15.**

DISTRIBUTION. 2027

(a) RECENT.

(a) *Marine*.

Arctic; **Nordgaard, 21.**

Scotland; **Chumley, 13.**

Denmark; **Kramp, 17.**

Spain; **Barroso, 2.**

Italy (Adria); **Friedl, 14.**

Mediterranean; **Waters, 30.**

Liberia; **Waters, 29.**

Cape Verde Is.; **Waters, 29.**

Japan; **Yanagi and Okada, 31.**

(b) *Non-Marine*.

Paris; **de Beauchamp, 4.**

Sweden; **Lundblad, 19.**

N. India; **Annandale, 1. Parshad, 23.**

Australia; **Searle, 24.**

(b) FOSSIL.

Carboniferous.

Iowa; **Lees and Thomas, 18.**  
**Smith, 26, 27.**

Cretaceous.

England; **Brydone, 5.**

Maryland; **Bassler, 3.**

Tertiary.

South-west France; **Canu, 10.**

Germany; **Klahn, 16.**

Panama; **Canu and Bassler, 11.**

Queensland; **Walkom, 28.**

Postglacial.

U.S.A. (Boston); **Shimer, 25.**

## II.—SUBJECT INDEX.

GENERAL. 2003

Coll. Gummerus; **Nordgaard, 20.**

STRUCTURE. 2007

Ovicells; **Canu, 7-9.**

Microscopic structure of fossils; **Cayeux, 12.**

(N-5464 p)

## III.—SYSTEMATIC.

*Ascoseciadae* fam. n., *Ascosecia* gen. n. type *Zonopora ligeriensis*, CANU Bull. Soc. géol. 17 p. 347.

*Bowerbankia pustulosa* var. n. *alternata* C. Verde Is., WATERS J. Linn. Soc. 34 p. 41.

†*Bracebridgia ogivalis* sp. n. France Tertiary, CANU Bull. Soc. géol. 17 p. 359.

*Bugula birostrata* sp. n., *pugeti* var. n. *umbelliformis*, *scaphoides* var. n. *constricta*, Japan, YANAGI & OKADA Annat. Zool. Jap. 9 pp. 407-429.

*Caberea megaceras* sp. n., *rudis* var. n. *minor*, Japan, YANAGI & OKADA Annot. Zool. Jap. 9 1918 pp. 407-429.

*Callopora aurita* var. n. *norwegica*, NORDGAARD Tromsø Mus. Aaarsh. 40 p. 46.

†*Cellepora* ? *diastoides* sp. n. England Cretaceous, BRYDENE Geol. Mag. 5 p. 98.

*Crisia* spp. discussed, *denticulata* var. n. *verdensis* p. 27, *vincentensis* sp. n. Cape Verde Is. p. 29, WATERS J. Linn. Soc. 34.

*Diapereciadae* fam. n., *Diaperaecia* gen. n. (?) type *Entalophora intricaria*, CANU Bull. Soc. géol. 16 p. 329.

†*Entalophora* sp., KLAHN 16.

*Flustra simplex* var. n. *kishikaensis* Kamschatka OKADA Dobuts. Z. 30 pp. 119-124.

*Hippoporella* gen. n., Zool. Rec. 1917, attributed by mistake to LEVINSEN, should have ref., CANU Rev. Crit. Pal. 21 1917 p. 36.

*Kinetoskias mitsukurii* sp. n. Japan, YANAGI & OKADA Annot. Zool. Jap. 9 pp. 407-429.

*Lagenipora ignota*, WATERS 29.

*Lekythopora santanderensis* sp. n. Spain, BARROSO Boll. R. Soc. esp. Hist. Nat. 18 p. 307.

*Lepralia bifurcata* Capri p. 96, *oranensis* Oran & Liberia p. 101, spp. n., WATERS Ann. Mag. Nat. Hist. 2.

*Lichenopora irregularis* ovicells, var. n. *composita*, WATERS J. Linn. Soc. 34 pp. 33-38.

*Macroeciadae* fam. n., *Macroecia* gen. n. (?) type *Diastopora lamellosa*, CANU Bull. Soc. géol. 16 p. 328.

*Mecynoseciadae* fam. n., *Mecynosecia* gen. n. (?) type *Entalophora proboscidea*, CANU Bull. Soc. géol. 16 p. 326.

*Membranipora quadricornuta* sp. n. C. Verde Is., WATERS J. Linn. Soc. 34 p. 9.

†*Membranipora seafordensis* p. 98, *multiflssa*, *sevingtonensis* p. 99, *sandalina* p. 100, spp. n. England Cretaceous, BRYDENE Geol. Mag. 5.

†*Membraniporella altonensis*, *shawfordensis* p. 1, *bedhamptonensis* p. 2, *trimensis*, *weybourneensis* p. 3, spp. n. England Cretaceous, BRYDENE Geol. Mag. 5.

†*Membraniporina dimorphocella* sp. n. France Tertiary, CANU Bull. Soc. géol. 17 p. 351.

*Menipea unyoi* sp. n. Kamschatka OKADA Dobuts. Z. 30 119-124.

*M. longispinosa*, *sympodia* spp. n. *sympodia* var. n. *sagamiensis*, Japan, YANAGI & OKADA Annot. Zool. Jap. Tokyo 9 1918 pp. 407-429.

†*Mentzelia kawhiana* sp. n. New Zealand Trias, TRECHMANN Q.J. Geol. Soc. 73 p. 228.

*Microecia* gen. n. (?) type *Berenicea sarniensis*, CANU Bull. Soc. géol. 16 p. 326.

†*Nellia ampla* sp. n. France Tertiary, CANU Bull. Soc. géol. 17 p. 351.

†*Ogivalina mutabilis* sp. n. Panama Tertiary, CANU & BASSLER U.S. Nat. Mus. Bull. 103 p. 117.

*Oncouseciadae* fam. n., *Oncousecia* gen. n. (?) type *Tubulipora lobulata*, CANU Bull. Soc. géol. 16 p. 325.

*Parascosecia* gen. n. for *Sparsicavea*, spp. unnamed, CANU Bull. Soc. géol. 17 p. 347.

*Partetrocycloecia* gen. n. for *Heteropora* spp. unnamed, CANU Bull. Soc. géol. 17 p. 346.

*Pedicellina hirsuta*, WATERS 29.

*Plagioeciadae* fam. n., *Plagioecia* gen. n. (?) type *Diastopora patina*, CANU Bull. Soc. géol. 16 p. 327.

*Plumatella punctata*, DE BEAUCHAMP  
4.

*Porella marukawai* sp. n. Kamschatka,  
OKADA Dobuts, Z. 30 pp. 376-384.

*Prosthenocia* gen. n. (?) type *Repto-*  
*tubigera lateralis*, CANU Bull. Soc. géol.  
16 p. 327.

†*Pseudostege concursa* sp. n. England  
Cretaceous, BRYDONE Geol. Mag. 5  
p. 97.

*Schizoporella porelliformis* Africa p.  
15, *trichotoma* C. Verde Is. p. 19, spp. n.  
WATERS J. Linn. Soc. 34.

*Scrupocellaria tridentata* sp. n. C.  
Verde Is., WATERS J. Linn. Soc. 34 p. 7.

*S. aviculariae* sp. n. Japan, Yanagi  
& OKADA Annot. Zool. Jap. 9 1918 pp.  
407-429.

†*Steganoporella defixa* sp. n. France  
Tertiary, CANU Bull. Soc. géol. 17 p.  
354.

†*Stichoporina tuberosa* sp. n. Panama  
Tertiary, CANU & BASSLER U.S. Nat.  
Mus. Bull. 103 p. 121.

*Tetrocycloeciadae* fam. n., *Tetro-*  
*cyclocia* gen. n. type *Heteropora dich-*  
*toma*, CANU Bull. Soc. géol. 17 p. 346.

†*Tubucellaria aquitanica* sp. n. France  
Tertiary, CANU Bull. Soc. géol. 17 p.  
358.



# VIII. MOLLUSCA

ARRANGED BY

H. B. PRESTON.

## CONTENTS

	PAGE
I. TITLES ... ..	5
II. SUBJECT INDEX:—	
General = 2203:—	
Biography ... ..	} 21
Bibliography ... ..	
Ethno-Conchology... ..	
Local Lists* ... ..	
Museums, Collections, Expeditions ... ..	
Nomenclature ... ..	
Technique ... ..	
Miscellanea... ..	
Structure = 2207:—	
General ... ..	} 21
Shell ... ..	
Alimentary System, Radula and Jaws ... ..	
Reproductive Organs ... ..	
Sense Organs ... ..	
Physiology = 2211:—	
General ... ..	} 22
Glandular Secretions, Pigments ... ..	
Digestive Organs ... ..	

\* Under this heading are included nominal rolls of local fauna, containing no note of sufficient importance for inclusion in the Systematic Index.

## Development = 2215 :—

General	...	...	...	...	...	...	...	} 22
Oogenesis and Ovum	...	...	...	...	...	...	...	
Spermatogenesis and Spermatozoon	...	...	...	...	...	...	...	
Embryology	...	...	...	...	...	...	...	

## Ethology = 2219 :—

General	...	...	...	...	...	...	...	} 22
Movements, Locomotion	...	...	...	...	...	...	...	
Enemies, Defence and Protection	...	...	...	...	...	...	...	
Erosion	...	...	...	...	...	...	...	
Feeding Habits	...	...	...	...	...	...	...	
Breeding Habits	...	...	...	...	...	...	...	
Behaviour under certain conditions	...	...	...	...	...	...	...	
Habitat	...	...	...	...	...	...	...	
Boring and Burrowing Habits	...	...	...	...	...	...	...	
Acclimatisation, etc.	...	...	...	...	...	...	...	
Hibernation and Aestivation	...	...	...	...	...	...	...	
Parasitism, Commensalism, Parasites, etc.	...	...	...	...	...	...	...	
Evolution	...	...	...	...	...	...	...	
Luminosity	...	...	...	...	...	...	...	
Economics	...	...	...	...	...	...	...	

## Variation and Aetiology = 2223 :—

Teratology, Phylogeny and Relationship	...	...	...	...	...	...	...	} 23
Evolution	...	...	...	...	...	...	...	

## Distribution = 2227 :—

General	...	...	...	...	...	...	...	23
---------	-----	-----	-----	-----	-----	-----	-----	----

## (a) Recent :—

## (a) Marine :—

North Atlantic Ocean, Caribbean Sea and Gulf of Mexico	...	...	...	...	...	...	} 23
Mediterranean Sea, Black Sea	...	...	...	...	...	...	
South Atlantic Ocean...	...	...	...	...	...	...	
Indian Ocean, Red Sea	...	...	...	...	...	...	
Malaysia	...	...	...	...	...	...	
Pacific Ocean	...	...	...	...	...	...	
Southern Ocean	...	...	...	...	...	...	

## (β) Non-Marine:—

Denmark = 2227 <i>da</i> ... ..	} 23
Norway and Sweden... ..	
British Islands = 2227 <i>de</i> ... ..	
France = 2227 <i>df</i> ... ..	
Spain and Portugal = 2227 <i>dg</i> ... ..	
Italy = 2227 <i>dh</i> ... ..	
Switzerland = 2227 <i>di</i> ... ..	
Asiatic Russia = 2227 <i>ea</i> ... ..	
British India, etc. = 2227 <i>ef</i> ... ..	
Malaysia, Philippine Islands, etc. = 2227 <i>eg</i> ... ..	
Persia = 2227 <i>eh</i> ... ..	
French Indo-China, Tonkin, Annam, etc. = 2227 <i>ed</i> ... ..	
China = 2227 <i>eb</i> ... ..	
Japan = 2227 <i>ec</i> ... ..	
Asiatic Turkey = 2227 <i>ei</i> ... ..	} 24
N. Africa = 2227 <i>fa</i> ... ..	
W. Africa = 2227 <i>fd</i> ... ..	
E. and C. Africa, etc. = 2227 <i>ff</i> ... ..	
S. Africa = 2227 <i>fg</i> ... ..	
Mauritius ... ..	
Alaska = 2227 <i>gi</i> ... ..	
Canada = 2227 <i>gb</i> ... ..	
United States = 2227 <i>gf</i> ... ..	
N.E. United States = 2227 <i>gg</i> ... ..	
S.E. United States = 2227 <i>gh</i> ... ..	
W. United States = 2227 <i>gi</i> ... ..	
Mississippi River System = 2227 <i>gk</i> ... ..	
Mexico = 2227 <i>gl</i> ... ..	
West Indies = 2227 <i>hc</i> ... ..	
Brazil = 2227 <i>hg</i> ... ..	
Argentina ... ..	
W. Australia = 2227 <i>ih</i> ... ..	

## (b) Fossil:—

General ... ..	} 24
Quaternary ... ..	
Cainozoic ... ..	
Pleistocene ... ..	
Tertiary ... ..	
Pliocene ... ..	} 25
Miocene ... ..	
Oligocene ... ..	
Eocene ... ..	
Mesozoic ... ..	
Cretaceous ... ..	





## I.—TITLES.

- Annandale, N.** Freshwater shells from Mesopotamia. Rec. Ind. Mus. Calcutta 15 1918 (159-170) pl. xx. 1
- Annandale, N.** Aquatic molluscs of the Inle Lake and connected waters. Rec. Ind. Mus. Calcutta 14 1918 (103-182) pls. x-xix. 2
- Annandale, N.** The fauna of the Inle Lake. Summary of results. Rec. Ind. Mus. Calcutta 14 1918 (195-212) 3
- Annandale, N.** A new species of *Taia* from the Chindwin Valley, Upper Burma. Rec. Ind. Mus. Calcutta 14 1918 (213-214). 4
- Annandale, N.** Zoological results of a tour in the Far East. Edited by N. Annandale, D.Sc., F.A.S.B. Part V. Mollusca of the Tai-Hu. Calcutta, Mem. As. Soc. Beng. 6 1918 (301-320) pl. x. 5
- [Anon.] Leeds Naturalists' Club. Hamlyn's Menagerie Mag. London. John D. Hamlyn, 221, St. George's Street, London, E. 1. 4 1918 (15) 6
- [Anon.] Alfred Merle Norman. London. Mus. J. 18 1918 (98-100). 7
- [Anon.] Lacustrine fauna in the Far East. Nature, London 102 1918 (116) 8
- [Anon.] The learning process in a snail. Nature, London 100 1918 (374) 9
- [Anon.] South African Shells. S. Afric. J. Sci., Cape Town 14 1917 1918 (520) 10
- [Anon.] Louis Pope Gratacap. Nautilus Boston Mass. 31 1918 (135-136). 11
- [Anon.] Mollusca [note on] Trans. N. Stafford Field Club 52 1918 (116). 12
- Arey, L. B. and Crozier, W. J.** The "Homing Habits" of the Pulmonate Mollusk *Onchidium*. Washington D.C. Proc. Acad. Sci. 4 1918 (229-321). 13
- Ashby, E.** A review of the Australian representatives of the genus *Ischnoradsia*. Adelaide Trans. Proc. R. Soc. S. Aust. 42 1918 (62-64). 14
- Ashby, E.** Monograph on the genus *Stenochiton* (Order *Polyplacophora*), with descriptions of two new species. Adelaide Trans. Proc. R. Soc. S. Aust. 42 1918 (65-78) pls. xiii-xiv. [With inset giving errors and corrections at p. 65.] 15
- Ashby, E.** Notes on South Australian *Polyplacophora*, with additions to the Fauna; together with a list of Australian *Polyplacophora*, showing their distribution in the Australian States. Adelaide Trans. Proc. R. Soc. S. Aust. 42 1918 (79-87). 16
- Baker, F. C.** The relation of shell-fish to fish in Oneida Lake, New York. Syracuse N.Y. New York State Coll. Forestry 17 1918 (1-34) pls. 17
- Baker, F. C.** The productivity of invertebrate fish food on the bottom of Oneida Lake with special reference to mullusks. Syracuse N.Y. New York State Coll. Forestry 18 1918 (1-235) pls. 18
- Baker, F. C.** Description of a new variety of freshwater mussel from Oneida Lake, N.Y. Syracuse Univ. N.Y. Tech. Pub. No. 9 N.Y. State Coll. For. 18 1918 (247-248). 19
- Baker, F. C.** A molluscan garden pest. Science New York N.Y. 47 1918 (391-392). 20
- Baker, F. C.** Post-glacial Mollusca from the Marls of Central Illinois. J. Geol. Chicago, Ill. 26 1918 (659-671). 21

- Baker, F. C.** Notes on Nidification of *Gillia* and *Ammicola*. Nautilus Boston Mass. 32 1918 (19-23) pl. ii. 22
- Baker, F. C.** Further notes on the Mollusca of Oneida Lake, New York; the Mollusks of Lower South Bay. Nautilus Boston Mass. 31 1918 (81-93). 23
- Barber, M. D.** *Helix nemoralis* in Knoxville, Tenn. Nautilus Boston Mass. 31 1918 (107). 24
- Bartsch, P.** New marine shells from Panama. Washington D.C. Proc. U.S. Nation. Mus. 54 1918 (571-575) pl. 88. 25
- Bartsch, P.** Two new land shells of the *Epiphragmophora traskii* group. Washington D.C. Proc. U.S. Nation. Mus. 54 1918 (523-524) pl. 83. 26
- Bartsch, P.** A new West Indian fossil land shell. Washington D.C. Smithsonian Inst. Proc. U.S. Nation. Mus. 54 1918 (605-606) pl. 93. 27
- Bartsch, P.** Two new species of fossil marine shells from California. Washington D.C. Proc. Biol. Soc. 31 1918 (79-80). 28
- Bartsch, P.** A new fossil Pyramidellid Mollusk from the West Coast of America. Washington D.C. Proc. Biol. Soc. 31 1918 (81-82). 29
- Bartsch, P.** A new marine mollusk of the genus *Cerithiopsis* from Florida. Washington D.C. Proc. Biol. Soc. 31 1918 (135-136). 30
- Bartsch, P.** Four new mollusks from the Philippine Islands. Washington D.C. Proc. Biol. Soc. 31 1918 (153-154). 31
- Bartsch, P.** New marine mollusks from the Philippine Islands. Washington D.C. Proc. Biol. Soc. 31 1918 (181-188). 32
- Bartsch, P.** Three new Philippine, Island land shells. Washington D.C. Proc. Biol. Soc. 31 1918 (199-202). 33
- Bartsch, P.** Report on the Bahama Cerions planted on the Florida Keys. Washington D.C. Carnegie Inst. Year Book No. 16 1917 1918 (170-171). 34
- Bartsch, P.** New land shells from the Philippines. Nautilus Boston Mass. 32 1918 (15-16). 35
- Bartsch, P.** The status of *Loboa brunoi* von Ihering. Nautilus Boston Mass. 32 1918 (53-54) pl. iv. fig. 7. 36
- Beder, R. and Windhausen, A.** Sobre la Presencia del Devonico en la Parte Media de la República del Paraguay. Bol. Ac. Nac. Ci. Cordoba (Repub. Argentina) 23 1918 (255-262). 37
- Beeston, H.** Method of collecting minute mollusca. Naturalist London 1918 1918 (377-379). 38
- Bell, A.** The Suffolk Boxstones and their probable age. Geol. Mag. London Dec. vi. 5 1918 (15-21) pls. iii-iv. 39
- Bellini, R.** Alcune note sui depositi fossiliferi della Regione Flegrea. Napoli, Boll. Soc. Nat. 10 1918 (98-108). 40
- Benjamin, M.** Richard Rathbun. Science New York. N.Y. 48 1918 (231-235). 41
- Benson, W. N.** The geology and Petrology of the Great Serpentine Belt of New South Wales. Part vi. Appendix. The Attunga District, Sydney, N.S.W. Proc. Linn. Soc. N. S. Wales 42 1917 1918 (393-700). 42
- Berry, S. S.** A further note on the genus *Trachydermon*. Nautilus Boston Mass. 32 1918 (12). 43
- Berry, S. S.** Note on a preoccupied name in *Polyplacophora*. Nautilus Boston Mass. 31 1918 (144). 44
- Best, E.** Shell-Middens of the Wellington District. Wellington, New Zealand. J. Sci. Tech. 1 1918 (84-90). 45
- Bollinger, G.** Land-Mollusken von Celebes Ausbeute der, in den Jahren 1902 und 1903 ausgeführten zweiten Celebes-Reise der Herren Dr. P. und Dr. F. Sarasin. Rev. Suisse Zool. Genève 26 1918 (309-340) pl. ii. 46
- Bonarelli, G.** Nuevas contribuciones geopaleontológicas argentinas. Physis, Buenos Aires 4 1918 (351-352). 47
- Bottazzi, F.** Ricerche sulla "Ghiandola salivare posteriore" dei Cefalopodi. Nota I. Roma, Rend. Acc. Lincei. 27 1918 (191-196). 48
- Bottazzi, F.** Ricerche sulla "Ghiandola salivare posteriore" dei Cefalopodi. Nota II. Roma, Rend. Acc. Lincei 27 1918 (227-230). 49

- Boycott, A. E.** The habitats of freshwater mollusca. J. Conch. Leeds 15 1918 (240-252). 50
- Branson, E. B. and Greger, D. K.** Amnsden formation of the East Slope of the Wind River Mountains of Wyoming and its Fauna. Washington D.C. Geol. Soc. 29 1918 (309-326) pl. xviii-xix. 51
- Bryan, G. H.** Preparing "Palates" of mollusca. Nature London 101 1918 (464) 52
- Bryan, E. L. vide Pilsbry, H. A.**
- Buckman, S. S.** Jurassic Chronology: I. Lias. London Q. J. Geol. Soc. 73 1918 (257-327) pls. xxvi-xxxi. 53
- Buckman, S. S.** Yorkshire Type Ammonites. Yorks. Type Ammon. London W. Wesley & Son, 15 1918. 15 16 17 1918 (xi-xiv 109b-119b, 109c-119c) pls. cix, cx, cxIA, cxIC, cxxiv, cxxvi, cxii, cxiii, cxivA, cxivB, cxv, cxvIA-cxvIC, cxvIIA, cxvIIB, cxvIIIA, cxvIIIB, cxix, cxxvii, cxxviii, cxxix. 54
- Bülow, v.** Über einige abnorme Formen bei den Ammoniten. Berlin, Zs. D. Geol. Ges. 69 1917 1918 (132-139). 55
- Bustmante, M.** El petróleo en la Republica Mexicana. Estudio geológico economico sobre los yacimientos petrolíferos mexicanos. Mexico Bol. Geol. 35 pt. I. 1917 1918 (1-216). 56
- Cámara, M. S.** San Miguel de la. Nota geologica acerca de una extensa formación de Turba descubierta recientemente en Gumiel de Izan. Madrid, Bol. Soc. Esp. Hist. Nat. 18 1918 (227-234). 57
- Carter, C. S.** *Paludestrina minuta* in Lincs. Naturalist, London 1918 1918 (78). 58
- Carter, C. S.** *Helicella gigaxii* in Lincolnshire. Naturalist, London 1918 1918 (32). 59
- Carter, C. S.** Thrush feeding on *Limnaca stagnalis*. Naturalist, London 1918 1918 (24). 60
- Carter, C. S.** Holocene shells at Ruckland, near Louth, Lincolnshire. Naturalist, London 1918 1918 (119-123). 61
- Cawston, F. G.** Bilharziasis in Natal. Parasitol. Cambridge 11 1918 (83-93). 62
- Cawston, F. G.** The Cercariae of the Transvaal. Parasitol. Cambridge 11 1918 (94-97). 63
- Cawston, F. G.** The possible intermediary hosts of *Schistosoma* in South Africa. J. Trop. Med. London 21 1918 (69-70). 64
- Chace, E. P.** Egg-cases of some local mollusca. Lorquimia, Los Angeles Cal. 1 1916 (9-10). 65
- Chace, E. P.** List of shells collected at Anaheim Bay and vicinity. Nautilus Boston Mass. 31 1918 (103-105). 66
- Chadwick, G. H.** Stratigraphy of the New York Clinton. Washington D.C. Geol. Soc. 29 1918 (327-368). 67
- Chapman, F.** Report on a collection of Cainozoic fossils from the Oil-fields of Papua. Melbourne Bull. Ter. Papua 5 1918 (8-17). 68
- Checcia-Rispoli, G.** L'Eocene ed il Miocene di Sciaccia. Roma, Rend. Acc. Lincei 27 1918 (252-255). 69
- Checcia-Rispoli, G.** Sull' Estensione del Miocene nella Regione Settentrionale del Promontorio Garganico. Roma Boll. Soc. geol. ital. 36 (1917) 1918 (lxxxii-lxxxvii). 70
- Christensen, S.** De danske skalbærende Havsnegle (Gastropoder). København Flora og Fauna 1918 1918 (154-158) 71
- Cisneros, D. J. de.** Especies nuevas o poco frecuentes en la fauna del Secundario de España. Madrid Bol. Soc. Esp. Hist. Nat. 18 1918 (223-226). 72
- Cisneros, D. J. de.** Especies nuevas o poco conocidas de la fauna fósil de España. Madrid, Bol. Soc. Esp. Hist. Nat. 18 1918 (277-280). 73
- Clapp, W. F.** A new *Priotrochatella* from the Isle of Pines, Cuba. Nautilus Boston Mass. 32 1918 (47-51) pl. iv. 74
- Clapp, G. H.** New Southern forms of *Carychium* and *Thysanophora*. Nautilus Boston Mass. 31 1918 (73-75) pl. viii. 75
- Clark, B. L.** Meganos Group, a newly recognized Division in the Eocene of California. Washington D.C. Bul. Geol. Soc. 29 1918 (281-296). 76

- Clark, H. W. *vide* Evermann, B. W.
- Cobb, P. H. Autonomous responses of the labial palps of *Anodonta*. Washington D.C. Proc. Acad. Sci. 4 1918 (234-235). 77
- Cockerell, T. D. A. Some Philippine snails. Nautilus Boston Mass. 32 1918 (58-59). 78
- Cockerell, T. D. A. *Polygyra albolabris maritima* in Massachusetts. Nautilus Boston Mass. 31 1918 (108). 79
- Cockerell, T. D. A. *Helix nemoralis* at Knoxville, Tennessee. Nautilus Boston Mass 31 1918 (133-134). 80
- Coe, W. R. Richard Rathbun and his contributions to zoology. Amer. J. Sci. New Haven. Conn. 46 1918 (757-762). 81
- Coen, G. S. Di un nuovo *Fusus* adriatico. Milano, Atti. Soc. ital. sc. nat. 56 1918 (317-319). 82
- Colgan, N. On the reproduction of the common garden snail, *Helix aspersa*. Irish Nat., Dublin 27 1918 (165-170). 83
- Colosi, G. Note sui Pteropodi Tecosomi. Monitore zool. ital. Firenze 29 1918 (79-87). 84
- Colton, H. S. Self fertilization in the air breathing Pond Snails. Biol. Bull. Wood's Hole Mass. 35 1918 (48-49). 85
- Cooke, A. H. On the radula of the genus *Acanthina*, G. Fischer. London Proc. Malac. Soc. 13 1918 (6-11). 86
- Cooke, A. H. On the taxonomic position of *Zemira*, H. & A. Adams. London Proc. Malac. Soc. 13 1918 (12-14). 87
- Cooper, J. E. *Physa acuta* Drap. in Middlesex. J. Conch. Leeds 15 1918 (233). 88
- Cooper, J. E. *Paludestrina jenkinsi* Smith in Bucks. J. Conch. Leeds 15 1918 (275). 89
- Corbett, H. H. Doncaster Natural History Notes for 1917. Naturalist London 1918 1918 (262-263). 90
- Cort, W. W. A new Cercariaeum from North America. Urbana, J. Parasitol 5 1918 (86-91) pl. vii. 91
- Cort, W. W. Adaptability of Schistosome Larvae to new Hosts. Urbana J. Parasitol. 4 1918 (171-173). 92
- Cossmann, M. M. Questions de Nomenclature Rev. crit. paléozool. Paris 22 1918 (41-42). 93
- Cotter, G. de P. The geotectonics of the Tertiary Irrawaddy Basin. Calcutta J. As. Soc. Beng. 14 1918 (409-420). 94
- Couffon, O. Le Callovien du Chalet Commune de Montreuil-Bellay (M.-et-L.) Angers, Bul. Soc. étud. Sci. 47 1917 1918 (65-131). 95
- Craifaleanu, A. D. Studi sui fermenti degli animali marini. *Mollusca* II. Fermenti proteolitici dell' *Eledone moschata* e dell' *Octopus macropus*. Napoli, Boll. Soc. nat. 10 1918 (3-19). 96
- Craifaleanu, A. D. Studi sui fermenti degli animali marini. III. Fermenti proteolitici delle *Aplysiae limacina* e *depilans*. Napoli, Boll. Soc. Nat. 10 1918 (79-97). 97
- Crampton, G. E. Existing Invertebrates. New York. N.Y. Amer. Mem. Nat. Hist. Rep. 1917 1918 (68-72). 98
- Crick, G. C. Notes on Chalk Cephalopoda collected by Mr. G. E. Dibley. London Proc. Geol. Ass. 29 1918 (94-96) pl. ix. 99
- Crozier, W. J. Growth and duration of life of *Chiton tuberculatus*. Washington D.C. Proc. Acad. Sci. 4 1918 (322-325). 100
- Crozier, W. J. Growth of *Chiton tuberculatus* in different environments. Washington D.C. Proc. Acad. Sci. 4 1918 (325-328). 101
- Crozier, W. J. *vide* Arey, L. B.
- Cumming, H. S. Investigation of the pollution and sanitary conditions of the Potomac watershed, with special reference to self purification and the sanitary condition of shell fish in the lower Potomac River. Washington, Treas. Dept. U.S. Publ. Hlth. Serv. Hyg. Lab. Bull. No. 104 1916 (1-239) pls. 102

- Dall, W. H. Notes on the nomenclature of the mollusks of the family *Turritidae*. Washington D.C. Smithsonian Inst. U.S. Nation. Mus. Proc. 54 1918 (313-333). 103
- Dall, W. H. Notes on Chrysodomus and other mollusks from the North Pacific Ocean. Washington D.C. Smithsonian Inst. Proc. U.S. Nation. Mus. 54 1918 (207-234). 104
- Dall, W. H. Description of new species of shells chiefly from Magdalena Bay, Lower California. Washington D.C. Proc. Biol. Soc. 31 1918 (5-8). 105
- Dall, W. H. Changes in and additions to molluscan nomenclature. Washington D.C. Proc. Biol. Soc. 31 1918 (137-138). 106
- Dall, W. H. Notes on the genus *Trachydermon* Carpenter. Nautilus. Boston Mass. 32 1918 (1-3). 107
- Dall, W. H. Pleistocene fossils of Magdalena Bay, Lower California, Collected by Charles Russell Orcutt. Nautilus Boston Mass. 32 1918 (23-26). 108
- Dantan, J. L. La biologie des huîtres et l'industrie ostréicole. Bul. Inst. Ocean. Monaco. 341 1918 (1-16). 109
- Davies, W. H. *Neritina fluviatilis* at Chester. J. Conch. Leeds 15 1918 (307). 110
- Dean, J. D. The clausium in *Alopiia* a sub-genus of *Clausilia*. J. Conch. Leeds 15 1918 (262-267) pls. 5-6. 111
- Degrange-Touzain. L'argile de Soulac et l'argile du Gulp et de Montalivet. Bordeaux, Proc.-verb. soc. linn. 70 1917-1918 1918 (92-103). 112
- Deinse, A. B. van. Over *Malleus vulgaris* op Ameland gevonden en eenige opmerkingen over de schelpenfauna aldaar. [Über *Malleus vulgaris*, auf Ameland gefunden nebst einigen bemerkungen über die dortige Muschelfauna.] Leiden. Zool. Med. 4 1918 (254-255). 113
- Depéret, C. Essai de coordination chronologique générale des temps quaternaires. Paris, C.R. Acad. sci. 167 1918 (418-422). 114
- Dibley, G. E. Additional notes on the Chalk of the Medway Valley, Gravesend, West Kent, North East Surrey, and Grays (Essex). London Proc. Geol. Ass. 29 1918 (68-93) pls. vii-x. 115
- Dietrich, W. O. Zur unteren Kreide von Mombassa (Ostafrika) und über *Exogyra Minos* Coq. Centralbl. Min. Stuttgart 1918 1918 (247-252). 116
- Doello-Jurado, M. Nota preliminar sobre la presencia de algunas especies de la fauna magallánica fiesto a Mar del Plata Physis Buenos Aires 4 1918 (119-125). 117
- Doello-Jurado, M. Dos nuevas especies de moluscos marinos. Physis, Buenos Aires 4 1918 (259-273). 118
- Dollfus, G. F. Paléontologie à l'île Célèbes de M. E. C. Abendanon. E. C. Abendanon. Geologische en geografische door kruisingen van Midden-Celebes. (1909-1910). Lieden (E. J. Brill) 3 1917 (959-1016) 4 Taf. 119
- Dollfus, G. F. and Marty, P. Découverte d'un gisement fossilifère dans le Cantal. Paris C.R. Acad. sci. 167 1918 (534-535). 120
- Dreger, J. vide Toppner, W. v.
- Dumble, E. T. Geology of the Northern End of the Tampico Embayment Area. San Francisco, Proc. Cal. Acad. Sci. 8 1918 (113-156) pls. iii-vi. 121
- Dunbar, C. O. Stratigraphy and Correlation of the Devonian of Western Tennessee. Amer. J. Sci. New Haven Conn. 46 1918 (732-756). 122
- Elliott, W. T. Note on the malacophagous propensities of *Helix nemoralis*, Linn. London Proc. Malac. Soc. 13 1918 (20). 123
- Ellis, M. M. and Keim, M. Notes on the Glochidia of *Strophitus edentulus pavonius* (Len) from Colorado. Nautilus Boston Mass. 32 1918 (17-18). 124
- Emery, W. B. The Green River Desert Section, Utah. Amer. J. Sci. New Haven Conn. 46 1918 (551-577). 125

- Evans, W. Insects and other Terrestrial Invertebrates from the Bass Rock. Scot. Nat. Edinburgh 1918 1918 (259-265 [Mollusca at p. 265]). 126
- Evans, W. *Pisidium personatum*, Malm. in Mid-Perth. Scot. Nat. Edinburgh 1918 1918 (71). 127
- Evermann, B. W. and Clark, H. W. The Unionidae of Lake Maxinkuckee. Indianapolis Ind. Proc. Acad. Sci. 1917 1918 (251-285). 128
- Faust, E. C. Studies on Illinois Cercariae. Urbana J. Parasitol. 4 1918 (93-110) pls. i-ii. 129
- Ferriss, J. H. Camping in the Sierras and the Desert. Nautilus Boston Mass. 32 1918 (3-9) pl. i. 130
- Ferriss, J. H. *vide* Pilsbry, H. A.
- Firth, J. D. *vide* Hargreaves, J. A.
- Foerste, A. F. The Richmond Faunas of Little Bay De Noquette, in Northern Michigan. Ottawa Nat. 31 1917 1918 (121-127) pls. iv.-vi. 131
- Foerste, A. F. Upper Ordovician Formations in Ontario and Quebec. Ottawa Canada Dept. Mines Geol. Surv. Mem. 83 1916 (I-VIII 1-279). 132
- Frenguelli, J. Sobre un *Borus* enano procedente de la Sierra alta de Córdoba. Córdoba (Argentina) Bol. Ac. Nac. Ci. Córdoba (Repub. Argentina) 23 1918 (228-231). 133
- Gagel, C. Über zwei fossilführende Interglaziale in Wolhynien. Centralbl. Min. Stuttgart 1918 1918 (311-318). 134
- Gatenby, J. B. The Cytoplasmic Inclusions of the Germ-Cells. Part IV. Notes on the Dimorphic Spermatozoon of *Paludina* and the Giant Germ-Nurse Cells of *Testacella* and *Helix*. Q. J. Microsc. Sci. London 63 1918 (401-443) pls. xxv-xxvi. 135
- Gentil, L. Sur les dépôts néogènes du détroit Nord-Bétique (Espagne méridionale). Paris C.R. Acad. sci. 167 1918 (299-302). 136
- Gentil, L. Sur l'âge du détroit Sud-Rifain. Paris C.R. Acad. sci. 166 1918 (418-420). 137
- Gerber, E. Beiträge zur kenntnis der Gattungen *Ceromya* und *Ceromyopsis*. Mem. Soc. Pal. Suisse Genève 43 1918 (1-24) pl. i. 138
- Germain, L. Contributions à la Faune Malacologique de l'Afrique Equatoriale. XLIX. Sur la *Galatea radiata* de Lamarck. Bull. Mus. Paris 1918 1918 (125-136) pl. iii. 139
- Germain, L. Contributions à la Faune Malacologique de l'Afrique Equatoriale. L. Une nouvelle *Véronicelle* de l'Afrique Central française (*Veronicella Chevalieri* n. sp.). Bull. Mus. Paris 1918 1918 (137-141). 140
- Germain, L. Contributions à la Faune Malacologique de l'Afrique Equatoriale. LI. Catalogue des espèces appartenant au genre *Fischeria* Bernardi. Bul. Mus. Paris 1918 1918 (173-180). 141
- Germain, L. Contributions à la Faune Malacologique de l'Afrique Equatoriale. LII. Sur quelques mollusques terrestres de Zanzibar. Bull. Mus. Paris 1918 1918 (251-270). 142
- Germain, L. Contributions à la Faune Malacologique de l'Afrique Equatoriale. LIII. Mollusques terrestres recueillis par M. G. Vasse dans l'Afrique Orientale Portugaise. Bull. Mus. Paris 1918 1918 (358-370). 143
- Germain, L. Contributions à la Faune Malacologique de l'Afrique Equatoriale. LIV. Mollusques recueillis par M. Ch. Alluaud dans le Soudan Anglo-Egyptien. Bull. Mus. Paris 1918 1918 (433-454). 144
- Germain, L. Contributions à la Faune Malacologique de Madagascar. Bul. Museum Paris 1918 1918 (34-42 43-54 181-186 516-524). 145
- Germain, L. Mollusques terrestres et fluviatiles de l'Asie Antérieure. Bul. Muséum Paris 1918 1918 (271-283) pl. v. 146
- Ghosh, E. On the anatomy of certain Indian *Unionidae*. Rec. Ind. Mus. Calcutta 15 1918 (109-122) pl. xvi. 147
- Godwin-Austen, H. H. New species of slug-like molluscs belonging to the family *Zonitidae* from the Dawna Hills, Tenasserim, collected by Dr. F. H. Gravely. Rec. Ind. Mus. Calcutta 15 1918 (149-151) pl. xviii. 148

- Godwin-Austen, H. H.** Zoological results of the Abor Expedition 1911-12. Part XII. XLIX. Mollusca IX. Rec. Ind. Mus. Calcutta 8 1918 (601-621). 149
- Godwin-Austen, H. H.** Zoological results of the Abor Expedition 1911-12. Part XI. XLVIII Mollusca VIII. Rec. Ind. Mus. Calcutta 8 1918 (581-600) pls. li-liv. 150
- Greco, B.** Fauna Cretacica dell' Egitto raccolta dal Figari Bey. Parte terza: Lamolibranchiata Fasc. 1°: Considerazione geologiche.—Lamolibranchi del Macstrichtiano e del Coniaciano. Palaeontogr. Italica Pisa 23 1917 (93-161) pls. xiii-xvi [xii-xvi.] 151
- Greger, D. K.** Francis Asbury Sampson. Nautilus Boston Mass. 31 1918 (137-139). 152
- Greger, D. K.** *vide* Branson, E. B.
- Grier, N. M.** New varieties of Naiades from Lake Erie. Nautilus Boston Mass. 32 1918 (9-12). 153
- Gude, G. K.** Description of two new species of land mollusca. London Proc. Malac. Soc 13 1918 (17-18). 154
- Gude, G. K.** On *Everettia klemmanianica*, n.sp., from Borneo. London Proc Malac. Soc 13 1918 (19-20). 155
- Gudex, M. C.** The Succession of Tertiary Beds in the Pareora District, South Canterbury. Wellington Trans & Proc. N. Zeal. Inst. 50 1918 (244-262) 156
- Hadden, N. G.** *Testacella maugei* var. *viridans* Morelet at Porlock Weir in West Somerset. J. Conch. Leeds 15 1918 (288). 157
- Haddon, A. C.** The ethnological value of shells. Nature London 100 1918(482). 158
- Hæberli, A.** Biologische Untersuchungen im Löhrmoos. Ein Beitrag zur Kenntnis der schweizerischen Moorfauna. Rev. Suisse Zool. Genève 26 1918 (147-321). 159
- Hannibal, H.** Jura-Cretaceous Stone-ware and Limneas, supposedly from Arkansas. Science New York N.Y. 48 1918 (578). 160
- Hargreaves, J. A. and Firth, J. D.** Alien mollusca in Yorkshire. Naturalist London 1918 1918 (125-126). 161
- Harmer, S. F.** Canon Alfred Merle Norman, F.R.S. Nature London 102 1918 (188-189). 162
- Harmer, F. W.** The Pliocene Mollusca of Great Britain being supplementary to S. V. Wood's Monograph of the Crag Mollusca. London Palaeont. Soc. 1916 Pt. iii 1918 1918 (303-461) pls. xxxiii-xliv. 163
- Hedley, C.** Mollusca. Proc. R. Geogr. Soc. Australasia S. Australian Branch Adelaide 1916-1917 1918 (1-20) pl. xli. 164
- Hedley, C.** A checklist of the marine fauna of New South Wales. Sydney N.S.W. J.R. Soc. 51 1918 (M1-M120) [Reprint]. 165
- Henderson, J.** On the North American genus *Oreohelix*. London Proc. Malac. Soc. 13 1918 (21-24). 166
- Henderson, J.** A mollusk hunt in Wyoming. Nautilus Boston Mass. 32 1918 (40-47). 167
- Henderson, J.** The nomenclature and systematic positions of some North American fossil and recent mollusks. Nautilus Boston Mass. 32 1918 (60-64). 168
- Henderson, J.** Colorado Mollusk Notes. Nautilus Boston Mass. 32 1918 (71). 169
- Henny, G.** La Géologie des environs de Montreux. Bull. Lab. Geol. Geogr. Phys. Min. Pal. Univ. Lausanne. 23 1918 (1-67). 170
- Herdman, W. A.** The Marine Biological Station at Port Erin being the Thirty-first Annual Report of the Liverpool Marine Biology Committee. Liverpool. Proc. Trans. Biol. Soc. 32 1918 (15-29). 171
- Hidalgo, J. G.** Suplemento a la bibliografía critica malacológica publicada en el tomo XV de las Memorias de la Real Academia de Ciencias. Madrid Rev. Acad. Ci. 16 1918 (309-349). 172
- Hind, W.** On the Distribution of the British Carboniferous Goniatites, with a description of one New Genus and some New Species. Geol. Mag. London Dec. vi 5 1918 (434-450) pl. xvi. 173
- Hirase, S.** Kisei rarui no ichi shu ni tsuite. [On a species of parasitic Gastropod.] Dobuts. Z., Tokyo 30 1918 (300-307, 339-345, 451-457, 490-492). 174

- Hoskins, M. M.** Further experiments on the effect of heat on the eggs of *Cumingia*. Biol. Bull. Woods' Hole Mass. **35** 1918 (260-272) pls. i-ii. **175**
- Howchin, W.** A new locality for Older Tertiary (Miocene) fossiliferous Beds. Adelaide Trans. Proc. R. Soc. S. Austr. **42** 1918 (294-295). **176**
- Howorth, H. H.** The Recent Geological History of the Baltic and Scandinavia and its importance in the Post-Tertiary History of Western Europe. Geol. Mag. London Dec. vi **5** 1918 (354-367, 397-409, 451-461). **177**
- Huggins, H. C.** The Limnææ of the Alpine Lakes in the Glengarriff District, West Cork. Irish Nat., Dublin **27** 1918 (119-128). **178**
- Hurst, C. P.** Notes on Wiltshire mollusca. J. Conch. Leeds **15** 1918 (285-286). **179**
- Iredale, T.** Molluscan nomenclatural Problems and Solutions.—No. 1. London Proc. Malac. Soc. **13** 1918 (28-40). **180**
- Iwakawa, T.** Nihon-juketsu-kyuchu no chukanshukushu taru Miyairi-gai no gakumei to sono fuyugomori no jotai ni tsuite. [On the scientific name and the hibernation of *Katayama nosophora* Robson.] Dobuts. Z., Tokyo **30** 1918 (47-51). **181**
- J., J.** Production in the Sea. Nature London **102** 1918 (216). **182**
- J., C. W.** Henry W. Winkley. Nautilus Boston Mass. **31** 1918 (136-137). **183**
- Jackson, J. W.** *Limnæa glabra* var. *albida* nov. and *Planorbis vortex* var. *albida* nov. J. Conch. Leeds **15** 1918 (288). **184**
- Jackson, J. W.** Thread-spinning in *Physa heterostropha*. J. Conch. Leeds **15** 1918 (288). **185**
- Jackson, J. W.** *Limnæa glabra* in Ireland. Irish Nat., Dublin **27** 1918 (77-79). **186**
- Jackson, J. W.** Lancashire and Cheshire Fauna Committee. Report on the Mollusca. Lancs. Nat. **11** 1918 (69-73). **187**
- Jeannel, R. and Racovitza, E. G.** Biospeologica xxxix Enumeration des grottes visitées 1913-1917 (Sixième serie). Arch. Zool. Paris **57** 1918 (203-470). **188**
- Jehu, T. J.** Rock-boring organisms as agents in coast erosion. Edinburgh. Scot. Geogr. Mag. **34** 1918 (1-11). **189**
- Johansen, A. C.** Bløddyrene i Randers Fjord. The mollusks in the firth of Randers. København, Randers Fjords Naturhistorie, **1918** 1918 (393-444). **190**
- Johansen, F.** Note on invertebrates collected by the Southern Party of the Canadian Arctic Expedition. Ottawa Nat. **32** 1918 (30). **191**
- Johnson, C. W.** The *Avicula candeana* of d'Orbigny, from Bermuda. Nautilus Boston Mass. **32** 1918 (37-39) pl. iii. **192**
- Johnson, C. W.** *Viviparus malleatus* and *contectoides* in Massachusetts. Nautilus Boston Mass. **31** 1918 (107-108). **193**
- Jolliffe, J. E. A.** Note on the var. *fasciata* Taylor of *H. nemoralis* L. J. Conch. Leeds **15** 1918 (284). **194**
- Jones, W. F.** A geological reconnaissance in Haiti. A contribution to Antillean geology. J. Geol. Chicago, Ill. **26** 1918 (728-752). **195**
- Joos, C. H.** *Zonites (Grandipatula) alsatiens* n. sp., eine neue oberceocäne Zonitide. Centralbl. Min. Stuttgart **1918** 1918 (166). **196**
- Joos, C. H.** Vorläufige Mitteilungen über tertiäre Land- und Süßwasser-Mollusken. Centralbl. Min. Stuttgart **1918** 1918 (287-294). **197**
- Jordan, H. J.** Phagoocytose und Resorption bei *Helix pomatia*. Ein Beitrag zur allgemeinen Physiologie der Resorption. Haarlem, Arch. Neerl. de physiol. Ser. III des Arch. Néerl. **2** 1918 (471-476). **198**
- Jordan, H. J. and Lam, H. J.** Über die Darmdurchlässigkeit bei *Astacus fluviatilis* und *Helix pomatia*. Leiden Tijdschr. Ned. Dierk. Ver. **16** 1918 (281-292). **199**



- Joubin, L.** Études préliminaires sur les Céphalopodes recueillis au cours des croisières de S.A.S. le Prince de Monaco. 5e Note: *Moschites verrucosa* (Verrill). Bul. Inst. Ocean. Monaco **339** 1918 (1-9) **200**
- Joubin, L.** Études préliminaires sur les Céphalopodes recueillis au cours des croisières de S.A.S. le Prince de Monaco. 6e Note: *Vitreledonella Richardi* Joubin. Bul. Inst. Ocean. Monaco **340** 1918 (1-40). **201**
- Kamiya, S.** Funakui-mushi ni tsuite. [On timber-boring molluscs.] Dobuts. Z., Tokyo **30** 1918 (116-119, 165-169). **202**
- Kantor, M.** Recherches Océanographiques sur le Littoral Maritime de la Province de Buenos Aires (Communication préliminaire). Buenos Aires, An. Soc. Cient. Argent. **86** 1918 (85-117) [Mollusca et pp. 92, 103-104, 108-109]. **203**
- Keim, M.** *vide* Ellis, M. M.
- Kendall, C. E. Y.** Irish *Pisidia* from Windermere. Naturalist London **1918** (284). **204**
- Kennard, A. S. and Woodward, B. B.** On the occurrence in England of *Hygromia oedea* (Loccard) [= *Helix limbata*, Drap. 1804, non Da Costa, 1778.] London Proc. Malac. Soc. **13** 1918 (14-15). **205**
- Kilian, W.** Contributions à la connaissance du Crétacé inférieur delphinoprovençal et rhodanien (étages valanginien et hauterivien). Paris C.R. Acad. sci. **166** 1918 (337-340). **206**
- Kilian, W.** Remarques nouvelles sur la faune des étages hauterivien, barremien, aptien et albien dans le sud-est de la France. Paris C.R. Acad. sci. **166** 1918 (403-407). **207**
- Kindle, E. M.** An Ottawa beach of the Champlain Sea. Ottawa Nat. **32** 1918 (83-86). **208**
- Kindle, E. M. and Whittaker, E. J.** Bathymetric check-list of the marine invertebrates of Eastern Canada with an index to Whiteaves' Catalogue. Sessional Paper Dept. Naval Science No. **38a** 1918 (227-294). **209**
- Kleiner, E.** Untersuchungen am Genitalapparat von *Helix nemoralis* und *hortensis* und einer weitem Reihe von Lang gezüchteter Bastarde der beiden Arten. Zürich, Vierteljahrshr. Natf. Ges. **53** 1913 (1914) (188-190). **210**
- Klüpfel, W.** Über den Lothringer Jura. Berlin Jahrb. geol. Landesanst. **38** 1917 1918 (252-346). **211**
- Krause, G.** Weitere Beobachtungen im Tertiär und Diluvium des Niederrheins. II. Stück. Befln Jahrb. geol. Landesanst. **38** 1917 1918 (183-200). **212**
- Kruimel, J. H.** Verzeichnis der von Herrn E. C. Abendanon in Celebes gesammelten Süßwasser - Mollusken. E. C. Abendanon. Geologische en geographische doorkruisingen van Midden-Celebes **4** 1918 (1626-1650) 1 Taf. **213**
- Kruizinga, P.** Bijdrage tot de Kennis der Sedimentaire Zwerfsteenen in Nederland. (Zwerfsteenen van Baltischen oorsprong, uitgezonderd die, welke in en bij de stad Groningen en bij Maarn zijn gevonden. Verh. Geol. Mijn. Genoots. Ned. Kol. Geol. Ser. **4** 1918 (1-271). **214**
- L., P.** L'histoire géologique de la Mer Rouge. Rev. sci. Paris **1918** 1918 (276). **215**
- Lador, H.** A propos du *Solemya borealis*. (C.R.) Arch. Sci. Phys. Genève. **38** 1914 (144-145). **216**
- Lake, P.** Shell deposits formed by the flood of January, 1918. Cambridge Proc. Phil. Soc. **19** 1918 (157-159). **217**
- Lam, H. J.** *vide* Jordan, H. J.
- [LAMARCK.] Catalogue illustré de la Collection Lamarck. Première Partie Fossiles. Genève Mus. Hist. Nat. **1918** 1918 (117) pls. **218**
- Lamy, E.** Les Tellines de la Mer Rouge (d'après les matériaux recueillis par M. le Dr. Jousseau). Bul. Museum Paris **1918** 1918 (26-33, 116-124, 167-172). **219**
- Lamy, E.** Les Psammobies de la Mer Rouge (d'après les matériaux recueillis par M. le Dr. Jousseau). Bul. Muséum Paris **1918** 1918 (242-250). **220**
- Lamy, E.** Notes sur quelques espèces de *Purpura* déterminées par Blainville dans la Collection du Muséum de Paris. Bul. Museum, Paris **1918** 1918 (352-357, 424-429) **221**

- Lamy, E. Les Donaces de la Mer Rouge (d'après les matériaux recueillis par M. le Dr. Jousseau). Bul. Muséum Paris 1918 1918 (430-432). 222
- Lamy, E. Revision des *Macliridae* vivants du Muséum d'Histoire Naturelle de Paris. J. conchyliol Paris 63 1918 (201-418) pl. vii. 223
- Lebour, M. V.. A Trematode Larva from *Buccinum undatum* and notes on Trematodes from Post-Larval Fish. Plymouth Mar. Biol. Ass. 11 1918 (514-517). 224
- Lecoindre. Sur quelques gisements fossilifères récents des environs de Casablanca (Maroc occidental). Paris, C.R. Acad. sci. 167 1918 (375-378). 225
- Lecoindre. Sur le Pleistocène marin de la Chaouia (Maroc occidental). Paris C.R. Acad. sci. 167 1918 (396-399). 226
- Leidhold, C. Devon Fossilien von der bithynischen Halbinsel (Kleinasien) Zs. Deutsch Geol. Ges. Monatsber. 69 1917 1918 (308-347) pls. xi-xiii. 227
- Leonard, R. E. Early development of *Haminea*. Pub. Puget Sound Biol. Station 2 1918 (45-63 including pls. xii-xvi). 228
- Liston, W. G. and Soparkar, M. B. Bilharziasis among animals in India. The life-cycle of *Schistosomum spindalis* Ind. J. Med. Res. Calcutta 5 1918 (567-569). 229
- Loczy, L. A villányi callovién-ammonitesek monográfiája. Geol. Hungarica 1 1914-1915 (231-454) pls. i-xiv. 230
- Longstaff, J., and Longstaff, G. B. Supplementary notes on *Aclisina* De Koninck and *Aclisoides* Donald, with descriptions of New Species. London Q. J. Geol. Soc. 73 1918 (59-83) pls. v-vi. 231
- Longstaff, G. B. *vide* Longstaff, J.
- Lundblad, O. Om djupfaunen i svenska insjöar ur djurgeografisk synpunkt. Fauna och Flora, Upsala 1918 1918 (97-122). 232
- Lundqvist, G. Norrlandska mollusklokaler 11 No. 9 1917-1918 (1-16). 233
- Lüthy, J. Beitrag zur Geologie und Paläontologie von Peru. Mem. Soc. Pal. Suisse 43 1918 (1-87) pls i-v. 234
- Lutz, A. Caramujos de agua doce do genero *Planorbis*, observados in Brazil. Rio de Janeiro, Mem. Inst. Oswaldo Cruz. 10 1918 (65-82) pls. xv-xviii. 235
- Lutz, A. On Brazilian fresh-water shells of the genus *Planorbis*. Rio de Janeiro, Mem. Inst. Oswaldo Cruz. 10 1918 (45-61) pls. xv-xviii. 236
- Lutz, A. and Penna, O. Estudos sobre a Schistosomatose, feitos no Norte do Brazil por uma comissão do Instituto Oswaldo Cruz. Relatório e notas de viagem . . . Rio de Janeiro, Mem. Inst. Oswaldo Cruz. 10 1918 (83-94). 237
- Lutz, A. and Penna, O. Studies on Schistosomatosis, made in the North of Brazil, by a commission from the Instituto Oswaldo Cruz. Report and travelling notes. . . . Rio de Janeiro, Mem. Inst. Oswaldo Cruz 10 1918 (62-73). 238
- MacCaughey, V. A survey of the Hawaiian Coral Reefs. Amer. Nat. New York N.Y. 52 1918 (409-438). 239
- Mansfield, W. C. Molluscan fauna from the Calcareous Marls in the vicinity of De Land, Volusia Co., Florida. Florida St. Geol. Surv. Tallahassee Fla. 1918 1918 (111-123). 240
- Mansuy, H. Étude géologique du Yun-nan oriental. ii<sup>e</sup> Partie Paléontologie Mem. Serv. Geol. Indochine 1 1912 (1-146) pls. i-xxv. 241
- Marshall, P. The Tertiary Molluscan Fauna of Pakaurangi Point, Kaipara Harbour. Wellington, Trans. and Proc. N. Zeal. Inst. 50 1918 (263-278) pls. xviii-xxii. 242
- Marshall, W. B. *Lampsis ventricosa cohongoronta* in the Potomac Valley. Nautilus Boston Mass. 32 1918 (51-53). 243
- Martin, K. Das accessorische schalenstück von *Corbula*. Zool. Meded. Leiden 4 1918 (51-53). 244

- Martin, K.** On some fossils from Celebes, believed to belong to the Oligocene. *K. Acad. v. Wet. Amsterdam* 20 1918 (793-799). 245
- Martin, K.** On the Miocene fauna of the West Progo Mountains in Java. *Amsterdam Proc. Sci. K. Acad. Wet.* 20 1918 (800-804). 246
- Marty, P.** *vide* Dollfus, G. F.
- Masefield, J. R. B.** Report of Sections. A.—Zoology. *Stafford, Trans. N. Staff F. Cl.* 52 1918 (111-116 [Mollusca at p. 116]). 247
- Matsumoto, H.** Hokkaido no kaizuka ni hamaguriari. [Occurrence of *Cytheraea* in the shell mounds of Hokkaido.] *Dobuts. Z., Tokyo* 30 1918 (390-391). 248
- Maury, C. J.** Santo Domingoan paleontological explorations. *J. Geol. Chicago Ill.* 26 1918 (224-228). 249
- May, W. L.** New names for Tasmanian *Marginellas*. *Hobart Proc. R. Soc. Tasmania* 1917 1918 (104). 250
- Mayer, A. G.** Department of Marine Biology [Report on Investigations and Projects.] *Washington D. C. Carnegie Inst. Year Book No. 16* 1917 1918 (161-167). [Mollusca at p. 164.] 251
- McAtee, W. L.** Food habits of the Mallard Ducks of the United States. *Washington D.C. Bul. U.S. Dept. Agric. No.* 720 1918 (1-35). 252
- Melvill, J. C.** *Oolina otis* Turton at St. Mary's Scilly. *J. Conch. Leeds* 15 1918 (261). 253
- Melvill, J. C.** Descriptions of thirty-four species of marine mollusca from the Persian Gulf, Gulf of Oman and Arabian Sea, collected by Mr. F. W. Townsend. *Ann. Mag. Nat. Hist. London* 1 ser. 9 1918 (137-158) pls. iv-v. 254
- Melvill, J. C. and Standen, R.** *Photinula wacei* sp. n. from the Falkland Islands. *J. Conch. Leeds* 15 1918 (234). 255
- Mestayer, M. K.** The occasional occurrence of Australian and South Sea Island Molluscs in New Zealand. *Wellington, New Zealand Journal Sci. Tech.* 1 1918 (102-104). 256
- Mestayer, M. K.** A note on the young stages of *Astraea heliotropium* (Martyn). *Wellington, Trans. and Proc. N. Zeal. Inst.* 50 1918 (191-192). 257
- Meunier, S.** Complément d'observations sur la silicification des Belemnites. *Bul. Museum Paris* 1918 1918 (150-152). 258
- Motos, F. de.** La edad neolitica en Vélez Blanco. *Madrid Mus. Nac. Ci. Nat. Com. Invest. Pal. Prehist.* 19 1918 (5-81). 259
- Mühlen, L. v.z.** Über einige neue devonische Zweishaler aus den Geschieben Ostpreussens und deren systematische Stellung. *Berlin Jahrb. geol. Landesanst.* 38 1917 1918 (210-222) pl. xxi. 260
- Müller, R. T.** Der Eichner Sec. *Rev. Suisse Zool. Genève* 26 1918 (361-408). 261
- Musham, J. F.** Mollusca near Louth. *Naturalist London* 1918 1918 (174). 262
- Myer, W. E.** Pearl Fisheries of Tennessee. *Los Angeles, Bul. So. Cal. Acad. Sci.* 17 1918 (67-70). 263
- Nelson, T. C.** On the origin, nature, and function of the crystalline style of Lamellibranchs. *J. Morph.* 31 1918 (53-111). 264
- Newton, R. B.** Notes on a New Species of *Turritella*, and a Naticoid-shell referred to the Genus *Gyrodes*, from British Cretaceous Rocks. *London Proc. Geol. Ass.* 29 1918 (97-105). pl. x. 265
- Newton, E. T.** *vide* Scharff, R. F. and Seymour, H. J.
- Nicolesco, C.** Sur le genre *Parkinsonia* (caractères généraux, affinités, espèces). *Paris C.R. Acad. sci.* 167 1918 (730-733). 266
- Nutting, C. C.** The Barbados-Antigua Expedition from the State of Iowa. *Science New York N.Y.* 48 1918 (233-240). 267
- Odling, M.** Third Report of the Fossil Fauna of the Oxford District. *Oxford Rep. Ashmolean Nat. Hist. Soc. Proc. and Rep. for 1917* 1918 1918 (43-60) pls. iv v. 268
- Olavarrieta, J. A. de.** Excursiones por el pliocenico de Cantillana (Sevilla) y cuenca del Biar. *Madrid Bol. Soc. Esp. Hist. Nat.* 18 1918 (523-529). 269

- Oldham, C.** *Pisidium hibernicum* in Carnarvonshire. *J. Conch. Leeds* 15 1918 (232). 270
- Oldham, C.** *Pisidium parvulum* in Hertfordshire. *Hertford Trans. Nat. Hist. Soc.* 17 1918 (33-34). 271
- Oldroyd, I. S.** List of Shells from Angel and Tiburon Islands, Gulf of California, with Description of a new species. *Nautilus Boston Mass.* 32 1918 (26-27). 272
- Oldroyd, I. S.** A new Species of *Cuspidaria* from Monterey. *Nautilus Boston Mass.* 32 1918 (28). 273
- Oldroyd, T. S.** *Olivella biplicata angelena*, var. nov. *Nautilus Boston Mass.* 32 1918 (34-35). 274
- Oldroyd, T. S.** A summer's collection at Friday Harbor, Washington. *Nautilus Boston Mass.* 31 1918 (95-98). 275
- Oppenheim, P.** Über die Erhaltung der Färbung bei fossilen Molluskenschalen. *Centralbl. Min. Stuttgart* 1918 1918 (344-360). 276
- Oppenheim, P.** Über die Erhaltung der Färbung bei fossilen Molluskenschalen. *Centralbl. Min. Stuttgart* 1918 1918 (368-392). 277
- Orcutt, C. R.** *Helix areolata*. *Nautilus Boston Mass.* 32 1918 (55-58). 278
- Ortmann, A. E.** The Nayades (Fresh-water Mussels) of the Upper Tennessee Drainage, with notes on synonymy and distribution. *Philadelphia Pa. Proc. Amer. Phil. Soc.* 57 1918 (521-526). 279
- Ortmann, A. E.** The Systematic Position of two Species of Mussels from the Ozarks. *Nautilus Boston Mass.* 32 1918 (13-15). 280
- Ortmann, A. E.** The anatomy of two African Nayades, *Unio caffer* and *Spatha wahlbergi*. *Nautilus Boston Mass.* 31 1918 (75-78). 281
- Ortmann, A. E.** The identity of the Nayad-Genus *Nodularia* Conrad with *Unio* Retzius. *Nautilus Boston Mass.* 31 1918 (128-131). 282
- Osswald, K.** Mesozoische Conulariiden. *Centralbl. Min. Stuttgart* 1918 1918 (337-344). 283
- Overton, H.** Note on a white specimen of *Ena montana* (Drap.). *London Proc. Malac. Soc.* 13 1918 (17). 284
- Pallary, P.** Diagnoses d'une cinquantaine de Mollusques terrestres nouveaux du Nord de l'Afrique. *Alger Bull. Soc. Hist. Nat. Afrique Nord.* 1918 1918 (137-152). 285
- Park, J.** On the Age of the Alpine Chain of Western Otago. *Wellington Trans. and Proc. N. Zeal. Inst.* 50 1918 (160) pl. viii. 286
- Park, J.** The Geology of the Oamaru District, North Otago (Eastern Otago Division). *Wellington N.Z. N. Zeal. Dept. Mines Geol. Surv.* 20 1918 (1-124). 287
- Penna, O.** *vide* Lutz, A.
- Perner, J.** Vorläufiger Bericht über die Fischfauna des böhmischen Obersilur und die Fossilienverteilung in den F1-Schichten. *Centralbl. Min. Stuttgart* 1918 1918 (318-322). 288
- Phillips, R. A. and Stelfox, A. W.** Recent extensions of the range of *Pisidium hibernicum*. *Irish Nat. Dublin* 27 1918 (33-50) pls. i-ii. 289
- Pierantoni, U.** Organi luminosi, organi simbiotici e ghiandola nidamentale accessoria nei Cefalopodi. *Napoli Boll. Soc. nat.* 10 1918 (30-36). 290
- Pierantoni, U.** Gli organi simbiotici e la luminescenza batterica dei Cefalopodi. *Pub. Staz. Zool. Napoli Milano* 2 1918 (105-146) pls. vi-viii. 291
- Pilsbry, H. A.** On the generic position of *Sonorella wolcottiana* Bartsch. *Philadelphia Pa. Proc. Acad. Nat. Sci.* 70 1918 (139-140). 292
- Pilsbry, H. A.** Marine mollusks of Hawaii, iv-vii. *Philadelphia Pa. Proc. Acad. Nat. Sci.* 69 1917 1918 (309-333). pls. xx-xxii. 293
- Pilsbry, H. A.** New species of *Amnicolidae* from Oneida Lake, New York. *Syracuse Univ. N.Y. Tech. Pub. No.* 9 N.Y. State Coll. For. 18 1918 (244-246). 294
- Pilsbry, H. A.** Manual of Conchology; structural and systematic. With illustrations of the species. (Second series: Pulmonata) [Vol. 23 Pt. 96]. *Philadelphia (Conchological Dept. Acad. Nat. Sci.)* [1918] (257-380) pls. xxxix-xlix [Tornatellinidae]; [Vol. 24 Pt. 97]. *Pupillidae (Gastrocoptinae)* (1-64) pls. i-v. 295

- Pilsbry, H. A.** A new Cuban *Zachrysia*. Nautilus Boston Mass. 31 1918 (78-79) pl. vii. 296
- Pilsbry, H. A.** Reichenbach's Zoologie. Nautilus Boston Mass. 31 1918 (79-81). 297
- Pilsbry, H. A.** Descriptions of new species of *Mopalia* and *Trachydermon*. Nautilus Boston Mass. 31 1918 (125-127). 298
- Pilsbry, H. A.** *Viviparus contectoides* *linie* . . . Nautilus Boston Mass. 32 1918 (71). 299
- Pilsbry, H. A. and Bryan, E. L.** Notes on some Hawaiian species of *Drupa* and other shells. Nautilus Boston Mass. 31 1918 (99-102) pl. ix. 300
- Pilsbry, H. A. and Ferriss, J. H.** Mollusca of the Southwestern States, IX: The Santa Catalina, Rincon, Tortillita and Galiuro Mountains. X: The Mountains of the Gila Headwaters. Philadelphia Pa. Proc. Acad. Nat. Sci. 70 1918 (282-333) pls. iii-vii. 301
- Pilsbry, H. A. and Ferriss, J. H.** New land shells from California and Nevada. Nautilus Boston Mass. 31 1918 (93-95). 302
- Praeger, R. L.** Irish fossil mollusks. Irish Nat. Dublin 27 1918 (69-74). 303
- Prashad, B.** Studies on the anatomy of Indian mollusca. 2. The Marsupium and Glochidium of some *Unionidae* and on the Indian species hitherto assigned to the genus *Nodularia*. Rec. Ind. Mus. Calcutta 15 1918 (143-148). 304
- Quick, H. E.** *Helic pisana* Müll at Swansea. J. Conch. Leeds 15 1918 (288) 305
- Racovitza, E. G. vide Jeannel, R.**
- Ramsden, C. T.** Vida y exploraciones zoológicas del Dr. Juan Gundlach en Cuba (1839-1896). [? Habana], Mem. Soc. Cuba. Hist. Nat. "Felipe Poey" 3 1917-1918 1918 (146-168). 306
- Ravn, J. P. J.** Kridtaflejringerne paa Bornholms Sydvestkyst og deres Fauna. II. Turonet, Danmarks Geol. Unders. Ser. II 31 1918 (1-37) pls i-ii. 307
- Ravn, J. P. J.** De Marine Kridtaflejringer i Vest-Grønland og deres Fauna. Kjøbenhavn Medd. Grøentl. 56 1918 (1-366) pls. v-ix. 308
- Reed, F. R. C.** Ordovician and Silurian fossils from Yun-nan. Pal. Ind. Calcutta new ser. 6 No. 3 1917 (i-viii, 1-84) pls. i-viii. 309
- Rekstad, J.** Kyststrøket mellem Bodo og Folden. Kristiania Norg Geol. Undersøkelse 79 1917 No. iii (1-31) pls. i-v [English Summary at pp. 29-31] 310
- Rekstad, J.** Fjeldstrøket Fanske-Junkerdaalen. Kristiania Norg. Geol. Undersøkelse 81 1917 No. iv (1-70) pls. i-vii. [English Summary at pp. 67-70.] 311
- Reynell, A.** The *Index Testaceologicus* of W. Wood and S. P. Hanley. London Proc. Malac. Soc. 13 1918 (26-27) 312
- Reynell, A.** On the dates of issue of the parts of Forbes and Hanley's *History of British Mollusca*. London Proc. Malac. Soc. 13 1918 (25-26). 313
- Ritchie, J.** Occurrence of a Giant Squid (*Architeuthis*) on the Scottish Coast. Scot. Nat. Edinburgh-1918 (133-139). 314
- Roebuck, W. D.** *Limax cinereoniger*, its variation in Savernake Forest, and description of a new variety. J. Conch. Leeds 15 1918 (259). 315
- Roebuck, W. D.** Discovery of *Limax tenellus* in the New Forest. J. Conch. Leeds 15 1918 (275). 316
- Roebuck, W. D.** Census authentications. J. Conch. Leeds 15 1918 (276-278). 317
- Roebuck, W. D.** The Molluscan fauna of the Outer Hebrides. Scot. Nat. Edinburgh 1918 1918 (275-286). 318
- Roebuck, W. D.** Caithness slugs. Scot. Nat. Edinburgh 1918 1918 (267). 319
- Roebuck, W. D.** *Paludestrina jenkinsi* in Scotland. Scot. Nat. Edinburgh 1918 1918 (142). 320
- Roebuck, W. D.** *Limax flavus* in Bute. Scot. Nat. Edinburgh 1918 1918 (141). 321

- Roebuck, W. D. *Limnaea glabra* as a Scottish mollusc. Scot. Nat. Edinburgh 1918 1918 (113-119). 322
- Roebuck, W. D. *Limnaea glabra*, *Hyalinia lucida* and *Zonitoides nitidus* in Shropshire. Scot. Nat. Edinburgh 1918 1918 (70). 323
- Roebuck, W. D. Eastonness mollusca. Scot. Nat. Edinburgh 1918 1918 (47). 324
- Roebuck, W. D. *Unio margaritifera* in Ayrshire. Scot. Nat. Edinburgh 1918 1918 (22). 325
- Roebuck, W. D. *Hygromia fusca* in Dumbartonshire. Scot. Nat. Edinburgh 1918 1918 (20). 326
- Rollier, L. Fossiles nouveaux ou peu connus des terrains secondaires (mésozoïques) du Jura et des contrées environnantes. Mem. Soc. Pal. Suisse Genève 43 1918 (1-72) pls. xli-xlv. 327
- Sarasin, F. Die steinzeitlichen Stationen des Birstales zwischen Basel und Delsberg. Zürich Nouv. Mém. Soc. Helv. Sci. Nat. 54 1918 (77-290) pls. i-xxxii [Mollusca at pp. 174-175, 138 pl. vii.] 328
- Scalia, S. Osservazioni stratigrafiche e geotettoniche nella Provincia di Messina. II.—Il Neocomiano in provincia di Messina. Catania Bul. Acc. Gioenia fasc. 44 Second Ser. 1918 (25-44). 329
- Scalia, S. Sulla Fauna degli Strati a *Spirigera trigonella* Schloth. Sp. della Val di Sinello, presso Camposilvano in Vallarsa (Trentino meridionale). Roma Boll. Soc. geol. ital. 36 (1917) 1918 (205-215). 330
- Scharff, R. F., Seymour, H. J., and Newton, E. T. The exploration of Castlebrook Cave, County Cork. Dublin Proc. R. Irish Acad. 34 1918 (33-72). 331
- Schepman, M. M. On a collection of Land-Freshwater- and Marine Mollusca from Northern New Guinea. Zool. Meded. Leiden 4 1918 (1-21) pl. i. 332
- Schlesch, H. List of Marine Mollusca of Iceland. Naturalist London 1918 1918 (342-346 385-388). 333
- Schuchert, C. On the Carboniferous of the Grand Canyon of Arizona. Amer. J. Sci. New Haven Conn. 45 1918 (347-361). 334
- Seymour, H. J. *vide* Scharff, R. F. and Newton, E. T.
- Sierra, J. M. R. Contribución al estudio de la Parasitología en Venezuela. Estudio y Clasificación de un Distoma. Urbana J. Parasitol. 5 1918 (80-83). 335
- Skinner, H. W. B. Report of Sections for 1917. Geological Section. Rugby Rep. Sch. Nat. Hist. Soc. 51 1917 1918 (63-64). 336
- Sommermeier, L. Über einen Fossilfund aus der Unteren Kreide von Trinidad. Centralbl. Min. Stuttgart 1918 1918 (131-136). 337
- Soparkar, M. B. *vide* Liston, W. G.
- Spencer, B. Kitchen middens and native ovens. Vict. Nat. Melbourne 35 1918 (113-118). 338
- Standen, R. *vide* Melvill, J. C.
- Stauffer, C. R. Descriptions of some new species of Devonian fossils. J. Geol. Chicago Ill. 26 1918 (555-560) pls. i-iii. 339
- Steel, T. Tracks of Garden Snail. Vict. Nat. Melbourne 35 1918 (91-92). 340
- Steenberg, C. M. Anatomie des Acanthinula et des Vallonia. Les organes génitaux. København Nath. Medd. 69 1918 (1-15). 340a
- Steenberg, C. M. Furesøens Mollusk-fauna. The mollusca of the lake Furesø. København Vid. Selsk. Skr. Raekke 8 3 1 1918 (78-118) 8 pls. 340b
- Stefani, C. de. Fossili carboniferi dell'Isola d'Elba. Palaeontogr. Italica. Pisa 23 1917 (1-53) pls. i-iv. 341
- Stelfox, A. W. On the recent misapplication of the names *Pisidium nitidum* and *Pisidium pusillum* of Jenyns. J. Conch. Leeds 15 1918 (235-239). 342
- Stelfox, A. W. Researches into the hereditary characters of some of our British mollusca. Part ii. *Helix aspersa* Müll. and *H. nemoralis* L. J. Conch. Leeds 15 1918 (268-275). 343
- Stelfox, A. W. The *Pisidium* fauna of the Grand Junction Canal in Herts. and Bucks. J. Conch. Leeds 15 1918 (289-304) pls. vii-ix. 344
- Stelfox, A. W. *vide* Phillips, R. A.

- Stephens, T. C. Concerted Behaviour of Terrestrial Mollusks. Science New York N.Y. 48 1918 (271). 345
- Sterki, V. Inland Mollusks. Directions for Collecting and Preserving. Ohio J. Science Columbus Ohio 18 1918 (168-173). 346
- Stiles, C. W. Three unusual cases of Parasitism (a Slug, a Myriapod, and Cockroaches) reported in Man. Urbana J. Parasitol. 4 1918 (138-139). 347
- Swinnerton, H. H. and Trueman, A. E. The Morphology and Development of the Ammonite Septum. London Q.J. Geol. Soc. 73 1918 (26-58) pls. ii-iv. 348
- Taylor, F. *Amnicola taylori* E. A. Smith at Reddish, Lancs. Lancs. Nat 11 1918 (19). 349
- Taylor, J. W. *Helix cartusiana* and *Helix syriaca*: Their relationships and its probable significance. Naturalist London 1918 1918 (25-26). 350
- Taylor, J. W. Remarks upon "The Post-Pliocene Non-Marine Mollusca of Ireland." Naturalist London 1918 1918 (161-165). 351
- Taylor, J. W. Conchological classification, variation and nomenclature. Naturalist London 1918 1918 (249-252). 352
- Teppner, W. v. and Dreger, J. Neue *Amussiopecten* aus steirischen tertiärlagerungen. Nebst einigen geologischen Daten. Wien. Jahrb. Geol. Rchs. Anst. 67 1917 1918 (481-502) pls. xx [I]-xxii [III]. 353
- Thompson, L. D. A home made vivarium. Nautilus Boston Mass. 31 1918 (105-106). 354
- Tomlin, J. R. le B. Obituary Notice. Ernest David Marquand, M.A., A.L.S. J. Conch. Leeds 15 1918 (257-258). 355
- Tomlin, J. R. le B. Descriptions of a new *Zebina* and a new *Liotina*. J. Conch. Leeds 15 1918 (305) pl. x. 356
- Tomlin, J. R. le B. Descriptions of three new species of *Marginella* from South Africa, with a note on *M. sutoris* Dunker. J. Conch. Leeds 15 1918 (306-307) pl. x. 357  
(N-5464 r)
- Tomlin, J. R. le B. On *Siliquaria wilmanae*, n.sp., from South Africa. London Proc. Malac. Soc. 13 1918 (16). 358
- Tomlin, J. R. le B. Presidential Address. A systematic list of the fossil *Marginellidae*. London Proc. Malac. Soc. 13 1918 (41-56). 359
- Trechmann, C. T. The Trias of New Zealand. London Q. J. Geol. Soc. 73 1918 (165-246) pls. xvii-xxv. 360
- Trégouboff, G. Etude monographique de *Gonospora testiculi* Trég., Grégarine parasite du testicule de *Cerithium vulgatum* Brug. Arch. Zool. Paris 57 1918 (471-509). pls. vi-viii. 361
- Troedsson, G. T. Om Skånes brachiopods kiffer. [The Scanian Brachiopod beds.] Lund Univ. Årsskr. N.F. Avd. 2 15 No. 3 [Fysioogr Sällsk. Handl. N.F. 30 No. 3] 1918 (110; English summary 86-99) 2 pls. 362
- Trueman, A. E. The evolution of the *Liparoceratidae*. Ann. Mag. Nat. Hist. London 1 Ser. 9 1918 (435-436). 363
- Trueman, A. E. The evolution of the *Liparoceratidae*. London Proc. Geol. Soc. Abstr. No. 1022 1918 (65-70). 364
- Trueman, A. E. The Lias of South Lincolnshire. Geol. Mag. London Dec. vi. 5 (64-73, 101-111). 365
- Trueman, A. E. *vide* Swinnerton, H. H.
- Upton, C. Additional notes on the land and fresh-water mollusca of Gloucestershire. Gloucester Proc. Cotteswold Nat. F.Cl. 19 1917 (1918) (229-232). 366
- Ussing, H. *Hydrobia (Paludestrina) steini*. v. Martens. København Flora og Fauna 1918 1918 (86-87). 367
- Uttley, G. H. Volcanic Rocks of Oamaru, with special reference to their position in the Stratigraphical Series. Wellington Trans. and Proc. N. Zeal. Inst. 50 1918 (106-117). 368
- Uttley, G. H. Geology of the Oamaru—Papakaio District. Wellington Trans. and Proc. N. Zeal. Inst. 50 1918 (118-124). 369

- Vadasz, E. Über das Vorkommen von *Posidonomya alpina*—Schichten in Anatolien. Centralbl. Min. Stuttgart 1918 1918 (215–219). 370
- Vanatta, E. G. Two new shells from Hayti Philadelphia Pa. Proc. Acad. Nat. Sci. 70 1918 (237–238). 371
- Vanatta, E. G. Gonave Island shells. Nautilus Boston Mass. 32 1918 (72). 372
- Verco, J. C. Notes on South Australian Marine Mollusca, with descriptions of new species. Part XVI. Adelaide Trans. Proc. R. Soc. S. Aust. 42 1918 (139–152). 373
- Vredenburg, E. Note on the Palaeontology of the Inle mollusca. Rec. Ind. Mus. Calcutta 14 1918 (182). 374
- Wade, B. New generic names for Upper Cretaceous Gastropoda. Philadelphia Pa. Proc. Acad. Nat. Sci. 70 1918 (114). 375
- Walker, B. The Unione fauna of Alabama. Detroit Mich. 20th Mich. Acad. Sci. Rept. 1918 1918. (137–138). 376
- Walker, B. A synopsis of the classification of the Freshwater Mollusca of North America, North of Mexico and a catalogue of the more recently described species, with notes. Ann. Arbour Mich. Mus. Zool. Univ. Mich. Misc. Pub. No. 6. 1918 (1–213). 377
- Walker, B. Another "Martyn." Nautilus Boston Mass. 32 1918 (28–33). 378
- Walker, B. *Pressodonta rediviva*. Nautilus Boston Mass. 32 1918 (35). 379
- Walton, C. L. Liver rot of sheep, and bionomics of *Linnæa truncatula* in the Aberystwyth area. Parasitol. Cambridge 10 1918 (232–260). 380
- Wedekind, R. Die Genera der Palaeo-ammonoidea (Goniatiten). (Mit Ausschluss der *Mimoceratidae*, *Glyphioceratidae* und *Prolecanitidae*). Palaeontographica Stuttgart 1918 1918 (85–184) pls. xiv.–xxii. 381
- Weingärtner, R. M. Beiträge zur Geologie des Grossherzogtums Oldenburg. Berlin Zs. d. geol. Ges. 70 1918 (37–61). 382
- Weithofer, K. A. Die Oligozänabla-gerungen Oberbayerns. Wien, Mitt. Geol. Ges. 10 1917 1918 (1–125). 383
- Wheat, S. C. The Genus *Elysiella* (Verrill or Bright?). Nautilus Boston Mass. 31 1918 (131–133). 384
- Wheeler, H. E. The mollusca of Clark County, Arkansas. Nautilus Boston Mass. 31 1918 (109–125). 385
- Whittaker, E. J. The relationship of the fossil marl fauna of Mackay Lake, Ottawa, to the present molluscan fauna of the Lake. Ottawa Nat. 32 1918 (14–18). 386
- Whittaker, E. J. *vide* Kindle, F. M.
- Wichmann, R. Sobre la edad de las capas petrolíferas de Comodoro Rivadavia. Physis Buenos Aires 4 1918 (343) 389
- Willet, G. Description of a new *Pandora* of the subgenus *Kennerlyia* from Forrester Island, Alaska. Nautilus Boston Mass. 31 1918 (134–135). 390
- Willet, G. Notes on the Mollusca of Forrester Island, Alaska. Nautilus Boston Mass. 32 1918 (65–69). 391
- Windhausen, A. Lineas generales de la Estratigrafía del Neocomiano de la Cordillera Argentina. Cordoba (Argentina). Bol. Ac. Nac. Ci. Cordoba (Repub. Argentina) 23 1918 (97–128). 392
- Windhausen, A. The Problem of the Cretaceous-Tertiary Boundary in South America and the Stratigraphic Position of the San Jorge-Formation in Patagonia. Amer. J. Sci. New Haven Conn. 45 1918 (1–53). 393
- Windhausen, A. *vide* Beder, R.
- Winterfeld, F. Über die Altersbestimmung des obersten Lössschiefers. Stuttgart N. Jahrb. Min. Geol. Pal. 1918 1918 (113–132) pl. vi. 394
- Withers, T. H. Some Pelecypod Shell-fragments described as Cirripedes. Geol. Mag. London 5 1918 (168–173). 395
- Woldrich, J. Die Kreidefauna von Neratovic in Böhmen. Wien Jahrb. Geol. Rechs Anst. 67 1917 1918 (267–234) pls. iv. [i]–vi[*iii*]. 396
- Woodward, B. B. On the *Pisidium* mitidum and *P. pusillum* of Jenyns: a reply. J. Conch. Leeds 15 1918 (260–261). 397



Woodward, H. Notes on some Fossil Arthropods from the Carboniferous Rocks of Cape Breton, Nova Scotia, received from Dr. H. M. Ami, M.A., F.G.S., F.R.S. (Can.). *Geol. Mag.* London Dec. vi. 5 1918 (462-471). 398

Woodward, B. B. *vide* Kennard, A. S.

Želizko, J. V. Neuer Beitrag zur Kenntnis der Gervillien der böhmischen Oberkreide. *Wien Jahrb. Geol. Rechs. Anst.* 67 1917 1918 (337-340). pl. viii. 399

Zirpolo, G. Ricerche su di un bacillo fosforescente che si sviluppa sulla *Sepia officinalis* L. (*Bacillus sepiae* n.sp.). *Napoli Boll. Soc. nat.* 10 1918 (47-78). pls. ii-iii. 400

Zirpolo, G. I batteri fotogeni degli organi luminosi di *Sepiola intermedia* Naef (*Bacillus pierantonii* n. sp.). *Napoli Boll. Soc. nat.* 10 1918 (206-220) pl. vi. 401

## II. SUBJECT INDEX.

N.B.—*The number in Clarendon Type quoted after the author's name, in both the Subject and Systematic Indices, refers to "Titles," where the fuller reference will be found.*

GENERAL. 2203

### Biography.

[Anon], 11; Benjamin, 41; Coe, 81; Greger, 152; Harmer, 162; J., 183; Ramsden, 306; Tomlin, 355.

### Bibliography.

[Anon.], 7; Coe, 81; Dall, 103; Germain, 139, 141, 142, 143, 144; Greger, 152; Hidalgo, 172; Kindle & Whittaker, 209; Lamy, 223; Pilsbry, 297; Ramsden, 306; Reynell, 312, 313; Walker, 378.

### Ethno-Conchology.

Best, 45; Haddon, 158; Motos, 259; Myer, 263; Sarasin, 328; Spencer, 338.

### Local Lists.

Corbett, 90; Beeston, 38; Evans, 126; Lake, 217; Masefield, 247; Müller, 261; Roebuck, 318. Yorkshire, occ. certain spp. *Naturalist* London 1918-1918 pp. 228, 264, 297.

### Museums, Collections, Expeditions.

Crampton, 98; Herdman, 171; Johansen, 191; [LAMARCK], 218; Lamy, 221, 223; Nutting, 267; Oppenheim, 277; Stone & Pilsbry, Report of the Curators. *Mollusks. Philadelphia Pa. Proc. Acad. Nat. Sci.* 70 1918 p. 353.

### Nomenclature.

Berry, 43; Cossmann, 93; Dall, 103, 106, 107; Henderson, 168; Iredale, 180; May, 250; Stelfox, 342; Taylor, 352; Wade, 375; Walker, 379; Wheat, 438; Woodward, 397.

### Technique.

Beeston, 38; Bryan, 52; Gatenby, 135; J., 182; Stelfox, 343; Sterki, 346; Swinnerton & Trueman, 348; Thompson, 354.

### Miscellanea.

Oppenheim, 276, 277.

STRUCTURE. 2207

### General.

Dantan, 109; Ghosh, 147; Hirase, 174; Lador, 216; Nelson, 264; Ortman, 280.

### Shell.

Dean, 111; Joliffe, 194; Meunier, 258; Stelfox, 343; Swinnerton & Trueman, 348.

### Alimentary System, Radula and Jaws.

Colosi, 84; Cooke, 86, 87; Ortman, 281; Walker, 377.

### Reproductive Organs.

Colosi, 84; Kleiner, 210; Ortman, 281, 282; Pilsbry, 292; Prashad, 304; Steenberg, 340a.

### Sense Organs.

Ritchie, 314.

- PHYSIOLOGY.                      2211
- General.  
Cobb, 77; Nelson, 264.
- Glandular Secretions, Pigments.  
Bottazzi, 48, 49; Steel, 340.
- Digestive Organs.  
Crafaileanu, 96, 97; Jordan, 198;  
Jordan & Lam, 199.
- DEVELOPMENT.                      2215
- General.  
Crozier, 100, 101; Leonard, 228.
- Oogenesis and Ovum.  
Baker, 22; Chace, 65; Colgan, 83;  
Hoskins, 175; Leonard, 228.
- Spermatogenesis and Spermato-  
zoon.  
Gatenby, 135.                      -
- Embryology.  
Baker, 22; Colgan, 83; Ellis &  
Keim, 124; Ortmann, 281; Stelfox,  
343; Wedekind, 381.
- ETHOLOGY.                              2219
- General.  
Crozier, 100, 101; Dantan, 109;  
Evermann & Clark, 128; Lador, 216.
- Movements, Locomotion.  
Arey & Crozier, 13; Jackson, 185;  
Steel, 340; Walton, 380.
- Enemies, Defence and Protection.  
Ashby, 15; Baker, 17, 18; Carter,  
60; McAtee, 252.
- Erosion.  
[Anon.], 6.
- Feeding Habits.  
Ashby, 15; Elliott, 123; J., 182;  
Henderson, 166; Walton, 380.
- Breeding Habits.  
Baker, 22; Colgan, 83; Colton, 85;  
Leonard, 228; Stelfox, 343; Taylor,  
349; Walton, 380.
- Behaviour under certain Con-  
ditions.  
[Anon.], 9.
- Habitat.  
Annandale, 3, 5; Ashby, 15; Arey  
& Crozier, 13; Baker, 17, 18, 23;  
Boycott, 50; Henderson, 166; Jeannel  
& Racovitza, 188; Kindle & Whittaker,  
209; Orcutt, 278; Roebuck, 316;  
Walton, 380.
- Boring and Burrowing Habits.  
Jehu, 189; Kamiya, 202; Kantor,  
203.
- Acclimatisation, Migration, etc.  
Barber, 24; Bartsch, 34;  
Hargreaves & Firth, 161; Henderson,  
169; L., 215; Mayer, 251; Mestayer,  
256; Quick, 305; Ritchie, 314.
- Hibernation and Aestivation.  
Iwakawa, 181; Stephens, 345;  
Walton, 380.
- Parasitism, Commensalism, Para-  
sites, etc.  
Cawston, 62, 63, 64; Cort, 91, 92;  
Faust, 129; Hirase, 174; Lebour,  
224; Liston & Soparkar, 229; Lutz &  
Penna, 237, 238; Pierantoni, 290,  
291; Prashad, 304; Sierra, 335;  
Stiles, 347; Trégouboff, 361; Walton,  
380; Zirpolo, 400, 401.
- Evolution.  
Bartsch, 34.
- Luminosity.  
Pierantoni, 290, 291; Zirpolo, 400,  
401.
- Economics.  
[Anon.], 10; Baker, 17, 18, 20;  
Guming, 102; Dantan, 109; Myer,  
263; Walton, 380.

## VARIATION AND ÆTIOLOGY.

*(β) Non-Marine.*

## Teratology, Phylogeny and Relationship.

2223

Annandale, 2; [Anon], 12; Ashby, 14; Bulow, 55; Cockerell, 80; Henderson, 166; Matsumoto, 248; Nicolesco, 266; Overton, 284; Stelfox, 343; Taylor, 349, 350; Trueman, 364.

## Evolution.

Trueman, 363.

## DISTRIBUTION. 2227

## General.

(a) RECENT.

(a) *Marine.*

## North Atlantic Ocean, Caribbean Sea and Gulf of Mexico.

Bartsch, 30; Christensen, 71; Dall, 106; Deinse, 113; Howarth, 177; Johansen, 190; Johnson, 192; Joubin, 200; Kindle & Whittaker, 209; Lundblad, 232; Melvill, 253; Nutting, 267; Ritchie, 314; Schlesch, 333.

## Mediterranean Sea and Black Sea.

Coen, 82.

## South Atlantic Ocean.

Doello-Jurado, 117, 118; Joubin, 201; Kantor, 203; Melvill & Standen, 255.

## Indian Ocean, Red Sea.

Ashby, 15, 16; Hedley, 164; Lamy, 219, 220, 222; Melvill, 254; Tomlin, 357, 358.

## Malaysia.

Bartsch, 32; Schepman, 332.

## Pacific Ocean.

Ashby, 14, 16; Bartsch, 25; Berry, 44; Chace, 66; Cooke, 87; Dall, 104, 105, 106; Hedley, 165; Leonard, 228; MacCaughy, 239; Matsumoto, 248; Mestayer, 256, 257; Oldroyd, 272, 273, 275; Pilsbry, 293, 298; Pilsbry & Bryan, 300; Tomlin, 356; Willett, 390, 391.

## Southern Ocean.

Ashby, 14, 15, 16; Verco, 373.

## Denmark.

2227 da

Steenberg, 340b; Ussing, 367.

## Norway, Sweden.

2227 da

Lundblad, 232; Lundqvist, 233; Phillips & Stelfox, 289.

## British Islands.

2227 de

[Anon], 12; Beeston, 38; Boycott, 50; Carter, 58, 59; Cooper, 88, 89; Corbett, 90; Davies, 110; Evans, 126, 127; Hadden, 157; Hargreaves & Firth, 161; Huggins, 178; Hurst, 179; Jackson, 184, 186, 187; Kendall, 204; Kennard & Woodward, 205; Lake, 217; Masefield, 247; Musham, 262; Oldham, 270, 271; Phillips & Stelfox, 289; Praeger, 303; Quick, 305; Roebuck, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326; Stelfox, 344; Taylor, 349; Upton, 366.

## France.

2227 df

Pilsbry, 295.

## Spain and Portugal.

2227 dg

Pilsbry, 295.

## Italy.

2227 dh

Pilsbry, 295.

## Switzerland.

2227 di

Hæberli, 159; Müller, 261.

## Asiatic Russia.

2227 ea

Germain, 146.

## British India, etc.

2227 ef

Annandale, 2, 3, 4; Godwin-Austen 148, 149, 150; Gude, 154.

## Malaysia, Philippine Islands, etc.

2227 eg

Bollinger, 46; Bartsch, 31, 33, 35; Cockerell, 78; Gude, 155; Kruimel, 213; Schepman, 332.

## Persia.

2227 eh

Germain, 146.

24 Moll.	VIII. Mollusca.	[1918]
French Indo - China; Annam, etc. Gude, 154.	Tonquin, 2227 ed	Mexico. Orcutt, 278.
		2227 gi
China.	2227 eb	West Indies. Bartsch, 34, 36; Clapp, 74; Mayer, 251; Pilsbry, 296; Vanatta, 371, 372.
Annandale, 5; Germain, 146.		2227 hc
Japan.	2227 ec	Brazil. Lutz, 235, 236; Lutz & Penna, 237, 238.
[Anon], 8.		2227 hg
Asiatic Turkey.	2227 ei	Argentina. Frenguelli, 133.
Annandale, 1.		2227 hi
N. Africa.	2227 fa	W. Australia. Hedley, 164.
Pallary, 285; Pilsbry, 295.		2227 ih
West Africa.	2227 fd	(b) FOSSIL.
Germain, 139, 141.		General. Kruizinga, 214; Tomlin, 359.
East and Central Africa. etc.	2227 ff	Quaternary. Annandale, 2; Baker, 21; Bartsch, 27; Cámara, 57; Carter, 61; Degrange- Tonzin, 112; Depéret, 114; Frenguelli, 133; Gagel, 134; Germain, 141, 145; Howorth, 177; Lecointre, 225; Mansuy, 241; Phillips & Stelfox, 289; Rekstad, 310, 311; Sarasin, 328; Vredenburg, 374.
Germain, 140, 141, 142, 143, 144.		2227 fg
South Africa.	2227 fg	Cainozoic. Chapman, 68; Park, 287; Scharff, Seymour & Newton, 331.
Cawston, 62, 63.		2227 gb
Mauritius.	2227 gb	Pleistocene. Annandale, 2; Bartsch, 28, 29; Bell, 39; Bellini, 40; Dall, 108; Dumble, 121; Kindle, 208; Lecointre, 226; Oldroyd, 274; Whittaker, 386.
Germain, 145.		2227 gf
Canada.	2227 gf	Tertiary. Cooke, 87; Gude, 156; Henderson 168; Jones, 195; Fos, 197; Krause, 212; Lecointre, 223; Mansfield, 240; Marshall, 242; Taylor, 351; Teppner & Dreger, 353; Uttley, 368, 369; Weingärtner, 382; Wichmann, 389; Windhausen, 393.
Whittaker, 386; Walker, 377.		2227 gg
United States.	2227 gg	Pliocene. Bellini, 40; Dollfus & Marty, 120; Dumble, 121; Gentil, 136; Harmer, 163; L., 215; Martin, 244, 245; Olavarrieta, 269; Oldroyd, 274; Oppenheim, 277; Vredenburg, 374; Windhausen, 393.
Hannibal, 160; Henderson, 166; Walker, 377.		2227 gh
N.E. United States.	2227 gh	2227 gk
Baker, 17, 18, 19, 20, 22, 23; Cockerell, 79; Grier, 153; Johnson, 193; Marshall, 243.		Mississippi River System. Barber, 24; Cockerell, 80; Ever- mann & Clark, 128; Ortman, 279, 280; Wheeler, 385.
S.E. United States.	2227 gh	
Clapp, 75; Walker, 376.		
W. United States.	2227 gi	
Bartsch, 26, 27; Ferriss, 130; Henderson, 167, 169; Pilsbry, 292; Pilsbry & Ferriss, 301, 302.		

**Miocene.**

Checchia-Rispoli, 69, 70; Gentil, 136, 137; Howchin, 176; L., 215; Maury, 249; Martin, 244, 245, 246; Oppenheim, 277; Park, 286; Windhausen, 393.

**Oligocene.**

Dollfus, 119; Dumble, 121; Maury, 249; Martin, 245; Oppenheim, 277; Weithofer, 383; Windhausen, 393.

**Eocene.**

Checchia-Rispoli, 69; Clark, 76; Dumble, 121; Joos, 196; Oppenheim, 277; Windhausen, 393.

**Mesozoic.**

Osswald, 283; Park, 287.

**Cretaceous.**

Bonarelli, 47; Bustamante, 56; Cisneros, 72; Cotter, 94; Crick, 99; Dibley, 115; Dietrich, 116; Dollfus, 119; Dumble, 121; Emery, 125; Greco, 151; Hannibal, 160; Henderson, 168; Kilian, 206, 207; Lüthy, 234; Newton, 265; Oppenheim, 277; Ravn, 307, 308; Scalia, 329; Sommermeier, 337; Wade, 375; Windhausen, 392, 393; Withers, 395; Woldrich, 396; Zelizko, 399.

**Jurassic.**

Bonarelli, 47; Buckman, 53, 54; Bustamante, 56; Cisneros, 72, 73; Couffon, 95; Gerber, 138; Hannibal, 160; Henny, 170; Klüpfel, 211; Loczy, 230; Odling, 268; Oppenheim, 277; Rollier, 327; Scalia, 329; Skinner, 336; Trueman, 363, 364, 365; Vadasz, 370; Withers, 395.

**Triassic and Liassic.**

Bustamante, 56; Mansuy, 241; Oppenheim, 277; Scalia, 330; Trechmann, 360.

**Permian.**

Mansuy, 241.

**Carboniferous.**

Branson & Greger, 51; Hind, 173; Longstaff & Longstaff, 231; Mansuy, 241; Oppenheim, 277; Schuchert, 334; Stefani, de, 341;

**Devonian.**

Beder & Windhausen, 37; Benson, 42; Dunbar, 122; Leidhold, 227; Mansuy, 241; Mühlen, 260; Oppenheim, 277; Stauffer, 339; Wedekind, 381; Winterfeld, 394.

**Silurian.**

Chadwick, 67; Mansuy, 241; Oppenheim, 277; Perner, 288; Reed, 309; Troedsson, 362.

**Ordovician.**

Foerste, 131, 132; Reed, 309.

**Cambrian.**

Woodward, 398.

**III.—SYSTEMATIC INDEX.**

2231

N.B.—The numerals in clarendon when not indicating a volume refer to Titles.

**Gastropoda.****POLYPLACOPHORA.**

*Acanthopleura*, HEDLEY 164.

*Basiliochiton* type *Mopalia heathi* Pils. nom. n. for *Trachydermon* Cpr., BERRY *Nautilus* 32 p. 12.

*Callistoplacinae*, ASHBY 16.

*Callochitonidae*, ASHBY 16.

*Chiton bituberculatus*, CROZIER 100.—*C. tuberculatus*, CROZIER 101.

*Chitonidae*, ASHBY 16.—*C.*, HEDLEY 165.

*Cryptoconchidae*, ASHBY 16.—*C.*, HEDLEY 165.

*Cryptoplacidae*, ASHBY 16.

*Cyanoplax*, DALL 107.

*Ischnochiton (I.) nipponica* nom. n. for *I. pilsbryanus* Berry, BERRY *Nautilus* 31 p. 144.—*I. pilsbryanus* Berry, BERRY 44.

*Ischnochitonidae*, ASHBY 16.—*I.*, HEDLEY 165.

*Ischnoradsia*, ASHBY 14.

*Lepidopleuridae*, ASHBY 16.—*L.*,  
HEDLEY 165.

*Lepidopleurus*, DALL 107.

*Leptochiton*, DALL 107.

*Mopalia lowei*, *imporcata lionotus*  
California; *M. muscosa laevior* Washing-  
ton sp. and subspp. n., PILSBRY Nautilus  
31 pp. 125-126.—*M. heathii*, BERRY  
43.

*Mopaliidae*, ASHBY 16.—*M.*, HED-  
LEY 165.

*Spongioradsia*, DALL 107.

*Squamopleura hirtosus*, HEDLEY 164.

*Stenochiton* with *S. cymodocealis*,  
*posidonialis*, spp. n., S. Australia,  
ASHBY Adelaide Trans. Proc. R. Soc.  
S. Aust. 42 pp. 65-78.

*Tonicella*, DALL 107.

*Trachydermon lowei* sp. n. California,  
PILSBRY Nautilus 31 p. 127.—*T.*,  
BERRY 43.—*T.*, DALL 107.

### Prosobranchia.

TEREBRIDAE, CONIDÆ, TURRIDAE  
(*Pleurotomidæ olim*) & CANCELLARIIDAE.

*Aforia*, DALL 103.

†*Admete* with *A. (Babylonella) wou-  
weri* sp. n. Pliocene Belgium, HARMER  
London Palæont. Soc. 1916 1918 pp.  
406-410.

*Ancistrocyrinx*, DALL 103.

*Asthenotoma subtilinea* nom. n. for  
*Pleurotoma violacea* Ang. (*non* Hds.),  
HEDLEY Sydney J. R. Soc. 51 pp. M82,  
M114 [Reprint].

*Austrodrillia* gen. n. *Turridæ*, HED-  
LEY Sydney J. R. Soc. 51 pp. M. 79,  
M. 81, M. 114 [Reprint].

*Bathytoma*, DALL 103.

*Bela*, DALL 103.

†*Bela*, HARMER 163.

†*Bonellitia* with *B. incerta* sp. n.  
Pliocene British Isles, HARMER London  
Palæont. Soc. 1916 1918 pp. 402-405.

*Boreotrophion xestra*, *echinus*, spp. n.,  
Japan, DALL Smiths. Inst. U. S.  
Nation. Mus. Proc. 54 p. 232.—*B.*,  
DALL 106.

*Borsonella*, DALL 103.

†*Borsonia (Cordieria) ovalis* sp. n.  
Tertiary N. Zealand, MARSHALL Trans.  
& Proc. N. Z. Inst. 50 p. 269.

†*Brocchinia mitraciformis* var. n. *cos-  
tata* Pliocene England, HARMER London  
Palæont. Soc. 1916 1918 pp. 390-397.

*Calliotectum*, DALL 103.

*Cancellariidæ*, HEDLEY 165.

*Clathurella*, DALL 103.

†*Clathurella* with *C. minuta* sp. n.  
Pliocene England, HARMER London  
Palæont. Soc. 1916 1918 p. 379.

*Clavatulæ*, DALL 103.

*Clavus*, DALL 103.

*Conidæ*, HEDLEY 165.

*Conus marmoreus*, MESTAYER 256.—  
*C.*, HEDLEY 164.

†*Conus (Leptoconus) lyratus*, *C. con-  
vexus*, *C. (Lithoconus) abruptus* spp. n.  
Tertiary N. Zealand, MARSHALL Trans.  
& Proc. N.Z. Inst. 50 p. 270.—*C.*  
*antedeluvianus*, BELL 39.—*C.*, MARTIN,  
245.

*Crawfordia* sec. n. of *Progabbia* Type  
*Cancellaria crawfordiana*, DALL DALL  
Washington Proc. Biol. Soc. 31 p. 138.

*Cythara*, DALL 103.

*Daphnella botanica* nom. n. for  
*Pleurotoma fragilis*, Rve, HEDLEY  
Sydney J. R. Soc. 51 pp. M 83, M 114.  
[Reprint.]

†*Donovania*, HARMER 163.

*Drillia*, DALL 103.

†*Drillia* with *D. jeffreysi* sp. n.  
Pliocene England, HARMER London  
Palæont. Soc. 1916 1918 pp. 377-378.  
*D. tenuispiralis* sp. n. Tertiary N. Zea-  
land, MARSHALL Trans. & Proc. N.Z.  
Inst. 50 p. 269.

*Epidreira* gen. n. *Turridæ*, HEDLEY  
Sydney J. R. Soc. 51 pp. M 79, M 82  
M 114. [Reprint.]

*Etrema* gen. n. *Turridæ*, HEDLEY  
Sydney J. R. Soc. 51 pp. M 79 M 82,  
M 114. [Reprint.]

*Eucithara basedowi* sp. n. W. Aus-  
tralia, HEDLEY Proc. R. Geogr. Soc.  
Australasia S. Austr. Branch Adelaide  
1916-1917 p. 17.

*Exomilus* gen. n. *Turridæ*, HEDLEY  
Sydney J. R. Soc. 51 pp. M 79 M 81  
M 114. [Reprint.]

*Gemmula*, DALL 103.

*Guraleus* gen. n. *Turridæ*, HEDLEY  
Sydney J. R. Soc. 51 pp. M 79 M 80  
M 114. [Reprint.]

†*Haedropleura*, HARMER 163.

*Hemidaphne* gen. n. *Turridæ*, HEDLEY  
Sydney J. R. Soc. 51 pp. M 79  
M 83 M 114. [Reprint.]

*Inquisitor* gen. n. *Turridæ*, HEDLEY  
Sydney J. R. Soc. 51 pp. M 79 M 81  
M 114. [Reprint.]

*Kurtziella* sec. n. *Mangilia* Type  
*Pleurotoma cœrina*, Kurtz & Stimp.  
Atlantic Coast, DALL Washington Proc.  
Biol. Soc. 31 p. 137.

*Macteola* gen. n. *Turridæ*, HEDLEY  
Sydney J. R. Soc. 51 pp. M 79 M 82  
M 114. [Reprint.]

*Mangilia*, DALL 103.

†*Mangilia axialis* sp. n. Tertiary  
N. Zealand, MARSHALL Trans. & Proc.  
N. Z. Inst. 50 p. 269.—*M.* with *M.*  
*assimilis* sp. n. Pliocene England,  
HARMER London Palæont. Soc. 1916  
1918 pp. 380–382.

*Melatoma*, DALL 103.

†*Merica*, HARMER 163.

*Moniliopsis*, DALL 103.

*Nepotilla* gen. n. *Turridæ*, HEDLEY  
Sydney J. R. Soc. 51 pp. M 79 M 83  
M 114. [Reprint.]

†*Pleurotoma steinworthi*, BELL 39.—  
*P.*, HARMER 163.

*Progabbia* subgen. n. for West  
American Cancellarias Type *Cancellaria*  
*cooperi* Gabb., DALL Washington Proc.  
Biol. Soc. 31 p. 138.

†*Raphitoma* with *R. substriolata*, *con-*  
*similis* spp. n. Pliocene England, HAR-  
MER London Palæont. Soc. 1916 1918  
pp. 382–388.

*Scabrella* gen. n. *Turridæ*, HEDLEY  
Sydney J. R. Soc. 51 pp. M 79 M 83 M  
114. [Reprint.]

†*Surcula latiaxialis*, *nitens*, *ordinaria*  
spp. n. Tertiary N. Zealand, MARSHALL  
Trans. & Proc. N. Z. Inst. 50 pp. 267  
268.

†*Svellia*, HARMER 163.

*Terebridae*, HEDLEY 165.

*Turricula* Schm. should replace *Sur-*  
*cula*, Ad., COSSMANN Rev. crit. pal.  
Paris p. 42.—*T.*, DALL 103.

*Turridæ*, HEDLEY 165.

*Turris* (*Crassispira*) *rugitecta* sp. n.  
Lower California, DALL Smiths. Inst.  
U. S. Nation. Mus. Proc. 54 p. 226.—  
*T.* DALL 103.

†*Turris ornatus*, *kaiparaensis* spp. n.  
Tertiary N. Zealand, MARSHALL Trans.  
& Proc. N. Z. Inst. 50 p. 268.

†*Trigonostma*, HARMER 163.

OLIVIDAE, HARTIDAE, MARGINEL-  
LIDAE, VOLUTIDAE & MITRIDAE.

*Atrimitra* subgen. n. of *Strigatella*  
Type *Mitra ida*, Melv. DALL Wash-  
ington Proc. Biol. Soc. 31 p. 138.

†*Ancilla spinigera*, *cineta* spp. n.  
Tertiary N. Zealand, MARSHALL Trans.  
& Proc. N. Z. Inst. 50 p. 267.

*Boreomelon* subgen. n. of *Fulgoraria*  
Type *Scaphella stearnsi*, DALL DALL  
Washington Proc. Biol. Soc. 31 p. 138.

†*Cymbiola masefieldi*, *nitens*, *calcar*  
spp. n. Tertiary N. Zealand, MARSHALL  
Trans. & Proc. N. Z. Inst. 50 p. 266.

*Cymbium flammeum*, HEDLEY 164.

*Ericusa sowerbyi*, MESTAYER 256.

*Marginella sutoris* Dunker = *M.*  
*gibbosa*, Jous.; *M. aphanacme*, *ithy-*  
*chila*, *atractus* spp. n. S. Africa, TOMLIN  
J. Conch. Leeds 15 pp. 306–307.—  
*M. concamerata* nom. mut. for *M.*  
*albomaculata*, May; *M. cylichmella*  
nom. mut. for *M. microscopica*, May;  
*M. tomliniana* nom. mut. for *M.*  
*auriculata*, May. Tasmania, MAY Hobart  
Proc. R. Soc. Tasmania 1917 p. 104.—  
*M. californica*, Tomlin var. n. *parallela*  
Lower California, DALL Washington  
Proc. Biol. Soc. 31 p. 6.—*M. australis*,  
HEDLEY 164.

†*Marginella*, TOMLIN 359.

*Marginellidae*, HEDLEY 165.

*Mitra nigritlella*, *palawanensis*, *amanda*,  
*arnaloti* spp. n. Philippine Isds., BARTSCH  
Washington Proc. Biol. Soc. 31  
pp. 182–184.—*M. vaticinator*, *M.* (*Pusia*)  
*iteina* spp. n. Persian Gulf, MELVILL  
Ann. Mag. Nat. Hist. 1 pp. 141–142.—  
*M. plicaria*, HEDLEY 164.

†*Mitra*, HARMER 163.

*Mitridae*, HEDLEY 165.

*Oliva episcopalis philippinensis*, *O. tricolor palawansensis* subsp. n. Philippine Isds., BARTSCH Washington Proc. Biol. Soc. 31 p. 181.

†*Olivella biplicata* var. n. *angelena* Pleistocene California, OLDROYD Nautilus 32 p. 34.

*Olividae*, HEDLEY 165.

*Phenacoptygma* gen. n. *Volutidae* Type *Surculina cortezi* Dall., DALL Washington Proc. Biol. Soc. 31 p. 138.

*Scaphella damoni*, HEDLEY 164.

*Turricula weberi, bancalanensis* spp. n. Philippine Isds., BARTSCH Washington Proc. Biol. Soc. 31 pp. 185-186.—*T.*, SCHEPMAN 332.

†*Voluta celebesensis* sp. n. Celebes. oligocene, DOLLFUS E. C. Abendanon, Midden-Celebes 3 p. 986.—*V. (Pyrgomitra) fusus*, BELL 39.

*Volutidae*, HEDLEY 165.

FASCIOLARIIDAE, TURBINELLIDAE, BUCCINIDAE, NASSARIIDAE (*Nassidae olim*), PYRENIDAE (*Columbellidae olim*), MURICIDAE & THAIDIDAE (*Corallio-philidae olim*).

*Acanthina* with *Acanthinella*, *Neorapana* subgen. n. COOKE London Proc. Malac. Soc. 13 pp. 6-11.—*A. angelica* sp. n. Gulf of California, OLDROYD Nautilus 32 p. 26.

*Afrocominella*, gen. n. for *Cominella elongata*, Dunk., IREDALE London Proc. Mal. Soc. 13 pp. 28, 34.

*Alectryon (Phrontis) alicimus*, Mekran Coast A. (*Hima*) *gwatkinianus* Persian Gulf, *protrusidens* Karachi spp. n., MELVILL Ann. Mag. Nat. Hist. 1 pp. 139-140.

*Amyclina* gen. n. for *Buccinum corniculum*, Oliv., IREDALE London Proc. Malac. Soc. 13 pp. 28, 31.

*Anachis bartschii* sp. n. Mazatlan, DALL Smiths. Inst. U. S. Nation. Mus. Proc. 54 p. 233.

*Ancistrolepis* with *A. latus* sp. n. Korea, DALL Smiths. Inst. U. S. Nation. Mus. Proc. 54 pp. 225, 229-230.—*A.*, DALL, 104.

*Anomalosipho*, DALL 104.

†*Atractodon* with *A. elegans* var. n. *inflata* Pliocene England, HARMER London Palaeont. Soc. 1916 1918 pp. 364-365.

*Barbitonia*, DALL 104.

*Beringius*, DALL 104.

*Buccinidae*, HEDLEY 165.

*Buccinum undatum*, LEBOUR 224.—*B.* DALL 104.

†*Buccinum*, HARMER 163.

*Burnupena* gen. n. for *Cominella porcatum*, Gmel. = *cincta*, Bolten, IREDALE London Proc. Mal. Soc. 13 pp. 28 34.

†*Buscyonidae*, WADE 375.

*Chrysodomus*, DALL 104.

*Colicryptus* gen. n. for *Buccinum fusiforme* Brod., IREDALE London Proc. Mal. Soc. 13 pp. 28, 33.

*Columbella deveyrai* sp. n. Philippine Isds., BARTSCH Washington Proc. Biol. Soc. 31 p. 186.

†*Columbella*, HARMER 163.

*Colus* with *C. (Latisipho) lepidus*, Kurile Isds., *C. (Limatofusus) tahwitanus* Washington spp. n., DALL Smiths. Inst. U. S. Nation. Mus. Proc. 54 pp. 216, 228.

*Cominella*, IREDALE 180.

†*Cominella conica*, BELL 39.

†*Coptochetus zelandicus* sp. n. Tertiary New Zealand, MARSHALL Trans. & Proc. N.Z. Inst. 50 p. 265.

†*Desmoulea*, HARMER 163.

†*Dolicholatirus (Pseudolatirus) ornatus* sp. n. Tertiary New Zealand, MARSHALL Trans. & Proc. N. Z. Inst. 50 p. 264.

*Drupa* with *D. walkerae* sp. n. Hawaii PILSBRY & BRYAN Nautilus 31 p. 99.—*D. tuberculata*, HEDLEY 164.

*Ecphora*, DALL 104.

†*Eupleura*, HARMER 163.

*Euthrena* gen. n. for *vittata* Quoy & G., IREDALE Proc. Mal. Soc. 13 pp. 28, 34.

*Euthria*, IREDALE 180.

†*Euthria*, HARMER 163.



*Evadne* H. & A. Ads. should replace *Cominella lineata* Mart., IREDALE London Proc. Mal. Soc. 13 pp. 28, 34.

*Exilia*, DALL 104.

†*Falsifusus*, WADE 375.

*Fasciolaria filamentosa* var. *ferruginea*, HEDLEY 164.

†*Fasciolaria erratica*, BELL 39.

*Fasciolaridae*, HEDLEY 165.

*Fusida*, HEDLEY 165.

†*Fuside*, WADE 375.

*Fusinus sandvichensis*, PILSBRY & BRYAN 300.

†*Fusinus corrugatus* sp. n. Tertiary New Zealand, MARSHALL Trans. & Proc. N. Z. Inst. 50 p. 264.

*Fusus (Pseudofusus) dalpiazi* sp. n. Adriatic, COEN Milano, Atti Soc. ital. sc. nat. 56 p. 318.

†*Fusus*, HARMER 173.

*Helicofusus*, DALL 104.

*Japelson*, DALL 103.

*Japeuthria* gen. n. for *ferrea* Rve., IREDALE London Proc. Mal. Soc. 13 pp. 28, 34.

*Kryptos*, DALL 104.

*Latifusus*, DALL 104.

*Latisiphio*, DALL 104.

*Latrunculus*, COOKE 87.

*Lepsiella botanica* nom. n. for *Purpura neglecta* Ang., HEDLEY Sydney J. R. Soc. 51 pp. M. 93, M. 114 [Reprint].

*Liomesus*, DALL 104.

†*Liomesus fieldhausii*, BELL 39.

*Macron orcutti* sp. n. Lower California, DALL Washington Proc. Biol. Soc. 31 p. 5.

*Melongenella cochlidium*, HEDLEY 164.

†*Metzgeria*, HARMER 163.

*Microfusus*, DALL 104.

†*Mitrella inconspicua* sp. n. Tertiary N. Zealand, MARSHALL Trans. & Proc. N.Z. Inst. 50 p. 266.

*Muricidae*, HEDLEY 165.

*Muricodrupa* gen. n. for *Purpura fenestrata* Blainv, IREDALE London Proc. Mal. Soc. 13 pp. 28, 38.

*Murex*, HEDLEY 164.

†*Murex* with *M. (Alipurpura) elegantula* sp. n. Pliocene England, HARMER London Palæont. Soc. 1916 1918 pp. 339-340.—*M. (Phyllonotus) stearnsii* sp. n. Pleistocene Mexico, DALL Nautilus 32 p. 26.

†*Nassa*, HARMER 163.

*Nassariidae*, HEDLEY 165.

†*Neptunea* with *N. tenuistriata* sp. n. Pliocene England, HARMER London Palæont. Soc. 1916 1918 pp. 300-309.

†*Ocenebra* with *O. pseudo-Nystii* var. *similis*, *O. craticulata* var. *reticulata* varr. n., Pliocene England, HARMER London Palæont. Soc. 1916 1918 pp. 341-348.

*Parvisiphio*, DALL 104.

*Peristernia thaunumi* sp. n. Hawaii, PILSBRY & BRYAN Nautilus 31 p. 101.

†*Phos kaiiparaensis, spiralis*, spp. n., Tertiary N. Zealand, MARSHALL Trans. & Proc. N.Z. Inst. 50 p. 265.

*Pisania townsendi* sp. n. Karachi MELVILL Ann. Mag. Nat. Hist. 1 p. 141.

†*Pisania*, HARMER 163.

*Plicifusus* with *P. (Retifusus) scissuratus* *P. (Aulacofusus) rhyssoides* *P. (Latifusus) wakasanus*, spp. n., Japan, DALL Smiths. Inst. U.S. Nation. Mus. Proc. 54 pp. 219, 226-227.

*Pollia erythrostoma*, HEDLEY 164.

*Propebela* gen. n. for *Murex turricula* Mont., IREDALE London Proc. Malac. Soc. 13 pp. 13, 32.

*Provexillum* gen. n. *Thaididae*, HEDLEY Sydney J. R. Soc. 51 pp. M. 79, M. 93, M. 114 [Reprint].

*Purpura*, LAMY 221.

†*Purpura* with *P. lapillus* var. *menapiae* Pliocene Ireland; *P. l. ventricosa* Pliocene England, varr. n., HARMER London Palæont. Soc. 1916 1918 pp. 334-336.

*Pyrene essingtonensis*, HEDLEY 164.

*Pyreneola* gen. n. for *Columbella abyssicola* Brazier, IREDALE London Proc. Malac. Soc. 13 pp. 28, 31.

*Pyrenidae*, HEDLEY 165.

- Pyrulofusus*, DALL 104.  
*Retifusus*, DALL 104.  
*Searlesia* with *S. constricta* sp. n. Korea, DALL Smiths. Inst. U.S. Nation. Mus. Proc. 54 pp. 215, 228.  
†*Searlesia*, HARMER 163.  
†*Seminola*, WADE 375.  
*Sipho*, DALL 104.  
†*Sipho rawni*, BELL 39.—*S.*, HARMER 163.  
*Siphonalia lubrica* sp. n. Japan, DALL Smiths. Inst. U.S. Nation. Mus. Proc. 54 p. 230.  
†*Siphonalia flexuosa* sp. n. Tertiary New Zealand, MARSHALL Trans. & Proc. N.Z. Inst. 50 p. 264.  
*Siphonorbis marshalli* nom. n. for *Fusus attenuatus* Jeff., IREDALE London Proc. Mal. Soc. 13 pp. 28, 33.—*S.*, DALL 104.  
*Sulcosipho*, DALL 104.  
*Syntagona* nom. n. for *Donovania* Bucq., D., & Doll, IREDALE London Proc. Mal. Soc. 13 pp. 28, 34.  
*Thaididae*, HEDLEY 165.  
*Thais aculeata*, HEDLEY 164.  
*Tromina* gen. n. type *Fusus uncarinatus* Phil., DALL Washington Proc. Biol. Soc. 31 p. 137.  
*Trophon chathratus* is type of *Nephtunea* Boltzen, DALL Washington Proc. Biol. Soc. 31 p. 137.  
†*Trophon* with *T. (Boreotrophon) truncatus* var. *intermedia*, *T. (B.) clathratus* var. *attenuata*, *T. (B.) gunneri* var. *coddii*, *T. (Trophonopsis) muricatus* var. *Belli* and *cancellata*, *T. (T.) kitchini*, var. and sp. n., Pliocene British Isles, HARMER London Palæont. Soc. 1916 1918 pp. 349-358.  
†*Troschelia*, HARMER 163.  
*Volema*, COSSMANN 93.  
†*Volutomitra*, HARMER 163.  
*Volutopius*, DALL 104.  
*Zemira*, COOKE 87.  
†*Zemira*, COOKE 87.
- CYMATIDÆ (*Lotoriidæ olim*), CASSIDIDÆ, TONNIDÆ (*Doliidæ olim*), CYPRÆIDÆ, STROMBIDÆ, APORRHAIDÆ & STRUTHIOLARIIDÆ.  
†*Alaria*, ODLING 268.  
†*Aporrhais*, HARMER 163.  
*Bursa gnorima* sp. n. Gulf of Oman, MELVILL Ann. Mag. Nat. Hist. 1 p. 138.  
*Cassididæ*, HEDLEY 165.  
*Cymatiidæ*, HEDLEY 165.  
*Cymatium pfeifferianum*, HEDLEY 164.  
*Cypræa*, SCHEPMAN 332.—*C.*, VEROO 373.—*C.*, HEDLEY 164.  
†*Cypræa*, HARMER 163.—*C.*, MARTIN 245.  
*Cypræidæ*, HEDLEY 165.  
*Erato*, VEROO 373.  
†*Ficula acclinis*, BELL 39.  
*Ficus tessellatus*, HEDLEY 164.  
*Gyrineum pulchellum*, HEDLEY 164.  
*Lambis lambis*, HEDLEY 164.  
*Mayena australasia* nom. n. for *Biplex a*, PERRY COSMANN Rev. crit. paléozool. Paris 22 p. 42.  
*Melongena*, COSSMANN 93.  
†*Pseudocassis harmeri*, BELL 39.  
†*Semicassis saburon*, BELL 39.  
*Strombidae*, HEDLEY 165.  
*Strombus hawaiiensis* sp. n. Hawaii, PILSBRY Proc. Acad. Nat. Sci. Philad. 69 p. 329.  
†*Strombus*, MARTIN 245.  
*Struthiolariidæ*, HEDLEY 165.  
*Tonnidae*, HEDLEY 165.  
*Trivia caelatura* nom. n. for *avellanoides* Hed. non McCoy, HEDLEY Sydney J. R. Soc. 51 pp. M 71 M 114 [Reprint].—*T.*, VEROO 373.
- CERITHIIDÆ, PLANAXIDÆ, NERINIDÆ, TRICHOTROPIDIDÆ, VERMETIDÆ, TURRITELLIDÆ & CAECIDÆ.  
†*Aclisina* with *A. pulchra* var. *exigua* nom. n. for *A. pulchra* var. *tenuis* (De K.) Donald 1898, *A. venusta*, *faber*, *delicatula*, *micula*, *subelongata*, *A. ? multivolva* spp. n. Carboniferous Scotland, LONGSTAFF & LONGSTAFF London Q. J. Geol. Soc. 73 pp. 68-78.

*Acлисoides*, LONGSTAFF & LONGSTAFF 231.

†*Bittium* with *B. robustum*, sp. n. Pliocene England, HARMER London Palaeont. Soc. 1916 1918 pp. 414-418.

*Caecidae*, HEDLEY 165.

*Campanile*, COSMANN 93.

†*Campanilopa*, COSSMANN 93.

†*Ceritella*, ODLING 268.

*Cerithidea kienerii*, HEDLEY 164.

*Cerithiidae*, HEDLEY 165.

*Cerithiopsis* (*C.*) *vanhynningi* sp. n. Florida, BARTSCH Washington Proc. Biol. Soc. 31 p. 135.

†*Cerithiopsis*, HARMER 163.

*Cerithium vulgatum*, TRÉGOUBOFF 361.

†*Cerithium Archiaci* sp. n. Celebes, Oligocene, DOLLFUS E. C. Abendanon. Midden-Celebes 3 p. 988.—*C. tenerum*, HALL, HENDERSON 168.—*C.*, MARTIN, 245.—*C.*, ODLING 268.

†*Fibula*, ODLING 268.

†*Kilvertia* [*Excellissa*], ODLING 268.

†*Laecocochlis*, HARMER 163.

*Laskeya* nom. n. for *Eumeta*, Mörch, 1868 non Walker, 1855, IREDALE London Proc. Malac. Soc. 13 pp. 28, 30.

†*Nerinea*, ODLING 268.

*Planaxidae*, HEDLEY 165.

*Planaxis sulcatus*, HEDLEY 164.

*Potamides fluviatilis*, ANNANDALE 1.

†*Potamides* with *P. (Ptychotamidea) tricinctus* var. n. *icenica* Pliocene British Isles, HARMER London Palaeont. Soc. 1916 1918 pp. 411-412.

*Pyraxus*, HEDLEY 164.

†*Torellia*, HARMER 163.

*Trichotropidae*, HEDLEY 165.

? *Trichotropis* (*Provanna*) *lomana* sp. n. California, DALL Washington Proc. Biol. Soc. 31 p. 7.

†*Trichotropis*, HARMER 163.

†*Triforis*, HARMER 163.

*Triphora* with *T. incolumis*, *interpres* spp. n. Persian Gulf; *T. perversa* var. n. *persica*, MELVILL Ann. Mag. Nat. Hist. 1 pp. 149-151.

*Triphoridae*, HEDLEY 165.

†*Turritella krooni* sp. n. Célèbes, crétacé, DOLLFUS E. C. Abendanon. Midden-Celebes 3 p. 965.—*T.* with *T. (Haustator) incrassata* var. *minor*, *T. (H.) erthensis* var. & sp. n. Pliocene England, HARMER London Palaeont. Soc. 1916 1918 pp. 438-455.—*T. dibleyi* sp. n. Cretaceous England, NEWTON London Proc. Geol. Ass. 29 p. 97.—*T.*, MARTIN 245.

*Turritellidae*, HEDLEY 165.

†*Tympanotomus* (*Vicarya*) *verneuili*, MARTIN 245.

*Vermetidae*, HEDLEY 165.

†*Vermetus*, HARMER 163.

TIARIDAE (*Melaniidae olim*), PSEUDOMELANIIDAE, PLEUROCERIDAE, LITTORINIDAE & FOSSARIDAE.

*Algamorda* Type *Littorina newcombiana*, Hemph., DALL Washington Proc. Biol. Soc. 31 p. 137.

*Algaroda*, Type *Littorina littorea*, L., DALL Washington Proc. Biol. Soc. 31 p. 137.

†*Bourguetia* ? *arata* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 188.

†*Coronaria spectabilis* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 187.

*Fossaridae*, HEDLEY 165.

*Fossarulus*, ANNANDALE 4.

*Fossarus entorniscus*, Karachi, *F. (Couthouyia) cancellarinus* "Persian Gulf" spp. n., MELVILL Ann. Mag. Nat. Hist. 1 p. 148.

†*Holopea Mobergi* sp. n. Sweden Silurian, TROEDSSON Lund Univ. Årsskr. N.F. Avd. 2 15 No. 3 p. 42.

†*Holopella* ? *canavarii* sp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 p. 51.

*Iselica* nom. n. for *Isapis*, Ads. 1853, DALL Washington Proc. Biol. Soc. 31 p. 137.

*Littorinidae*, HEDLEY 165.

*Littorina*, DALL 106.—*L.*, SCHEPMA 332.

*Littorivaga* type *Littorina sitchana*, Phil., DALL Washington Proc. Biol. Soc. 31 p. 137.

†*Loxonema pillai* sp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 p. 50.—*L. inculta* sp. n. Devonian U.S.A., STAUFFER J. Geol. Chicago 26 p. 559.

*Melania* with *M. baccata* subsp. n. *elongata* Burma, ANNANDALE Rec. Ind. Mus. Calcutta 14 pp. 114–116.—*M. masapensis*, *towutica*, *mahalonica*, *mahalonensis*, *abendanoni*, *sarasinorum*, *lalemae*, *tominangensis* spp. n. Celebes, KRUMMEL E. C. Abendanon. Midden-Celebes. pp. 1628–1636.—*M.* with *M. (Melanoides) subcostellaris*, *sentaniensis* spp. n.; *M. (s. str.) villosa* var. n. *elongata*; *M. (Tarebia) kampeni* sp. n. N. New Guinea, SCHEPFMAN Zool. Med. Leiden 4 pp. 10–13.—*M. (Melanoides) tuberculata*, MÜLL., GERMAIN 144.—*M., tuberculata*, ANNANDALE 1.—*M., ANNANDALE 4.*

†*Melania aubryana* varr. n. *can-cellata*, *spiralis*, *costellata*, *obsoleta* Quaternary Indo-China, MANSUY Mem. Serv. géol. Indochine 1 pp. 135–137.—*M. (Goniobasis?) sculptilis* Meek, *M. convexa* var. *impressa* Mk. & H., *M. multistriata* Mk. & H., HENDERSON 168.—*M., ANNANDALE 2.*

*Melanopsis* with *M. subtingitana* Nev., Ms. descr. Mesopotamia, ANNANDALE Rec. Ind. Mus. Calcutta 15 p. 163.—*M. ricardi*, *percarinata*, *brevicula*, *lecointrei*, *edriassiana*, spp. n. N. Africa, PALLARY Bull. Soc. Hist. Nat. Af. Nord. 1918 pp. 150–151.

*Melarihaphé sulculosa*, HEDLEY 164.—*M., DALL 106.*

*Pagodus bullatus* var. *subinermis*, HEDLEY 164.

†*Pseudomelania [Eulima]*, ODLING 268.

†*Soleniscus sycumoides* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 111.

*Tectarius malaccanus*, HEDLEY 164.

†*Turbonitella gortanii* sp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 p. 51.

SOLARIIDAE, JEFFREYSIIDAE, LITHOPIIDAE, RESSOIDAE, HYDROBIIDAE, VIVIPARIDAE, VALVATIDAE, AMPULLARIIDAE & ASSIMINEIDAE.

*Amnicola* with *A. alticola* sp. n. Burma, ANNANDALE Rec. Ind. Mus. Calcutta 14 p. 122.—*A., bakeriana*, *clarkei*, *oneida*, spp. n., New York State, PILSBRY Syracuse Univ. Tech. Pub. No. 9 N.Y. State Coll. For. 18 pp. 244–246.—*Amnicola taylori*, TAYLOR 349.—*A., BAKER 17.*—*A., BAKER 22.*—*A., WALKER 377.*

*Amnicolidae*, WALKER 377.—*A., BAKER 23.*

†*Amnicolidae*, BAKER 21.

*Amnicolinae*, WALKER 377.

*Ampullaria ovata*, Oliv., GERMAIN 144.—*A., WALKER 377.*—*A., ANNANDALE 2.*

*Ampullariidae*, WALKER 377.

*Anabathron contabulatum lene* nom. n. for *c.*, Frauenfeld, HEDLEY Sydney J. R. Soc. 51 pp. M. 53 M. 114 [Reprint].

*Anculosa*, WALKER 377.

*Angitrema*, WALKER 377.

*Assimania*, ANNANDALE 4.

*Assemanniidae*, HEDLEY 165.

*Attenuata* gen. n. Type *Rissoa integella* Hedley, HEDLEY Sydney J. R. Soc. 51 pp. M. 52 M. 114 [Reprint].

*Bithynia [vide etiam Bythinia et Bithinia] badiella*, ANNANDALE 1.—*B., ANNANDALE 4.*

*Bithynia [vide etiam Bithynia et Bythinia]*, BOYCOTT 50.

*Bithinella palmyrae*, ANNANDALE 1.

*Bythinia [vide etiam Bithynia et Bithynia] (Gabbia) senmaariensis* Parr., GERMAIN 144.—*B., BAKER 17.*—*B., WALKER 377.*

*Bythininae*, WALKER 377.

*Campeloma*, BAKER 17.—*C., WALKER 377.*

†*Campeloma nebrascensis*, Mk. & H., HENDERSON 168.—*C. vetula*, Mk. & H., HENDERSON 168.

*Cincinnatia*, WALKER 377.

*Clappia*, WALKER 377.

*Cleopatra bulimoides*, Oliv. with var. n. *bilirata* Bluc Nilc, GERMAIN Bull. Mus. Paris 1918 pp. 443-445.

*Cochliopa*, WALKER 377.

*Diala flammea*, HEDLEY 164.

*Elimia*, WALKER 377.

†*Euomphalus klobukowskii*, sub-*circularis*, *nitidus* spp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 pp. 105, 110.

*Eurycaelon*, WALKER 377.

*Fluminicola*, WALKER 377.

*Gillia*, BAKER 17.—*G.*, BAKER 22.—*G.*, WALKER 377.

*Goniobasis*, BAKER 17.—*G.*, FAUST 129.—*G.*, WALKER 377.

*Gyrotoma*, WALKER 377.

*Hauffenia*, WALKER 377.

*Horatia*, WALKER 377.

*Hydrobia* (*Paludestrina*) *steini*, USSING 367.

*Hydrobiidae*, HEDLEY 165.

*Hydrobioides* with *H. nassa* subspp. *lacustris* and *rivulicola*, *avarix*, *nana*, *physcus*, subspp. and spp. n., Burma, ANNANDALE Rec. Ind. Mus. Calcutta 14 pp. 117-121.

†*Hydrobioides nassa* subspp. n. *distoma* Quaternary Burma, ANNANDALE Rec. Ind. Mus. Calcutta 14 p. 120.

*Hypsobia* with *H. minuscula* sp. n. China, ANNANDALE Mem. As. Soc. Beng. 6 pp. 306-307.

*Io*, WALKER 377.

†*Jullienia* (*Lacunopsis*) *verneui* sp. n. Quaternary Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 135.

*Katysama nosophora*. Robs., IWA-KAWA 134.

*Lanistes boltoni*. Chem., GERMAIN 144.

*Lioplax*, WALKER 377.

*Lithasia*, WALKER 377.

*Lithoglyphinae*, WALKER 377.

*Lithoglyphus*, ANNANDALE 1.

*Litiopidae*, HEDLEY 165.

*Littoridina*, WALKER 377.

*Lyogyrinae*, WALKER 377.

*Lyogyrus*, WALKER 377.

(N-5464 r)

*Mesechiza*, WALKER 377.

*Paludestrina minuta*, CARTER 58.—*P. jenkinsi*, COOPER 89.—*P. j.*, ROEBUCK 320.—*P.*, BOYCOTT 50.—*P.*, WALKER, 377.

†*Paludina*, ANNANDALE 4.—*P.*, GATENBY 135.

†*Paludina multilineata*, Mk. and H., HENDERSON 168.

*Paludomus*, ANNANDALE 2.

*Platypoda*, WALKER 377.

*Pleurocera*, WALKER 377.

*Pleuroceridae*, BAKER 23.—*P.*, WALKER, 377.

†*Pleuroceridae*, BAKER 21.

*Pomatiopsinae*, WALKER 377.

*Pomatiopsis*, WALKER 377.

*Potamopyrgus*, WALKER 377.

*Prososthenia*, ANNANDALE 4.

*Pseudovivipara hypocrites* gen. & sp. n. China, ANNANDALE Mem. As. Soc. Beng. 6 pp. 309-310.

*Pyrgulopsis*, WALKER 377.

*Rissoidae*, HEDLEY 165.

*Rissoina mottezi* Bavay; *R. (Chilostigma) refugium* subgen. & sp. n. Gulf of Oman, MELVILL Ann. Mag. Nat. Hist. 1 p. 147.

†*Rissoina*, ODLING 268.

†*Solarium hornesii*, BELL 39.—*S.*, ODLING, 268.

*Somatologyrus*, BAKER 17.—*S.*, WALKER, 377.

*Stenothyra* with *S. decapitata* sp. n. China, ANNANDALE Mem. As. Soc. Beng. 6 p. 308.

*Strephobasis*, WALKER 377.

*Taia* gen. n. Type *Vivipara naticoides*, Theob. with *T. elitoral*, *intha* spp. n. Burma, ANNANDALE Rec. Ind. Mus. Calcutta 14 pp. 123-125.—*T. incisa* sp. n. Upper Burma, ANNANDALE Rec. Ind. Mus. Calcutta 14 p. 113.

†*Taia intermedia*, *obesa*, *cylindrica*, *lacustris analoga*, *conica* spp. n., Burma Quaternary, ANNANDALE Rec. Ind. Mus. Calcutta 14 p. 128-133.

*Tryonia*, WALKER 377.

*Tulotoma*, WALKER 377.

*Tylopoma*, ANNANDALE 4.

*Valvata piscinalis* var. *antiqua*, UPTON 366.—V., BOYCOTT 50.—V., BAKER 17.—V., WALKER 377.

*Valvatidae*, BAKER 23.—V., WALKER 377.

†*Valvatidae*, BAKER 21.

*Vivipara* [vide etiam *Viviparus*] *cebuensis boholensis* subsp. n. Philippino Isds., BARTSCH Washington Proc. Biol. Soc. 31 p. 154.—V., ANNANDALE 2.—V., ANNANDALE 4.—V., BAKER 17.—V. *ampullaroides*, HEDLEY 164.—V., HURST 179.—V., SCHEPMAN 332.—V., TAYLOR 352.

*Viviparidae*, BAKER 23.—V., WALKER 377.

†*Viviparidae*, BAKER 21.

*Viviparus* [vide etiam *Vivipara*] *contectoides limi* nom. n. for *V. c. compactus* Pils., PILSBRY Nautilus 32 p. 71.—*V. malleatus, contectoides*, JOHNSON 193.—V., WALKER 377.

†*Viviparus* [*Paludina*], ODLING 268.

*Zebina lis* sp. n. Japan, TOMLIN J. Conch. Leeds 15 p. 305.

CYCLOPHORIDAE, CYCLOSTOMATIDAE & TRUNCATELLIDAE.

†*Acicula lineata*, CARTER 61.

*Acmea scalarina*, HEDLEY 164.

*Alycaeus* with *A. (Stomacosmethis) porcilliferus* sp. n. Celebes, BOLLINGER Rev. Suisse Zool. Genève 26 pp. 314–317.

*Cyclostoma elegans*, MUSHAM 262.

*Cyclotus* with *C. (Pseudocyclophorus) carinornatus* sp. n. Celebes, BOLLINGER Rev. Suisse Zool. Genève 26 p. 313.—*C.* with *C. subcanaliculatus* sp. n. N. New Guinea, SCHEPMAN Zool. Med. Leiden 4 pp. 15–16.

*Japonia*, BOLLINGER 46.

*Leptopoma*, BOLLINGER 46.—L., SCHEPMAN 332.

*Omphalotropis cariei* sp. n. Mauritius, GERMAIN Bul. Mus. Paris 1918 p. 524.

*Pomatias*, HURST 179.

†*Pomatias elegans*, CARTER 61.

*Tropidophora (Tropidophora) anceps* Martens, GERMAIN 143.

*Truncatellidae*, HEDLEY 165.

CAPULIDAE, XENOPHORIDAE, NARI-CIDAE, ADEORBITIDAE, LAMELLARIIDAE & NATICIDAE.

†*Ampullina (Cernina) rauracica, A. dolium*, spp. n., Jurassic, ROLLIER Mem. Soc. Pal. Suisse 43 pp. 64–69.

*Calyptroidea*, HEDLEY 165.

*Capulidae*, HEDLEY 165.

†*Gyrodos genti*, NEWTON 265.

*Hipponicidae*, HEDLEY 165.

*Korovina* gen. n. for *Vanikoro wallacei* Iredale, IREDALE London. Proc. Malac. Soc. 13 p. 28, 31.

*Lamellaria (Chelynotus) berghi* fig., MELVILL Ann. Mag. Nat. Hist. 1 p. 142 pl. iv. fig. 2.

*Lamellariidae*, HEDLEY 165.

*Merridae*, HEDLEY 165.

*Natica albula*, HEDLEY 164.

†*Natica Pseudomutabilis* sp. n. Celebes, Oligocene DOLLFUS. E. C. Abendanon. Midden-Celebes 3 p. 992.—*N. ferruginea*, BELL 39.—*N.*, ODLING 268.

*Naticidae*, HEDLEY 165.

†*Onustus*, ODLING 268.

*Sigaretus weberi* sp. n. Philippine Isds., BARTSCH Washington Proc. Biol. Soc. 31 p. 187.

*Xenophoridae*, HEDLEY 165.

EPITONIIDAE (*Scalidae olim*).

*Epitoniidae*, HEDLEY 165.

†*Epitonium delandense* sp. n. Tertiary Florida, MANSFIELD Florida St. Geol. Surv. 1918 p. 120.—*E. tricinatum* sp. n. Tertiary New Zealand, MARSHALL Trans. & Proc. N.Z. Inst. 50 p. 263.

STROMBIFORMIDAE (*Eulimidae olim*) & PYRAMIDELLIDAE.

*Amphithalamus psomus* sp. n. Mokran Coast, MELVILL Ann. Mag. Nat. Hist. 1 p. 147.

†*Aesopus idae* sp. n. California [? Pleistocene], BARTSCH Washington Proc. Biol. Soc. 31 p. 79.

†*Chemnitzia*, ODLING, 268.

*Cingulina sacernenda* sp. n. Karachi, MELVILL Ann. Mag. Nat. Hist. 1 p. 146.

†*Eulima*, ODLING, 268.

*Eulimella squarrosula* sp. n. Persian Gulf, MELVILL Ann. Mag. Nat. Hist. 1 p. 145.

†*Macrochilina corsii, brevis*, spp. n., Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 pp. 49–50.

*Melanella lampra* sp. n. Persian Gulf, MELVILL Ann. Mag. Nat. Hist. 1 p. 142.—*M. bryani, mimus, kanaka, ima, letsonae, lunata*, spp. n., Hawaii, PILSBRY Proc. Acad. Nat. Sci. Philad. 69 pp. 309–312.

*Mucronalia* with *M. aethria* sp. n. Persian Gulf, MELVILL Ann. Mag. Nat. Hist. 1 p. 143.

*Odostomia* with *O. (Odostomella) patricia*; *O. (Chrysallida) stearnsiella*; *O. (Miralda) syrtilis, paulbartschi*; *O. (M. ?) pupu*; *O. (Eovalina) waikikiensis, halewensis, electa, O. e. nematoderma*; *O. (Cyclodostonica) sarta*; *O. letsonae*; *O. (Odostomia) kahoowawensis, loxocephala, gulicki*; *O. (Nesiodostomia) prima, secunda, tertia, quarta*, spp. & subsp. n., Hawaii, PILSBRY Proc. Acad. Nat. Sci. Philad. 69 pp. 317–326.—*O. (Chrysallida) zeteki* sp. n. Panama, BARTSCH U.S. Nation. Mus. Proc. 54 p. 572 pl. 88, fig. 5.

*Oscilla*, MELVILL 254.

*Stilifer*, HIRASE 174.

*Styloptygma clymene* sp. n. Persian Gulf, MELVILL Ann. Mag. Nat. Hist. 1 p. 146.

*Subularia delicata* sp. n. Hawaii, PILSBRY Proc. Acad. Nat. Sci. Philad. 69 p. 312.

*Teretianax* gen. n. for *Scalenostoma suteri*, Oliver, IREDALE London Proc. Mal. Soc. 13 pp. 28, 39.

*Turbonilla exilispira* Karachi, *patruelis, thryallis* Gulf of Oman, *umbrina* Karachi, spp. n., MELVILL Ann. Mag. Nat. Hist. 1 pp. 143–145.—*T.* with *T. (Chemnitzia) oblectamentum, Kahoowawensis*; *T. (Turbonilla) Kanaiensis*; *T. (Evaletta) elizabethae, laysanensis*; *T. (Lanella) vitiensis, T. (L.) v. clavus*, spp. & subsp. n., Hawaii, PILSBRY Proc. Acad. Nat. Sci. Philad. 69 pp. 313–317.

†*Turbonilla (Pyrgolampros) amava* sp. n. Pleistocene California, BARTSCH Washington Proc. Biol. Soc. 31 p. 81.

(N-5464 r)

#### HELICINIDAE.

*Geophorus agglutinans leytenis*, subsp. n., Philippine Isds., BARTSCH Washington Proc. Biol. Soc. 31 p. 154.

*Helicina*, BOLLINGER 46.

*Priotrochatella* with *P. torrei* sp. n. Cuba, CLAPP Nautilus 32 p. 47.

NERITIDAE, NERITOPSIDAE, TURBINIDAE, TROCHIDAE & ORBITES-TELLIDAE (*Cyclostrematidae olim.*)

†*Amberlya*, ODLING 268.

*Angaria delphinus*, L. var *laciniata* Lk., HEDLEY 164.

*Astraea heliotropium*, MESTAYER 257.

†*Astraliium bistellatum* sp. n. Jurassic, ROLLIER Mem. Soc. Pal. Suisse 43 p. 62.

*Astrea chemnitzii*, HEDLEY 164.

†*Ataphrus*, ODLING 268.

*Calceolata*, nom. n. for *Calceolina*, Ads. IREDALE London Proc. Malac. Soc. 13 pp. 28, 32.

†*Calliostoma gracilis*, fig. Tertiary N. Zealand, MARSHALL Trans. & Proc. N.Z. Inst. 50 p. 263 pl. xviii figs. 1, 1a.—C., *xavieri*, BELL 39.

†*Callonema perlata* sp. n. Devonian U.S.A., STAUFFER J. Geol. Chicago 26 p. 559.

*Cantharidus strigatus*, HEDLEY 164.

*Caporbis*, Bartsch is a Vermetid nucleus, IREDALE London Proc. Malac. Soc. 13 pp. 28, 31.

†*Cirrus*, ODLING 268.

*Collonista* gen. n. for *Collonia picta*, Pease, IREDALE London Proc. Malac. Soc. 13 pp. 28, 30.

†*Crossostoma*, ODLING 268.

†*Cyclonema striatulum* sp. n. Devon. Asia Minor, LEIDHOLD Zs. D. Geol. Ges. Monats. 69 p. 316.

*Delphinula*, ODLING 268.

*Discopsis panamensis, argentea*, spp. n., Panama, BARTSCH U. S. Nation. Mus. Proc. 54 p. 574 pl. 88 figs. 9–11, 1–3.

*Euchelus xeniolum* sp. n. Gulf of Oman, MELVILL Ann. Mag. Nat. Hist. 1 p. 154.

*Forskalea* gen. n. for *Trochus fanulum* Gmelin, IREDALE London Proc. Malac. Soc. 13 pp. 28, 31.

*Gabrielana nepanensis* nom. n. for *Phasianella* n., COSSMANN Rev. crit. pal. Paris 22 p. 42.

†*Heliacus aucklandicus* fig. Tertiary N. Zealand, MARSHALL Trans. & Proc. N. Z. Inst. 50 p. 263 pl. xviii figs. 2, 2a.

*Isanda coronata*, HEDLEY 164.

*Leptothyra* with *L. miltochrista* sp. n. "Persian Gulf" MELVILL Ann. Mag. Nat. Hist. 1 pp. 151-152.

*Lepyrium*, WALKER 377.

*Liotia rammata*, S. California; *L. olivacea*, Bay of Panama; *L. (Arene) cookeana*, *L. acuticostata* var. *radiata* & *stearnsii*, spp. & varr. n., Lower California, DALL Washington Proc. Biol. Soc. 31 pp. 7-8.—*L. solitaria*, MESTAYER 257.

*Liotiidae*, HEDLEY 165.

*Liotina cycloma* sp. n. Japan TOMLIN J. Conch. Leeds 15 p. 305.

†*Margarita* ? *Steenstrupi* sp. n. Cretaceous Greenland, RAVN Kjøbenhavn Medd. Groenl. 56 p. 356.

†*Microdoma imbricata* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 105.

*Microthyca*, A. Ads. should replace *Microtheca*, A. Ads., IREDALE London Proc. Malac. Soc. 13 pp. 28, 32.

*Minolia charmosyne* & var. *albinella* Karachi; *M. (Conotrochus) eutyches* Persian Gulf var. & spp. n., MELVILL Ann. Mag. Nat. Hist. 1 p. 153.

*Monodonta*, HEDLEY 164.

†*Naticopsis neritinoidea*, *margheritii* Carboniferous Indo-China; *N. piriformis* Permian Indo-China, spp. n., MANSUY Mem. Serv. géol. Indochine 1 pp. 90, 106, 118.—*N. rioulensis* sp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 p. 48.

*Nerita*, HEDLEY 164.

†*Nerita (Neritodomus) beneckeii*, *duboisi*, spp. n., Jurassic, ROLLIER Mem. Soc. Pal. Suisse 43 pp. 32-40.—*N.*, ODLING 268.

*Neritidae*, HEDLEY 165.—*N.*, WALKER 377.

*Neritilia*, SCHEPMAN 332.

*Neritina marteli* sp. n. N. Africa, PALLARY Bull. Soc. Hist. Nat. Af. Nord. 1918 p. 151.—*N. bryance* sp. n. Hawaii, PILSBRY Proc. Acad. Nat. Sci. Philad. 69 p. 330.—*N. fluviatilis*, DAVIES 110.—*N.*, ANNANDALE 1.—*N.*, SCHEPMAN 332.—*N.*, UPTON 366.—*N.*, WALKER 377.

†*Neritopsis* with *N. juillerati*, *jurana*, *albida*, spp. n., Jurassic also *N. dumortieri*, *monilifera*, *robusta*, *huddlestoni*, *cossmanni*, *punctulata*, *mattheyi*, *fringeliana*, *lockensis*, *etallonii*, *lorioti*, *streitbergensis*, *wimmisensis*, *oosteri*, *srambergensis*, *zitteli*, spp. n., ROLLIER Mem. Soc. Pal. Suisse 43 pp. 13-31.

*Orbitestella batowi* nom. n. for *Cyclostrema* b. Gat., COSSMAN Rev. crit. pal. Paris 22 p. 42.

*Orbitestellidae*, HEDLEY 165.

*Phasianella variabilis*, PILSBRY 293.

†*Phasianella*, ODLING 268.

*Photinula wacei* sp. n. Falkland Islands, MELVILL & STANDEN J. Conch. Leeds 15 p. 234.

*Septaria*, SCHEPMAN 332.

*Talopena* gen. n. for *Monilea incerta* Iredale, IREDALE London Proc. Malac. Soc. 13 pp. 28, 30.

*Theodoxis crepidularia*, HEDLEY 164.

*Trochidae*, HEDLEY 165.

*Trochus*, HEDLEY 164.

†*Trochus (Tectus) marshalli* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 187.—*T.*, ODLING 268.—*T.*, MARTIN 245.

*Turbinidae*, HEDLEY 165.

†*Turbinilopsis sinensis* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 104.

*Turbo porcatus*, HEDLEY 164.—*T. porphyrites*, SCHEPMAN 332.

†*Turbo [Trochus]?*, ODLING 268.—*T.*, MARTIN 245.

†*Vitrinella thomasi* sp. n. California [? Pleistocene], BARTSCH Washington Proc. Biol. Soc. 31 p. 79.

†*Yunnania* gen. n. with *Y. termieri*, *sulcata*, spp. n., Carbon. Indo-China, MANSUY Mem. Serv. géol. Indochine 1 pp. 103-104.



STOMATIDÆ, COCCULINIDÆ, HALIOTIDÆ,  
PLEUROTOMARIIDÆ, BELLEROPHON-  
TIDÆ & FISSURELLIDÆ.

†*Aclisina* with *A. pulchra* var. *exigua* nom. n.; *A. venusta*, *faber*, *delicatula*, *micula*; *A. ? multivolva*, spp. n., Carboniferous Scotland, LONGSTAFF Q. J. Geol. Soc. 73 pp. 68–78.

†*Bellerophon* (*Sinuitopsis*?) *conso-brinus*, *subtrilobatus*, (*Bucaniella*) *atavus*, spp. n., Sweden Silurian, TROEDSSON Lund Univ. Årsskr. N. F. Avd. 2 15 No. 3 pp. 40–41.—*B. planoconvexus* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 103.—*B.*, DE STEFANI 341.

†*Cyrtolites*, FOERSTE 131.

†*Deslongchampsia*, ODLING 268.

*Diodora jukesii*, HEDLEY 164.

†*Ditremaria ingens* sp. n. Jurassic also *D. somertonensis*, *huddlestoni*, *quenstedti*, *conica*, *cossmanni*, *ranvilliana*, spp. n., ROLLIER Mem. Soc. Pal. Suisse 43 pp. 48–62.

*Emarginula*, SCHEFMAN 332.

†*Emarginula*, ODLING 268.

†*Euphemus subsphericus* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 109.—*E. meneghinii* sp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 p. 44.

*Fissurellidæ*, HEDLEY 165.

*Haliotidæ*, HEDLEY 165.

*Haliotis*, HEDLEY 164.

†*Helicotoma*, FOERSTE 131.

*Hemitoma*, HEDLEY 164.

†*Hercynella elevata* sp. n. Devon Asia Minor, LEIDHOLD Zs. D. Geol. Ges. Monats. 69 p. 318.

†*Hormotoma*, FOERSTE 131.

†*Ivania* (?) *fabrii* sp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 p. 47.

†*Lepetopsis millosevichi* sp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 p. 43.

†*Murchisonia* with *M. angulata* var. n. *conoidea* Devonian Indo-China; *laevigata* sp. n. Carboniferous Indo-

China, MANSUY Mem. Serv. géol. Indochine 1 pp. 61–63, 69.—*M. deangelisi*, *paretoi*, *cylindroides* spp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 pp. 45–47.

*Pleurotomariidæ*, HEDLEY 165.

†*Pleurotomaria* (*Mourlonia*) *cayeuxi* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 89.—*P. (Mourlonia) sarrauti*, *wildeni*, *P. choneitangensis*, *multicarinata*, *P. (Worthenia) margaritifera*, *constantini*, *P. (M.) propinqua* spp. n. Carbon. Indo-China, MANSUY Mem. Serv. géol. Indochine 1 pp. 100–102, 108.—*P. (Perotrochus) burgundiana* sp. n. Jurassic also *P. (P.) rhodanica*, *hannoverana*, *laubei*, *adoxa* spp. n., ROLLIER Mem. Soc. Pal. Suisse 43 pp. 40–48.—*P. (Sisenna) hectori*, *P. hokonuiensis* spp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 186.

†*Porcellia jullidieri* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 110.

†*Rimula*, ODLING 268.

*Stomatidæ*, HEDLEY 165.

†*Warthia subcarinata* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 103.

## ACMAEIDAE AND PATELLIDAE.

*Acmaea*, SCHEFMAN 332.

*Acmaeidae*, HEDLEY 165.

*Lepeta* (*Cryptoctenidia*) *lima* sp. n., Japan DALL Smiths. Inst. U.S. Nation Mus. Proc. 54 p. 233.

*Lepetidae*, HEDLEY 165.

†*Patella* (?) *nelsonensis* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 185.—*P. (Helcion)* with *P. (H.) paturathensis* Jurassic; *huddlestoni*; *P. (H.) bathiensis* sp. n. for *P. cingulata*, M. & L. (*non* Goldf.); *banneana* sp. n. for *P. humbertiana*, Et. (*non* Buv.), ROLLIER Mem. Soc. Pal. Suisse 43 pp. 3–12.—*P.*, ODLING 268.

*Patellidae*, HEDLEY 165.

*Patelloida saccharina*, HEDLEY 164.

*Phenacolepidæ*, HEDLEY 165.

## INCERTAE SEDIS.

*Boetica* gen. n. Type *B. vaginata*,  
Dall, DALL Washington Proc. Biol. Soc.  
31 p. 137.

†*Bollenella*, WADE 375.

*Elachisma (grippi)* Dall gen. & sp. n.  
California, DALL Washington Proc.  
Biol. Soc. 31 p. 137.

†*Fungia*, MARTIN 245.

†*Lophospira*, FOERSTE 131.

†*Newtoniella*, HARMER 163.

†*Parafusus* nom. n. for *Hyllus* Type  
*P. callilateras*, WADE Philad. Proc.  
Acad. Nat. Sci. 70 p. 114.

†*Trigonostoma*, BELL 39.

## Opisthobranchia

(INCLUDING PTEROPODA & HETERO-  
PODA).

*Acteonidae*, HEDLEY 165.

†*Actaeonina*, ODLING 268.

*Aeolidiadae*, HEDLEY 165.

*Akeridae*, HEDLEY 165.

*Anopsis*, Gistel should replace *Psyche*,  
Rang (1825) non Schrank., COSSMANN  
Rev. crit. pal. Paris 22 p. 42.

*Aplustridae*, HEDLEY 165.

*Aplysia*, CRAIFELEANU 97.

*Architectonicidae*, HEDLEY 165.

*Bornellidae*, HEDLEY 165.

†*Bulla groenlandica* sp. n. Cretaceous  
Greenland, RAVN Kjøbenhavn Medd.  
Groenl. 56 p. 361.—*B.*, ODLING 268.

*Bullaria botanica* nom. mut. for  
*B. australis*, Gray, HEDLEY Sydney  
N.S.W. J. R. Soc. 51 pp. M. 104, M. 114  
[Reprint].

*Cavolinia*, COLOSI 84.

*Cavolinidae*, HEDLEY 165.

†*Conularia* with *C. stromeri* sp. n.  
Mesozoic, OSSWALD Centralbl. Min.  
Stuttgart 1918 pp. 337-343.—*C.*,  
FOERSTE 131.—*C.*, TRECHMANN 360.

*Cylichna* with *C. euthlasta* Karachi  
MELVILL Ann. Mag. Nat. Hist. 1 p. 154.

†*Cylichna* with *C. rugosa* sp. n. Cre-  
taceous Greenland, RAVN Kjøbenhavn  
Medd. Groenl. 56 p. 361.

*Cylichnella zeteki* sp. n. Panama,  
BARTSCH U.S. Nation. Mus. Proc. 54.  
p. 571 pl. 88 fig. 4.

†*Cylindrites*, ODLING 268.

*Cylindrobulla systemma* sp. n. Gulf  
of Oman, MELVILL Ann. Mag. Nat.  
Hist. 1 p. 155.

*Damoniella* gen. n. for *Bulla cranchii*  
Flem., IREDALE London. Proc. Mal.  
Soc. 13 pp. 28, 37.

*Doridiidae*, HEDLEY 165.

*Doriopsidae*, HEDLEY 165.

*Dotona* gen. n. for *Melibœa fragilis*  
Forbes=Doton, Oken, 1815 non 1807,  
IREDALE London Proc. Malac. Soc. 13  
pp. 28, 30.

*Elysiella*, WHEAT 384.

*Elysiidae*, HEDLEY 165.

*Eubranchus* Forbes 1838 should re-  
place *Galvina* Ald. & Han., IREDALE.  
London Proc. Malac. Soc. 13 pp. 28,  
30.

*Euphurus*, Raf., 1815 should replace  
*Triopa*, Johnst. 1838, IREDALE London  
Proc. Malac. Soc. 13 pp. 28, 29.

*Haminea*, LEONARD 228.

*Hydromeles*, Gistel (1848) should  
replace *Euribia*, Rang (1827) non Mayen  
(1800), COSSMANN Rev. crit. pal. Paris  
22 p. 42.

†*Hyalithus Mobergi*, H. (*Orthotheca*)  
*fibrosus*, TROEDSSON 362.

*Janthinidae*, HEDLEY 165.

*Notobranchaeidae*, HEDLEY 165.

*Oxynoë* with *O. omega* sp. n. Gulf of  
Oman, MELVILL Ann. Mag. Nat. Hist.  
1 p. 155.

*Oxynoëidae*, HEDLEY 165.

*Philine gouldi* sp. n. S. Orkneys,  
DOELLO-JURADO Physis Buenos Aires 4  
p. 260.

*Philinidae*, HEDLEY 165.

*Pleurobranchaeidae*, HEDLEY 165.

*Pleurophyllidiidae*, HEDLEY 165.

*Polyceriidae*, HEDLEY 165.

*Pteropoda*, COLOSI 84.

*Pyramidellidae*, HEDLEY 165.

*Ringiculidae*, HEDLEY 165.

*Scaphandridae*, HEDLEY 165.

*Sphaerostoma*, MacGill, 1843 should replace *Trilonia* Cuv. 1803 *et auct. non* Cuv.-Lk, 1798-1801, IRBEDALE London Proc. Malac. Soc. 13 pp. 28, 29.

*Strombiformidae*, HEDLEY 165.

†*Tentaculites irregularis* sp. n. Devon. Indo China, MANSUY Mem. Serv. géol. Indochine 1 p. 46.

*Tethyidae*, HEDLEY 165.

*Tornatinidae*, HEDLEY 165.

*Tritonia*, IRBEDALE 180.

*Umbraclidae*, HEDLEY 165.

†*Vaginella torpedo* sp. n. Tertiary New Zealand, MARSHALL Trans. & Proc. N. Z. Inst. 50 p. 263.

#### ATLANTIDAE.

*Atlanta* gen. n. *Atlantidae*, HEDLEY Sydney J. R. Soc. 51 pp. M 79, M 81, M 114. [Reprint.]

†*Atlanta primigenia* sp. n. Cretaceous Greenland, RAVN Kjøbenhavn Medd. Groenl. 56 p. 359.

*Atlantidae*, HEDLEY 165.

*Pterotracheidae*, HEDLEY 165.

#### Pulmonata.

##### TESTACELLIDAE & SELENITIDAE.

*Cochicopa*, STEPHENS 345.

*Ennea* (*Enneastrum*) *putrini* and var. *mascarensis*, *E.* (*Microstophia*) *clavulata* var. *clavulopsis*, *E.* (*M.*) *cariei* spp. & varr. n. Mauritius, GERMAIN Bul. Mus. Paris 1918 pp. 521-522.—*E.*, GERMAIN 142.

†*Palacoglandina gracilis* (Ziöten) varr. n. *insignis*, *costata* & *steinheimensis* Tertiary Germany, JOOS Centralbl. Min. Stuttgart 1918 pp. 287-288.

*Streptaxis*, with *S.* (*Goniaxis*) *craveni* Smith var. *minor* var. n. Zanzibar, GERMAIN Bull. Mus. Paris 1918 pp. 251-252.

*Testacella maugei*, UPTON 366.—*T. maugei* var. *viridans*, HADDEN 157.—*T.*, GATENBY 135.

ARIONIDAE, LIMACIDAE, PHYLAMYCIDAE & ZONITIDAE.

*Agriolimax agrestis* & *campestris*, BAKER 20.—*A.*, ROEBUCK 316.—*A.*, ROEBUCK 319.

†*Aegopis praecostatus* sp. n. Tertiary Germany, JOOS Centralbl. Min. Stuttgart 1918 p. 288.

*Arion minimus*, UPTON 366.—*A.*, ROEBUCK 316 & 319.

†*Arion*, CARTER 61.

*Atopos*, BOLLINGER 46.

*Austenia dawnaensis* sp. n. Dawna Hills, GODWIN-AUSTEN Rec. Ind. Mus. Calcutta 15 p. 150.

*Bapuia* gen. n. Type *B. rengineensis* sp. n. Renging, GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 p. 589.

*Bensonia* ? *aborensis* sp. n. Abor Hills, GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 p. 596.—*B. aborensis* fig., GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 p. 621.

†*Euconulus fulvus*, CARTER 61.

*Euhyalinia*, TAYLOR 352.

*Euplecta costellifera*, *imperfurata* spp. n. N. New Guinea, SCHEPMAN Zool. Med. Leiden 4 p. 2.

*Everettia* with *E. klemmantanica* sp. n. Borneo, GUDE London Proc. Malac. Soc. 13 pp. 19-20.

*Girasia* ? *sukliensis*, *gravelyi*, spp. n., Dawna Hills, GODWIN-AUSTEN Rec. Ind. Mus. Calcutta 15 pp. 149-150.

*Harmogenanina* gen. n. (*Ariophantidae*) *H. subdetecta* sp. n. Mauritius, GERMAIN Bul. Mus. Paris 1918 p. 517.

*Helicarion*, BOLLINGER 46.—*H.*, SCHEPMAN 332.

*Hemiplecta sagittifera batanensis*, subsp. n., Philippines, BARTSCH Nautilus 32 p. 15.

*Hyalinia lucida*, ROEBUCK 323.—*H.*, *cellaria*, TAYLOR 352.

†*Hyalinia* with *H. procellaria* sp. n. Tertiary Germany JOOS Centralbl. Min. Stuttgart 1918 pp. 288-289.

†*Janulus mörsingensis* sp. n. Tertiary Germany, JOOS Centralbl. Min. Stuttgart 1918 p. 289.

*Khasiella fultoni* sp. n. Assam, GUDE London Proc. Malac. Soc. 13 p. 17.—*K.?* *dinoensis* sp. n. Abor Hills, GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 p. 593.

*Lamprocystis*, BOLLINGER 46.

*Limax cinereoniger* with var. n. *brunnea* England, ROEBUCK J. Conch, Leeds 15 p. 259.—*L. flavus*, ROEBUCK, 321.—*L. flava*, STILES 347.—*L. maximus*, HENDERSON 169.—*L.* with *L. tenellus*, ROEBUCK 316.—*L.* ROEBUCK 319.

*Macrochlamys planorbiformis* sp. n. Celebes, BOLLINGER Rev. Suisse Zool. Genève 26 p. 322.—*M.* with *M. bapuenensis*, *shimangensis*, *hippocastaneum*, *psittacensis* Abor Hills; *M. ? rotungensis*, & var. Abor Hills; *M. burkilli*, Sadiya E. Assam; *M. albulus*, *murdochi* Abor Hills; *M. ? luyorensis* Abor Hills spp. n., GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 pp. 582-587.—*M.* with *M. imperforata* sp. n. N. New Guinea, SCHEPMAN Zool. Med. Leiden 4 p. 3.

*Micrarionta praesidii* sp. n. S.W. United States, PILSBRY & FERRISS Philad. Proc. Acad. Nat. Sci. 70 p. 312.

*Microcystis tythulus* sp. n. Mauritius, GERMAIN Bul. Mus. Paris 1918 p. 523.

*Nanina (Medyla)*; *N. (Xesta)* with *N. (X.) citrina* var. n. *olivacincta*; *N. (Hemiplecta)* with *N. (H.) wickhami* S.S. var. n. *fusciminuta* Celebes, BOLLINGER Rev. Suisse Zool. Genève 26 pp. 323-328.

*Oxytes oglei* Upper Assam & var., Abor Hills; *O. aborensis*, Rotung; *O. siyomensis*, Abor Hills spp. n., GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 pp. 594-595.

*Polita*, TAYLOR 352.

†*Polita suevica* sp. n. Tertiary Germany, JOOS Centralbl. Min. Stuttgart 1918 p. 289.

*Prisma prismatica*, T.C., SCHEPMAN 332.

*Propilula*, subgen. n. (*Ariophantidae*), GERMAIN Bul. Mus. Paris 1918 p. 519.

*Pseudocaldwellia* gen. n. (*Ariophantidae*), GERMAIN Bul. Mus. Paris 1918 p. 518.

*Pseudokaliella annandalei*, Abor Hills; *P. ? sadiyaensis*, Sadiya, spp. n., GODWIN-AUSTEN Abor. Exp. Rec. Ind. Mus. Calcutta 8 pp. 596-597.

†*Punctum pumilio* sp. n. Tertiary Germany, JOOS Centralbl. Min. Stuttgart 1918 p. 292.

*Rahula aborensis*, Abor Hills; *R. dihingensis*, E. Assam; *R. burrailensis*, N.E. Manipur; *R. koboensis*, Kobo, spp. n., GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 pp. 597-599.—*R. koboensis* fig., GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 p. 621.

*Rhysota ovum*, COCKERELL 78.

*Rotungia* gen. n. Type *R. williamsoni* sp. n. Abor Hills, GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 p. 590.

*Sesara globosa* sp. n. Rotung, GODWIN-AUSTEN Abor. Exp. Rec. Ind. Mus. Calcutta 8 p. 599.

*Sitala* with *S. crenocarinata* sp. n. N. New Guinea, SCHEPMAN Zool. Med. Leiden 4 p. 4.

*Sivella castra* with *S.c.* var. n. *kobonensis* Abor Hills, GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 p. 604.

*Tadunia* gen. n. *T. oakesi*, Abor Hills; *T. ? muspratti*, E. Naga Hills, spp. n., GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 p. 588.

*Thysanophora macneilli* sp. n. Florida CLAPP Nautilus 31 p. 74.—*T.*, PILSBRY & FERRISS 301.

*Trachia ? delibrata*, Bens. var. *faciata*, G.-A., GODWIN-AUSTEN 149.

*Trochomorpha acris* (Bs.) var., GODWIN-AUSTEN 149.—*T.*, BOLLINGER 46.

*Trochonanina (Martensia)*, GERMAIN 142 & 144.

*Urocyclus*, GERMAIN 143.

*Vitrina alaskana*, PILSBRY & FERRISS 301.

*Xesta citrina*, SCHEPMAN 332.

†*Zonites* with *Z. (Grandipatula) alsaticus* sp. n. Upper Eocene France, JOOS Centralbl. Min. Stuttgart 1918 p. 166.

*Zonitidae*, PILSBRY & FERRISS 301.

*Zonitoides nitidus*, ROEBUCK 323.

#### ENDODONTIDAE.

*Endodontidae*, PILSBRY & FERRISS 301.

†*Endodontidae*, BAKER 21.

*Pseudophasis* sub. gen. n. (*Endodontidae*) vide *Tachyphasis*.

†*Pyramidula* with *P. (Gonyodiscus) silvana, wenzii*, spp. n., *P. (G.) diezi* (Clessin) var. n. *ulmensis* Tertiary Germany, Joos Centralbl. Min. Stuttgart 1918 pp. 290–291.

*Tachyphasis (Endodontidae)* gen. n. with sub. gen. n. *Pseudophasis* & *T. planorbina* sp. n. Mauritius, GERMAIN Bul. Mus. Paris 1918 pp. 519–520, 523.

## HELICIDAE.

*Acanthinula*, STEENBERG 340A.

*Albea marteli, roumesiana* spp. n. N. Africa, PALLARY Bull. Soc. Hist. Nat. Af. Nord. 1918 pp. 137–138.

*Archelix gebiletana, A. ? liasana, A. barbini, A. b. var. coloria, A. b. var. persimilis, A. ? aenigmatica* spp. & varr. n. N. Africa, PALLARY Bull. Soc. Hist. Nat. Af. Nord 1918 pp. 146–147.

*Ashmunella*, PILSBRY & FERRISS 301.

*Camaena trailli weberi, Ct. bugsuensis* subsp. n. Philippine Islands, BARTSCH Washington Proc. Biol. Soc. 31 pp. 199–200.

*Chloritis micromphala*, HEDLEY 164.  
—*C. dinodomorpha*, T. C., SCHEPFMAN 332.

*Cochlicella acuta* (Müll.) var. n. *obesa* N. Africa, PALLARY Bull. Soc. Hist. Nat. Af. Nord 1918 p. 144.

*Cochlostyla mirabilis donsalanta* subsp. n. Philippine Isds., BARTSCH Washington Proc. Biol. Soc. 31 p. 153.—*C. palavanensis bancalanensis* subsp. n. Philippine Isds., BARTSCH Washington Proc. Biol. Soc. 31 p. 200.—*C. polychroa buriasensis* subsp. n. Philippines, BARTSCH Nautilus 32 p. 16.—*C. rufogastra*, Less. & *C. metaformis*, Fer., COCKERELL 78.

*Epiphragmophora cuyamacensis lowei, traskii isidroensis* subsp. n. S. California, BARTSCH U. S. Nation. Mus. Proc. 54 pp. 523 524 pl. 83.—*E. callistoderma* sp. n. California, PILSBRY & FERRISS Nautilus 31 p. 93.

*Eulota*, BOLLINGER 46.

*Gaetulia olceseii*, Pall var. n. *fichtalana* N. Africa, PALLARY Bull. Soc. Hist. Nat. Af. Nord 1918 p. 148.

†*Galactochilus brauni* (Thomae) var. n. *suevica*; *G. alveum* sp. n. Tertiary Germany, Joos Centralbl. Min. Stuttgart 1918 pp. 292–293.

*Heliacus panamensis* sp. n. Panama BARTSCH U. S. Nation. Mus. Proc. 54 p. 573 pl. 88 figs. 6 7 8.

*Helicella gigaxii*, CARTER 59.—*H. HURST* 179.—*H.*, UPTON 366.

†*Helicella*, CARTER 61.

*Helicigona lapicida*, MUSHAM 262.—*H.*, UPTON 366.

†*Helicigona lapicida*, CARTER 61.

*Helicostyla woodiana paracaleana* subsp. n. Philippine Isds., BARTSCH Washington Proc. Biol. Soc. 31 p. 153.

*Helix aspersa & nemoralis*, STELFOX 343.—*H. aspersa*, COLGAN 83.—*H. a.*, STEEL 340.—*H. areolata*, ORCUTT 278.—*H. carthusiana & H. syriaca*, TAYLOR 350.—*H. catostoma*, GODWIN-AUSTEN 149.—*H. fusca, rotundata*, MANSFIELD 247.—*H. limbata*, Drap., 1804, non Da Costa, 1778, KENNARD & WOODWARD 205.—*H. nemoralis*, KLEINER 210.—*H. n.*, BARBER 24.—*H. n.*, COCKERELL 80.—*H. n.*, ELLIOTT 123.—*H. n.* var. *fascialba*, JOLLIFFE 194.—*H. pisana*, QUICK 305.—*H. pomatia*, JORDAN 198.—*H. p.*, JORDAN & LAM 199.—*H.*, GATENBY 135.—*H.*, UPTON 366.

†*Helix aspersa*, CARTER 61.—*H. nemoralis*, SCHARFF, SEYMOUR & NEWTON 331.—*H. occidentalis* Mk. & H., HENDERSON 168.—*H.*, HARMER 163.

*Hygromia fusca*, ROEBUCK 326.—*H. odeca* (Locard), KENNARD & WOODWARD 205.—*H.*, UPTON 366.

†*Klikia coarctata* (Klein) varr. n. *umbilicata & steinheimensis*; *K. catantostoma* (Sandberger) var. n. *conica* Tertiary Germany, Joos Centralbl. Min. Stuttgart 1918 p. 294.

*Landouria* gen. n. Type *H. huttoni*, Pfr., with *L. damsangensis*, Sikhim, *henganensis*, N. Cachar., *aborensis* Abor. Hills spp. n. GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 pp. 604–611.

*Massylaea (?) severinae* sp. n. N. Africa PALLARY Bull. Soc. Hist. Nat. Af. Nord 1918 p. 148.

*Mikiria* gen. n. Type *M. diyungensis*, G.-A, sp. n. Singpho Hills, GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 p. 611.

*Obba listeri bataanensis* subsp. n. Philippines, BARTSCH Nautilus 32 p. 16.—*O.* with *O. papilla* Müll form n. *konawensis* Celebes, BOLLINGER Rev. Suisse Zool. Genève 26 p. 329.

*Odontosagda abbotti* sp. n. Haiti, VANATTA Proc. Acad. Nat. Sci. Philad. 70 p. 237.

*Oreohelix* with *O. strigosa meridionalis* subsp. n. S. W. United States, PILSBRY & FERRISS Philad. Proc. Acad. Nat. Sci. 70 pp. 320-325.—*O. cooperi obscura* form. n. Wyoming, HENDERSON Nautilus 32 p. 46.—*O. handi* sp. n. Nevada, PILSBRY & FERRISS Nautilus 31 p. 94.—*O. FERRISS* 130.—*O. HENDERSON* 166.

*Papuina* with *P. lintschuana* form. n. *infraplanata* & *P. kubaryi* var. n. *albolabiate* N. New Guinea, SCHEPMAN Zool. Med. Leiden 4 pp. 7-9.

*Planispira* with *P. zodiacus* Fér var. *tuba* (Albers) form. n. *rubida* Celebes, BOLLINGER Rev. Suisse Zool. Genève 26 p. 330.—*P.* with *P. (Cristigibba) planissima*, sp. n. & *P. (C.) musgravi* var. n. *efasciata* N. New Guinea, SCHEPMAN Zool. Med. Leiden 4 pp. 5-6.

*Plectotropis chondroderma* var. n. *subinflata* Tonkin, GUDE London Proc. Malac. Soc. 13 p. 18.—*P.*, GODWIN-AUSTEN 149.

†*Pleurodonte debooyi* sp. n. Quaternary St. Croix, W. Indies, BARTSCH Smiths. Inst. Proc. U. S. Nation. Mus. 54 pp. 605-606.

*Polygyra albolabris maritima*, COCKERELL 79.

*Rhagada*, HEDLEY 164.

*Sonorella* with *S. odorata*, *S. o. marmoris*, *S. sabinoensis*, *S. s. occidentalis* & *bushmanensis*, *S. hesterna*, *S. marmorarius*, *S. m. limifontis* & *inula*, *S. galiurensis*, *tortillita*, *S. grahamensis*, *delicata*, *cærulifluminis*, *S. binneyi franciscana* spp. & subspp. n. S. W. United States, PILSBRY & FERRISS Philad. Proc. Acad. Nat. Sci. 70 pp. 285-301 311 314-318.—*S. wolcottiana*, PILSBRY 292.—*S.*, FERRISS 130.

*Stylodonta thirionxi* sp. n. Mauritius, GERMAIN Bul. Mus. Paris 1918 p. 523.

*Thysonota*, GODWIN-AUSTEN 149.

*Tingitana* sec. n. (*Archelix*) Type *A. minettei* with *T. anoceurensis*, *bessabisana*, *orientalis* spp. n. N. Africa, PALLARY Bull. Soc. Hist. Nat. Af. Nord 1918 p. 145.

†*Trichiopsis helicidarum* sp. n. Tertiary Germany, Joos Centralbl. Min. Stuttgart 1918 p. 292.

†*Tropidomphalus dilatatum*, *sparsitictum* spp. n. Tertiary Germany, Joos Centralbl. Min. Stuttgart 1918 p. 293.

*Vallonia cyclophorella septuagentaria* subsp. n. California, PILSBRY & FERRISS Nautilus 31 p. 95.—*V.*, STERNBERG 340A.

*Valloniidae*, PILSBRY & FERRISS, 301.

*Xerophila palatiana*, *X. (Xeromunda) psammophila*, *X. omphalodes*, *amelliana*, *znassenensis*, *muluchaensis*, *guercifiana*, *bogudiana*, *pietrowskae*, *mocquerysi*, *dis-similis*, *berkanensis*, *senrati*, *brunoti*, *verignoni*, *guersiana*, *X. (Xeroleuca) drissana*, *X. (X.) moghrabina privatiana*, *brulari* var. *claveli* & *b.* var. *bergeroni*, *X. (Trochula) fryattiana*, *X. pequignotiana*, *edriissiana* spp. & varr. n. N. Africa, PALLARY Bull. Soc. Hist. Nat. Af. Nord 1918 pp. 138-144.

*Zachrysia ramsdeni* sp. n. Cuba, PILSBRY Nautilus 31 p. 78.

BULIMIDÆ, ORTHALICIDÆ & BULIMULIDÆ.

*Amphidromus* with *A. centrocelebensis* sp. n. Celebes, BOLLINGER Rev. Suisse zool. Genève 26 pp. 331-333.

*Borus rimanni* sp. n. Argentina, FRENGUELLI Bol. Ac. Nac. Ci. Cordoba (Argentina) 23 p. 228.

†*Borus rimanni* var. n. *fossilis* [Quaternary] Argentina, FRENGUELLI Bol. Ac. Nac. Ci. Cordoba (Argentina) 23 p. 228.

*Bulimulus (Proglyptus) brunoi* nom. n. for *Loboa brunoi* v. Ihering, BARTSCH Nautilus 32 p. 54.

ENIDÆ (*Buliminidae olim*), UROCOPIDÆ & PUPIDÆ.

*Alopi*, DEAN 111.

*Balea perversa*, UPTON 366.

*Buliminus marteli, barbini, znassenensis*, spp. n., N. Africa, PALLARY Bull. Soc. Hist. Nat. Af. Nord. 1918 pp. 148-149.—*B. coenopictus* Hutton, GERMAIN 142.—*B. (Pseudocerastus) boivini* Morelet, GERMAIN 143.

*Cerion*, BARTSCH 34.—*C.*, MAYER 251.

*Chondrina* with *C. megacheila caziotana* nom. n. for *Pupa m. var. labiosa* Caz., *C. kobelti ordunensis* subsp. n. Spain; *C. jumillensis guiraonis* nom. n. for *Pupa jumillensis* Guirao Rossm.; *C. gorbeana* sp. n. Spain, PILSBRY Man. Conch. 24 pp. 10, 39, 51, 56.

*Clausilia* with *C. aborensis, shiman-gensis*, spp. n., Abor Hills, GODWIN-AUSTEN Abor Exp. Rec. Ind. Mus. Calcutta 8 pp. 618-619.—*C. biplicata*, UPTON 366.—*C.*, BOLLINGER 46.—*C.*, HURST 179.

†*Clausilia rolphii*, CARTER 61.

*Ena montana* (Drap.), OVERTON 284.—*E.*, HURST 179.

*Falsopupa* gen. n. (*Pupidæ* [= *Vertiginidæ*]), GERMAIN Bull. Mus. Paris 1918 p. 521.

*Holospira*, FERRISS 130.

*Ithyption* sec. n. of *Alopiæ*, DEAN J. Conch. Leeds 15 p. 265.

*Jaminiæ muscorum* var. *bigranata*, UPTON 366.

*Orcula tingitana* sp. n. N. Africa, PALLARY Bull. Soc. Hist. Nat. Af. Nord. 1918 p. 149.

*Pupillidæ*, PILSBRY 295.—*P.*, PILSBRY & FERRISS 301.

*Pseudocerastus* subgen. n. type *Buliminus boivini* Morelet, GERMAIN Bull. Mus. Paris 1918 p. 258.

*Rachis (Rachis) rhodotaenia* Martens with var. n. *andradensis* Portuguese East Africa, GERMAIN Bull. Mus. Paris 1918 pp. 362-364.—*R. (Rachisellus) punctatus* Anton, GERMAIN 142.

#### STENOGRYRIDÆ & ACHATINELLIDÆ.

*Abida* with *A. illyrica*, Rossm. var. n. *gastrodes* Italy; *A. atracta* nom. n. for *Pupa fusiformis*, Kuester & *A. a.* var. *puella* nom. n. for *P. f.* var. *minor*, Küster, PILSBRY Man. Conch. 23 pp. 305, 327-328.

*Achatina* with *A. (Achatina) vassei* sp. n. Portuguese East Africa, GERMAIN Bull. Mus. Paris 1918 pp. 368-370.

*Azeæ*, HURST 179.

†*Cæcilioides acicula*, CARTER 61.

*Curvella delicata* (Gibbons) Taylor, GERMAIN 142.—*C. ?*, GODWIN-AUSTEN 149.

*Ferrussacia algerica* sp. n. N. Africa, PALLARY Bull. Soc. Hist. Nat. Af. Nord 1918 p. 149.

*Ferussaciidæ*, PILSBRY & FERRISS 301.

*Gastrocopta*, PILSBRY 295.

*Glessula oakesi, aborensis*, spp. n., Abor Hills, GODWIN-AUSTEN Abor. Exp. Rec. Ind. Mus. Calcutta 8 pp. 615-618.

*Granopupa* with *G. michaudi isseriana* subsp. n. Kabyliæ, PILSBRY Man. Conch. 23 p. 346.

*Homorus insularis* sp. n. Zanzibar, GERMAIN Bull. Mus. Paris 1918 pp. 266-268.

*Limicolaria flammata* Caillaud, GERMAIN 144.

*Obeliscus abbotti* sp. n. Haiti, VANATTA Proc. Acad. Nat. Sci. Philad. 70 p. 238.

*Odontocyclas*, PILSBRY 295.

*Sandahlia* with *S. cylindrica curta* subsp. n. [? France]. PILSBRY Man. Conch. 23 p. 261.

*Stenogyra*, BOLLINGER 46.

*Tornatellinidæ*, PILSBRY 295.

#### SUCCINCIDÆ, VERONICELLIDÆ, VAGINULIDÆ & ONCHIDIIDÆ.

*Onchidiidæ*, HEDLEY 165.

*Onchidium*, AREY & CROZIER 13.

*Succinea celebica* sp. n. Celebes, BOLLINGER Rev. Suisse Zool. Genève 26 p. 336.—*S. avara*, PILSBRY & FERRISS 301.—*S.*, ANNANDALE 2.—*S.*, BAKER 17.

*Succineidæ*, BAKER 23.

*Vaginula*, BOLLINGER 46.

*Veronicella chevalieri* sp. n. Haut Oubangui, GERMAIN Bull. Mus. Paris 1918 pp. 137-141.—*V. geayi* sp. n. Madagascar, GERMAIN Bull. Mus. Paris 1918 pp. 181-186.

- ELLOBIIDÆ (*Auriculidæ olim*), LIMNÆIDÆ, PHYSIDÆ & CHILINIDÆ.
- Acella*, BAKER 17.—A., WALKER 377.
- Acroloxus*, WALKER 377.
- Amphibolidæ*, HEDLEY 165.
- Amphigyra*, WALKER 377.
- Amphipeplea affinis*, HEDLEY 164.—A. *glutinosa*, UPTON 366.
- Ancylidae*, BAKER 23.—A., PILSBRY & FERRISS 301.—A., WALKER 377.
- Ancylus*, BAKER 17.—A., BOYCOTT 50.—A., COLTON 85.—A., CAWSTON 62.—A., HURST 179.
- Aplexa*, WALKER 377.
- Armiger*, WALKER 377.
- Bulimnea*, WALKER 377.
- Bullinus sisurnius* sp. n. W. Australia, HEDLEY Proc. R. Geogr. Soc. Australasia S. Austr. Branch Adelaide 1916-1917 p. 20.—B., ANNANDALE 1.
- Carinifex*, WALKER 377.
- Carychium exiguum floridanum*, subsp. n., Florida, CLAPP Nautilus 31 p. 73.—C., HURST 179.
- Costatella*, WALKER 377.
- Ellobiidae*, HEDLEY 165.
- Ellorium aurisjudæ*, HEDLEY 164.
- Ferrissia*, WALKER 377.
- Ferrissiinae*, WALKER 377
- Fisherola*, WALKER 377.
- Galba*, BAKER 17.—G., WALKER 377.
- Gundlachia*, WALKER 377.
- Gyraulus*, WALKER 377.
- Helisoma*, WALKER 377.
- Hippentis*, WALKER 377.
- Isidora gibbosa*, SHEPMAN 332.—I. *tropica*, CAWSTON 64.—I., CAWSTON 62.
- Kincaidella*, WALKER 377.
- Laevapex*, WALKER 377.
- Lancinae*, WALKER 377.
- Lanx*, WALKER 377.
- Limnaea* [vide etiam *Lymnaea*] with *L. shanensis*, *mimetica*, spp. n., Burma ANNANDALE Rec. Ind. Mus. Calcutta, 14 pp. 105-111.—*L. glabra* var. n. *albida*, England, JACKSON J. Conch. Leeds 15 p. 238.—*L. g.*, JACKSON 186.—*L. g.*, ROEBUCK 322 & 323.—*L. natalensis*, CAWSTON 62.—*L. stagnalis* CARTER 60.—*L. truncatula* & *peregra*, WALTON 380.—*L.*, ANNANDALE 1 & 4.—*L.*, BOYCOTT 50.—*L.*, SIERRA 335.
- †*Limnaea tenuicosta*, Mk. & H., HENDERSON 168.—*L.*, ANNANDALE 2.
- Lymnophila*, WALKER 377.
- Lymnaea* [vide etiam *Lymnaea*] *auricularia*, *hendersoni*, HENDERSON 169.—*L.*, BAKER 17.—*L.*, COLTON 85.—*L.*, HANNIBAL 160.—*L.*, HUGGINS 178.—*L.*, WALKER 377.
- †*Lymnaea*, HANNIBAL 160.
- Lymnaeidae*, BAKER 23.—L., WALKER 377.
- †*Lymnaeidae*, BAKER 21.
- Melampus fleucosus*, HEDLEY 164.
- Menetus*, WALKER 377.
- Neoplanorbinae*, WALKER 377.
- Neoplanorbis*, WALKER 377.
- Otina otis*, MELVILL 253.
- Physa*, BAKER 17.—P., BOYCOTT 50.—P., COLTON 85.—*P. acuta*, COOPER 88.—P., FAUST 129.—P., HURST 179.—P. *heterostropha*, JACKSON 185.—P., UPTON 366.—P., WALKER 377.
- Physidae*, BAKER 23.—P., PILSBRY & FERRISS 301.—P., WALKER 377.
- †*Physidae*, BAKER 21.
- Physopsis africana*, CAWSTON 62 & 64.
- Pierosoma*, WALKER 377.
- Planorbella*, WALKER 377.
- Planorbidae*, BAKER 23.—P., WALKER 377.
- †*Planorbidae* with *P. parvus urbanensis*, var. n., *P. altissimus* sp. n. Quaternary U.S.A., BAKER J. Geol. Chicago 26 p. 664.
- Planorbina*, WALKER 377.
- Planorbinae*, WALKER 377.
- Planorbis* with *P. velifer* & *P. v.* var. *ciliata*, sp. & var. n. Burma, ANNANDALE Rec. Ind. Mus. Calcutta 14 pp. 111-113.—P. with *P. (Tropidiscus) planorbis*, L. var. *tangitarenensis* Eastern Turkestan; *P. (Gyraulus) albobersicus* Persia; *P. (Armiger) annandalei* Yarkand var.



& spp. n., GERMAIN *Bul. Mus. Paris* 1918 pp. 271–283.—*P. vortex* var. n. *albida*, England, JACKSON *J. Conch. Leeds* 15 p. 288.—*P.* with *P. confusus* nom. n. for *P. ferrugineus* Spix in d'Orb.; *P. centimetralis*, *nigrilabris*, *melleus*, *incertus*, *P. (Spirulina) nigellus*, *P. pronus*, spp. n., Brazil, LUTZ *Rio de Janeiro Mem. Inst. Oswaldo Cruz* 10 pp. 69–80 49–60.—*P. exustus*, LISTON & SOPARKAR 229.—*Planorbis (Planorbis) rüppelli*, Dunker, GERMAIN 144.—*P.*, ANNANDALE 1 & 4.—*P.*, BAKER 17—*P.*, BOYCOTT 50.—*P.*, CAWSTON 62.—*P.*, COLTON 85.—*P.*, FAUST 129.—*P.*, GERMAIN 145.—*P.*, HURST 179.—*P.*, LUTZ & PENNA 237 & 238.—*P.*, WALKER 377.

†*Planorbis vetulus*, Mk. & H., HENDERSON 168.

*Planorbula*, WALKER 377.

*Polyrhytis*, WALKER 377.

*Pompholiginae*, WALKER 377.

*Pompholix*, WALKER 377.

*Pseudogalba*, WALKER 377.

*Pseudosuccinea*, WALKER 377.

*Pythia pantherina*, SCHEPMAN 332.

*Radia*, WALKER 377.

*Rhodacmea*, WALKER 377.

*Rhodacmeinae*, WALKER 377.

*Rhodocephala*, WALKER 377.

*Segmentina* with *S. (S.) boulei* sp. n. Madagascar, GERMAIN *Bul. Mus. Paris* 1918 pp. 51–54.—*S. paparyensis* sp. n. Brazil, LUTZ *Rio de Janeiro Mem. Inst. Oswaldo Cruz* 10 pp. 77, 56.—*S.*, BAKER 17.—*S.*, WALKER 377.

†*Segmentina (S.) boulei* sp. n. Quarternary Madagascar, GERMAIN *Bul. Mus. Paris* 1918 p. 53.

*Siliquaria wilmanae* sp. n. South Africa, TOMLIN *London Proc. Malac. Soc.* 13 p. 10.

*Siphonariidae*, HEDLEY 165.

*Stagnicola*, WALKER 377.

*Torquis*, WALKER 377.

*Tropidiscus*, WALKER 377.

*Walkerola*, WALKER 377

#### INCERTAE SEDIS.

*Atlasica (?) soluta* Mich. var. n. *rufa* N. Africa, PALLARY *Bull. Soc. Hist. Nat. Af. Nord.* 1918 p. 148.

*Pseudosuccinea*, BAKER 17.

#### Scaphopoda.

*Cadulus*, HEDLEY 165.

†*Cadulus groenlandicus* sp. n. Cretaceous Greenland, RAVN *Kjøbenhavn Medd. Groenl.* 56 p. 356.

*Dentalium tomlini* sp. n. Karachi MELVILL *Ann. Mag. Nat. Hist.* 1 p. 155.—*D.*, HEDLEY 165.

†*Dentalium Martini* sp. n. Celebes Oligocene, DOLLFUS E. C. *Abendanon Midden-Celebes* 3 p. 993.—*D. groenlandicum* sp. n. Cretaceous Greenland, RAVN *Kjøbenhavn Medd. Groenl.* 56 p. 354.—*D. (Plagioglypta) novaresci* sp. n. Carboniferous Elba, DE STEFANI *Pal. Ital. Pisa* 23 p. 42.—*D.*, TRECHMANN 360.

#### Pelecypoda or Lamellibranchia.

##### GENERAL.

*Lamellibranchia*, NELSON 264.

##### TETRABRANCHIA.

##### OSTRACEA.

†*Anomia poculifera* sp. n. Tertiary New Zealand, MARSHALL *Trans. and Proc. N.Z. Inst.* 50 p. 270.

*Anomiidae*, HEDLEY 165.

†*Ctenostreon proboscideum*, COUFFON 95.

*Enigmonia* gen. n. for *Anomia rosea* Gray = *Ænigma ænigmatica* auctt., IRDALE *London Proc. Malac. Soc.* 13 pp. 28, 31.

†*Exogyra minos*, DIETRICH 116.

†*Gryphaea [Lyogyphaea] bullata*, COUFFON 95.

*Ostrca* with *O. bryani* sp. n. Hawaii, PILSBRY *Proc. Acad. Nat. Sci. Philad.* 69 pp. 327–329.—*O. cucullata*, HEDLEY 164.—*O. edulis*, DANTAN 109.

*Ostreidae*, HEDLEY 165.

*Patro elyros*, HEDLEY 164.

†*Plicatula peregrina*, COUFFON 95

## PECTINACEA.

†*Aviculopecten dupontesi* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 87.

*Chlamys singaporinus*, HEDLEY 164.

†*Chlamys*, COUFFON 95.

*Dimyidae*, HEDLEY 165.

†*Hinnites (Prospodylus) pamphilus* COUFFON 95.

†*Lima gigantea*, WITHERS 395.—*L.*, TRECHMANN 360.—*L. (Radula) semitegulata*, COUFFON 95.

†*Limatula gibbosa*, COUFFON 95.

*Limidae*, HEDLEY 165.

*Pecten (Chlamys) patriae* sp. n. Argentina, DOELLO-JURADO Physis Buenos Aires 4 p. 269.—*P. macassarensis*, HEDLEY 164.

†*Pecten abandononi* sp. n. Celebes Oligocene, DOLLFUS E. C. Abendanon Midden-Celebes 3 p. 997.—*P. costostriatus, subconvexus* spp. n. Tertiary New Zealand, MARSHALL Trans. and Proc. N.Z. Inst. 50 p. 273.—*P. fimbriatus* sp. n. Trias Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 129.—*P.* with *P. (Chlamys) stratissimus, P. pfaffi, P. (Amussium) ignoratus* spp. n. Cretaceous Greenland, RAVN Kjøbenhavn Medd. Groenl. 56 pp. 338-342.—*P. (Amussiopecten) albinus, kadici, schwinneri, dregeri* spp. n. Tertiary Austria, TEPFNER & DREGER Wien Jahrb. Geol. Rchs-Anst 67 pp. 482-495.—*P. (Neithea) woodsii* sp. n. Cretaceous Bohemia, WOLDRICH Wien Jahrb. Geol. Rchs. Anst. 67 p. 285.—*P. globosus*, COUFFON 95.—*P.*, WITHERS 395.—*P.*, TRECHMANN 360.

*Pectinidae*, HEDLEY 165.

†*Plagiostoma tenuistriata*, COUFFON 95.

†*Plesiopecten subspinosus*, COUFFON 95.

*Plicatula imbricata*, HEDLEY 164.

†*Pseudomonotis* with *P. ochotica* var. n. *acutecostata* Trias New Zealand TRECHMANN London Q. J. Geol. Soc. 73 pp. 191-194.

†*Pseudoplacunopsis placentoides* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 209.

*Spondylidae*, HEDLEY 165.

†*Spondylus aucklandicus* sp. n. Tertiary N. Zealand, MARSHALL Trans. & Proc. N.Z. Inst. 50 p. 721.—*S.* with *S. foraii* sp. n. Cretaceous Egypt GRECO Pal. Ital. Pisa 23 pp. 123 124.—*S. latus* sp. n. Cretaceous Bornholm, RAVN Dan. Geol Unders. Ser. II 31 p. 29.—*S.*, HEDLEY 164.

## MYTILACEA.

†*Actinopteria (Pteronites) deprati* sp. n. Devon Indo China, MANSUY Mem. Serv. Géol. Indochine 1 p. 47.

†*Anthracomya arenacea*, Dawson, WOODWARD 398.

*Avicula candeana*, JOHNSON 192.

†*Avicula*, WITHERS 395.—*A. (Orytoma) inaequivalvis*, COUFFON 95.

†*Aucellina gryphaeoides* (Sow.), WITHERS 395.

†*Daonella*, TRECHMANN 360.

†*Didymotis* with *D. trinidadensis* sp. n. Cretaceous Trinidad, SOMMERMEIER Centralbl. Min. Stuttgart 1918 p. 132.

*Fundella candeana*, JOHNSON 192.

†*Gervilleia (?) intermedia* sp. n. Trias Indo China, MANSUY Mem. Serv. Géol. Indochine 1 p. 120.

†*Gervilleia robusta ferinai, obtusa, aequabilis*, spp. n., Upper Cretaceous Bohemia, ŽELIZKO Wien Jahrb. Geol. Rchs. Anst. 67 pp. 338-339.

†*Halobia* with *H. zitteli* var. n. *zealandica* Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 pp. 197-201.

†*Hokoniua* gen. n. with *H. limaeformis, rotundata*, spp. n., Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 pp. 202-205.

†*Inoceramus*, SOMMERMEIER 337.

*Isognomon nucleus*, HEDLEY 164.

†*Limoptera inopinata* sp. n. Devonian Indo-China, MANSUY Mem. Serv. Géol. Indochine 1 p. 45.

*Meleagrina margaritifera*, SCHEPMAN 332.

*Modiola*, ANNANDALE 4.—*M.*, HEDLEY 164.

†*Modiola fosseni* sp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 p. 41.—*M.*, COUFFON 95.

*Modiolaria ? glabra* sp. n. Cretaceous Greenland, RAVN Kjøbenhavn Medd. Groenl. 56 p. 343.

†*Monotis* with *M. salinaria* varr. n. *intermedia* & *hemispherica* Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 pp. 195–196.—*M.*, SOMMERMEIER 337.

†*Myallina rosteri, ilvaensis, spp. n.*, Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 pp. 28–29.

*Mytilidae*, HEDLEY 165.

†*Mytilus torquatus* sp. n. Tertiary N. Zealand, MARSHALL Trans. & Proc. N. Z. Inst. 50 p. 271.—*M.* (?) with *M.* (?) *mirabilis* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 pp. 201–202.—*M.* (*Septifer* ?) *pocta-i* sp. n. Cretaceous Bohemia, WOLDRICH Wien Jahrb. Geol. Rchs-Anst. 67 p. 279.—*M.* (*Myoconcha*) *eudesii*, COUFFON 95.

†*Opisthoptera*, FOERSTE 131.

†*Perna mytiloides*, COUFFON 95.

*Pernidae*, HEDLEY 165.

†*Pinna*, TRECHMANN 360.

*Pinnidae*, HEDLEY 165.

†*Pseudomonotis plicatuloides* sp. n. Trias Indochine, MANSUY Mem. Serv. géol. Indochine 1 p. 129.

*Pteriidae*, HEDLEY 165.

†*Pterinea*, FOERSTE 131.

*Septifer bilocularis*, HEDLEY 164.

*Vulsellidae*, HEDLEY 165.

#### ARCAEA.

*Arca*, ANNADALE 4.—*A.*, HEDLEY 164.

†*Arca* with *A. (Trigonoarca) ferlinii, rosellini, spp. n.*, Cretaceous Egypt, GRECO Pal. Ital. Pisa 23 pp. 127–128, 150.

*Arcidae*, HEDLEY 165.

†*Ctenodonta* with *C. (Palaeoneilo) bigeschii, manassei, spp. n.*, Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 pp. 24–25.

†*Leda circumflexa* sp. n. Silurian Indo China, MANSUY Mem. Serv. Géol. Indochine 1 p. 35.—*L. semicrenulata* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 191.

†*Limopsis rinki* sp. n. Cretaceous Greenland, RAVN Kjøbenhavn Medd. Groenl. 56 p. 347.

†*Macrodon achiardii, martellii, spp. n.*, Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 pp. 26, 27.—*M.*, TRECHMANN 350.

*Neotrigonia uniophora*, HEDLEY 164.

*Nucula superba*, HEDLEY 164.

†*Nucula belzonii* sp. n. Cretaceous Egypt, GRECO Pal. Ital. Pisa 23 p. 151.—*N.*, *placentina*, BELL 39.

*Nuculanidae*, HEDLEY 165.

*Nuculidae*, HEDLEY 165.

†*Paleoneilo amsdenensis* sp. n. Carboniferous Wyoming, BRANSON & GREGER Washington D.C. Bul. Geol. Soc. 29 p. 323.—*P. triangularis* sp. n. Silurian Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 39.—*P.* with *P. otamitensis* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 190.

*Philobryidae*, HEDLEY 165.

†*Sarepta aucklandica* sp. n. Tertiary N. Zealand, MARSHALL Trans. & Proc. N. Z. Inst. 50 p. 271.

*Trigoniidae*, HEDLEY 165.

#### SUBMYTILACEA.

*Acostæa*, Orb. replaces *Mulleria*, Fér., 1823, IREDALE London Proc. Mal. Soc. 13 pp. 28, 35.

*Actinonaias*, WALKER 377.

*Atheria elliptica*, Lk., GERMAIN 144 & 145.

*Alasmidonta*, BAKER 17. — *A.*, WALKER 377.

*Alasminota*, WALKER 377.

*Amblema*, WALKER 377.

*Amygdalonaias*, WALKER 377.

*Anodonta*, ANNADALE 4.—*A.*, BAKER 17.—*A.*, BOYCOTT 50.—*A.*, COBB 77.—*A. anatina*, UPTON 366.—*A.*, WALKER 377.

- †*Anodonta parallela*, HENDERSON 168.  
*Anodontinae*, WALKER 377.  
*Anodontoides*, WALKER 377.
- †*Anodontophora* with *A. angulata*,  
*ovulis*, *edmondiformis*, spp. n., Trias  
 New Zealand, TRECHMANN London  
 Q. J. Geol. Soc. 73 pp. 207-208.
- Arcidens*, WALKER 377.  
*Arkansia*, WALKER 377.
- †*Astarte kickxii*, BELL 39.
- †*Astartella orientalis*, *cristata*, spp. n.,  
 Carboniferous Indo-China, MANSUY  
 Mem. Serv. géol. Indochine 1 pp.  
 99-100.
- Bullella*, WALKER 377.
- Calceola* cannot stand for *Presso-*  
*donta*, WALKER Nautilus 32 p. 35.
- Canthyria*, WALKER 377.
- Cardita aviculina*, HEDLEY 164.
- †*Cardita*, MARTIN 245.
- Carditella concinna* sp. n. Karachi,  
 MELVILL Ann. Mag. Nat. Hist. 1 p.  
 157.—*C. torresi*, HEDLEY 164.
- Carunculina*, WALKER 377.
- Cokeria*, WALKER 377.
- Congeria*, WALKER 377.
- Crassatellidae*, HEDLEY 165.
- Crypogenia*, WALKER 377.
- Cumberlandia*, WALKER 377.
- Cyrena*, WALKER 377.
- Cyrenella*, WALKER 377.
- Cyrenellidae*, WALKER 377.
- Cyrenidae*, WALKER 377.
- †*Cystodonta*, FOERSTE 131.
- Diplodon wilsonii*, HEDLEY 164.
- Dreissensidae*, WALKER 377.
- Dromus*, WALKER 377.
- Dysnomia*, WALKER 377.
- Elliptio dilatatus* var. n. *sterkii*  
 Lake Erie, GRIER Nautilus 32 p. 9.—  
*E.*, BAKER 17.—*E.*, WALKER 377.
- Eurynia* (*Micromya*) *venusta* (Lea),  
 ORTMANN 280.—*E.*, WALKER 377.
- Fusconia cor* var. n. *analoga* Vir-  
 ginia, ORTMANN Philadelphia Proc.  
 Amer. Phil. Soc. 57 p. 533.—*F. flava*  
 var. n. *parvula* Lake Erie, GRIER  
 Nautilus 32 p. 11.—*F.*, WALKER  
 377.
- Glebulia*, WALKER 377.  
*Gonidea*, WALKER 377.
- Indonaiia* gen. n. Type *Nodulari-*  
*caerulea* var. *gaudichaudi*, PRASHAD  
 Rec. Ind. Mus. Calcutta 15 pp. 140-  
 146.
- Jugosus*, WALKER 377.
- Lamellidens*, PRASHAD 304.
- Lampsilinea*, WALKER 377.
- Lampsilis radiata oneidensis* var. n.  
 New York State, BAKER Syracuse  
 Univ. Tech. Pub. No. 9 N. Y. State  
 Coll. For. 18 p. 247.—*Lampsilis brevi-*  
*cula* (Call.), ORTMANN 280.—*L.*, BAKER  
 17.—*L.*, WALKER 377.—*L.*, MARSHALL  
 243.
- Lasmigona costata* var. n. *ereganensis*  
 Lake Erie, GRIER Nautilus 32 p. 10.—  
*L.*, WALKER 377.
- Lastena*, WALKER 377.
- Lemiox*, WALKER 377.
- Lexingtonia*, WALKER 377.
- Margaritana marocana* sp. n. N.  
 Africa, PALLARY Bull. Soc. Hist. Nat.  
 Af. Nord. 1913 p. 152.—*M.*, WALKER  
 377.
- Margaritanidae*, ORTMANN 279.—*M.*,  
 WALKER 377.
- Medrionidus*, WALKER 377.
- Megalonaias*, WALKER 377.
- Micromya*, WALKER 377.
- †*Modiolopsis*, FOERSTE 131.
- †*Modiomorpha lavalii* Silurian Indo-  
 China; *duponti* Devon Indo-China  
 spp. n. MANSUY Mem. Serv. géol. Indo-  
 China 1 pp. 39, 60.
- Mutela* (*Mutela*) *mitolica*, Caill., GER-  
 MAIN 144.
- †*Myophoria nuggetensis*, *otamitensis*,  
*heshingtonensis*, spp. n., Trias New  
 Zealand, TRECHMANN London Q. J.  
 Geol. Soc. 73 pp. 210-211.
- Mytilopsis*, WALKER 377.
- Nephronajas*, BAKER 17.
- Nodularia geayi*, GERMAIN 145.—  
*N.*, ANNANDALE 4.—*N.* (*Coelatura*),  
 GERMAIN 144.—*N.*, ORTMANN 282.

- Obliquaria*, WALKER 377.  
*Obovaria*, WALKER 377.  
 †*Palaeocardita quadrata* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 212.  
*Paraptera*, WALKER 377.  
*Parreyssia*, PRASHAD 304.  
*Pegias*, WALKER 377.  
*Physunio* with *P. micropteroides*, *ferrugineus* spp. n. BURMA, ANNANDALE Roc. Ind. Mus. Calcutta 14 pp. 138-139  
*Pilea*, WALKER 377.  
*Plagiola*, WALKER 377.  
*Platynaias*, WALKER 377.  
*Plethobasus*, WALKER 377.  
*Pleurobema*, WALKER 377.  
 †*Pleurophorus zealandicus* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 212.  
*Pressodonta* should stand instead of *Calceola*, WALKER Nautilus 32 p. 35.—P., WALKER 377.  
*Prolasmidonta*, WALKER 377.  
*Proptera*, WALKER 377.  
 †*Protoschizodus balticus*, P. b. var. *dubia* sp. & var. n. Devonian Germany, MÜHLEN Berlin Jahrb. geol. Landesanst. 38 pp. 212, 213.  
*Pseudoön*, WALKER 377.  
*Pterosyna*, WALKER 377.  
*Ptychobranchnus*, WALKER 377.  
*Quadrula*, WALKER 377.  
*Rangia*, WALKER 377.  
*Rangiidae*, WALKER 377.  
*Rotundaria*, WALKER 377.  
*Rufigera*, WALKER 377.  
*Scalenaria*, WALKER 377.  
 †*Schizodus (Protoschizodus) campanae*, *saccoi*, S. (P.?) *grattarolae*, *cocchii*, *lottii*, *aloiisii*, *corbuloides*, S. *etruscus*, S. (*Myophoria*) *martiroloti*, S. (M.?) sp. spp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 pp. 32-40.—S. *melani* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 99.  
*Simpsoniconcha*, WALKER 377.  
*Spatha wahlbergi*, ORTMANN 281.  
 (N-5464<sub>r</sub>)  
*Strophitus edentulus pavonius* (Lea), ELLIS & KEIM 124.—S. BAKER 17.  
 S., WALKER 377.  
*Theliderma*, WALKER 377.  
*Tritogonia*, WALKER 377.  
*Truncilla*, WALKER 377.  
*Unio marteli* sp. n. N. Africa. PALLARY Bull. Soc. Hist. Nat. Af. Nord. 1918 p. 151.—*U. margaritififer*, ROEBUCK 325.—*U. tumidus* var *ponderosa*, UPTON 366.—*U. caffer*, ORTMANN 281.—U., ANNANDALE 1.—U., BOYCOTT 50.—U., GERMAIN 145.—U., HURST 179.—U., RETZIUS, ORTMANN 282.  
 †*Unio whitei* nom. n. for *U. rectoides*, White, HENDERSON Nautilus 32 p. 60.—*U. rectoides*, White, browni, Whitfield, HENDERSON 168.  
*Uniomeres*, WALKER 377.  
 †*Unionidae*, BAKER 21 & 23.—U. EVERMANN & CLARK 128.—U., GHOSH 147.—U., ORTMANN 279.—U., PILSBRY & FERRISS 301.—U., WALKER 376 & 377.  
*Unioninae*, WALKER 377.  
*Venericardia hirasei*, V. (*Cyclocardia*) *morsei* spp. n. Japan, DALL Smiths. Inst. U. S. Nation. Mus. Proc. 54 p. 234.  
 ERYCINACEA.  
*Galeommatidae*, HEDLEY 165.  
*Kelliellidae*, HEDLEY 165.  
*Leptonidae*, HEDLEY 165.  
 ? *Scintilla chloris* sp. n. Lower California, DALL Washington Proc. Biol. Soc. 31 p. 5.  
 CARDIACEA.  
*Cardiidae*, HEDLEY 165.  
*Carditidae*, HEDLEY 165.  
*Cardium*, HEDLEY 164.  
 †*Cardium celebesensis* sp. n. Celebes, Oligocene, DOLFFUS E. C. Abendanon. Midden-Celebes 3 p. 997.—C., BELL 39.—C. (*Glans*) *Kaiparaensis* sp. n. Tertiary N. Zealand, MARSHALL Trans. & Proc. N. Z. Inst. 50 p. 272.  
*Condylocardiidae*, HEDLEY 165.  
*Hippopus hippopus*, HEDLEY 164.  
*Opisocardium subretusum*, HEDLEY 164.  
*Tridacna elongata*, HEDLEY 164.  
 a 15

## CHEMACEA.

*Chamidae*, HEDLEY 165.

## CONCHIACEA.

†*Anisocardia parvula* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 213.

*Antigona*, HEDLEY 164.

*Asaphis deflorata*, HEDLEY 164.—A. d., LAMY 220.

†*Azinus de Lorioli* sp. n. Cretaceous Greenland, RAVN Kjøbenhavn Medd. Groenl. 56 p. 348.

*Callanaitis* should replace *Salacia* Jukes-Browne; COSSMANN Rev. crit. Pal. Paris 22 p. 42.

*Clementina crassiplicata*, HEDLEY 164.

*Corbicula Mahalonensis*, *Towutensis*, *Loehensis Masapensis* spp. n. Celebes, KRUIEEL E. C. Abendanon Midden-Celebes 4 pp. 1644-1645.—*C. fluminalis* Müll., GERMAIN 144.—*C.*, ANNANDALE 1, 2 and 4.—*C.*, GERMAIN 145.

*Corneocyclas*, WALKER 377.

*Cypricardia vertumnalis* sp. n. Karachi, MELVILL Ann. Mag. Nat. Hist. 1 p. 157.

*Cyrenellidae*, HEDLEY 165.

*Cytheraea* [vide etiam *Cytheraea*] *meretrix*, MATSUMOTO 248.

†*Cytheraea* [vide etiam *Cytheraea*] *verbeeki* sp. n. Célèbes crétacé, DOLLFUS E. C. Abendanon Midden Célèbes 3 p. 967.

*Diplodontidae*, HEDLEY 165.

*Donax faba*, HEDLEY 164.—D., LAMY 222.

†*Dosinia tumida* sp. n. Tertiary New Zealand, MARSHALL Trans. and Proc. N.Z. Inst. 50 p. 271.

*Eupera parasitica* PART, GERMAIN 144.—E., WALKER 377.

*Fischeria*, GERMAIN 141.

†*Fischeria lanzii*, GERMAIN 141.

*Gastrarium*, HEDLEY 164.

*Galatea* with *L. radiata* Lk., GERMAIN 139.

*Gari*, LAMY 220.

*Garidae*, HEDLEY 165.

†*Gemma trigona* Dall subsp. n. *delandensis* Tertiary Florida, MANSFIELD Florida St. Geol. Surv. 1918 p. 121.

*Glauconomya chinensis*, HEDLEY 164.

*Glauconomyidae*, HEDLEY 165.

*Gomphina fulgida* sp. n. New South Wales, HEDLEY Sydney J. R. Soc. 51 pp. M. 24, M. 114 [Reprint].

†*Goniophora contraria* sp. n. Silurian Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 35.

*Hemidonax donaciformis*, HEDLEY 164.

*Lioconcha fastigiata*, HEDLEY 164.

†*Macrocallista orcutti* sp. n. Pleistocene Mexico, DALL Nautilus 32 p. 24.—*M. sculpturata* sp. n. Tertiary New Zealand, MARSHALL Trans. and Proc. N.Z. Inst. 50 p. 272.

†*Megalodon globularis* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 209.

*Musculium*, BAKER 17.—*M.*, WALKER 377.

*Paphia gallus*, HEDLEY 164.

*Petricolida*, HEDLEY 165.

*Pisidium* with *P. casertanum* varr. n. *humieriformis*, *ponderosa*; *P. nitidum* var. n. *crassa*; *P. tenuilineatum* sp. n. England, STELFOX J. Conch. Leeds 15 pp. 293-301.—*P. nitidum* and *P. pusillum* Jenyns, STELFOX 342.—*P. n.* and *P. p.*, WOODWARD 397.—*P. hibernicum*, OLDHAM 270.—*P. h.*, PHILLIPS & STELFOX 289.—*P. personatum*, EVANS 127.—*P.* with *P. parvulum*, OLDHAM 271.—*P.*, ANNANDALE 2.—*P.*, BAKER 17.—*P.*, BOYCOTT 50.—*P.*, GERMAIN 145.—*P.*, KENDALL 204.—*P.*, UPTON 366.—*P.*, WALKER 377.

†*Pisidium hibernicum*, PHILLIPS & STELFOX 289.

*Psummobia gracilentia*, HEDLEY 164.

*Solenidae*, HEDLEY 165.

*Soletellina*, LAMY 220.

*Sphaeriidae*, BAKER 23.—*S.*, WALKER 377.

†*Sphaeriidae*, BAKER 21.

*Sphaerium*, ANNANDALE 3.—S.,  
BAKER 17.—S., BOYCOTT 50.—S.,  
GERMAIN 145.—S. UPTON 366.—S.,  
WALKER 377.

*Thyasiridae*, HEDLEY 165.

*Veneridae*, HEDLEY 165.

†*Venus*, MARTIN 245.

#### MYACEA.

*Amphidesmatidae*, HEDLEY 165.

*Atactoidea striata*, HEDLEY 164.

*Corbula* with *C. (Erodona) mesopotamica* sp. n. Mesopotamia, ANNANDALE Rec. Ind. Mus. Calcutta 15 p. 170.—*C. tunicata*, MARTIN 244.—*C.*, HEDLEY 164.

†*Corbula nitens* sp. n. Tertiary New Zealand, MARSHALL Trans. and Proc. N.Z. Inst. 50 p. 272.—*C. Di Stefanoi* sp. n. Cretaceous Egypt, GRECO Pal. Ital. Pisa 23 p. 159.

*Corbulidae*, HEDLEY 165.

†*Cytodaria vagina*, BELL 39.

*Maetra*, HEDLEY 164.

†*Maetra ovalis*, BELL 39.

*Mactridae*, LAMY 223.—*M.*, HEDLEY 165.

*Martesia oblecta*, HEDLEY 164.

*Myacidae*, HEDLEY 165.

†*Panope (generosa* Gould var. ?) *taeniata* sp. n. Pleistocene Mexico, DALL Nautilus 32 p. 25.

*Pholadidae*, HEDLEY 165.

*Saxicavidae*, HEDLEY 165.

*Teredidae*, HEDLEY 165.

#### ADESMACEA.

*Teredo*, KAMIYA 202.

†*Haplovoluta* nom. n. for *Scobina* Type *H. bicarinata*, WADE Philad. Proc. Acad. Nat. Sci. 70 p. 114.

*Xylotrya*, KAMIYA 202.

#### DIBRANCHIA.

#### LUCINACEA.

*Codakia thaanumi* sp. n. Hawaii, Pilsbry Proc. Acad. Nat. Sci. Philad. 69 p. 332.

†*Corbis krooni* sp. n. Celebes, Oligocene, DOLLFUS E. C. Abendanon. Midden-Celebes 3 p. 996.

*Divaricella cypselis* sp. n. Karachi, MELVILL Ann. Mag. Nat. Hist. 1 p. 156.—*D. angulifera*, HEDLEY 164.

*Lucina corrugata*, HEDLEY 164.

†*Lucina Pfaffi* sp. n. Cretaceous Greenland, RAVN Kjøbenhavn Medd. Groenl. 56 p. 350.—*L.* with *L. (Denticulina) sakurica*, Q. var. n. *rockumensis* Cretaceous Egypt, GRECO Pal. Ital. Pisa 23 p. 133.—*L.*, DE STEFANI 341.

*Lucinidae*, HEDLEY 165.

†*Myrtaea botanica* nom. mut. for *Tellina brazieri* Sow., HEDLEY Sydney N.S.W. J. R. Soc. 51 pp. M 18 M 114. [Reprint.]

#### TELLINACEA.

*Arcopagia elegantissima*, HEDLEY 164.

*Cumingia*, HOSKINS 175.

*Matis spectabilis*, HEDLEY 164.

*Pseudarcopagia botanica* sp. n. *Tellina decussata*, Ang. non Lk. New South Wales, HEDLEY Sydney J. R. Soc. 51 pp. M 27 M 114. [Reprint.]

*Semelidae*, HEDLEY 165.

*Tellina* with *T. piratica* sp. n. W. Australia, HEDLEY Proc. R. Geogr. Soc. Australasia S. Austr. Branch Adelaide 1916-1917 pp. 7-8.—*T.* (with *T. (Pristis) audouini*, *T. (Exotica) triradiata* H. Ads. var. *minor*, *T. (Arcopagia) bertini*, *innesi* spp. & var. n. Red Sea, LAMY Bul. Mus. Paris 1918 pp. 26-33 116-124 167-172.—*T. (Arcopagia) elizabethae*, *T. exculta hawaiiensis* sp. & subsp. n. Hawaii, PILSBRY Proc. Acad. Nat. Sci. 69 pp. 331-332.

†*Tellina (Arcopagia) mianii* sp. n. Cretaceous Egypt, GRECO Pal. Ital. Pisa 23 p. 156.—*T. (Arcopagia) inconspicua* sp. n. Tertiary N. Zealand, MARSHALL Trans. & Proc. N. Z. Inst. 50 p. 272.

*Tellinidae*, HEDLEY 165.

## ANATINACEA.

†*Allorisma borussicum* sp. n. Devonian Germany, MÜHLEN Berlin Jahrb. geol. Landesanst. 38 p. 210.

†*Cardionorpha* (?) *nuggetensis* sp. n. Trias New Zealand, TRECHMANN London Q. J. Geol. Soc. 73 p. 189.

†*Ceromya* with *C. egerkingensis* sp. n. Jurassic, GERBER Mem. Soc. Pal. Suisse 43 pp. 4-15.

*Clavagellidae*, HEDLEY 165.

*Cleidothaeridae*, HEDLEY 165.

*Cuspidaria* (*Propidomya*) *nana* sp. n. California, OLDROYD Nautilus 32 p. 28.

*Cuspidariidae*, HEDLEY 165.

*Kennerlyia forresterensis* sp. n. S. E. Alaska, WILLETT Nautilus 31 p. 134.

*Laternulidae*, HEDLEY 165.

†*Liopistha* (*Cymella*) *montanensis*. nom. n. for *Pholadomya undata* = *L. (C.) u.* HENDERSON Nautilus 32 p. 60.

*Myochamidae*, HEDLEY 165.

*Periplomatidae*, HEDLEY 165.

†*Pholadomya undata*, HENDERSON 168.

*Poromyacidae*, HEDLEY 165.

*Solemya borealis*, LADOR 216.

†*Thracia abendanoni* sp. n. Célebes, crétaçé, DOLLFUS E.C. Abendanon. Midden-Celebes 3 p. 965.

*Thraciidae*, HEDLEY 165.

*Verticordiidae*, HEDLEY 165.

## INCERTAE, SEDIS.

†*Colpomya*, FOERSTE 131.

†*Cymatonota*, FOERSTE 131.

†*Janeia matteucei* sp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 p. 22.

†*Solenomorpha* (?) *elegantissima* sp. n. Carboniferous Elba, DE STEFANI Pal. Ital. Pisa 23 p. 23.

## Cephalopoda.

## GENERAL.

*Cephalopoda*, BOTTAZZI 48 & 49.

## CEPHALOPODA.

†*Acanthopleuroceras rursicosta* nom. n. for *Ammonites valdani*, Quens. (non. D'Orb.), BUCKMAN London Q. J. Geol. Soc. 73 p. 286.

†*Aegoceras*, TRUEMAN 363 & 364.

†*Amultheidae*, TRUEMAN 364.

†*Amblyoceras*, TRUEMAN 363 & 364.

†*Ammonites*, CISNEROS 72.—A., CRICK 99.—A., DE STEFANI 341.—A. TRUEMAN 363 & 364.

†*Androgynoceras*, TRUEMAN 363 & 364.

†*Anisoboceras* gen. nov. Genoholotype *Ammonites nautiliformis* J. Buckman Lias, TRUEMAN Ann. Mag. Nat. Hist. 1 p. 436.—& TRUEMAN London Proc. Geol. Soc. Abstr. No. 1022 1918 p. 66.

†*Arcestes*, TRECHMANN 360.

*Architeuthis*, RITCHIE 314.

†*Arietites turgescens* sp. n. Jurassic England, BUCKMAN London Q. J. Geol. Soc. 73 p. 296.

*Argonautidae*, HEDLEY 165.

†*Arnioceras* with *A. flavum* nom. n. for *Arietites semicostatus*, Wright (non Young & Bird sp.); *A. anageneticum*, *fortunatum* spp. n. Jurassic England, BUCKMAN London Q. J. Geol. Soc. 73 pp. 298-301.

†*Aspidoceras antiquum*, *amplexum*, *rollieri*, spp. n. Jurassic, LOCZY Geol. Hung. 1 pp. 385-389.—A., CISNEROS 73.

†*Aturia zic-zac*, Sow. CISNEROS 73.

†*Aulacoceras*, TRECHMANN 360.

†*Beaniceras senile* nom. n. for *Ammonites centaurus*, J. Buck. (S. Buckman Coll. No. 2749); *B. rotundum* nom. n. for *A. centaurus* J. Buck. (S. Buckman Coll. No. 2752 × 2) Lower Jurassic England, BUCKMAN Yorks. Type Ammon. 15 pl. cxxvi pt. 17 pl. cxxix.—B., TRUEMAN 364.



- †*Becheiceras* gen. nov. Genoholotype *Ammonites bechei* Wright Lias, TRUEMAN Ann. Mag. Nat. Hist. 1 p. 436.—& TRUEMAN London Proc. Géol. Soc. Abstr. No. 1022 1918 p. 66.
- Bolitaena*, JOUBIN 201.
- †*Bonarella*, BULOW 55.
- †*Brancoeras* with *B. stillei* sp. n. Upper Devonian, WEDEKIND Palaeont Stuttgart 1918 p. 170.—*B.*, HIND 173.
- †*Ceratiles*, BULOW 55.
- †*Clionites zilleri* sp. n. Trias Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 123.
- †*Cladiscites*, TRECHMANN 360.
- †*Clydonautilus*, TRECHMANN 360.
- †*Coroniceras bucklandi* (J. Sow.), BUCKMAN 53.
- †*Cosmoceras*, BULOW 55.
- †*Cymatoceras*, CRICK 99.
- †*Cyrtoceras virgatum* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 111.
- †*Dactylioceras commune*, SWINNERTON & TRUEMAN 348.
- †*Dactyloidae*, TRUEMAN 364.
- †*Deroceras bispinigerum* nom. n. for *D.* sp., S.S. Buck, BUCKMAN London Q. J. Geol. Soc. 73 p. 302.
- †*Deroceratidae*, TRUEMAN 364.
- †*Discophyllites*, TRECHMANN 360.
- †*Eboraceras* gen. n., BUCKMAN Yorks Type Ammon. 17 p. xiv.
- †*Echiceratidae*, TRUEMAN 364.
- Eledone moschata*, CRAIFALEANU 96.
- Eledonella*, JOUBIN 201.
- †*Entrephoceras*, CRICK 99.
- †*Fimbrilytoceras* gen. n., BUCKMAN Yorks Type Ammon 17 p. xiii.
- †*Gastrioceras*, HIND 173.
- †*Gephyroceras* with *G. pernai*, *barroisi*, spp. n. Upper Devonian, WEDEKIND Palaeont Stuttgart 1918 pp. 166-167.
- †*Girtyites* gen. n. for *Gastrioceras*, WEDEKIND Palaeont. Stuttgart 1918 p. 160.
- †*Girtyoceras* nom. n. for *Adelphoceras*, Girty, WEDEKIND Palaeont. Stuttgart 1918 p. 140.
- †*Gleviceras* gen. n. with *G. glevense* nom. n. for *Ammonites greenhoughii*, J. Buck., BUCKMAN London Q. J. Geol. Soc. 73 p. 289.
- †*Glyphioceras*, HIND 173.
- †*Gomphoceras*, FOERSTE 131.
- Graneledone*, JOUBIN 201.
- †*Grypoceras*, TRECHMANN 360.
- †*Guibaliceras* gen. n. Type *Amaltheus guibalianus*, Wright *pars* (non d'Orb.), BUCKMAN London Q. J. Geol. Soc. 73 p. 293.
- †*Gyroceras*, FOERSTE 131.
- †*Hecticoceras* with *H. turgidum* sp. n. Jurassic, LOCZY Geol. Hung. 1 pp. 287-298.
- †*Hercoglossa danica*, CISNEROS 73.
- †*Hildoceratidae*, TRUEMAN 364.
- †*Hoplites*, BULOW 55.
- †*Hystrihoceras*, CRICK 99.
- †*Idoceras calloviense* sp. n. Jurassic. LOCZY Geol. Hung. 1 p. 342.
- †*Leptaleoceras* gen. n. with *L. leptum* sp. n. Jurassic England, BUCKMAN London Q. J. Geol. Soc. 73 p. 284.
- †*Liparoceras*, TRUEMAN 363 & 364.
- †*Liparoceratidae*, TRUEMAN 364.
- Loliginidae*, HEDLEY 165.
- Loligo*, PIERANTONI 291.
- †*Longaviceras* gen. n., BUCKMAN Yorks. Type Ammon. 17 p. xiv.
- †*Ludwigia* with *L. angulicostata* sp. n. Jurassic, LECZY Geol. Hung. 1 pp. 283-286.
- †*Lytoceras*, HENNY 170.
- †*Meekoceras yunnanense* sp. n. Trias Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 124.
- †*Megaphyllites lantenoisi* sp. n. Trias Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 131.
- †*Microderoceras* with *M. depressum* nom. n. for *Ammonites birchi*, Dum. (non J. Sow.); *M. septigerum* nom. n. for *A. birchi*, J. Buck. *pars* (non J. Sow.); *M. inflatum* sp. n. Jurassic England; *M. rhodanicum* nom. n. for *A. heberti*, Dum. (non Oppel), BUCKMAN London Q. J. Geol. Soc. 73 pp. 303-307.

- Moschites verrucosa* (Verrill), JOUBIN 200.—*M.*, JOUBIN 201.
- †(*Nautilus*) *Rhyncholites*, DE STEFANI 341.—*N.*, CRICK 99.
- †*Neotibetites*, BULOW 55.
- †*Nomismoceras*, HIND 173.
- Octopus macropus*, CRAIFALEANU 96.
- †*Oistoceras*, TRUEMAN 363 & 364.
- †*Olcostephanus trimerus*, CISNEROS 73.
- Ommastrephidae*, HEDLEY 165.
- Onychoteuthidae*, HEDLEY 165.
- †*Oppelia* with *O.* (*s. str.*) *virgata*, *O.* (*Bonarellia*) *semsey*, *O.* (*Petitclercia* ?) *hungarica*, *O.* (*Oxyerithes*) *tilli*, *O.* (*Neumayriceras*) *kormosi*, spp. n. Jurassic, LOCZY Geol. Hung. 1 pp. 299-311.
- †*Orthoceras sinuosum* sp. n. Carboniferous Indo-China, MANSUY Mem. Serv. géol. Indochine 1 p. 106.—*O.* with *O.* (*Protocycloceras* ?) *deprati* sp. n. Ordovician Yun-nan, REED Pal. Ind. Calcutta 6 pp. 32 & 33.—*O.*, FOERSTE 131.—*O.*, TREHMANN 360.
- †*Ovaliceras* gen. n., BUCKMAN Yorks. Type Ammon. 15 p. xi.
- †*Pachyceratidae* fam. n. BUCKMAN Yorks Type Ammon 17 p. xiii.
- †*Paratibetites clarkei*, *tuberculatus*, spp. n., Trias Indo-China, MANSUY Mem. Serv. géol. Indochine 1 pp. 132-133.
- †*Parinodiceras* gen. nov. Genoholotype *Ammonites striatus parinodus* Quenstedt. Lias, TRUEMAN Ann. Mag. Nat. Hist. 1 p. 435 & TRUEMAN London Proc. Geol. Soc. Abstr. No. 1022 1918 p. 66.
- †*Parkinsonia calloviensis* sp. n. Jurassic, LOCZY Geol. Hung. 1 p. 241.—*P.*, NICOLESCO 266.
- †*Pericyclus* with *P. redesdalensis* sp. n. Carboniferous England, HIND Geol. Mag. London 5 pp. 437-438, 448-450.
- †*Perisphinctes* with *P. anomalus*, *variabiliferus*, *balcanensis* spp. n. *P. pannonicus* nom. n. for *P. planus*, Till., *P. fuscisculptus*, *coronaeformis* spp. n. *P. plicatissimus* nom. n. for *P. ? involutus*, Till., *P. pseudolothari* sp. n. *P. baranyaensis* nom. n. for *P. hofmanni*, Till., *P. lytoceratoides* sp. n. Jurassic, LOCZY Geol. Hung. 1 pp. 343-384.—*P. basilicae*, CISNEROS 73.—*P.*, HENNY 170.
- †*Phylloceras* with *P. hatzegi* sp. n. Jurassic, LOCZY Geol. Hung. 1 pp. 252-276.—*P.*, HENNY 170.
- †*Pinacoceras*, TREHMANN 360.
- †*Polymorphidae*, TRUEMAN 364.
- Polypodidae*, HEDLEY 165.
- †*Potericeras canadensis* sp. n. Devonian Canada, STAUFFER J. Geol. Chicago 26 p. 556.
- †*Prolecanites*, HIND 173.
- †*Pronorites*, HIND 173.
- †*Prorsiceras* gen. n., BUCKMAN Yorks. Type Ammon. 17 p. xiv.
- †*Pseudocadoceras* gen. n., BUCKMAN Yorks. Type Ammon. 17 p. xiv.
- †*Quenstedtoceras williamsoni* nom. n. for *Ammonites dissimilis*, Will., BUCKMAN Yorks. Type Ammon. 17 pl. cxviiiB.
- †*Radstockiceras* gen. n. with *R. complicatum* sp. n. Jurassic England, BUCKMAN London Q. J. Geol. Soc. 73 p. 287.
- †*Reineckia* with *R. lata*, *rehmanni* var. *euumbilicata*, *crassicostata*, spp. & var. n. Jurassic, LOCZY Geol. Hung. 1 pp. 320-340.
- †*Rhynchoteuthis*, HENNY 170.
- Rondeletia*, PIERANTONI 291.
- †*Sagittoceras* gen. n. with *S. acutum* sp. n. Carboniferous England, HIND Geol. Mag. London 5 pp. 446-448.
- †*Schlönbachia* (*Gauthiericeras*) with *S.* (*G.*) *crioceratiformis* sp. n. Cretaceous Peru, LÜTHY Mem. Soc. Pal. Suisse 43 pp. 41-49.—*S.*, CRICK 99.
- Sepia*, PIERANTONI 290 and 291.—*S.*, ZIRPOLO 400.
- Sepiadariidae*, HEDLEY 165.
- Sepietta*, PIERANTONI 291.
- Sepiidae*, HEDLEY 165.
- Sepiola*, PIERANTONI 290 & 291.—*S.*, ZIRPOLO 401.
- Sepiolidae*, HEDLEY 165.

†*Sphaeroceras brongniarti*, SWINNER-TON & TRUEMAN 348.

*Spirulidae*, HEDLEY 165.

†*Sporadoceras* with *S. continuum* var. n. *posthuma* Devonian, WEDEKIND Palaeont. Stuttgart 1918 p. 171.

†*Stepheroceratidae* fam. n., LOCZY Geol. Hung. 1 p. 312.

†*Trachyceras douvillei*, *deprei*, *sinense*, *costulatum*, *fasciger*, spp. n. Trias Indo-China, MANSUY Mem. Serv. géol. Indochine 1 pp. 125-127, 130.

†*Tragophylloceras loscombi*, SWINNER-TON & TRUEMAN 348.

†*Trochoceras multistriatum*, *undulatum* spp. n. Devon, Asia Minor, LEIDHOLD Zs. D. Geol. Ges. Monats. 69 pp. 313-314.

†*Trocholites* with *T. yunnanensis* sp. n. Ordovician Yun-nan, REED Pal. Ind. Calcutta 6 pp. 37-38.

†*Vertumnicerias* gen. n. & *V. spatiatum* nom. n. for *Ammonites vertumnus*, Bean-Leck. 1859, BUCKMAN Yorks. Type Ammon. 17 p. xiv. pt. 16 pl. cxviiC.

†*Victoricerias* gen. n. Type *Ammonites victoris* Dum., BUCKMAN London Q. J. Geol. Soc. 73 p. 293.

*Vitreledonella richardi*, JOUBIN 201.

#### INCERTAE SEDIS.

†*Archinacella* with *A. kagawongensis* sp. n. Ordovician U.S.A., FOERSTE Ottawa Nat. 31 p. 122.

†*Ceromyopsis* with *C. bottigenis* sp. n. Jurassic, GERBER Mem. Soc. Pal. Suisse 43 pp. 15-21.

†*Clionychia* with *C. angustata* sp. n. Ordovician U.S.A., FOERSTE Ottawa Nat. 31 p. 121.

†*Crenilabrum zelandicum* sp. n. Tertiary N. Zealand, MARSHALL Trans. & Proc. N. Z. Inst. 50 p. 270.

*Gelagna*, Sch. 1869 should replace *Paralegena*, Dall 1904, COSSMANN Rev. crit. pal. Paris 22 p. 42.

*Megathura* Pils. 1891 should replace *Macrochisma* Dall 1915, COSSMANN Rev. crit. pal. Paris 22 p. 42.

*Partuliça*, Sch. 1869 should replace *Spiralinella*, Chaster, COSSMANN Rev. crit. pal. Paris 22 p. 42.

*Phacoides malesbruensis* sp. n. Persian Gulf, MELVILL Ann. Mag. Nat. Hist. 1 p. 156.

†*Phacoides (Bellucina) waccamawensis* Dall subsp. n. *delandensis* Tertiary Florida, MANSFIELD Florida St. geol. Surv. 1918 p. 121.

*Phenacolepas magdalena* sp. n. Lower California, DALL Washington Proc. Biol. Soc. 31 p. 6.

*Pleurotomoides*, Brown 1838 should replace *Lora*, Gistel 1848, COSSMANN Rev. crit. pal. Paris 22 p. 42.

*Verrilopsyche*, COSSMANN 93.

†*Wocklumeria* gen. n. with *W. paradoxa* sp. n. Upper Devonian, WEDEKIND Palaeont. Stuttgart 1918 pp. 172-173.



# IX. ARTHROPODA

## (GENERAL)

BY

D. S H A R P.

### CONTENTS

	PAGE
I. TITLES .. .. .	1
II. SUBJECT INDEX.. .. .	1

*N.B.—For Protura vide XII. Insecta, Aptera.*

#### I.—TITLES.

**Buddenbrock, W. V.** Einige Bemerkungen zu Demoll's Buch: Die Sinnesorgane der Arthropoden, ihr Bau und ihre Funktion. Biol. Zentralbl. Leipzig **38** 1918 (385-391). 1

**Crampton, G. C.** The probable ancestors of insects and myriopods. Canad. Entom. London Can. **50** 1918 (285-288). 2

**Demoll, R.** Die Sinnesorgane der Arthropoden, ihr Bau und ihre Funktion. Braunschweig 1917 (243 pp.). 3

**Henriksen, K. L. and Lundbeck, W.** Landarthropoder (Insecta et Arachnida). Conspectus Faunae Groenlandicae Pars. 2. A conspectus of the Insects and Arachnids of Greenland. Kjøbenhavn, Medd. Grønl. **22**, 2, 1918 (481-821). 4 figg. 4

**Lundbeck, W.** *vide* Henriksen and Lundbeck.

#### II.—SUBJECT INDEX.

STRUCTURE. 2407

**Demoll, 3; Buddenbrock, 1.**

PHYLOGENY. 2423

**Crampton, 2.**

GEOGRAPHY. 2427

**Greenland.**

**Henriksen and Lundbeck, 4.**



# X. CRUSTACEA

ARRANGED BY

W T. CALMAN, D.Sc.

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## CONTENTS

	PAGE
I. TITLES ... ..	3
II. SUBJECT-INDEX :—	
General, Economics ... ..	9
Structure ... ..	9
Physiology ... ..	10
Development . ... ..	10
Ethology ... ..	10
Variation and Aetiology ... ..	11
Distribution :—	
1. Geographical :—	
A. General (vacant).	
B. Land and Fresh-water ... ..	11
C. Marine ... ..	12
2. Geological ... ..	13
III. SYSTEMATIC INDEX :—	
Decapoda ... ..	13
Brachyura ... ..	14
Oxyrhyncha ... ..	14
Cyclometopa ... ..	14
Catometopa ... ..	15
Oxystomata ... ..	17
Dromiacea ... ..	18

	PAGE
Anomura ... ..	18
Galatheidea ... ..	18
Paguridea ... ..	18
Hippidea ... ..	19
Macrura ... ..	19
Nephropsidea ... ..	19
Eryonidea (vacant).	
Loricata ... ..	19
Thalassinidea ... ..	19
Caridea ... ..	19
Penaeidea ... ..	20
Stenopidea (vacant).	
Euphausiacea ... ..	20
Mysidacea ... ..	20
Syncarida ... ..	21
Stomatopoda ... ..	21
Cumacea ... ..	21
Tanaidacea ... ..	21
Isopoda ... ..	21
Asellota ... ..	21
Phreatoicoidea ... ..	21
Flabellifera ... ..	21
Valvifera ... ..	21
Epicaridea (vacant).	
Oniscoidea ... ..	22
Amphipoda ... ..	22
Gammaridea ... ..	22
Hyperiidea ... ..	22
Caprellidea (vacant).	
Phyllocarida ... ..	23
Branchiopoda ... ..	23
Phyllopoda ... ..	23
Cladocera ... ..	23
Copepoda ... ..	23
Branchiura (vacant).	
Ostracoda ... ..	24
Cirripedia ... ..	25



## I.—TITLES.

- Abbott, C. H.** Reactions of Land Isopods to light. *J. Exper. Zool.* **27** 1918 (193-246) text-figs. **1**
- Balss, H.** Crustacea, ii: Decapoda Macrura u. Anomura (ausser Fam. Paguridae). *Beitr. z. Kennt. d. Meeresfauna Westafrikas.* Herausg. von W. Michaelsen. **2** Hamburg 1916 (13-46) text-figs. **2**
- Balss, H.** Crustacea, iii: Stomatopoda. *Beitr. z. Kennt. d. Meeresfauna Westafrikas.* Herausg. von W. Michaelsen. **2** Hamburg 1916 (49-52). **3**
- Bather, F.A.** Crustacean tracks in New Zealand Tertiaries. *Geol. Mag.* London Dec. vi. **5** 1918 (425-426) text-fig. **4**
- Baudouin, M.** Découverte d'une variété de *Lernaeenicus Sardiniae* M.B., intermédiaire entre le type et la variété *moniliformis*. *Paris Bull. Mus. Hist. Nat.* **24** 1918 (394-396). **5**
- Bernhards, H.** Der Bau des Komplexauges von *Astacus fluviatilis* (*Potamobius astacus* L.). Ein Beitrag zur Morphologie der Decapoden. *Zs. wiss. Zool.* Leipzig **116** 1916 (649-707) text-figs. **6**
- Birabén, M.** Nota sobre dos Cladóceros nuevos de la República Argentina. *Buenos Aires Physis Rev. Soc. Argent. Cient. Nat.* **3** 1917 (262-266) text-figs. **7**
- Bonde, W. von.** Note on the abnormal development of the genital organs of *Jaesus lalandii* (Milne Edw.) Cape Town Trans. Roy. Soc. S. Africa **7** 1918 (119-121) figs. **8**
- Boone, P. L.** Description of ten new Isopods. Washington D.C. Smithsonian Inst. Nation. Mus. Proc. **54** 1918 (591-604) pls. lxxxix xcii. **9**  
(N-5464 I)
- Boscá Seytre, A.** Fauna valenciana (en resumen). Barcelona 1916 (132 pp.) text-figs. **10**
- Boury, E. de.** Quelques observations sur les moeurs et sur l'habitat des Crustacés à l'île de Cuba. *Paris Bull. Mus. Hist. Nat.* **24** 1918 (16-18). **11**
- Bouvier, E. L.** Gonoplacidés et Pinnotheridés nouveaux recueillis au cours des campagnes américains du "Hassler" et du "Blake." *Paris Bull. Mus. Hist. Nat.* **23** 1917 (391-398). **12**
- Bouvier, E. L.** Sur une petite collection de Crustacés de Cuba offerte au Muséum par M. de Boury. *Paris Bull. Mus. Hist. Nat.* **24** 1918 (6-15) text-figs. **13**
- Bouvier, E. L.** Sur quelques Crustacés décapodes recueillis par M. Guy Babault dans les eaux douces de l'Inde anglaise. *Paris Bull. Mus. Hist. Nat.* **24** 1918 (386-393) text-figs. **14**
- Brian, A.** Descrizione di una nuova forma di Copepodo neritico della famiglia *Ectinosomidae* Sars, vivente tra le alghe del litorale di Quarto dei Mille. Genova 1918 (10 pp.) text-figs. **15**
- Broili, F.** Eine neue Crustaceen (Mysidaceen) Form aus dem lithographischen Schiefer des oberen Jura von Franken. *Centralbl. Min. Stuttgart* **1917** 1917 (426-429) text-fig. **16**
- Calman, W. T.** Cumacea and Phyllocarida. Australasian Antarct. Exp. *Sci. Rep. ser. C.* **5** pt. 6 1918 (11 pp.) pls. xix and xx. **17**
- Calman, W. T.** On barnacles of the genus *Scalpellum* from deep-sea telegraph-cables. *Ann. Mag. Nat. Hist.* London ser. **9** **1** 1918 (96-124) figs. **18**
- Calman, W. T.** A new River-crab from the Transvaal. *Ann. Mag. Nat. Hist. ser. 9* **1** 1918 (234-236) fig. **19**

- Calman, W. T.** The type-specimens of *Poecilasma carinatum*, Hoek (Cirripedia). Ann. Mag. Nat. Hist. ser. 9 1 1918 (401-408) figs. 20
- Calman, W. T.** A Triassic Isopod Crustacean from Australia. [Review of Chilton, 28] Geol. Mag. London Dec. vi 5 1918 (277-280) figs. 21
- Caroli, E.** *Miersia clavigera* Chun, stadio misidiforme di *Lysmata seticaudata* Risso. Pubblicazioni Staz. Zool. Napoli 2 1918 (177-189) text-figs. 22
- Caulley, M. et Mesnil, F.** Phases parasitaires initiales de *Xenocoeloma brumpti*, Copépode parasite de *Polycirrus arenivorus*. Paris C. R. Acad. Sci. 166 1918 (964-966) text-figs. 23
- Caulley, M. et Mesnil, F.** Nouvelles observations sur *Xenocoeloma Brumpti* C. et M., Copépode parasite de *Polycirrus arenivorus* Caull. Paris Bull. Soc. Zool. France 42 1918 (169-178) text-figs. 24
- Chapman, F.** Ostracoda from the Upper Cambrian limestone of South Australia. Melbourne Proc. R. Soc. Victoria 31 1918 (108-112) pl. ix. 25
- Chilton, C.** Some New Zealand Amphipoda belonging to the genus *Phreatogammarus*. J. Zool. Research London 3 1918 (81-86) text-figs. 26
- Chilton, C.** Note on an abnormal appendage in the Amphipod *Orchestia marmorata* (Haswell). J. Zool. Res. London 3 1918 (97-99) text-figs. 27
- Chilton, C.** A fossil Isopod belonging to the freshwater genus *Phreatoicus*. Sydney N.S.W. J. R. Soc. 51 1918 (365-388) text-figs. 28
- Chumley, J.** The Fauna of the Clyde Sea Area. Glasgow 1918 (200 pp.) 1 map text-figs. 29
- Cleve-Euler, Astrid.** Quantitative plankton researches in the Skagor Rak. Part i. Stockholm Vet.-Ak. Handl. 57 No. 7 1917 (129 pp.). 30
- Collinge, W. E.** Description of *Paracubaris spinosus*, a new genus and species of Terrestrial Isopoda from British Guiana. London J. Linn. Soc. Zool. 34 1918 (61-63) pl. vi. 31
- Collinge, W. E.** On the oral appendages of certain species of marine Isopoda. London J. Linn. Soc. Zool. 34 1918 (65-93) pls. vii-ix. 32
- Collinge, W. E.** On the occurrence in Scotland of two rare species of Woodlice. Scot. Nat. Edinburgh 1918 1918 (69-70). 33
- Collinge, W. E.** The distribution of Woodlice in Scotland. Scot. Nat. Edinburgh 1918 1918 (269-273). 34
- Collinge, W. E.** *Porcellio Rathkii*, a Woodlouse new to the Irish Fauna. Irish Nat. Dublin 27 1918 (1-2). 35
- Collinge, W. E.** A revised check list of the British Terrestrial Isopoda (Woodlice), with notes. J. Zool. Research London 3 1918 (31-43). 36
- Collinge, W. E.** Some observations upon two rare Marine Isopods. J. Zool. Research London 3 1918 (63-79) pls. i-iv. 37
- Collinge, W. E.** Descriptions of some new varieties of British Woodlice. J. Zool. Research London 3 1918 (101-102). 37a
- Colosi, G.** Crostacei, Parte iii, Oxicefalidi. Raccolte planctoniche fatte dalla R. Nave "Liguria" nel viaggio di circumnavigazione del 1903-05 sotto il comando di S. A. R. Luigi di Savoia, Duca degli Abruzzi. Vol. 2 fasc. viii 1918 (207-225) pl. xvii text-figs. Firenze Public. Ist. St. Sup. 38
- Colosi, G.** Crostacci Decapodi raccolti nella Somalia dai dottori Stefanini e Paoli. Monitore Zool. Ital. Firenze 29 1918 (100-108). 39
- Colosi, G.** Sul genere *Meganyctiphanes* (Eufausiacei). *Meganyctiphanes Calmani* n. sp. Monitore Zool. Ital. Firenze 29 1918 (178-181) text-figs. 40
- Colosi, G.** Alcune Crostacei decapodi raccolti nel Mediterraneo dalla R. Nave "Washington." Monitore Zool. Ital. Firenze 29 1918 (182-188). 41
- Colosi, G.** Nota preliminare sui Misidacci raccolti dalla R. N. 'Liguria' nel 1903-1905. Firenze Bull. Soc. Entom. 49 1917 (1918) (1-11). 42
- Delachaux, T.** Neue Süßwasser-harpacticiden aus Südamerika, gesammelt von Herrn Ingenieur E. Godet in den peruanischen Anden. Zool. Anz. Leipzig 29 1918 (315-335) figs. 43
- Delachaux, T.** Harpacticides d'eau douce nouveaux de l'Amerique du Sud. Rev. Suisse Zool. Genève 26 1918 (117-127) pl. viii. 44

- Delachaux, T.** Cladocères des Andes péruviennes. Neuchâtel Bull. Soc. sci. nat. 43 1918 (18-35) 3 pls. 45
- Dahl, F.** Die Landisopoden Südwestdeutschlands. Berlin Mitt. zool. Mus. 8 1917 (407-423). 46
- Esterly, C. O.** The occurrence of a rhythm in the geotropism of two species of plankton Copepods when certain recurring external conditions are absent. Berkeley Univ. Cal. Pub. Zool. 16 1917 (393-400). 47
- Etheridge, R.** Descriptions of some Queensland Palaeozoic and Mesozoic Fossils. i. Queensland Lower Cretaceous Crustacea. Geol. Surv. Queensland Brisbane Publ. 260 1917 (5-10) pls. i and ii. 48
- Fasten, N.** Spermatogenesis of the Pacific Coast Edible Crab, *Cancer magister* Dana. Biol. Bull. Wood's Hole Mass. 34 1918 (277-306) 4 pls. 49
- Fasten, N.** Trout and Fish Lice. Puget Sound Biol. Stat. 2 1918 (73-76) pl. xviii. 50
- Flynn, T. Thomson.** The distribution of *Anaspides* and *Ooperipatus* in Tasmania. Austr. Zool. Sydney 1 pt. 5 1918 (p. 102). 51
- Foerste, A. F.** The Richmond faunas of Little Bay de Noquette in Northern Michigan. Ottawa Nat. 31 1917 [1918] (97-103, 121-127) pls. iv-vi. 52
- Fonseca, O. da vide Lutz, A. and others.**
- Foster, N. H.** The Woodlice (Crustacea Isopoda Terrestria) of Ulster. Belfast Rep. Nat. F. Cl. 3 App. 3 1918 (21-30). 53
- Franz, A. W.** Das Problem der uni- oder multizellulären Entwicklung der quergestreiften Muskelfasern (speziell untersucht an Isopoden und Urodelen). Arch. mikr. Anat. Bonn 87 1915 Abth. 1 (364-491) pls. xxiii-xxvi, figs. and tab. 54
- Gravier, C. J.** Sur un nouveau Copépode (*Flabellicola* n.g. *neapolitana* n.sp) parasite d'un Annelide polychète [*Flabelligera diplochaitos* (Otto)]. Paris C. R. Acad. Sci. 166 1918 (502-505). 55
- Gravier, C.** Contribution a l'étude d'un Copépode (*Flabellicola neapolitana* Gravier) parasite d'un Annelide Polychète (*Flabelligera (Siphonostoma) diplochaitos* (Otto)). Pubblicazioni Staz. Zool. Napoli 2 1918 (209-222) pl. xi. 56
- Goldsmith, Mario.** Les perceptions sensorielles chez le Pagure (*Eupagurus bernhardus*). Paris C. R. Acad. Sci. 166 1918 (967-970). 57
- Grunewald, Marta.** Über Veränderung der Eibildung bei *Moina rectirostris*. Biol. Zentralbl. Leipzig 35 1915 (341-374) text-figs. 58
- Gunn, J. D. vide Tait, J.**
- Haerberli, A.** Biologische Untersuchungen im Löhrmoos. Ein Beitrag zur Kenntnis der schweizerischen Moorfauna. Rev. Suisse Zool. Genève 26 1918 (147-231) text-figs. 59
- Harvey, E. N.** Studies in bioluminescence. iv. The chemistry of light production in a Japanese Ostracod Crustacean, *Cypridina hilgendorfi*, Müller. Amer. J. Physiol. Boston 42 1917 (318-341). 60
- Hay, W. P., and Shore, C. A.** The Decapod Crustaceans of Beaufort, N.C., and the surrounding region. Bull. U.S. Bureau Fisheries 35 1918 (369-475) pls. xxv-xxxix text-figs. 61
- Herwerden, M. A. van.** Untersuchungen über die parthenogenetische und geschlechtliche Fortpflanzung von *Daphnia pulex*. Amsterdam Verh. K. Akad. Wet. 2 Sect. 20 No. 3 1918 (20 pp.). 62
- Hilton, W. A.** Central Ganglia of some Decapod Crustacea. Journ. Ent. Zool. Claremont Cal. 10 1918 (55-56) text-figs. 63
- Hirsch, G. C.** Der Arbeitsrhythmus der Verdauungsdrüsen. Beiträge zur Arbeitsautonomie und Reizwirkung in tierischen Zellen. Biol. Zentralbl. Leipzig 38 1918 (41-100) text-figs. 64
- Ihle, J. E. W.** Die Decapoda Brachyura der Siboga-Expedition. III. Oxytomata: Calappidae, Leucosiidae, Raninidae. Uitkomst . . . H.M. Siboga (Résultats des explorations . . . Siboga). Mon 39 b2, 1918 (159-322) 71 Textfig. 65
- Issel, R.** Gli organi di senso a doppia teca negli Oxyrhyncha. Pubblicazioni Staz. Zool. Napoli 2 1918 (147-158) pl. ix. 66

- Jennings, L. S. Revision of the Cirripedia of New Zealand. Wellington Trans. N. Zeal. Inst. 50 1917 (1918) (56-63). 67
- Jensen, A. C. Some observations on *Artemia gracilis*, the Brine Shrimp of Great Salt Lake. Biol. Bull. Wood's Hole Mass. 34 1918 (18-32) 4 pls. text-fig. 68
- Jordan, H. J. und Lam, H. J. Über die Darmdurchlässigkeit bei *Astacus fluviatilis* und *Helix pomatia*. Tijdschr. Ned. Dierk. Ver. Leiden 2 ser. 16 1918 (281-292). 69
- Jorgensen, Olga M. Notes on the development of *Carcinus maenas*. Rep. Dove Marine Laboratory Cullercoats Newcastle-upon-Tyne n. ser. 7 1918 (62-64) figs. 70
- Jorgensen, O. M. Faunistic Notes: *Nematoscelis megalops*, Sars: *Caligus curtus*, Müller. Rep. Dove Marine Laboratory Cullercoats Newcastle-upon-Tyne n. ser. 7 1918 (65-67) 2 pls. 71
- Kemp, S. Zoological results of a tour in the Far East, edited by N. Annandale. Pt. V: Crustacea Decapoda and Stomatopoda. Calcutta Mem. As. Soc. Bengal 6 1918 (217-297) text-figs. 72
- Kemp, S. Crustacea Decapoda of the Inlé Lake basin. Rec. Ind. Mus. Calcutta 14 1918 (81-102) pls. xxiv and xxv, text-figs. 73
- Kindle, E. M. and Whittaker, E. J. Bathymetric check-list of the marine Invertebrates of Eastern Canada, with an index to Whiteaves' catalogue. [Contrib. Canad. Biol. 1917] Sessional Paper No. 38a Ottawa 1918 (229-294). 74
- Knight, A. P. Lobster investigations at Long Beach Pond, N.S. Contrib. Canad. Biol. 1917-1918. Ann. Rep. Dept. Naval Service, Fisheries Branch 7 Suppl. 1918 (53-71) text-figs. 75
- Kuiper, W. N. Oligocäne und miocäne Ostracoden aus den Niederlanden. Groningen (Gebra. Hottsema) 1918 (91 pp.) 3 Taf. 76
- Lam, H. J. vide Jordan, H. J.
- Leidhold, Cl. Ueber die Verbreitung der Ostracoden im Unterdevon rheinischer Fazies. Centralbl. Min. Stuttgart 1917 1917 (163-168). 77
- Leigh-Sharpe, W. H. *Lernaeopoda scyllicola* n. sp., a parasitic Copepod of *Scyllium canicula*. Part ii. Parasitology Cambridge 11 1918 (18-28) text-figs. 78
- Leigh-Sharpe, W. H. *Lernaeopoda globosa* n. sp., a parasitic Copepod of *Scyllium canicula*. Part i. Parasitology Cambridge 11 1918 (29-34) text-figs. 79
- Leigh-Sharpe, W. H. *Clavella sciatherica* n. sp., a parasitic Copepod of *Gadus morrhua*. Parasitology Cambridge 11 1918 (118-126) text-figs. 80
- Lim, R. K. S. Period of survival of the Shore-crab (*Carcinus maenas*) in distilled water. Edinburgh Proc. R. Soc. 38 1918 (14-22). 81
- Lim, R. K. S. Experiments on the respiratory mechanism of the Shore-crab (*Carcinus maenas*). Edinburgh Proc. R. Soc. 38 1918 (48-56) text-figs. 82
- Lowartz, C. Untersuchungen über die Diastase im Magensaft von *Potamobius astacus* L. Münster i.W. Mitt. Zool. Inst. 1 1918 (16-22). 83
- Lutz, A., Souza Aranjó, H. C. de, and Fonseca, O. da. Viagem científica no Rio Paraná e a Assuncion com volta por Buenos Aires, Montevideo e Rio Grande. Mem. Inst. Oswaldo Cruz Rio de Janeiro 10 1918 (104-173 English 83-102) pls. xx-lxxxv. 84
- Macnair, P. The horizon of the type-specimens of Dr. Scouler's *Dithyrocaris tricornis* and *D. testudinea*. Geol. Mag. London Dec. vi. 4 1917 (269-279) text-figs. 85
- Man, J. G. de. Diagnoses of new species of macrurous Decapod Crustacea from the Siboga Expedition. Leiden Zool. Med. 4 1918 (159-166). 86
- Man, J. G. de. Diagnoses of new species of Macrurous Decapod Crustacea from the Siboga Expedition. Helder Tijdschr. Ned. Dierk. Ver. 16 1918 (293-306). 87
- Mead, H. T. Notes on the natural history and behavior of *Emerita analoga* (Stimpson). Berkeley Univ. Cal. Publ. Zool. 16 1917 (431-439) text-fig. 88

- Meek, A.** On the Crustacea. 1. Larval Nomenclature. 2. Growth. Rep. Dove Marine Laboratory Cullercoats Newcastle-upon-Tyne n. ser. 7 1918 (19-45) 4 pls. 6 charts. **89**
- Mesnil, F.** *vide* Caullery, M.
- Monard, A.** Sur la faune profonde du Lac de Neuchâtel. Description de quelques nouvelles espèces. Rev. Suisse Zool. Genève **26** 1918 (342-359) text-figs. **90**
- Mortensen, Th. and Stephensen, K.** Papers from Dr. Th. Mortensen's Pacific Expedition 1914-16. II. On a gall-producing parasitic Copepod infesting an Ophiurid. Kjöbenhavn Nath. Medd. **69** 1918 (263-275) text-figs. **91**
- Müller, R. T.** Zur Biologie von *Tanymastix lacunae* Guerin. Biol. Zentralbl. Leipzig **38** 1918 (257-268). **92**
- Müller, R. T.** Der Eichener See. Biologisches von *Tanymastix lacunae* Guerin. Rev. Suisse Zool. Genève **26** 1918 (361-408) text-figs. **93**
- Musy, M.** Les écrevisses dans les eaux fribourgeoises. Fribourg Bull. Soc. Sci. Nat. **24** 1918 (153-157). **94**
- Nierstrasz, H. F.** Alte und neue Isopoden. Zool. Meded. Leiden **4** 1918 (103-142) pls. ix and x. **95**
- Nininger, H. H.** Crabs taken at Laguna Beach in the summer of 1916. Journ. Ent. Zool. Claremont Cal. **10** 1918 (36-42) text-figs. **96**
- Nusbaum-Hilarowicz, J.** Studien über die Physiologie der Verdauung bei den Landasseln (Isopoda). Biol. Zentralbl. **37** 1917 (49-55) text-fig. **97**
- Olofsson, O.** Beitrag zur Kenntnis der Harpacticiden-Familien Ectinosomidae, Canthocampidae (Gen. *Maraenobiotus*) und Tachidiidae nebst Beschreibungen einiger neuen und wenig bekannten, arktischen Brackwasser- und Süßwasser-Arten. Zool. Beiträge aus Uppsala **6** 1918 (1-39) pls. i-viii. **98**
- Olofsson, O.** Studien über die Süßwasserfauna Spitzbergens. Beitrag zur Systematik, Biologie und Tiergeographie der Crustaceen und Rotatorien. Zool. Beiträge aus Uppsala **6** 1918 (183-646) text-figs. **99**
- Parisi, B.** I Decapodi giapponesi del Museo di Milano. VI. Catometopa e Paguridea. Pavia Atti Soc. ital. sci. nat. **57** 1918 (90-115) pl. viii text-figs. **100**
- Parshad, B.** The seasonal conditions governing the pond life in the Punjab. Calcutta J. As. Soc. Beng. n.s. **12** 1916 (141-145). **101**
- Pesta, O.** Crustacea, i: Copepoda. Beitr. z. Kennt. d. Meeresfauna Westafrikas. Herausg. von W. Michaelsen. 2 Hamburg 1916 (1-10) text-figs. **102**
- Pilsbry, H. A.** Arthropoda. In: Maryland Geological Survey. Upper Cretaceous. Baltimore 1916 (361-370) pls. x and xi. **103**
- Pilsbry, H. A.** Cirripedia from the Panama Canal Zone. Contributions to the Geology and Paleontology of the Canal Zone, Panama, and geologically related areas in Central America and the West Indies. Washington D.C. Smithsonian Inst. Nation. Mus. Bull. **103** 1918 (185-188) pl. lxxvii. **104**
- Prashad, B.** *vide* Southwell, T.
- Prashad, B.** *vide etiam* Parshad, B.
- Rathbun, Mary J.** The Grapsoid Crabs of America. Washington D.C. Smithsonian Inst. Nation. Mus. Bull. **97** 1917 (1918) (xxii + 461 pp.) 161 pls. **105**
- Rathbun, Mary J.** Decapod Crustaceans from the Panama Region. Contributions to the Geology and Paleontology of the Canal Zone, Panama, and geologically related areas in Central America and the West Indies. Washington, D.C. Smithsonian Inst. Nation. Mus. Bull. **103** 1918 (123-184) pls. liv-lvi. **106**
- Rathbun, Mary J.** Report on the Spider Crabs obtained by the F.I.S. "Endeavour" on the coasts of Queensland, New South Wales, Victoria, South Australia and Tasmania. Biol. Results F.I.S. "Endeavour" 1909-14 Sydney **5** 1918 (1-29) pls. i-xv, text-figs. **107**
- Rathbun, Mary J.** Brachyura. Australasian Antart. Exp. Sci. Rep. ser. C. **5** pt. 2 (5 pp.) text-fig. **108**
- Razzauti, A.** Contributi alla conoscenza delle isole toscane. I. Isola di Capraia. Pisa Atti Soc. tosc. sc. nat. **31** 1917 (196-224). **109**

- Ressler, I. L.** An hermaphroditic Crayfish of the species *Cambarus (Faxonius) obscurus* Hagen. Des Moines Proc. Iowa Acad. Sci. **23** 1916 (271-273) text-figs. **10**
- Richards, P. B.** Notes on entomology in the Federated Malay States during 1917. Agric. Bull. Federated Malay States **6** 1918 (409-420). **111**
- Roig, M. S.** Introduccion al estudio de los Crustaceos cubanos. Habana Mem. Soc. Cubana Hist. Nat. **2** 1916 (181-185). **112**
- Roux, J.** Sur une nouvelle espèce de *Palaemon (Parapalaemon)* habitant l'île de Bali. Rev. Suisse Zool. Genève **26** 1918 (113-116) text-figs. **113**
- Sadler, W.** Bacterial destruction of Copepods occurring in marine Plankton. Contrib. Canad. Biol. 1917-1918. Ann. Rep. Dept. Naval Service Fisheries Branch **7** Suppl. 1918 (217-228). **114**
- Salkind, I.** Sur les organes sensitifs de la pince du Crabe. Ann. Sci. Nat. Paris Sér. **10** **2** 1918 (121-131) text-figs. **115**
- Sars, G. O.** An account of the Crustacea of Norway with short descriptions and figures of all the species. Vol. **6**. Copepoda Cyclopoida, pts. **13** and **14**. Lichomolgidae (concluded) Oncaeidae, Corycaecidae, Ergasilidae, Clausiidae, Eunicicolidae, Supplement. 1918 (173-225 + i-xiii) pls. xvii-xxviii. **116**
- Searle, J.** *vide* Shephard, J.
- Shephard, J., Searle, J. and Stickland, J.** One year's collecting micro-fauna, Botanic Gardens lake, Melbourne. Victorian Nat. Melbourne **35** 1918 (79-84). **117**
- Shore, C. A.** *vide* Hay, W. P.
- Southwell, T. and Prashad, B.** Notes from the Bengal Fisheries Laboratory. 5. Parasites of Indian fishes, with a note on carcinoma in the Climbing Perch. Rec. Ind. Mus. Calcutta **15** 1918 (341-355) pls. x-xiv. **118**
- Souza Arango, H. C. de** *vide* Lutz, A. and others.
- Stainforth, T.** The Woodlice of the Hull district. Naturalist London **1918** 1918 (151-154). **119**
- Standen, R.** Report on the terrestrial Isopoda (Woodlice) for 1917-1918. Lancs. Nat. Darwen **10** 1918 (355-364). **120**
- Stebbing, T. R. R.** Some Crustacea of Natal. Durban Ann. Mus. **2** 1918 (47-74) pls. viii-xii. **121**
- Stephensen, K.** Hyperiidea-Amphipoda (Lanceolidae, Scinidae, Vibiliidae, Thaumatopsidae). Copenhagen Report on the Danish Oceanographical Expeditions 1908-10 to the Mediterranean and adjacent seas. Vol. **2** Biology D. **2** 1918 (1-70) text-figs. **122**
- Stephensen, K.** *vide* Mortensen, Th.
- Stickland, J.** *vide* Shephard, J.
- Stromsten, F. A.** A list of Entomostraca from the Okoboji region. Des Moines Proc. Iowa Acad. Sci. **24** 1917 (309-310). **123**
- Tait, J. and Gunn, J. D.** The Blood of *Astacus fluviatilis*: a study in Crustacean blood, with special reference to coagulation and phagocytosis. Q. J. Exp. Physiol. London **12** 1918 (35-80) 3 pls. **124**
- Tattersall, W. M.** Euphausiacea and Mysidacea. Australasian Antarct. Exp. Sci. Rep. ser. C. **5** pt. **5** 1918 (15 pp.) pl. xviii. **125**
- Tesch, J. J.** The Decapoda Brachyura of the Siboga Expedition. I. Hymenosomidae, Retroplumidae, Ocyropodidae, Grapsidae and Gecarcinidae. Uitkomsten . . . H.M. Siboga (Résultats des explorations . . . Siboga) Mon. **39c** 1918 (148 pp.) 6 pls. **126**
- Tesch, J. J.** The Decapoda Brachyura of the Siboga Expedition. II. Gonoplacidae and Pinnotheridae. Uitkomsten . . . H.M. Siboga (Résultats des explorations . . . Siboga) Mon. **39cl** 1918 (149-295) 12 pls. **127**
- Tesch, J. J.** The grapsoid genus *Pyxidognathus* A. Milne Edwards, with description of a new species. Leiden Zool. Med. **4** 1918 (167-177) 1 pl. **128**
- Torre y Huerta, S. de la.** Contribucion al estudio de la langosta *Panulirus argus* (Latreille). Habana Mem. Soc. Cubana Hist. Nat. **2** 1916 (6-29). **129**

Verhoeff, K. W. Zur Kenntniss der Atmung und der Atmungsorgane der Isopoda Oniscoidea. (Über Isopoden 20 Aufsatz). Biol. Zentralbl. Leipzig 37 1917 (113-127). 129a

Virieux, J. Recherches sur le plancton des lacs du Jura central. Ann. Biol. Lacustre Bruxelles 8 1916 (5-192) text-figs. 130

Walter, O. Notes on a Decapod Crustacean from the Kinderhook Shale at Burlington. Des Moines Proc. Iowa Acad. Sci. 24 1917 (119-124) pl. Va. 131

Weymouth, F. W. Contributions to the life-history of the Pacific coast Edible Crab. Rep. British Columbia Commissioner of Fisheries 1917 (Q 81-Q 90). 132

Whitaker, E. J. *vide* Kindle, E. M.

Williamson, H. C. Decapoden. I Teil (Larven). Nordisches Plankton. Lief. 18 vi 1915 (315-588) text-figs. 133

Withers, T. H. Some Pelecypod shell-fragments described as Cirripedes. Geol. Mag. London Dec. VI 5 1918 (168-173) figs. 134

Zimmer, C. Neue und wenig bekannte Mysidaceen des Berliner Zoologischen Museums. Berlin Mitt. Zool. Mus. 9 1918 (13-26) text-figs. 135

Zimmer, C. Crustacea. IV: Cumacea u. Schizopoda. Beitr. z. Kennt. d. Meeresfauna Westafrikas. Herausg. von W. Michaelsen. 2 Hamburg 1916 (55-66) pl. i, text-figs. 136

"Endeavour," *Oxyrhyncha*; Rathbun, 107.

"Liguria" *Hyperideae*; Colosi, 38.

"Siboga," *Caridea*; de Man, 86 & 87; *Catometopa*; Tesch, 126 & 127; *Oxystomata*; Ihle, 65.

"Thor," Danish Oceanogr. Exp. Mediterranean, *Hyperideae*; Stephensen, 122.

"Washington," *Decapoda*; Colosi, 41.

### Economics.

Lobster investigations, Nova Scotia, Knight, 75.

Fishery of *Cancer magister* British Columbia; Weymouth, 132.

Damage to rice and coconut cultivation by *Thalassina*; Richards, 111.

Trout, parasitic *Copepoda*; Fasten, 50.

## STRUCTURE. 2607

### General.

*Oxystomata*; Ihle, 65; *Panulirus* (*Loric.*); Torre y Huerta, 129; *Isopoda*; Collinge, 37; *Clavella* (*Copep. paras.*); Leigh-Sharpe, 80; *Lernaeopoda* (*Copep. paras.*); Leigh-Sharpe, 79; Male *Lernaeopoda* (*Copep. paras.*); Leigh-Sharpe, 78; *Xenocoeloma* (*Copep. paras.*); Caullery et Mesnil, 24; *Artemia* (*Phyllop.*); Jensen, 68.

### Appendages.

Mouth-parts, *Idoteidae* (*Valv.*); Collinge, 32.

### Nervous System.

Centr. Nervous syst. *Decapoda*; Hilton, 63.

### Sense Organs.

Compound Eye, *Astacus*; Bernhards, 6; Cuticular sense-organs, *Oxyrhyncha*; Issel, 66; Sense organs in *Chela* of *Carcinus*; Salkind, 115.

### Circulatory System.

Blood, *Astacus* (*Neph.*); Tait & Gunn, 124.

### Respiratory System.

*Oniscoidea*; Verhoeff, 129a.

## II.—SUBJECT INDEX.

N.B.—The numbers in Clarendon type refer to list of Titles, except when they indicate a Volume.

### GENERAL. 2603

#### Bibliography.

Cuba; Roig, 112.

#### Expeditions.

Australasian Antarct. Exp., *Cumacea*, *Phyllocarida*; Calman, 17; *Brachyura*; Rathbun, 108; *Euphausiacea*, *Mysidacea*; Tattersall, 125.

## PHYSIOLOGY. 2611

Digestion, *Oniscoidea*; Nusbaum-Hilarowicz, 97; Diastase in gastric juice of *Potamobius* (*Nephrop.*); Lowartz, 83; Permeability of gut, *Astacus*: Jordan & Lam, 69; Rhythmic activity, digestive glands, *Astacus*; Hirsch, 64.

Respiration, *Carcinus*; Lim, 82; *Oniscoidea*; Verhoeff, 129a.

Blood Coagulation and Phagocytosis, *Astacus* (*Nephrop.*); Tait & Gunn, 124.

Sensory perceptions, *Paguridae*; Goldsmith, 57; Sense-organs in Chela of *Carcinus*; Salkind, 115.

Reactions, *Tanyrastix* (*Phyllop.*); Müller, 92 & 93; *Daphnia*; Olofsson, 99; Reactions to light, *Oniscoidea*; Abbott, 1; Rhythmic geotropism *Acartia* (*Copep.*); Esterly, 47.

Chemistry of luminescence in *Cypri-dina*; Harvey, 60.

Survival of *Carcinus* in distilled water; Lim, 81.

Moulting, *Daphnia*; Olofsson, 99.

Parthenogenesis and sexual reprod. *Daphnia* (*Clad.*); Herwerden, 62.

Growth and Reproduction, *Branchiopoda*, *Copepoda*, *Ostracoda*; Olofsson, 99.

## DEVELOPMENT. 2615

## Oogenesis and Spermatogenesis.

Oogenesis, *Moina* (*Cladocera*); Grunewald, 58; Spermatogenesis, *Cancer* (*Cyclom.*); Fasten, 49.

## Embryology.

Dev. of muscles, *Oniscoidea*; Franz, 54.

## Metamorphosis, Larval Forms, &amp;c.

Nomenclature of larval stages; Meek, 89.

Larval stages, *Decapoda*; Williamson, 133; *Carcinus* (*Cyclom.*); Jorgensen, 70; *Lysmata* (*Carid.*); Caroli, 22; *Artemia* (*Phyllop.*); Jensen, 68; Early parasitic stages *Xenocoeloma* (*Copep. paras.*); Caullery et Mesnil, 23.

Rate of growth, *Decapoda*; Meek, 89.

## Generation Cycles.

*Cladocera*; Olofsson, 99.

Seasonal cycle of *Daphnia* in Punjab; Parshad, 101.

## ETHOLOGY. 2619

## General.

Habits, &c., *Decapoda*, Cuba, Boury, 11; American *Catometopa*, Rathbun, 105; *Emerita* (*Hippid.*), Mead, 88; Lobster, Knight, 75; *Artemia* (*Phyllop.*), Jensen, 68; *Tanyrastix* (*Phyllop.*), Müller, 92 & 93.

## Tropisms (see Physiology).

## Habitats.

Habitats. *Oniscoidea*; Dahl, 46; Freshwater, *Mysidacea*, *Amphipoda*, *Branchiopoda*, *Copepoda*, *Ostracoda*; Olofsson, 99.

Marsh-dwelling *Copepoda*, *Cladocera*, *Ostracoda*; Haeberli, 59.

Plankton, marine; Cleve-Euler, 30; *Hyperideae*; Stephensen, 122; *Decapoda* (larvae); Williamson, 133.

Plankton, Freshwater; Virieux, 130

Deep-water, Lake of Neuchâtel, *Cladocera*, *Copepoda*; Monard, 90.

Subterranean, *Gammaridea*; Chilton, 26.

## Parasitism, Commensalism, etc.

On Fish, *Copepoda*; Baudouin, 5; Fasten, 50; Leigh-Sharpe, 79 & 80; Sars, 116; Southwell & Prashad, 118.

On marine Invertebrates, *Copepoda*; Sars, 116.

On Echinoderma, *Copepoda*; Mortensen & Stephensen, 91.

On *Polychaeta*, *Copepoda*; Caullery et Mesnil, 24; Gravier, 55 & 56.

Bacterial disease marine *Copepoda*; Sadler, 114.



## VARIATION AND AETIOLOGY. 2623

## Variation.

*Mysidacea*, *Amphipoda*, *Branchiopoda*, *Copepoda*; **Olofsson, 99.**

Seasonal variation, *Cancer magister*; **Weymouth, 132.**

## Teratology.

Trifid uropod, *Orchestia* (*Gamm.*); **Chilton, 27.**

Hermaphrodite *Cambarus* (*Nephrop.*); **Ressler, 110.**

Abnorm. genital organs male *Jasus* (*Loric.*); **Bonde, 8.**

## DISTRIBUTION. 2627

## 1. GEOGRAPHICAL.

## A. GENERAL.

[Vacant.]

## B. LAND AND FRESHWATER (INCLUDING SALT LAKES).

## General.

Records of *Catometopa*; **Tesch, 126 & 127.**

Classification and distribution of *Potamonidae* (*Cyclom.*); **Calman, 19.**

Europe and Mediterranean Islands. d

Norway, *Copepoda*; **Sars, 116.**

S.W. Germany, *Oniscoidea*; **Dahl, 46.**

British Ids., *Oniscoidea*; **Collinge, 36 & 37a**; N. England, *Oniscoidea*; **Standen, 120**; Hull, *Oniscoidea*; **Stainforth, 119**; Sheffield, *Chirocephalus* (*Phyllop.*); **Brown Naturalist 1918** p. 362; Scotland, *Oniscoidea*; **Collinge, 33 & 34**; Lothians, *Oniscoidea*; **Evans, Scot. Nat. 1918**, p. 108; Bass rock, *Oniscoidea*; **Evans, Scot. Nat. 1918**, p. 264; Ireland, *Oniscoidea*; **Collinge, 35**; Ulster, *Oniscoidea*; **Foster, 53.**

France, Jura, *Cladocera*, *Copepoda*; **Virieux, 130.**

Spain, Valencia, *Crustacea*; **Boscá Seytre, 10.**

Italy, I. di Capraia, *Oniscoidea*; **Razzauti, 109.**

Switzerland, *Copepoda*, *Cladocera*, *Ostracoda*; **Haerberli, 59**; Neuchâtel, *Cladocera*, *Copepoda*; **Monard, 90**; Fribourg, *Astacus*; **Musy, 94.**

Asia and Malay Archipelago. e

Japan, China, Siam, Malay Penin. (f.w. and brackish) *Decapoda*, *Stomatopoda*; **Kemp, 72.**

India, *Caridina* (*Carid.*), *Potamon* (*Cyclom.*); **Bouvier, 14**; Bengal, *Copepoda* (paras.); **Southwell & Prashad, 118.**

Southern Shan States, Inlé Lake basin, *Potamonidae* (*Cyclom.*), *Palaeomonidae*, *Atyidae* (*Carid.*); **Kemp, 73.**

Malay Archipelago, *Catometopa*; **Tesch, 126 & 127**; Sumatra, *Catometopa*; **Tesch, 128**; Bali, *Palaemon* (*Carid.*); **Roux, 113.**

Africa and Madagascar. f

Somaliland, *Caridea*, *Potamonidae* (*Cyclom.*); **Colosi, 39.**

Transvaal, *Potamon* (*Cyclom.*); **Calman, 19.**

North America. g

*Catometopa*; **Rathbun, 105**; Beaufort, N.C., *Decapoda*; **Hay & Shore, 61**; Iowa, *Cladocera*, *Copepoda*; **Stromsten, 123.**

Central and South America and West Indies. h

*Catometopa*; **Rathbun, 105.**

Bahamas, Cuba, *Oniscoidea*; **Boone, 9.**

British Guiana, *Oniscoidea*; **Collinge, 31.**

R. Paraná, *Phyllopoda*, *Cladocera*, *Copepoda*; **Lutz & others, 84.**

Peruvian Andes, *Harpacticidae* (*Copep.*); **Delachaux, 43 & 44**; *Cladocera*; **Delachaux, 45.**

Argentina, *Cladocera*; **Birabén, 7.**

Australasia. i

Melbourne, *Copepoda*, *Cladocera*; **Shephard, Searle & Stickland, 117.**

Tasmania, *Anaspides*; **Flynn, 51.**

New Zealand, *Gammaridea*; **Chilton, 26.**

## Arctic.

Spitsbergen, *Copepoda* (brackish water); Olofsson, 98: *Mysidacea*, *Amphipoda*, *Branchiopoda*, *Copepoda*, *Ostracoda*; Olofsson, 99.

## Indian Ocean Islands.

## Pacific Ocean Islands.

## Antarctic.

(Vacant.)

## C. MARINE.

(The arrangement is based on that of Borradaile, Bibliography of the Marine Fauna, Challenger Society. 2nd Edn., 1914.)

## General.

Records of *Catometopa*; Tesch, 126 & 127: *Isopoda*, records from many seas; Nierstrasz, 95: American *Catometopa* monograph; Rathbun, 105.

## North Atlantic.

*Mysidacea*; Colosi, 42: *Hyperiidea*; Stephensen, 122.

Norway, *Copepoda*; Sars, 116: Skager Rak, plankton *Crustacea*; Cleve-Euler, 30.

Northumberland, *Euphausiacea*, *Copepoda* (paras.); Jorgensen, 71: Clyde Sea Area, lists of *Crustacea*; Chumley, 29: Plymouth, records of *Crustacea*; Hodgson Trans. Plymouth Field Cl. 1 1913 p. 23; Plymouth, *Copepoda* paras.; Leigh-Sharpe, 79 & 80.

Eastern Canada, list of *Crustacea*; Kindle & Whittaker, 74.

Beaufort, N.C., *Decapoda*; Hay & Shore, 61.

## Mediterranean.

*Oxyrhyncha*, *Cyclometopa*, *Catometopa*, *Oxystomata*, *Galatheiidea*; Colosi, 41: *Euphausiacea*; Colosi, 40: *Hyperiidea*; Stephensen, 122.

Valencia, *Crustacea*; Bosca-Seytre, 10.

Italy, *Copepoda*; Brian, 15: Naples, *Copepoda* (paras.); Gravier, 55 & 56.

## Tropical Atlantic.

*Catometopa*; Bouvier, 12.

Cape Verde Is., Porto Rico, Pernambuco, *Cirripectida*; Calman, 18.

Florida, *Flabellifera*; Boone, 9.

Caribbean Sea, *Hyperiidea*; Colosi, 38.

Cuba, *Decapoda*, *Stomatopoda*, *Tanaidacea*; Bouvier, 13: *Flabellifera*; Boone, 9.

Brit. Guiana, *Flabellifera*; Boone, 9.

Rio Janeiro, *Mysidacea*; Zimmer, 135.

W. and S.W. Africa, *Macrura* and *Anomura* (excl. *Paguridae*); Balss, 2; *Stomatopoda*; Balss, 3; *Cumacea*, *Mysidacea*, *Euphausiacea*; Zimmer, 136; *Copepoda*; Pesta, 102.

## Southern Ocean.

Australia and Tasmania, *Oxyrhyncha*; Rathbun, 107: Victoria and New Zealand, *Mysidacea*; Zimmer, 135: New Zealand, *Cirripectida*; Jennings, 67.

Auckland Ids., *Mysidacea*; Tattersall, 125.

Macquarie Id., *Brachyura*; Rathbun, 108.

## North Pacific.

Japan, China, *Catometopa*, *Paguridea*; Parisi, 100; (brackish), *Decapoda*, *Stomatopoda*; Kemp, 72.

California, *Brachyura*; Nininger, 96; *Caridea*, *Paguridea*; H[ilston], W.A., Journ. Ent. Zool. Claremont Cal. 10 1918 p. 54; *Isopoda*; Journ. Ent. Zool. Claremont Cal. 10 1918 p. 58; *Flabellifera*, *Valvifera*; Boone, 9; *Gammaridea*; Shaw Journ. Ent. Zool. Claremont Cal. 10 1918 p. 57.

## Eastern Pacific.

*Hyperiidea*; Colosi, 38.

Peru, *Mysidacea*; Zimmer, 135.

## Indo-Pacific.

*Mysidacea*; Colosi, 42; *Hyperiidea*; Colosi, 38.

Indian Ocean, Gulf of Aden, Java Sea, Java-Australia, *Cirripectida*; Calman, 18.

Somaliland, *Penaeus*; **Colosi, 39.**

Durban, *Oxyrhyncha*, *Cyclometopa*, *Catometopa*, *Dromiacea*, *Galattheidea*, *Loricata*, *Penasidea*, *Caridea*, *Tanaidacea*, *Gammaridea*, *Phyllocarida*; **Stebbing, 121.**

Malay Archipelago, *Catometopa*; **Tesch, 126 & 127; Calappidac, Leucosiidae, Raninidae (Oxyst.); Ihle, 65;**

*Caridea*; **de Man, 86 & 87.**

China, etc., *Catometopa*, *Paguridea*; **Parisi, 100;** China, Siam, Malay Pen. (brackish), *Decapoda*, *Stomatopoda*; **Kemp, 72.**

Formosa, *Mysidacea*; **Zimmer, 135.**

Philippines, *Flabellifera*; **Boone, 9;** *Copepoda* (paras.); **Mortensen & Stephensen, 91.**

Montebello Ids., *Flabellifera*; **Boone, 9.**

Queensland, *Oxyrhyncha*; **Rathbun, 107.**

## Arctic.

Spitzbergen (brackish water), *Copepoda*; **Olofsson, 98.**

## Antarctic.

Adelie Land, *Mysidacea*, *Euphausiacea*; **Tattersall, 125;** *Cumacea*, *Phyllocarida*; **Calman, 17.**

## 2. GEOLOGICAL.

### General.

Palaeont. and distrib. of *Phreatoidea*; **Calman, 21.**

### Cambrian.

Upper Cambrian, S. Australia, *Ostracoda*; **Chapman, 25.**

### Ordovician.

Richmond, Michigan, *Ostracoda*; **Foerste, 52.**

### Devonian.

Lower Devonian, Rhine facies, *Ostracoda*; **Leidhold, 77.**

### Carboniferous.

Paisley, *Dithyrocaris (Phyllocarid.)*; **Macnair, 85.**

Kinderhook, Iowa, *Decapoda*; **Walter, 131.**

### Triassic,

Rhaetic, Sydney, N.S.W., *Phreatoidea*; **Chilton, 28.**

### Jurassic.

Franken, *Mysidacea*; **Broili, 16.**

Jurassic and Cretaceous supposed *Cirripedia* ref. to *Pelecypoda*; **Withers, 134.**

### Cretaceous.

Lower Cretaceous, Queensland, *Dromiacea*, *Nephropsidea*, *Loricata*; **Etheridge, 48.**

Upper Cretaceous, Maryland, *Nephropsidea*, *Thalassinidea*; **Pilsbry, 103.**

### Tertiary.

Middle Tertiary, Auckland, Crustacean tracks; **Bather, 4.**

Oligocene and Miocene, Holland, *Ostracoda*; **Kuiper, 76.**

Oligocene, Miocene, Pliocene, Pleistocene, Panama Canal Zone, *Caridea*, *Nephropsidea*, *Thalassinidea*, *Galattheidea*, *Paguridea*, *Dromiacea*, *Oxy stomata*, *Cyclometopa*, *Catometopa*, *Oxyrhyncha*; **Rathbun, 106;** *Cirripedia*; **Pilsbry, 104.**

## III.—SYSTEMATIC. 2631

*N.B.*—The numerals in Clarendon type, when not indicating a Volume, refer to Tiles.

†Crustacean tracks, **BATHER, 4.**

†*Palaeopalaemon iowensis* sp. n. Kinderhook shale, Iowa, p. 119 figs., **WALTER** Proc. Iowa Acad. Sci. 24.

## DECAPODA.

**BOURY 11; HILTON 63.**

*Decapoda*, Many remarkable changes in nomenclature and classification not further recorded here, **WILLIAMSON, 133.**

## Brachyura.

NININGER, 96.

*Marestia mawsoni* sp. n. (larva)  
Macquarie Id. p. 4 fig., RATHBUN  
Austral. Antarct. Exp. ser. c. 5 pt. 2.

## OXYRHYNCHA.

COLOSI, 41.—ISSEL, 66.—STEBBING, 121.

*Antilibinia lappacea* sp. n. Australian  
Bight p. 12 figs., RATHBUN Biol.  
Res. F.I.S. "Endeavour" 5.

*Catoptrus* see *Catometopa*.

*Cryptopodia queenslandi* sp. n. Queens-  
land p. 26 fig., RATHBUN t.c.

*Cyrtomaia maccullochi* sp. n. Aus-  
tralian Bight p. 4 figs., RATHBUN t.c.

*Doclea profunda* sp. n. Australian  
Bight p. 16 figs., RATHBUN t.c.

*Ephippias* gen. n. (*Inachoida*) *en-*  
*deavouri* sp. n. S. Australia p. 9 figs.,  
RATHBUN t.c.

*Eumedonus villosus* p. 27, *vicinus*  
p. 28, spp. n., Queensland figs., RATH-  
BUN t.c.

*Euprognaethia rastellifera* p. 454 fig.,  
HAY & SHORE Bull. U.S. Bur. Fish.  
35.

*Heterocrypta granulata* p. 464 fig.,  
HAY & SHORE t.c.

*Hymenosomidae* see *Catometopa*.

*Leptomithrax spinulosus* p. 20,  
*globifer* sp. n. S. Australia p. 23 figs.,  
RATHBUN Biol. Res. F.I.S. "En-  
deavour" 5.

*Libinia emarginata, dubia*, p. 456  
figs., HAY & SHORE Bull. U.S. Bur.  
Fish. 35.

*Macrocoeloma trispinosum, campto-*  
*cerum* p. 457 figs., HAY & SHORE t.c.

*Metoporphaphis calcaratus* p. 454 fig.,  
HAY & SHORE t.c.

*Microphrys bicornutus, platysoma*,  
p. 459 figs., HAY & SHORE t.c.

*Mithrax forceps* p. 457, *depressus*,  
*pleuracanthus* p. 458 figs., HAY & SHORE  
t.c.

*Paramithrax minor* p. 18 fig., RATH-  
BUN Biol. Res. F.I.S. "Endeavour" 5.

*Parthenope agona, pourtalesii*, p.  
462 figs., HAY & SHORE Bull. U.S.  
Bur. Fish. 35.

†*Parthenope panamensis* Oligocene  
p. 178, *pleistocenica* Pleistocene p. 179,  
figs., spp. n., Panama, RATHBUN  
Bull. U.S. Nation. Mus. 103.

*Pelia mutica* p. 455 fig., HAY & SHORE  
Bull. U.S. Bur. Fish. 35.

*Phalangipus australiensis* sp. n.  
Queensland p. 15 fig., RATHBUN  
Biol. Res. F.I.S. "Endeavour" 5.

*Pitho lherminieri* p. 459 fig., HAY &  
SHORE Bull. U.S. Bur. Fish. 35.

*Platylambrus serratus* p. 463 fig.,  
HAY & SHORE t.c.

*Platymaia wyvillethomsoni* p. 7 figs.,  
*alcocki* nom. n. for *wyvillethomsoni*  
Wood-Mason non Miers p. 8 RATH-  
BUN Biol. Res. F.I.S. "Endeavour" 5.

*Podochela riisei* p. 453, *gracilipes*  
p. 454 figs., HAY & SHORE Bull. U.S.  
Bur. Fish. 35.

*Pyromaia cuspidata* p. 455 fig.,  
HAY & SHORE t.c.

*Scyramathia fultoni* p. 14 fig., RATH-  
BUN Biol. Res. F.I.S. "Endeavour" 5.

*Solenolambrus tenellus* p. 463 fig.,  
HAY & SHORE t.c.

*Sphenocarcinus corrosus* p. 460 fig.,  
HAY & SHORE t.c.

*Stenocionops spinosissima, furcata*  
*coelata*, p. 460 figs., HAY & SHORE t.c.

*Stenorhynchus sagittarius* p. 455 fig.,  
HAY & SHORE t.c.

*Tyche emarginata* p. 461 fig., HAY &  
SHORE t.c.

## CYCLOMETOPA.

COLOSI, 39, 41.—FASTEN, 49.—JOR-  
GENSEN, 70.—LIM, 81, 82.—SALKIND  
115.—STEBBING, 121.—WEYMOUTH, 132.

*Acanthopotamon* gen. n. type *mar-*  
*tensi* p. 101, KEMP Rec. Ind. Mus. 14.

*Arenaeus cribrarius* p. 434 fig., HAY  
& SHORE Bull. U.S. Bur. Fish. 35.

*Callinectes sapidus* p. 432, *ornatus* p.  
433, figs., HAY & SHORE t.c.

†*Callinectes declivis* Miocene, Costa  
Rica p. 162, *reticulatus* Oligocene,  
Panama p. 163, figs., spp. n., RATH-  
BUN Bull. U.S. Nation. Mus. 103.

*Cancer borealis* p. 434, *irroratus* p.  
435, fig., HAY & SHORE Bull. U.S.  
Bur. Fish. 35.

*Catoptrus* see *Catometopa*.

*Eriphia gonagra* p. 439 fig., HAY & SHORE t.c.

†*Euphyllax callinectias* p. 165, *fortis* p. 167, figs., spp. n., Miocene, Costa Rica, RATHBUN Bull. U.S. Nation. Mus. 103.

*Eurytium limosum* p. 438 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

†*Eurytium crenulatum* sp. n. Pleistocene, Panama p. 174 figs., RATHBUN Bull. U.S. Nation. Mus. 103.

†*Gatunia* gen. n., *proavita* sp. n. Miocene, Panama p. 168 figs., RATHBUN t.c.

†*Gatunidae* fam. n. p. 168, RATHBUN t.c.

†*Heteractaea lunata* Pliocene, Costa Rica p. 171 figs., RATHBUN t.c.

*Leptodius agassizii* p. 441 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Lobopilumnus agassizii* p. 441 fig., HAY & SHORE t.c.

*Menippe mercenaria* p. 439 fig., HAY & SHORE t.c.

*Neopanope texana sayi* p. 438 fig., HAY & SHORE t.c.

*Ovalipes ocellatus ocellatus* p. 426, *o. floridanus* p. 427 figs., HAY & SHORE t.c.

†*Panopeus antepurpurens/tridentatus*, spp. n., Pleistocene, Panama p. 172 figs., RATHBUN Bull. U.S. Nation. Mus. 103.

*Pilumnus sayi, lacteus*, p. 440 figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Pilumnus quadridentatus* p. 249 fig., KEMP Mem. As. Soc. Bengal 6.

*Portunus gibbesii, sayi*, p. 428 (*Achelous spinimanus, spinicarpus*, p. 429, *sebae, depressifrons*, p. 430. *anceps, ordwayi*, p. 431, figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Potamon Babaulti* sp. n. W. Himalayas p. 392 figs., BOUVIER Bull. Mus. Paris 24.—*P. (Potamon) anacoluthon* sp. n. Hong Kong p. 243 figs., KEMP Mem. As. Soc. Bengal 6.—*P. (Potamon) brownianum* p. 82, *acanthicum* p. 85, *curtobates* p. 89, spp. n., Shan States figs., KEMP Rec. Ind. Mus. 14.—*P. (Potomonantes) warreni* sp. n. Transvaal p. 234 fig., CALMAN Ann. Mag. Nat. Hist. 1.

*Rhithropanopeus harrisi* p. 441 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

#### CATOMETOPIA.

COLOSI, 41.—STEBBING, 121.

Monograph of American Catometopa with descriptions and figs. of all spp. (only new names noted below), RATHBUN Bull. U.S. Nation. Mus. 97.

Partial revision of seven families with keys to genera and species, TESCH Rés. expl. Siboga 39c and 39c1.

*Aphanodactylus* gen. n. (*Pinnotheridae*) *Sibogae* sp. n. Malay Archipelago p. 283 fig., TESCH Rés. Expl. Siboga 39c1.

*Camatopsis rubida* p. 235 fig., TESCH t.c.

*Camptandrium sexdentatum* p. 65 fig., TESCH Rés. expl. Siboga 39c.

†*Cardisoma guankumi* Pliocene, Costa Rica p. 177 figs., RATHBUN Bull. U.S. Nation. Mus. 103.

*Catoptrus nitidus* p. 179, *inaequalis* p. 180 figs., TESCH Rés. expl. Siboga 39c1.

*Ceratoplax ciliata* p. 204, *truncatifrons* p. 205 figs., TESCH t.c.

*Chasmocarcinus Rathbuni* sp. n. Rio Grande do Sul p. 391, BOUVIER Bull. Mus. Paris 23.

*Cymopolia floridana* sp. n. Florida p. 220 figs., RATHBUN Bull. U.S. Nation. Mus. 97.

*Dissodactylus primitivus* p. 394, *rugatus* p. 396, *juvenilis* p. 397, spp. n., W. Indies, BOUVIER Bull. Mus. Paris 23.—*D. mellitae* p. 444 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.—*D. borradalei* p. 121, *stebbingi* p. 123, Florida, *alcocki* G. of Mexico p. 124, *calmani* Florida p. 125, spp. n., figs., RATHBUN Bull. U.S. Nation. Mus. 97.

*Dotilla wichmanni* p. 227 fig., KEMP Mem. As. Soc. Bengal 6.

*Elamena truncata* p. 22 fig., TESCH Rés. expl. Siboga 39c.

*Elamenopsis lineata* p. 26 fig., TESCH t.c.

*Epigrapsus notatus* p. 134 fig., TESCH t.c.

*Euchirograpsus americanus* p. 448 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Euryplax nitida* p. 442 fig., HAY & SHORE t.c.

†*Euryplax culebrensis* sp. n. Oligocene, Panama p. 174 figs., RATHBUN Bull. U.S. Nation. Mus. 103.

*Fabia canfieldi* sp. n. California p. 106 figs., RATHBUN Bull. U.S. Nation. Mus. 97.

*Goneplax sinuatifrons* p. 182, *maldivensis* p. 183 figs., TESCH Rés. expl. Siboga 39c1.

*Grapsus strigosus* p. 71 figs., TESCH Rés. expl. Siboga 39c.

*Halicarcinus planatus* p. 10 fig., TESCH t.c.

*Hapalonotus reticulatus* p. 278 fig., TESCH Rés. expl. Siboga 39c1.

*Helice tridens* var. n. *latimera* China etc. p. 106, *leachi* p. 108, figs., PARISI Pavia Atti Soc. ital. sci. nat. 47.—*H. subquadrata* p. 120 fig., TESCH Rés. expl. Siboga 39c.

*Hepthopelta littoralis* sp. n. Malay Archipelago p. 233 fig., TESCH Rés. expl. Siboga 39c1.

*Hexapus sexpes* p. 240 fig., TESCH t.c.

*Homoioplax haswelli* p. 190 fig., TESCH t.c.

*Hymenicus edwardsi* p. 13 fig., TESCH Rés. expl. Siboga 39c.

*Hymenosoma orbiculare* p. 6 fig., TESCH t.c.

*Litocheira setosa* p. 165, *affinis* sp. n. p. 167, *quadrispinosa* p. 168, *aranaea* sp. n. p. 171, *sculptimana* sp. n. p. 178, *subintegra* p. 175 figs. Malay Archipelago, TESCH Rés. expl. Siboga 39c1.

*Lophoplax* gen. n. (*Goneplacidae*) *bicristata* sp. n. Malay Archipelago p. 196 fig., TESCH t.c.

*Mertonia lanka* p. 217 fig., TESCH t.c.

*Ocypode albicans* p. 450 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Ommatocarcinus orientalis* sp. n. Malay Archipelago p. 186 figs., TESCH Rés. expl. Siboga 39c1.

*Pachygrapsus transversus* p. 447 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Paracleistostoma dentatum* sp. n. Malay Archipelago p. 63 fig., TESCH Rés. expl. Siboga 39c.

*Parapinnixa beaufortensis* p. 444 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.—*P. hendersoni* Cuba p. 109, *bouvieri* Yucatan p. 111, *beaufortensis* N. Carolina p. 112, spp. n., figs., RATHBUN Bull. U.S. Nation. Mus. 97.

*Paraselwynia* gen. n. (*Goneplacidae*) *ursina* sp. n. Malay Archipelago p. 222 fig., TESCH Rés. expl. Siboga 39c1.

*Pinnixa rapax* sp. n. La Plata p. 392, BOUVIER Bull. Mus. Paris 23.—*P. chaetoptera* p. 445, *sayana*, *cristata*, *cylindrica*, p. 446, figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.—*P. faxoni* Trinidad p. 133, *patagoniensis* Patagonia p. 135, *floridana* Florida p. 138, *retinens* Maryland p. 139, *barnharti* California p. 149, *franciscana* p. 161, *schmitti* p. 162, *hiatus* p. 164, *weymouthi* p. 166, California, spp. n., figs., RATHBUN Bull. U.S. Nation. Mus. 97.

*Pinnotheres ostreum*, *maculatus*, p. 443 figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.—*P. holmesi* p. 68, *meliniarum* p. 81, *reticulatus* p. 93, California, *moseri* p. 94, *shoemakeri* p. 95, W. Indies, *taylori* Brit. Columbia p. 97, *orcutti* Mexico p. 98, *hemphilli* Florida p. 99 spp. n., figs., RATHBUN Bull. U.S. Nation. Mus. 97.—*P. trichopus* sp. n. p. 256, *obesus* p. 257, *onychodactylus* sp. n. p. 259, *consors* p. 260, *quadratus* p. 261, Malay Archipelago figs., TESCH Rés. expl. Siboga 39c1.

*Plagusia depressa* p. 449 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Planes minutus* p. 448 fig., HAY & SHORE t.c.

*Pseudograpsus laniger* sp. n. Malay Archipelago p. 99 fig., TESCH Rés. expl. Siboga 39c.

*Ptychognathus altimanus* p. 88, *guijulu-gani* p. 93, figs., TESCH t.c.

*Pyxidognathus granulosis* p. 168, *subglobosus* sp. n. Sumatra p. 170, *deianira* p. 173, figs., TESCH Leiden Zool. Med. 4.

*Retropluma plumosa* sp. n. Malay Archipelago p. 30, fig., TESCH Rés. expl. Siboga 39c.

*Scalopidia spinosipes* p. 224 fig., TESCH Rés. expl. Siboga 39c1.

*Scopimera globosa* p. 97 figs., PARISI Pavia Atti Soc. ital. sci. nat. 57.—*S. globosa* p. 46 fig., TESCH Rés. expl. Siboga 39c.

*Sesarma reticulata* p. 448, *cinerea* p. 449, figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.—*S. intermedium* p. 234, *foxi* sp. n. Penang p. 238, figs., KEMP Mem. As. Soc. Bengal 6.—*S. (Holometopus) miersii* subsp. n. *iheringi* Brazil p. 304, *magdalense* sp. n. L. California p. 305, figs., RATHBUN Bull. U.S. Nat. Mus. 97.—*S. (Holometopus) elongata* p. 109 fig., TESCH Rés. expl. Siboga 39c.

*Speocarcinus celebensis* sp. n. Malay Archipelago p. 194 fig., TESCH Rés. expl. Siboga 39c1.

*Tetragrapsus* gen. n. for *jouyi* Rathb. p. 273 figs., RATHBUN Bull. U.S. Nation. Mus. 97.

*Tetrias fisheri* p. 268 fig., TESCH Rés. expl. Siboga 39c1.

† *Thaumastoplax prima* sp. n. Oligocene, Panama, p. 176 figs., RATHBUN Bull. U.S. Nation. Mus. 103.

*Tympanomerus ceratophorus* p. 50, *integer* sp. n. Malay Archipelago p. 54, figs., TESCH Rés. expl. Siboga 39c.

*Typhlocarcinodes hirsutus* p. 228, *crassipes* sp. n. p. 230, *piroculatus* p. 231, Malay Archipelago, figs., TESCH Rés. expl. Siboga 39c1.

*Typhlocarcinops transversa* sp. n. p. 212, *decrescens* p. 213, *angustipes* sp. n. p. 214, Malay Archipelago, figs., TESCH t.c.

*Typhlocarcinus nudus* p. 208, *vilosus* p. 209, figs., TESCH t.c.

*Uca minax*, *pugnax*, p. 451, *pugilator* p. 452, figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.—*U. lactea* p. 92 figs., *pulchella* p. 93, PARISI Pavia Atti Soc. ital. sci. nat. 57.

† *Uca macrodactylus* Pleistocene, Panama p. 177 fig., RATHBUN Bull. U.S. Nation. Mus. 103.

*Ulica sinensis* sp. n. China p. 102 figs., PARISI Pavia Atti Soc. ital. sci. nat. 57.

*Xenophthalmodes dolichophallus* sp. n. Malay Archipelago p. 216 fig., TESCH Rés. expl. Siboga 39c1.

#### OXYSTOMATA.

##### COLOSTI, 41.

*Actaeomorpha aglypha* var. n. *angulata* Malay Archipelago p. 209, fig., IHLE Rés. expl. Siboga 39b2.

(N-5464 I)

*Calappa flammea*, *angusta*, p. 421, *sulcata* p. 422, figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.

† *Calappa costaricana* sp. n., Pliocene Panama, p. 156, *flammea* p. 157, figs., RATHBUN Bull. U.S. Nation. Mus. 103.

† *Calappella* gen. n. *quadrispina* Oligocene, Panama, p. 157, figs., RATHBUN t.c.

*Cryptocnemus stimpsoni* p. 287, *calmani* p. 289, *trapezoides* p. 291, *macrognathus* p. 292, figs., IHLE Rés. expl. Siboga 39b2.

*Ebalia nana* p. 225, *braminae* p. 227, (*Phylxia*) *fasciata* p. 229, *longispinosa* p. 231, spp. n. Malay Archipelago, figs., IHLE t.c.—*E. heterochalaza* sp. n. Siam p. 250 fig., KEMP Mem. As. Soc. Bengal 6.

*Ebaliopsis* gen. n. (*Iliinae*) for *Ebalia erosa* p. 255, IHLE Rés. expl. Siboga 39b2.

*Hepatus epheliticus* p. 422 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

† *Hepatus chilensis* Pleistocene, Panama p. 155 fig., RATHBUN Bull. U.S. Nation. Mus. 103.

*Heteronucia venusta* p. 219 fig., IHLE Rés. expl. Siboga 39b2.

*Iliacantha intermedia*, *subglobosa*, p. 424 figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Iphiculus convexus* sp. n. Malay Archipelago p. 252 fig., IHLE Rés. expl. Siboga 39b2.

*Leucosia brunnea* p. 279 figs., IHLE t.c.

† *Leucosilia bananensis* sp. n. Miocene, Costa Rica, p. 161 figs., RATHBUN Bull. U.S. Nation. Mus. 103.

*Lithadia cariosa* p. 424 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

† *Mursia macdonaldi* p. 158, *obscura* p. 159, figs., spp. n. Oligocene, Panama, RATHBUN Bull. U.S. Nation. Mus. 103.

† *Mursilia* gen. n. *ecristata* sp. n. Miocene, Panama p. 160 fig., RATHBUN t.c.

*Myra biconica* sp. n. p. 258, *kessleri* p. 260 Malay Archipelago figs., IHLE Rés. expl. Siboga 39b2.

*Nucia Bouvieri* p. 221, *modesta* p. 223, spp. n. Malay Archipelago figs., IHLE t.c.

*Nursia weberi* p. 237, *elegans* p. 238 with varr. *lamellata* p. 240 and *sexangulata* p. 241, *phylloides* p. 242, spp. n. Malay Archipelago figs., IHLE t.c.

*Oreophorus rugosus* p. 212, *ornatus* sp. n. p. 214, Malay Archipelago figs., IHLE t.c.

*Oreotlos* subg. n. of *Oreophorus* for *Tlos angulatus* &c. p. 216, IHLE t.c.

*Osachila semilevis* p. 422, *tuberosa* p. 423, figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Pariphiculus agariciferus* sp. n. Malay Archipelago p. 250 fig., IHLE Rés. expl. Siboga 39b2.

*Persephona punctata* p. 423 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Philyra scabriuscula* var. n. *granulosa* p. 275, Malay Archipelago, IHLE Rés. expl. Siboga 39b2.

*Praebebaltia pisiformis* sp. n. Malay Archipelago p. 233 fig., IHLE t.c.

*Pseudophilyra intermedia* p. 269, *tenuipes* p. 271, *deficiens* p. 272, spp. n. Malay Archipelago figs., IHLE t.c.

*Ranilia muricata* p. 420 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Speleoophorus pontifera*, *nodosus*, p. 425 figs., HAY & SHORE t.c.

#### DROMIACEA.

*Cryptodromia monodous* sp. n. Durban p. 56 figs., STEBBING Durban Ann. Mus. 2.

*Dromidia antillensis* p. 417 figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.

†*Goniochele* ? *armata* sp. n. Oligocene, Panama p. 154 figs., RATHBUN Bull. U.S. Nation. Mus. 103.

*Homola barbata* p. 419 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Hypoconcha arcuata*, *sabulosa* p. 418 figs., HAY & SHORE t.c.

*Latreillia elegans* p. 419 fig., HAY & SHORE t.c.

†*Prosopon etheridgei* p. 5 figs., ETHERIDGE Geol. Surv. Queensland Publ. 260.

#### Anomura.

##### GALATHEIDEA.

COLOSI, 41.—PARISI, 100.—STEBBING, 121.

*Euceramus praelongus* p. 405 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Galathea rostrata* p. 402 fig., HAY & SHORE t.c.

*Munida irrasa*, *longipes*, p. 402 figs., HAY & SHORE t.c.

*Pachycheles rugimanus* p. 404 fig., HAY & SHORE t.c.

†*Pachycheles latus* sp. n. Pliocene, Costa Rica p. 134 figs., RATHBUN Bull. U.S. Nation. Mus. 103.

*Petrolisthes galathinus* p. 404 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Petrolisthes avitus* sp. n. Pliocene, Costa Rica p. 134 figs., RATHBUN Bull. U.S. Nation. Mus. 103.

*Polyonyx macrocheles* p. 405 fig., HAY & SHORE Bull. U.S. Bur. Fish.

*Porcellana longicornis* p. 42 fig., BALSS Beitr. Meeresf. Westafrikas 2.—*P. sayana* p. 403, *soriata* p. 404, figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.

#### PAGURIDEA.

GOLDSMITH, 57.—KEMP, 72.

*Catapagurus sharrei* p. 414 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Clibanarius brachyops* sp. n. Cuba p. 9 figs., BOUVIER, Bull. Mus. Paris 24.—*C. vittatus* p. 410 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Eupagurus pygmaeus* sp. n. Cuba p. 11 figs., BOUVIER Bull. Mus. Paris 24.

*Glaucothoe cubensis* sp. n. ? young of *Paguristes anomalus* Cuba p. 8 figs., BOUVIER t.c.

*Paguristes anomalus* sp. n. Cuba p. 6 figs., BOUVIER t.c.—*P. moorei*, *armatus*, p. 409 figs., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Pagurus pollicaris*, *longicarpus*, p. 411, *corallinus*, *annulipes*, *cokeri*, p. 412, figs., HAY & SHORE t.c.

*Petrochirus bahamensis* p. 410 fig., HAY & SHORE t.c.

†*Petrochirus bouvieri* sp. n. Miocene, Panama p. 153, RATHBUN Bull. U.S. Nation. Mus. 103.

*Pylopagurus rosaceus* p. 413 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.



## HIPPIDEA.

MEAD, 88.

*Albunea intermedia* sp. n. Liberia p. 37 figs., BALSS Beitr. Meeresf. Westafrikas 2.—*A. gibbesii* p. 414 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Lepidopa websteri* p. 415 fig., HAY & SHORE t.c.

## Macrura.

## NEPHROPSIDEA.

BERNHARDS, 6.—HIRSCH, 64.—JORDAN & LAM, 69.—KNIGHT, 75.—LOWARTZ 83.—MUSY, 94.—RESSLER, 110.—TAIT & GUNN, 124.

*Cambarus blandingii* p. 400, *diogenes, uhleri*, p. 401 figs., HAY & SHORE Bull. U.S. Fish. Bur. 35.

*Homarus americanus* p. 399 fig., HAY & SHORE t.c.

†*Holoparia* [*Hoploparia*] *gabbi* p. 361, *gladiator* p. 362 figs., PILSBRY Maryland Geol. Surv. Upper Cretaceous.

†*Hoploparia mesembria* sp. n. Lower Cretaceous, Queensland, p. 7 figs., ETHERIDGE Geol. Surv. Queensland Publ. 260.

†*Nephrops costatus* sp. n. Pleistocene, Panama p. 133 figs., RATHBUN Bull. U.S. Nation. Mus. 103.

## ERYONIDEA.

[Vacant.]

## LORICATA.

BONDE, 8.—STEBBING, 121.—TORRE Y HUERTA, 129.

†*Glypheea arborinsularis* sp. n. Lower Cretaceous, Queensland, p. 8 figs., ETHERIDGE Geol. Surv. Queensland Publ. 260.

*Panulirus argus* p. 398 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

*Scyllarus americanus* p. 399 fig., HAY & SHORE t.c.

## THALASSINIDEA.

KEMP, 72.—RICHARDS, 111.

†*Axius reticulatus* sp. n. Oligocene Panama p. 135 figs., RATHBUN Bull. U.S. Nation. Mus. 103.

*Callianassa stimpsoni* p. 406 fig., HAY & SHORE Bull. U.S. Bur. Fish. 35.

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## CARIDEA.

COLOSI, 39.—STEBBING, 121.

†*Caridea*, RATHBUN, 106.

*Aegeon pennata* var. *affinis* p. 300, *propensalata* var. n. *hilarula* p. 301, *Sibogae* sp. n. p. 302, *Sibogae* var. n. *intermedia* p. 303, *Rathbuni* nom. n. for *orientalis* Rathbun non Henderson p. 304, Malay Archip., DE MAN Tijdschr. Ned. Dierk. Ver 16.

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KEMP, 72.—STEBBING, 121.

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[Vacant.]

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#### SYNCARIDA.

FLYNN, 51.

#### STOMATOPODA.

BALSS, 3.—KEMP, 72.

#### CUMACEA.

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CALMAN, 21.

†*Phreatoicus wianamattensis* sp. n. Trias, N.S. Wales p. 382 figs., CHILTON J. R. Soc. N.S.W. 51.

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## EPICARIDEA.

[Vacant.]

## ONISCOIDEA.

ABBOTT, 1.—COLLINGE, 33, 34, 35.—DAHL, 46.—FOSTER, 53.—FRANZ, 54.—NUSBAUM-HILAROWICZ, 97.—RAZZAUTI, 109.—STAINFORTH, 119.—STANDEN, 120.—VERHOEFF, 129a.

*Armadillidium nasatum* varr. n. *flava* and *nigrescens* England p. 41, COLLINGE J. Zool. Research 3.—*A. vulgare* var. n. *rufobrunneus* Devon p. 102, COLLINGE t.c.

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## AMPHIPODA.

## GAMMARIDEA.

CHILTON, 27.

*Cheiriphotis walkeri* sp. n. Durban p. 68 figs., STEBBING Durban Ann. Mus. 2.

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*Vibilia Jeangerardi* p. 34, *gibbosa* p. 36, *robusta* p. 37, *kröyeri* p. 38, *Stebbingi* p. 40, *viatrix* p. 41, *propinqua* p. 43, *armata* p. 46, *pyripes* p. 52, *cultripes* p. 53, figs., STEPHENSEN t.c.

## CAPRELLIDEA.

[Vacant.]

## PHYLLOCARIDA.

STEBBING, 121.

†Phyllocarida, MACNAIR, 85.

*Nebalia longicornis* p. 9, CALMAN Austral. Antarct. Exp. ser. C 5 pt. 6.

## BRANCHIOPODA.

## PHYLLOPODA.

LUTZ and others, 84.—MÜLLER, 92, 93.

*Artemia gracilis* p. 18 figs., JENSEN Biol. Bull. 34.

*Chirocephalus diaphanus* Sheffield p. 362, BROWN Naturalist 1918.

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## CLADOCERA.

GRUNEWALD, 58.—HAEBERLI, 59.—HERVERDEN, 62.—LUTZ & others, 84.—PARSHAD, 101.—SHEPHARD, SEARLE & STICKLAND, 117.—STROMSTEN, 123.—VIRIEUX, 130.

*Alona affinis, cambouei*, p. 28, *glabra, guttata, poppei*, p. 29, *intermedia* p. 30 figs., DELACHAUX Bull. Soc. sci. nat. Neuchâtel 43.

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*Simocephalus serrulatus* var. n. *nudifrons* Peru p. 24, DELACHAUX t.c.

## COPEPODA.

ESTERLY, 47.—FASTEN, 50.—HAEBERLI, 59.—LUTZ & others, 84.—SADLER, 114.—SHEPHARD, SEARLE & STICKLAND, 117.—STROMSTEN, 123.

*Alophytophilus* gen. n. (*Ectinosomidac*) p. 4, *fusiformis* sp. n. Quarto p. 6 figs., BRIAN Descrizione etc.

*Amphiascus angrapequensis* sp. n. S.W. Africa p. 7 figs., PESTA Beitr. Meerresf. Westafrikas 2.

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*Caligus curtus* p. 66 figs., JORGENSEN Rep. Dove Marine Lab. 7.

*Canthocamptus godeti* p. 316, *huaronensis* p. 318, *insignis* p. 320, *maximus* p. 322, *ensifer* p. 324, *sculptus* p. 326, *armatus* p. 327, spp. n., Peruvian Andes, figs., DELACHAUX Zool. Anz. 49.—*C. maximus* male p. 118, *ferox* sp. n. p. 118, *lanceolatus* p. 120, *truncatus* p. 120 Peruvian Andes figs., DELACHAUX Rev. Suisse Zool. 26.—*C. staphylinus* var. n. *neocomensis* Neuchâtel p. 354 figs., MONARD Rev. Suisse Zool. 26.

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*Clavella sciatherica* sp. n. on *Gadus morhua* Plymouth, p. 118 figs., LEIGH-SHARPE Parasitology 11.

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## BRANCHIURA.

[Vacant.]

## OSTRACODA.

HAEBERLI, 59.—HARVEY, 60.

†Ostracoda, LEIDHOLD, 77.

†*Bollia permarginata* **sp. n.** Ordovician, Michigan p. 124 figs., FOERSTE Ottawa Nat. 31.†*Bythocythere neerlandica* **sp. n.** Tertiary, Holland p. 18, KUPER Ostracoden.*Candona rectangularata* p. 521 figs., OLOFSSON Zool. Beitr. Uppsala 6.

†*Cythereis staringi* p. 47, *hollandica* p. 49, *unicostulata* p. 65, spp. n., Tertiary, Holland, KUIPER Ostracoden.

†*Cytheridea lieenenklausi* sp. n. Tertiary, Holland p. 31, KUIPER t.c.

†*Cytheropteron steinmanni* sp. n. Tertiary, Holland p. 20, KUIPER t.c.

*Eucypris glacialis* p. 513, *arctica* sp. n. Spitsbergen p. 518 figs., OLOFSSON Zool. Beitr. Uppsala 6.

†*Isochilina sweeti* sp. n. Upper Cambrian S. Australia p. 111 figs., CHAPMAN Proc. R. Soc. Victoria 31.

†*Leperditia tatei* p. 109, *caprella* p. 111, spp. n., Upper Cambrian S. Australia, figs., CHAPMAN t.c.

†*Loxococoncha favata* p. 25, *wanneri* p. 26, spp. n., Tertiary, Holland, KUIPER Ostracoden.

## CIRRIPEDIA.

JENNINGS, 67.

†*Balanus glyptopoma* p. 185, *concauus* subsp. n. *rarisepatus* Miocene, Panama

p. 186 figs., PILSBRY Bull. U.S. Nation. Mus. 103.

†*Lepas injudicata* sp. n. Miocene, Panama p. 188 fig., PILSBRY t.c.

*Megalasma (Glyptelasma) carinatum* p. 401 figs., CALMAN Ann. Mag. Nat. Hist. 1.

†*Pollicipes alatus* Tate ref. to Pelecypoda p. 171 fig., WITHERS Geol. Mag. 5.

*Scalpellum (Smilium) trispinosum* p. 98, *nudipes* p. 99, *acutum* p. 101, *bengalense* p. 102 figs., (*Scalpellum*) *ecaudatum* sp. n. Java Sea p. 106 figs., *velutinum* p. 108, *annandalei* sp. n. Gulf of Aden etc. p. 109 figs., *regina* p. 112, *regulus* sp. n. Indian Ocean p. 113 figs., *alcockianum* p. 115, *juddi* sp. n. Indian Ocean p. 116 figs., *persona* p. 120, *portoricannum* p. 121, *rubrum* p. 122, *novae-zelandiae* p. 123, *gruvelii* p. 124, *laccadivicum* p. 124, CALMAN Ann. Mag. Nat. Hist. 1.

†*Zoocapsa dolichorhamphia*, Seeley, ref. to Pelecypoda p. 169 fig., WITHERS Geol. Mag. 5.





# XI. ARACHNIDA

TO WHICH ARE ADDED

GIGANTOSTRACA (XIPHOSURA; TRILOBITA, EURYPTERIDA),  
PANTOPODA, TARDIGRADA, PENTASTOMIDA, MYRIOPODA  
and PROTOTRACHEATA

ARRANGED BY

W. T. CALMAN, D.Sc.

## CONTENTS.

	PAGE
<b>Gigantostraca.</b>	
I. TITLES=2800 .. .. .	4
II. SUBJECT-INDEX=2803-2827.. .. .	4
III. SYSTEMATIC INDEX=2831:—	
Trilobita .. .. .	5
Xiphosura, etc. .. .. .	5
Eurypterida (vacant).	
<b>Pantopoda.</b>	
I. TITLES=2800 .. .. .	6
II. SUBJECT-INDEX=2803-2827 .. .. .	6
III. SYSTEMATIC INDEX=2831 .. .. .	6
(N-5464 n)	b 4

## Arachnida (incl. Tardigrada and Pentastomida).

I. TITLES=3000 .. .. . 7

## II. SUBJECT-INDEX=3003-3027 :—

General, Economics .. .. .	10
Structure .. .. .	10
Physiology .. .. .	10
Development. .. .. .	10
Ethology .. .. .	10
Variation and Aetiology .. .. .	10
Distribution (Geographical) .. .. .	10

## III. SYSTEMATIC INDEX=3031 :—

## General (vacant).

Scorpiones .. .. . 11

Pedipalpi .. .. . 12

## Palpigradi (vacant).

Araneae .. .. . 12

Aviculariidae .. .. . 12

Psechridae .. .. . 13

Dictynidae. . . . . 13

Eresidae .. .. . 13

Dysderidae .. .. . 13

Drassidae .. .. . 13

Theridiidae .. .. . 13

Argiopidae .. .. . 13

Thomisidae .. .. . 14

Clubionidae .. .. . 14

Agelenidae .. .. . 14

Pisauridae .. .. . 14

Lycosidae .. .. . 14

Oxyopidae .. .. . 15

Salticidae .. .. . 15

## Solifugae (vacant).

Pseudoscorpiones .. .. . 15

Opiliones .. .. . 15

## Ricinulei, etc. (vacant).

	PAGE
Acari .. .. .	15
Oribatidae, etc. .. .. .	15
Gamasidae. . . . .	16
Ixodidae and Argasidae .. .. .	16
Trombididae, etc. .. .. .	16
Hydrachnidae .. .. .	17
Halacaridae (vacant).	
Bdellidae .. .. .	17
Sarcoptidae .. .. .	17
Tyroglyphidae .. .. .	17
Demodicidae .. .. .	17
Eriophyidae .. .. .	17
 Tardigrada .. .. .	 17
 Pentastomida .. .. .	 17
 Myriopoda.	
I. TITLES=3400 .. .. .	18
II. SUBJECT-INDEX=3403-3427:—	
General (vacant).	
Structure .. .. .	19
Physiology .. .. .	19
Development. . . . .	19
Ethology .. .. .	19
Variation and Aetiology .. .. .	19
Distribution (Geographical) .. .. .	19
III. SYSTEMATIC INDEX=3431:—	
Chilopoda .. .. .	20
Symphyla .. .. .	20
Pauropoda .. .. .	20
Diplopoda .. .. .	20
 Prototracheata.	
I. TITLES=3200 .. .. .	22
II. SUBJECT-INDEX=3203-3227 .. .. .	22
III. SYSTEMATIC=3231 .. .. .	22

## GIGANTOSTRACA.

## I.—TITLES.

Etheridge, R. Descriptions of some Queensland Palaeozoic and Mesozoic Fossils. 2. Additional evidence of the largest Australian Permo-Carboniferous Trilobite (*Phillipsia grandis*). Geol. Surv. Queensland Brisbane Publ. 260 1917 (11-12) pl. iii. 1

Foerste, A. F. The Richmond faunas of Little Bay de Noquette in Northern Michigan. Ottawa Nat. 31 1917 [1918] (97-103, 121-127) pls. iv-vi. 2

McLearn, F. H. Revision of some Phacopid genera. Ottawa Nat. 32 1918 (31-36). 3

Reed, F. R. C. Ordovician and Silurian fossils from Yun-Nan. Mem. Geol. Surv. India Palacontologia Indica (new series) 6 Mem. 3 1917 (69 pp.) pls. i-viii. 4

Reed, F. R. C. Notes on the genus *Homalonotus*. Geol. Mag. London Dec. vi 5 1918 (263-276, 314-327). 5

Richter, R. and E. Bemerkungen über das Schnauzenschild (Scutum rostrale) bei Homalonoten. Centralbl. Min. Stuttgart 1917 1917 (114-120) text-figs. 6

Richter, R. and E. Neue *Proteus* Arten aus dem Eifler Mitteldevon. Centralbl. Min. Stuttgart 1918 1918 (64-70) text-figs. 7

Richter, R. and E. Die Lichadiden des Eifler Devons. N. Jahrb. Min. Stuttgart 1917 1 (51-72) pls. v & vi text-figs. 8

Walcott, C. D. Cambrian Geology and Palaeontology. iv. No. 4. Appendages of Trilobites. Washington D.C. Smithsonian Inst. Misc. Collect. 67 1918 (115-216 + 10 pp. index) pls. xiv-xlii. 9

Woodward, H. [1.] Notes on some fossil Arthropods from the carboniferous rocks of Cape Breton, Nova Scotia, received from Dr. H. M. Ami.—2. Note on *Euproops* (*Prestwichia*) *Birtwelli*, H. Woodw.—3. Note on the genus *Prestwichia*, H. Woodw., 1866.

—4. *Prestwichianella*, gen. nov. 1918.

—5. Note on *Bellinurus Trechmanni*, a new species of Limuloid Arthropod from the Durham Coal-field. Geol. Mag. London Dec. vi 5 1918 (462-471) text-figs. 10

## II.—SUBJECT INDEX

*N.B.*—The number in Clarendon, when not referring to a Volume, refers to the list of Titles.

GENERAL = 2803-2823.

Appendages of *Trilobita*; Walcott, 9.

Scutum rostrale in *Homalonotus* (*Tril.*); Richter, 6.

Phylogeny of *Phacopidae* (*Tril.*); McLearn, 3.

DISTRIBUTION = 2827.

(Geological.)

Cambrian.

British Columbia, *Trilobita*; Walcott, 9.

Ordovician.

Richmond, Michigan, *Trilobita*; Foerste, 2.

Yun Nan, *Trilobita*; Reed, 4.

Silurian.

Nova Scotia, *Trilobita*; McLearn, 3.

Devonian.

Eifel, *Trilobita*; Richter, 7, 8.

Carboniferous.

Nova Scotia, England, *Xiphosura*; Woodward, 10.

Permo-Carboniferous, Queensland, *Trilobita*; Etheridge, 1.

## III.—SYSTEMATIC INDEX = 2831.

*N.B.*—The number in Clarendon type, when not that of a Volume, refers to the list of Titles.

## †TRILOBITA.

RICHTER, 6.

*Amphilichas cucullus* p. 123 figs., FOERSTE Ottawa Nat. 31.

*Asaphus* aff. *expansus* p. 42 fig., REED Palaeont. Ind. 6 3.

*Bathyrurus Mansuyi* sp. n. Ordovician, Yun Nan, p. 50 figs., REED t.c.

*Brongniartella* subg. n. of *Homalototus* p. 322, REED Geol. Mag. 5.

*Burmeisterella* subg. n. of *Homalototus* p. 325, REED t.c.

*Calymene unicornis* sp. n. p. 52, C. sp. p. 54, figs., Ordovician, Yun Nan, REED Palaeont. Ind. 6 3.—*C. senaria* p. 147 figs., WALCOTT Smithsonian Misc. Collect. 67.

*Ceraurus pleurexanthemus* p. 148 figs., WALCOTT t.c.

*Chasmops breviceps* p. 123 figs., FOERSTE Ottawa Nat. 31.

*Dalmanitina logani* var. n. *conservatrix* Silurian Nova Scotia p. 33, McLEARN Ottawa Nat. 32.

*Eifstarges* subg. n. of *Lichas* (*q.v.*) p. 68, RICHTER N. Jahrb. Min. 1917 1.

*Eohomalototus* subg. n. of *Homalototus* p. 321, REED Geol. Mag. 5.

*Homalototus* subgenera p. 321, REED t.c.

*Illaenus caecoides* sp. n. p. 45, aff. *oblongatus*, aff. *schmidti*, p. 46, aff. *Esmarki* p. 47, aff. *tauricornis*, aff. *punctulosus*, p. 48, figs., Ordovician Yun-Nan, REED Palaeont. Ind. 6 3.

*Isotelus maximus* p. 133 figs., WALCOTT Smithsonian Misc. Collect. 67.

*Kootenia dawsoni* p. 131 figs., WALCOTT t.c.

*Lichas* (*Metopolichas*) *celorhin* cf. var. *coniceps* p. 51, aff. *verrucosus* p. 52, figs., REED Palaeont. Ind. 6 3.—*L. (Plusiarges?) beryllifer* p. 51, (*Euarges*) cf. *parvulus* p. 51, (*Ceratarges*) *armatus* p. 52, (*Eifstarges*) *caudimirus* sp. n. p. 55, Eifel, Devonian, figs., RICHTER N. Jahrb. Min. 1917 1.

*Neolenus serratus* p. 126 figs., WALCOTT Smithsonian Misc. Collect. 67.

*Nileus armadillo* p. 49, *N. sp.* p. 50, figs., REED Palaeont. Ind. 6 3.

*Ogygites yunnanensis* sp. n. Ordovician Yun-Nan p. 42 figs., REED t.c.

*Parahomalototus* subg. n. of *Homalototus* p. 326, REED Geol. Mag. 5.

*Phacopidae* rev. of some genera p. 31, McLEARN Ottawa Nat. 32.

*Phacops* (*Portlockia*) *marklandensis* sp. n. Silurian, Nova Scotia p. 35, McLEARN t.c.

*Phillipsia grandis* p. 11 fig., ETHERIDGE Geol. Surv. Queensland Publ. 260.

*Pliomera Martellii* sp. n. Ordovician, Yun-Nan, p. 55 figs., REED Palaeont. Ind. 6 3.

*Proetus* (*Euproetus*) *cultrijugati* sp. n. p. 64, *cuvieri* var. *granulosa* p. 66, *chamaeleo* sp. n. p. 67, *tenuimargo* p. 69, *Dohmi* sp. n. p. 70, figs., Middle Devonian Eifel, RICHTER Centralbl. Min. 1918.

*Pterygometopus carleyi* p. 124 fig., FOERSTE Ottawa Nat. 31.

*Ptychoparia cordillerae* p. 144, *permulta* sp. n. Cambrian, Brit. Columbia p. 145, figs., WALCOTT Smithsonian Misc. Collect. 67.

*Remopleurides* aff. *latus* p. 41 figs., REED Palaeont. Ind. 6 3.

*Synhomalototus christyi* p. 124 fig., FOERSTE Ottawa Nat. 31.

*Triarthrus becki* p. 135 figs., WALCOTT Smithsonian Misc. Collect. 67.

## XIPHOSURA, ETC.

†*Bellinurus Trechmanni* sp. n. Coal Measures, Durham, p. 470 fig., WOODWARD Geol. Mag. 5.

†*Euproops Amiae* sp. n. Carboniferous, Cape Breton, Nova Scotia, p. 465 figs., *Birtwelli* p. 468, WOODWARD t.c.

†*Prestwichia* p. 468, WOODWARD t.c.

†*Prestwichianella* gen. n. for *Limulus rotundatus* Prestwich p. 469, WOODWARD t.c.

## †EURYPTERIDA.

(Vacant.)

## PANTOPODA.

## I.—TITLES.

Flynn, T. T. On a Pycnogonid of the genus *Halosoma*. Hobart Proc. R. Soc. Tasmania 1918 1918 (1-5) 1 pl. 1

Franganillo, P. Arácnidos nuevos o hallados por primera vez en España. Zaragoza Bol. Soc. Ent. España 1 1918 (120-123). 2

Kindle, E. M. and Whittaker, E. J. Bathymetric check-list of the marine Invertebrates of Eastern Canada, with an index to Whiteaves' catalogue. [Contrib. Canad. Biol. 1917] Sessional Paper No. 38a Ottawa 1918 (229-294). 3

Whittaker, E. J. *vide* Kindle, E. M.

Wirén, E. Zur Morphologie und Phylogenie der Pantopoden. Zool. Bidr. Uppsala 6 1918 (41-181) pls. ix-xvi text-figs. 4

II.—SUBJECT INDEX=  
2803—2837.

Morphology, esp. Nervous System and Eyes; Wirén, 4.

Phylogeny; Wirén, 4.

Gijón, Spain, *Nymphon*; Franganillo, 2.

Eastern Canada, list of spp.; Kindle & Whittaker, 3.

Port Jackson, *Halosoma*; Flynn, 1.

## III.—SYSTEMATIC INDEX = 2831.

*Halosoma haswelli* sp. n. Port Jackson p. 3 figs., FLYNN Proc. R. Soc. Tasmania 1918.

*Nymphon cienfuegosi* sp. n. Gijón p. 123, FRANGANILLO Bol. Soc. Ent. España 1.

## ARACHNIDA

(INCL. TARDIGRADA &amp; PENTASTOMIDA)

CONTENTS (*see p. 2*)

## I.—TITLES.

**Badcock, H. D.** Ant-like Spiders from Malaya, collected by the Annandale-Robinson Expedition, 1901-2. London Proc. Zool. Soc. **1917** 1918 (277-321) text-figs. **1**

**Bancroft, M. J.** *vide* Johnston, T. Harvey.

**Barrows, W. M.** A list of Ohio spiders. Ohio Journ. Sci. Columbus **18** 1918 (297-318). **2**

**Bequaert, M.** *vide* Schmitz, H.

**Berland, L.** Description de quelques espèces nouvelles d'Aviculariides africaines (Araneae Aviculariidae). Paris Bull. Mus. Hist. Nat. **23** 1917 (466-481) text-figs. **3**

**Bishopp, F. C.** and **Wood, H. P.** Mites and Lice on Poultry. Farmers' Bull. U.S. Dept. Agric. Washington D.C. **801** 1917 (26 pp.) figs. **4**

**Boscá Seytre, A.** Fauna valenciana (en resumen). Barcelona 1916 (132 pp.) text-figs. **5**

**Brèthes, Jean.** *Nephila Riverai*, nouvelle Araignée argentine. Paris Bull. Soc. Ent. **1918** 1918 (216-218). **6**

**Campos, F.** Algunos casos teratológicos observados en los Artrópodos. Ann. Ent. Soc. America Columbus Ohio **11** 1918 (97-98). **7**

**Chittenden, F. H.** Harvest Mites, or "Chiggers." Farmers' Bull. U.S. Dept. Agric. Washington D.C. **671** 1915 (7 pp.) figs. **8**

**Dalmas, Comte de.** Araignées de Nouvelle Zélande. Paris Ann. Soc. Ent. **86** 1917 (1918) (317-430) text-figs. **9**

**Dalmas, Comte de.** Trois Araignées nouvelles d'Australie. Paris Ann. Soc. Ent. **86** 1917 (1918) (431-436). **10**

**Dalmas, Comte de.** Araignée nouvelle d'Australie (Arachn. Psechridae). Paris Bull. Soc. Ent. **1917** 1918 (350-351). **11**

**Dalmas, Comte de.** Description d'un Gnaphoside nouveau de Tunisie. Paris Bull. Soc. Ent. **1918** 1918 (178-179). **12**

**Dunn, L. H.** Studies on the Iguana Tick, *Amblyomma dissimile*, in Panama. J. Parasitol. Urbana Ill. **5** 1918 (1-10). **13**

**Enders, H. E.** Dwarfing effect of attacks of mites of the genus *Eriophyes* upon Norway maples. Indianapolis Proc. Ind. Acad. Sci. **1917** 1918 (79-84). **14**

**Ewing, H. E.** The Beetle-Mite Fauna of Mary's Peak, Coast Range, Oregon (Acarina). Ent. News Philadelphia Pa. **29** 1918 (81-90) pl. iii text-figs. **15**

**Ewing, H. E.** New Acarina. Part ii.—Descriptions of new species and varieties from Iowa, Missouri, Illinois, Indiana, and Ohio. New York Bull. Amer. Mus. Nat. Hist. **37** 1917 (149-168) pls. i-iv. **16**

- Ewing, H. E. Mites affecting the poison oak. Des Moines Proc. Iowa Acad. 24 1917 (323-326) text-fig. 17
- Ewing, H. E. The life and behavior of the house spider. Des Moines Proc. Iowa Acad. Sci. 25 1918 (177-204) text-figs. 18
- Fage, L. Sur quelques Araignées thérâphoses de l'Italie méridionale et de Sicile. Paris Bull. Mus. Hist. Nat. 23 1917 (482-485). 19
- Falconer, W. The spiders of Yorkshire. Naturalist London 1918 1918 (195-197 253-257 321-324 351-354). 20
- Falconer, W. Report on Arachnida for 1917. Lancs. Nat. Darwen 11 1918 (11-12). 21
- Faust, E. C. A new Tyroprolyphid for Western Montana (Acar.). Ent. News Philadelpia 29 1918 (336-340) pl. xix. 22
- Faust, E. C. Additions to our knowledge of *Unionicola aculeata* (Koenike). Decatur Trans. Amer. Microsc. Soc. 37 1918 (125-128) pl. xii. 23
- Franganillo, P. Las Arañas, Manual de Arancologia. Gijon 1917 (233 pp.). 24
- Franganillo, P. Arañas nuevas. Zaragoza Bol. Soc. Ent. España 1 1918 (58-64). 25
- Franganillo, P. Arácnidos nuevos o hallados por primera vez en España. Zaragoza Bol. Soc. Ent. España 1 1918 (120-123). 26
- Frers, A. G. Nota sobre *Apembolephaenus Jorgei* Holmberg. Buenos Aires Physis Rev. Soc. Argent. Cient. Nat. 3 1917 (405-406) text-fig. 27
- Haerberli, A. Biologische Untersuchungen im Löhrmoos. Ein Beitrag zur Kenntnis der schweizerischen Moorfauna. Rev. Suisse Zool. Genève 26 1918 (147-231) text-figs. 28
- Harrison, J. W. H. Notes on the spiders of North Yorkshire. Naturalist London 1918 1918 (316-317). 29
- Hartzell, A. A preliminary list of the Acarina of Iowa. Des Moines Proc. Iowa Acad. Sci. 25 1918 (205-212). 30
- Hewitt, J. A survey of the Scorpion fauna of South Africa. Cape Town Trans. Roy. Soc. South Africa 6 1918 (89-192) pls. xix-xxxii. 31
- Hirst, S. On the origin and affinities of the Acari of the Family Demodecidae, with brief remarks on the morphology of the group. Ann. Mag. Nat. Hist. London ser. 9 1 1918 (p. 400). 32
- Hirst, S. On four new species of the genus *Demodex*, Owen. Ann. Mag. Nat. Hist. London ser. 9 2 1918 (145-146). 33
- Hirst, S. On a new Jumping Mite of the genus *Nanorchestes* from the Mendip Hills. Ann. Mag. Nat. Hist. London ser. 9 2 1918 (213-214). 34
- Hogg, H. R. Arachnida. Part i.—Araneae (Spiders). Brit. Antarct. ("Terra Nova") Exp. 1910 Nat. Hist. Rep. Zool. 3 No. 6 1918 (163-173) text-figs. 35
- Hull, J. E. Gynandry in Arachnida. J. Genetics Cambridge 7 1918 (171-181) text-figs. 36
- Hull, J. E. Terrestrial Acari of the Tyne province. London Trans. Nat. Hist. Soc. Northumb. 5 1918 (13-88) 3 pls. 37
- Hull, J. E. Acari (Terrestrial). Lancs. Nat. Darwen 11 1918 (33-44). 38
- Joan, Teresa. Nota sobre un Oribátido nuevo para la República Argentina. Buenos Aires Physis Rev. Soc. Argent. Cient. Nat. 3 1917 (443-446) text-figs. 39
- Johnston, T. Harvey. Notes on miscellaneous endoparasites. Brisbane Proc. Roy. Soc. Queensland 30 1918 (209-218). 40
- Johnston, T. H. The endoparasites of the domestic pigeon in Queensland. Brisbane Mem. Queensland Mus. 6 1918 (168-174) figs. 41
- Johnston, T. Harvey and Bancroft, M. J. A tick-resistant condition in cattle. Brisbane Proc. Roy. Soc. Queensland 30 1918 (217-317). 42
- Lizer, C. Description d'une nouvelle espèce d'Eriophyde (Acar.) (*Eriophyes brèthesi* n. sp.). Buenos Aires Physis Rev. Soc. Argent. Cient. Nat. 3 1917 (241-242) text-figs. 43
- McGregor, E. A. The Red Spider on cotton and how to control it. Farmers' Bull. U. S. Dept. Agric. Washington D.C. 735 1916 (12 pp.) figs. 44



- Moznette, G. F.** The Cyclamen Mite, J. Agric. Res. Washington D.C. 10 1917 (373-391) pls. li & lii text-figs. 45
- Navás, L.** Algunos Quernetos (Arácnidos) de la provincia de Zaragoza. Zaragoza Bol. Soc. Ent. España 1 1918 (83-90 106-119 131-136) text-figs. 46
- Patten, B. M.** Reactions of the Whip-tail Scorpion to light. J. Exper. Zool. 23 1917 (251-275) text-figs. 47
- Pawlowsky, E.** Glandula plicata, nouvel organe chez le mâle de *Bothriurus villatus*. Paris Bull. Mus. Hist. Nat. 24 1918 (19-21). 48
- Phelps, W. H.** Notes on the habits of *Cyrtophora citricola*. Calcutta J. As. Soc. Beng. n.s. 13 1917 (23-26) text-fig. 49
- Pillichody, A.** Photographie d'une toile d'araignée. Lausanne Bull. Soc. Vaud. Sci. Nat. 52 1918 (157-160) 1 pl. 50
- Porter, C. E.** Apuntes sobre Aracnología Chilena. II. El género *Mela* Koch. Rev. chilena Hist. Nat. Santiago 22 1918 (16-19). 51
- Pulleine, R. H.** *vide* Rainbow, W. J.
- Quaintance, A. L.** The Leaf Blister Mite of Pear and Apple. Farmers' Bull. U.S. Dept. Agric. Washington D.C. 722 1916 (6 pp.) figs. 52
- Rainbow, W. J. and Pulleine, R. H.** Australian Trap-door Spiders. Sydney Rec. Austr. Mus. 12 1918 (81-169) pls. xii-xxiv. 53
- Razzauti, A.** Contributi alla conoscenza delle isole toscane. I. Isola di Capraia. Pisa Atti Soc. tosc. sc. nat. 81 1917 (196-224). 54
- Reichenow, E.** Digestión intracelular en un ácaro. Madrid Bol. Soc. Esp. Hist. Nat. 18 1918 (258-273) pl. vii text-figs. 55
- Ressler, I. L.** Spiders of the family Attidae collected in the vicinity of Ames, Iowa. Des Moines Proc. Iowa Acad. Sci. 25 1918 (221-234). 56
- Rudow, —.** Schmarotzer der spinnenartigen Gliedertiere (Arachniden). Intern. ent. Zs. Guben 8 1914 (141-142). 57
- Schenkel, E.** Nene Fundorte einheimischer Spinnen. Basel Verh. Nat. Ges. 29 1918 (69-104) text-figs. 58
- Schmitz, H., et Bequaert, M.** Contribution à l'étude de la faune cavernicole de la Belgique. [Exploration biologique des cavernes de la Belgique et du Limbourg hollandais: 8e note.] Brussels Ann. Soc. Zool. et Malacol. Belgique 48 1914 (67-84). 59
- Simon, E.** Notes sur la synonymie de plusieurs espèces de la famille des Thomisidac. Paris Bull. Soc. Ent. 1918 1918 (51-52). 60
- Simon, E.** Descriptions de plusieurs espèces d'Arachnides récemment découvertes en France (quatrième note). Paris Bull. Soc. Ent. 1918 1918 (152-155). 61
- Simon, E.** Notes sur la synonymie de plusieurs Araignées de la famille des *Clubionidae*. Paris Bull. Soc. Ent. 1918 1918 (201-202). 61a
- Soar, C. D.** *vide* Williamson, W.
- Standen, R.** Report on the False-scorpions (Chelifers) for 1917. Lanes. Nat. Darwen 10 1918 (p. 335). 62
- Torreggiani, J.** Zooparásitos del Altiplano Boliviano. Revista Jard. Zool. Buenos Aires 8 1912 (129-152) figs. 63
- Trouessart, E. L.** Troisième note sur les Sarcoptides pilicoles et description de genres nouveaux. Paris Bull. Soc. Zool. 42 1918 (151-158) figs. 64
- Viets, K.** Zwei neue Wassermilben. Zool. Anz. Leipzig 50 1918 (31-32). 65
- Viets, K.** Eine neue *Limnesia*-species. Zool. Anz. Leipzig 50 1918 (111-112) figs. 66
- Walton, C. L.** Some results of a survey of the agricultural Zoology of the Aberystwyth area. Parasitology Cambridge 10 1918 (206-231). 67
- Warburton, C.** Notes on Ticks. Being descriptions of two new species of *Ornithodoros* and of the hitherto unknown female of *Hyalomma monstrosus*. Parasitology Cambridge 10 1918 (284-287) text-figs. 68
- Williamson, W. and Soar, C. D.** *Lebertia sejvei* Walter. London J. Quek. Microsc. Cl. 13 1918 (375-378) pl. xxv. 69
- Wood, H. P.** *vide* Bishopp, F. C.

## H.—SUBJECT-INDEX.

N.B.—*The number in Clarendon when not that of a Volume, refers to the list of Titles.*

## GENERAL, ECONOMICS. 3003

**Economics** (see also Parasitism).

Harvest mites (*Trombid.*); Chittenden, 8: Tick-resistance in cattle; Johnston & Bancroft, 42: *Ixodidae*, Wales; Walton, 67: *Acari* on poultry; Bishopp & Wood, 4.

Phytophagous *Acari*: *Tetranychus* on Cotton; McGregor, 44: Cyclamen mite (*Tarsonemus*); Moznette, 45: *Eriophyes* on Norway maple; Enders, 14: *Eriophyidae*; Quaintance, 52.

## STRUCTURE. 3007.

**General.**

*Demodicidae*; Hirst, 32.

**Special.**

"Glandula plicata," *Scorpiones*; Pawlowsky, 48.

## PHYSIOLOGY. 3011.

Reactions to light, *Pedipalpi*; Patten, 47.

Intracellular digestion, *Liponyssus* (*Acari*); Reichenow, 55.

## DEVELOPMENT. 3015.

(Vacant.)

## ETHOLOGY. 3019.

**General.**

*Theridion*; Ewing, 18: *Amblyomma* (*Ixod.*); Dunn, 13.

**Breeding Habits, etc.**

*Theridion*; Ewing, 18.

Web and cocoon, *Theridion*; Ewing, 18.

**Habitats.**

Marsh-dwelling *Hydrachnidae*, Phenology, etc.; Haerberli, 28.

Cavernicolous *Araneae*, *Acari*; Schmitz & Bequaert, 59.

**Parasitism and Symbiosis** (see also Economics).

On Mammals, *Demodicidae*; Hirst, 33: *Ixodidae*, *Sarcoptidae*; Torregiani, 63: *Sarcoptidae*; Trouessart, 64.

On Birds. Endoparasitic mites in pigeon; Johnston, 41.

On Reptiles, *Ixodidae*; Dunn, 13.

Plant Galls, see *Eriophyidae*.

Hymenoptera paras. on *Araneae*; Rudow, 57.

**Miscellaneous.**

Vegetarian feeding of *Liobunum* (*Opil.*); Wickham Ent. News Philadelphia 29 1918 p. 115.

Web of *Cyrtophora*; Phelps, 49: of *Epeira*; Pillichody, 50.

Mimicry in Spider; Clayton Bombay J. Nat. Hist. Soc. 26 1918 p. 302.

Ant-like Spiders; Badcock, 1.

VARIATION AND AETIOLOGY.  
3023.

Origin, *Demodicidae*; Hirst, 32.

Teratology. Bicaudate *Centrurus margaritatus* (*Scorp.*); Campos, 7

Gynandry in *Araneae*; Hull, 36.

## DISTRIBUTION.

## GEOGRAPHICAL. 3027.

**General.**

(Vacant.)

**Europe and Mediterranean Islands.**

Faroe Ids., *Hydrachnidae*; Viets, 65.

Belgium, *Araneae*, *Acari*; Schmitz et Bequaert, 59.

Scotland, Bass rock, *Araneae*; Evans Scot. Nat. 1918 p. 264.

England, *Acari*; Hull, 37; N. England, *Acari*; Hull, 38: Yorkshire, *Araneae*; Falconer, 20: North Yorkshire, *Araneae*; Harrison, 29: Lancs. and Cheshire, *Araneae*, *Opiliones*, *Pseudoscorpiones*, *Acari*; Falconer, 21: *Pseudoscorpiones*; Standen, 62:

Somerset, *Trombidiidae*; Hirst, 34 :  
Dartmoor, *Hydrachnidae*; Williamson  
& Soar, 69.

Wales, *Acari*; Hull, 38; *Ixodidae*;  
Walton, 67.

France, *Araneae*; Simon, 61.

Spain, *Araneae*; Franganillo, 24 &  
25; *Arancae*, *Scorpiones*; Franganillo  
28; *Pseudoscorpiones*; Navás, 46;  
*Hydrachnidae*; Viets, 66; Valencia,  
*Arachnida*; Boscá Seytre, 5.

S. Italy and Sicily, *Aviculariidae*;  
Fage, 19: I. di Capraia, *Scorpiones*,  
*Araneae*; Razzauti, 54.

Switzerland, *Hydrachnidae*, *Tardi-*  
*grada*; Haerberli, 28: Basel, *Araneae*,  
*Opiliones*; Schenkel, 58.

Macedonia, *Acari*; Waterston Bull  
Ent. Research 9 1918 p. 155.

#### Asia and Malay Archipelago. e

China, *Sarcoptidae*; Trouessart 64.

India, *Ixodidae*; Warburton, 68.

Malay States, *Thomisidae*, *Sal-*  
*ticideae*; Badcock, 1.

Mesopotamia, *Ixodidae*; Warburton,  
68.

#### Africa and Madagascar. f

*Aviculariidae*; Berland, 3.

Tunis, *Gnaphosidae*; de Dalmas, 12.

S. Africa, *Scorpiones*; Hewitt, 31.

#### North America. g

Canada, *Araneae*; Emerton Canad.  
Ent. 50 1918 p. 128.

United States. New Jersey, *Acari*;  
Weiss Ent. News Philadelphia 29 1918  
p. 193: Iowa, *Salticideae*; Ressler, 56;  
*Acari*; Hartzell, 30: Iowa, Missouri,  
Illinois, Indiana and Ohio, *Acari*;  
Ewing, 16: Ohio, *Araneae*; Barrows,  
2: Montana, *Tyroglyphidae*; Faust,  
22: Indiana, *Hydrachnidae*; Faust,  
23: Oregon, *Oribatidae*; Ewing, 15;  
*Eriophyidae*; Ewing, 17.

#### Central and South America and W. Indies. h

Brazil, *Sarcoptidae*; Trouessart, 64.

Bolivia, *Acari*; Torreggiani, 63.

Argentina, *Nephila* (*Argiop.*);  
Brèthes, 6; *Opiliones*; Frers, 27;  
*Oribatidae*; Joan, 39: Buenos Aires,  
*Eriophyidae*; Lizer, 43.

Chile, *Mela* (*Argiop.*); Porter, 51.

#### Australasia.

Australia, *Argiopidae*; de Dalmas,  
10; *Aviculariidae*; Rainbow & Pul-  
leine, 53: Queensland, *Sarcoptidae*,  
*Pentastomida*; Johnston, 40: N.  
Queensland, *Psechridae*; de Dalmas,  
11.

New Zealand, *Araneae*; de Dalmas,  
9; Hogg, 35.

#### Atlantic Islands. l

South Trinidad, *Araneae*; Hogg, 35

#### GEOLOGICAL.

(Vacant.)

### III.—SYSTEMATIC. 3031.

*N.B.*—The number in Clarendon, when  
not that of a Volume, refers to the  
list of Titles.

#### SCORPIONES.

CAMPOS, 7.—PAWLOWSKY, 48.—  
RAZZAUTI, 54.

Monograph of S. African spp., only  
new names noted below, HEWITT Trans.  
R. Soc. S. Afr. 6.

*Buthus europaeus* var. n. *tridentatus*  
p. 122, FRANGANILLO Bol. Soc. Ent.  
España 1.

*Cheloctonus crassimanus* var. n. *depres-*  
*sus* Natal p. 153, HEWITT Trans. R.  
Soc. S. Afr. 6.

*Hadogenes troglodytes* varr. n. *crassic-*  
*caudatus*, *dentatus*, p. 157, and *matop-*  
*poanus*, p. 159, *gracilis* var. n. *nama-*  
*quensis* p. 162, *trichiurus* varr. n.  
*graciloides* p. 165 and *caffer* p. 166, figs.,  
HEWITT t.c.

*Opisthacanthus validus* varr. n. *albani-*  
*cus* p. 170, *laevis* and *swazianus* p. 172,  
HEWITT t.c.

*Opisthophthalmus scabrifrons* sp. n.  
Great Namaland p. 129 figs., *inter-*  
*cedens* var. n. *pluridens* p. 181, HEWITT  
t.c.

*Parabuthus laevifrons* varr. n. *austra-*  
*lis*, *militum* p. 105, and *concolor* p. 176  
figs., HEWITT t.c.

*Uroplectes formosus* var. n. *maculipes*  
p. 121 figs., HEWITT t.c.

### PEDIPALPI.

PATTEN, 47.

### PALPIGRADI.

(Vacant.)

### ARANEAE.

BARROWS, 2.—FALCONER, 20, 21.—  
HARRISON, 29.—HULL, 36.—PHELPS,  
49.—RAZZAUTI, 54.—RUDOW, 57.—  
SCHMITZ & BEQUAERT, 59.

### AVICULARIIDAE.

*Aganippe raphiduca* p. 93, *bancrofti*—  
p. 95, *villosa* p. 96, *robusta* p. 97, *mo-*  
*desta* p. 98, *ornata* p. 99, *pelochroa* p.  
100, spp. n., *subtristis* p. 91, Australia,  
figs., RAINBOW & PULLEINE Rec. Austr.  
Mus. 12.

*Albaniana* gen. n. near *Arbanitis*  
p. 122, *inornata* p. 122, *ornata* p. 123,  
*villosa* p. 124, *flavomaculata* p. 125,  
spp. n. Australia, figs., RAINBOW &  
PULLEINE t.c.

*Aname villosa* p. 141, *hirsuta* p. 142,  
*comosa* p. 143, *grandis* p. 144, *aurea* p.  
145, *flavomaculata* p. 146, *nebulosa*  
p. 147, *decora* p. 149, *armigera* p. 150,  
*maculata* p. 151, *coenosa* p. 152, *fuscoci-*  
*ncta*, *pulchra*, p. 153, *robusta* p. 154,  
*confusa* p. 155, *intricata*, *butleri*, p.  
157, spp. n. Australia, figs., RAINBOW &  
PULLEINE t.c.

*Anepiada* gen. n. *ventricosa* sp. n.  
Queensland p. 167 fig., RAINBOW &  
PULLEINE t.c.

*Anidiops manstridgei* p. 101 figs.,  
RAINBOW & PULLEINE t.c.

*Arbanitis gracilis* p. 110, *festivus*  
p. 111, *similaris* p. 112, *pulchellus* p.  
114, *elegans* p. 115, *hirsutus* p. 116,  
*montanus* p. 116, *papillosus* p. 118  
*inornatus* p. 119, spp. n., Australia,  
figs., RAINBOW & PULLEINE t.c.

*Armadalia* gen. n. (*Cataxaeae*) *ornata*  
p. 129, *setosa* p. 130, *zorodes* p. 131,  
*pallida* p. 132, spp. n. Australia, figs.,  
RAINBOW & PULLEINE t.c.

*Atrax valida* sp. n. Queensland p.  
165 fig., RAINBOW & PULLEINE t.c.

*Bancroftiana* gen. n. (*Nemesiae*)  
*speciosa* sp. n. Queensland p. 127 figs.,  
RAINBOW & PULLEINE t.c.

*Blakistonia aurea* p. 104 figs., RAIN-  
BOW & PULLEINE t.c.

*Cataxia tetrica* sp. n. Queensland  
p. 133, fig., RAINBOW & PULLEINE t.c.

*Chenistonia major* p. 159, *auropilosa*  
sp. n. p. 160, *villosa* sp. n. p. 161,  
Australia, figs., RAINBOW & PULLEINE  
t.c.

*Dyarcyops melancholicus* p. 106,  
*ionthus* p. 107, *maculosus* p. 108,  
spp. n., *biroi* p. 106, N.S. Wales, figs.,  
RAINBOW & PULLEINE t.c.

*Dolichosternum* gen. n. p. 168,  
*attenuatum* sp. n. Queensland p. 169  
figs., RAINBOW & PULLEINE t.c.

*Encyocrates Raffrayi* p. 477 figs.,  
BERLAND Bull. Mus. Paris 23.

*Gaius hirsutus* sp. n. S. Australia p.  
102 fig., RAINBOW & PULLEINE Rec.  
Austr. Mus. 12.

*Heteroscodra crassipes* p. 476 fig.  
BERLAND Bull. Mus. Paris 23.

*Hysteroocrates apostolicus* p. 480 figs.,  
BERLAND t.c.

*Ixamatus maculatus* sp. n. W. Aus-  
tralia p. 163 fig., RAINBOW & PULLEINE,  
Rec. Austr. Mus. 12.

*Lampropodus* gen. n. (*Diplotheleae*),  
*scintillans* p. 135, *iridescens* p. 137,  
spp. n. Australia, figs., RAINBOW &  
PULLEINE t.c.

*Missulena reflexa* sp. n. S. Australia  
p. 87, *occatoria* p. 88, figs., RAINBOW &  
PULLEINE t.c.

*Nemesia Sanzoi* sp. n. Sicily p. 483,  
PAGE Bull. Mus. Paris 23.

*Phoneyusa Bouvieri* Madagascar p. 469, *elephantiasis* Congo p. 470, *cultridens* Congo p. 472, spp. n. figs., BERLAND Bull. Mus. Paris 23.

*Porrhothele antipodiana* p. 171 figs., HOGG Terra Nova Exp. Zool. 3.

*Pterinochilus Simoni* sp. n. Congo p. 466, figs., BERLAND Bull. Mus. Paris 23.

*Scodra Satanas* sp. n. Congo p. 473 figs., BERLAND t.c.

*Stauvella* gen. n. *decora* sp. n. N.S. Wales p. 164 fig., RAINBOW & PULLEINE Rec. Austr. Mus. 12.

*Sungenia* gen. n. near *Chenistonia*, for *atra* Strand p. 162, RAINBOW & PULLEINE t.c.

*Tambouriniana* gen. n. near *Arbanitis* p. 120, *variabilis* sp. n. p. 121, var. n. *flavomaculata* p. 122, Queensland, figs., RAINBOW & PULLEINE t.c.

## PSECHRIDAE.

*Matachia* gen. n. p. 326, *ramulicola* sp. n. New Zealand p. 328 figs., DE DALMAS Paris Ann. Soc. Ent. 86.

*Paramatachia* gen. n. *decorata* sp. n. N. Queensland p. 350, DE DALMAS Paris Bull. Soc. Ent. 1917.

*Stiphidiellum* gen. n. for *minutissimum* p. 325, DE DALMAS Paris Ann. Soc. Ent. 86.

## DICTYNIDAE.

*Dictyna cornigera* p. 336, *nigella* p. 338, spp. n. New Zealand figs., DE DALMAS Paris Ann. Soc. Ent. 86.

*Ixeuticus* gen. n. near *Amaurobius* p. 329, *martius* p. 330 figs., DE DALMAS t.c.

## ERESIDAE.

*Eresus robustus* sp. n. Spain p. 122, FRANGANILLO Bol. Soc. Ent. España 1.

## DYSDERIDAE.

*Ariadna bellatoria* sp. n. New Zealand p. 339, DE DALMAS Paris Ann. Soc. Ent. 86.

## DRASSIDAE.

*Drassodes gemmeus* p. 345, *maoricus* p. 346, spp. n. New Zealand figs., DE DALMAS Paris Ann. Soc. Ent. 86.

*Hemicloea Rogenhoferi* p. 342, *alacris* sp. n. p. 343, *celerrima* sp. n. p. 343, *Tasmani* sp. n. p. 344, figs., New Zealand, DE DALMAS t.c.

*Lampona cylindrata* p. 350, subsp. n. *herculanea* p. 351, New Zealand, DE DALMAS t.c.

*Megamyrmecon Erebus* p. 348 figs., DE DALMAS t.c.

*Micrommata virascens* var. n. *vulvulata*, FRANGANILLO Las Arañas p. , and Bol. Soc. Ent. España 1 p. 64.

*Talanites Santschii* sp. n. Tunis p. 179, DE DALMAS Bull. Soc. Ent. France 1918.

## THERIDIIDAE.

*Argyrodes antipodians* p. 353 figs., DE DALMAS Paris Ann. Soc. Ent. 86.

*Lithyphantes lepidus* p. 360 fig., DE DALMAS t.c.—*Lithyphantes latrodectoides* sp. n. Spain, FRANGANILLO Las Arañas p. , and Bol. Soc. Ent. España 1 p. 64.

*Teutana grossa* var. n. *obliterata*, FRANGANILLO Las Arañas p. , and Bol. Soc. Ent. España 1 p. 64.

*Theridion tepidariorum* p. 177 figs., EWING Proc. Iowa Acad. Sci. 25.

## ARGIOPIDAE.

PILlichODY 50.—PORTER 51.

*Araneus pustulosus* p. 379, *Brouni* p. 382, *crassus* p. 384, *venustulus* p. 386, *viriditas* p. 387, figs., DE DALMAS Paris Ann. Soc. Ent. 86.—*A. trinitatis* sp. n., Trinidad p. 166 figs., HOGG Terra Nova Exp. Zool. 3.

*Argyope lobata* var. n. *retracta* p. 122, FRANGANILLO Bol. Soc. Ent. España 1.—*Argyope protensa* p. 375 fig., DE DALMAS Paris Ann. Soc. Ent. 86.

*Cnephalocotes Paulae* sp. n., France p. 153, SIMON Bull. Soc. Ent. France 1918.

*Diplocephalus pullinus* sp. n., France p. 153, SIMON t.c.

*Entelecara turbinata* p. 153, *aestiva*, *meliculosa*, *gallica*, p. 154, spp. n., France, SIMON t.c.

*Epeira quadrata* var. n. *subviridis* p. 62, *marmorea* var. n. *trapezia*, *triangulata* sp. n., *carbonaria* var. n. *fulva*, p. 63, Spain, FRANGANILLO Bol. Soc. Ent. España 1 and Las Arañas pp. —*E. angulata* var. n. *nigra*, *sericea* sp. n. Spain, p. 121, FRANGANILLO Bol. Soc. Ent. España 1.

*Gonatum geniculosum* p. 154, *occidentale* p. 155, spp. n., France, SIMON Bull. Soc. Ent. France 1918.

*Landana lautiuscula* sp. n. New Zealand p. 372 figs., DE DALMAS Paris Ann. Soc. Ent. 86.

*Laperousea* gen. n. (*Linyphiinae*) p. 431, *arenaria* S. Australia p. 432, *occidentalis* W. Australia p. 433, spp. n., DE DALMAS t.c.

*Leucauge dromedaria* p. 371 fig., DE DALMAS t.c.

*Lobetina plagiata* sp. n. New Zealand p. 378, SIMON in DE DALMAS t.c.

*Lophocarenum pyrenaicum* sp. n. France p. 152, SIMON Bull. Soc. Ent. France 1918.

*Maso serratipes* sp. n. France p. 152, SIMON t.c.

*Nanometa gentilis* p. 369 figs., DE DALMAS Paris Ann. Soc. Ent. 86.

*Nephila Riverai* sp. n. Argentina p. 216, BRÈTHES Bull. Soc. Ent. France 1918.

*Orsinome herbigrada* p. 369 fig., DE DALMAS Paris Ann. Soc. Ent. 86.

*Singotya pallida* sp. n. W. Australia p. 435, DE DALMAS t.c.

*Tetragnatha flavida* p. 366 figs., *nigricans* sp. n. New Zealand p. 368, DE DALMAS t.c.

*Trachelocampus derisor* sp. n. France p. 153, SIMON Bull. Soc. Ent. France 1918.

*Zilla gigas* sp. n. Spain, FRANGANILLO Las Arañas p. , and Bol. Soc. Ent. España 1 p. 63.

## THOMISIDAE.

SIMON 60.

*Amyciaea forticeps* p. 283 figs., BADCOCK Proc. Zool. Soc. 1917.

*Diaea albolimbata* p. 389 figs., DE DALMAS Paris Ann. Soc. Ent. 86.

*Epidius longipalpis* p. 285 figs., BADCOCK Proc. Zool. Soc. 1917.

*Heriaeus oblongus* nom. n. for *H. hirsutus* Thorell, *orientalis* nom. n. for *H. hirtus* C. Koch, p. 51, SIMON Bull. Soc. Ent. France 1918.

*Sidyra angulata* p. 391 fig., DE DALMAS Paris Ann. Soc. Ent. 86.

*Strigoplus albostriatus* p. 280 figs., BADCOCK Proc. Zool. Soc. 1917.

*Synema globosa* var. n. *clara*, FRANGANILLO Las Arañas p. , and Bol. Soc. Ent. España 1 p. 64.

*Thanatus albicans* sp. n. Spain p. 122, FRANGANILLO Bol. Soc. Ent. España 1.

*Xysticus comptulus* p. 88 fig., SCHENKEL Basel Verh. Nat. Ges. 29.

## CLUBIONIDAE.

SIMON 61.

*Clubiona vegeta* nom. n. for *C. parvula* Lucas non Blackwall p. 202, SIMON Bull. Soc. Ent. France 1918.

*Micaria nivosa* p. 92 fig., SCHENKEL Basel Verh. Nat. Ges. 29.

## AGELENIDAE.

*Cambridgea antipodiana* p. 401, subsp. n. *annulata* p. 402, *foliata* p. 402, figs., DE DALMAS Paris Ann. Soc. Ent. 86.

*Gohia* gen. n. for *falcata* p. 403, DE DALMAS t.c.

## PISAURIDAE.

*Ocyala mirabilis* var. n. *albida* and *fusca*, FRANGANILLO Las Arañas p. , and Bol. Soc. Ent. España 1 p. 59.

## LYCOSIDAE.

*Lycosa arenivaga* nom. n. for *arenaria* Urquhart non Audouin p. 412, *albovestita* sp. n. New Zealand p. 412, DE DALMAS Paris Ann. Soc. Ent. 86.

*L. cinerea* sp. n. with var. n. *obscura* p. 59, *radiata* var. n. *clara* p. 60, *albonigra* sp. n., *isocelica* sp. n., *alba* sp. n., p. 60, *alba* var. n. *fulva*, *trabalis* var. n. *albica*, *lanceolata* sp. n., *brevialba* sp. n., p. 61, Spain, FRANGANILLO Bol. Soc. Ent. España 1 and Las Arañas pp. —*L. clara* sp. n., *albofasciata* var. n. *rufa*, *fulva* sp. n., *leireana* sp. n., Spain, p. 120, FRANGANILLO Bol. Soc. Ent. España 1.

*Pardosa subalpina* sp. n. Basel p. 97 fig., SCHENKEL Basel Verh. Nat. Ges. 29.

*Pirata subniger, albicomaculatus*, spp. n. Spain, FRANGANILLO Las Arañas p. , and Bol. Soc. Ent. España 1 p. 62.

#### OXYOPIDAE.

*Oxyopes carvajalli* sp. n. Spain p. 121, FRANGANILLO Bol. Soc. Ent. España 1.

#### SALTICIDAE.

RESSLER 56.

*Agorius gracilipes* p. 318 figs., BADCOCK Proc. Zool. Soc. 1917

*Bellienna Scotti* sp. n. S. Trinidad p. 168 figs., HOGG Terra Nova Exp. Zool. 3.

*Holoplatys senilis* p. 416, *Urvillei* p. 417, spp. n. New Zealand, figs., DE DALMAS Paris Ann. Soc. Ent. 86.

*Myrmarachne cornuta* p. 291, *turri-formis* p. 296, *cuneata* p. 300, *ramosa* p. 303, *albicurvata* p. 306, *lateralis* p. 310, *biseratensis* p. 312, *gedongensis* p. 316, spp. n., *maxillosa* p. 287, Malay States, figs., BADCOCK Proc. Zool. Soc. 1917.

*Phlegra de lesserti* sp. n. Basel p. 101 fig., SCHENKEL Basel Verh. Nat. Ges. 29.

*Synageles pulcher* sp. n. Spain, FRANGANILLO Las Arañas p. , and Bol. Soc. Ent. España 1 p. 58.

*Trite planiceps* p. 422, *lucida* p. 423, *binotata* p. 423, *vafra* sp. n. New Zealand. p. 424, figs., DE DALMAS Paris Ann. Soc. Ent. 86.

#### SOLIFUGAE.

(Vacant.)

#### PSEUDOSCORPIONES.

FALCONER 21.—STANDEN 62.

*Chelifer ibericus* p. 89, *leptaleus* p. 106, spp. n. Spain, figs., NAVÁS Bol. Soc. Ent. España 1.

*Chthonius dacnodes* sp. n. Spain p. 133 figs., NAVÁS t.c.

*Obisium (Roncus) tenax* p. 115, *pugnax* p. 117, *ischyrum* p. 119, spp. n. Spain, figs., NAVÁS t.c.

#### OPILIONES.

FALCONER 21.—SCHENKEL 58.

*Apembolephaenus Jorgei* p. 405 figs., FRERS Physis 3.

#### RICINULEI, Etc.

(Vacant.)

#### ACARI.

BISHOPP & WOOD 4.—FALCONER 21.—HARTZELL 30.—HULL 38.—SCHMITZ et BEQUAERT 59.

#### ORIBATIDAE, Etc.

*Achipteria oregonensis* sp. n. p. 83 with var. n. *borealis* p. 84, Oregon figs., EWING Ent. News 29.

*Cepheus flavus* sp. n. Oregon p. 86 figs., EWING t.c.

*Cultroribula confinis* var. n. *magna* Illinois p. 162 fig., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Cymbaeremaeus cymba* p. 443 text-figs., JOAN Physis 3.

*Damaeus minutus* Illinois, *brevitarsus* Iowa, spp. n., p. 164 figs., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Eupelops monticolus* sp. n. with var. n. *subborealis* Oregon p. 82 figs., EWING Ent. News 29.

*Hermanniella punctulata* varr. n. *robusta* and *occidentalis* Oregon p. 87 figs., EWING t.c.

*Jugatala lamellata* sp. n. Oregon p. 84 figs., EWING t.c.

*Liacarus bidentatus, robustus*, p. 85, *aequidentatus* p. 86, spp. n. Oregon, figs., EWING t.c.—*L. fusiformis* sp. n. Iowa p. 161 fig., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Melanozetes cambricus* sp. n. Tyne p. 13, HULL Trans. Nat. Hist. Soc. Northumb. 5.

*Oribata quadrisetosa* sp. n. Ohio p. 161 fig., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Oribatella acuta* sp. n. Oregon p. 84 figs., EWING Ent. News 29.

*Oribatella achipterooides* var. n. *australis* Iowa p. 160 figs., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Oribatula clavata* sp. n. Illinois p. 162 fig., EWING t.c.

*Peloribates iowaensis* sp. n. p. 160 fig., EWING t.c.

*Phllhiracarus pectinatus* sp. n. Illinois p. 165 fig., EWING t.c.

*Scutovertex occidentalis* sp. n. Lancashire p. 36, HULL Lancs. Nat. 11.

*Tegeocranus subniger* sp. n. Iowa p. 163 fig., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Tegoribates* gen. n. p. 158, *subniger* sp. n. Indiana p. 159 fig., EWING t.c.

*Trachyoribates zeteki* sp. n. Illinois p. 159 fig., EWING t.c.

## GAMASIDAE.

REICHENOW 55.

*Ameroseius ingens* sp. n. Tyne p. 64, HULL Trans. Nat. Hist. Soc. Northumb. 5.

*Cillibano virgata*, *catula*, p. 44, *dinychoides* p. 45, spp. n. Tyne, figs., HULL t.c.

*Cyrtolaelaps humilis* sp. n. Tyne p. 75, HULL t.c.

*Dendrolaelaps bicornis* sp. n. Tyne p. 57, HULL t.c.

*Dinychus vartismithii* p. 53, *bisetis* *fossor*, p. 54, spp. n., N. England, figs., HULL t.c.

*Episeius* nom. n. for *Paraseius* Trägårdh p. 63, HULL t.c.

*Gamasellus alienus*, *rubicundus*, spp. n. Tyne p. 78, HULL t.c.

*Gamasus anglicus* p. 83, *stygius* p. 85, *fucarius* p. 86, spp. n. Tyne, HULL, t.c.

*Hypoaspis nitidissimus* sp. n. England p. 67, HULL t.c.

*Macrocheles gladiator*, *superbus*, p. 71, *plumipes* p. 72, *minimus* p. 73, spp. n. N. England, HULL t.c.

*Pachylaelaps fossorius* sp. n. Tyne p. 74, HULL t.c.

*Rhodacarus pallidus* sp. n. Tyne p. 57, HULL t.c.

*Seiodes punctatus* sp. n. Tyne p. 56, HULL t.c.

*Trachyuro-poda longa* sp. n. Ohio p. 158 fig., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Urodinychus roseus* p. 48, *reticulatus*, *lucidus*, p. 49, *pontianus* p. 50, spp. n. N. England, figs., HULL Trans. Nat. Hist. Soc. Northumb. 5.

*Urodiscella signata* sp. n. Lancashire p. 50, HULL t.c.—*U. signata* sp. n. Lancashire p. 37, HULL Lancs. Nat. 11.

*Uropoda* (? *Urodinychus*) *sartor* sp. n. England and Australia p. 52, HULL Trans. Nat. Hist. Soc. Northumb. 5.

*Zerconops*'s gen. n. for *remigera* Krämer p. 65, HULL t.c.

## IXODIDAE AND ARGASIDAE.

DUNN 13.—JOHNSTON &amp; BANCROFT 42.—TORREGGIANI 63.—WALTON 67.

*Hyalomma monstrosus* female p. 284 fig., WARBURTON Parasitology 10.

*Ornithodoros piriformis* India p. 285, *asperus* Mesopotamia p. 287, spp. n. figs., WARBURTON t.c.

## TROMBIDIIDAE, Etc.

CHITTENDEN 8.—MCGREGOR 44.

*Achorolophus porcinus* p. 28, *falconerii* p. 29, spp. n. N. England, figs., HULL Trans. Nat. Hist. Soc. Northumb. 5.

*Allothrombium pulvinus* sp. n. Illinois p. 157 figs., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Atomus niger* Illinois p. 154, *longilinea* Ohio p. 155, figs., EWING t.c.

*Belauustum scopularium*, *harrisonii* p. 27, *vittatum* p. 28, spp. n. N. England, figs., HULL Trans. Nat. Hist. Soc. Northumb. 5.

*Enemothrombium ovalis* Iowa, *penicillifer* Illinois spp. n. p. 156 figs., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Erythraeus phalangiulus* Ohio, *quadratus* Illinois, spp. n. p. 153 figs., EWING t.c.

*Eutrombidium corticis* sp. n. Iowa p. 155 fig., EWING t.c.

*Georgia* gen. n. for *Ottonia ramosa* George p. 18, HULL Trans. Nat. Hist. Soc. Northumb. 5.



*Nanorchestes collinus* sp. n. Somerset p. 213, HIRST Ann. Mag. Nat. Hist. 2.

*Pigmeophorus quadratus* sp. n. Illinois p. 166 fig., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Rhagidia muscicola* sp. n. Tyne p. 35, HULL Trans. Nat. Hist. Soc. Northumb. 5.

*Rhaphygnathus sphagneti* sp. n. Tyne p. 30, HULL t.c.—*Rhaphygnathus pectinatus* sp. n. Iowa p. 151 fig., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Rhinothrombium inopinum* sp. n. Tyne p. 22 fig., HULL Trans. Nat. Hist. Soc. Northumb. 5.

*Rhyncholophus penninus* p. 24, *pachypus* p. 25, spp. n. Tyne, figs., HULL t.c.

*Tarsonemus pallidus* p. 373 figs., MOZNETTE J. Agric. Res. Washington 10.

*Tenuipalpus erythreus* sp. n. Iowa p. 152 fig., EWING Bull. Amer. Mus. Nat. Hist. 37.

*Tydacus roseus* sp. n. Tyne p. 35, HULL Trans. Nat. Hist. Soc. Northumb. 5.

## HYDRACHNIDAE.

## HAEBERLI 28.

*Hygrobates longipalpis* subsp. n. insulana Faroe Ids. p. 32, VIETS Zool. Anz. 50.

*Lebertia (Mixolebertia) alata* sp. n. Faroe Ids. p. 31, VIETS t.c.—*L. sefvei* p. 375 figs., WILLIAMSON & SOAR J. Quek. Microsc. Cl. 13.

*Limnesia arevaloi* sp. n. Spain p. 111, VIETS Zool. Anz. 50.

*Unionicola aculeata* p. 125 figs., FAUST Trans. Amer. Microsc. Soc. 37.

## HALACARIDAE.

(Vacant.)

## DBELLIDAE.

*Bdella tenuirostris* sp. n. Ohio p. 149, fig., *peregrina* var. n. *iowaensis* Iowa p. 150, EWING Bull. Amer. Mus. Nat. Hist. 37.

*Eupalus parvus* sp. n. Iowa p. 151 fig., EWING t.c.

*Scirus simplex* sp. n. Illinois p. 150 fig., EWING t.c.

## SARCOPTIDAE.

## JOHNSTON 40, 41.

*Atopomelus* gen. n. p. 155, type *locusta* sp. n. on *Neotetracus* W. China p. 157 figs., TROUSSERT Paris Bull. Soc. Zool. 42

*Campylochirus* type *chelopus* Trt. p. 154, TROUSSERT t.c.

*Euryzonus* gen. n. type *ventricosus* on *Sigmodon* N. Brazil p. 155 fig., TROUSSERT t.c.

*Sarcoptes aucheniae* varr. [n.] *lamae*, *alpacia* Bolivia p. 143 figs., TORREGIANI Revista Jard. Zool. Buenos Aires 8.

## TYROGLYPHIDAE.

*Rhizoglyphus sagittatae* sp. n. Montana p. 336 figs., FAUST Ent. News Philadelphia 29.

## DEMODIIDAE.

## HIRST 32.

*Demodex soricinus* on *Sorex*, *apodemi* on *Apodemus*, *longior* on *Apodemus*, p. 145, *nanus* on *Rattus* p. 146 [loc ?], HIRST Ann. Mag. Nat. Hist. 2.

## ERIOPHYIDAE.

## ENDERS 14.—QUAINTANCE 52.

*Eriophyes brethesi* sp. n. Buenos Aires p. 241, LIZER Physis 3.

*Phylloptes toxicophagus* sp. n. on *Rhus diversiloba*, Oregon p. 324 fig., EWING Proc. Iowa Acad. 24.

## TARDIGRADA.

## HAEBERLI 28.

## PENTASTOMIDA.

## JOHNSTON 40.

## MYRIOPODA

CONTENTS (*see* p. 3)

## I.—TITLES

- Bagnall, R. S.** On the synonymy of some European Diplopods (Myriopoda), with special reference to three Leachian species. *Ann. Mag. Nat. Hist. London ser. 9* 2 1918 (407-412). 1
- Bagnall, R. S.** Records of some new British Diplopods and Pauropods, with a preliminary check list of the British "Myriopoda." *J. Zool. Res. London* 3 1918 (87-93). 2
- Bagnall, R. S.** Notes on *Lithobius borealis* Mein. and other Lancashire Myriapods. *Lanes. Nat. Darwen* 10 1918 (p. 347). 3
- Bequaert, M.** *vide* Schmitz, H.
- Boscá Seytre, A.** Fauna valenciana (en resumen). Barcelona 1916 (132 pp.) text-figs. 4
- Brade-Birks, Hilda K., and S. G.** Notes on Myriopoda. XII. A Preliminary List for Derbyshire, with a Description of *Brachychaeteuma quartum*, sp. n., and *Chordeumella scutellare bagnalli*, var. n. *Ann. Mag. Nat. Hist. London ser. 9* 2 1918 (319-336) figs. 5
- Brade-Birks, Hilda K. and S. G.** Notes on Myriopoda. XIV. The re-discovery of *Cylindroiulus parisiorum* (Brölemann et Verhoeff). *Ann. Mag. Nat. Hist. London ser. 9* 2 1918 (470-471) fig. 6
- Brade-Birks, Hilda K. and S. G.** Notes on Myriopoda. VIII. Recent additions to the Irish Fauna. *Irish Nat. Dublin* 27 1918 (27-29).
- Brade-Birks, Hilda K. and S. G.** Notes on Myriopoda. X. On the family Brachychaetumidae. *J. Zool. Res. London* 3 1918 (47-53) text-figs. 8
- Brade-Birks, Hilda K. and S. G.** Notes on Myriopoda. XI. Description of a new species of Diplopoda (*Brachychaeteuma melanops*). *J. Zool. Res. London* 3 1918 (55-61) text-figs. 9
- Brade-Birks, Hilda K. and S. G.** Notes on Myriopoda. IX. Report on Chilopoda and Diplopoda, 1917-18. *Lanes. Nat. Darwen* 11 1918 (93-99). 10
- Brade-Birks, Hilda K. and S. G.** Notes on Myriopoda. XIII. Some Kent records; with special reference to luminous forms, and with Lancashire and Cheshire comparisons. *Lanes. Nat. Darwen* 11 1918 (152-165 186-191). 11
- Brölemann, H. W.** A peculiar state of development in *Brachydesmus* (Myriopoda—Polydesmoida). *Ann. Mag. Nat. Hist. London ser. 9* 1 1918 (281-284) figs. 12
- Brölemann, H. W.** Un nouveau Myriopode d'Espagne du sous-ordre des Iuloidea. *Zaragoza Bol. Soc. Ent. España* 1 1918 (65-70) text-figs. 13
- Carl, J.** Miscellanées diplopodologiques. *Rev. Suisse Zool. Genève* 26 1918 (417-468) text-figs. 14
- Chamberlin, R. V.** Myriopods from Okefonokee swamp, Ga., and from Natchitoches Parish, Louisiana. *Ann. Ent. Soc. America Columbus Ohio* 11 1918 (369-380). 15
- Chamberlin, R. V.** Two new Diplopods from Louisiana. *Canad. Entomol. London* 50 1918 (361-363). 16
- Chamberlin, R. V.** New Spiroboloid Diplopods. *Washington Proc. Biol. Soc.* 31 1918 (165-170). 17

Crampton, G. C. The probable ancestors of Insects and Myriopods. *Canad. Entomol. London* 50 1918 (285-288). 18

Razzauti, A. Contributi alla conoscenza delle isole toscane. I. Isola di Capraia. *Pisa Atti Soc. tosc. sc. nat.* 31 1917 (196-224). 19

Schmitz, H. et Bequaert, M. Contribution à l'étude de la faune cavernicole de la Belgique. [Exploration biologique des cavernes de la Belgique et du Limbourg hollandais: 8e note.] *Brussels Ann. Soc. Zool. et Malacol. Belgique* 48 1914 (67-84). 20

Verhoeff, K. W. Abhängigkeit der Diplopoden und besonders der Juliden-Schaltmännchen von äusseren Einflüssen. (84 Diplopoden-Aufsatz.) *Zs. wiss. Zool. Leipzig* 116 1916 (535-586) pl. xxi text-figs. 21

Verhoeff, K. W. Ist die physiologische Bedeutung der Glomeriden-Telo poden geklärt? (89. Diplopoden-Aufsatz.) *Biol. Zentralbl. Leipzig* 36 1916 (167-174). 22

Voges, E. Myriopodenstudien. *Zs. wiss. Zool. Leipzig* 116 1916 (75-135) pls. iii-v. 23

Voges, E. Der Nestbau der Polydesmiden. *Biol. Zentralbl. Leipzig* 36 1916 (515-537). 24

Breeding habits *Myriopoda*; McGann Bombay *J. Nat. Hist. Soc.* 26 1918, p. 303: Copulation in *Glomeridae* (*Dipl.*); Verhoeff, 22: Nest-building in *Polydesmidae* (*Dipl.*); Voges, 24.

#### VARIATION AND AETIOLOGY = 3423.

Abnorm. larva *Brachydesmus* (*Dipl.*); Brölemann, 12.

Phylogeny, *Myriopoda*; Crampton, 18.

#### DISTRIBUTION = 3427.

##### GEOGRAPHICAL.

Central Europe; *Diplopoda*; Verhoeff, 21.

British Ids., check list of *Myriopoda*; Bagnall, 2: *Diplopoda*; Bagnall, 1: Bass rock, *Myriopoda*; Evans *Scot. Nat.* 1918 p. 264: Newcastle, *Brachychaeteuma* (*Dipl.*); Brade-Birks, 8: Lancashire, *Chilopoda*; Bagnall, 3: Lancashire and Cheshire *Chilopoda*, *Diplopoda*; Brade-Birks, 10: Derbyshire, *Diplopoda*, *Chilopoda*; Brade-Birks, 5: Worcestershire, *Diplopoda*; Brade-Birks, 6: Kent, *Chilopoda*, *Diplopoda*; Brade-Birks, 11: Swanage, Dorset, *Brachychaeteuma* (*Dipl.*); Brade-Birks, 9: Ireland, *Chilopoda*, *Diplopoda*; Brade-Birks, 7.

Belgium, *Diplopoda*; Schmitz et Bequaert, 20.

Italy, I. di Capraia, *Chilopoda*, *Diplopoda*; Razzauti, 19.

Spain, *Diplopoda*; Brölemann, 13: Valencia, *Myriopoda*; Boscá Seytre, 4.

N. America. Georgia and Louisiana, *Symphyla*, *Diplopoda*, *Chilopoda*; Chamberlin, 15: Louisiana, *Diplopoda*; Chamberlin, 16: California, *Diplopoda*; Chamberlin, 17.

Cent. and S. America. Guatemala, *Diplopoda*; Carl, 14: Ecuador, *Diplopoda*; Carl, 14: Paraguay, *Diplopoda*; Carl, 14.

Ceylon, *Diplopoda*; Carl, 14.

Maldive Ids, *Diplopoda*; Carl, 14.

Moluccas, *Diplopoda*; Carl, 14.

New Guinea, *Diplopoda*; Carl, 14.

Caroline and Pelew Ids., *Diplopoda*; Carl, 14.

## II.—SUBJECT INDEX.

### STRUCTURE = 3407.

Head of *Diplopoda*; Voges, 23.

Tracheal system, *Chilopoda*, *Diplopoda*; Voges, 23.

### PHYSIOLOGY = 3411.

Luminosity of *Chilopoda*; Brade-Birks, 11.

### DEVELOPMENT = 3415.

"Schaltstadien" *Diplopoda*; Verhoeff, 21.

### ETHOLOGY = 3419.

Cavernicolous *Diplopoda*; Schmitz et Bequaert, 20.

(N-5464 n)

## III.—SYSTEMATIC INDEX = 3431.

## Chilopoda.

BAGNALL 2, 3.—BRADE-BIRKS 5, 7, 10, 11.—RAZZAUTI 19.

*Helembius* gen. n. p. 377, *nannus* sp. n. Georgia p. 378, CHAMBERLIN Ann. Ent. Soc. Amer. 11.

*Nannocrix* gen. n. *porethus* sp. n. Louisiana p. 376, CHAMBERLIN t.c.

*Neolithobius helius* sp. n. Georgia p. 379, CHAMBERLIN t.c.

## Symphyla.

BAGNALL 2.—CHAMBERLIN 15.

## Pauropoda.

BAGNALL 2.

## Diplopoda.

BAGNALL 2.—BRADE-BIRKS 7, 10, 11.—BRÖLEMANN 12.—RAZZAUTI 19.—SCHMITZ et BEQUAERT 20.—VERHOEFF 21, 22.—VOGES 24.

*Atopetholidae* fam. n. *Spiroboloida* p. 167, CHAMBERLIN Proc. Biol. Soc. Washington 31.

*Atopetholus* gen. n. (*Atopetholidae*) p. 167, *californicus*, *parvus*, p. 168, *fraternus* p. 169, spp. n. California, CHAMBERLIN t.c.

*Brachychaeteuma quartum* sp. n. Derbyshire p. 333 fig., BRADE-BIRKS Ann. Mag. Nat. Hist. 2.—*B. bagnalli* p. 50, *melanops* sp. n. Swanage p. 455, figs., BRADE-BIRKS J. Zool. Res. 3.

*Chordeumella scutellare* var. n. *bagnalli* Derbyshire p. 335 figs., BRADE-BIRKS Ann. Mag. Nat. Hist. 2.

*Cingalobolus* gen. n. (*Trigonulidae*) p. 448, *bugnioni* sp. n. Ceylon p. 449 figs., CARL Rev. Suisse Zool. 26.

*Craspedosoma leachi* nom. n. for *C. simile* Attems non Verhoeff p. 411, BAGNALL Ann. Mag. Nat. Hist. 2.

*Cylindroiulus parisiorum* p. 470 fig., BRADE-BIRKS Ann. Mag. Nat. Hist. 2.

*Desmocricus* gen. n. (*Rhinocricidae*) *conjunctus* sp. n. Moluccas p. 445 figs., CARL Rev. Suisse Zool. 26.

*Dinematocricus faucium* var. n. *fulvosignata* New Guinea p. 444, CARL t.c.

*Ethojulus* gen. n. near *Parajulus*, *amphelictus* sp. n. Louisiana p. 361, CHAMBERLIN Canad. Entomol. 50.

*Eurinocricus naufragus* sp. n. Caroline Ids. p. 441 figs., CARL Rev. Suisse Zool. 26.

*Euryurus louisiana* sp. n. Louisiana p. 371, CHAMBERLIN Ann. Ent. Soc. Amer. 11.

*Fontaria lampra* p. 371, *clara* p. 372, spp. n. Louisiana, CHAMBERLIN t.c.—*F. louisiana* sp. n. Louisiana p. 363, CHAMBERLIN Canad. Entomol. 50.

*Hesperolus* gen. n. (*Atopetholidae*) p. 169, *wheeleri* sp. n. California p. 170, CHAMBERLIN Proc. Biol. Soc. Washington 31.

*Hiltonius* gen. n. near *Tylobolus*, *pulchrus*, sp. n. California p. 166, CHAMBERLIN t.c.

*Hypsoiulus alpivagus suevicus* form. n. *boletiferus* p. 561, VERHOEFF Zs. wiss. Zool. 116.

*Jacksoneuma* ref. to *Brachychaeteuma* p. 327, BRADE-BIRKS Ann. Mag. Nat. Hist. 2.

*Leptodesmus okefenokensis* sp. n. Georgia p. 370, CHAMBERLIN Ann. Ent. Soc. Amer. 11.

*Leptophyllum nanum* var. n. *vandouwei* p. 570, VERHOEFF Zs. wiss. Zool. 116.

*Messicobolus hoplomerus* p. 460, *zonatus* sp. n. Guatemala p. 462, figs., CARL Rev. Suisse Zool. 26.

*Nemasoma pium* sp. n. Louisiana p. 373, CHAMBERLIN Ann. Ent. Soc. Amer. 11.

*Nopoiulus pulchellus* var. n. *danubianus* p. 573, VERHOEFF Zs. wiss. Zool. 116.

*Parajulus robustior* sp. n. Louisiana p. 373, CHAMBERLIN Ann. Ent. Soc. Amer. 11.

*Phyllogonostreptus* gen. n. (*Spirostreptoidea*) p. 424, *nigrolabiatus* p. 426 figs., CARL Rev. Suisse Zool. 26.

*Platyrrachus (Pleorhachus) vicinus* New Guinea p. 423 fig., CARL t.c.

*Polyconoceras* (*Polyconoceras*) *suspensus* sp. n. Palau Ids., p. 439 figs., CARL t.c.

*Polylepiscus braueri* sp. n. Ecuador p. 420 fig., CARL t.c.

*Pycnotropis haenschi* sp. n. Ecuador p. 419 fig., CARL t.c.

*Rhinocricus fulvescens* p. 433, with var. n. *ascobinatus* p. 435, *rufozonatus* p. 435, Moluccas, *bernardinensis* Paraguay p. 436, spp. n. figs., CARL t.c.

*Scaphiostreptus nigrinus* p. 431 figs., CARL t.c.

*Schizophyllum navasi* sp. n. Spain p. 65 figs., BRÖLEMANN Bol. Soc. Ent. España 1.

*Spirobolus paludis* sp. n. Georgia p. 374, CHAMBERLIN Ann. Ent. Soc. Amer. 11.

*Stenobolus* gen. n. (*Trigoniulidae*) p. 452, *insularis* sp. n. Maldives Ids., p. 453 figs., CARL Rev. Suisse Zool. 26.

*Trichogonostreptus* gen. n. (*Spirostreptoidea*) p. 427, *ternetzi* sp. n. Paraguay p. 428 figs., CARL t.c.

*Trigoniulus erythropus* p. 456, *andropygus* subsp. n. *impunctatus* p. 458, figs., CARL t.c.

*Tylobolus claremontus* p. 165, *castaneus* p. 166, spp. n. California, CHAMBERLIN Proc. Biol. Soc. Washington 31.

# PROTOTRACHEATA

## I.—TITLES.

Flynn, T. Thomson. The distribution of *Anaspides* and *Ooperipatus* in Tasmania. Austr. Zool. Sydney 1 pt. 5 1918 (p. 102).

Glen, Edith H. A revision of certain points in the early development of *Peripatus capensis*. Q. J. Microsc. Sci. London 63 1918 (283-292) pl. xx. 2

## II.—SUBJECT INDEX.

3203-3227.

### GENERAL.

Cell-limits and origin of nephridium in *P. capensis*; Glen, 2.

### DISTRIBUTION.

Tasmania, *Ooperipatus*; Flynn, 1.

## III.—SYSTEMATIC INDEX.

3231.

*Peripatus capensis* development p. 283, GLEN Q. J. Microsc. Sci. 63.

# XII. INSECTA

BY

D. SHARP

## CONTENTS

	PAGE
I. TITLES .. .. .	8
II. SUBJECT INDEX :—	
General=3503-4803 .. .. .	78
Historical .. .. .	75
Biographical .. .. .	78
Bibliographical .. .. .	78
Pedagogy, Collections, Museums, Institutions .. .. .	78
Technique, collecting .. .. .	78
Nomenclature .. .. .	78
Economic entomology :—	
General .. .. .	78
Reports .. .. .	79
(Objects attacked <i>vide</i> General and Creatures)	
Creatures attacking .. .. .	79
Insects and man, human disease .. .. .	79
Insects and other animals .. .. .	79
Useful parasites, and predaceous .. .. .	79
Bee culture .. .. .	79
Silk .. .. .	79
Miscellaneous Products (vacant)	
Structure: Morphology=3507-4807	
General .. .. .	79
Of outer parts .. .. .	79
Nervous system, sense organs .. .. .	80
Myology .. .. .	80
Alimentary canal .. .. .	80
Circulatory organs, Respiratory organs .. .. .	80
Glands and cells, blood .. .. .	80
Reproductive organs .. .. .	80
Structure of eggs (vacant)	

	PAGE
Physiology=3511-4811 :—	
General .. .. .	80
Parthenogenesis ( <i>vide</i> Development)	
Sex .. .. .	80
Hermaphroditism .. .. .	80
Respiration .. .. .	80
Senses .. .. .	80
Particular functions .. .. .	80
Metabolic .. .. .	80
Life (vacant)	
Environmental .. .. .	80
Chemical .. .. .	80
Development=3515-4815 :—	
General .. .. .	81
Regeneration .. .. .	81
Cycles of Generations (see physiology, p. 80)	
Chromosomes .. .. .	81
Oogenesis Spermatogenesis .. .. .	81
Fertilisation (vacant)	
Parthenogenesis .. .. .	81
Embryology .. .. .	81
Postembryology, Metamorphosis .. .. .	81
Larvae and pupae .. .. .	81
Ethology=3519-4819 :—	
General .. .. .	81
Ant-life .. .. .	81
Bee-life .. .. .	81
Wasp-life .. .. .	81
Termite-life .. .. .	81
Habitat, Cavernicolous .. .. .	81, 82
Aquatic .. .. .	82
Gregariousness .. .. .	82
Migration, flight .. .. .	82
Sound-production .. .. .	82
Food-habits .. .. .	82
Parasitic .. .. .	82
Nests .. .. .	82
Sex-relations .. .. .	82
Oviposition and parental .. .. .	82
Hibernation .. .. .	82
Phenology .. .. .	82
Instinct, psychology, tropisms .. .. .	82
Attitude, movement, sleep .. .. .	82
Luminosity .. .. .	82
Resemblance and utility, mimicry .. .. .	82
Natural history, special cases .. .. .	82
Pupal habits, cocoons .. .. .	82
Insects and plants .. .. .	82
Galls .. .. .	83
Acclimatisation (vacant)	



	PAGE
Aetiology; Variation=3523-4823 :—	
General (vacant)	
Variation .. .. .	83
Teratology .. .. .	83
Hybrids and Crosses .. .. .	83
Heredity .. .. .	83
Evolution, including phylogeny.. .. .	83
Geographical or faunistic=3527-4827 :—	
General .. .. .	83
Arctic and antarctic .. .. .	83
Insular (including New Zealand) .. .. .	83
Palaeartic region :—	
Collective .. .. .	84
Europe collectively .. .. .	84
North Europe and Siberia .. .. .	84
British Islands .. .. .	85
Central and East Europe .. .. .	88
France .. .. .	88
South Europe and Mediterranean .. .. .	89
Caucasus and West and Central Asia .. .. .	90
Africa .. .. .	90
Madagascar, etc. . . . .	91
Asia (tropical and Eastern) .. .. .	91
Asiatic Archipelago .. .. .	92
Australia and Tasmania .. .. .	92
North America .. .. .	92
Central America .. .. .	94
Antilles .. .. .	94
South America .. .. .	94
III. SYSTEMATIC=3631-4831 :—	
General .. .. .	95
Coleoptera=4831 :—	
General .. .. .	96
Cicindelidae .. .. .	96
Carabidae .. .. .	97
Paussidae .. .. .	102
Haliplidae .. .. .	102
Dytiscidae .. .. .	102
Gyrinidae .. .. .	102
Hydrophilidae .. .. .	102
Staphylinidae .. .. .	103
Pselaphidae .. .. .	106
Scydmaenidae .. .. .	107
Silphidae .. .. .	108
Platypyllidae (vacant)	
Trichopterygidae .. .. .	108
Scaphidiidae .. .. .	108
Histeridae .. .. .	108

	PAGE
Phalacridae (vacant)	
Nitidulidae, Helotidae, Monotomidae .. .. .	108
Trogositidae .. .. .	108
Colydiidae .. .. .	109
Discolomidae .. .. .	109
Rhysodidae, Adimeridae } (vacant)	
Byturidae	
Cucujidae .. .. .	109
Cryptophagidae .. .. .	109
Lathridiidae .. .. .	109
Mycetophagidae (vacant)	
Dermestidae .. .. .	109
Byrrhidae .. .. .	110
Thorictidae (vacant)	
Parnidae .. .. .	110
Heteroceridae (vacant)	
Lucanidae .. .. .	110
Passalidae .. .. .	110
Scarabaeidae .. .. .	110
Buprestidae .. .. .	112
Throscidae, Eucnemidae .. .. .	114
Elateridae .. .. .	114
Cebrionidae (vacant)	
Rhipidoceridae .. .. .	116
Dascillidae .. .. .	116
Malacodermidae .. .. .	118
Cleridae .. .. .	119
Lymexylonidae (vacant)	
Ptinidae .. .. .	119
Bostrychidae, Lyctidae .. .. .	119
Cioidae .. .. .	119
Tenebrionidae .. .. .	119
Monommidae (vacant)	
Cistelidae or Alleculidae .. .. .	122
Nilionidae (Melandryidae, vacant)	
Lagriidae .. .. .	123
Anthicidae, Pedilidae, Hylophilidae .. .. .	123
Mordellidae .. .. .	123
Rhipiphoridae .. .. .	123
Cantharidae or Meloidae .. .. .	123
Oedemeridae .. .. .	124
Pythidae, Eurystethidae .. .. .	124
Pyrochroidae (vacant)	
Trictenotomidae (vacant)	
Curculionidae .. .. .	124
Scolytidae .. .. .	128
Brenthidae (vacant)	
Anthribidae .. .. .	129
Proterhiidae (vacant)	
Cerambycidae .. .. .	129

	PAGE
Bruchidae .. .. .	130
Chrysomelidae .. .. .	130
Erotylidae.. .. .	132
Endomychidae .. .. .	133
Coccinellidae .. .. .	133
Strepsiptera .. .. .	133
<b>Hymenoptera=4631 :—</b>	
General .. .. .	134
Apidae .. .. .	134
Diploptera (Vespidae, Eumenidae and Masaridae)	137
Fossoria (Sphogidae, etc.) .. .. .	138
Formicidae .. .. .	139
Chrysidae .. .. .	141
Ichneumonidae .. .. .	142
Braconidae .. .. .	143
Evanidae .. .. .	145
Megalyridae (vacant)	
Stephanidae .. .. .	145
Chalcididae (including Mymaridae)	145
Proctotrypidae, Bethyridae .. .. .	147
Cynipidae .. .. .	147
Oryssidae, Cephidae, Tenthredinidae, Xyelidae	148
<b>Lepidoptera=4431 :—</b>	
General .. .. .	149
<b>Rhopalocera :—</b>	
General .. .. .	150
Papilionidae .. .. .	150
Pieridae.. .. .	151
Danaidae, Ithomiidae, Acraeidae, Heliconiidae	151, 152
Nymphalidae .. .. .	152
Morphidae and allies .. .. .	154
Satyridae .. .. .	153
Erycinidae, etc.. .. .	154
Lycaenidae .. .. .	154
Hesperiidae .. .. .	156
<b>Heterocera :—</b>	
Castniidae .. .. .	157
Sphingidae, Sesiidae .. .. .	158
Bombyces s.l., etc. .. .. .	159
Diptidae .. .. .	173
Noctuidae .. .. .	164
Geometridae, Epiplemidae, Uraniidae, etc. ..	174
Pyralidae, Thyrididae .. .. .	178
Pterophoridae, Orneodidae .. .. .	183
Tortricidae .. .. .	183
Tineidae s.l. .. .. .	185
Trichoptera .. .. .	192
Neuroptera (including Panorptatae) .. .. .	193

	PAGE
Diptera = 4231 :—	
General .. .. .	195
Cecidomyiidae .. .. .	195
Mycetophilidae .. .. .	196
Chironomidae .. .. .	197
Culicidae .. .. .	198
Psychodidae (vacant)	
Simuliidae, Bibionidae .. .. .	199
Blepharoceridae, Oixidae .. .. .	199
Tipulidae, Rhyphidae and Ptychopteridae, etc.	200
Stratiomyidae, Scenopinidae .. .. .	202
Tabanidae .. .. .	203
Leptidae, Coenomyiidae, Xylophagidae	203
Therevidae .. .. .	204
Asilidae, Mydidae .. .. .	204
Acroceridae .. .. .	205
Bombyliidae .. .. .	205
Nemestrinidae (vacant)	
Empidae .. .. .	206
Dolichopidae .. .. .	206
Lonchopteridae .. .. .	207
Phoridae, Thaumatoxenidae .. .. .	207
Platyezidae .. .. .	207
Pipunculidae .. .. .	207
Syrphidae .. .. .	207
Conopidae .. .. .	208
Oestridae .. .. .	209
Muscidae Calyptratae .. .. .	209
Muscidae Acalyptratae .. .. .	213
Pupipara .. .. .	216
Aphaniptera = 3631 .. .. .	216
Hemiptera = 4031 :—	
General .. .. .	216
Heteroptera :—	
Pentatomidae .. .. .	217
Coreidae, Lygaeidae .. .. .	218
Pyrrhocoridae (vacant)	
Tingitidae .. .. .	222
Berytidae .. .. .	222
Aradidae, Phymtidae (vacant)	
Gerridae, Veliidae, Hebridae .. .. .	222
Reduviidae, Nabidae .. .. .	222
Cimicidae .. .. .	222
Acanthiidae, Henicocephalidae .. .. .	222
Capsidae, Miridae .. .. .	222
Saldidae .. .. .	223
Hydrocorisae .. .. .	223

	PAGE
Homoptera :—	
Cicadidae .. .. .	224
Fulgoridae .. .. .	224
Membracidae .. .. .	225
Cercopidae .. .. .	226
Jassidae .. .. .	226
Psyllidae .. .. .	229
Aphidae .. .. .	230
Aleurodidae .. .. .	232
Coccidae .. .. .	232
Anoplura or Ellipoptera=3631 .. .. .	234
Thysanoptera=3631 .. .. .	235
Psocidae or Psocoptera=3831 .. .. .	235
Mallophaga or Lipoptera=3631 .. .. .	235
Termitidae or Isoptera .. .. .	235
Embiidae or Embioptera .. .. .	235
Zoraptera .. .. .	235
Perlidae or Plecoptera .. .. .	236
Ephemeridae or Ephemeroptera=3831 .. .. .	236
Odonata or Paraneuroptera .. .. .	237
Palaeodictyoptera and Fossils of extinct Orders .. .. .	239
Orthoptera=3831 :—	
General .. .. .	240
Forficulidae .. .. .	240
Blattidae .. .. .	240
Phasmidae .. .. .	241
Mantidae .. .. .	242
Gryllidae .. .. .	242
Locustidae .. .. .	243
Acridiidae .. .. .	244
Aptera .. .. .	246
Thysanura s.l.=3631 .. .. .	246
Collembola s.l.=3631 .. .. .	246
Protura (vacant)	

## I.—TITLES.

- Adkin, R.** The abundance of white butterflies in 1917. *Entom. London* **51** 1918 (36-39, 56-59). [*Lepidoptera*.] 1
- Adkin, R.** The weather of 1916 and the occurrence of some of the commoner butterflies at Eastbourne. *Proc. South London Ent. Soc.* **1917-18** 1918 (8-12). [*Lepidoptera*.] 2
- Adler, —.** Zur Biologie von *Apanoteles glomeratus* L. *Zeitschr. wiss. Insbiol. Berlin* **14** 1918 (182-186). [*Hymenoptera*.] 3
- Ahlberg, O.** Beiträge zur Deutung der Zetterstedtschen Thrips-Arten. *Ent. Tidskr. Uppsala* **39** 1918 (140-142). [*Thysanoptera*.] 4
- Ainslie, G. G.** Color variation in pupae of *Terias nicippe* Cramer. *P. ent. Soc. Washington* **19** 1918 (78). [*Lepidoptera*.] 5
- Ainslie, C. N.** A note on the economic importance of *Samia cecropia*. *Proc. ent. Soc. Washington* **20** 1918 (150-152). [*Lepidoptera*.] 6
- Ainslie, G. G.** Contributions to a knowledge of the Crambinae of North America. *Ann. ent. Soc. Amer. Columbus* **11** 1918 (51-62). [*Lepidoptera*.] 7
- Aldrich, J. M.** Two new *Hydrotaea*. (*Diptera*, Anthomyiidae). *Canad. Entom. London Can.* **50** 1918 (311-313). 8
- Aldrich, J. M.** New and little-known Canadian Oscinidae. *Canad. Entom. London Can.* **50** 1918 (336-343). [*Diptera*.] 9
- Aldrich, J. M.** The anthomyiid genus *Pogonomyia*. *Ent. News Philadelphia* **29** 1918 (179-184). [*Diptera*.] 10
- Aldrich, J. M.** Notes on *Diptera*. *Psyche Boston* **25** 1918 (30-35). 11
- Aldrich, J. M.** Seasonal and climatic variation in *Creodonta*. *Ann. ent. Soc. Amer. Columbus* **11** 1918 (63-66). [*Diptera*.] 12
- Aldrich, J. M.** The kelp-flies of North America (genus *Fucellia*). *Proc. California Ac. San Francisco* **4** 1918 (157-179). [*Diptera*.] 13
- Aldrich, J. M.** Samuel Wendell Williston. *Ent. News Philadelphia* **29** 1918 (322-327) portrait. [*Diptera*.] 14
- Alexander, C. P.** Records of Japanese crane-flies. *Ann. ent. Soc. Amer. Columbus* **11** 1918 (443-449). [*Diptera*.] 15
- Alexander, C. P.** New species of tipuline crane-flies from eastern Asia. *J. New York ent. Soc.* **26** 1918 (66-74). [*Diptera*.] 16
- Alexander, C. P.** New nearctic crane-flies (Tipulidae, *Diptera*). Part iv. *Canad. Entom. London Can.* **50** 1918 (60-71). 17
- Alexander, C. P.** New nearctic crane-flies. Part v. *Canad. Entom. London Can.* **50** 1918 (158-165 242-246). [*Diptera*.] 18
- Alexander, C. P.** New nearctic crane-flies (Tipulidae, *Diptera*). Part vi. *Canad. Entom. London Can.* **50** 1918 (381-386 411-415). 19
- Alexander, C. P.** A new interpretation of the wing-venation of the pedicino crane-flies (Tipulidae, *Diptera*). *Ent. News Philadelphia* **29** 1918 (201-205). pl. xii. 20
- Alexander, C. P.** New species of crane-flies from California. *Ent. News* **29** 1918 (285-288). [*Diptera*.] 21
- Allard, H. A.** Rhythmic synchronism in the chirping of certain crickets and locusts. *Amer. Natural. New York* **52** 1918 (548-552). [*Orthoptera*.] 22

- Allard, H. A. A musical cricket-like chirping of a grasshopper. Science New York **48** 1918 (67-68). [*Orthoptera.*] **23**
- Allee, W. C. and Stein, E. R. Light reactions and metabolism in May-fly nymphs. I. Reversals of phototaxis and the resistance to potassium cyanide. II. Reversals of phototaxis and carbon dioxide production. J. Exper. Zool. Philadelphia **26** 1918 (423-458). [*Ephemeroptera.*] **24**
- Alluaud, C. Collections recueillies par M. Maurice de Rothschild dans l'Afrique orientale. *Coleopteres carabiques*; diagnoses préliminaires des espèces nouvelles. Bull. Mus. Paris **24** 1918 (493-497). **25**
- Alluaud, C. Contributions à l'étude des carabiques d'Afrique et de Madagascar. xviii. Description de quatre *Chlaenius* nouveaux de la Côte d'Ivoire. Bull. Soc. ent. France Paris **1918** 1918 (71-73). [*Coleoptera.*] **26**
- Alluaud, C. Contributions à l'étude des carabiques d'Afrique et de Madagascar. xix. Descriptions d'un *Lobocephalus* et de deux Brachynides nouveaux de Madagascar. Bull. Soc. ent. France Paris **1918** 1918 (127-129). [*Coleoptera.*] **27**
- Alluaud, C. Contributions à l'étude des carabiques d'Afrique et de Madagascar. xx. Sur le genre *Selina* Motsch. 1857 (= *Pselaphanax* Walker 1859 = *Sphinctodera* Fairmaire 1901. Bull. Soc. ent. France **1918** 1918 (222-224). [*Coleoptera.*] **28**
- Alluaud, C. Contributions à l'étude des carabiques d'Afrique et de Madagascar. xxi. Notes sur diverses espèces des Canaries et des Açores dont deux nouvelles, et description d'un genre nouveau. Bull. Soc. ent. France Paris **1918** 1919 (251-254). [*Coleoptera.*] **29**
- Alm, G. Till kändedomen om *Proso-pistoma foliaceum* Fourc. Ent. Tidskr. Uppsala **39** 1918 (54-59) textfig. [*Ephemeroptera.*] **30**
- Amari, S. Sanji sanyo sanga ni kiscisuru pediculoides ni kwansuru kenkyu. [On the study of Pediculoides infesting silkworms, their pupa and imago.] Tokyo, Sangyo Shikenjo Hoku [Report of the Sericultural Institute] **3** 1918 (339-370). [*Lepidoptera.*] **31**
- Ammitzböll, T. Ämm en tredje för Sverige ny *Eristalis* art tagen i Ystad. Ent. Tidskr. Uppsala **39** 1918 (99). [*Diptera.*] **32**
- Andrews, A. W. *Diptera* collected on Whitefish Point, Chippewa County, Michigan. Occas. Pap. Mus. Zool. Univ. Michigan Ann Arbor **53** 1918 (8 pp.). **33**
- [Anon.] Preliminary list of butterflies from the Claremont-Laguna region. J. Ent. Zool. Claremont **9** 1917 (135-137) 2 pls. [*Lepidoptera.*] **34**
- Araujo, H. C. de Souza, vide Lutz, Araujo and Filho.
- Arribalzaga, E. L. La langosta voladora de Colombia y Venezuela. Physis Buenos Aires **4** 1918 (49-79). [*Orthoptera.*] **35**
- Arrow, G. J. The life-history of *Scymnus capitatus* F. Ent. Mo. Mag. London **54** 1918 (8 & 9). [*Coleoptera.*] **36**
- Ashcroft, R. W. Allotment pests. South-eastern Nat. London **1918** 1918 (72-87). **37**
- Awati, P. R. A new larviparous *Philaematomyia* (*P. indica* n. sp.). Ind. J. med. Res. Calcutta **5** 1918 (529-539) pls. 1-iv. [*Diptera.*] **38**
- Awinow, A. Einige neue Formen der Gattung *Parnassius*. (Übersetzung aus Hor. Soc. ent. Ross. **11** No. 5, 1913) Mitt. Münchn. ent. Ges. **7** 1916 (43-64) pl. i. **39**
- Bachmann, M. Biologische Beobachtungen an Hummeln. Mitt. Münchn. ent. Ges. **6** 1915 (71-111). [*Hymenoptera.*] **40**
- Back, E. A. and Pemberton, E. C. The Mediterranean fruit-fly in Hawaii. Bull. U.S. Dep. Agric. **536** 1918 (1-117) 20 pls. [*Diptera.*] **41**
- Back, E. A. and Pemberton, C. E. The Mediterranean fruit-fly. Bull. U.S. Dep. Agric. Washington **640** 1918 (1-43). [*Diptera.*] **42**
- Back, E. A. and Pemberton, C. E. The melon fly. Bull. U.S. Dep. Agric. Washington **643** 1918 (1-31). [*Diptera.*] **43**

- Bacot, A.** A note on the period during which the eggs of *Stegomyia fasciata* (*Aedes calopus*) from Sierra Leone stock retain their vitality in a humid temperature. *Parasitology* Cambridge 10 1918 (280-283). [*Diptera.*] 44
- Bacot, A.** Mosquitoes and the danger of malaria in England. *Essex Natural. Stratford* 18 1918 (241-263) pls. iv-vi. [*Diptera.*] 45
- Bagnall, R. S.** Brief descriptions of new *Thysanoptera*, ix. *Ann. Nat. Hist. London* 1 1918 (201-221). 46
- Bagnall, R. S.** On two species of *Physothrips* injurious to tea in India. *Bull. ent. Res. London* 9 1918 (61-64). [*Thysanoptera.*] 47
- Bagnall, R. S.** On the rubber Thrips (*Physothrips jantuniae* Bagn.) and its allies. *Bull. ent. Res. London* 9 1918 (65-70). [*Thysanoptera.*] 48
- Bagnall, R. S.** Records and descriptions of some British Campodeidae. *Ent. Mo. Mag. London* 54 1918 (109-113). [*Aptera.*] 49
- Bagnall, R. S.** On two new species of *Campodea*. *Ent. Mo. Mag. London* 54 1918 (157-159). [*Aptera.*] 50
- Bagnall, R. S.** On a new species of *Campodea* (*C. devoniensis* sp. n.) from South Devon. *Ent. Mo. Mag. London* 54 1918 (277). [*Aptera.*] 51
- Bagnall, R. S.** Primitive-tails, bristle-tails and spring-tails, iii. The blind bristle-tails—Campodeidae. *Vasculum Hexham* 4 1918 (13-22). [*Aptera.*] 52
- Bagnall, R. S.** The dancers of the torrent. *Vasculum Hexham.* 4 1918 (53-57) [*Diptera.*] 53
- Bagnall, R. S. and Harrison J. W. H.** A preliminary catalogue of British Cecidomyiidae (*Diptera*) with special reference to the gall-midges of the north of England. *Trans. ent. Soc. London* 1917 1918 (346-426). 54
- Bagnall, R. S. and Harrison, J. W. H.** New and rare British Cecidomyiidae, iii. *Ent. Rec. London* 30 1918 (67-68). [*Diptera.*] 55
- Bagnall, R. S. and Harrison, J. W. H.** On some cynipid oak-galls new to the British fauna. *Ent. Mo. Mag. London* 54 1918 (177-182). [*Hymenoptera.*] 56
- Baker, A. C.** Our birch *Symydobius* distinct from the European. (*Aphididae, Homoptera*). *Canad. Entom. London Can.* 50 1918 (318-320). 57
- Baker, A. C.** The dimorphs of species of *Chaitophorus*. *Proc. biol. Soc. Washington* 31 1918 (85-88). [*Homoptera.*] 58
- Baker, A. C.** Another *Toxoptera* feeding on sedge (*Homoptera, Aphididae*). *Psyche Boston* 25 1918 (88-93). 59
- Ball, E. D.** A new genus and three new species of North American Membracidae. *Proc. biol. Soc. Washington* 31 1918 (27-30). [*Homoptera.*] 60
- Ball, E. D.** The phlepsids of Mexico and Central America. *Ann. ent. Soc. Amer. Columbus* 11 1918 (381-389) pls. xxxiii & xxxiv. [*Homoptera.*] 61
- Ball, F. J.** Les dimorphismes saisonnier des androconia chez certains *Lépidoptères*. *Ann. Soc. Zool. malacol. Belgique Bruxelles* 48 1914 (141-143). 62
- Ballowe, H. L.** The breeding of mosquitoes in alkaline water. *Psyche Boston* 25 1918 (96). [*Diptera.*] 63
- Ballowitz, E.** Ueber die Samenkörper der Libellen—i die Spermien und Spermiozeugmen der Aeschniden. *Arch. mikr. Anat. Bonn* 90 2 1918 (169-185) pls. i & ii. [*Paraneuroptera.*] 64
- Ballowitz, E.** Spermiozeugmen bei Libellen. *Biol. Centralbl. Leipzig* 16 1916 (209-216). [*Paraneuroptera.*] 65
- Bang, B.** Kvaegmyg som Aarsag til Sygdom. *Simulium* as the cause of cattle diseases. *København, Mdskf. Dyrl.* 30 1918 (148-179) 2 figs. [*Diptera.*] 66
- Banks, N.** Index to the literature of American economic entomology, January, 1, 1905 to December 31, 1914. *Melrose Mass.* 1917 (x + 323). 67
- Banks, N.** The termites of Panama and British Guiana. *Bull. Amer. Mus. New York* 38 1918 (659-667) pl. li. [*Isoptera.*] 68
- Barber, H. G.** Concerning Lygaeidae No. 1. *J. New York ent. Soc.* 26 1918 (44-46). No. 2 (49-65). [*Heteroptera.*] 69



- Barber, H. G.** The genus *Plinthisus* Latr. in the United States. Proc. ent. Soc. Washington **20** 1918 (108-111). [*Heteroptera.*] **70**
- Barber, H. G.** Synoptic keys to the Lygaeidae of the United States. Part ii, Rhyparochrominae. Psyche Boston **25** 1918 (71-88). [*Heteroptera.*] **71**
- Barber, H. S.** Notes and descriptions of some orchid weevils. Proc. ent. Soc. Washington **19** 1918 (12-22) pl. iv. [*Coleoptera.*] **72**
- Barber, H. S.** *vide* Schwarz and Barber.
- Barber, M. A.** Some observations and experiments on Malayan *Anopheles* with special reference to the transmission of malaria. Philipp. J. Sci. Manila. **B13** 1918 (1-46). [*Diptera.*] **73**
- Barbey, A.** Evolution d'un Cérambycide xylophage. Bull. Soc. Vaud. Lausanne **51** 1917 (577-582) 6 pls. [*Coleoptera.*] **74**
- Barker, C. N.** Some records of predaceous insects and their prey in the Durban Museum. Ann. Durb. Mus. **2** 1918 (94-96). **75**
- Barnes, W. and McDunnough, J. H.** Contributions to the natural history of the *Lepidoptera* of North America, 4 No. 2 Decatur 1918 (61-208) pls. xi-xxv. **76**
- Barnes, W. and McDunnough, J.** Illustrations of the North American species of the genus *Catocala*. Mem. Amer. Mus. N.H. New York **3** 1918 (1-47) pls. i-xxii. [*Lepidoptera.*] **77**
- Barnes, W. and McDunnough, J.** Life-histories of North American species of the genus *Catocala*. Bull. Amer. Mus. New York **38** 1918 (147-177). [*Lepidoptera.*] **78**
- Barraud, P. J.** Notes on *Lepidoptera* observed in Macedonia 1916, 1917. Entomologist London **57** 1918 (59-63, 86 & 87). **79**
- Barret, H. P.** *vide* Dyar and Barret.
- Becker, T.** Insectes Diptères, v. *Diptera* brachycera (1re partie) Voyage Alluaud et Jeannel Paris **1915** (147-190) pl. i. **80**
- Becker, T.** Bemerkungen über einige *Dorylas* (*Pipuncululus*-) Arten. Wiener ent. Zeit. Wien **34** 1915 (63-66). [*Diptera.*] **81**
- Becker, Th.** *Edmundiella*, novum genus Lomatinarum. Wiener ent. Zeit. Wien **34** 1915 (347, 348). [*Diptera.*] **82**
- Bedel, L.** Cinq espèces nouvelles du genre *Episcapha* Lac. Bull. Soc. ent. France Paris **1918** 1918 (118-120). [*Coleoptera.*] **83**
- Bedel, L.** Description d'un *Megalodacne* nouveau de Madagascar. Bull. Soc. ent. France Paris **1918** 1918 (193). [*Coleoptera.*] **84**
- Beebe, W.** Insect tyrants. Zool. Bull. New York **21** 1918 (1670-1673). [*Hymenoptera.*] **85**
- Bell, T. R.** The common butterflies of the plains of India (continued), Pts. 19-22. J. Bombay Soc. Bombay **25** 1918 (430-453, 636-664) and **26** (98-140) 1919 (438-487, 750-769) pl. H. [*Lepidoptera.*] **86**
- Bemmelen, J. van.** Over het primaire karakter der popstekening by de vlinders. [On the primary character of the markings in *Lepidopterous* pupae.] Amsterdam, Versl. Wis. Nat. afd. K. Akad. Wet. **26** 1918 (1543-1552) (Dutch); Amsterdam, Proc. Sci. K. Acad. Wet. **21** 1918 (58-67) (English) **87**
- Bemmelen, J. F. van.** De vleugel-teekening der Arctiidae. [The wing-markings of Arctiidae.] Amsterdam, Versl. Wis. Nat. Afd. K. Akad. Wet. **26**, 1918 (894-905 6 Textfig.) (Dutch); Amsterdam Proc. Sci. K. Akad. Wet. **20** 1918 (849-860) 6 Textfig. [*Lepidoptera.*] **88**
- Bengtsson, S.** Braconologische Beiträge. Lund Univ. Arsskr. N. F. Avd. 2 **14** No. 32 [= Fysiogr. Sällsk. Handl. N. F. 29 No. 32] 1918 (47) 19 textfigs. [*Hymenoptera.*] **89**
- Bentinck, G.** Einige in Nederland min of meer zeldzaam voorkomende *Lepidoptera* met by behoorende vindplaatsen, en tevens eenige afwykingen. [Einige in den Niederlanden mehr oder weniger seltenen *Lepidoptera* mit zugehörigen Fundorten, nebst einigen Abweichungen.] 's Gravenhage Ber. Ned. Ent. Ver. **5** 1918 (79-81). **90**
- Bentinck, G. A.** *Hydrilla palustris* H. 's Gravenhage Ber. Ned. Ent. Ver. **5** 1918 (86-87). [*Lepidoptera.*] **91**
- Bequaert, M.,** *vide* Schmitz and Bequaert.

- Bergevin, E. de.** Description d'un nouveau genre et d'une nouvelle espèce d'Hysteropterinae d'Asie mineure. Bull. Soc. ent. France Paris 1918 1918 (103-108). [*Homoptera.*] 92
- Bergevin, E. de.** Description d'une nouvelle espèce de *Bursinia* de la province d'Alger (massif de Zaccar). Bull. Soc. ent. France Paris 1918 1918 (160-162). [*Homoptera.*] 93
- Bergevin, E. de.** Description d'une nouvelle espèce d'*Hysteropterum* des provinces d'Alger et d'Oran. Bull. Soc. ent. France Paris 1918 1919 (260-263). [*Homoptera.*] 94
- Bergroth, E.** Studies in Philippine *Heteroptera* i. Philipp. J. Sci. Manila D 13 1918 (43-126). 95
- Bergroth, E.** Ein neuer Ameisengast aus Südafrika. Wiener ent. Zeit. Wien. 34 1915 (291, 292). [*Heteroptera.*] 96
- Bergroth, E.** Eine verschollene und eine neue Reduviiden-Gattung aus Madagaskar. Wiener ent. Zeit. Wien. 37 1918 (207-211). [*Heteroptera.*] 97
- Bernhauer, M.** *Coleoptera* vii.: Staphylinidae. Beitr. Land.-Süßwasserf. Deutsch. Südwestafrik 1 Hamburg 1918 (313-321). 98
- Bernhauer, M.** Neue Staphyliniden des paläarktischen Faunengebietes. Wiener ent. Zeit. Wien. 34 1915 (69-81). [*Coleoptera.*] 99
- Bernhauer, M.** Neue Staphyliniden aus dem Kongogebiet. (11 Beitrag zur afrikanischen Staphylinidenfauna). Wiener ent. Zeit. Wien 34 1915 (298-300). [*Coleoptera.*] 100
- Bernhauer, M.** Neue südamerikanische Staphyliniden. (18 Beitrag). Wiener ent. Zeit. Wien. 36 1917 (102-116). [*Coleoptera.*] 101
- Bernhauer, M.** Ein neuer *Phucobius* aus China. Wiener ent. Zeit. Wien. 36 1917 (125). [*Coleoptera.*] 102
- Bernhauer, M.** Beitrag zur Staphyliniden-Fauna Südamerikas 17. N. Beitr. syst. Inskunde Berlin 1 1917 (35-37). [*Coleoptera.*] 103
- Bernhauer, M.** Neue Arten der Gattungen *Piestus*, *Leptochirus* und *Conosoma* aus Südamerika (20 Beitrag). N. Beitr. syst. Inskunde Berlin 1 1917 (45-53). [*Coleoptera.*] 104
- Bernhauer, M.** 21 Beitrag zur Staphylinidenfauna von Südamerika (mit besonderer Berücksichtigung der Tribus *Piestini*). N. Beitr. syst. Inskunde Berlin 1 1918 (65-68, 73-76, 81-84, 89-92). [*Coleoptera.*] 105
- Bervoets, R. E.** Contribution à l'étude du vol des insectes. Ann. Zool. malacol. Belgique 48 1914 (91-135) pls. vi & vii. 106
- Bethune-Baker, G. T.** A revision of the genus *Tarucus*. Tr. ent. Soc. London 1917 1918 (269-296) pls. xiv-xx. [*Lepidoptera.*] 107
- Bethune-Baker, G. T.** Gleanings from Dartmoor: with observations on Dr. Verity's conclusions on races of British butterflies. Ent. Rec. London 30 1918 (177-186). [*Lepidoptera.*] 108
- Bethune-Baker, G. T.** *Zygaena trifolii*, *Z. filipendulae*, etc. Ent. Rec. London 30 1918 (61-62). [*Lepidoptera.*] 109
- Beutenmuller, W.** New species of *Rhodites* from Oregon. Canad. Entom. London Can. 50 1918 (305-308) pl. ix. [*Hymenoptera.*] 110
- Beutenmuller, W.** Description of a new *Periclistus* (Cynipidae, *Hymenoptera.*) Ent. News Philadelphia 29 1918 (251) 111
- Beutenmuller, W.** Notes on Cynipidae, with description of a new species Ent. News Philadelphia 29 1918 (327-330). [*Hymenoptera.*] 112
- Beyer, A. H.**, *vide* Luginbill and Beyer.
- Bezzi, M.** Notes on the Ethiopian fruit-flies of the family Trypancidae, other than *Dacus* (s.l.), with descriptions of new genera and species i. Bull. ent. Res. London 8 1918 (215-251) pl. v. ii. op. cit. 9 (13-46) pl. i. [*Diptera.*] 113
- Bezzi, M.** Un nuovo genere di *Ditteri* subatteri scoperto dal Prof. A. Corti sulle somme alpi della Valtellina. Atti Soc. ital. Pavia 57 1918 (19-28). 114
- Bezzi, M.** Studi sulla *ditterofauna* nivale delle Alpi italiane. Mem. Soc. ital. Milano Milano 9 1918 (1-164) 2 pls. 115
- Bickhardt, H.** *Coleoptera* ii. Histeridae. Beitr. Land.-Süßwasserf. Deutsch. Südwestafrik. Hamburg 1 1918 (279-282). 116

- Binder, K.** *Rhopalopus* (nov. subg. *Calliopedia*) *reitteri* n. sp. Wiener ent. Zeit. Wien **34** 1915 (186). [*Coleoptera.*] 117
- Binning, A.** *Anthroceras scabiosae* Scheven ytterligare funnen i Västmanland. Ent. Tidskr. Uppsala **39** 1918 (100). [*Lepidoptera.*] 118
- Binning, A.** Renbromsen anträffad i Västmanland. Ent. Tidskr. Uppsala **39** 1918 (100-101). [*Diptera.*] 119
- Bischoff, H.** Zoologische Ergebnisse der Professor Hans Myerschen Expedition nach Ostafrika 1911. I. Verzeichnis und Beschreibungen der gesammelten *Hymenopteren*. Mitt. zool. Mus. Berlin **7** 1915 (473-477). 120
- Blair, K. G.** Notes on the British species of *Sphaeriestes* Steph. Ent. Mo. Mag. London **54** 1918 (77-84). [*Coleoptera.*] 121
- Blair, K. G.** A remarkable new genus of Tenebrionidae (*Coleoptera*) from tropical Africa. Ent. Mo. Mag. London **54** 1918 (149-152). 122
- Blair, K. G.** A note on the systematic position of the genus *Tretothorax* Lea. Ent. Mo. Mag. London **54** 1918 (152-154). 123
- Blaisdell, F. E.** Synopsis of the genus *Tegrodera*. (*Coleoptera*, Meloidae). Canad. Entom. London Can. **50** 1918 (333-335). 124
- Blaisdell, F. E.** Studies in the Tenebrionidae. Ent. News Philadelphia **29** 1918 (7-14) [*Coleoptera.*] 125
- Blaisdell, F. E.** Studies in the tenebrionid tribe Eleodini. No. 3. Ent. News Philadelphia **29** 1918 (162-168). [*Coleoptera.*] 126
- Blaisdell, F. E.** Studies in the tenebrionid tribe Eleodini. No. 4. Ent. News Philadelphia **29** 1918 (380-387). [*Coleoptera.*] 127
- Blaisdell, F.** In memoriam: Carl Fuchs. Proc. Calif. Ac. Sci. San Francisco **8** 1918 (27-34) port. 128
- Blanchard, E. E.** Una nueva especie de *Aleurothrixus* (*Homoptera*, Aleyrodidae). Physis Buenos Aires **4** 1918 (344-347). 129
- Blanchard, F.** [the latc]. Revision of the Throscidae of North America. Tr. Amer. ent. Soc. Philadelphia **43** 1917 (1-26). [*Coleoptera.*] 130
- Blatchley, W. S.** The home of *Hormops* and its proper position among other Rhynchophora. J. New York ent. Soc. **26** 1918 (155-161). [*Coleoptera.*] 131
- Blatchley, W. S.** On some new or noteworthy *Coleoptera* from the west coast of Florida. iv. Canad. Entom. London Can. **50** 1918 (52-59). 132
- Blatchley, W. S.** Some new or scarce *Coleoptera* from western and southern Florida. Canad. Entom. London Can. **50** 1918 (416-423). 133
- Bleuler, E.** Experimentelles zur Frage der Vererbung und der Artbildung. Int. ent. Zs. Guben **9** 1915 (57-65-69). [*Lepidoptera.*] 134
- Blüthgen, —.** *Psithyrus vestalis* Geoffr. und *bohemicus* Seidl. (*distinctus* Pérez). Ent. Mitt. Berlin **7** 1918 (188-197). [*Hymenoptera.*] 135
- Blunck, H.** Die Entwicklung des *Dytiscus marginalis* L. vom Ei bis zur Imago. 1 Teil. Das Embryonalleben. Zeitschr. wiss. Zool. Leipzig **111** 1914 (76-151) 31 figs. [*Coleoptera.*] 136
- Blunck, H.** Die Entwicklung des *Dytiscus marginalis* L. vom Ei bis zur Imago. 2 Teil. Die Metamorphose (Der Habitus der Larve). Zeitschr. wiss. Zool. Leipzig. **117** 1917 (1-129). [*Coleoptera.*] 137
- Blunck, H.** Die Schreckdrüsen des *Dytiscus* und ihr Secret. zweiter und letzter Teil. Zeitschr. wiss. Zool. Leipzig **117** 1917 (205-256). [*Coleoptera.*] 138
- Boas, J. E. V.** Aedelgranlusene. *Chermes piceae* and *Mindarus abietinus* attacking the silver-firs in Denmark. København, Dansk Skovforenings Tidsskrift **1918** (191-276) 51 figs. [*Homoptera.*] 139
- Bodine, J. H.** Experimental results in *Ischnura* and *Enallagma*. Proc. Ac. Philadelphia **70** 1918 (103-113). [*Paraneuroptera.*] 140
- Bodkin, G. E.** Notes on some British Guiana *Hymenoptera* (exclusive of the Formicidae). Tr. ent. Soc. London **1917** 1918 (297-321) pls. xxi-xxiii. map. 141
- Bönnert, W.** Die Ueberwinterung von *Formica picea* und andere biologische Beobachtungen. Biol. Centralbl. Leipzig **35** 1915 (65-77) pl. i. [*Hymenoptera.*] 142

- Böttcher, G.** *Sarcophaga lunigera* nov. spcc. Deutsche ent. Zeitschr. Berlin 1914 1914 (434-436). 143
- Bolivar y Pieltain, C.** Sur deux espèces d'Eumastacinae de l'Equateur. Bull. Mus. Paris 24 1918 (22-25). [*Orthoptera.*] 144
- Bolivar y Pieltain, C.** Estudio monográfico de la seccion Trauliae (*Orthoptera*, Locustinae). Rev. R. Acad. Ci. Madrid 15 1917 (605-644). 145
- Bolivar, J.** Estudios entomológicos Tercera parte. Sección Oxyae. Trab. Mus. Nac. Madrid Zool. 34 1918 (1-43). [*Orthoptera.*] 146
- Bolivar, J.** Contribucion al conocimiento de la fauna indica. *Orthoptera* (Locustidae vel Acridiidae). Revist. Ac. Ci. Madrid 16 1917 (278-289 and 374-412). 147
- Bolle, J.** Der gegenwärtige Stand des Seidenbaues. Zeitschr. wiss. Insbiol. 13 1917 (177-191). [*Lepidoptera.*] 148
- Bondroit, J.** Les fourmis de France et de Belgique. Ann. Soc. ent. France Paris 87 1918 (1-174) 83 figs. [*Hymenoptera.*] 149
- Bordage, E.** Observations sur les noyaux des trophocytes provenant de la transformation du tissu musculaire strié des insectes. C. R. Ac. Sci. Paris 166 1918 (747-750). [*Diptera.*] 150
- Bordage, E.** Sur la constitution du réticulum des trophocytes d'origine musculaire chez les insectes métaboles. C. R. Soc. Biol. Paris 81 1918 (459 and 460). [*Diptera.*] 151
- Bordage, E.** Sur la constitution du réticulum du tissu adipeux secondaire chez les insectes métaboles. Bull. Soc. ent. France Paris 1918 1918 (124). 152
- Bordas, L.** Structure anatomique du gésier des Carabides. Bull. Soc. Ouest Rennes 23 1914 (46-51). [*Coleoptera.*] 153
- Bordas, L.** Sur l'appareil digestif des *Procrustes*. Bull. Soc. Ouest Rennes 23 1914 (84-87). [*Coleoptera.*] 154
- Bordas, L.** Nouvelles observations sur l'ampoule rectale des Dytiscides. Bull. Soc. Ouest Rennes 24 1915 (71-74). [*Coleoptera.*] 155
- Bordas, L.** Structure anatomique du gésier de quelques Dytiscides. Bull. Soc. Ouest Rennes 24 1915 (75-80). [*Coleoptera.*] 156
- Bordas, L.** Morphologie de l'appareil digestif de quelques Sphingides. Bull. Soc. Ouest Rennes 26 1917 (53-56). [*Lepidoptera.*] 157
- Borelli, A.** Insectes *Orthoptères*, 1. Dermaptera. Voyage Alluaud et Jeannel Paris 1915 (1-20) pls. i & ii. 158
- Borelli, A.** Dermatteri delle isole Filippine. Boll. Mus. Torino 33 1918 No. 726 (5 pp.). [*Orthoptera.*] 159
- Borelli, A.** Dermatteri dello isolo Filippine. Nota v. Boll. Mus. Torino 33 1918 No. 726 (1-5). [*Orthoptera.*] 160
- Borja-Tarrius, D. C. C. de.** Las manifestaciones del instinto en los articulados. Mem. Ac. Ci. Barcelona 14 1918 No. 3 (329-338). 161
- Born, P.** Ueber die von Oswald Heer beschriebenen Caraben der Schweiz. Mitt. Schweiz. ent. Ges. Bern 12 1916 372-383). [*Coleoptera.*] 162
- Bourgoin, A.** Notes sur *Macronota flavofasciata* Moser et sur les espèces voisines. Bull. Soc. ent. France Paris 1918 1918 (56-57). [*Coleoptera.*] 163
- Bourgoin, A.** Description de trois *Coptomia* nouveaux. Bull. Soc. ent. France Paris 1918 1918 (134-137). [*Coleoptera.*] 164
- Bourgoin, A.** Deux *Pygora* nouveaux de Madagascar. Bull. Soc. ent. France Paris 1918 1918 (121). [*Coleoptera.*] 165
- Bouvier, E. L.** Sur la nidification du *Polybioides tabida* Fabr. Bull. Soc. ent. France Paris 1918 1919 (278-280). [*Hymenoptera.*] 166
- Boveri, T.** Über die Entstehung der ougsterschen Zwitterbienen. Arch. Entwickmech. Leipzig 41 1915 (264-311) pls. vii, viii. [*Hymenoptera.*] 167
- Bowater, —.** Inbreeding *Amphidasis betularia*. Ent. Rec. London 30 1918 (41-42). [*Lepidoptera.*] 168
- Boyd, A. W.** Six months collecting between Ismailia and El Arish. Bull. Soc. ent. Egypte Le Caire 10 1918 (98-119). 169

- Bradley, J. C.** Contributions toward a monograph of the Mutillidae and their allies of America north of Mexico. iv. A review of the Myrmosidæ. Trans. Amer. ent. Soc. 43 1917 (247-290) pls. xx-xxv. [*Hymenoptera.*] 170
- Bragg, L. C.** *vide* Gillette and Bragg.
- Brain, C. K.** The Coccidae of South Africa. ii. Bull. ent. Res. London 9 1918 (107-139) pls. iii-vii. [*Homoptera.*] 171
- Brass, P.** Das 10. Abdominalsegment der Käferlarven als Bewegungsorgan. Dissertation Greifswald 1914 (58 pp.) 4 pls. [*Cf.* Zeitschr. wiss. Insbiol. Berlin 14 p. 131.] [*Coleoptera.*] 172
- Braun, Annette F.** New Species of *Microlepidoptera*. Canad. Entom. London Can. 50 1918 (229-236) 173
- Braun, Annette F.** New genera and species of Lyonetiidae (*Microlepidoptera*). Ent. News Philadelphia 29 1918 (245-251). 174
- Braun, Annette P.** Nepticulidae of North America. Trans. Amer. ent. Soc. Philadelphia 43 1917 (155-209) pls. v-viii. [*Lepidoptera.*] 175
- Brecher, Leonore.** Die Puppenfärbungen des Kohlweisslings, *Pieris brassicae* L. Arch. Entwicklmech. Leipzig 43 1917 (88-221) pls. vi-x. [*Lepidoptera.*] 176
- Breit, J.** Beitrag zur Kenntnis der paläarktischen Cerambyciden-Fauna. Wiener ent. Zeit. Wien 34 1915 (353-356). [*Coleoptera.*] 177
- Breit, J.** Beitrag zur Kenntnis der Arten des Genus *Cryptocephalus* Geoffr. Wiener ent. Zeit. Wien 37 1918 (35-52). [*Coleoptera.*] 178
- Bresslau, E.** Beiträge zur Kenntnis der Lebensweise unserer Stechmücken. Biol. Centralbl. Leipzig 37 1917 (507-530). [*Diptera.*] 179
- Brèthes, J.** Description d'un Chalcidien gallicole de la République Argentine. Bull. Soc. ent. France Paris 1918 1918 (82-84). [*Hymenoptera.*] 180
- Brèthes, J.** Description d'une nouvelle Dexiinae argentine. Physis Buenos Aires 4 1918 (115). [*Diptera.*] 181
- Brèthes, J.** Description de la galle et de la cécidomyie d'*Aeschynomene montevidensis*. Physis Buenos Aires 4 1918 (312). [*Diptera.*] 182
- Brèthes, J.** Description d'une nouvelle espèce de *Sphex* de la république argentine. Physis Buenos Aires 4 1918 (347). [*Hymenoptera.*] 183
- Brèthes, J.** Un bembécido cazador de Hemipteros. Physis Buenos Aires 4 1918 (348). [*Hymenoptera.*] 184
- Brèthes, J.** Description de deux *Coleopteres cantharides* de Catamarca. Physis Buenos Aires 4 1918 (360, 361). 185
- Bridwell, J. C.** Notes on the entomology of Hawaiian *Euphorbia* by the description of a new *Dictyophorodelphax*. Proc. hawai. ent. Soc. Honolulu 3 1918 (385-387). [*Homoptera.*] 186
- Bridwell, J. C.** Notes on the habits of *Brosconymus opatus* Sharp. Proc. hawai. ent. Soc. Honolulu 3 1918 (391 & 392). [*Coleoptera.*] 187
- Bridwell, J. C.** Notes on the Bruchidae and their parasites in the Hawaiian islands. Proc. hawai. ent. Soc. Honolulu 3 1918 (465-505). [*Hymenoptera.*] 188
- Bridwell, J. C.** Insects in relation to problems of storage of food in Hawaii. Proc. hawai. ent. Soc. Honolulu 3 1918 (506-509). 189
- Brimley, C. S.** Records of North Carolina Odonata from 1908 to 1917. Ent. News Philadelphia 29 1918 (227-229). [*Paraneuroptera.*] 190
- Brindley, H. H.** Notes on certain parasites, food, and capture by birds of the common earwig (*Forficula auricularia*). Proc. Cambridge phil. Soc. 19 1918 (167-177). [*Orthoptera.*] 191
- Brindley, H. H.** Branched forceps in an earwig. Ent. Mo. Mag. London 54 1918 (59). [*Orthoptera.*] 192
- Brittain, W. H.** The insect collections of the maritime provinces. Canad. Entom. London Can. 50 1918 (117-122). 193
- Britten, H.** *Choleva angustata* F. and its allies. Ent. Mo. Mag. London 54 1918 (30-33). [*Coleoptera.*] 194
- Brooks, F. E.** The grape curculio; the grape root-borer. Bull. U.S. Dep. Agric. Washington 730 1918 (1-28) pls. 195
- Brown, J. M.** *Apterygota* from Yorkshire and Derbyshire. Naturalist London 1918 1918 (185-187). 196

- Bruch, C.** Nuevos huéspedes de hormigas procedentes de Córdoba. *Physis Buenos Aires* 4 1918 (186-195). [*Coleoptera.*] 197
- Bruch, C.** Captura de cerambícidos. *Physis Buenos Aires* 4 1918 (354, 355). [*Coleoptera.*] 198
- Bruch, C.** Huéspedes de la hormiga negra recolectados por el señor Juan Bosq. *Physis Buenos Aires* 4 1918 (558 & 559). [*Hymenoptera.*] 199
- Brues, C. T.** New North American Phoridae of the genus *Aphiochaeta*. *Insec. inscit. Washington* 6 1918 (183-194). [*Diptera.*] 200
- Brues, C. T.** A new species of *Evania* from the Cameroons (*Hymenoptera*, *Evaniiidae*). *Psyche Boston* 25 1918 (93-95). 201
- Brumfiel, D. M.** Macroscopic fauna of a small brook. *Proc. Iowa Acad. Des Moines* 22 1915 (363-374) pl. xi. 202
- Brumfiel, D. L.** The influence of floods upon animals. *Proc. Iowa Acad. Des Moines* 25 1918 (155-174). 203
- Brampt, E. and Gomes, J. F.** Descrição de uma nova especie de *Triatoma* (*T. chagasi*) hospedeiro primitivo do *Trypanosoma cruzi* Chagas. *Ann. Paulistas med. San Paulo* 3 1914 (5 pp. ext.). 204
- Brun, R.** Das Orientierungsproblem im allgemeinen und auf Grund experimenteller Forschungen bei den Ameisen. *Biol. Centralbl. Leipzig* 35 1915 (190-207 & 225-251). [*Hymenoptera.*] 205
- Brun, R.** Weitere Untersuchungen über die Fernorientierung der Ameisen. *Biol. Centralbl. Leipzig* 36 1916 (261-303). [*Hymenoptera.*] 206
- Brun, R.** Die moderne Ameisenpsychologie—ein anthropomorphistischer Irrtum? *Biol. Centralbl. Leipzig* 37 1917 (357-372). [*Hymenoptera.*] 207
- Brun, R.** Nochmals die wissenschaftlichen Grundlagen der Ameisenpsychologie. *Biol. Zentralbl. Leipzig* 38 1918 (499-504). [*Hymenoptera.*] 208
- Brundin, J. A. Z.** Tjäridar från norra delen av Jönköpings län. *Ent. Tidskr. Uppsala* 39 1918 (66-68). [*Lepidoptera.*] 209
- Brunetti, E.** Revision of the oriental Tipulidae with descriptions of new species, Part ii. *Rec. Ind. Mus. Calcutta* 15 1918 (255-340) pls. vii & viii. [*Diptera.*] 210
- Bryk, F.** Zur Ikonographie der skandinavischen sphragophoren Rhopalozeren. *Ent. Tidskr. Uppsala* 39 1918 (143-147) figs. [*Lepidoptera.*] 211
- Bryk, F.** Grundzüge der Sphragidologie. *Ark. Zool. Stockholm* 11 No. 18 1918 (1-38) pls. [*Lepidoptera.*] 212
- Bryk, F.** Einige Randbemerkungen zu Dr. Christeller's Studie über die Missbildungen der Schmetterlinge. *Ent. Mitt. Berlin* 7 1918 (88-93). [*Lepidoptera.*] 213
- Buchner, P.** Vergleichende Eistudien i. Die akzessorischen Kerne des *Hymenopteren*eies. *Arch. mikr. Anat. Bonn* 91 2 1918 (1-202) pls. i-x. 214
- Buchner, P.** Der Amcisenlöwe. *Biol. Centralbl. Leipzig*. 37 1917 (46-48). [*Neuroptera.*] 215
- Buckstone, A. W.** Notes on *Zygaena filipendulae*, *Z. trifolii* and *Z. loniceræ*. *Proc. South London ent. Soc.* 1917-18 1918 (1-5). [*Lepidoptera.*] 216
- Bugnion, E.** L'accroissement des antennes chez *Empusa egena*. *Mem. Soc. Zool. France Paris* 27 1918 (127-137) pls. xiii & xiv. [*Orthoptera.*] 217
- Bugnion, E.** Les pièces buccales de la blatte. (*Blatta americana* et *australasiae*). *Mitt. schweiz. ent. Ges. Bern* 12 1916 (383-400) pl. xxv. [*Orthoptera.*] 218
- Buresch, J.** Beitrag zur *Lepidopteren*fauna des Piringebirges (Pirin-Planina) in Mazedonien. *Zeitschr. wiss. Ins. biol. Berlin* 14 1918 (97-107 137-144 224-231 271-281) 3 pls. 219
- Burke, H. E.** *Oryssus* is parasitic. *Proc. ent. Soc. Washington* 19 1918 (87-89). [*Hymenoptera.*] 220
- Burke, H. E.** Biological notes on some flat-headed wood-borers of the genus *Buprestis*. *J. econ. Ent. Concord* 11 1918 (334-338). [*Coleoptera.*] 221
- Burr, M.** Field notes from Macedonia, i. *Ent. Rec. London* 30 1918 (149-151). 222

- Burrill, A. C. and Smith, M. R.** A preliminary list of the ants of Wisconsin. Ohio Nat. Columbus 18 1918 (229-232). [*Hymenoptera.*] 223
- Butler, E. A.** On the association between the *Hemiptera-Heteroptera* and vegetation. Ent. Mo. Mag. London 54 1918 (132-136 and 184). 224
- Buttel-Reepen, H. v.** Leben und Wesen der Bienen. Braunschweig 1915 (*Cf. Nachtsheim, Biol. Centralbl.* 35 p. 331-335. [*Hymenoptera.*] 225
- C., G. H.** Entomological research in Australia Nature London 102 1918 (97). 226
- Caffray, D. J.** Notes on the poisonous urticating spines of *Hemileuca oliviae* larvae. J. econ. Ent. Concord 11 1918 (363-367). [*Lepidoptera.*] 227
- Calvert, P. P.** Insects and human mortality in war. Univ. Pennsylv. Bull. 18 1918 (131-149). 228
- Cameron, A. E.** Life-history of the leaf-eating crane-fly, *Cylindrotoma splendens*, Doane. Ann. ent. Soc. Amer. Columbus 11 1918 (67-89). [*Diptera.*] 229
- Cameron, A. E.** Some blood-sucking flies of Saskatchewan. Agric. Gaz. Canada Ottawa 5 1918 (556-561). [*Diptera.*] 230
- Cameron, A. E.** *vide* Hadwen and Cameron.
- Cameron, A. E. and Treherne, R. C.** The pear Thrips (*Taeniothrips inconsequens* Uzel) and its control in British Columbia. Bull. Dep. Agric. ent. Canada Ottawa 15 1918 (1-51). [*Thysanoptera.*] 231
- Cameron, M.** New species of Staphylinidae from Singapore. Part i. Tr. ent. Soc. London 1918 1918 (58-90). [*Coleoptera.*] 232
- Cameron, M.** New oriental Staphylinidae. i. Ent. Mo. Mag. London 54 1918 (102-105). [*Coleoptera.*] 232a
- Cameron, M.** New oriental Staphylinidae. ii & iii. Ent. Mo. Mag. London 54 1918 (169-172 214-218). [*Colcoptera.*] 233
- Campos, F.** Algunos casos teratologicos observados en los arthropodos. Ann. Soc. ent. Amer. Columbus 11 1918 (97 & 98). [*Coleoptera.*] 234
- Cardin, P. G.** El Trips de Los Laurales *Gynaikothrips uzelli*, Zimmermann. Mem. Soc. Cubana Habana 1 1915 (282-284). 235
- Cardin, P. G.** Notas entomologicas. Mem. Soc. cubana Habana 3 1918 (53-61). 236
- Carpenter, G. D. H.** Observations on fossors in East Africa. Proc. ent. Soc. London 1917 1918 (xli-xliv). [*Hymenoptera.*] 237
- Carpenter, G. H. and Pollard, F. J. S.** The presence of lateral spiracles in the larva of *Hypoderma*. Proc. R. Irish Acad. Dublin 34 B 1918 (73-84) pls. viii-xiii. [*Diptera.*] 238
- Carroll, M.** The hindgut, abdominal tracheae and rectal respiration in the larva of *Mecistogaster modestus* from Costa Rica. Proc. Ac. Philadelphia 70 1918 (86-102). [*Paraneuroptera.*] 239
- Carter, H. J.** Some new Heteromera and one *Stigmmodera* from tropical Australia. Proc. Linn. Soc. N.S.W. Sydney 42 1917 (701-719). [*Coleoptera.*] 240
- Carter, Lucy A.** The somatic mitosis of *Stegomyia fasciata*. Quart. J. micr. Sci. London 63 1918 (375-386) pl. xxi. [*Diptera.*] 241
- Casey, T. L.** A review of the North American Bembidiinae. Mem. Col. Lancaster Pa. 8 1918 (1-223). [*Coleoptera.*] 242
- Casey, T. L.** Studies among some of the American Amarinae and Pterostichinae. Mem. Col. Lancaster Pa. 8 1918 (224-393). [*Coleoptera.*] 243
- Casey, T. L.** Observations on the American Pogoninae, including *Trechus*. Mem. Col. Lancaster Pa. 8 1918 (394-412). [*Coleoptera.*] 244
- Caudell, A. N.** On a collection of *Orthoptera* (exclusive of the Locustidae) made in central Peru by N. Iconnicoff and C. Schunke. Insec. inscit. Washington 6 1918 (1-70) pls. i & ii. 245
- Caudell, A. N.** Two new species of the blattid genus *Arenivaga*. Proc. ent. Soc. Washington 20 1918 (154-157). [*Orthoptera.*] 246
- Caudell, A. N.** *Zorotypus hubbardi*, a new species of the Order *Zoraptera* from the United States. Canad. Entom. London Can. 50 1918 (375-381). 247

- Caudell, A. N. Regarding *Diapheromera veliei* Walsh and *Manomera blatchleyi* Caudell. (*Orthoptera*, Phasmidae). Ent. News Philadelphia 29 1918 (258-260). 248
- Caudell, A. N. *vide* McAtee and Caudell.
- Chagnon, G. A preliminary list of the insects of the province of Quebec, part iii, *Coleoptera*. Montreal 1917, Suppl. Rep. Quebec Soc. Prot. plants. 249
- Champion, G. C. The *Coleoptera* of the Falkland islands. Ann. Nat. Hist. London 1 1918 (167-186). 250
- Champion, G. C. Notes on various species of the American genus *Astylus* Cast., with descriptions of their sexual characters. Ann. Nat. Hist. London 2 1918 (337-367). [*Coleoptera.*] 251
- Champion, G. C. Note on the curculionid genus *Sysciophthalmus* Heller, with a description of a new species from Tierra del Fuego. Ent. Mo. Mag. London 54 1918 (35). [*Coleoptera.*] 252
- Champion, G. C. Notes on various South American *Coleoptera* collected by Charles Darwin during the voyage of the Beagle, with descriptions of new genera and species. Ent. Mo. Mag. London 54 1918 (43-54). 253
- Champion, G. C. New and little-known saltatorial Dascillidae. Ent. Mo. Mag. London 54 1918 (93-102 139-149 188-198 219-224 256-273). [*Coleoptera.*] 254
- Champion, G. C. *Atomaria zetterstedtii* Zett. (= *salicicola* Kraatz), a British insect. Ent. Mo. Mag. London 54 1918 (155). [*Coleoptera.*] 255
- Champion, H. G. A note on the habits of a *Melanophila* (Buprestidae) and other indian *Coleoptera*. Ent. Mo. Mag. London 54 1918 (199, 200). 256
- Chapin, E. A. A new *Hydnocera* (*Coleoptera*, Cleridae). Proc. biol. soc. Washington 31 1918 (107). 257
- Chapman, T. A. On the life history of *Lycæna alcon* F. [In Oberthür.] Et. Léop. comp. 16 1918 (277-330) 7 pls. [*Lepidoptera.*] 258
- Chapman, T. A. Further notes on recapitulatory attitudes in *Lepidoptera*. Tr. ent. Soc. London 1917 1918 (338-345). 259
- Chapman, T. A. The egg-laying of *Cladius viminalis* Fallén. Ent. Mo. Mag. London 54 1918 (9-11). [*Hymenoptera.*] 260
- Chapman, T. A. The emergence of *Trichiosoma tibiale* from its cocoon. Ent. Mo. Mag. London 54 1918 (11-13). [*Hymenoptera.*] 261
- Chapman, T. A. Two new European Lycaenids. Ent. Rec. London 30 1918 (1-8 24-28) pls. i-vi. [*Lepidoptera.*] 262
- Chapman, T. A. Prolonged life in a headless ant. Ent. Rec. London 30 1918 (42-44). [*Hymenoptera.*] 263
- Chapman, T. A. The genus *Hesperia*. Ent. Rec. London 30 1918 (145 & 161-165) pls. viii-xii. [*Lepidoptera.*] 264
- Chapman, T. A. Racial and sub-specific names. Ent. Rec. London 30 1918 (168-170). 265
- Chatanay, J. (the late). Matériaux pour servir à l'étude de la faune entomologique de l'Indo-Chine française réunis par M. Vitalis de Salvaza. *Coléoptères*. Tenebrionidae. Bull. Mus. Paris 23 1917 (229-255). 266
- Chobaut, A. Description de trois Ténébrionides nouveaux de la Tunisie méridionale. Bull. Soc. ent. France Paris 1918 1918 (74-76). [*Coleoptera.*] 267
- Chopard, L. Note préliminaire sur la conformation de l'organe copulateur des *Orthoptères*. Bull. Soc. Zool. France 43 1918 (59-67). 268
- Chopard, L. Etudo des Gryllides du Museo civico di storia naturale di Genova. Ann. Soc. ent. France Paris 86 1918 (509-574). [*Orthoptera.*] 269
- Chopard, L. A propos des *Cylind-rachaeta* Kirby, genre de Gryllides endophyte. Bull. Soc. ent. France Paris 1918 1918 (213-216). [*Orthoptera.*] 270
- Chopard, L. Diagnoses d'*Orthoptères* nouveaux. (*Phasgoneuridae*). Bull. Soc. ent. France Paris 1918 1918 (243-245). 271



- Claasen, P. W.** Observations on the life-history and biology of *Agromyza laterella* Zetterstedt. Ann. ent. Soc. Amer. Columbus 11 1918 (9-16) pls. i & ii. [*Diptera*.] 272
- Clainpanain, J.** Le chant du dytique bordé. Bull. Soc. ent. Egypte Le Caire 10 1918 (125-129). [*Coleoptera*.] 273
- Clark, Grace E.** *vide* Cockerell and Clark.
- Cleare, L. D.** Insect homes. Timehri Demerara 5 1918 (41-47). 274
- Cleghorn, Maude L.** First report on the inheritance of visible and invisible characters in silkworms. Proc. zool. Soc. London 1918 1918 (133-146). [*Lepidoptera*.] 275
- Gloss, A.** Neue Formen aus der Familie der Sphingidae. Int. ent. Zeitschr. Guben 11 1917 (154 242). [*Lepidoptera*.] 276
- Cockerell, T. D. A.** The megachilid bees of the Philippine islands. Philipp. J. Sci. Manila D13 1918 (127-144). [*Hymenoptera*.] 277
- Cockerell, T. D. A.** Bees from British Guiana. Bull. Amer. Mus. New York. 38 1918 (685-690). [*Hymenoptera*.] 278
- Cockerell, T. D. A.** Some bees collected in Queensland. Mem. Queensland Mus. Brisbane 6 1918 (112-120). [*Hymenoptera*.] 279
- Cockerell, T. D. A.** New species of North American fossil beetles, cockroaches and tsetse flies. Proc. U.S. nat. Mus. Washington 54 1918 No. 2237 (301-311) pls. liv. & lv. 280
- Cockerell, T. D. A.** Neotropical bees, principally collected by Professor Bruner in Argentina. Trans. Amer. ent. Soc. Philadelphia 44 1918 (25-38). [*Hymenoptera*.] 281
- Cockerell, T. D. A.** Descriptions and records of bees, lxxix. Ann. Nat. Hist. London 1 1918 (158-167). [*Hymenoptera*.] 282
- Cockerell, T. D. A.** Descriptions and records of bees, lxxx. Ann. Nat. Hist. London 2 1918 (384-390). [*Hymenoptera*.] 283
- Cockerell, T. D. A.** Descriptions and records of bees, lxxxi. Ann. Nat. Hist. London 2 1918 (418-425). [*Hymenoptera*.] 284
- Cockerell, T. D. A.** Descriptions and records of bees, lxxxii. Ann. Nat. Hist. London 2 1918 (476-482). [*Hymenoptera*.] 285
- Cockerell, T. D. A.** The bee-genus *Brachynomada*. Canad. Entom. London Can. 50 1918 (26-27). [*Hymenoptera*.] 286
- Cockerell, T. D. A.** Some South American bees. Canad. Entom. London Can. 50 1918 (137-140). [*Hymenoptera*.] 287
- Cockerell, T. D. A.** New halictine bees from Chile. Canad. Entom. London Can. 50 1918 (343-345). [*Hymenoptera*.] 288
- Cockerell, T. D. A.** A group of American halictine bees simulating the old world genus *Nomioides*. Canad. Entom. London Can. 50 1918 (348-349). [*Hymenoptera*.] 289
- Cockerell, T. D. A.** Bees from the Malay peninsula. Entomologist London 51 1918 (103 & 104). [*Hymenoptera*.] 290
- Cockerell, T. D. A.** Some halictine bees. Entomologist London 51 1918 (261 & 262). [*Hymenoptera*.] 291
- Cockerell, T. D. A.** Some bees of the genus *Panurginus*. Ent. News Philadelphia 29 1918 (169-171). [*Hymenoptera*.] 292
- Cockerell, T. D. A.** A remarkable new bee of the genus *Oxaea*. Ent. News Philadelphia 29 1918 (252). [*Hymenoptera*.] 293
- Cockerell, T. D. A. and Clark, Grace E.** A tipulid fly from baltic amber. Canad. Entom. London Can. 50 (115-116). [*Diptera*.] 294
- Codina, A.** Heteróceros de Cataluña. ii Serie. Bol. Soc. Aragon Zaragoza 17 1918 (26-58). [*Lepidoptera*.] 295
- Cogan, E. S.** Entomological education in the United States. S. Africa. Journ. Sc. 1918 Cape Town (345-349). 296
- Cole, F. R.** A new genus of Cyrtidae from South America. Ent. News Philadelphia 29 1918 (61-63). [*Diptera*.] 297
- Collin, J. E.** A short summary of our knowledge of the frit-fly. Ann. Appl. Biol. Cambridge 5 1918 (81-96). [*Diptera*.] 298

- Collin, J. E.** *Hormopeza obliterata* Zetterstedt associated with *Melanophila acuminata* De G. on burning pines in Berkshire. Ent. Mo. Mag. London **54** 1918 (278). [*Diptera.*] **299**
- Comstock, J. H.** The wings of insects—An exposition of the uniform terminology of the wing-veins of insects, and a discussion of the more general characteristics of the wings of the several orders of insects. Comstock Co. New York **1918** (xviii + 430) 10 pls. 427 illustr. **300**
- Comstock, J. H.** Nymphs, naiads and larvae. Ann. Amer. ent. Soc. Columbus **11** 1918 (222-224). **301**
- Cooley, R. A.** President's address. Economic entomology in the service of the nation. J. econ. Ent. Concord **11** 1918 (16-27). **302**
- Cordier, E.** *vide* Péju et Cordier.
- Cornwall, J. W. and Menon, T. K.** A contribution to the study of *Kalazar* (iv). Calcutta **5** 1918 (541-547). [*Heteroptera.*] **303**
- Courvoisier, —.** Ueber *Chrysophanus virgaureae* L. und seine Nebenformen. Deutsche ent. Zeitschr. Iris Berlin **32** 1918 (1-32). **304**
- Cragg, F. W.** The mouth parts of *Ochromyia fejuna*, a predaceous muscid. Indian J. med. Res. Calcutta **5** 1918 (516-522) pl. xlviii. [*Diptera.*] **305**
- Crampton, G. C.** The probable ancestors of insects and myriopods. Canad. Entom. London Can. **50** 1918 (285-288). **306**
- Crampton, G. C.** The genitalia and terminal abdominal structures of male Neuroptera and Mecoptera with notes on the Psocidae, Diptera and Trichoptera. Psyche Boston **25** 1918 (47-59) pls. ii & iii. **307**
- Crampton, G. C.** A phylogenetic study of the terminal abdominal structures and genitalia of male Apterygota, Ephemeroidea, Odonata, Plecoptera, Neuroptera, Orthoptera and their allies. Bull. Brooklyn ent. Soc. **13** 1918 (49-68) pls. i-vii. **308**
- Crampton, G. C.** The thoracic sclerites of immature pterygotan insects, with notes on the relationships indicated. Proc. ent. Soc. Washington **20** 1918 (39-65) pls. v-vii. **309**
- Crampton, G. C.** A phylogenetic study of the terga and wing bases in Embiids, Plecoptera, Dermaptera and *Coleoptera*. Psyche Boston **25** 1918 (4-11) pl. i. **310**
- Crampton, G. C.** The thoracic sclerites of the grasshopper *Dissosteira carolinae*. Ann. ent. Soc. Amer. Columbus **11** 1918 (347-366) pl. xxxii. [*Orthoptera.*] **311**
- Craverio, Augusta.** Contributo allo studio dell'armatura genitale di alcuni Dermateri. Boll. Mus. Torino No. **730** 1918 (1-6). **312**
- Crawford, J. C.** New *Hymenoptera*. Proc. ent. Soc. Washington **19** 1918 (165-172). **313**
- Crawford, W. S.** The jumping plant-lice (family *Psyllidae*) of the Hawaiian islands. A study in insect evolution. Proc. hawaii. ent. Soc. **3** 1918 (430-457). [*Homoptera.*] **314**
- Crawley, W. C.** Some new Australian ants. Ent. Rec. London **30** 1918 (86-92). [*Hymenoptera.*] **315**
- Cresson, E. T.** Studies in the American Ephydriidae, ii, a revision of the species of the genera *Notiphila* and *Dichaeta*. Trans. Amer. ent. Soc. Philadelphia **43** 1917 (27-66) pls. i & ii. [*Diptera.*] **316**
- Cresson, E. T.** Costa-rican *Diptera* collected by Philip P. Calvert, Ph.D., 1909-1910. Paper 3. A report on the Ephydriidae. Trans. Amer. ent. Soc. Philadelphia **44** 1918 (39-68) pl. iii. **317**
- Cresson, E. T.** New North American *Diptera* (Scathophagidae). Ent. News Philadelphia **29** 1918 (133-137). **318**
- Cretschmar, M.** Zur Biologie von *Caligula* (*Saturnia* Schrk.) *boisduvali* Ev. Deutsche ent. Zeitschr. Iris Berlin **31** 1918 (110-121) pls. i & ii. [*Lepidoptera.*] **319**
- Criddle, M.** Light traps as a means of controlling insect pests. Canad. entom. London Can. **50** 1918 (73-75). **320**
- Criddle, R.** The egg-laying habits of the Acrididae. Canad. entom. London Can. **50** 1918 (145-151). [*Orthoptera.*] **321**

- Cromwell, H.** Further experiments with the mutant, scarlet, from *Drosophila repleta*. Proc. Indiana Ac. Indianapolis 1917 1918 (287-293). [*Diptera.*] 322
- Crosby, C. R. and Leonard, M. D.** Manual of vegetable-garden insects. New York 1918 (391 pp.) 323
- Cuénot, J.** Note rectificative à propos de la géonomie de *Cyrtaspis scutata* (*Orthoptera*, Locusts) Arch. Zool. Exp. 57 Notes 1918 (12 & 13). 324
- Cullen, Anna M.** Rectal tracheation of *Argia putrida* larva. Proc. Acad. Philadelphia 70 1918 (75-80). [*Paraneuroptera.*] 325
- Calot, J.** Une nouvelle espèce de *Larentia*. Bull. Soc. ent. France Paris 1918 1918 (62-65). [*Lepidoptera.*] 326
- Cummings, B. F.** The bed-bug, its habits and life-history and how to deal with it. 2nd ed. London Brit. Mus. 1918 (20 pp.). [*Heteroptera.*] 327
- Curtis, W. P.** Phenological report on first appearances of birds, insects, etc. and first flowering of plants in Dorset for 1916. Proc. Dorset N.H. Club 38 1918 (Insecta 206-226). 328
- Curtis, W. P.** Phenological report of first appearances of birds, insects, etc., and first flowering of plants in Dorset during 1917. Proc. Dorset N.H. Club Dorchester 39 1918 (85-96). 329
- Curtis, W. P.** Some account of Bridport and its neighbourhood from the point of view of the *Lepidopterist*, particularly having regard to the geological distribution of the species. Ent. Rec. London 30 1918 (29-36 44-50). 330
- Cushman, R. A.** Two new Chalcids from the seeds of *Amelanchier*. P. ent. Soc. Washington 19 1918 (79-86) pl. x. [*Hymenoptera.*] 331
- Cushman, R. A.** Notes on the biology of *Schizonotus sieboldii* Ratz. Proc. ent. Soc. Washington 19 1918 (128-129) pl. xiv. [*Hymenoptera.*] 332
- Cushman, R. A.** A much described ichneumonid and its systematic position Proc. ent. Soc. Washington 19 1918 (162-165). [*Hymenoptera.*] 333
- Cushman, R. A.** The correct names for some of our common ichneumonid parasites. Proc. ent. Soc. Washington 20 1918 (9-12). [*Hymenoptera.*] 334
- Cushman, R. A.** A convenient method of handling large numbers of individuals in life-history studies of insects. Proc. ent. Soc. Washington 20 1918 (112-114). 335
- Cushman, R. A.** Notes on the cocoon spinning habits of two species of braconids. Proc. ent. Soc. Washington 20 1918 (133-136). [*Hymenoptera.*] 336
- Cutler, D. W.** Natural and artificial parthenogenesis in animals. Mem. Proc. Manchester Lit. Phil. Soc. 64 1918 (1-42). 337
- Czižek, K.** Ueber die im weiblichen Geschlechte ungeflügelte und schwingerlose Dipterengattung *Epidapus* Hal. Wiener. ent. Zeit. Wien 34 1915 (365-375). [*Diptera.*] 338
- Czižek, K.** Bemerkungen zu meiner Abhandlung "ueber die im weiblichen Geschlechte ungeflügelte und schwingerlose Dipterengattung *Epidapus* Hal." Wiener ent. Zeit. Wien 36 1917 (283-291). 339
- Czikek, K.** Eine für das nördliche Mitteleuropa neue Staphylimidenart aus den mährischen Höhlen (*Lesteva fontinalis*) Kiesw. Zeitschr. wiss. Insbiol. Berlin 14 1918 (65 & 66). [*Coleoptera.*] 340
- Dalla Torre, K. W. von.** *Lepidopterorum catalogus Pars 20* Thyrididae. Berlin 1914 (55 pp.) 341
- Das, B.** [the late]. The Aphididae of Lahore. Edited with notes and an introduction by P. van der Goot. Mem. Ind. Mus. Calcutta 6 No. 4 1918 (135-274) pls. xiii-xxx. [*Homoptera.*] 342
- Davey, W. P.** The effect of X-rays on the length of life of *Tribolium confusum*. Journ. Exper. Zool. Philadelphia 22 1917 (573-592). [*Coleoptera.*] 343
- Davidson, J.** Some practical methods adopted for the control of flies in the Egyptian campaign. Bull. ent. Res. London 8 1918 (297-309). [*Diptera.*] 344

- Davidson, W. M. Alternation of hosts in economic aphids. *J. econ. Ent. Concord* 11 1918 (289-293). [*Homoptera.*] 345
- Davis, J. J. The relation of agronomy to entomology: a practical illustration. *Canad. Entom. London Can.* 50 1918 (253-255). 346
- Davis, W. T. Mississippi Cicadas, with a key to the species of the southeastern United States. *J. New York ent. Soc.* 26 1918 (141-155) pls. vii & viii. [*Homoptera.*] 347
- Day, F. H. Westmorland *Coleoptera*. *Naturalist London* 1918 1918 (189-191 224-226 285-288 389-391). 348
- Decrock, E. *vide* Vayssièrè and Decrock.
- Delahon, P. Nachträge zu Schilsky's systematischem Verzeichnis der Käfer Deutschlands von 1909 mit besonderer Berücksichtigung der Formen der Mark Brandenburg, sowie einige sonstige Bemerkungen über Käfer aus der Mark. *Deutsche ent. Zeitschr. Berlin* 1914 1914 (620-623). 349
- De Long, D. M. The occurrence of a probable gynandromorph in the *Homoptera*. *Ohio Nat. Columbus* 18 1918 (226-228). 350
- De Long, D. M. A new species of Cicadellidae from Wisconsin. *Ohio Nat. Columbus* 18 1918 (228). [*Homoptera.*] 351
- De Long, D. M. Additional records of Tennessee Cicadellidae. *Ohio Nat. Columbus* 18 1918 (233-242). [*Homoptera.*] 352
- Demaison, L. Aberration de *Lépidoptères* des genres *Saturnia* et *Ennomos*. *Bull. Soc. ent. France Paris* 1918 1918 (233-234). 353
- Demoli, R. Der Flug der Insekten und der Vögel. *Jena* 1918 (67 pp.) 5 pls. 354
- Demoll, R. Die bannende Wirkung künstlicher Lichtquellen auf Insekten. *Biol. Centralbl. Leipzig* 37 1917 (503-506). 355
- Demoll, R. Die Sinnesorgane der Arthropoden, ihr Bau und ihre Funktion. *Braunschweig* 1917 (243 pp.) 356
- Demoll, K. Die Auffassung des Fliegens der Käfer. Eine zoologische Irrlehre. *Zool. Anz. Leipzig* 49 1918 (285-286). [*Coleoptera.*] 357
- Depoli, G. Neue Käferformen aus dem Liburnischen und Istrianer Karst. *Wiener ent. Zeit.* Wien 34 1915 (109, 110). [*Coleoptera.*] 358
- Depoli, G. Neue Käferformen aus dem Liburnischen Karst. *Wiener ent. Zeit.* Wien 36 1917 (190-192). [*Coleoptera.*] 359
- Desbordes, H. Description d'une nouvelle espèce de *Pachylopus* d'Algérie. *Bull. Soc. ent. France Paris* 1918 1918 (58). [*Coleoptera.*] 360
- Desneux, J. *Isoptera*. *Cat. Coll. Selys. Fasc. 3* 3 Bruxelles 1915 (1-10). 361
- Dewitz, J. Ueber künstliche Aufhebung des Spinnens der Arthropoden. *Zool. Anz. Leipzig* 50 1918 (27-30). 362
- Dewitz, J. Ueber hämolysine (aphidolysine) bei Pflanzenläusen. *Zool. Anz.* 50 1918 (33-36). [*Homoptera.*] 363
- Dickerson, E. L. and Weiss, H. B. *Popilia japonica* Newm., a recently introduced Japanese pest. *Canad. Entom. London Can.* 50 1918 (217-221). [*Coleoptera.*] 364
- Dickerson, E. L. and Weiss, H. B. *Corythuca spinulosa* Gibson, a new lacebug on wild cherry. *Ent. News Philadelphia* 29 1918 (121-125) pl. vii. [*Heteroptera.*] 365
- Dietz, W. G. A revision of the North American species of the tipulid genus *Pachyrhina* Macquart, with descriptions of new species. *Trans. amer. ent. Soc. Philadelphia* 44 1918 (105-140) pls. iv-vii. [*Diptera.*] 366
- Distant, W. L. The fauna of British India, including Ceylon and Burma. *Rhynchota vol. 7. Homoptera: appendix Heteroptera: addenda.* London 1918 (viii + 210) 90 figs. 367
- Distant, W. L. The *Homoptera* of Indo-China. *Ann. Nat. Hist. London* 1 1918 (196-200). 368
- Distant, W. L. Contributions to a further knowledge of the rhynchotal family Lygaeidae. *Ann. Nat. Hist. London*, 1 1918 (416-423) & 2 (173-178 257-270 486-492) [*Heteroptera.*] 369

- Distant, W. L. Descriptions of some Capsidac from the Belgian Congo. Bull. ent. Res. London 9 1918 (71-73). [*Heteroptera.*] 370
- Distant, W. L. Description of a new species of *Heteroptera* from South Africa. Entomologist London 51 1918 (50). 371
- Distant, W. L. The *Heteroptera* of Indo-China. Fam. Lygacidae. Entomologist London 51 1918 (241-244). 372
- Dixey, F. A. On mimicry in certain butterflies of New Guinea. Tr. ent. Soc. London 1918 1918 (118-129). [*Lepidoptera.*] 373
- Dixey, F. A. The *charina* group of *Pinacopteryx*. Tr. ent. Soc. London 1918 1918 (191-208). [*Lepidoptera.*] 374
- Dixey, F. A. Nuptial flight of butterflies. Pr. ent. Soc. London 1917 1918 (li-iv). [*Lepidoptera.*] 375
- Dixey, F. A. *vide* Eltringham.
- Dobson, R. J. A European termite *Reticulotermes lucifugus* Rossi in the vicinity of Boston. Psyche Boston 25 1918 (99-101). [*Isoptera.*] 376
- Dod, F. H. W. Notes on Barnes and McDunnough's check-list of *Lepidoptera* of boreal America. Canad. Entom. London Can. 50 1918 (7-16 etc.). 377
- Dodero, A. *Coléoptères* endogés de la Catalogne. Butll. Inst. Catalana Barcelona 1918 (103-110). 378
- Doflein, F. Die Ameisenlöwe. Eine biologische, tierspsychologische und reflexbiologische Untersuchung. Jena 1916 (138 pp.) 10 pls. [*Cf.* Zeitschr. wiss. Insbiol. 14 p 312.] [*Neuroptera.*] 379
- Dognin, P. Hétérocères nouveaux de l'Amerique du sud. Fasc. 14. Rennes 1918 (1-27). [*Lepidoptera.*] 380
- Dolley, W. L. (Jr.). The rate of locomotion in *Vanessa antiopa* in intermittent light and in continuous light of different illuminations, and its bearing on the "continuous action theory" of orientation. J. Exper. Zool. Philadelphia 23 1917 (507-518). [*Lepidoptera.*] 381
- Donisthorpe, H. *Caenocara subglabosa* a species of *Coleoptera* new to Britain. Ent. Mo. Mag. London 54 1918 (55) 382
- Donisthorpe, H. Myrmecophilous notes for 1917. Ent. Rec. London 30 1918 (21-24). [*Hymenoptera.*] 383
- Donisthorpe, H. *Coleoptera* at Barton Mills. Ent. Rec. London 30 1918 (28-29). 384
- Donisthorpe, H. On the subspecies and aberrations of *Coccinella 11-punctata* L. Ent. Rec. London 30 1918 (121-128), pl. vii. [*Coleoptera.*] 385
- Donisthorpe, H. A list of ants from Mesopotamia; with a description of a new species and a new variety. Ent. Rec. London 30 1918 (165-167). [*Hymenoptera.*] 386
- Dove, W. E. Some biological and control studies of *Gastrophilus haemorrhoidalis* and other bots of horses. Bull. U.S. Dep. Agric. Washington 597 1918 (1-51) 5 pls. [*Diptera.*] 387
- Dozier, H. L. An annotated list of Gainesville, Florida, *Coleoptera*. Ent. News Philadelphia 29 1918 (295-298 331-355 370-374). 388
- Drabble, E. and Drabble, Hilda. Notes on the *Diptera* of Derbyshire, ii. Entomologist London 51 1918 (5-9). 389
- Drake, C. J. Two new Tingids from the West Indies, Ohio Nat. Columbus 18 1918 (174-176). [*Heteroptera.*] 390
- Drake, C. J. The North American species of *Teleonemia* occurring north of Mexico. Ohio Nat. Columbus 18 1918 (323-331). [*Heteroptera.*] 391
- Drake, C. J. A new corn insect from California. J. econ. Ent. Concord 11 1918 (385). [*Heteroptera.*] 392
- Draudt, M. *Nolinæ* in Seitz Grossschmetterl. Fauna americana 6 (234-240). [*Lepidoptera.*] 393
- Du Buysson, H. Description d'un Elateride nouveau pour la faune française. Miscell. ent., Uzès 24 1918 (27). [*Coleoptera.*] 394
- Du Buysson, H. Rectification synonymique sur *Trachys goberti* Goz. et observations sur quelques autres espèces. Miscell. ent. Uzès 24 1918 (28-31). [*Coleoptera.*] 395

- Ducke, A.** Enumeração dos *Hymenopteros* colligidos pela comissão e revisão das especies de abelhas do Brazil. Commiss'. Linhas telegraphicas Matto Grosso ao Amazonas. Publ. 35 Annex 5 1916 (1-175) 24 figs. 396
- Dudgeon, G. C.** The pink boll-worm and the cotton crop of Egypt. Bull. imp. Inst. London 16 1918 (362-370). [*Lepidoptera.*] 397
- Dürken, B.** Über die Wirkung verschiedenfarbiger Umgebung auf die Variation von Schmetterlingspuppen. Versuche an *Pieris brassicae*. Zeitschr. wiss. Zool. Leipzig 116 1916 (587-626) pls. xxii-xxiv. [*Lepidoptera.*] 398
- Dürken, B.** *vide* Willers and Dürken.
- Dukinfield-Jones, E.** *Molippa simillima* D.-Jones: a correction. Tr. ent. Soc. London 1918 1918 (117) pls. iii & iv. [*Lepidoptera.*] 399
- Dunn, L. H.** A new mosquito (*Aedes whitmorei*) from Colombia. Proc. ent. Soc. Washington 20 1918 (128-130) [*Diptera.*] 400
- Dunn, P. S.** The lake mosquito, *Mansonia titillans* Walk., and its host plant, *Pistia stratiotes* Linn., in the canal zone, Panama. Ent. News Philadelphia 29 1918 (260-269 288-295) [*Diptera.*] 401
- Du Porte, E. M.** On the structure and function of the proventriculus of *Gryllus pennsylvanicus* Burm. Psycho Boston 25 1918 (117-121) pls. v & vi. [*Orthoptera.*] 402
- Durrant, J. H.** Comparison of Hübner's Tentamen and the Verzeichniss. Ent. Rec. London 30 1918 Suppl. (1-32). [*Lepidoptera.*] 403
- Dusham, E. H.** The dorsal pygidial glands of the female cockroach (*Blattella germanica*). Canad. Entom. London Can. 50 1918 (278-280) pl. vi. [*Orthoptera.*] 404
- Dusham, E. H.** The wax glands of the cockroach (*Blatta germanica*). J. Morphol. Philadelphia 31 1918 (563-574) 2 pls. [*Orthoptera.*] 405
- Dusmet y Alonso, J. M.** Algunos Apidos nuevos ó interesantes del Museo de Madrid. Trab. Mus. nac. Madrid zool., 22 1915 (18 pp.). [*Hymenoptera.*] 406
- Dyar, H. G.** Descriptions of new *Lepidoptera* from Mexico. Proc. U.S. nat. Mus. Washington 54 1918 No. 2239 (335-372). 407
- Dyar, H. G.** The male genitalia of *Aedes* as indicative of natural affinities. Insec. inscit. Washington 6 1918 (71-86). [*Diptera.*] 408
- Dyar, H. G.** A revision of the American species of *Culex* on the male genitalia. Insec. inscit. Washington 6 1918 (86-111) pls. iii & iv. [*Diptera.*] 409
- Dyar, H. G.** A note on the American species of *Mansonia*. Insec. inscit. Washington 8 1918 (112-115). [*Diptera.*] 410
- Dyar, H. G.** New American mosquitoes. Insec. inscit. Washington 6 1918 (120-129). [*Diptera.*] 411
- Dyar, H. G.** New moths from Mexico and Cuba. Insec. inscit. Washington 6 1918 (130-140). [*Lepidoptera.*] 412
- Dyar, H. G.** Notes on American *Anopheles*. Insec. inscit. Washington 6 1918 (141-157). [*Diptera.*] 413
- Dyar, H. G. and Barret, H. P.** Descriptions of hitherto unknown larvae of *Culex*. Insec. inscit. Washington 6 1918 (119-120). [*Diptera.*] 414
- Dyar, H. G. and Knab, F.** Bromeli-colous *Anopheles*—a correction. Insec. inscit. Washington 6 1918 (140 & 141). [*Diptera.*] 415
- Eckstein, F.** Die Ueberwinterung unserer Steckmücken. Biol. Zentralbl. Leipzig 38 1918 (530-536). [*Diptera.*] 416
- Edwards, F. W.** Two new *Diptera* from Trinidad. Ann. Nat. Hist. London 1 1918 (424-426). 417
- Edwards, J.** On the British species of *Notonecta*. Ent. Mo. Mag. London 54 1918 (56-59). [*Heteroptera.*] 418
- Eeche, R. van.** Systematische catalogus der Rhopalocera Neerlandica. [Systematischer Katalog der Rhopalocera Neerlandica.] Leiden, Zool. Meded. 1 1915 (33-70). [*Lepidoptera.*] 419
- Eeche, R. van.** Studies on Indo-Australian *Lepidoptera*. III. Some Rhopalocera and Heterocera from Simalur, Pulu Lasia, Pulu Babi and Sumatra. Leiden, Zool. Med. 4 1918 (70-102) 2 pls. 3 textfig. 420

- Effatoun, H. C.** Notes on the strawberry leaf-beetle (*Galerucella tenella*, Linn.). Ann. appl. biol. Cambridge 4 1918 (206-210). [*Coleoptera.*] 421
- Ege, R.** Begrebet Instinkt belyst ved Forsøg over Myrernes Liv og Faerden. The abstraction of instinct illustrated by experiments of the life and habits of the ants. København, Naturens Verden 2 1918 (20-37) 6 figg. [*Hymenoptera.*] 422
- Eltringham, H.** On a collection of butterflies taken in East Africa by Mr. W. A. Lamborn, with notes on the Pierinae by Dr. F. A. Dixey and description of a new form of *P. gardanus* by Prof. E. B. Poulton. Tr. ent. Soc. London 1917 1918 (322-337). [*Lepidoptera.*] 423
- Ely, C. R.** Recent entomological chemistry and some notes concerning the food of insects. Proc. ent. Soc. Washington 20 1918 (12-18). 424
- Ely, C. R.** A revision of the North-American Gracilariidae from the standpoint of venation. P. ent. Soc. Washington 19 1918 (29-77) pls. vi-ix. [*Lepidoptera.*] 425
- Emery, C.** Können weisellose Ameisenvölker die fehlende Mutter aus eigenen Mitteln ersetzen? Biol. Centralbl. Leipzig 35 1915 (252-254). [*Hymenoptera.*] 426
- Enderlein, G.** Copcognatha. Cat. Coll. Sols Fasc. 3 2 Bruxelles 1915 1-55) pls. i-v. [*Psocoptera.*] 427
- Enderlein, G.** Psyllidologia iv. Zool. Anz. Leipzig 49 1918 (344-352). [*Homoptera.*] 428
- Enderlein, G.** *Hymenoptera* ii: Archihymenidae. Beitr. Land.-Sudwassercf. Sudwestafrikas 1 Hamburg 1918 (195-199) pl. v. 429
- Enderlein, G.** *Hymenoptera* iv: Ichneumonidae. Beitr. Land.-Süswasserfi-Deutsch. Sudwestafrikas Hamburg 1918 (211-233). 430
- Enderlein, G.** Dipterologische Studien. xv. *Crepidohamma* eine neue Drosophilidengattung aus Brasilien. Wiener ent. Zeit. Wien 34 1915 (185 186). [*Diptera.*] 431
- Engel, E. O.** Beiträge zur Kenntnis einiger *Dipterenlarven*. Mitt. Münchn. ent. Ges. 7 1916 (68-76) pl. 432
- Engelhart, Chr.** Oversigt over Entomologisk Forenings Historie 1868-1918. History of the Danish Entomological Society 1868-1918. København, Ent. Medd. 12 1918 (1-44) 15 figs. 433
- Enslin, E.** Beiträge zur Kenntnis der Tenthredinoidea 8. Abnorme Blattwespengallen. Ent. Mitt. Berlin 7 1918 (77-80). [*Hymenoptera.*] 434
- Esben-Petersen, —.** Australian *Neuroptera*. Part iii. P. Linn. Soc. N.S.W. Sydney 42 1917 (203-219) pls. x-xv. 435
- Esben-Petersen, P.** Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia 1910-1913. 18. *Neuroptera* and *Mecoptera*. Ark. Zool. Stockholm 11 No. 26 1918 (1-37) pls. textfigs. 436
- Esben-Petersen, [P.] J. C. Nielsen** [Danish entomologist 1881-1918.] København Flora og Fauna 1918 (113-114) portr. 437
- Escalera, M. M. de la.** Revisión de las especies del gen. *Cathormiocerus* Sch. de la península ibérica y Marruecos. Trab. Mus. Ci. nat. Madrid Zool. 38 1918 (1-64). [*Coleoptera.*] 438
- Essig, E. O. and Kuwana, S. I.** Some Japanese Aphididae. Proc. California Ac. Sci. San Francisco 8 1918 (35-112) text-figs. 1-40. [*Homoptera.*] 439
- Evans, W.** Insects and other terrestrial invertebrates from the Bass rock. Scott. Natural. Edinburgh 1918 1918 (259-265). 440
- Everts, Ed.** Nieuwe vondsten voor de Nederlandsche *Coleopteren-fauna*, xiv. [Neue Funde für die niederländische Fauna, xiv.] 's Gravenhage Ber. Ned. Ent. Ver. 5 1918 (37). 441
- Everts, Ed.** Nieuwe vondsten voor de Nederlandsche *Coleopteren-fauna* xv. [Neue Funde für die niederländische Coleopterenfauna xv.] 's Gravenhage Ber. Ned. Ent. Ver. 5 1918 (43-47). 442

- Everts, Ed. Nieuwe vondsten voor de Nederlandsche Coleopteren-fauna, xvi. [Neue Funde für die niederländische *Coleopterenfauna*, xvi.] 's Gravenhage Ber. Ned. Ent. Ver. 5 1918 (64-68). 443
- Everts, Ed. J. G. Nieuwe vondsten voor de Nederlandsche Coleopteren-fauna xvii. [Neue Funde für die niederländische *Coleopterenfauna* xvii.] 's Gravenhage Ber. Ned. Ent. Ver. 5 1918 (69-74). 444
- Everts, Ed. Nieuwe vondsten voor de Nederlandsche *Coleopterenfauna* xviii, xix. [Neue Funde für die niederländische *Coleopterenfauna*.] 's Gravenhage Ber. Ned. Ent. Ver. 5 1918 (82-86 91-97). 445
- Fabricius, G. Tre för Finland nya fjärlar. [Drei für Finland neue Schmetterlinge.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (179-180). [Deutsches Ref. 291.] [*Lepidoptera*.] 446
- Fabritius, R. För Finland nya *Microlepidoptera*. [Für Finland neue *Microlepidoptera*.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (24). [Deutsches Ref. 165.] 447
- Fagan, Margaret M. The uses of insect galls. Amer. Natural. 52 1918 (155-176). 448
- Fall, H. C. Short studies in the Malachiidae. Trans. Amer. ent. Soc. Philadelphia 43 1917 (67-88). [*Coleoptera*.] 449
- Fall, H. C. New North-American species of *Apion*. J. N. York ent. Soc. 26 1918 (218-223). [*Coleoptera*.] 450
- Fawcett, J. M. Notes on a collection of Heterocera made by M. W. Feather in British East Africa 1911-1913. Proc. Zool. Soc. London 1917 1918 (233-250) pl. [*Lepidoptera*.] 451
- Federley, H. Chromosomenstudien an Mischlingen iii. Die Spermatogenese des Bastards *Chaerocampa porcellus* ♀ × *elpenor* ♂. Helsingfors Öfvers. F. Vet. Soc. 58 A No. 12 1916 (1-17) 4 fig. [*Lepidoptera*.] 452
- Federley, H. Die Vererbung des Raupendimorphismus von *Chaerocampa elpenor* L. Helsingfors Öfvers. F. Vet. Soc. 58 A No. 17 1916 (1-13). [*Lepidoptera*.] 453
- Federley, H. Anmärkningsvärda fynd af *Lepidoptera*. [Bemerkenswerte Funde von *Lepidopteren*.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 43 1917 (3). [Deutsches Ref. 291.] 454
- Federley, H. Über das Vermögen der Schmetterlingsweibchen ihre Männchen anzulocken. Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (7-9). [*Lepidoptera*.] 455
- Felt, E. P. New Philippine gall midges, with a key to the *Itonididae*. Philipp J. Sci. Manila D13 1918 (281-325) pl. [*Diptera*.] 456
- Felt, E. P. Notes and descriptions of *Itonididae* in the collections of the American museum of natural history. Bull. Amer. Mus. New York 38 1918 (179-182). [*Diptera*.] 457
- Felt, E. R. 33rd Report of the State entomologist on injurious and other insects of the State of New York, 1917. Bull. New York State Mus. Albany No. 202 1918 (7-240) 12 pls. 458
- Felt, E. P. A study of gall midges, vi. Bull. New York State Mus. Albany No. 202 1918 (76-205) pls. vi-xii. [*Diptera*.] 459
- Felt, E. P. New gall midges (*Diptera*). J. econ. Ent. Concord 11 1918 (380-384). 460
- Fenton, F. A. The parasites of leaf-hoppers. With special reference to the biology of the Anteoninae. Ohio Nat. Columbus 18 1918 (177-212) part 2 (243-278) pl. i, part 3 (285-291) pls. ii-vi. 461
- Fernández, A. *Lepidópteros* nuevos de la fauna española. Bol. Soc. ent. España Zaragoza 1 1918 (158-162). 462
- Ferris, G. F. The California species of mealy bugs. Leland Stanford, jun. Univ. Publ. 1918 (1-78) 3 pls. [*Homoptera*.] 463
- Ferris, G. F. The alleged occurrence of a seasonal dimorphism in the females of certain species of mealy bugs. Ent. News Philadelphia 29 1918 (349-352). [*Homoptera*.] 464
- Ferris, G. F. A note on the occurrence of abdominal spiracles in the Coccidae. Canad. Entom. London Can. 50 1918 (85-88). [*Homoptera*.] 465



- Ferris, G. F. An apparently new species of *Leptinillus*. *Canad. Entom. London Can.* 50 1918 (125-127). [*Coleoptera.*] 466
- Ferris, G. F. Notes on Coccidae, ii. *Canad. Entom. London Can.* 50 1918 (323-332). [*Homoptera.*] 467
- Filho, O. da Fonseca *vide* Lutz, Araujo and Filho.
- Fischer, E. Berichtigungen zu O. Prochnow's analytischer Methode bei den Temperaturexperimenten mit Schmetterlingen. *Biol. Centralbl. Leipzig* 35 1915 (145-153). [*Lepidoptera.*] 468
- Fisher, W. S. A new species of longicorn beetle infesting cowpeas from Mexico. *Proc. ent. Soc. Washington* 19 1918 (173). [*Coleoptera.*] 469
- Fisher, W. S. A new species of *Agrilus* from Florida (*Coleoptera*, Buprestidae). *Proc. ent. Soc. Washington* 20 1918 (67 and 68). 470
- Fisher, W. S. A new *Hoplia* from Florida. *Canad. Entom. London Can.* 50 1918 (140-141). [*Coleoptera.*] 471
- Fitzsimons, F. W. The house fly a carrier of disease and death. *Port Elizabeth* 1918? (16 pp.). [*Diptera.*] 472
- Fleischer, A. Eine neue *Phyllotreta* aus Kroatien. *Wiener ent. Zeit. Wien* 36 1917 (17). [*Coleoptera.*] 478
- Fleischer, A. Bemerkenswerte Aberrationen einiger *Coleopteren*-Arten. *Wiener ent. Zeit. Wien* 36 1917 (121 and 122). 474
- Fleischer, A. Biologische Notizen ueber Mährische Käfer. *Wiener ent. Zeit. Wien* 36 1917 (263-266). [*Coleoptera.*] 475
- Fleischer, A. Eine neue *Pedilus*art. *Wiener ent. Zeit. Wien* 37 1918 (200). [*Coleoptera.*] 476
- Fleischer, A. *Attalus chinensis* n.sp. *Wiener ent. zeit. Wien* 37 1918 (211). [*Coleoptera.*] 477
- Fletcher, T. B. Report of the imperial entomologist 1917-1918. *Sci. Rep. Agric. Inst. Pusa* 1917-18 1918 (84-116) 20 pls. 478
- Flentiaux, E. *Coléoptères* Elatérides indo-chinois de la collection du Muséum d'histoire naturelle de Paris, catalogue et description des espèces nouvelles. *Bull. Mus. Paris* 24 1918 (205-236). 479
- Flentiaux, E. Collections recueillies par M. Maurice de Rothschild dans l'Afrique orientale. *Coléoptères* Elatérides. Descriptions des espèces nouvelles. *Bull. Mus. Paris* 24 1918 (237-241). 480
- Flentiaux, E. Nouvelles contributions à la faune de l'Indo-china française. [*Coleoptera serricornia.*] *Ann. Soc. ent. France Paris* 87 1918 (175-278). 481
- Flentiaux, E. Espèces nouvelles d'Elatéridae rapportées d'Afrique orientale par MM. Alluaud et Jeannel. *Bull. Soc. ent. France Paris* 1918 1918 (138-141). [*Coleoptera.*] 482
- Flentiaux, E. Elatérides nouveaux du voyage de M. G. Babault en Afrique orientale. *Bull. Soc. ent. France Paris* 1918 (167-170). [*Coleoptera.*] 483
- Flentiaux, E. Genre nouveau d'Elatéridae de l'Afrique équatoriale. *Bull. Soc. ent. France Paris* 1918 1918 (194). [*Coleoptera.*] 484
- Folsom, J. W. A new *Isotoma* of the snow fauna. *Canad. Entom. London Can.* 50 1918 (291-292) pl. vii. [*Collembola.*] 485
- Forel, A. Die Ameisen der Schweiz analytisch bearbeitet. Dübendorf 1915. [Fauna insectorum Helvetiae. Mitt. schweiz. ent. Ges. xii Beilage.] (1-74). [*Hymenoptera.*] 486
- Forel, A. Etudes myrmécologiques en 1917. *Bull. Soc. Vaud. Lausanne* 51 1918 (717-727). [*Hymenoptera.*] 487
- Forel, A. Zur Abwehr. *Biol. Zentralbl. Leipzig* 38 1918 (355 and 356). [*Hymenoptera.*] 488
- Forel, A. Quelques fourmis de Madagascar récoltées par le Dr. Friederichs et quelques remarques sur d'autres fourmis. *Bull. Soc. Vaud. Lausanne* 52 1918 (151-156). [*Hymenoptera.*] 489
- Forel, A. Einige amerikanische Ameisen. *Deutsche ent. Zeitschr. Berlin* 1914 1914 (615-620). [*Hymenoptera.*] 490

- Forsius, R. Über einige paläarktische *Tenthredinini*. Helsingfors Medd. Soc. Fauna Fl. Fenn. 44 1918 (141-153). [*Hymenoptera.*] 491
- Foulquier, G. Observations sur le *Carcharodus bacticus* Rambur dans les Bouches-du-Rhone et aperçu sur la faune lépidoptérologique des environs de Rognac. [In Oberthür.] Et. Lép. comp. 16 1918 (255-265). 492
- Fox, H. On a long-winged or caudate phase of *Neotettix proavus* Rehn and Hebard. Ent. News Philadelphia 29 1918 (347-349). [*Orthoptera.*] 493
- Fracker, S. B. The Alydinae of the United States. Ann. ent. Soc. Amer. Columbus 11 1918 (255-280) pls. xxiv-xxv. [*Heteroptera.*] 494
- Fraser, F. C. Indian dragonflies. J. Bombay Soc. Bombay 25 1918 (454-471 608-627) 26 1918 (141-171) 1919 (488-517 734-744). [*Paraneuroptera.*] 495
- Fraser, F. C. Two new Indian dragonflies. J. Bombay Soc. Bombay 25 1918 (383-385). [*Paraneuroptera.*] 496
- Frers, A. G. Metamorfosis de *Trogoderma pectinicornis* (Coleoptero Derméstido. Physis Buenos Aires 4 1918 (90-93). 497
- Frers, A. G. Metamorfosis de la *Lema bilineata* Germ. Physis Buenos Aires 4 1918 (336-338). [*Coleoptera.*] 498
- Frers, A. G. Nidificación y metamorfosis del *Pachodynerus argentinus* Sauss. Physis Buenos Aires 4 1918 (322-325). [*Hymenoptera.*] 499
- Frey, R. Ein Beitrag zur Kenntnis der *Dipterenfauna* Ceylons. Helsingfors Öfers. F. Vet. Soc. 59 A No. 20 1917 (1-36). 500
- Frey, R. Entomologiska anteckningar från norra Savolaks. [Entomologische Notizen aus Nord-Savolaks.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 43 1917 (84-97). [Deutsches Ref. 288.] 501
- Frey, R. *Zanclognatha tarsipulmalis* Hübn. från Finland. [*Zanclognatha tarsipulmalis* Hübn. aus Finland.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 43 1917 (171-172). [Deutsches Ref. 291.] [*Lepidoptera.*] 502
- Frey, R. Notiser om finländska *Orthoptera*. [Notizen über finländische Orthopteren.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 44 1918 (10-13). [Deutsches Ref. 255.] 503
- Frey, R. Entomologiska exkursioner i Åbo-trakten. [Entomologische Exkursionen in der Gegend von Åbo.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 44 1918 (43-44). [Deutsches Ref. 251.] 504
- Frey, R. *Baßanflugan* (*Drosophila ampelophila* Loew) anträffad i Finland. [*Drosophila ampelophila* Loew in Finland gefunden.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 44 1918 (120-122). [Deutsches Ref. 253.] [*Diptera.*] 505
- Frey, R. En i Finland anträffad myrmecofil *Dipter*, *Forcipomyia myrmecophilus* Egger. [*Forcipomyia myrmecophilus* Egger aus Finland.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 44 1918 (216-217). [Deutsches Ref. 253.] 506
- Friederichs, K. Beobachtungen ueber einige solitäre Wespen in Madagaskar. Mitt. Zool. Mus Berlin 9 1918 (27-50) pls. ii and iii. [*Hymenoptera.*] 507
- Friese, H. *Hymenoptera* v. Apidae. Beitr. Land.-Süßwasserf. Deutsch. Sudwestafrik. Hamburg 1 1918 (415-452) pl. viii. 508
- Friese, H. Einige neue *Nomia*-Arten aus Afrika. Deutsche ent. Zeitschr. Berlin 1914 1914 (630-634). [*Hymenoptera.*] 509
- Friese, H. Ueber den Nestbau des *Anthidium strigatum* Pz. Mitt. zool. Mus. Berlin 8 1915 (25-30). [*Hymenoptera.*] 510
- Frisch, K. v. Beitrag zur Kenntnis sozialer Instinkte bei solitären Bienen. Biol. Zentrabl. Leipzig 38 1918 (183-187). [*Hymenoptera.*] 511
- Frisendahl, A. *Coleoptera* från Yämtland. Ent. Tidskr. Uppsala 39 1918 (202-205). 512
- Frison, T. H. Additional notes on the life-history of *Bombus auricomus* Robt. Ann. ent. Soc. Amer. Columbus 11 1918 (43-48) pl. iii. [*Hymenoptera.*] 513

- Froggatt, J. L. A study of the external breathing-apparatus of the larvae of some muscoid flies. P. Linn. Soc. N.S. Wales Sydney 43 1918 (658-667) pl. lxx. [*Diptera.*] 514
- Froggatt, W. W. Notes on Australian sawflies (Tenthredinidae). P. Linn. Soc. N.S.W. Sydney 43 1918 (668-672). [*Hymenoptera.*] 515
- Froggatt, W. W. Notes on snow flies with the description of a new species (*Aleurodes albifloccosa*). Agric. Gaz. N.S.W. Sydney 29 1918 (434-436) pl. [*Homoptera.*] 516
- Froggatt, W. W. The apple-leaf Jassid. Agric. Gaz. N.S.W. Sydney 29 1918 (568-570) pl. [*Homoptera.*] 517
- Froggatt, W. W. A serious pest to stored wheat. The lesser grain-borer (*Rhizopertha dominica*). Agric. Gaz. N.S.W. Sydney 29 1918 (726-728). [*Coleoptera.*] 518
- Fruhstorfer, H. Monographische Uebersicht alter und neuer *Erebia*-Formen. Deutsche ent. Zeitschr. Iris Berlin 31 1918 (83-110) [*Lepidoptera.*] 519
- Fruhstorfer, H. Revision der Gattung *Castalius* auf Grund der Morphologie der Generationsorgane. 's Gravenhage Tydschr. Ent. 61 1918 (17-44) 2 Taf. [*Lepidoptera.*] 520
- Fruhstorfer, H. Revision der Lycacnidengruppe *Heliophorus* auf Grund der Morphologie der Klammerorgane. 's Gravenhage Tydschr. Ent. 61 1918 (45-53) Taf. vi. [*Lepidoptera.*] 521
- Fruhstorfer, H. Eine neue Rasse aus der bisherigen "Gattung" *Orthomiella*. 's Gravenhage Tydschr. Ent. 61 1918 (54-56) 1 fig. [*Lepidoptera.*] 522
- Fruhstorfer, H. *vide* Piepers an Snellen.
- Fuente, J. M. de la. Catálogo sistemático-geográfico de los *Coleópteros* observados en la península ibérica, Pirineos propiamente dichos y Baleare. Bol. Soc. ent. España Zaragoza 1 1918 (16-27) 36-43 71-78, etc.) 523
- Fuente, J. M. de la. Descripción de *Coleopteros* nuevos españoles. Bol. Soc. Ent. España 1 1918 (44-46). 524
- Fuente, J. M. de la. Nota *hemipterológica*. Bol. Soc. Arazon. Zaragoza 7 1918 (236-238). 525
- Fujimoto, H. Ohaku no ōken to ōō no ōken no ichidai zasshu no hikaku ni tsuite. [On the comparison of the hybrid of yellow and white races with that of yellow and yellow races of silkworms.] Tokyo, Ni. Sanshi Kw. Ho. 1918 (705-706). [*Lepidoptera.*] 526
- Fullaway, D. T. Notes on hawaiian Prosopidae. Proc. hawai. ent. Soc. Honolulu 3 1918 (393-397). [*Hymenoptera.*] 527
- Fullaway, D. T. A new genus of pteroptricine Aphelininae. Proc. hawai. ent. Soc. Honolulu 3 1918 (463 and 464). [*Hymenoptera.*] 528
- Fuller, C. Notes on white ants. On the behaviour of True Ants towards White Ants. Bull. S. Afric. Biol. Soc. Pretoria 1 1918 (16-20). [*Isoptera.*] 529
- Fulton, B. B. Observations on the life-history and habits of *Pilophorus walshii* Uhler. Ann. ent. Soc. Amer. Columbus 11 1918 (93-96). [*Heteroptera.*] 530
- Funkhouser, W. D. Malayan Membracidae. J. Straits Asiatic Soc. Singapore 79 1918 (1-14). [*Homoptera.*] 531
- Funkhouser, W. D. Notes on the Philippine Membracidae. Philipp. J. Sci. Manila D13 1918 (21-39) pl. i. [*Homoptera.*] 532
- Funkhouser, W. D. Biology of the Membracidae of the Cayuga lake basin. Cornell Univ. Agric. exp. Stat. Mem. 11 1917 (177-445) 44 pls. [*Homoptera.*] 533
- Funkhouser, W. D. A new membracid on cypress. Ent. News Philadelphia 29 1918 (185) pl. xi. [*Homoptera.*] 534
- Gaede, M. Die äthiopischen Thyrididen nach dem Material des Berliner zoologischen Museums. Mitt. zool. Mus. Berlin 8 1917 (355-384). [*Lepidoptera.*] 535
- Gaede, M. Neue *Lepidopteren* des Berliner zoologischen Museums. Mitt. zool. Mus. Berlin 8 1917 (385-404). 536

- Gaede, M. Neue afrikanische *Lepidopteren* des Berliner zoologischen Museums. *Int. ent. Zeitschr. Guben* 9 1915 (38-40). 537
- Gaede, M. Neue afrikanische *Lepidoptera* des Berliner zoologischen Museums. *Int. ent. Zeitschr. Guben* 9 1915 (71-74 79 and 80). 538
- Gaede, M. Neue afrikanische *Lepidoptera* des Berliner zoologischen Museums. *Int. ent. Zeitschr. Guben* 9 1915 (105 106 109-112 125-126). 539
- Gaede, M. Neue aethiopische Hesperiden. *Int. ent. Zeitschr. Guben* 11 1917 (30 31). [*Lepidoptera.*] 540
- Gahan, A. B. Four new African parasitic *Hymenoptera* belonging to the subfamily Microgasterinae. *Proc. U.S. Nat. Mus. Washington* 54 1918 No. 2252 (587-590). 541
- Gahan, A. B. Description of a new *hymenopterous* parasite (Braconidae). *P. ent. Soc. Washington* 20 1918 (18 and 19). 542
- Gahan, A. B. Three new chalcidoid egg-parasites. *Proc. ent. Soc. Washington* 20 1918 (23-26). [*Hymenoptera.*] 543
- Gahan, A. B. *Propachyneuron* Girault (*Hymenoptera*, Chalcidoidea). *Proc. ent. Soc. Washington* 20 1918 (66). 544
- Gahan, A. B. A synopsis of the species belonging to the chalcidoid genus *Rileya* Ashmead. *Proc. ent. Soc. Washington* 20 1918 (136-150). [*Hymenoptera.*] 545
- Gahan, A. B. An interesting new *hymenopterous* parasite. *Canad. Entom. London Can.* 50 1918 (151). 546
- Gahan, C. J. The President's address. *Pr. ent. Soc. London* 1917 1918 (cix-cxxiii). 547
- Gahan, C. J. A very ancient beetle. *Pr. ent. Soc. London* 1917 1918 (lxxxix). [*Coleoptera.*] 548
- Gahan, C. J. The death-watch, notes and observations. *Entomologist London* 51 1918 (121-125 153-158). [*Coleoptera.*] 549
- Gallardo, A. Hormigas dolicoderinas de los Andes de Mendoza. *Physis Buenos Aires* 4 1918 (28-31). [*Hymenoptera.*] 550
- Garnett, R. T. An annotated list of the Cerambycidae of California. *Canad. Ent. London Can.* 50 1918 (172-177 etc.). [*Coleoptera.*] 551
- Garnett, R. T. Notes on *Dinapate wrightii* Horn. *Ent. News Philadelphia* 29 1918 (41-44) pl. ii. [*Coleoptera.*] 552
- Garnett, R. T. Notes on the genus *Buprestis* Linne in California. *Ann ent. Soc. Amer. Columbus* 11 1918 (90-92). [*Coleoptera.*] 553
- Gatenby, J. B. The segregation of the germ-cells in *Trichogramma evanescens* Quart. *J. micr. Sci. London* 63 1918 (161-174) pl. xiii. [*Hymenoptera.*] 554
- Gatenby, J. B. Polyembryony in parasitic *Hymenoptera*. *Quart. J. micr. Sci. London* 63 1918 (175-196) pls. xiv and xv. 555
- Gautier, C. Etudes physiologiques et parasitologiques sur les *Lépidoptères* nuisibles. Recherches sur les larves de Piérides. *C.R. Soc. Biol. Paris* 81 1918 (44-46). 556
- Gautier, C. Etudes physiologiques et parasitologiques sur les *Lépidoptères* nuisibles. Sur quelques faits relatifs aux larves de Piérides. *C.R. Soc. Biol. Paris* 81 1918 (197-199). [*Hymenoptera.*] 557
- Gautier, C. Etudes physiologiques et parasitologiques sur les *Lépidoptères* nuisibles. La ponte des *Apanteles* parasites de *Pieris brassicae*. *C. R. Soc. Biol. Paris* 81 1918 (801-803). [*Hymenoptera.*] 558
- Gautier, C. Etudes physiologiques et parasitologiques sur les *Lépidoptères* nuisibles. La ponte des *Apanteles*, parasites de *Pieris brassicae*. *C. R. Soc. Biol. Paris* 81 1918 (1152-1155). [*Hymenoptera.*] 559
- Gebien, H. Beitrag zur Kenntniss der Gattung *Setenis*. *Ent. Mitt. Berlin* 7 1918 (121-130 215-220) pl. ii. [*Coleoptera.*] 560

- Geipel, E. Beiträge zur Anatomie der Leuchtorgane tropischer Käfer. Zeitschr. wiss. Zool. Leipzig 112 1915 (239-290) pls. vii and viii. [*Coleoptera.*] 561
- Gertz, O. Skånes zoocécidier. Ett bidrag till kännedomen om Sveriges gallbildande flora och fauna. Lund Univ. Aïsskr. N.F. Avd. 2 14 No. 26 [= Fysiogr. Sällsk. Handl. N.F. 29 No. 26] 1918 (72). 562
- Ghigi, A. Repertorio di specie nuove di animali trovate in Italia e descritte nell'anno 1913. Monit. zool. ital. Firenze 28 1917 (63-80). 563
- Giacomella, E. Apuntes sobre algunas formas argentinas de mariposas del género *Phylia* H. Schaeff. Physis Buenos Aires 4 1918 (340-342). [*Lepidoptera.*] 564
- Gibson, A. The entomological record, 1917. Rep. ent. Soc. Ontario 43 1918 (28 pp.). 565
- Gibson, A. William Hague Harrington. Canad. Entom. London Can. 50 1918 (181-187) portr. 566
- Gibson, E. H. The genus *Hadronema* Uhl. (Miridae, *Heteroptera*). Canad. Entom. London Can. 50 1918 (81-84). 567
- Gibson, E. H. The genus *Corythuca* Stal. Trans. amer. ent. Soc. Philadelphia 44 1918 (69-104). [*Heteroptera.*] 568
- Gibson, E. H. and Holdridge, A. Notes on the North- and Central-American species of *Acanthocephala* Lap. (Fam. Coreidae: *Heteroptera*). Canad. Entom. London Can. 50 1918 (237-241). 569
- Gibson, E. H. and Holdridge, A. The genus *Narnia* Stal, and a key to the genera of Anisoscelini A. and S. (*Coreidae*). Psyche Boston 25 1918 (1-4). [*Heteroptera.*] 570
- Giffard, W. M. Notes on delphacids collected on a short visit to portions of the intermediate forests in Olaa and in North and South Kona, Island of Hawaii. Proc. hawaii. ent. Soc. Honolulu 3 1918 (407-412). [*Homoptera.*] 571
- Gillet, J. J. Coprides nouveaux de la région éthiopienne et remarques diverses. Leiden, Zool. Meded. 4 1918 (146-158) 10 fig. [*Coleoptera.*] 572
- Gillette, C. P. Some grass-root Aphids. Ent. News Philadelphia 29 1918 (281-284) pl. xvi. [*Homoptera.*] 573
- Gillette, C. P. and Bragg, L. C. *Aphis saliceti* (Kaltenbach), *Siphocoryne pastinacae* (Linn.) and allied species. Canad. Entom. London Can. 50 1918 (89-94). [*Homoptera.*] 574
- Gillette, C. P. and Bragg, L. C. *Aphis bakeri* and allied species. J. econ. Ent. Concord 11 (328-333). [*Homoptera.*] 575
- Gillette, C. P. *vide* Jones and Gillette.
- Gillmer, M. Die Schmetterlingsraupen und ihre Stadien. Int. ent. Zeitschr. Guben 9 1915 (81-84). [*Lepidoptera.*] 576
- Girault, A. A. Three new Australian chalcid flies. Redia Firenze 13 1918 (197 and 198). [*Hymenoptera.*] 577
- Girault, A. A. A new species of *Lepidiota* from northern Queensland. Entomologist London 51 1918 (183). [*Coleoptera.*] 578
- Girault, A. A. The North-American species of *Cerchysius*, females. Ent. News Philad. 29 1918 (65-66). [*Hymenoptera.*] 579
- Girault, A. A. New and old West-Indian and North-American Chalcid-flies. Ent. News Philadelphia 29 1918 (125-131). [*Hymenoptera.*] 580
- Girault, A. A. Notes on chalcid flies, chiefly from California. J. Ent. zool. Claremont 9 1917 (8-12). [*Hymenoptera.*] 581
- Girault, A. A. Cameron's Australian chalcid-flies. Insec. inscit. Washington 6 1918 (117-118). [*Hymenoptera.*] 582
- Giršberg, E. G. *vide* Kablukow and Giršberg.
- Giulio, C. Osservazioni sull'influenza della äroide sullo sviluppo degli insetti. Atti Acc. Lincei Rend. Roma 27 2 1918 (376-379). 583

- Glaser, F. Über die Vermehrungsfähigkeit von *Culex pipiens*. Biol. Centralbl. Leipzig 37 1917 (531-533). [*Diptera.*] 584
- Glaser, R. W. The aerobic nature of insect tissue. J. New York ent. Soc. 26 1918 (1-3). 585
- Glaser, R. W. On the existence of immunity principles in insects. Psyche Boston 25 1918 (39-46). 586
- Glaser, R. W. and Wilcox, A. M. On the occurrence of a Mermis epidemic amongst grasshoppers. Psyche Boston 25 1918 (12-15). [*Orthoptera.*] 587
- Goe, M. T. Life-history and habits of *Gastroidea caesia* Rog. Ent. News Philadelphia 29 1918 (224-226). [*Coleoptera.*] 588
- Göldi, E. A. Darmkanal und Rüssel der Stubenfliege vom sanitärischen Standpunkte aus. Mitt. schweiz. ent. Ges. Bern. 12 1917 (418-431). [*Diptera.*] 589
- Gofferie, Margarete. Die Wirkung verschiedener Salze auf Larven von *Culex pipiens* L. Mitt. zool. Inst. Westfäl. Münster 1918 (9-11). 590
- Goggis, E. Sulla mancanza di caratteri sessuali esterni nell'*Ateuchus semipunctatus* Fabr. Atti. Soc. Toscana P. verb. 24 1915 (105-107). [*Coleoptera.*] 591
- Goldschmidt, R. Notiz über einige bemerkenswerte Erscheinungen in Gewebekulturen von Insekten. Biol. Centralbl. Leipzig 36 1916 (160-167). [*Lepidoptera.*] 593
- Goldsmith, W. M. Field notes on the distribution and life habits of the tiger beetles (Cicindelidae) of Indiana. Proc. Indiana Ac. Sci. 1916 (447-455). [*Coleoptera.*] 594
- Goltz, —, v. Die Erebien der Oberstdorfer Täler. Mitt. Münchn. ent. Ges. 7 1916 (64-68). [*Lepidoptera.*] 595
- Gomes, J. F. *vide* Brumpt and Gomes.
- Goot, P. van der. Zur Kenntnis der Blattläuse Javas. Buitenzorg, Contrib. faune Indes Néerl. 1 fasc. 3 1917 (1-301). [*Homoptera.*] 596
- Goot, P. van der. Notes on oriental Aphididae. 's Gravenhage Tydschr. Ent. 61 1918 (112-127). [*Homoptera.*] 597
- Goot, P. van der. *vide* Das, B.
- Gough, L. H. Notes on an *Ephestia*, an insect injurious to stored dates in Khargeh oasis. Bull. Soc. ent. Egypte Le Caire 10 1918 (133-140) pl. [*Lepidoptera.*] 598
- Graham, S. A. An interesting habit of a wax-moth parasite. Ann. ent. Soc. Amer. Columbus 11 1918 (175-180) pl. xix. 599
- Graham-Smith, G. S. Hibernation of flies in a Lincolnshire house. Parasitology Cambridge 11 1918 (81, 82). [*Diptera.*] 600
- Gramann, A. Ueber Einfluss der Aethernarkose auf Schmetterlingspuppen. Verh. Schweizer Ges. Aarau 1917 1918 (275, 276). [*Lepidoptera.*] 601
- Grassi, B. e Topi, M. Esistono diverse razze di fillossera della vite? Atti Acc. Lincei Rend. Roma 26 1 1917 (265-278). [*Homoptera.*] 602
- Gravely, F. H. A contribution towards the revision of the Passalidae of the world. Mem. Ind. Mus. Calcutta 7 No. 1 1918 (1-144) pl. i. [*Coleoptera.*] 603
- Graves, P. P. Some new forms of Lycaenidae from Egypt. Entomologist London 51 1918 (97, 98) pl. i. [*Lepidoptera.*] 604
- Green, E. E. Some remarks on Mr. Kunhi Kannan's paper "an instance of mutation." Tr. ent. Soc. London 1918 1918 (149-154). 605
- Greene, C. T. Three new species of *Diptera*. Proc. ent. Soc. Washington 20 1918 (69-71). 606
- Greene, C. T. A contribution to the biology of N. A. *Diptera*. Proc. ent. Soc. Washington 19 1918 (146-161) pls. xvii-xx. 607
- Greer, T. *Zygaena filipendulae* and *Z. lonicerae* hybrids. Ent. Rec. London 30 1918 (187-188). [*Lepidoptera.*] 608
- Griffini, A. Sopra varie *Gryllacris* delle isole Filippine raccolte dal Dott. C. F. Baker. Monit. zool. ital. Firenze 29 1918 (20-32). [*Orthoptera.*] 609
- Grimshaw, P. H. *Chortophila pilipyga* Villeneuve in Britain. Ent. Mo. Mag. London 54 1918 (156). [*Diptera.*] 610

- Grinnell, F.** Some variations in the genus *Vanessa* (*Pyrameis*). Psyche Boston 25 1918 (110-115) pl. iv. [*Lepidoptera.*] 611
- Grönblom, Th.** *Miana literosa* och *Mesotype virgata* från Finland. [*Miana literosa* und *Mesotype virgata* aus Finland.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (3). [Deutsches Ref. 165.] [*Lepidoptera.*] 612
- Grönblom, Th.** *Herminia cribralis* och *Larentia picata* från Finland. [*Herminia cribralis* und *Larentia picata* aus Finland.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (6) [Deutsches Ref. 165.] [*Lepidoptera.*] 613
- Grönblom, T.** Kaksineuvoisuus-tapaus sitrunaperhosessa. [Ein Fall von Gynandromorphismus bei *Gonepteryx rhamni.*] Helsinki Luonnon Ystäv 20 1916 (17-19). [*Lepidoptera.*] 614
- Grönblom, Th.** Tre för Finland nya insekter. [Drei für Finland neue Insekten.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (28-31). [Deutsches Ref. 163 164.] 615
- Grönblom, Th.** *Acronycta tridens* i Finland. [*Acronycta tridens* in Finland.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (3-4). [Deutsches Ref. 291.] [*Lepidoptera.*] 616
- Grönblom, Th.** *Leucania turca* L. från Finland. [*Leucania turca* L. aus Finland.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (5). [Deutsches Ref. 291.] [*Lepidoptera.*] 617
- Grouvelle, A.** [the late.] *Coleoptera* of the families Ostomidae, Monotomidae, Colydiidae and Notiophygidae from the Seychelles and Aldabra Islands. Tr. ent. Soc. London 1918 1918 (1-57) pls. i, ii. 618
- Grünberg, K.** Zoologische Ergebnisse der Expedition des Herrn G. Tessmann nach Südkamerun und Spanisch-Guinea. *Diptera*, 1. Stratiomyidae. Mitt. zool. Mus. Berlin 8 1915 (41-70). 619
- Gspan, A. R. von.** Notizen über krainier Anophthalmen. Wiener ent. Zeit. Wien 37 1918 (155, 156). [*Coleoptera.*] 620
- Gurney, W. B.** The insect pests of maize. Agric. Gaz. N.S.W. Sydney 29 1918 (641-650). 621
- Haanshus, K.** Bemerkungen über die Kritik E. Strands. Nyt. Mag. Kristiania 55 1917 (209-213). 622
- Habermehl, —.** Beiträge zur Kenntnis der paläarktischen Ichneumonidenfauna. Zeitschr. wiss. Insbiol. Berlin 13 1917 (20-27 51-58 110-117 161-168 226, 306-316); 14 1918 (6-11 47-54 118-119). [*Hymenoptera.*] 623
- Habermehl, —.** Beiträge zur Kenntnis der paläarktischen Ichneumonidenfauna. 3 Unterf. Cryptinae. Zeitschr. wiss. Insbiol. Berlin 14 1918 (145-152). [*Hymenoptera.*] 624
- Hacker, H.** Entomological contributions. Mcm. Queensland Mus. Brisbane 6 1918 (106-111) pls. xxxi, xxxii. [*Hymenoptera.*] 625
- Hadwen, S. and Cameron, A. E.** A contribution to the knowledge of the bot-flies, *Gastrophilus intestinalis* De G., *G. haemorrhoidalis* L. and *G. nasalis* L. Bull. ent. Res. London 9 1918 (91-106) pl. ii. [*Diptera.*] 626
- Hall, W. B.** Notes on the immature stages of *Hemitaxonus multinctus* Rohwer. Proc. ent. Soc. Washington 19 1918 (28). (*Hymenoptera.*) 627
- Hamm, A. H.** Trypetidae from the Oxford district, with notes on their time of appearance and food-plants. Ent. Mo. Mag. London 54 1918 (87-91). [*Diptera.*] 628
- Hampson, Sir G.** A classification of the Pyralidae, subfamily Hypsotropinae. Proc. zool. Soc. London 1918 1918 (55-131). (*Lepidoptera.*) 629
- Hampson, Sir G. F.** Descriptions of new genera and species of Amatidae, Lithosiidae and Noctuidae. Novit. zool. Tring 25 1918 (93-217). [*Lepidoptera.*] 630
- Hampson, Sir G. F.** Some small families of the *Lepidoptera* which are not included in the catalogue of *Lepidoptera phalaenae*, a list of the families and subfamilies of the *Lepidoptera*, with their types and a key

- to the families. [The *Microlepidoptera* are treated by J. H. Durrant. Novit. Zool. Tring 25 1918 (366-394). 631
- Hampson, Sir G. F. Descriptions of the subfamily Pyraustinae (continuation). Ann. Nat. Hist. London 1 1918 (125-136 252-262 265-280) and 2 (181-196 393-407). [*Lepidoptera.*] 632
- Hancock, J. L. A new genus and two new species of Tettigids, with a note on *Nomotettix borealis* Walker. Ent. News Philadelphia 29 1918 (343-347) pl. xx. [*Orthoptera.*] 633
- Hansen, V. Biller iv. Snudebiller. (Danmarks Fauna 22). The Danish Curculionidae. København G.E.C. Gad, 1918 (342) with 151 figg. 18½ × 12½ cm. Price kr. 6.50. [*Coleoptera.*] 634
- Hansen, H. Sommerfuglenotiser fra Lolland. Notes on the *Lepidoptera* of the Isle of Lolland. København Flora og Fauna 1918 (71-73). 635
- Hardy, G. H. A new Tasmanian butterfly and a list of the known Tasmanian species. Pap. Proc. R. Soc. Tasmania Hobart 1916 1917 (146-147). 636
- Hardy, G. H. Notes on Tasmanian *Diptera* and descriptions of new species, etc. Pap. Proc. R. Soc. Tasmania 1916 1917 (267-272). 637
- Hardy, G. H. Notes on Tasmanian *Diptera* and descriptions of new species. Pap. Proc. R. Soc. Tasmania Hobart 1917 1918 (60-66). 638
- Hardy, G. H. Notes on Tasmanian butterflies. Pap. Proc. R. Soc. Tasmania Hobart 1917 1918 (67-68). [*Lepidoptera.*] 639
- Hardy, G. H. Tasmanian Cicadidae. Pap. Proc. R. Soc. Tasmania Hobart 1917 1918 (69-72). [*Homoptera.*] 640
- Harnisch, W. Über den männlichen Begattungs-apparat einiger Chrysomeliden. Ein Beitrag zur Phylogenie des Copulationsapparates der Käfer. Zeitschr. wiss. Zool. Leipzig 114 1915 (1-94) pl. [*Colcoptera.*] 641
- Harrison, J. W. H. The pairing habits of certain bees. Ent. Rec. London 30 1918 (11 and 12). [*Hymenoptera.*] 642
- Harrison, J. W. H. Rare *Hemiptera-Heteroptera* in the north-eastern counties with notes on other forms. Entomologist London 51 1918 (2-5). 643
- Harrison, J. W. H. The geographical distribution of the moths of the subfamily Bistoninae. [Continuation.] Naturalist London 1918 1918 (68-72 etc., etc.). [*Lepidoptera.*] 644
- Harrison, J. W. H. *vide* Bagnall and Harrison.
- Hartwig, W. Bemerkungen zum Vorkommen und zur Systematik von *Aphelocheirus aestivalis* F. Deutsche ent. Zeitschr. Berlin 1914 (416-418). [*Heteroptera.*] 645
- Harukawa, C. and Yagi, N. On the life-history of a peach leaf-miner, *Ornia* sp. Ber. Ohara Inst. Kuraschiki 1918 (325-333) pl. v. [*Lepidoptera.*] 646
- Harukawa, C. and Yagi, N. The serpentine leaf-miner of the peach, a species of *Lyonetia*. Ber. Ohara Inst. Kuraschiki 1918 (335-348) pl. viii. [*Lepidoptera.*] 647
- Harvey, E. N. Studies in bioluminescence. Chemistry of light-production in the firefly. Princeton Univ. Contr. Biol. Lab. 6 No. 13 1918 (342-358). (Reprint from Amer. J. Physiol. 42 1917). [*Colcoptera.*] 648
- Harwood, P. *Scaphium immaculatum* Oliv., an additional genus and species to our list of British *Coleoptera*. Ent. Mo. Mag. London 54 1918 (131). 649
- Hase, A. Beiträge zu einer Biologie der Kleiderlaus. Zeitschr. ang. Ent. 2 1915 (265-359). [Cf. Frickhinger, H. W. Biol. Centralbl. 16 1916 (44-48). [*Ellipoptera.*] 650
- Hasebroek, K. Ueber die ontogenetische Wanderung der Zwillingsflecke auf dem Puppenflügel von *Van. urticae*. Int. ent. Zeitschr. Guben 11 1917 (185-186). [*Lepidoptera.*] 651
- Hatta, G. Cha no sankakuhamaki-mushi ni tsuite. [On the tea leaf roller *Gracilaria theaeovora* Wlsm.] Konch. Sek. Gifu 27 1918 (234-237). [*Lepidoptera.*] 652
- Haupt, H. Neue paläarktische *Homoptera* nebst Bemerkungen über einige schon bekannte. Wiener ent. Zeit. Wien 36 1917 (229-262). 653



- Haviland, Maud, D.** A new species of *Myzus* from the thistle. Entomologist London **51** 1918 (49). [*Homoptera.*] **654**
- Hawkes, O. A. Merritt.** Studies in inheritance in the hybrid *Philosamia* (*Attacus ricini* (Boisd.) ♂. *Philosamia cynthia* (Drury) ♀. I. Larval characters. Genetics Cambridge **7** 1918 (135-154) pl. viii. [*Lepidoptera.*] **654a**
- Hebard, M.** New genera and species of Melanopli found within the United States (*Orthoptera*; Acridiidae). Trans. amer. ent. Soc. Philadelphia **44** 1918 (141-169) pl. viii. **655**
- Hebard, M.** A contribution to the knowledge of the Dermaptera of Panama. Trans. amer. ent. Soc. Philadelphia **43** 1917 (301-334) pl. xxvi. [*Orthoptera.*] **656**
- Hebard, M.** Notes on Mexican Dermaptera. Trans. amer. ent. Soc. Philadelphia **43** 1917 (409-432) pl. xxviii. [*Orthoptera.*] **657**
- Hebard, M.** A generic assignment of three North-American species of Dermaptera. Ent. News Philadelphia **29** 1918 (5-6). [*Orthoptera.*] **658**
- Hebard, M. vide** Rehn and Hebard.
- Hedicke, H.** Beiträge zur Kenntniss der Cynipiden, vii. Neue neotropische Cynipiden. Deutsche ent. Zeitschr. Berlin **1914** 1914 (634-637). [*Hymenoptera.*] **659**
- Hedicke, H.** Die cecidologische Literatur der Jahre 1911-1914. Zeitschr. wiss. Insbiol. Berlin **13** 1917 (35-37 97-98). **660**
- Hedicke, H.** Beiträge zur Gallenfauna der Mark Brandenburg, iii. Die *Dipterengallen*. Zeitschr. wiss. Insbiol. Berlin **13** 1917 (78-82 118-123 198-203 278-282) **14** 1918 (17-20 59-64 178-181). **661**
- Hegh, E.** Comment nos planteurs et nos colons peuvent-ils se protéger contre les moustiques qui transmettent des maladies? Etudes de Biologie agricole No. **4** Londres 1918 (1-200). **662**
- Heikertinger, F.** Nomenklatorischen Reformen, ii. Das Patriazeichen beim Artnamen. Zool. Anz. **50** 1918 (41-54). **663**
- Heikertinger, F.** Über einige Versuche mit *Lytta vesicatoria* L. Zur selektionistischen Schutzmittel-Frage. Biol. Centralbl. Leipzig **37** 1917 (446-460). [*Coleoptera.*] **664**
- Heikertinger, F.** Kritisches über Schutzzeirrichtungen und Nachahmungserscheinungen bei Rhynchoten. Zeitschr. wiss. Insbiol. Berlin **13** 1917 (169-176 219-226). [*Hemiptera.*] **665**
- Heikertinger, F.** Die Bienenmimikry von *Eristalis*. Eine kritische Untersuchung. Zeitschr. wiss. Insbiol. **14** 1918 (1-5 73-77). [*Diptera.*] **666**
- Heikertinger, F.** Standpflanzenforschung (Artikel v. Zur Praxis des Käferfanges mit dem Kätscher). Wiener ent. Zeit. Wien **34** 1915 (133-169). [*Coleoptera.*] **667**
- Heikertinger, F.** Eine *Podagric*a mit einem dritten, zwischen *Clipeus* und *Labrum* eingelenkten Fühler. Wiener ent. Zeit. Wien **34** 1915 (335). [*Coleoptera.*] **668**
- Heikertinger, F.** Ueber Skulpturveränderungen auf Käferflügeldecken hervorgerufen durch Kochen. Wiener ent. zeit. Wien **34** 1915 (377-379). [*Coleoptera.*] **669**
- Heikertinger, F.** Ueber das Auftreten abnormer, symmetrisch angeordneter, Grübchen auf dem Halschilde von Käfern. Wiener ent. Zeit. Wien **34** 1915 (394-396). [*Coleoptera.*] **670**
- Heikertinger, F.** Vom Publizieren, von der Rolle der Systematik und den Zielen der Entomologie. Wiener ent. Zeit. Wien **36** 1917 (151-178). **671**
- Heikertinger, F.** Die Nichteignung des Prioritätsprinzips zur Stabilisierung der Nomenklatur. Das Kontinuitätsprinzip in der Tier- und das Utilitätsprinzip in der Autornennung. Wiener ent. Zeit. Wien **37** 1918 (129-147). **672**
- Heikertinger, F.** Zur Lösung des Trustfärbungsproblems. Der Fall *Pyrrhocoris apterus* und das Prinzip der Ungewohnthfärbung. Wiener ent. Zeit. Wien **37** 1918 (179-196). [*Heteroptera.*] **673**
- Heinrich, C.** A new genus of *Lepidoptera* allied to *Leucoptera* Hübn. Proc. ent. Soc. Washington **20** 1918 (21). **674**

- Heinrich, C. On the *lepidopterous* genus *Opostega* and its larval affinities. Proc. ent. Soc. Washington 20 1918 (27-34) pls. i-iv. 675
- Heinrich, C. A new *Coleophora* injurious to apple in California. Proc. ent. Soc. Washington 19 1918 (135). [*Lepidoptera.*] 676
- Heinrich, C. A note on the tortricid genitalia. Proc. ent. Soc. Washington 19 1918 (137 and 138). [*Lepidoptera.*] 677
- Hellén, W. *Barynotus moerens* från Finland. [*Barynotus moerens* aus Finland.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (6). [Deutsches Ref. 163.] [*Coleoptera.*] 678
- Hellén, W. E. *Haliplus amoenus* Oliv. från Finland. [*Haliplus amoenus* Oliv. aus Finland.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 43 1917 (4-5. [Deutsches Ref. 288.] [*Coleoptera.*] 679
- Hellén, W. En för landet ny *Andrena*-art. [Eine für das Gebiet neue *Andrena*-Art.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 43 1917 (178-179). (Deutsches Ref. 290.) [*Hymenoptera.*] 680
- Hellén, W. *Philonthus fuscus* Grav. från Finland. [*Philonthus fuscus* Grav. aus Finland.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 44 1918 (3). [Deutsches Ref. 252.] [*Coleoptera.*] 681
- Hellén, W. Coleopterologiska meddelanden. [*Coleopterologische* Mitteilungen.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 44 1918 (40-41). (Deutsches Ref. 252.) 682
- Hellén, W. Entomologiska meddelanden. [Entomologische Mitteilungen.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 44 1918 (59-61). [Deutsches Ref. 252 254.] 683
- Hellén, W. Två för landet nya skalbaggar. [Zwei für Finland neue Käfer.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 44 1918 (118-119). [Deutsches Ref. 251.] [*Coleoptera.*] 684
- Heller, K. M. *Canthoethrus peruvianus* sp.n. Ent. Mitt. Berlin 7 1918 (74-77). [*Coleoptera.*] 685
- Heller, K. M. Eine neue Pediliden-Gattung aus Ecuador. Ent. Mitt. Berlin 7 1918 (212-214). [*Coleoptera.*] 686
- Heller, K. M. Einige Bemerkungen zu der neuen Bestimmungstabelle der paläarktischen *Psalidium* - Arte n. Wiener ent. Zeit. Wien 34 1915 (191-193). [*Coleoptera.*] 687
- Heller, K. M. Ueber Colydier von den Philippinen. Wiener ent. Zeit. 34 1915 (301-308) [*Coleoptera.*] 688
- Heller, K. M. Scaphidiidae von den Philippinen. Wiener ent. Zeit. Wien 36 1917 (41-50). [*Coleoptera.*] 689
- Heller, K. M. Philippinische Langgurtinae. Wiener ent. Zeit. 37 1918 (25-33). [*Coleoptera.*] 690
- Heller, K. M. Notiz über Fragmente eines *Rhipidius* aus Kolumbien. Wiener ent. Zeit. Wien 37 1918 (128). [*Coleoptera.*] 691
- Hendel, F. Zur Kritik der strikten Anwendung des Prioritätsprinzipes in der Nomenklatur. Wiener ent. Zeit. Wien 36 1917 (267-271). 692
- Henning, H. Zur Ameisenpsychologie. Eine kritische Erörterung über die Grundlagen der Tierpsychologie. Biol. Zentralbl. Leipzig 38 1918 (208-220). [*Hymenoptera.*] 693
- Henriksen, K. L. Oversigt over Indholdet af Entomologiske Meddelelser 1887-1917. Catalogue of the contents of the journal "Entomologiske Meddelelser" 1887 - 1917. København Ent. Medd. 12 1918 (45-64). 694
- Henriksen, K. L. and Lundbeck, W. Landarthropoder (*Insecta* et *Arachnida*). Conspectus faunae groenlandicae Pars 2. København Medd. Grøn. 22 2 1918 (481-821). 695
- Henriot, P. Une espèce jusqu'ici méconnue de noetuide française; *Orthodia rubigo* Rambur. [In Oberthür] Et. Léop. comp. 16 1918 (331-339). [*Lepidoptera.*] 696
- Hering, M. Neue Hesperiidien aus China. Mitt. zool. Mus. Berlin 9 1918 (51-59) pl. iv. [*Lepidoptera.*] 697

- Hertwig, R. [Review of] Becher, E. Die fremddenliche Zweckmässigkeit der Pflanzengallen und die Hypothese eines überindividuellen Seelischen. Biol. Zentralbl. Leipzig **38** 1918 (315 and 316). 698
- Hess, W. R. Origin and development of the photogenic organs of *Photuris pennsylvanica*. Science New York **17** 1918 (143). [*Coleoptera.*] 699
- Hesse, E. Sur la présence dans le Dauphiné de l'*Anopheles nigripes* Staeger. Arch. Zool. exp. Paris **57** 1918 (32-35). [*Diptera.*] 700
- Hetschko, A. [and others] Festschrift zum siebzigsten Geburtstag Edmund Reiters am 22 Oktober 1915. Wiener ent. Zeitschr. **34** 1915 (215-287) portr. 701
- Hetschko, A. Ueber die malpighischen Gefässe der Larve von *Melolontha vulgaris* L. Wiener ent. Zeit. Wien **36** 1917 (293-295). [*Coleoptera.*] 702
- Hetschko, A. Die Larve von *Haplothrix lugubris* Lw. (*Diptera* Blep. haroceridae). Wiener ent. Zeit. Wien **37** 1918 (201-206) pl. iii. 703
- Hetschko, A. Ameisen und Psylliden. Wiener ent. Zeit. Wien **37** 1918 (212 and 213). [*Hymenoptera.*] 704
- Heymons, R. and Heymons, Helene. Viofüssler, Insekten und Spinnenkerf. [in Brehm's Tierleben, vierte Aufl. Leipzig 1915] (692) 35 pls. 705
- Hicker, R. Beschreibung einer neuen europäischen *Malthodes*-Art. Wiener ent. Zeit. Wien **34** 1915 (380-381). [*Coleoptera.*] 706
- Hicks, T. O. Mosquitoes and malaria. Ent. Rec. London **30** 1918 (128-130 151-152). [*Diptera.*] 707
- Hilgendorf, F. W. Notes from Canterbury college mountain biological station. No. 6, the insect life. Tr. New Zeal. Inst. **50** 1918 (135-144). 708
- Hill, G. F. Relationship of insects to parasitic diseases in stock. Proc. R. Soc. Victoria Melbourne **31** 1918 (11-107) pls. ii-viii. [*Diptera.*] 709
- Hine, J. S. Costa-rican *Diptera* collected by Philip P. Calvert, Ph.D., 1909-1910. Paper 2. Tabanidae and Asilidae. Trans. amer. ent. Soc. Philadelphia **43** 1917 (291-299). 710
- Hine, J. S. Descriptions of seven species of *Asilus*. Ohio Nat. Columbus **18** 1918 (319-322). [*Diptera.*] 711
- Hiratsuka, Y. Shikuondo no kasan yeiyo ni oyobosu yeiyo ni tsuite. [The influence of surrounding temperature on the nutrition of silkworms.] Tokyo, Nog. Kw. H. **1918** (943-949). [*Lepidoptera.*] 712
- Hoffmann, E. *Lepidopterologisches Sammelergebnis aus dem Tannen und Pongau in Salzburg in Jahre 1916*. Zeitschr. wiss. Insbiol. Berlin **14** 1918 (153-165). 713
- Holdhaus, K. Nachträge und Berichtigungen zum Verzeichnis der *Coleoptera* des Monte Gargano. Wiener ent. Zeit. Wien **34** 1915 (349-352). 714
- Holdridge, A. *vide* Gibson and Holdridge.
- Holmberg, E. L. Suplemento 1 a las especies argentinas de *Coelioxys* Physis Buenos Aires **4** 1918 (1-13 and 145-165). [*Hymenoptera.*] 715
- Hood, J. D. New genera and species of Australian *Thysanoptera*. Mem. Queensland Mus. **6** 1918 (121-150). 716
- Hood, J. D. A new *Physothrips* from Western Africa. Insec. inscit. Washington **6** 1918 (116). [*Thysanoptera.*] 717
- Hooker, W. A. [and others]. Economic zoology and entomology. Experiment Station Record, Washington **38** 1918 (1-1001) **39** 1918 Nos. 1-5 (1-500). 718
- Horton, J. R. The citrus Thrips. Bull. U.S. Dep. Agric. Washington **616** 1918 (1-42) 3 pls. [*Thysanoptera.*] 719
- Hoschek-Mühlheim, A. v. Beiträge zur Kenntnis der Buprestiden, I. Wiener ent. Zeit. Wien **37** 1918 (123-127). [*Coleoptera.*] 720
- Houlbert, C. Révision monographique des Castniinae. [In] Oberthür Et. Léop. comp. **15**. Rennes 1918 (5-730) pls. 437-462 + A<sup>2</sup>Z<sup>1</sup> + AA-DD. 721
- Houlbert, C. Tableaux génériques illustrés des *Coleoptères* de France. Bull. Soc. Ouest Rennes **1914** 1918 Suppl. (81-192). 722
- Houlbert, C. *vide* Oberthür and Houlbert.

- Houser, J. S.** The Coccidae of Cuba. *Ann. ent. Soc. Amer. Columbus* 11 1918 (157-182 pl. xviii. [*Homoptera.*] 723
- Howard, L. O.** Report of the Entomologist. Washington Dep. Agric. 1918 (1-24). 724
- Howard, L. O.** Moonstones in a *Cecropia* cocoon. *Ent. News Philadelphia* 29 1918 (15-16). [*Lepidoptera.*] 725
- Howard, L. O.** A note on insects found on snow at high elevations. *Ent. News Philadelphia* 29 1918 (375-377). 726
- Howe, R. H.** Distributional notes on New England Odonata, part 2. *Psyche Boston* 25 1918 (106-110). [*Paraneuroptera.*] 727
- Howe, R. H.** Manual of Odonata of New England, parts 1 and 2. *Mem. Thoreau Mus. N.H.* 2 1917 (1-23). [*Paraneuroptera.*] 728
- Hoy, W. E.** A study of somatic chromosomes. I. The somatic chromosomes in comparison with the chromosomes of the germ cells of *Anasa tristis*. *Princeton Univ. Contr. Biol. Lab.* 31 1916 (329-363). (Reprint from *Biol. Bull.* 31 1916). [*Heteroptera.*] 729
- Hoy, W. E.** A study of somatic chromosomes. II. The chromosomes in embryos of *Epiluchna borealis* and *Diabrotica vittata*. *Biol. Bull. Woods Hole* 35 1918 (166-174) 3 pls. [*Colcoptera.*] 730
- Hubenthal, W.** *Trigonotoma kuntzeni* n.sp. aus Borneo. *Deutsche ent. Zeitschr. Berlin* 1914 1914 (437). [*Coleoptera.*] 731
- Hubenthal, W.** Vier neue Arten der Carabiden-Gattung *Pheropsophus* Solier, nebst Bemerkungen zu bekannten Arten. *Deutsche ent. Zeitschr. Berlin* 1914-1914 (437-448). [*Coleoptera.*] 732
- Hudson, G. V.** Descriptions of new species of *Lepidoptera* from New Zealand. *Ent. Mo. Mag. London* 54 1918 (61-63). 733
- Hufnagel, Ada.** Recherches histologiques sur la métamorphose d'un *Lépidoptère* (*Hyponomeuta padella* L. *Arch. Zool. exp. Paris* 57 1918 (47-202) pls. ii-v. 734
- Haie, L. H.** The formation of the germ-band in the egg of the holly tortrix-moth, *Eudemis naevana* (Hb.). *Proc. R. Soc. Edinburgh* 38 1918 (154-165) 2 pls. [*Lepidoptera.*] 735
- Hungerford, H.** Notes on the oviposition of some semiaquatic *Hemiptera* (*Hebrus, Salda, Lamprocanthia*). *J. New York ent. Soc.* 26 1918 (12-18) pl. i. 736
- Hungerford, H. B.** Concerning the oviposition of *Notonectae*. *Ent. News Philadelphia* 29 1918 (241-254) pls. xiv, xv. [*Heteroptera.*] 737
- Hunter, W. D.** The pink bollworm with special reference to steps taken by the Department of agriculture to prevent its establishment in the United States. *Bull. U.S. Dep. Agric. Washington* 723 1918 (1-27) [*Lepidoptera.*] 738
- Husain, M. A.** *vide* Petherbridge and Husain.
- Hustache, A.** Description d'un nouveau *Ceuthorrhynchus* de Sardaigne. *Ann. Mus. Genova* 48 1918 (74). [*Coleoptera.*] 739
- Hutchinson, R. H.** A note on the life cycle and fertility of the body louse (*Pediculus corporis*). *J. econ.-Ent. Concord* 11 1918 (404-406). [*Ellipoptera.*] 740
- Hutchison, R. H.** Overwintering of the housefly. *J. Agric. Res. Washington* 13 1918 (149-170) pl. xiii. [*Diptera.*] 741
- Hykeš, O. V.** Einige Bemerkungen zu dem Aufsatz Isaaks "Ein Fall von Leuchtfähigkeit bei einem europäischen Grossschmetterling." *Biol. Centralbl. Leipzig* 37 1917 (106-108). [*Lepidoptera.*] 742
- Hyslop, J. A.** A new genus (*Perrisarthron*) of Elateridae and a revision of the American Elateridae of the genus *Pyrophorus*, with descriptions of new species. *Proc. ent. Soc. Washington* 19 1918 (1-12) pl. i-iii. [*Coleoptera.*] 743
- Hyslop, J. A.** The elaterid genus *Oistus* of Candèze. *Proc. ent. Soc. Washington* 19 1918 (127-129). [*Coleoptera.*] 744

- Illingworth, J. F.** Notes on the mating of cockroaches. Proc. hawaii. ent. Soc. Honolulu 3 1918 (374). [*Orthoptera.*] 745
- Illingworth, J. F.** The leather beetle (*Dermestes vulpinus* Fab.) a troublesome pest of dried fish in Hawaii. Proc. hawaii. ent. Soc. Honolulu 3 1918 (375-378). [*Coleoptera.*] 746
- Imms, A. D.** Observations on the insect parasites of some Coccidae, ii, on chalcid parasites of *Lecanium capreae*. Quart. J. microsc. Soc. London 63 1918 (293-374) 34 figs. [*Hymenoptera.*] 747
- Imms, A. D.** Observations on *Pimpla pomorum* Ratz., a parasite of the apple blossom weevil (including a description of the male by Claude Morley. Ann. appl. Biol. Cambridge 4 1918 (211-227) pl. xii. [*Hymenoptera.*] 748
- Isaak, J.** Ein Fall von Leucht-fähigkeit bei einem europäischen Grossschmetterling. Biol. Centralbl. Leipzig 36 1916 (216-218). [*Lepidoptera.*] 749
- Ito, H.** On the glandular nature of the corpora allata of the *Lepidoptera*. Tokyo, Bull. Imp. Tokyo Ser. Coll. 1 1918 (64-103) 7 pls. 750
- Ito, H.** San ni okeru shin sentai no hassei oyobi kozo ni tsuite. [On the development and structure of a new glandular body in silkworms.] Tokyo, Ni. Sanshi Kw. Ho. 1918 (209-213). [*Lepidoptera.*] 751
- Jack, R. W.** The maize beetle (*Heteronychus mahunus*) Rhodes. Agric. Journ. Salisbury 15 1918 (1-10) 1 pl. 752
- Jackson, Dorothy J.** Notes on the Aphides of Ross-shire, with descriptions of two new species new to science. Scott. Natural. Edinburgh 1918 1918 (81-91, 144) pl. [*Homoptera.*] 753
- James, R. E.** A spring and summer at Oxshott. Tr. London Nat. Hist. Soc. 1917 1918 (24-35). [*Lepidoptera.*] 754
- Jamieson, Janet P.** The tracheal supply of the rectum of the larva of *Argia talamanca* from Juan Vinas, Costa Rica. Proc. Ac. Philadelphia 70 1918 (81-85). [*Paraneuroptera.*] 755
- Janet, C.** Sur la phylogénèse de l'orthobionte. Limoges 1916 (1-72) 8 tabl., 6 pls. 756
- Janet, C.** Constitution métamérique de l'insecte. Mitt. schweiz. ent. Ges. Bern 12 1916 (354-367) pl. xxiii. 757
- Janse, A. J. T.** Some apparently undescribed Heterocera and five species hitherto unrecorded from South Africa. Ann. Durb. Mus. 2 1918 (78-88). [*Lepidoptera.*] 758
- Jansson, A.** Coleopterologiskt från Hjälmstränderna. Ent. Tidskr. Uppsala 39 1918 (10-30). 759
- Jansson, A.** Som myrmecofiler okända eller jöga kända *Coleoptera*. Ent. Tidskr. Uppsala 39 1918 (95-96). 760
- Jansson, A.** Intressantare *Coleoptera* och *Hemiptera heteroptera* iakttagna i Skedevi socken, Östergötland. Ent. Tidskr. Uppsala 39 1918 (195-201). 761
- Jansson, A.** Tantaggelser över *Megachile*-honans blombesök och beteende i och för pollen- och hommings-amling. Ent. Tidskr. Uppsala 39 1918 (206-215). 762
- Jaques, H. E.** A long-lived wood-boring beetle. Proc. Iowa Acad. Des Moines 25 1918 (175). [*Coleoptera.*] 763
- Jeannel, R.** *Troglorites brevili*, nouveau carabique cavernicole des Pyrénées espagnoles. Bull. Soc. ent. France 1918 1919 (273-275). [*Coleoptera.*] 764
- Jeannel, R. et Racovitza, E. G.** Biospeologica, xxxix. Énumération des grottes visitées 1913-1917 (sixième série). Arch. Zool. exp. Paris 57 1918 (203-470). 765
- Jennings, H. S.** Disproof of a certain type of theories of crossing over between chromosomes. Amer. Nat. New York 52 1918 (247-261). [*Diptera.*] 766
- Jensen, L. P.** Fortegnelse over Sjaellands Storsommerfugle. A synopsis of the *Macrolepidoptera* of Scaland. København, Flora og Fauna 1918 (105-112) to be continued. 767

- Jensen-Haarup, A. C.** Danmarks Gikader. Continuation of the synopsis of the Danish Cicadidae. København Flora og Fauna **1918** (33-40 97-104 46 figs. [*Homoptera.*] **768**
- Jeziorski, Lucie.** Der Thorax von *Dixippus morosus* (*Carausius*). (Nebst einigen Angaben über Wachstum und Wachstumskorrelationen). Erster Teil. Ein Beitrag zur vergleichenden Anatomie des Insektenkörpers. Zeitschr. wiss. Zool. Leipzig **117** 1918 (727-815) pls. xvii-xix. [*Orthoptera.*] **769**
- Joannis, J. de.** Sur la présence en France de *Grapholitha leplastriana* Curtis, *Microlépidoptère* dont la chenille est nuisible au chou cultivé. Bull. Soc. ent. France Paris **1918** 1918 (234-237). **770**
- Jørgensen, L.** Danske Bier. Continuation of a catalogue of the Danish bees. København Flora og Fauna **1918** (117-123) to be continued. [*Hymenoptera.*] **771**
- Jörschke, H.** Die Facettenaugen der Orthopteren und Termiten. Zeitschr. wiss. Zool. Leipzig **111** 1914 (153-280) pl. iv. **772**
- Johnson, C. W.** Notes on the species of the genus *Dioctria*. Psyche Boston **25** 1918 (102, 103). [*Diptera.*] **773**
- Johnson, Charlotte and Ledig, Ruth.** Early specimens of *Hymenoptera* from the Claremont-Laguna region. J. Ent. Zool. Claremont **10** 1918 (23-26). **774**
- Joicey, J. J. and Talbot, G.** New South-American Rhopalocera. Proc. zool. Soc. London **1917** 1918 (259-264) pl. [*Lepidoptera.*] **775**
- Joicey, J. J. and Talbot, G.** New South-American Arctiidae. Proc. zool. Soc. London **1917** 1918 (265-270) pl. [*Lepidoptera.*] **776**
- Joicey, J. J. and Talbot, G.** New butterflies from Africa and the East. P. zool. Soc. London **1917** 1918 (271-272). [*Lepidoptera.*] **777**
- Joicey, J. J. and Talbot, G.** A gynandromorph of *Papilio lycophron* Hbn. Proc. Zool. Soc. London **1917** 1918 (273) pl. ii. [*Lepidoptera.*] **778**
- Jones, F. M.** *Dohrniphora venusta* Coquillett in *Sarracenia flava*. Ent. News Philadelphia **28** 1918 (299-302) pl. xvii. [*Diptera.*] **779**
- Jones, N.** The Lycaenidae of Southern Rhodesia (10-20). Proc. Rhod. Sc. Ass. Bulawayo **16** (10-20) [*Lepidoptera.*] **780**
- Jones, T. H.** The southern green plant-bug. Bull. U.S. Dep. Agric. Washington **689** 1918 (1-27). [*Heteroptera.*] **781**
- Jones, T. H.** Miscellaneous truck-crop insects in Louisiana. Bull. U.S. Dep. Agric. Washington **703** 1918 (19 pp.). **782**
- Jones, T. H. and Gillette, C. P.** Life-history of *Pemphigus populi-transversus*. J. Agric. Res. Washington **14** 1918 (577-594) pls. lxxxi-lxxxv. [*Homoptera.*] **783**
- Joyeux, C.** Note sur les Culicides de Macédoine. Paris Bull. Soc. Path. exot. **11** 1918 (530-547). [*Diptera.*] **784**
- Jurriaanse J. H. and Lindemans, J.** A new *Cethosia*-form from Beeton. Leiden Zool. Med. **4** 1918 (256-257). [*Lepidoptera.*] **785**
- Kablukov, I. A. and Giršberg, E. G.** Sur la constitution de la cire d'abeilles [in Russian.]. Bull. Ac. Sci. Russie Petrograd **1918** 1918 (771-776). [*Hymenoptera.*] **786**
- Kaiser, O.** Zur Stammesgeschichte der Papilioniden. Mitt. München ent. Ges. **8** 1917 (3-20 25). [*Lepidoptera.*] **787**
- Kaiser, O.** *Antheraea episcopalis* Kaiser. Mitt. München. ent. Ges. **8** 1917 (20, 22) pl. i. [*Lepidoptera.*] **788**
- Kannan, K. K.** An instance of mutation: *Coccus viridis* Green a mutant from *Pulvinaria psidii* Maskell. Tr. ent. Soc. London **1918** 1918 (130-148) pls. v-viii. [*Homoptera.*] **789**
- Katsuki, K.** Jinko fukwa o okono ni tekitonaru sanran no hatsuikuteido ni kwansuru shiken. [Experiments on a proper period of the artificial hatching of silkworm-eggs after laid.] Sangyo Simpo [Sericultural magazine], Tokyo **1918** (159-164 571-577). [*Lepidoptera.*] **790**

- Katsuki, K.** Kaiko no kenryo ni tsuite. [On the weight of the cocoons of silkworms.] Sangyo Simpo [Seri-cultural magazine], Tokyo 1918 (1028-1033 1100-1109). [*Lepidoptera.*] 791
- Kawase, S.** Kasan no kokyu ni kwansuru kenkyu. [Studies on the respiration of silkworms.] Tokyo, Nog. Kw. H. 1918 (26-69). [*Lepidoptera.*] 792
- Kawase, S. and Matsubayashi, T.** Kasan no kokyu ni kwansuru kenkyu. [On the respiration of silkworms.] Tokyo, Ni. Sanshi Kw. Ho. 1918 (133-140). [*Lepidoptera.*] 793
- Kaye, W. J.** New species and races of Ithomiinae in the Joicey collection. Ann. Nat. Hist. London 1 1918 (77-86). [*Lepidoptera.*] 794
- Kaye, W. J.** On a new genus and two new species of Amatidae (Syntomidae) in the Joicey collection. Ann. Nat. Hist. London 1 1918 (325-327). [*Lepidoptera.*] 795
- Kaye, W. J.** Descriptions from the Joicey collection of new species of Syntomidae, Nymphalidae, Hesperidae, and two genera of Syntomidae. Ann. Nat. Hist. London 2 1918 (225-232). [*Lepidoptera.*] 796
- Keilin, B.** Sur quelques modes particuliers de resistance des larves de *Diptères* contro la desiccation. Bull. Soc. ent. France 1918 1918 (102-104). 797
- Kemner, N. A.** Vergleichende Studien über das Analsegment und das Pygopodium einiger *Koleopteren*-larven. Uppsala 1918 (104) 44 textfigs. (Akademische Abhandlung in Lund.) 798
- Kemner, N. A.** *Anchomensus thoreyi* Dej. Ny för Sverige. En dementi och förklaring. Ent. Tidskr. Uppsala 39 1918 (96-97). [*Coleoptera.*] 799
- Kemner, N. A.** Über die Gattung *Nothorrhina* Redt. Ent. Tidskr. Uppsala 39 1918 (322-328) figs. [*Coleoptera.*] 800
- Kennedy, C. H.** New species of Odonata from the south-western United States, Part i. Three new *Argia*. Canad. Entom. London Can. 50 1918 (256-260) pl. v. Part ii, T.c. pp. 297-300. [*Paraneuroptera.*] 801
- Kennedy, C. H.** The varieties of the dragonfly, *Agrion acquabile* (Say). Canad. Entom. London Can. 50 1918 (406-410). [*Paraneuroptera.*] 802
- Kennel, J.** Die palaearktische Tortriciden. Lfg. 4. Zoologica Leipzig 21 1916 54 4 (397-546) pls. xvii-xx. [*Lepidoptera.*] 803
- Kennel, J. von.** Mittelasatische und andere neue Tortriciden. Mitt. Münchn. ent. Ges. 8 1918 (50-95) pls. ii-iv. [*Lepidoptera.*] 804
- Kenoyer, L. A.** Insect pollination of timberline flowers in Colorado. Proc. Iowa Acad. Des Moines 23 1916 (483-488). 805
- Kenoyer, L. A.** *vide* Pammel and Kenoyer.
- Kerremans, C.** *Colcoptera* v.: Buprestidae Beitr. Land.-Süswasserf. Deutsch. Südwestafrik. Hamburg 1 1918 (295-303). 806
- Keuchenius, P. E.** Om de aantasting van eenige stapelproducten door insecten en de middelen ter bestryding daarvan. [Ueber die Verletzung einiger Stapelwaaren durch Insekten und die Mittel zu Ihrer Bekämpfung.] Teysmannia Batavia 29 1918 (216-221). 807
- Keuchenius, P. E.** Jensen als entomoloog. [Jensen as an entomologist.] Teysmannia Batavia 29 1918 (xviii-xix). 808
- Kheil, N. M.** Ueber Varietäten und Aberrationen des *Caloptenus italicus* Linné. Int. ent. Zeitschr. Guben 9 1915 (89 90 93 94 101-103). [*Orthoptera.*] 809
- Kieffer, J. J.** Beschreibung neuer, auf Lazarettsschiffen des östlichen Kriegsschlaupatzes und bei Ignalino in Litauen von Dr. W. Horn gesammelter Chironomiden, mit Uebersichtstabellen einiger Gruppen von paläarktischen Arten. Ent. Mitt. Berlin 7 1918 (35-53 94-110 163-170 177-187). [*Diptera.*] 810
- Kieffer, J. J.** *Hymenoptera* iii, Serphidae (Proctotropidae). Beitr. Land.-Sudwässerf.-Sudwestafrik. Hamburg 1 1918 (203-207). 811
- Kirk, H. B.** On mosquito larvicides. Tr. New Zealand Inst. 50 1918 (193-196). [*Diptera.*] 812

- Kinoshita, S.** Mushinomibai no isslinshu ni tsuite. [On a new species of Phoridae.] *Dobuts Z., Tokyo* 30 1918 (402-408). [*Diptera.*] 813
- Kitashima, Yetsuo.** Tensan no kaibo ni tsuite. [On the anatomy of *Saturnia yamumai* and *S. pernyi.*] *Tokyo, Ni Sanshi Kw Ho.* 1918 (113-117). [*Lepidoptera.*] 814
- Klapálek, F.** Ueber die von Herrn Prof. A. Hetschko in Korsika gesammelten Neuropteroiden nebst Bemerkungen ueber einige ungenügend bekannte Arten. *Wiener ent. Zeit.* Wien. 36 1917 (193-208). 815
- Kleine, R.** Biologische Beobachtungen an *Sitodrepa panicea* L. *Zeitschr. wiss. Insiol.* 13 1918 (271-277). [*Coleoptera.*] 816
- Kleine, R.** Beschädigung der Hülsenfrüchte in Pommern durch *Grapholitha dorsana* F. in den Jahren 1915-1917. *Zeitschr. wiss. Insiol.* Berlin 14 1918 (80-85 123-128). [*Lepidoptera.*] 817
- Knab, F. and Van Zwaluwenburg, R. H.** A second *Mycetophila* with dung-bearing larva. *Ent. News Philadelphia* 29 1918 (138-142) pl. viii. [*Diptera.*] 818
- Knab, F. vide Dyar and Knab.**
- Knight, H. H.** Key to the subfamilies of Miridae. *J. New York ent. Soc.* 26 1918 (40-44) pl. iii. [*Heteroptera.*] 819
- Knight, H. H.** New species of *Lopidea* from Arizona. *Ent. News Philadelphia* 29 1918 (172-176) pl. x. [*Heteroptera.*] 820
- Knight, H. H.** Old and new species of *Lopidea* from the United States [*Hemiptera, Mirido.*] *Ent. News Philadelphia* 29 1918 (210-216) pl. xiii. [*Heteroptera.*] 821
- Knudsen, V.** Sommerfugle-Notitser fra Jylland 1916 og 17. Notes on some *Lepidoptera* caught in Jutland in the years 1916-17. *København, Flora og Fauna* 1918 (41-49). 822
- Knoll, J. R.** A new species of *Eupogonius* (*Coleoptera* *Cerambycidae*) from Pennsylvania. *Ent. News Philadelphia* 29 1918 (132). 823
- Koch, A.** Studien an Larven von *Culex pipiens* bei der Submersion. *Zool. Anz. Leipzig* 50 1918 (105-111). [*Diptera.*] 824
- Koch, A.** Zur Atmungs-Physiologie des Larven von *Culex pipiens* L. *Mitt. zool. Inst. Westfäl. Wilh.-Univ. Münster* 1 1918 (6-8). [*Diptera.*] 825
- Koch, A.** Zur Physiologie des Tracheensystems der Larven von *Mochlonyx* (Lw.). *Mitt. zool. Inst. Westfal.* 1 1918 (11-16). [*Diptera.*] 826
- Kolbe, H.** Ein neuer *Carabus* aus der Untergattung *Coptolabus*. *Deutsche ent. Zeitschr. Berlin* 1914 1914 (637-640). [*Coleoptera.*] 827
- Kolbe, W.** Beiträge zur schleschischen Käferfauna. *Ent. Mitt. Berlin* 7 1918 (200-211). [*Coleoptera.*] 828
- Koponen, J. S. W.** Plecopterologische Studien I. Die *Plecopteren*-Arten Finlands. *Helsingfors Acta Soc. Fauna Fl. Fenn.* 44 No. 3 1916 (1-18) 5 fig. 829
- Koponen, J. S. W.** Plecopterologische Studien II. Bisher unbekannte Larven und Nymphen einiger *Plecopteren*-Arten. *Helsingfors Acta Soc. Fauna et Fl. Fenn.* 44 No. 4 1917 (1-28) 12 fig. 830
- Koponen, J. S. W.** Koskikorennois- (*Plecoptera* l. *Perlidae*) toukista. [Über die Perliden-Larven.] *Helsingfors Medd. Soc. Fauna et Fl. Fenn.* 42 1916 (27-28). [Deutsches Ref. 165.] 831
- Koponen, J. S. W.** Anomaliset spiralikierteiset peräsukasct (cerci) plecopterilajilla *Arcynopteryx compacta* McLachl. [Anomale spiralgewundene Cerci bei *Arcynopteryx compacta* McLachl.] *Helsingfors Medd. Soc. Fauna et Fl. Fenn.* 42 1916 (99-101) fig. [*Plecoptera.*] 832
- Koponen, J. S. W.** Suuosista hyönteislah-kossa *Plecoptera*. [Über die Mundteile der *Plecopteren.*] *Helsingfors Medd. Soc. Fauna et Fl. Fenn.* 42 1916 (148-150). [Deutsches Ref. 165.] 833
- Korb, M.** Reise in den hohen Alai, *Mitt. Münchn. ent. Ges.* 7 1916 (7-24). [*Lepidoptera.*] 834



- Kraatz, W. C.** *Scirtes tibialis*, Guér. with observations on its life-history. Ann. ent. Soc. Amer. Columbus **11** 1918 (393-399) pl. xxxv. [*Coleoptera.*] **835**
- Kříženecký, J.** Ein Versuch zur statistisch-graphischen Untersuchung und Analyse der zeitlichen Eigenschaften der Regenerationsvorgänge. Arch. Entwicklmech. Leipzig **42** 1917 (622-641) pl. xxxvii. [*Coleoptera.*] **836**
- Kryger, J. P.** Om entomologiske Ekskursioner. On the Danish entomological excursions 1868-1918. København, Ent. Medd. **12** 1918 (65-96) 6 figs. **837**
- Kühne, O.** Der Tracheenverlauf im Flügel der *Koleopterennymph*e. Ein Beitrag zur Entwicklung und systematischen Beurteilung des Käferflügelgeäders. Zeitschr. wiss. Zool. Leipzig **112** 1915 (692-718) pls. xix and xx. **838**
- Künneth, F.** Die Stigmenversorgung des Insektenthorax. Zeitschr. wiss. Zool. Leipzig **112** 1915 (70-92) pl. v. **839**
- Kunkel, B. W.** The effects of the ductless glands on the development of the flesh flies. J. Exper. Zool. Philadelphia **26** 1918 (255-264). [*Diptera.*] **840**
- Kuntzen, H.** Einige Ergänzungen zu zwei Arbeiten K. M. Hellers über Rüsselkäfer. Deutsche ent. Zeitschr. Berlin **1914** 1914 (448-454) pl. xiii. [*Coleoptera.*] **841**
- Kuntzen, H.** Ein blinder echter scaritine. Deutsche ent. Zeitschr. Berlin **1914** 1914 (455). [*Coleoptera.*] **842**
- Kuntzen, H.** Ueber einige *Purpuricenus* des tropischen und südlichen Afrika. (*Coleoptera*, Cerambycidae). Mitt. Zool. Mus. Berlin **8** 1915 (33-39). **843**
- Kuntzen, H.** Zur kenntnis der Afrikanischen *Apoderus* (*Coleoptera*, Curculionidae). Mitt. Zool. Mus. Berlin **8** 1915 (137-147). **844**
- Kutter, H.** Myrmikologischer Beobachtungen. Biol. Centralbl. Leipzig **37** 1917 (429-437). [*Hymenoptera.*] **845**
- Kutter, H.** Beiträge zur Ameisenbiologie. Biol. Zentralbl. Leipzig **38** 1918 (110-116). [*Hymenoptera.*] **846**
- Kutter, H.** Eine myrmecologische Excursion nach dem Südfuss der Alpen. Mitt. schweiz. Ent. Ges. Bern. **12** 1916 (344-348). [*Hymenoptera.*] **847**
- Kuwana, I.** Nara no shin kaigaramushi ni tsuite. [On *Nidularia japonica* n. sp.] Konch. Sek., Gifu **27** 1918 (312-314). [*Hemiptera.*] **848**
- Kuwana, I. and Nitobe, Y.** Shin fukurokaigaramushi ni tsuite. [On a new species of the genus *Eriococcus* from Japan.] Konch. Sek., Gifu **27** 1918 (400-403). [*Homoptera.*] **849**
- Kuwana, S. J.** *vide* Essig and Kuwana.
- La Baume, W.** Ergebnisse einer von Fr. Schumacher und A. Spaney unternommenen zoologischen Reise nach den nordwestlichen Balkangebieten. 1. Dermaptera und *Orthoptera*. Mitt. zool. Mus. Berlin **8** 1917 (313-332). **850**
- Labitte, A.** Resistance vitale de quelques larves d'insectes. Bull. Mus. Paris **23** 1917 (399 & 400). **851**
- Labitte, A.** Une extraordinaire aberration génitale d'un *Orthoptère* acridide, le *Pamphagus numidicus* Poiret. Bull. Mus. Paris **23** 1917 (401). **852**
- Laidlaw, F. F.** Some additions to the known dragon fly fauna of Borneo, with an account of new species of the genus *Coeliccia*. Proc. Zool. Soc. London **1917** 1918 (223-232). [*Paraneuroptera.*] **853**
- Lamb, C. G.** Notes on exotic Chloropidae. Part 2, Oscininae. Ann. Nat. Hist. London **1** 1918 (329-348 385-399). [*Diptera.*] **854**
- Lamb, C. G.** On a parasitic *Drosophila* from Trinidad. Bull. ent. Res. London **9** 1918 (157-162). [*Diptera.*] **855**
- Lameere, A.** Vic terrestre secondaire chez les insectes. Ann. zool. malacol. Belgique Bruxelles **48** 1914 (23-26). **856**
- Lameere, A.** Revision sommaire des insectes fossiles du Stéphanien de Commeny. Bull. Mus. Paris **23** 1917 (141-200). **857**

- Lancefield, D. E. Scarlet an autosomal age color identical with sex-linked vermilion. *Biol. Bull. Woods Hole* 35 1918 (207-210). [*Diptera.*] 858
- Lancefield, D. E. An autosomal bristle modifier, affecting a sex-linked character. *Amer. Natural New York* 52 1918 (462-464). [*Diptera.*] 859
- Lancefield, D. E. A case of abnormal inheritance in *Drosophila melanogaster*. *Amer. Natural. New York* 52 1918 (556-558). [*Diptera.*] 860
- Landrock, K. Die Typen der Pilzmücken der von Roserschen Sammlung in Stuttgart. *Wiener ent. Zeit. Wien* 36 1917 (36-39). [*Diptera.*] 861
- Landrock, K. Die Pilzmückengattung *Macrocera* Mg. *Wiener ent. Zeit. Wien* 36 1917 (67-102). [*Diptera.*] 862
- Landrock, K. Eine neue *Mycetophila* aus Österr.-Schlesien. *Wiener ent. Zeit. Wien* 37 1918 (34). [*Diptera.*] 863
- Landrock, K. Tabellen zum Bestimmen europäischer Pilzmücken. i Teil. & ii Teil. *Wiener ent. Zeit. Wien* 37 1918 (55-72 107-120). [*Diptera.*] 864
- Lange, E. *Agrotis collina* Bdv. und ihr Vorkommen im sächsischen Erzgebirge. *Deutsche ent. Zeitschr. Iris Berlin* 31 1918 (122-129). [*Lepidoptera.*] 865
- Lathy, P. T. Two new species of Satyridae from South America. *Entomologist London* 51 1918 (82). [*Lepidoptera.*] 866
- Lea, A. M. Descriptions of Australian *Coleoptera*. Part xiii. *Proc. Linn. Soc. N.S.W. Sydney* 42 1917 (545-582) pl. xxix. 867
- Lea, A. M. On Australian *Coleoptera*. *Rec. S. Austral. Mus. Adelaide* 1 1918 (83-104) pl. ix. 868
- Lea, A. M. Notes on some miscellaneous *Coleoptera*, with descriptions of new species. Part iv. *Tr. R. Soc. S. Austral. Adelaide* 42 1918 (240-275) pls. xxx-xxxii. 869
- Lécaillon, A. Sur quelques données cytologiques relatives aux phénomènes de parthénogenèse qui se produisent chez le *Bombyx* du mûrier. *C.R. Acad. Sci. Paris* 166 1918 (180-181). [*Lepidoptera.*] 870
- Lécaillon, A. Sur la manière dont l'Ammophile hérissée (*Psammothila hirsuta*, Kirby) capture et transporte sa proie, et sur l'explication rationnelle de l'instinct de cet *Hyménoptère*. *C.R. Ac. Sci. Paris* 166 1918 (530-532). 871
- Lécaillon, A. Sur l'action qu'exercent, chez les chenilles d'*Agrotis ripae*, les piqueures venimeuses de l'Ammophile hérissée. *C.R. Ac. Sci. Paris* 166 1918 (922-924). [*Hymenoptera.*] 872
- Le Cerf, F. Description d'une *Triphosa* nouvelle de Corse et observations sur les formes apparentées à *Triphosa sabaudiata* Dup. *Bull. Mus. Paris* 24 1918 (403-417) pl. ix. [*Lepidoptera.*] 873
- Le Cerf, F. Voyage du Comte J. Rohan-Chabot en Afrique équatoriale. Descriptions de *Lépidoptères* nouveaux. *Bull. Mus. Paris* 24 1918 (498-502). 874
- Ledig, Ruth *vide* Johnson & Ledig.
- Leefmans, S. Bydrago tot het *Helopeltis*-vraagstuk voor de thee. [Beitrag zur *Helopeltis* Frage in Beziehung zur Theekultur.] *Buitenzorg Meded. Afd. Plantenziekten* 26 1916 (1-214) 11 Taf. *Buitenzorg Meded. proefst. Thee* 50 1916 (1-214) 11 Taf. 875
- Legendre, J. Biologie des Anophélines de Tananarive. *C.R. Soc. Biol. Paris* 81 1918 (493-495). [*Diptera.*] 876
- Legendre, J. Note sur les *Stegomyia* de Tamatave. *C.R. Soc. Biol. Paris* 81 1918 (832). [*Diptera.*] 877
- Léger, L. et Mouriquand, G. Anophèles et anciens foyers paludiques dans les Alpes. *C.R. Ac. Sci. Paris* 167 1918 (461-463). [*Diptera.*] 878
- Lehr, R. Die Sinnesorgane im Innern des Pedicellus von *Dytiscus marginalis* mit besonderer Berücksichtigung des Johnstonschen Organes. *Zeitschr. wiss. Zool. Leipzig* 111 1914 (428-444). [*Coleoptera.*] 879
- Leng, C. W. Description of a new species of *Piezocorynus*. *J. N. York Ent. Soc.* 26 1918 (11). [*Coleoptera.*] 880
- Leng, C. W. History of the New York entomological Society, 1893-1918. *J. New York ent. Soc.* 26 1918 (129-133). 881

- Leng, C. W. A new race of *Cicindela* with notes on other races and species. J. New York ent. Soc. 26 1918 (138-141). [*Coleoptera.*] 882
- Leng, C. W. Notes on some changes in the list of *Coleoptera.* J. New York ent. Soc. 26 1918 (201-211). 883
- Leng, C. W. and Mutchler, A. J. Insects of Florida. v. The Water Beetles. Bull. Amer. Mus. New York 38 1918 (73-116). [*Coleoptera.*] 884
- Lenz, F. Ueber die Melitæen der Umgegend Münchens, ihre Raupen und Puppen. Mitt. Münchn. ent. Ges. 8 1917 (26-39). 885
- Lenz, F. Eine bisher übersehene deutsche Lymantriide? *Calocasia betulæ* Lenz nova species? Mitt. Münchn. ent. Ges. 8 1917 (45-47). [*Lepidoptera.*] 886
- Lenz, F. Eine neue Geometride von Korsika, *Boarmia semiothisata* Lenz. Mitt. Münchn. ent. Ges. 8 1917 (47-48). [*Lepidoptera.*] 887
- Leonard, M. D. *vide* Crosby & Leonard.
- Lesne, P. Insectes subfossiles des tourbières sous-marines de Belle-Ile. Bull. Mus. Paris 24 1918 (397-402). [*Coleoptera.*] 888
- Lesne, P. Notes sur les Coléoptères térétilles. 16. Un *Sinoxylon* indomalais nouveau. Bull. Mus. Paris 24 1918 (490-492). 889
- Lesne, P. *Coleoptera.* iv. Lyctidae. Beitr. Land.-Süßwasser. Sudwestafrik. Hamburg 1918 1 (291 & 292). 890
- Lesne, P. *Coléoptères* Buprestides des îles Mascareignes. Ann. Soc. ent. France 86 1918 (437-472) pl. 891
- Lesne, P. La faune entomologique subfossile des tourbières sous-marines de Belle-Ile. C.R. Ac. Sci. Paris 167 1918 (538-540). [*Coleoptera.*] 892
- Lestage, J. A. Contribution à l'étude des larves des Ephémères paléarctiques. Ann. Biol. lacustre Bruxelles 8 1917 (213-457). [*Ephemeroptera.*] 893
- Letacq, —. Matériaux pour servir à la faune entomologique du département de l'Orne et des environs d'Alençon. 1<sup>er</sup> fascicule (*Lépidoptères*). Bull. Soc. Rouen Rouen 50 & 51 1917 (233-330). 894
- Lichtenstein, J. Notes biologiques sur quelques Coléoptères de l'Hérault. Bull. Soc. ent. France Paris 1918 1918 (91-94). 895
- Lichtenstein, J. L. L'éthologie d'*Acalles punctaticollis* Luc. Bull. Soc. ent. France 1918 1919 (254-256). [*Coleoptera.*] 896
- Lichtenstein, J. L. and Picard, F. Biologie des *Pristaulacus* Kieffer, et leur repartition en France. Bull. Soc. ent. France Paris 1918 1918 (109-111). [*Hymenoptera.*] 897
- Lichtenstein, J. L. et Picard, F. Etude morphologique et biologique du *Sycosoter lavagnei* Picard & Licht. Trav. Inst. Zool. Univ. Montpellier Cotte 2 29 1918 (440-474). 898
- Lichti, P. A. [and others]. A tentative list of moths from the Claremont-Laguna region. J. Ent. Zool. Claremont 9 1917 (125-134) pls. [*Lepidoptera.*] 899
- Liljeblad, E. Descriptions of eight new species of *Coleoptera* in the family Mordellidae. Canad. Entom. London Can. 50 1918 (153-158). 900
- Lima, A. da Costa *vide* Lutz and Lima.
- Lindberg, H. Två för faunan nya skalbaggar. [Zwei für die Fauna Finlands neue Käfer.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 43 1917 (138-140). [Deutsches Ref. 288 289.] [*Coleoptera.*] 901
- Lindberg, H. Två för landet nya insekter. [Zwei für Finland neue Insekten.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 44 1918 (41-43). [Deutsches Ref. 252.] 902
- Lindemans, J. *vide* Jurriaanse, J. H.
- Lindinger, L. Catálogo de los Cóccidos de las islas Canarias. Bol. Soc. Ent. españ. Zaragoza 1 1918 (51 & 52). [*Homoptera.*] 903
- Lindner, H. Ueber die Mundwerkzeuge einiger Dipteren und ihre Beziehungen zur Ernährungsweise. Zool. Anz. Leipzig 50 1918 (19-27) figs. 904

- Lindner, E. Entomologische Vererbungs-literatur. Zeitschr. wiss. Insbiol. Berlin 13 1917 (103 104 140-142). 905
- Linnaniemi, W. M. Corymbites-vahinkoja. [*Corymbites*-Schäden.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (3) [Deutsches Ref. 163]. [*Coleoptera.*] 906
- Linnaniemi, W. M. Kaksi Suomelle uutta äkämäsääskilajia. [Zwei für Finland neue Cecidomyiden.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (84) [Deutsches Ref. 165]. [*Diptera.*] 907
- Linnaniemi, W. M. Kasvihuonohopokatti (*Diastrammena marmorata* de Haan) tavattu Suomessa. [*Diastrammena marmorata* de Haan aus Finland.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (28-29). [Deutsches Ref. 291]. [*Orthoptera.*] 908
- Linnaniemi, W. M. *Aleurodes fragariae* ja *Trioza alacris* aus Finland.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 44 1918 (57) [Deutsches Ref. 253]. [*Homoptera.*] 909
- Lister, J. J. Butterfly hunting in the New Forest and elsewhere. Entomologist 51 1918 (51-56). [*Lepidoptera.*] 910
- Lizer, C. *Psylla erythrinae* n. sp. An. Soc. Ci. Argentina 85 1918 (307-310). [*Homoptera.*] 911
- Ljungdahl, D. *Lepidopterologiska* anteckningar. Ent. Tidskr. Uppsala 39 1918 (82-91) figs. 912
- Ljungdahl, D. Några puppbeskrivningar. Ent. Tidskr. Uppsala 39 1918 (216-238) figs. [*Lepidoptera.*] 913
- Lodge, Olive C. An examination of the sense-reactions of flies. Bull. ent. Res. London 9 1918 (141-151) pls. viii-xi. [*Diptera.*] 914
- Löfqvist, E. Kaksi Suomelle uutta perhoslajia. [Zwei für Finland neue Schmetterlinge.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (177-178) [Deutsches Ref. 291]. [*Lepidoptera.*] 915
- Lowe, F. E. Report of the entomological section 1917. Rep. Guernsey Soc. 8 (1917) 1918 (14-16). [*Lepidoptera.*] 916
- Lower, O. B. The *Lepidoptera* of Broken hill, New South Wales. Part iv. Tr. R. Soc. S. Austral. Adelaide 42 1918 (226-239). 917
- Lucas, W. J. British Odonata in 1917. Entomologist London 51 1918 (179-182). [*Paraneuroptera.*] 918
- Lucas, W. J. British *Orthoptera* in 1917. Entomologist London 1918 (229-231). 919
- Ludlow, C. S. *Trichoprosopon* Theobald (*Diptera*, *Culicidae*). Psyche Boston 25 1918 (66-68). [*Diptera.*] 920
- Lüderwaldt, H. Biologisches über brasilianische Staphyliniden. Zeitschr. wiss. Insbiol. Berlin 13 1917 (9-14 44-47). [*Coleoptera.*] 921
- Lüllwitz, A. Beitrag zur Kenntnis der Käferfauna Pommerns. Deutsche ent. Zeitschr. Berlin 1914 1914 396-405). [*Coleoptera.*] 922
- Luginbill, P. and Beyer, A. H. Contribution to the knowledge of *Toxoptera graminum* in the south. J. Agric. Res. Washington 14 1918 (97-110) pl. xii. [*Homoptera.*] 923
- Lundbeck, W. Dr. phil. J. C. Nielsen. [Danish entomologist, 1881-1918]. Kobenhavn Naturens Verden 2 1918 (284-285). 924
- Lundbeck, W. *vide* Henriksen & Lundbeck.
- Lundblad, O. *Ithytrichia lamellaris* Eaton. Ent. Tidskr. Uppsala 39 1918 (342-343). [*Trichoptera.*] 925
- Lundström, C. Beiträge zur Kenntnis der *Dipteren* Finlands. X. Supplement 4. *Bibionidae*, *Chironomidae*, *Tipulidae*. Helsingfors Acta Soc. Fauna Fenn. 44 No. 2 1916 (1-26) 2 Taf. 926
- Luther, A. Bon af *Vespa saxonica*. [Nester von *Vespa saxonica*.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (23-24) [Deutsches Ref. 164]. [*Hymenoptera.*] 927
- Lutz, A. A contribution to the knowledge of Brazilian *Oestridae*. Mem. Inst. Oswaldo Cruz 10 1918 (118-137) pls. 27-29. [*Diptera.*] 928
- Lutz, A., Araujo, H. C. de Souza and Filho, O. da Fonseca. Viagem científica no Rio Paraná e a Assuncion com

- volta por Buenos Aires, Montevideo e Rio Grande. Mem. Inst. Oswaldo Cruz Rio de Janeiro **10** 1918 (104-199) english summary (83-100) pls. **929**
- Lutz, A.** and **Lima, A. da Costa.** Contribuição para estudo das Tripanéidas (moscas de frutas) brasileiras. Mem. Inst. Oswaldo Cruz Rio de Janeiro **10** 1918 (5-16) pls. i & ii. [*Diptera.*] **930**
- Lutz, F. E.** Field book of insects, with special reference to those of north-eastern United States. New York 1918 (ix+509) pls. **931**
- Lyle, G. T.** Contributions to our knowledge of the british Braconidae. No. 3. Microgasteridae. Entomologist London **51** 1918 (104-111 129-136). [*Hymenoptera.*] **932**
- Maas, O.** Versuche über Umge- wöhnung und Vererbung beim Seiden- spinner. Arch. Entwicklmech. Leipzig **41** 1915 (672-727). [*Lepidoptera.*] **933**
- McAlpine, W. S.** A collection of *Lepidoptera* from Whitefish Point, Michigan. Occas. Pap. Mus. Zool. Univ. Michigan Ann. Arbor **54** 1918 (26 pp.). **934**
- McAttee, W. L.** The biting powers of ants. Amer. Mus. J. New York **18** 1918(141-147) pl.[*Hymenoptera.*] **935**
- McAtee, W. L.** Notes on nova- scotian eupteryid leaf-hoppers, includ- ing descriptions of two new species. Canad. Entom. London Can. **50** 1918 (360-361). [*Homoptera.*] **936**
- McAtee, W. L.** Psyllidae of the vicinity of Washington, D.C., with description of a new species of *Aphalara*. Ent. News Philadelphia **29** 1918 (220-224). [*Homoptera.*] **937**
- McAtee, W. L.** Genera of the Eup- terygidae (*Homoptera*; Jassoidae). Proc. Proc. biol. Soc. Washington **31** 1918 (109-124). **938**
- McAtee, W. L.** Key to the nearctic species of *Laphria* (*Diptera*, Asilidae). Ohio Nat. Columbus **19** 1918 (143-170) pls. x & xi. **939**
- McAtee, W. L.** Vaporous discharge by *Anisomorpha vuprestoides* (*Ortho- ptera* Phasmidae). Ent. News Phil- adelphia **29** 1918 (388). **940**
- McAtee, W. L.** and **Caudell, A. N.** First list of the Dermaptera and *Orthoptera* of Plummers island, Mary- land, and vicinity. Proc. ent. Soc. Washington **19** 1918 (100-122) pl. xiii. **941**
- McCray, H.** and **White, G. F.** The diagnosis of bee diseases by laboratory methods. Bull. U.S. Dep. Agric. Washington **671** 1918 (1-15). [*Hymeno- ptera.*] **942**
- Macdowell, E. C.** Bristle inheritance in *Drosophila*. ii. Selection. J. Exper. Zool. Philadelphia **23** 1917 (109-146). [*Diptera.*] **943**
- McDunnough, J.** Dates of issue of the plates of Guérin's Iconographie du rogne animal. (*Lepidoptera.*) Ent. News Philadelphia **29** 1918 (378-380). **944**
- McDunnough, J.** vide Barnes & McDunnough.
- McEwen, R. S.** The reactions to light and to gravity in *Drosophila* and its mutants. J. Exper. Zool. Philadelphia **25** 1918 (49-106). [*Diptera.*] **945**
- MacGregor, M. E.** Insects as carriers of disease. Trans. Amer. microsc. Soc. Decatur **37** 1918 (7-18). **946**
- McIndoo, N. E.** The olfactory organs of a *Coleopterous* larva. J. Morphol. Philadelphia **31** 1918 (113-131). **947**
- Macnamara, C.** The original paper- makers. Ottawa Natural. **32** 1918 (47-49). [*Hymenoptera.*] **948**
- Main, H.** Pupation of *Dytiscus marginalis*. Proc. ent. Soc. London **1917** 1918 (lxxiii-lxxv) pls. D E F. [*Coleoptera.*] **949**
- Main, H.** Pupation of *Geotrupes typhoeus*. Pr. ent. Soc. London **1917** 1918 (xc-xci) pls. G. H J. [*Coleoptera.*] **950**
- Malenotti, E.** I nomici naturali della bianca-rossa (*Chrysomphalus dictyo- spermi* Morg.). Redia Firenze **13** 1918 (17-51) pls. i & ii. [*Hymenoptera.*] **951**
- Malenotti, E.** *Casca luzonica* Malen. n. sp. Endofago di *Schizaspis lobata* Cockll. e Rob. Redia Firenze **13** 1918 (73-76). [*Hymenoptera.*] **952**

- Malenotti, E.** Nuovi calciditi. *Rodia Firenze* 13 1918 (77-92). [*Hy-menoptera.*] 953
- Malloch, J. R.** A new genus and species of North-American Chloropidae. *Bull. Brooklyn Ent. Soc.* 11 1916 (86 & 87). [*Diptera.*] 954
- Malloch, J. R.** A key to the males of the Anthomyid genus *Hydrotaea* recorded from North-America. *Bull. Brooklyn Ent. Soc.* 11 1916 (108-111). [*Diptera.*] 955
- Malloch, J. R.** A key to the North-American genera of Coenosiniinae. *Bull. Brooklyn ent. Soc.* 12 1917 (35-37). [*Diptera.*] 956
- Malloch, J. R.** A new genus and species of Anthomyiidae. *Bull. Brooklyn Ent. Soc.* 12 1917 (37 & 38). [*Diptera.*] 957
- Malloch, J. R.** Key for the specific identification of the females of the *Dipterous* genus *Hydrotaea* found in North-America. *Bull. Brooklyn ent. Soc.* 13 1918 (30-33). 958
- Malloch, J. R.** An undescribed North-American species of *Hydrotaea*. *Bull. Brooklyn ent. Soc.* 13 1918 (93). [*Diptera.*] 959
- Malloch, J. R.** Three new North-American Chloropidae. *Bull. Brooklyn ent. Soc.* 13 1918 (108-111). [*Diptera.*] 960
- Malloch, J. R.** The North-American species of the genus *Tiphia* (*Hymenoptera aculeata*) in the collection of the Illinois State Natural History Survey. *Bull. Illinois N.H. Survey Urbana* 13 Art. 1 1918 (24 pp.) pl. 961
- Malloch, J. R.** A revision of the *Dipterous* Clusioididae (Heteroneuridae). *Proc. ent. Soc. Washington* 20 1918 (2-3). 962
- Malloch, J. R.** The genus *Cnemedon* Egger in North America. *Proc. ent. Soc. Washington* 20 1918 (127). [*Diptera.*] 963
- Malloch, J. R.** A partial key to species of the genus *Agromyza*. *Canad. Entom. London Can.* 50 1918 (76-80). [*Diptera.*] 964
- Malloch, J. R.** A partial key to species of the genus *Agromyza*. Second paper. *Canad. Entom. London Can.* 50 1918 (130-132). [*Diptera.*] 965
- Malloch, J. R.** Key to the North-American species of *Agromyza* related to *simplex* Loew. *Canad. Entom. London Can.* 50 1918 (178). [*Diptera.*] 966
- Malloch, J. R.** A new North-American species of *Anthomyiidae*. *Canad. Entom. London Can.* 50 1918 (310). [*Diptera.*] 967
- Malloch, J. R.** Partial key to the genus *Agromyza*. Fourth paper. *Canad. Entom. London Can.* 50 1918 (315-318). [*Diptera.*] 968
- Malloch, J. R.** Two new North-American *Phoridae*. *Ent. News Philadelphia* 29 1918 (146-148). [*Diptera.*] 969
- Malloch, J. R.** A new species of *Johannesomyia* (Ceratopogonidae, *Diptera*). *Ent. News Philadelphia* 29 1918 (229-230). 970
- Malloch, J. R.** *Anthracophaga ditichiae* sp. n. *J. econ. Ent. Concord* 11 1918 (386). [*Diptera.*] 971
- Malloch, J. R.** Occurrence of an European solitary bee (*Andrena wilkella* Kirby) in the eastern United States. *Proc. biol. Soc. Washington* 31 1918 (61-64). [*Hymenoptera.*] 972
- Malloch, J. R.** Notes and descriptions of some anthomyiid genera. *Proc. biol. Soc. Washington* 31 1918 (65-68). [*Diptera.*] 973
- Mann, W. M.** Myrmecophilous insects from Cuba. *Psyche Boston* 25 1918 (104-106). 974
- Marchal, P.** Discours présidentiel. *Bull. Soc. ent. France Paris* 1918 1918 (45-48). 975
- Marchand, W.** The evolution of the abdominal pattern in Tabanidae. *Trans. amer. ent. Soc. Philadelphia* 44 1918 (171-179) pl. ix. [*Diptera.*] 976
- Marchand, W.** The larval stages of *Argyra albicans* Lw. (*Diptera*, Dolichopodidae). *Ent News Philadelphia* 29 1918 (216-220). 977
- Marchand, W.** First account of a thermotropism in *Anopheles punctipennis*, with bionomic observations. *Psyche Boston* 25 1918 (130-135). [*Diptera.*] 978
- Marlatt, C. L.** The origin of the pink boll-worm. *Science New York* 48 1918 (309-312). [*Lepidoptera.*] 979

- Marschner, H.** *Lygris populata* L. Deutsche ent. Zeitschr. Berlin 1914 1914 (640-645) pl. xiv. [*Lepidoptera.*] 980
- Marshall, G. A. K.** On new African *Cureulionidae*. I. Ann. Nat. Hist. London 1 1918 (1-11) pl. i. [*Coleoptera.*] 981
- Marshall, G. A. K.** *Platymycterus* a new genus of Asiatic *Cureulionidae*. Ann. Nat. Hist. 1 1918 (245-251). [*Coleoptera.*] 982
- Marshall, G. A. K.** Notes on *Alcides*, Schönh. (*Cureulionidae*, *Coleoptera*). Ann. Nat. Hist. London 2 1918 (152-158). 983
- Marshall, G. A. K.** A new weevil pest of sweet potatoes in Jamaica. Bull. ent. Res. London 9 1918 (269-272). [*Coleoptera.*] 984
- [**Marshall, G. A. K.** and others.] The review of applied entomology, Series A : agricultural. Vol. 6 (1-568). Series B : medical and veterinary. Vol. 6 (1-240). London 1918. Imp. Bureau of Entomology. 985
- Marshall, W. W.** and **Muller, H. J.** The effect of long-continued heterozygosis on a variable character in *Drosophila*. J. Exper. Zool. Philadelphia 22 1917 (457-470). [*Diptera.*] 986
- Martin, L.** Die Tagfalter der Insel Celebes. Deutsche ent. Zeitschr. Iris Berlin 28 1914 (59-107) 29 1915 (4-19 50-90). [*Lepidoptera.*] 987
- Martin, R.** Insectes Pseudonéuroptères. ii, Odonata. Voyage Alluaud & Jeannel. Paris 1915 (21-50) pls. i-iii. [*Paraneuroptera.*] 988
- Mast, S. O.** Behaviour of fire-flies (*Photinus ardens* ?) with special reference to the problem of orientation. [Abstract.] Psych. Bull. Princeton N.J. 9 1912 (56-57). 989
- Matsumura, S.** Thousand insects of Japan. Additamenta ii. Tokyo [? 1916] (185-473) pls. xvi-xxv. [*Diptera.*] 990
- Matsubayashi, T.** *vide* Kawase, S.
- Maulik, S.** Variation in the prothoracic spines of *Dactylispa*. Ann. Nat. Hist. London 1 1918 (70-74). [*Coleoptera.*] 991  
(n-5464 j)
- Maulik, S.** Note on *Epistictia reicheana*, Guérin. Ann. Nat. Hist. London 1 1918 (74-76). [*Coleoptera.*] 992
- Maulik, S.** Note on *Laccoloptera vigintisex-notata*, Boheman. Ann. Nat. Hist. London 1 1918 (318-322). [*Coleoptera.*] 993
- Maulik, S.** Two new Indian *Cassidinae* beetles. Ann. Nat. Hist. London 1 1918 (322-325). [*Coleoptera.*] 994
- Melander, A. L.** The *dipterous* genus *Drapetis* Meigen. Ann. ent. Soc. Amer. Columbus 11 1918 (183-221). 995
- Melin, D.** Några tankar om mimicry och skyddande likhet med stöd av *dipterologiska* studier. Ent. Tidskr. Uppsala 39 1918 (239-294) pls. 996
- Mellerio, A.** Observations zoologiques faites sur quelques insectes *Coléoptères*. Bull. Mus. Paris 24 1918 (418 & 419). 997
- Menon, T. K.** *vide* Cornwall & Menon.
- Mercet, R. G.** Revision de los Signiforinos de España. Rev. R. Ac. Ci. Madrid 16 1917 (160-170). [*Hymenoptera.*] 998
- Mesnil, F.** et **Roubaud, E.** Insectes et infections aux années. C.R. Soc. Biol. Paris 81 1918 (1029-1038). 999
- Metcalf, C. L.** *Syrphidae* of Maine. Second report. Bull. Agric. exp. Stat. Maine Orono 263 1917 (154-176) 5 pls. [*Diptera.*] 1000
- Meunier, F.** Ueber einige Mycetophiliden und Tipuliden des Bernsteins nebst Beschreibung der Gattung *Palaeotanypeza* (*Tanypezinae*) derselben Formation. Neues Jahrb. Mineral Stuttgart 1917 3 (73-106) pls. vii-xvi. [*Diptera.*] 1001
- Meunier, F.** Eine neue Phryganiden-Art aus den Gipsplatten von Aix (Provence). Ent. Mitt. Berlin 7 1918 (198-200). [*Trichoptera.*] 1002
- Meyer, P.** Wilhelm Koltze. Ein Nachruf. Wiener ent. Zeit. Wien 34 1915 (113-115). 1003
- Meyer, P.** Dritter Beitrag zum Vorkommen verschiedener paläarktischer *Acalles*-Arten. Wiener ent. Zeit. Wien 34 1915 (396-398). [*Coleoptera.*] 1004

- Meyer, P. Dritter Beitrag über masenhaftes Insektenvorkommen. Wiener ent. Zeit. Wien 37 1918 (149-153). 1005
- Meyere, J. C. H. de. Neue holländische *Dipteren.* 's Gravenhage Tydschr. Ent. 61 1918 (128-141) Taf. viii. 1006
- Meyere, J. C. H. de. Zur Evolution der Zeichnung bei den holometabolen Insekten. 's Gravenhage Tydschr. Ent. 61 1918 (57-75). 1007
- Meyrick, E. Exotic *Microlepidoptera.* 2 parts 4-7 Marlborough 1918 (97-224). 1008
- Meyrick, E. Descriptions of New Zealand *Lepidoptera.* Tr. New Zealand Inst. 50 1918 (132-134). 1009
- Meyrick, E. Descriptions of South African *Micro-Lepidoptera.* Ann. Transv. Mus. Pretoria 6 1918 (7-59). 1010
- Middleton, W. Notes on the larvae of some Cephidae. Proc. ent. Soc. Washington 19 1918 (175-179) pl. xxi. [*Hymenoptera.*] 1011
- Mignone, A. Osservazioni morfologiche sulla *Recurvaria nanella* Hb. Atti R. Acc. Lincei Roma 25 1 1916 (343-349 and 423-428 539-547). [*Lepidoptera.*] 1012
- Mikkelsen, A. Sjaeldnere Sommerfugle, tagne i Skanderborgegnen. Some rare *Lepidoptera* found in the environs of Skanderborg, Jutland. Købehavn Flora og Fauna 1918 (63-64). 1013
- Miller, D. A new fungus-gnat which fertilizes *Corysanthes oblonga* Hook. New Zealand J. Sci. Wellington 1 1918 (4). [*Diptera.*] 1014
- Miller-Rutz, J. *vide* Vorbrodt and Miller-Rutz.
- Milliken, F. B. *Nysius ericae*, the false chinch-bug. J. Agric. Res. Washington 13 1918 (571-578) pls. lx & lxi. [*Heteroptera.*] 1015
- Mitter, J. L. Note on the method of feeding of *Corizoneura (Pangonia) longirostris* Hardwick, with a description of the mouth parts. Indian J. med. Res. Calcutta 5 1918 (523-528) pl. xlix. [*Diptera.*] 1016
- Morely, C. Notes on Braconidae xii, on the Liophroninae, with description of a new British species. Ent. Mo. Mag. London 54 1918 (85-86). [*Hymenoptera.*] 1017
- Morris, H. M. The larval and pupal stages of *Scatopse notata*, L. Ann. appl. Biol. Cambridge 5 1918 (102-108) pl. x. 1018
- Mortensen, T. Observations on insects. "Double-headed" butterflies. Vid. Medd. Copenhagen 69 1918 (83-94) pl. i. [*Lepidoptera.*] 1019
- Moser, J. *Coleoptera* vi: Cetonidae. Beitr. Land.-Süßwasserf. Deutsch. Südwestafrik. 1 Hamburg 1918 (307-309). 1020
- Moser, J. Beitrag zur Kenntnis der Cetoniden. xiv. Deutsche ent. Zeitschr. Berlin 1914 1914 (573-614). [*Coleoptera.*] 1021
- Mosher, Edna. Pupae of common Sphingidae of eastern North-America. Ann. ent. Soc. Amer. Columbus 11 1918 (403-441) pl. xxxvi. [*Lepidoptera.*] 1022
- Mosher, Edna. Pupae of some Maine species of Notodontoidea. Bull. Maine exp. Stat. Orono 259 1917 (29-84) pls. [*Lepidoptera.*] 1023
- Mosley, F. O. Fungoid and insect pests and their control. Pt. i; vegetable and pulse crops. Reading 1918 (24 pp.) figs. 1024
- Mottram, J. C. Some observations on the feeding-habits of fish and birds, with special reference to warning colouration and mimicry. J. Linn. Soc. London Zool. 34 1918 (47-60) pl. v. 1025
- Mottram, J. C. Some observations upon concealment by the apparent disruption of surface in a plane at right angles to the surface. Proc. Zool. Soc. London 1917 1918 (253-257). [*Lepidoptera.*] 1026
- Mouriquand, G. *vide* Léger & Mouriquand.
- Mozier, C. A. and Snyder, T. E. Notes on gadflies in the Florida everglades. Proc. ent. Soc. Washington 20 1918 (115-126). [*Diptera.*] 1027
- Moznette, G. F. The rose flea-beetle [*Haltica probata* Fall]. J. Ent. Zool. Claremont 9 1917 (13-19) pl. [*Coleoptera.*] 1028



- Müller, J. Zur Kenntnis der Gattung *Molops*. Ent. Mitt. Berlin 7 1918 (1-11) [Coleoptera.] 1030
- Müller, J. Die europäischen Arten der Gattung *Stenostola* Muls. Wiener ent. Zeit. Wien 34 1915 (293-297). [Coleoptera.] 1031
- Müller, J. Die ostadriatischen *Asida*-Arten. Wiener ent. Zeit. Wien 36 1917 (1-16). [Coleoptera.] 1032
- Müller, J. Ueber *Ceuthmonocharis robusta* Ggib. und *freyeri* L. Mill. Wiener ent. Zeit. Wien 37 1918 (197-199). [Coleoptera.] 1033
- Muesebeck, C. F. W. Two important introduced parasites of the brown-tail moth. J. Agric. Res. Washington 14 1918 (191-206) pls. xix-xxii. [Hymenoptera.] 1033a
- Muir, F. Notes on the ontogeny and morphology of the male genital tube in *Coleoptera*. Tr. ent. Soc. London 1918 1918 (223-229) pl. x. 1034
- Muir, F. Pipunculidae and Stylopidae in *Homoptera*. Ent. Mo. Mag. London 54 1918 (137). 1035
- Muir, F. Notes on the Derbidae in the British Museum. Ent. Mo. Mag. London 54 1918 (173-177 202-207). [Homoptera.] 1036
- Muir, F. Notes on the Derbidae in the British Museum collection. ii, Derbinae. Ent. Mo. Mag. London 54 1918 (228-243). [Homoptera.] 1037
- Muir, F. Two new species of *Nesosydne*. Proc. hawai. ent. Soc. Honolulu 3 1918 (405-407). [Homoptera.] 1038
- Muir, F. *Homopterous* notes. ii. Proc. hawai. ent. Soc. Honolulu 3 1918 (414-428). 1039
- Muller, H. J. *vide* Marshall & Muller.
- Mutchler, A. J. *vide* Leng & Mutchler.
- Myers, Lea. *Coleoptera* from the Claremont-Laguna region. J. Ent. Zool. Claremont 10 1918 (43-5). 1040
- Nachtsheim, H. Entstehen auch aus befruchteten Bieneneiern Drohnen? Eine Kritik der Anschauungen O. Dickel's ueber die Geschlechtsbestimmung bei den *Hymenopteren*, insbesondere bei der Honigbiene. Biol. Centralbl. Leipzig 35 1915 (127-143). 1041
- Nachtsheim *vide* Buttler-Reepen.
- Nadig, A. Alcuno note sulla fauna dell'alta Valsesia. Formicidae. Atti Soc. ital. Sci. nat. Milano 56 1918 (331-341). [Hymenoptera.] 1042
- Nadig, A. Note sulla fauna dell'alta Valsesia. ii. *Orthoptera*. Atti. Soc. ital. Pavia 57 1918 (116-130). 1043
- Nagano, K. Nippon-san garui no shin shu oyobi miroku shu. [New and unrecorded species of Heterocera from Japan.] Konch. Sek. Gifu 27 1918 (356-361). [Lepidoptera.] 1044
- Nagano, K. Nippon-san garui no shin shu oyobi miroku shu. [New and unrecorded species of Heterocera from Japan.] Konch. Sek. Gifu 27 1918 (410-415). [Lepidoptera.] 1045
- Nagano, K. Nippon-san garui no shin shu oyobi miroku shu. [New and unrecorded species of Heterocera from Japan.] Konch. Sek. Gifu 27 1918 (448-451). [Lepidoptera.] 1046
- Nagano, K. Nippon-san garui no shin shu oyobi miroku shu. [New and unrecorded species of Heterocera from Japan.] Konch. Sek. Gifu 27 1918 (487-492). [Lepidoptera.] 1047
- Naito, M. Hokkaido ni okoru tensakusan shiikugyo ni tsuite. [Rearing of *Bombyx yamamai* and *B. pernyi* in Yezo island.] Tokyo Ni. Sanshi Kw. Ho. 1918 (418-422). [Lepidoptera.] 1048
- Nakahara, W. Studies of amitosis: its physiological relations in the adipose cells of insects and its probable significance. J. Morphol. Philadelphia 30 1918 (483-526). [Lepidoptera.] 1049
- Natvig, L. R. Beitrag zur Biologie der Dasselfliegen des Renntieres. Tromso Mus. Aarsheft. Tromsø 38 & 39 1918 (117-132) pl. [Diptera.] 1050
- Natzmer, G. v. Das biogenetische Grundgesetz im Leben der Insektenstaaten. Biol. Centralbl. Leipzig 35 1915 (30-36). 1051
- Navás, L. Monografia de l'ordre dels Rafidiòpters. Barcelona Arch. Inst. Catalans 1918 4to. (1-93). [Neuroptera.] 1052
- Navás, L. Excursions per el Norte de España. Ass. esp. Progr. Ci. Valladolid 1915 (161-179). 1053

- Navás, L.** *Insectos chilenos.* Bol. Soc. Aragon. Zaragoza 17 1918 (212-230). 1054
- Navás, L.** *Notas entomológicas.* (2° serie.) Bol. Soc. Aragon Zaragoza 17 1915 (231-235). 1055
- Navás, L.** *Comunicaciones ontomológicas. 2, Excursiones entomológicas por Aragón y Navarra.* Revist. Ac. Ci. Zaragoza 2 1917 (83-91). 1056
- Navás, L.** *Excursions entomologiques al Nort de la Provincia de Lleida.* Butl. Inst. Catalunya 1916 1917 (150-158). 1057
- Navás, L.** *Neurópteros nuevos o poco conocidos.* (Octava serie.) Mem. Ac. Ci. Barcelona 13 No. 7 1917 (155-178.) 1058
- Navás, L.** *Neurópteros nuevos o poco conocidos.* (Decima serie.) Mem. Ac. Ci. Barcelona 14 1918 (339-366). 1059
- Navás, L.** *Neurópteros nuevos de España.* Tercera serie. Rev. R. Acad. Ci. Madrid 15 1917 (739-751). 1060
- Navás, L.** *Algunos insectos de la Republica Argentina.* Revist. Ac. Ci. Madrid 16 1917 (491-504). 1061
- Navás, L.** *Dos Plecópteros nuevos de Aragón.* Bol. Soc. Ent. España Zaragoza 1 1918 (154-157). 1062
- Navás, L.** *Quelques Néuropteres de la Tunisie.* Mitt. schweiz. ent. Ges. Bern 12 1916 (367-371) pl. xxiv. 1063
- Navás, L.** *Insecta nova. 1 and 2 series.* Mem. Pont. Acc. Romana 3 1917 (22 pp.). 1064
- Navás, L.** *Algunos insectos Neurópteros de la Argentina.* Physis Buenos Aires 4 1918 (80-89). 1065
- Navrátil, M.** *Hofrat Dr. Leopold Melichar. Zu seinem 60 Geburtstag.* Wiener ent. Zeit. Wien 36 1917 (31-36). [*Homoptera.*] 1066
- Nawa, M.** *Konboamebachi.* [On *Habronyx japonicum* Kricch. and its host.] Konch. Sek. Gifu 27 1918 (96-100) pl. x. [*Hymenoptera.*] 1067
- Neale, J.** *The significance and possible origin of the colour pattern of the puss caterpillar.* Proc. Bourne-mouth Soc. 7 1916 (60-63). [*Lepidoptera.*] 1068
- Neander, A.** *Ytterligare om Kronobergs läns Macrolepidoptera.* Ent. Tidskr. Uppsala 39 1918 (31-53). 1069
- Needham, J. G.** *Aquatic insects.* [in] Ward and Whipple fresh-water biology New York 1918 (876-946). 1070
- Nelson, J. A.** *The segmentation of the abdomen of the honey bee (*Apis mellifica* L.).* Ann. ent. Soc. Amer. Columbus 11 1918 (1-8). [*Hymenoptera.*] 1071
- Nelson, J. A.** *An eyeless drone honey bee.* Proc. ent. Soc. Washington 20 1918 (105-107) pl. viii. [*Hymenoptera.*] 1072
- Neresheimer, J. and Wagner, H.** *Beitrage zur Coleopterenfauna der Mark Brandenburg.* vi. Ent. Mitt. Berlin 7 1918 (17-30) vii (130-134). 1073
- Netolitzky, F.** *Verbreitungskarten zur Insektengeographie.* Wiener ent. Zeit. Wien 34 1915 (287-291). 1074
- Newcomer, E. J.** *Some stoneflies injurious to vegetation.* J. Agric. Res. Washington 13 1918 (37-41) pls. ii-iv. [*Plecoptera.*] 1075
- Newell, A. G.** *The comparative morphology of the genitalia of insects.* Ann. ent. Soc. Amer. Columbus 11 1918 (109-142) pls. iv-xvii. 1076
- Newstead, R.** *Polypneustic lobes in the larvae of tsetse-flies (*Glossina*) and forest-flies (*Hippoboscidae*).* Ann. trop. Mod. Liverpool 12 1918 (93-107). [*Diptera.*] 1077
- Nicolay, A. S and Weiss, H. B.** *A review of the genus *Buprestis* in America.* J. New York ent. Soc. 26 1918 (75-109) pls. v & vi. [*Coleoptera.*] 1078
- Nicolay, A. S.** *vide Weiss & Nicolay.*
- Nielsen, J. C.** *Tachin-Studien Studies on the biology of the Tachinidae.* Kobenhavn Nath. Medd. 69 1918 (247-262). [*Diptera.*] 1079
- Nielsen, P.** *Bidrag til en Fortegnelse over jydsk Stankelben (*Nematocera polyneura*).* Catalogue of the *Nematocera polyneura* of Jutland. København] Flora og Fauna 1918 (1-11). [*Diptera.*] 1080
- Niepell, W.** *Neue Formen exotischer Tagfalter.* Int. ent. Zeitschr. 9 1915 (58). [*Lepidoptera.*] 1081

- Nishikawa, Sa.** Sanji hantenbyo no gen-in to odorokubeki kinkemushi no dokumo sayo. [On the origin of patch disease of silkworms and the action of the poisonous hairs of *Porthesia similis*.] Tokyo Ni. Sanshi Kw. Ho. 1918 (653-657). [*Lepidoptera.*] 1082
- Nishitani, J.** Hyogwa ôto no gaichu kabakiriga ni tsuite. [On *Taeniocampa incerta* Hubn. injurious to apple and cherry trees.] Konch. Sek. Gifu 27 1918 (19-21). [*Lepidoptera.*] 1083
- Nitobe, Y.** *vide* Kuwana, I.
- Nonaka, Y.** Sanji no toshoku to ranshoku to no sokwangensho. [On the correlation of the colour of head and eggs of silkworms.] Tokyo Ni. Sanshi Kw. Ho. 1918 (711-714). [*Lepidoptera.*] 1084
- Nordenskiöld, E.** Muutamia pürteitä sisäisistä muutoksista hyönteisten muodonvaihdoksessa. [Über einige innere Veränderungen bei der Metamorphose der Insekten.] Helsinki Luonnon Ystävä 20 1916 (79-85) 3 fig. 1085
- Nordenström, H.** Parasitstekelfynd i Sydsverige. Ent. Tidskr. Uppsala 39 1918 (92-94). [*Hymenoptera.*] 1086
- Nordström, F.** Fynd av sällsyntare fjärilar jämte anteckningar om några av dem. Ent. Tidskr. Uppsala 39 1918 (60-66). [*Lepidoptera.*] 1087
- Nordström, F.** Bidrag till kännodomen om Sveriges dagfjärilar. Ent. Tidskr. Uppsala 39 1918 (298-321) figs. [*Lepidoptera.*] 1088
- Normand, H.** Observations éthologiques sur quelques *Coléoptères* tunisiens. Bull. Soc. ent. France Paris 1918 1918 (76-79). 1089
- Notman, H.** *Boreaphilus*, a genus of Staphylinid *Coléoptera* new to North America. J. New York ent. Soc. 26 1918 (182-189). 1090
- Nozawa, H.** Manshu no ryusan ni tsuite. [Willow leaf as the food of *Saturnia pernyi* in Manchuria.] Sangyo Simpo [Sericultural magazine] Tokyo 1918 (164-170). [*Lepidoptera.*] 1091
- Nusbaum-Hilarowicz, J.** Ueber das Verhalten des Chondrioms während der Eibildung bei *Dytiscus marginalis* L. Zeitschr. wiss. Zool. Leipzig 117 1917 (554-589) pls. xiii-xvi. [*Coleoptera.*] 1092
- Nuttall, G. H. F.** The pathological effects of *Phthirus pubis*. Parasitology Cambridge 10 1918 (375-382). [*Ellipoptera.*] 1093
- Nuttall, G. H. F.** The biology of *Phthirus pubis*. Parasitology Cambridge 10 1918 (383-405). [*Ellipoptera.*] 1094
- Nuttall, G. H. F.** Combating lousiness among soldiers and civilians. Parasitology Cambridge 10 1918 (413-586). [*Ellipoptera.*] 1095
- Odenberger, J.** Neue Formen aus der Gruppe *Actenodites* (*Coleoptera* Buprestidae). Ent. Mitt. Berlin 7 1918 12-16). 1096
- Odenberger, J.** Analecta ii. N Beitr. syst. Inskunde Berlin 1 1917 (33-35). [*Coleoptera.*] 1097
- Odenberger, J.** Analecta iii (Fam. Buprestidae). N. Beitr. syst. Inskunde Berlin 1 1917 (60-63). [*Coleoptera.*] 1098
- Obenberger, J.** Neue exotische Aemaeoderen (*Coleoptera*, Buprestidae). N. Beitr. syst. Inskunde Berlin 1 1917 (53-56). 1099
- Obenberger, J.** Studien über paläarktische Buprestiden. ii Theil. Wiener ent. zeit. Wien 36 1917 (209-218). [*Colcoptera.*] 1100
- Oberthür, C.** Etudes de *Lépidoptérologie* comparée. Fasc. 15 *vide* Houlbert, C. 1101
- Oberthür, C.** Etudes de *Lépidoptérologie* comparée. Fasc. 16 Rennes 1918 (1-381) pls. 482-501 + A-G. 1102
- Oberthür, C.** Faune des *Lépidoptères* de Barbarie. Noctuidae. Et. Léop. comp. 16 1918 (1-251) pls. 1103
- Oberthür, C.** Observations relatives à la biologie de *Lycaena alcon*. Et. Léop. comp. 16 1918 (267-272). [*Lepidoptera.*] 1104
- Oberthür, C.** Une nouvelle aberration de *Papilio podalirius*. Et. Léop. comp. 16 1918 (355-363). [*Lepidoptera.*] 1105
- Oberthür, C.** Notes sur trois *Lépidoptères* sino-thibétains, dont une nouvelle forme de *Papilio latreillei* Donovan. Bull. Soc. ent. France Paris 1918 1918 (186-187). 1106

- Oberthür, C.** *Lépidoptères* hétérocères attirés par la lumière électrique près de Rennes. Bull. Soc. ent. France Paris 1918 1918 (198). 1107
- Oberthür, C.** Une nouvelle espèce de *Cyaniris* de la faune sino-thibétain. Bull. Soc. ent. France Paris 1918 1918 (237-238). [*Lepidoptera.*] 1108
- Oberthür, C. et Houlbert, C.** Rhopalocères armoricains. Bull. Soc. Ouest Rennes 23 1914 (89-104, 105-120, 121-136) 24 1915 (137-168), 25 1916 (169-184), 26 1917 (185-200). [*Lepidoptera.*] 1109
- Öblom, F.** *Piesma quadrata* från Finland. [*Piesma quadrata* aus Finland] Helsingfors Medd. Soc. Fauna et Fl. Fenn 42 1916 (3) [Deutsches Ref. 164]. [*Heteroptera.*] 1110
- Öblom, F.** Fre för Finland nya cicadadier. [Drei für Finland neue Cicadarien] Helsingfors Medd. Soc. Fauna Fl. Fenn. 43 1917 (5) [Deutsches Ref. 290]. [*Homoptera.*] 1112
- Ohaus, F.** Revision der Adoretini. Deutsche ent. Zeitschr. Berlin 1914 1914 (471-514). [*Coleoptera.*] 1113
- Olsen, C. E.** North American Cicadellidae in the collection of the American museum of natural history, subfamily Cicadellinae. Bull. Amer. Mus. New York 38 1918 (1-6). [*Homoptera.*] 1114
- O'Neil, J.** Nature notes. The hawk moths of Mushonaland. Rhod. Agric. Journ. 15 1918 (153-168). [*Lepidoptera.*] 1115
- Onslow, Hon. H.** Hybrids of *Zygana filipendulae* and of *Z. loniceræ*. Ent. Rec. London 30 1918 (148-149). [*Lepidoptera.*] 1116
- Orchymont, A. d'.** Note préliminaire sur la norvation alaire des *Coléoptères*. Bull. Soc. ent. France Paris 1918 1918 (170-172). 1117
- Orstadius, E.** Ytterligare anteckningar om fjärlar, nuondsakligen småfjälilar, i Kronobergs län. Ent. Tidskr. Uppsala 39 1918 (69-81) figs. [*Lepidoptera.*] 1118
- Osborn, H.** The meadow plant-bug *Miris dolabratus*. J. Agric. Res. Washington 15 1918 (175-200) pl. xi [*Heteroptera.*] 1119
- Osthelder, L.** Beiträge zur Kenntnis der Schmetterlingsfauna Südbayerns und der Alpenländer. Mitt. München. ent. Ges. 7 1916 (30-41). [*Lepidoptera.*] 1120
- Osthelder, L.** Die Formen von *Erebia pronœ* in den bayerischen Alpen. Mitt. München. Ent. Ges. 7 1916 (81-91). [*Lepidoptera.*] 1121
- Oudemans, J. Th.** *Endromis versicolora*. 's Gravenhage Ber. Ned. Ent. Ver. 5 1918 (93-103). [*Lepidoptera.*] 1122
- Oyama, Mit** vide Yano, S.
- Paganetti-Hammler, G.** Beiträge zur *Coleopterenfauna* Italiens. Monte Cénere. N. Beitr. syst. Inskunde Berlin 1 1917 (38-43). 1123
- Paganetti-Hammler, G.** Beiträge zur *Coleopterenfauna* Italiens. Murgien. N. Beitr. syst. Inskunde. Berlin 1 1917 (69-72, 77-80, 85-88, 92-96, 101-103). 1124
- Paiva, C. A.** [in Annandale] Zoological results of a tour in the far east. Aquatic *Hemiptera*. Mem. Asiat. Soc. Bengal Calcutta 6 1917 (79-82). 1125
- Paiva, C. A.** Rhynchota from Barkuda island. Rec. Ind. Mus. Calcutta 15 1918 (1-16). [*Heteroptera.*] 1126
- Paiva, C. A.** Aquatic Rhynchota from the southern Shan states. Rec. Ind. Mus. 14 1918 (21-32) pls. vii & ix. [*Heteroptera.*] 1127
- Pammel, L. H. and Kenoyer, L. A.** Some additional notes on the pollination of red clover. Proc. Iowa Acad. Des Moines 24 1917 (357-365). [*Hymenoptera.*] 1128
- Pantel, J.** Notes additionelles sur les *Carausius* de l'Inde. Ann. Soc. ent. France Paris 86 1918 (575-576). [*Orthoptera.*] 1129
- Pantel, J.** Précisions nouvelles sur la région postérieure du vaisseau dorsal des muscides, et particularités remarquables de cette région chez la larve de *Ceromasia rufipes* Mg. Cellule Louvain 29 1914 (379-389). [*Diptera.*] 1130
- Pantel, J.** Signification des "glandes annexes" intestinales des larves de Ptychopteridae et observations sur les tubes de Malpighi de ces Nématocères (larves et adultes). Cellule Louvain 29 1914 (393-429) pt. [*Diptera.*] 1131

- Pantel, J. et Sinéty, R. de.** Reaction chromatique et non chromatique de quelques Phasmides aux excitations dépendant de la lumière. Bull. Sci. France Belgique Paris 52 1918 (177-283) pl. ii. [*Orthoptera.*] 1132
- Parker, R. R.** A new species of *Sarcophaga* from Niagara falls. J. New York ent. Soc. 26 1918 (28-30). [*Diptera.*] 1133
- Parker, R. R.** A new species of *Sarcophaga* from British Columbia. Canad. Entom. London Can. 50 1918 (122-124). [*Diptera.*] 1134
- Parker, R. R.** A new species of *Sarcophaga* from California. J. Ent. Zool. Claremont 10 1918 (32 & 33). [*Diptera.*] 1135
- Parker, J. R.** The life history and habits of *Chloropisca glabra* Meig., a predaceous osecnid. J. econ. Ent. Concord 11 1918 (368-380). [*Diptera.*] 1136
- Parker, R. R.** Data concerning flies that frequent privy-vaults in Montana Ent. News Philadelphia 29 1918 (143-146). [*Diptera.*] 1137
- Parshley, H. M.** *Hemipterological* notes. Psyche Boston 25 1918 (64-65). 1138
- Patch, Edith M.** Pink and green aphid of potato. Bull. Maine exp. stat. Orono 242 1915 (205-223) pls. [*Homoptera.*] 1139
- Patch, Edith M.** The aphid of chokocherry and grain. Bull. Maine exp. Stat. Orono 267 1917 (293-297) pl. [*Homoptera.*] 1140
- Patch, Edith M.** Eastern aphids, a few species of *Prociphilus*. Bull. Maine exp. Stat. Orono 270 1918 (45 & 46). [*Homoptera.*] 1141
- Patch, Edith M.** Food-plant catalogue of the Aphidæ of the world. Part V. Bull. Maine exp. Stat. Orono 270 1918 (47-100). [*Homoptera.*] 1142
- Paterson, J. T.** Studies on the biology of *Parapociclosomopsis*, IV, the asexual larva. Biol. Bull. Woods Hole 35 1918 (362-376) 3 pls. [*Hymenoptera.*] 1143
- Payne, F.** The effect of artificial selection on bristle number in *Drosophila ampelopila*. Proc. Indiana Ac. Indianapolis 1917 1918 (249). [*Diptera.*] 1144
- Peacock, A. D.** The structure of the mouthparts and mechanism of feeding in *Pediculus humanus*. Parasitology Cambridge 11 1918 (98-117) pl. vi. [*Ellipoptera.*] 1145
- Péju, G. et Cordier, E.** Epidémie palustre et conditions de l'anophélisme en Argonne. C. R. Soc. Biol. Paris 81 1918 (1039-1041). [*Diptera.*] 1146
- Pellett, F. C.** Life-history and habits of *Polistes metricus* Say. Proc. Iowa Acad. Des Moines 23 1916 (275-284). [*Hymenoptera.*] 1147
- Pemberton, C. E. and Willard, H. F.** Fruit-ply parasitism in Hawaii during 1916. J. Agric. Res. Washington 12 1918 (103-108). [*Hymenoptera.*] 1148
- Pemberton, C. E. and Willard, H. F.** Interrelations of fruit-fly parasites in Hawaii. J. Agric. Res. Washington 12 1918 (285-296) pls. x-xiii. [*Hymenoptera.*] 1149
- Pemberton, C. E. and Willard, H. F.** A contribution to the biology of fruit-fly parasites in Hawaii. J. Agric. Res. Washington 15 1918 (419-466) figs. [*Hymenoptera.*] 1150
- Pemberton, C. E. and Willard, H. F.** Work and parasitism of the mediterranean fruit-fly in Hawaii during 1917. J. Agric. Res. Washington 14 1918 (605-610). [*Hymenoptera.*] 1151
- Pemberton, C. E.,** *vide* Back and Pemberton.
- Penecke, K. A.** *Mesagroicus hofferi* sp. n. Wiener ent. Zeit. Wien 36 1917 (219-221). [*Coleoptera.*] 1152
- Pennington, M. S.** Notas sobre la larva y la pseudo-imagen de la *Nezara abnormis* Berg. Physis Buenos Aires 4 1918 (332-334). [*Heteroptera.*] 1153
- Perkins, R. C. L.** The synonymy of *Andrena wilkella* Kirby and its allies, with notes on habits as confirming specific distinctions. Ent. Mo. Mag. London 54 1918 (36-38). [*Hymenoptera.*] 1154
- Perkins, R. C. L.** Synopsis of British *Strepsiptera* of the genera *Stylops* and *Halictoxenus*. Ent. Mo. Mag. London 54 1918 (67-76) pl. i. 1155
- Perkins, R. C. L.** *Halictoxenus arnoldi*, an undescribed British stylopid. Ent. Mo. Mag. London 54 1918 (107). [*Strepsiptera.*] 1156

- Perkins, R. C. L.** Further notes on *Stylops* and styloped bees. *Ent. Mo. Mag.* London **54** 1918 (115-128). [*Hymenoptera.*] 1157
- Perkins, R. C. L.** On the assembling and pairing of *Stylops*. *Ent. Mo. Mag.* London **54** 1918 (129-131). [*Strepsiptera.*] 1158
- Perkins, R. C. L.** On parasitic (or cuckoo) bees and wasps. *J. Torquay N. H. Soc.* 1918 reprint (7 pp.). [*Hymenoptera.*] 1159
- Petherbridge, F. R. and Husaix, M. A.** A study of the capsid bugs found on apple trees. *Ann. appl. Biol.* Cambridge **4** 1918 (179-205), pls. ix-xi. 1160
- Petri, K.** Beitrag zur siebenbürgischen Käferfauna. *Wiener ent. Zeit.* Wien **34** 1915 (345). [*Coleoptera.*] 1161
- Petri, K.** Einige neue Rüssler des paläarktischen Gebietes. *Wiener ent. Zeit.* Wien **34** 1915 (337-346). [*Coleoptera.*] 1162
- Petroff, A.** Note sur une Noctuide nouvelle pour l'Égypte, *Plusia aurifera* Hubn. *Bull. Soc. ent. Égypte Le Caire* **10** 1918 (121-124). [*Lepidoptera.*] 1163
- Pettey, F. W.** A revision of the genus *Sciara* of the family Mycetophilidae. *Ann. ent. Soc. Amer.* Columbus **11** 1918 (319-346) pls. xxx & xxxi. [*Diptera.*] 1164
- Pettey, F. W.** Two new species of *Sciara* from the Philippines. *Philipp. J. Sci.* Manila **D 13** 1918 (215-217) pl. [*Diptera.*] 1165
- Pettey, F. W.** A new species of *Sciara* bred from red clover crowns. *J. econ. ent. Concord* **11** 1918 (420). [*Diptera.*] 1166
- Pettey, F. W.** Hermaphroditism in *Metanastria pythyocampa* Crain. *S. Afric. Journ. Sci.* Cape Town **14** 1918 (12) pl. 12. [*Lepidoptera.*] 1167
- Peyerimhoff, P. de.** Notes sur *Mimocete punicum* Norm. *Bull. Soc. ent. France Paris* 1918 1918 (130-132). [*Coleoptera.*] 1168
- Peyerimhoff, P. de.** Nouveaux Coléoptères du Nord-africain (28me. nota): faune du pin d'Alepe. *Bull. Soc. ent. France Paris* 1918 (141-143). 1169
- Peyerimhoff, P. de.** Nouveaux Coléoptères du Nord-Africain (vingt-neuvième note: faune du Djurdjara). *Bull. Soc. ent. France Paris* 1918 1919 (257-260). 1170
- Peyerimhoff, P. de.** Nouveaux Coléoptères du Nord-Africain (trentième note: faune de l'Aurès). *Bull. Soc. ent. France Paris* 1918 1919 (276-278). 1171
- Pfankuch, K.** Aus der Ichneumonologie. (5. Fortsetzung). *Deutsche ent. Zeitschr.* Berlin **1914** 1914 (535-541). [*Hymenoptera.*] 1172
- Philpott, A.** Descriptions of new species of *Lepidoptera*. *Tr. N. Zeal. Inst.* **50** 1918 (125-132). 1173
- Pic, M.** Anthicides de Mongolie. *Bull. Mus. Paris* **23** 1917 (256 & 257). [*Coleoptera.*] 1174
- Pic, M.** Nouveaux Coléoptères exotiques. *Bull. Mus. Paris* **23** 1917 (258-263). 1175
- Pic, M.** *Coleoptera*, III: Malacodermata et Bruchidae. *Beitr. Land. Süsswasserf. Deutsch. Sudwestafrikas* (Hamburg **1** 1918 (285-288). 1176
- Pic, M.** Mélanges exotico-entomologiques. Fasc. 27 (1-24), 28 (1-24), & 29 (1-24). *Moulins* 1918. [*Coleoptera.*] 1177
- Pic, M.** Espèces nouvelles du genre *Statira* Serv. et notes synonymiques. *Bull. Soc. ent. France Paris* 1918 1918 (95-96). [*Coleoptera.*] 1178
- Pic, M.** Deux nouveaux *Poecilasthus* Blanch. *Bull. Soc. ent. France Paris* 1918 (123). [*Coleoptera.*] 1179
- Pic, M.** Notes diverses, descriptions et diagnostics. *Echange Moulins* **34** 1918 (1-3, 4 & 6, 9-11, 13-15, 17-19, 21-24). [*Coleoptera.*] 1180
- Pic, M.** *Hyménoptères* nouveaux. *Echange Moulins* **34** 1918 (4-12). 1181
- Pic, M.** Nouveau genre de Longicornes. *Echange Moulins* **34** 1918 (6). [*Coleoptera.*] 1182
- Pic, M.** Coléoptères exotiques en partie nouveaux. *Echange Moulins* **34** 1918 (15, 16, 19, 20). 1183
- Pic, M.** Hétéromères exotiques nouveaux. *Echange Moulins* **34** 1918 (1-4 hors texte). [*Coleoptera.*] 1184

- Pic, M. Descriptions diverses de Tenthredinides et notes. Echange Moulins 34 1918 (1-4 hors texte). [*Hymenoptera.*] 1185
- Picard, F. *vide* Lichtenstein and Picard.
- Pickard-Cambridge, A. W. In memoriam the late Rev. O. Pickard, Cambridge, M.A. Proc. Dorset N. H. Club Dorchester 38 1918 (xli-lii) Portrait. 1186
- Pictet, A. Les migrations de *Pieris brassicae* en Suisse, en 1917. Verh. Schweizer Ges. Aarau 1917 1918 (277). [*Lepidoptera.*] 1187
- Piepers, M. C. and Snellen, P. C. T. The *Rhopalocera* of Java. Erycinidae, Lycaenidae, with the collaboration of H. Fruhstorfer. The Hague, 1918 (xlv + 112), pls. xix-xxvii. [*Lepidoptera.*] 1188
- Pierce, F. N. The *Lepidoptera* of an Essex garden. Ent. Rec. London 30 1918 (81-86). 1189
- Pierce, W. D. A manual of dangerous insects. U. S. Dep. Agric. Washington 1917 (Cf. J. Agric. Res. 12 p. 605). 1190
- Pierce, W. D. The comparative morphology of the order *Strepsiptera* together with records and descriptions of insects. Proc. U.S. Nat. Mus. 54 1918 No. 2242 (391-504) pls. lxiv-lxxviii. 1191
- Pierce, W. D. Weevils which affect irish potato, sweet potato and jam. J. Agric. Res. Washington 12 1918 ((601-612) pls. xxviii & xxix. [*Coleoptera.*] 1192
- Pierce, W. D. The case of the genera *Rhina* and *Magdalis*. Proc. ent. Soc. Washington 20 1918 (72-78). [*Coleoptera.*] 1193
- Pierce, W. D. Medical entomology a vital factor in the prosecution of the war. Proc. ent. Soc. Washington 20 1918 (91-104). 1194
- Pierre, C. Nervulations anormales de quelques *Diptères* tipuliformes. Bull. Soc. ent. France Paris 1918 1918 (60-62). 1195
- Pierre, C. Description d'un *Pachyrhina* nouveau du Lyonnais. Bull. Soc. ent. France Paris 1918 1918 (230-232). [*Diptera.*] 1196
- Piers, H. The *Orthoptera* of Nova Scotia, with descriptions of the species and notes on their occurrence and habits. Proc. Nova Scotia Inst. Halifax 14 1918 (201-354) 4 pls. 1197
- Pigeot, P. Descriptions d'espèces nouvelles de *Dolerus*. Echange Moulins 34 1918 (3 & 4). [*Hymenoptera.*] 1198
- Plough, H. H. The effect of crossing over in *Drosophila*. J. Exper. Zool. Philadelphia 24 1917 (147-209). [*Diptera.*] 1199
- Polimanti, O. Physiologische Untersuchungen ueber das pulsierende Gefäss von *Bombyx mori* L. 1, Der Einfluss der Temperatur auf den Rhythmus des pulsierenden Gefässes. Biol. Centralbl. Leipzig 35 1915 (143-145). [*Lepidoptera.*] 1200
- Pollard, F. J. S. *vide* Carpenter & Pollard.
- Potter, W. R. R. Annual address. Proc. Hawai ent. Soc. Honolulu 3 1918 (459-463). 1201
- Pouillaude, I. La teigne du poireau (*Acroleptia assectella* Zeller). Bull. Soc. Oucst Rennes 26 1917 (57-61). [*Lepidoptera.*] 1202
- Poulton, E. B. Predaceous reduviid bugs and fossors, with their prey, from the S. Paulo district of Southeast Brazil. Proc. ent. Soc. London 1917 1918 (xxiv-xl). 1203
- Poulton, E. B. A synaposematic series of 272 Lycid beetles of 9 species taken on one plank in one day by G. H. D. Carpenter, in late German East Africa. Proc. ent. Soc. London 1917 1918 (lvii-lix). [*Coleoptera.*] 1204
- Poulton, E. B. Mendelian heredity in relation to selection [abstracts of Jennings, 1917]. Pr. ent. Soc. London 1917 1918 (lxxxv-lxxxix). 1205
- Poulton, E. B. A new form of *Pseudacraea poggei* Dew., mimicking the *dorippus* Klug form of *Danaïda chrysippus* L. in ex-German East Africa. P. ent. Soc. London 1918 1918 (v-xxii). [*Lepidoptera.*] 1206
- Poulton, E. B. *vide* Eltringham.

- Powell, H. Compte rendu de la recherche des chenilles de *Lycaena alcon* à la fin d'août et pendant les premiers jours de Septembre 1918. [In Oberthür] Et. Lép. comp. 16 1918 (273-276). [*Lepidoptera.*] 1207
- Powell, H. Observations sur les premiers états de *Carcharodus altheae* Huebner. [In Oberthür] Et. Lép. comp. 16 1918 (343-352). [*Lepidoptera.*] 1208
- Prashad, B. The thorax and wing of the mosquito (*Anopheles*). Ind. J. med. Res. Calcutta 5 1918 (610-640) pls. lvii-lxi. [*Diptera.*] 1209
- Prashad, B. The development of the dorsal series of thoracic imaginal buds of the mosquito, and certain observations on the phylogeny of the insects. Ind. J. med. Res. Calcutta 5 1918 (641-655) pls. lxii-lxvi. [*Diptera.*] 1210
- Prashad, B. The description and life-history of a new species of *Anopheles* that breeds in holes in trees. Rec. Ind. Mus. Calcutta 8 1918 (123-128) pl. xvii. [*Diptera.*] 1211
- Prashad, B. The anatomy of a chironomid larva of the genus *Polypedilum*. Rec. Ind. Mus. Calcutta 14 1918 (71-74) pl. xxiii. [*Diptera.*] 1212
- Prashad, B. Contributions to the anatomy of aquatic *Diptera*. Rec. Ind. Mus. Calcutta 15 1918 (153-158) pl. xix. 1213
- Prell, H. Biologische Beobachtungen an *Anopheles* in Württemberg. Zeitschr. wiss. Insbiol. Berlin 13 1917 (242-249 257-271). [*Diptera.*] 1214
- Prochnow, O. Das Springen der Schnellkäfer physikalisch betrachtet. Biol. Centralbl. Leipzig 35 1915 (81-93). [*Coleoptera.*] 1215
- Prout, L. B. New species and forms of Geometridae. Nov. zool. Tring 25 1918 (76-89). [*Lepidoptera.*] 1216
- Prout, L. B. A provisional arrangement of the Diptidae. Novit. Zool. Tring 25 1918 (395-429). [*Lepidoptera.*] 1217
- Prout, L. B. New *Lepidoptera* in the Joicey collection. Ann. Nat. Hist. London 1 1918 (18-32). 1218
- Prout, L. B. New Heterocera in the Joicey collection. Ann. Nat. Hist. London 1 1918 (312-318). [*Lepidoptera.*] 1219
- Prout, L. B. New *Lepidoptera* in the Joicey collection. Ann. Nat. Hist. London 2 1918 (412-418). 1220
- Przibram, H. Wachstumsmessungen an *Sphodromantis bioculata* Burm. iii. Länge regenerierender und normaler Schreitbeine. (Zugleich: Aufzucht der Gottesanbeterinnen. vii. Mitteilung.) Arch. Entwicklmech. Leipzig 43 1918 (1-19) pl. i. [*Orthoptera.*] 1221
- Przibram, H. Temperaturquotienten für Lebenserscheinungen der *Sphodromantis bioculata* Burm. (Zugleich: Aufzucht der Gottesanbeterin. viii. Mitteilung.) Arch. Entwicklmech. Leipzig 43 1917 (28-36). [*Orthoptera.*] 1222
- Przibram, H. Fühlerregeneration halberwachsener *Sphodromantis*-Larven. (Zugleich: Aufzucht der Gottesanbeterinnen. ix. Mitteilung, und: Homöocosis bei Arthropoden, iii. Mitteilung.) Arch. Entwicklmech. Leipzig 48 1917 (63-87) pls. iii-v. [*Orthoptera.*] 1223
- Przibram, H., und Walther, A. Keine Grössenzunahme der frischgeschlüpften *Sphodromantis* mit dem Alter der Mutter. Arch. Entwicklmech. Leipzig 40 1914 (416-428). [*Orthoptera.*] 1224
- Puel, L. Sur les *Anthicus* français du groupe de *Phumilis* Germ. Miscoll. ent. Uzès 24 1919 (49-60). [*Coleoptera.*] 1225
- Püngeler, R. Zwei neue palaearctische Heteroceran. Mitt. Münchn. ent. Ges. 8 1917 (19 & 20). [*Lepidoptera.*] 1226
- Quiel, G. Anatomische Untersuchungen an *Collembolen*. Zeitschr. wiss. Zool. Leipzig 113 1915 (113-164) pls. vi & vii. 1227
- Quiel, G. Gerridae aus der Umgebung von Potsdam. Deutsche ent. Zeitschr. Berlin 1914 1914 (646). [*Heteroptera.*] 1228
- Raadt, O. L. E. de en Seters, W. H. van. Tabel voor determinatie van Anophelinen in Nederlandsch Oost-Indie. [Tabelle zur Bestimmung von



- Anophelinen aus Niederländisch Ost-indien.] Tydschrift Vergelykende Geneeskunde Gezondheidsleer Dierziekten Leiden 4 1918 (90-95). [*Diptera.*] 1229
- Raadt, O. L. E. de. Tabel voor determinering van vlooien. [Tabelle zur Bestimmung von Flöhen.] Tydschrift Vergelykende Geneeskunde Gezondheidsleer Dierziekten Leiden 4 1918 (86-88). [*Aphaniptera.*] 1230
- Rabaud, E. Eclotions retardées d'*Urophora macrura* Lw., *Diptere* gallicole. Bull. Soc. ent. France Paris 1918 1918 (195-197). 1231
- Rabaud, E. Ethologie et comportement de diverses larves endophytes (observations et expériences). iii. *Pontania proxima* Lepel. dans les galles des feuilles de Saules. Bull. Sci. France Belgique Paris 52 1918 (303-323). [*Hymenoptera.*] 1232
- Rabaud, E. L'immobilisation réflexe des Arthropodes par renversement simple. (6e note préliminaire). Bull. Soc. zool. France Paris 42 1918 (140-145). 1233
- Rabaud, E. Rôle de divers ganglions nerveux dans l'immobilisation réflexe. (7e note préliminaire.) Bull. Soc. zool. France 42 1918 (158-166). 1234
- Raffray, A. Nouvelles espèces de Pselaphides (Paraguay-Laos-Philippines). Ann. Soc. ent. France Paris 86 1918 (473-502). [*Coleoptera.*] 1235
- Railliet, A. Sur la nomenclature de deux Oestridés du cheval. Bull. Soc. zool. France 43 1918 (102-104). [*Diptera.*] 1236
- Rao, Y. R. Notes on some South Indian Cecidomyiids causing galls in grasses. J. Asiat. Soc. Bengal Calcutta 13 1917 (299-306) pl. x. [*Diptera.*] 1237
- Räsänen, T. Kotisirkan levenemis-  
suhsteista maassamme. [Über die  
Verbreitung von *Gryllus domesticus* in  
Finland.] Helsinki Luonnon Ystävä  
20 1916 (21-23). [*Orthoptera.*] 1238
- Rangnow, H. Verzeichnis der von  
mir in Schweden, insbesondere in  
Lappmark gesammelten *Macrolepido-  
pteren*. Zeitschr. wiss. Insbiol. Berlin 13  
1918 (283-297) pl. i. 1239
- Razzauti, A. Contributi alla conoscenza fauristica delle isole toscane. i, Isola Capraia. Atti Soc. Toscana Pisa 31 1917 (196-224). 1240
- Reed, C. S. Breves observaciones acerca de la biologia de la *Phyllos nymphula*. Physis Buenos Aires 4 1918 (313 and 314). [*Lepidoptera.*] 1241
- Rehn, J. A. G. The Stanford expedition to Brazil 1911, *Orthoptera* ii. Trans. amer. ent. Soc. Philadelphia 43 1917 (89-154) pls. iii and iv. 1242
- Rehn, J. A. G. On Dermaptera and *Orthoptera* from south-eastern Brazil. Trans. Amer. ent. Soc. Philadelphia 44 1918 (181-222) pl. x. 1243
- Rehn, J. A. G. On *Orthoptera* from the vicinity of Rio de Janeiro, Brazil. Trans. Amer. ent. Soc. Philadelphia 43 1917 (335-363) pl. xxvii. 1244
- Rehn, J. A. On a collection of *Orthoptera* from the State of Pará, Brazil. Proc. Ac. Philadelphia 70 1918 (144-236) pls. i and ii. 1245
- Rehn, A. G. and Hebard, M. A new species of the genus *Nemobius* from California. Ent. News Philadelphia 29 1918 (102-104). [*Orthoptera.*] 1246
- Reichensperger, . Beobachtungen an Amoisen. ii. Ein Beitrag zur Pseudogynon-Theorie. Zeitschr. wiss. Insbiol. Berlin 13 1917 (145-152). [*Hymenoptera.*] 1247
- Reineck, G. Ueber die äthiopischen Vertreter der Gattungen *Cryptocephalus* und *Melixanthus* (*Anteriscus*) des Königl. zoolog. Museums in Berlin und einiger anderen Museen und Sammlungen. (*Coleoptera*, Chrysomelidae). Mitt. Zool. Mus. Berlin 7 1915 (393-469). 1248
- Reitter, E. Fauna germanica. Die Käfer des deutschen Reiches. Band 5 Stuttgart 1916 (1-343) pls. 153-168. [*Coleoptera.*] 1249
- Reitter, E. Bestimmungs-Tabelle der Tenebrioniden-Abteilung der Scaurini. Deutsche ent. Zeitschr. Berlin 1914 1914 (369-380). [*Coleoptera.*] 1250
- Reitter, E. Bestimmungstabelle der Tenebrioniden-Abteilung der *Sepidiini*. Deutsche ent. Zeitschr. Berlin 1914 1914 (381-392). [*Coleoptera.*] 1251

- Reitter, E. Bestimmungstable der echten Pimeliiden aus der paläarktischen Fauna. Wiener ent. Zeit. Wien 34 1915 (1-63). [*Coleoptera.*] 1252
- Reitter, E. *Cartodere subcostella* n. sp. Wiener ent. Zeit. Wien 34 1915 (66). [*Coleoptera.*] 1253
- Reitter, E. Einer Serie neuer *Coleopteren* aus der Familie der Tenebrionidae der paläarktischen Fauna. Wiener ent. Zeit. Wien 34 1915 (83-92). 1254
- Reitter, E. Ueber die langfühlerigen Arten der Gattung *Neuraphes* (Unter-gattung *Paragraphes*) aus der nächsten Verwandtschaft des *filicornis* Reitt. Wiener ent. Zeit. Wien 34 1915 (102-104). [*Coleoptera.*] 1255
- Reitter, E. Neue Uebersicht der bekannten paläarktischen Arten der *Coleopteren* Gattung *Chloebius* Schönh. Wiener ent. Zeit. Wien 34 1915 (105-108). [*Coleoptera.*] 1256
- Reitter, E. Zwei neue *Bythinus*-Arten. Wiener ent. Zeit. Wien 34 1915 (111-112). [*Coleoptera.*] 1257
- Reitter, E. *Theca sardoa* n. sp. Wiener ent. Zeit. Wien 34 1915 (116). [*Coleoptera.*] 1258
- Reitter, E. Neue Arten aus der Rüsselkäfer-Tribus Ptoehini aus China und der Mongolei. Wiener ent. Zeit. Wien 34 1915 (117-124). [*Coleoptera.*] 1259
- Reitter, E. *Coleopterologischen* Notizen. Nos. 748-757. Wiener ent. Zeit. 34 1915 (124-126). Nos. 765 and 766 op. cit. 36 1917 (192). No. 767 T.c. (262). 1260
- Reitter, E. Die Arten der Tenebrioniden-Gattung *Kokeniella* Reitt. Wiener ent. Zeit. Wien 34 1915 (127-128). [*Coleoptera.*] 1261
- Reitter, E. Zwei neue *Neuraphes*-Arten aus Istrien. Wiener ent. Zeit. Wien 34 1915 (129, 130). [*Coleoptera.*] 1262
- Reitter, E. Ueber *Arthrodosis*-Arten aus der Buehara. Wiener ent. Zeit. Wien 34 1915 (130, 131). [*Coleoptera.*] 1263
- Reitter, E. *Anoplistes diabolicus* n. sp. Wiener ent. Zeit. Wien 34 1915 (170). [*Coleoptera.*] 1264
- Reitter, E. Bestimmungstabelle der Rüsselkäfergattung *Chlorophanus* Germ. Wiener ent. Zeit. Wien 34 1915 (171-184). [*Coleoptera.*] 1265
- Reitter, E. Uebersicht der mir bekannten Arten der Rüsselkäfergattung *Chiloncus* Schönh. und *Chilonorrhinus* Reitt. Wiener ent. Zeit. Wien 34 1915 (187-191). [*Coleoptera.*] 1266
- Reitter, E. Bestimmungs-Schlüssel für die Unterfamilien und Tribus der paläarktischen Tenebrionidae. Wiener ent. Zeit. Wien 36 1917 (51-66). [*Coleoptera.*] 1267
- Reitter, E. Bestimmungstabelle der *Cossyphini* und *Misolampini*. Wiener ent. Zeit. Wien 36 1917 (129-150). [*Coleoptera.*] 1268
- Reitter, E. Ueber ontomologische, speziell Koleopterologische Systematik, Wiener ent. Zeit. Wien 36 1917 (221-228). 1269
- Reitter, E. Eine neue Studie über die Arten der *Coleopterengattung Sphaerosoma* Leach (*Alexia* Steph.). Wiener ent. Zeit. Wien 36 1917 (271-275). [*Coleoptera.*] 1270
- Reitter, E. *Bergrothia bicarinata* n. sp. Wiener ent. Zeit. Wien 37 1918 (53). [*Coleoptera.*] 1271
- Reitter, E. Ueber die Gattungen der paläarktischen Pselaphini s. str. Wiener ent. Zeit. Wien 37 1918 (73-75). [*Coleoptera.*] 1272
- Reitter, E. Eine neue Lamellicornien-Gattung aus Sizilien. Wiener ent. Zeit. Wien 37 1918 (77 and 78). [*Coleoptera.*] 1273
- Reitter, E. Bestimmungstabelle der paläarktischen *Elater*-Arten. Wiener ent. Zeit. Wien 37 1918 (84-105). [*Coleoptera.*] 1274
- Reitter, E. Josef Stussiner. Ein Nachruf. Wiener ent. Zeit. Wien 37 1918 (120-122). 1275
- Reitter, E. *Lomechusa wasmanni* r. sp. Wiener ent. Zeit. Wien 37 1918 (148). [*Coleoptera.*] 1276
- Reitter, E. Vier neue *Coleopteren* aus Albanien. Wiener ent. Zeit. Wien 37 1918 (153 and 154). 1277

- Reitter, E.** Zwei neue *Cephennium*-arten aus der Herzogovina. Wiener ent. Zeit. Wien **37** 1918 (157 and 158). [*Coleoptera.*] 1278
- Reitter, E.** Bemerkenswerte *Coleopteren*funde von Endre Dudich in Südtirol and Norditalien. Wiener ent. Zeit Wien **37** 1918 (159 and 160) 1279
- Reuter, O. M.** Ausführliche Beschreibung einiger paläarktischen *Hemipteren*. Helsingfors Öfvers. F. Vet. Soc. 55 A No. 14 1913 (1-111) Taf. 1280
- Reuter, O. M.** Amerikanische Miriden. Helsingfors Öfvers. F. Vet. Soc. 55 A No. 18 1913 (1-64) Taf. [*Heteroptera.*] 1281
- Reuter, E.** Bo af *Megachile ligniseca*. [Nest von *Megachile ligniseca*] Helsingfors Modd. Soc. Fauna et Fl. Fenn. **42** 1916 (32) [Deutsches Ref. 164]. [*Hymenoptera.*] 1282
- Ricardo, Gertrude.** Further notes on the Asilidae of Australia. Ann. Nat. Hist. London **1** 1918 (57-66). [*Diptera.*] 1283
- Rich, S. G.** The gill-chamber of dragonfly nymphs. J. Morphol. Philadelphia **31** 1918 (317-347). [*Paraneuroptera.*] 1284
- Rich, S. G.** The respiratory rectum of the nymph of *Mesogomphus*. S. Afric. Journ. Sci. Cape Town **14** 1918 (426-432) 8 figs. [*Paraneuroptera.*] 1285
- Rich, S. G.** The respiratory organs of a Notonectid. S. A. Journ. Sci. Cape Town **14** 1918 (453-455). 1286
- Richards, Mildred H.** Two new eye colors in the third chromosome of *Drosophila melanogaster*. Biol. Bull. Woods Hole **35** 1918 (199-206). [*Diptera.*] 1287
- Richardson, C. H.** The pulsatile vessels in the legs of Aphididae. Psyche Boston **25** 1918 (15-17). [*Homoptera.*] 1288
- Riehn, H.** Ein für Deutschland neuer Carabide, sowie noch einige neue Fundorte deutscher oder Harzer Käfer. Deutsche ent. Zeitschr. Berlin **1914** 1914 (405-415). 1289
- Riley, G. F. C.** Food of aquatic *Hemiptera*. Science New York **48** 1918 (545 and 546). 1290
- Ringdahl, O.** Neue nordische Anthomyiden. Ent. Tidskr. Uppsala **39** 1918 (148-194). [*Diptera.*] 1291
- Ris, F.** Zwei Notizen über *Calopterygiden* (Odonata) vom Malaiischen Archipel. Ent. Mitt. Berlin **5** 1916 (303-318). [*Paraneuroptera.*] 1292
- Ris, F.** Ueber Richtungslinien der Systematik. Mitt. ent. Zurich Heft **2** 1916 (99-120). 1293
- Ris, F.** *Aeschna coerulesa* in der Schweiz. Mitt. Schweiz. ent. Ges. Born **12** 1916 (348-354) pl. xix. [*Paraneuroptera.*] 1294
- Ris, F.** Ueber drei Arten *Erpeto gomphus* (Odonata). Arch. Naturges. Berlin **82** A 3 1917 (152-158). [*Paraneuroptera.*] 1295
- Ris, F.** Libollen (Odonata) aus der Region der amerikanischen Cordilloren von Costarica bis Catamarca. Arch. f. Naturges. Berlin **82** Abt. A. Heft 9 1918 (1-197) 2 pls. [*Paraneuroptera.*] 1296
- Ris, F.** Der Artbegriff, insbesondere in der Entomologie. Mitt. Ent. Zurich Heft **4** 1918 (261-278). 1296a
- Ris, F.** Professor Dr. Max Standfuss Verh. Schweiz. Naturf. Ges. **1918** (7 pp.). 1297
- Ritzema Bos, J.** Insectenschade in het voorjaar 1918 [Insektenschaden im Frühjahr 1918]. 's Gravenhage, Tydsehr. Ent. **61** 1918 (xliii-1). 1298
- Ritzema Bos, J.** Insectenschade in het voorjaar 1918. [Insektenschaden im Frühjahr 1918]. Wageningen, Meded. Landbouwhoogesch. **15** 1918 (68-74). 1299
- Roberts, E.** Fluctuations in a recessive Mendelian character and selection. J. Exper. Zool. Philadelphia **27** 1918 (157-192). [*Diptera.*] 1300
- Roberts, E. W.** Evidence as to the number of segments in the head of insects. Tr. Amer. Microsc. Soc. Decatur **36** 1917 (48). 1301
- Robertson, C.** Some genera of bees. Ent. News Philadelphia **29** 1918 (91-92). [*Hymenoptera.*] 1302
- Robertson, C.** Proterandry and flight of bees. Ent. News Philadelphia **29** 1918 (340-342). [*Hymenoptera.*] 1303

- Robertson, C. Erroneous generic determinations of bees. *Science* New York 48 1918 (368 and 369). [*Hymenoptera.*] 1304
- Robinson, Elizabeth. Descriptions and records of Philippine Coccidae. *Philipp. J. Sci. Manila* D 13 1918 (145-149). [*Homoptera.*] 1305
- Robinson, W. Beetles collected on a dead black oak in Virginia. *J. New York ent. Soc.* 26 1918 (30-33). [*Coleoptera.*] 1306
- Roepke, W. Zur Myrmekophilie von *Gerydus boisduwali* Moore. 's Gravenhage Tydschr. Ent. 61 1918 (1-16) 3 Taf. and 2 textfig. [*Lepidoptera.*] 1307
- Roepke, W. *Mertila malayensis* Dist., een bloemwants, Schadelijk voor orchideeën (Capside). [*Mertila malayensis* Dist., eine Blumenwanze (capside), schädlich für Orchideen.] *Teysmannia Batavia* 29 1918 (201-212) 9 pl. [*Heteroptera.*] 1308
- Roepke, W. *Sideridis (Leucania Cirphis) unipunctata* Haw., schadelijk voor het rystgewas. [*Sideridis (Leucania Cirphis) unipunctata* Haw. schädlich für die Reispflanze.] *Teysmannia Batavia* 29 1918 (270-275) Taf. [*Lepidoptera.*] 1309
- Rogers, J. S. A collection of Tipulidae from Schoolcraft county, Michigan. *Occas. Pap. Mus. Zool. Univ. Michigan Ann. Arbor* 55 1918 (4 pp.). [*Diptera.*] 1310
- Rohwer, S. A. Notes on and descriptions of some sawflies from the Australian region. *Ann. Nat. Hist. London* 2 1918 (433-439). [*Hymenoptera.*] 1311
- Rohwer, S. A. Descriptions and notes on some ichneumon-flies from Java. *Proc. U.S. Nat. Mus.* 54 1918 No. 2249 (563-570). [*Hymenoptera.*] 1312
- Rohwer, S. A. Notes on and descriptions of the nearctic wood-wasps of the genus *Xiphydria* Latreille. *Ent. News Philadelphia* 29 1918 (105-111). [*Hymenoptera.*] 1313
- Rohwer, S. A. Idiogastra, a new suborder of *Hymenoptera* with notes on the immature stages of *Oryssus*. *Proc. ent. Soc. Washington* 19 1918 (89-98) pls. xi and xii 1314
- Rohwer, S. A. The American species of the genus *Cephus* Latreille. *Proc. ent. Soc. Washington* 19 1918 (139). [*Hymenoptera.*] 1315
- Rohwer, S. A. New sawflies of the subfamily Diprioninae. *Proc. ent. Soc. Washington* 20 1918 (79-90). [*Hymenoptera.*] 1316
- Rohwer, S. A. The North-American species of the sawfly genus *Laurentia*. *Proc. ent. Soc. Washington* 20 1918 (157-159). [*Hymenoptera.*] 1317
- Ross, Sir R. Mosquitoes and malaria in Britain. *South-eastern Natural London* 1918 (52-57). 1318
- Rostagno, F. *Lepidoptera* faunae romanae. iv Addenda. *Bull. Soc. Zool. ital. Roma* 3 1917 (187-190). 1319
- Rostrup, Sofie. Undersøgelser over Kaalfluen, dens Levevis og Bekæmpelse. Investigations of *Anthomyia brassicae*, its biology and the fight against it. *København Tids. Planteavl.* 25 1918 (256-313) 9 figs. [*Diptera.*] 1320
- Rothschild, the Lord. On the naming of local races, subspecies, aberrations, seasonal forms, etc. *Tr. ent. Soc. London* 1918 1918 (115-116). 1321
- Rothschild, the Lord. Catalogue of the Zerynthiinae and allied genera in the Tring Museum, with critical notes. *Novit. Zool. Tring* 25 1918 (64-75). [*Lepidoptera.*] 1322
- Rothschild, the Lord. Catalogue of the Parnassiinae in the Tring Museum. *Novit. Zool. Tring* 25 1918 (218-262). [*Lepidoptera.*] 1323
- Rothschild, the Lord. On a new species of *Stichophthalma*. *Novit. Zool. Tring* 25 1918 (310). [*Lepidoptera.*] 1324
- Rothschild, the Lord. Some apparently new forms of African Nymphalidae. *Novit. Zool. Tring* 25 1918 (338-345). [*Lepidoptera.*] 1325
- Rothschild, the Lord. A new species of *Ogoa*. *Novit. Zool. Tring* 25 1918 (365). [*Lepidoptera.*] 1326
- Roubal, J. Eine neue *Oedemera*. *N. Beitr. syst. Inskunde Berlin* 1 1917 (44). [*Coleoptera.*] 1327

- Roubal, J.** Eine neue *Colon*-Art und eine neue *Agapanthia*-Aberration. N. Beitr. syst. Inskunde Berlin 1 1917 (63). [*Coleoptera.*] 1328
- Roubal, J.** Drei neue Käfer aus der Balkanhalbinsel. N. Beitr. syst. Inskunde Berlin 1 1917 (64). [*Coleoptera.*] 1329
- Roubaud, E.** Disparition du pouvoir infectant chez l'*Anophèle paludéen*, au cours de l'hibernation. C.R. Acad. Sci. Paris 166 1918 (264-266). [*Diptera.*] 1330
- Roubaud, E.** Rythmes physiologiques et volspontané chez l'*Anopheles maculipennis*. C.R. Ac. Sci. Paris 167 1918 (967-969). [*Diptera.*] 1331
- Roubaud, E.** *vide* Mesnil and Roubaud.
- Rowland-Brown, H.** Some notes on *Plebeius argus* (*argyrognomon* auct.): its Scandinavian forms and distribution. Entomologist London 51 1918 (73-81). [*Lepidoptera.*] 1332
- Rowland-Brown, A.** A working list of British butterflies. Entomologist London 51 1918 (1 and 2). [*Lepidoptera.*] 1333
- Ruschka, F.** Eine neue *Eurytoma* aus den Kokons von *Monema flavescens* Walk. Ent. Mitt. Berlin 7 1918 (161). [*Hymenoptera.*] 1334
- Saalas, U.** Kaksi Suomelle uutta kovakuoriaista. [Zwei für Finland neue *Coleopteren.*] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (32-33) [Deutsches Ref. 163, 164.] 1335
- Saalas, U.** Suomelle uusia kaarnakuoriaisia; lisäyksiä ja oikaisuja kaarnakuoriaistutkimuskaavoihini. [Für Finland neue Borkenkäfer; Zusätze und Berichtigungen zu meinen Borkenkäfortabellen.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (40-45) [Deutsches Ref. 288, 289]. [*Coleoptera.*] 1336
- Saalas, U.** *Aradus bimaculatus* Reut. Suomesta. [*Aradus bimaculatus* Reut. aus Finland]. Helsingfors Medd. Soc. Fauna Fl. Fenn. 43 1917 (171) [Deutsches Ref. 290]. [*Heteroptera.*] 1337
- Saalas, U.** Kuusissa tavattavista kovakuoriaisihydyksunnista. [Über die Fichtenkäfer] Helsinki S. Tied. Esit. 1916 1917 (1-20). [*Coleoptera.*] 1338
- Salm, A. J.** Nématocères hématophages de Java. Bull. Soc. Zool. Franco Paris 42 1917 (135-139). [*Diptera.*] 1339
- Sampson, W.** A new scolytid injurious to dried sweet potatoes in Jamaica. Bull. ent. Res. London 8 1918 (295). [*Coleoptera.*] 1340
- Sanford, E. W.** Experiments on the physiology of digestion in the Blattidae. J. Exper. Zool. Philadelphia 25 1918 (355-402) pls. i-iv. [*Orthoptera.*] 1341
- Santos Abreu, E. S.** Ensays de una monografía de los Tendipedidos de las islas Canarias. Mem. Ac. Ci. Barcelona 14 No. 2 1918 (159-326) pl. [*Diptera.*] 1342
- Santschi, F.** Sous-genres et synonymies de *Cremastogaster*. Bull. Soc. ent. Franco Paris 1918 1918 (182-185). [*Hymenoptera.*] 1343
- Sasaki, C.** Sanji no joran inka go ni okoru kyoso no seiiku. [Development of the maggot of *Ugimya sericariae* in the stomach of silkworms.] Tokyo Sangyo Shikenjo Hokoku [Report of the Sericultural Institute] 3 1918 (377-396) 3 pls. [*Diptera.*] 1344
- Sasaki, C.** Mayu wa ikusanchi ni shitagatte sono oisa o kotonisu. [Variation in the size of silkworms-cocoons according to districts.] Sangyo Simpo [Sericultural magazine] Tokyo 1918 (1194-1196). [*Lepidoptera.*] 1345
- Sasaki, C.** Sanji ni kyuyosura shokuryo to mayu to no kwankei. [On the relation of the quantity of food and the size of silkworm-cocoons.] Tokyo Ni. Sanshi Kw. Ho. 1918 (779-781). [*Lepidoptera.*] 1346
- Schaeffer, C.** On some genera and species of the family Ostoniidae. J. N. York ent. Soc. 26 1918 (100-200). [*Coleoptera.*] 1347
- Schaeffer, C.** Miscellaneous notes and descriptions. J. New York ent. Soc. 26 1918 (211-214). [*Colcoptera.*] 1348
- Schaus, W.** A new *Agrias* from Guatemala. Ent. News Philadelphia 29 1918 (387 & 388). [*Lepidoptera.*] 1349
- Schellenberg, F. C.** [and others]. Dem Andenken an Max Standfuss gewidmet. Mitt. Ent. Zurich Heft 3 1917 (154-196) port. 1350

- Schille, F.** Für die galizische Landesfauna neue und seltene *Lepidopteren*. Zeitschr. wiss. Insbiol. Berlin **14** 1918 (119–122). **1351**
- Schmidt, H.** Beobachtungen an einem im Herbst 1915 ausgehobenen Reste von *Vespa germanica* F. Zeitschr. wiss. Insbiol. Berlin **13** 1917 (153–160). [*Hymenoptera.*] **1352**
- Schmidt, H.** Biologisches über die Erdhummel (*Bombus terrestris* L.). Zeitschr. wiss. Insbiol. Berlin **14** 1918 (14–16). [*Hymenoptera.*] **1353**
- Schmidt, H.** Zur Biologie von *Subcoccinella 24-punctata* L. Zeitschr. wiss. Insbiol. Berlin **14** 1918 (39–41). [*Coleoptera.*] **1354**
- Schmitz, H.** Biologische Beziehungen zwischen *Dipteren* und Schnecken. Biol. Centralbl. Leipzig **87** 1917 (24–43). **1355**
- Schmitz, H.** Die Phoridae von Holländisch Limburg. Mit Bestimmungstabellen aller bisher kenntlich beschriebenen Europäischen Phoridae. Dritter Teil. Gattung *Aphiochaeta*, Gruppe ii. Heerlen Natuurhistorisch Genootschap in Limburg Jaarboek 1918 (146–164). [*Diptera.*] **1356**
- Schmitz, H.** Neue Beiträge zur Kenntnis der Sciariden mit reduzierten Maxillarpalpen. 's Gravenhage Tydschr. Ent. **61** 1918 (88–111). [*Diptera.*] **1357**
- Schmitz, H.** Sechs neue *Trupheneura*-Arten aus Deutschland und Holländisch-Limburg. 's Gravenhage Ber. Ned. Ent. Ver. **5** 1918 (25–35). [*Diptera.*] **1358**
- Schmitz, H.** Neue europäische *Aphiochaeta*-Arten i. Ber. Ned. Ent. Ver. **5** 1918 (57–62). [*Diptera.*] **1359**
- Schmitz, H.** *Trupheneura intemptu* n. sp. und *Aphiochaeta pseudociliata* Strobl. 's Gravenhage Ber. Ned. Ent. Ver. **5** 1918 (74–78). [*Diptera.*] **1360**
- Schmitz, H.** *Trupheneura radiosetosa*, sp. n. 's Gravenhage Ber. Ned. Ent. Ver. **5** 1918 (89–91). [*Diptera.*] **1361**
- Schmitz, H.** Neue Beiträge zur Kenntnis der myrmecophilen und termitophilen Phoridae (Nr. 16 bis 22). Neue Phoridae aus Vorderindien gesammelt von J. Assmuth S.J. (Bombay). Wiener ent. Zeit. Wien **34** 1915 (311–330). [*Diptera.*] **1362**
- Schmitz, H.** Ist *Braulia* Nitzsch eine Gattung der Phoridae? Wiener ent. Zeit. Wien **36** 1917 (179–189). [*Diptera.*] **1363**
- Schmitz, H. et Bequaert, M.** Contribution à l'étude de la faune cavernicole de la Belgique. Ann. Zool. malacol. Belgique **48** 1914 (67–84). **1364**
- Schneider-Orelli, O.** Zur Biologie und Bekämpfung des Frostspanners *Operophtera brumata* L. Zeitschr. wiss. Insbiol. Berlin **13** 1917 (192–197). [*Lepidoptera.*] **1365**
- Schneider-Orelli, O.** Ueber einige in der Schweiz noch wenig beobachtete Insekten an Kulturpflanzen. Verh. Schweizer Ges. Aarau **1917** 1918 (273 & 274). **1366**
- Scholz, E. J. R.** Beitrag zur Kenntnis der Odonaten Polens. Zeitschr. wiss. Insbiol. Berlin **13** 1917 (85–96). [*Paraneuroptera.*] **1367**
- Schrottky, C.** Beschreibung einer neuen Crabronide aus Paraguay. Deutsche ent. Zeitschr. Berlin **1914** 1914 (624). [*Hymenoptera.*] **1368**
- Schrottky, C.** Einige neue Bienen aus Süd-Amerika. Deutsche ent. Zeitschr. Berlin **1914** 1914 (625–630). [*Hymenoptera.*] **1369**
- Schulthess, A. V.** Neue *Hymenopteren* aus Madagaskar, gesammelt von Dr. K. Friedrichs. N. Beitr. syst. Inskunde Berlin **1** 1918 (97–101). **1370**
- Schultze, W.** Fifth contribution to the *Coleoptera* fauna of the Philippines. Philipp. J. Sci. Manila **D 13** 1918 (269–277 pl. **1371**
- Schultze, W.** Sixth contribution to the *Coleoptera* fauna of the Philippines. Philipp. J. Sci. Manila **D 13** 1918 (371–381) pl. **1372**
- Schumacher, F.** Der gegenwärtige Stand unserer Kenntnis von der *Homopteren*-Fauna der Insel Formosa unter besonderer Berücksichtigung von Sauter'schem Material. Mitt. Zool. Mus. Berlin **8** 1915 (71–134). **1373**

- Schumacher, F.** Verzeichnis einiger in der Umgebung Lübecks gesammelter Wanzen (*Hemiptera Heteroptera*) nebst Bemerkungen zu einem gleichnamigen Beitrag von L. Benick. Ent. Mitt. Berlin 7 1918 (80-84). 1374
- Schumacher, F.** Deutung der von Contarini als neu beschriebenen *Hemipteren*-Arten. Ent. Mitt. Berlin 7 1918 (32-34). 1375
- Schuster, A.** Neue *Laena*-Arten. Wiener ent. Zeit. Wien 34 1915 (357-361). [*Coleoptera.*] 1376
- Schwarz, E. A. and Barber, H. S.** Two new hydrophilid beetles. Proc. ent. Soc. Washington 19 1918 (129-134). [*Coleoptera.*] 1377
- Schwarz, J.** A comparative study of the habits of *Glossina brevipalpis* Newst., *G. fusca* West. and *G. pallidipes* Aust. in the Belgian Congo. Ann. trop. Med. Liverpool 11 1918 (365-398) Map. [*Diptera.*] 1378
- Scott, E. W., Abbott, W. S. and Dudley, J. E.** Results of experiments with miscellaneous substances against bed-bugs, cockroaches, clothes moths and carpet beetles. Bull. U.S. Dep. Agric. Washington 707 1918 (1-36). [*Lepidoptera.*] 1379
- Seabra, A. F. de.** Observations sur quelques espèces de Cochenilles du Portugal. Bull. Soc. port. Sci. nat. Lisbonne 8 1918 (72-81). [*Homoptera.*] 1380
- Seabra, A. F. de and Vayssière, P.** Les coccides de l'île de San Thomé. Bull. Soc. ent. France Paris 1918 1918 (162-164). [*Homoptera.*] 1381
- Seitz, A.** Die Grossschmetterlinge der Erde. Fauna Americana Lief. 106; cf. **Draudt.** Faun. indoaustr. Lief 130; cf. **Strand.** [*Lepidoptera.*] 1382
- Selkregg, E. R.** *vide* Wood & Selkregg.
- Sell, R. A.** Notes on the hibernating of the belted cucumber beetle. Ent. News Philadelphia 29 1918 (93-98). [*Coleoptera.*] 1383
- Seters, W. H. van** *vide* Raadt, O. L. E. de.
- Severin, H. P.** Life-history, habits, natural enemies and methods of control of the currant fruit-fly (*Epochra* (n-5464 j) *canadenbis* Loew). Bull. Maine exp. stat. Orono 264 1917 (177-247) pls. [*Diptera.*] 1384
- Seytre, A. B.** Fauna valenciana (en resumen). Insectos pp. 45-59. Barcelona 1916 (1-132). 1385
- Shaffer, E. L.** *Mitochondria* and other cytoplasmic structures in the spermatogenesis of *Passalus cornutus*. Princeton Univ. Contr. Biol. Lab. 6 No. 23 (407-428) 4 pls. (Reprint from Biol. Bull. 32 1917). [*Coleoptera.*] 1386
- Sharp, D.** On gynarchy in *Coleoptera*. Ent. Mo. Mag. London 54 1918 (154 & 155). 1387
- Sharp, D.** On some species hitherto assigned to the genus *Cercyon*, *Coleoptera* Hydrophilidae. Ent. Mo. Mag. London 54 1918 (274-277). 1388
- Sharp, D.** Studies in Rhynchophora iii. the British red *Apions*. Ent. Mo. Mag. London 54 1918 (1-7). [*Coleoptera.*] 1389
- Sharp, D.** Studies in Rhynchophora. iv. A preliminary note on the male genitalia. Tr. ent. Soc. London 1918 1918 (209-222) pl. ix. [*Coleoptera.*] 1390
- Sharp, D.** Studies in Rhynchophora. vi. "The New York weevil." J. New York ent. Soc. 26 1918 (215-218) pl. x. [*Coleoptera.*] 1391
- Sharp, W. E.** Some further notes on the *Coleoptera* of Crowthorne (a parish of Berkshire). Ent. Mo. Mag. London 54 1918 (23-30). 1392
- Sharp, W. E.** *Melanophila acuminata* De G. in Berkshire. Ent. Mo. Mag. 54 1918 (244 & 245). [*Coleoptera.*] 1393
- Shaw, E.** Australian Blattidae. With descriptions of eleven new species. Mem. Queensland Mus. Brisbane 6 1918 (151-167). [*Orthoptera.*] 1394
- Sheldon, W. G.** On a cure for entomological specimens affected by verdigris. Entomologist London 51 1918 (30-33). 1395
- Sheljuzhko, L.** Diagnoses *Lepidopterorum novorum* Sibiriac. N. Beitr. syst. Inskundo Berlin 1 1918 (104). 1396
- Shinji, G. O.** A contribution to the physiology of wing-development in Aphids. Biol. Bull. Woods Hole 35 1918 (95-116). [*Homoptera.*] 1397

- Shiraki, T.** Blood-sucking insects of Formosa. Part i Tabanidae (with Japanese species). Taihoku Agric. exp. Stat. Formosa 1918 (1-442) 11 pls. [*Diptera.*] 1398
- Shull, A. F.** Genetic relations of the winged and wingless forms to each other and to the sexes in the aphid *Macrosiphum solaniifolii*. Amer. Natural. New York 52 1918 (507-520). [*Hemiptera.*] 1399
- Sikora, H.** Beiträge zur Anatomie, Biologie und Physiologie der Kleiderlaus (*Pediculus vestimenti* Nitzsch). i. Anatomie des Verdauungstrakts. Arch. Schiffshyg. 20 Beiheft 1 Leipzig 1916 (76) 3 pls. [*Ellipoptera.*] 1400
- Silvestri, F.** Insectes aptéryrogéniques. i Thysanoures. in Voyage de Ch. Alluaud et R. Jeannel. Paris 1918 (1-27). [*Aptera.*] 1401
- Silvestri, F.** Sulla maturazione dell'ovo, fecondazione o formazione del trophamnios nel *Platygaster dryomyiae* Silv. Atti Acc. Lincei Roma 25 sem. 2, 1916 (121-128). [*Hymenoptera.*] 1402
- Silvestri, F.** Prima notizia sulla presenza della mosca delle olive e di una parassita di essa in India. Atti Acc. Lincei Roma 25 sem. 2 1916 (424-427). [*Hymenoptera.*] 1403
- Simpson, J. J.** Bionomics of tsetse and other parasitological notes in the Gold Coast. Bull. ent. Res. London 8 1918 (193-214). [*Diptera.*] 1404
- Sinéty, R.** de *vide* Pantel & Sinéty.
- Sjöstedt, Y.** Insectes Pseudonéoptères. i. Termitidae. Voyage Alluaud & Jeannel. Paris 1915 (1-18). [*Isoptera.*] 1405
- Sjöstedt, Y.** Wissenschaftliche Ergo-buisse der schwedischen entomologischen Reise des Herr Dr. A. Roman in Amazonas 1914-1915. i. Odonata. Ark. Zool. Stockholm 11 No. 15 1918 (1-54) pls. [*Paraneuroptera.*] 1406
- Sjöstedt, Y.** Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia 1910-1913. 17 *Mantidae* und *Phasmidae*. Ark. Zool. Stockholm 11 No. 19 1918 (1-61) pls. text figs. [*Orthoptera.*] 1407
- Skaife, R. S. H.** Pea and bean weevils. Bull. No. 12 Dept. of Agric. Union S. Africa Pretoria 1918 (32 pp.). [*Coleoptera.*] 1408
- Skinner, H.** *Argynnis apacheana*, a new name. Ent. News Philadelphia 29 1918 (67). [*Lepidoptera.*] 1410
- Sladen, F. W. L.** Pollination of alfalfa by bees of the genus *Megachile*. Table of Canadian species of the *latimanus* group. Canad. Entom. London Can. 50 1918 (301-304). [*Hymenoptera.*] 1411
- Sladen, F. W. L.** The genus *Vespa* in Canada. Ottawa Natural. 32 1918 (71 & 72). [*Hymenoptera.*] 1412
- Sloane, T. G.** Description of a new tiger-beetle from the Northern territory. P. Linn. Soc. N.S.W. Sydney 42 1917 (337). [*Coleoptera.*] 1413
- Sloane, T. G.** The endo-skeleton of the head, the anterior coxae, and the anterior coxal cavities in the families Carabidae and Cicindelidae. P. Linn. Soc. N.S.W. Sydney 42 1917 (339-342). [*Coleoptera.*] 1414
- Sloane, T. G.** Carabidae from tropical Australia. (New genera and species, notes and synonymy and synoptic tables). Tribes Scaritini, Harpalini, Odacanthini, Lebiini and Helluonini. P. Linn. Soc. N.S.W. Sydney 42 1917 (406-438). [*Coleoptera.*] 1415
- Smith, H. E.** Notes on North-American Tachinidae, including the description of one new genus. Proc. ent. Soc. Washington 19 1918 (122-128). [*Diptera.*] 1416
- Smith, Lucy W.** Studies of North-American *Plecoptera* (Pteronarcinae and Perlodini). Trans. amer. ent. Soc. Philadelphia 43 1197 (433-489) pls. xxix-xxxiv. 1417
- Smith, M. R.** A key to the known species of South Carolina ants. Ent. News Philadelphia 29 1918 (17-29). [*Hymenoptera.*] 1418
- Smith, M. R.** *vide* Burrill & Smith.
- Smits van Burgst, C. A. L.** Naamlijst der in de Ichneumonon-collectie van het rijk aanwezige genera en species der familie Ichneumonidae? Ginneken 1918 (1-48). [*Hymenoptera.*] 1419



- Smits van Burgst, C. A. L.** Sluipwespen, ge kweekt uit de dennentotrupen (*Evetria buoliana* Schiff.); *Perilampus balanus* n. sp. [Schlüpfwespen gezüchtet aus dem Kiefernospfen (*Evetria buoliana* Schiff.)'s Gravenhage Ber. Ned. Ent. Ver. 5 1918 (63-64). [*Hymenoptera.*] 1420
- Smulyan, M. T.** Key and descriptions for the separation and determination of the first instar stem mothers of the three species of aphids most commonly attacking the cultivated apple. *Psycho Boston* 25 1918 (19-23). [*Homoptera.*] 1421
- Snellen, P. C. T.** *vide* Piepers & Snellen.
- Snyder, T. E.** A peculiar habit of a horsefly (*Tabanus americanus*) in the Florida everglades. *Proc. ent. Soc. Washington* 19 1918 (141-145) pls. xv. and xvi. [*Diptera.*] 1422
- Snyder, T. E.** *vide* Mozier Snyder.
- South, R.** *vide* Wiloman & South.
- Spärck, R.** Om Hudbremsernes Biologi. An account of the biology of the bot-flies. København, Naturens Verden 2 1918 (125-133) 6 figs. [*Diptera.*] 1423
- Spaeth, F.** Zur Kenntnis der indischen Cassidinen. Deutsche ent. Zeitschr. Berlin 1914 1914 (542-568). [*Coleoptera.*] 1424
- Spaeth, F.** *Hebdomecosta*, eine neue Cassidinen-Gattung aus China, und Mitteilungen ueber *Metriona sigillata* Gorb. aus Japan. Wiener ent. Zeit. Wien 34 1915 (361-364). [*Coleoptera.*] 1425
- Speight, R.** New Zealand timbers and the borer. A note on the susceptibility of New Zealand timbers to the attacks of the borer *Anobium domesticum*. New Zealand J. Sci. Wellington 1 1918 (142-144). [*Coleoptera.*] 1426
- Stäger, R.** *Stenopsocus stigmaticus* (Imh. and Labr.) und sein Erbfeind. Zeitschr. wiss. Insiol. Berlin 13 1917 (59-63). [*Psocoptera.*] 1427
- Stäger, R.** Biologische Beobachtungen an der Cicindelen-Larve. Mitt. naturf. Ges. Bern 1917 1918 (22-44). [*Coleoptera.*] 1428  
(x-5464 j)
- Standfuss, M.** Ein eigenartiges gynandromorphes Individuum von *Aglaia tau* L. Mitt. Ent. Zurich 1 1917 (154-170) pl. [*Lepidoptera.*] 1429
- Standfuss, M.** Mitteilungen zur *Lepidopteren*-Fauna des Obcengadins und der anstossenden Gebiete. Mitt. Ent. Zurich 1917 (171-186). 1430
- Stauder, H.** Die Wahl nächtlicher Ruheplätze und andere Gewohnheiten der Schmetterlinge. Zeitschr. wiss. Insiol. Berlin 13 1917 (15-19). [*Lepidoptera.*] 1431
- Stauder, H.** Eine Sammelreise nach Unteritalien. Nachtrag. Zeitschr. wiss. Insiol. Berlin 13 1917 (48-50). [*Lepidoptera.*] 1432
- Stauder, H.** *Colias crocea mediterranea* Stdr. Deutsche ent. Zeitschr. Iris Berlin 31 1918 (69-82). [*Lepidoptera.*] 1433
- Stauder, H.** Zur Frage der Verbreitung von *Colias crocea* Fourc. als Standfalter. Zeitschr. wiss. Insiol. Berlin 13 1917 (129-134). [*Lepidoptera.*] 1434
- Stauder, H.** Eine Sammelreise nach Unteritalien. ii. Nachtrag. Zeitschr. wiss. Insiol. Berlin 14 1918 (55-58). [*Lepidoptera.*] 1435
- Stearns, L. A.** Description of a new species of the family Ceroctidae from Wisconsin. Ent. News Philadelphia 29 1918 (3-4). [*Homoptera.*] 1436
- Stein, E. R.** *vide* Allee & Stein.
- Stellwaag, F.** Die Alula der Käfer. Deutsche ent. Zeitschr. Berlin 1914 1914 (419-434). 1437
- Stellwaag, F.** Wie steuern die Insekten während des Fluges? Biol. Centralbl. Leipzig 36 1916 (30-43). 1438
- Stenius, G.** Skalbaggår från Finland. [*Coleopteren* aus Finland]. Helsingfors Medd. Soc. Fauna et Fl. Fenn 42 1916 (24-25). [Deutsches Ref. 163]. 1439
- Stenius, G.** *Dyschirius intermedius* Putz. från Finland. [*Dyschirius intermedius* Putz. aus Finland]. Helsingfors Medd. Soc. Fauna Fl. Fenn. 43 1917 (116). [Deutsches Ref. 288]. [*Coleoptera.*] 1439a

- Stichel, H.** Ueber die Neubeschreibungen von Riodinidae in „*Rhopalocera Niepeltiana*.” ii. N. Beitr. syst. Inskunde. Berlin 1 1917 (57–59). [*Lepidoptera.*] 1440
- Stichel, H.** Zur Monographie von *Odontosia sieversi* (Mén.) sowie Beschreibung einer neuen verwandten Art. Zeitschr. wiss. Insbiol. Berlin 14 1918 (25–38) pl. i. [*Lepidoptera.*] 1441
- Stitz, H.** Ameisen aus dem westlichen Mittelmeergebiet und von den Kanarischen Inseln. Mitt. zool. Mus. Berlin 8 1917 (333–353). [*Hymenoptera.*] 1442
- Stolz, H.** Neue *Bythinus*-Arten aus Oberitalien und Südtirol. Wiener ent. Zeit. Wien 36 1917 (19–31) pl. i. [*Coleoptera.*] 1443
- Stoner, D.** Notes on Iowa Pentatomoida. Proc. Iowa Acad. Des Moines 22 1915 (347–354). [*Heteroptera.*] 1444
- Stoner, D.** Distributional notes on some Iowa Pentatomoida. Proc. Iowa Acad. Des Moines 23 1916 (303–307). [*Heteroptera.*] 1445
- Stout, Alice L.** Variations in labial characters in the nymph of *Gomphus apicatus*. Ent. News Philadelphia 29 1918 (68–70). [*Paraneuroptera.*] 1446
- Strand, E.** Spinner and Schwärmer. Seitz Grossschmetterl. Industral. Stuttgart 1918 (345–352) pl. lxxviii. [*Lepidoptera.*] 1447
- Strand, E.** H. Sauter's Formosa-Ausboute: Pyralididae, Subfam. Pyraustinae. Deutsche ent. Zeitschr. Iris Berlin 32 1918 (33–91). [*Lepidoptera.*] 1448
- Strand, E.** Eine neue äthiopische Noctuidenart der Gattung *Acripia* Walk. Int. ent. Zs. Guben 9 1915 (18). 1449
- Strand, E.** Ueber einige *Lepidopteren* der Familien Lycaenidae, Hesperiidae, Syntomididae und Sphingidae aus belgisch Kongo. Int. ent. Zeitschr. Guben 12 1918 (101–104 114–116). 1450
- Strand, E.** Meine entomologischen Publikationen, 1897–1918. Wiener ent. Zeit. 37 1918 (161–177). [*Coleoptera.*] 1451
- Strand, E.** [and others]. Ueber W. Horn's litauische entomologische Kriegsausbente 1916 (Fortsetzung). *Hymenoptera.* Ent. Mitt. Berlin 7 1918 (30–32 149–160). 1452
- Strickland, C.** A curious adaptation of habit to its environment of a malayan mosquito. J. Straits Asiatic Soc. Singapore 75 1917 (49) pl. viii. [*Diptera.*] 1453
- Strindberg, H.** Zur Entwicklungsgeschichte und Anatomie der Mallophagen. Zeitschr. wiss. Zool. Leipzig 115 1916 (382–459). [*Lipoptera.*] 1454
- Strindberg, H.** Typstudien über die Geschlechtsorgan einiger Mallophagengattungen. Zeitschr. wiss. Zool. Leipzig 117 1918 (591–653). [*Lipoptera.*] 1455
- Strindberg, H.** Zur Kenntnis der *Hymenopteren* - Entwicklung. *Vespa vulgaris* nebst einigen Bemerkungen über die Entwicklung von *Trachusa serratalae*. Eine embryologische Untersuchung. Zeitschr. wiss. Zool. Leipzig 112 1915 (1–47) pls. i and ii. 1456
- Stumper, R.** *Formicoxenus nitidulus* Nyl. i. Beitrag. Biol. Zentralbl. Leipzig 38 1918 (160–179). [*Hymenoptera.*] 1457
- Stumper, R.** Psychobiologische Beobachtungen und Analysen an Ameisen. Biol. Zentralbl. Leipzig 38 1918 (345–354). [*Hymenoptera.*] 1458
- Sturgis, W.** Claremont-Laguna *Diptera* from the collections of the department of zoology of Pomona College. J. Ent. Zool. Caremont 10 1918 (27–31). 1459
- Sturtevant, A. H.** A synopsis of the nearctic species of the genus *Drosophila* (sensu lato). Bull. Amer. Mus. New York 38 1918 (441–446). [*Diptera.*] 1460
- Sturtevant, A. H.** Acalypterac (*Diptera*) collected in Mobile county Alabama. J. New York ent. Soc. 26 1918 (34–40). 1461
- Sturtevant, A. H.** A parallel mutation in *Drosophila funebris*. Science New York 48 1918 (72 & 73). [*Diptera.*] 1462
- Swain, A. F.** New Aphididae from California. Trans. amer. ent. Soc. Philadelphia 44 1918 (1–23) pls. i & ii. [*Homoptera.*] 1463
- Swain, A. F.** Miscellaneous studies in the family Aphididae. Ent. News Philadelphia 29 1918 (361–369). [*Homoptera.*] 1464

- Swaine, J. M.** Canadian bark-beetles. Part 2, a preliminary classification with an account of the habits and means of control. Canad. Dep. Agric. Ent. Bull. 14 Ottawa 1918 (7-143) 31 pls. [*Coleoptera.*] 1465
- Swett, L. W.** Geometrid notes. On the genus *Xanthorhoe*. Canad. Entom. London Can. 50 1918 (17-23). [*Lepidoptera.*] 1466
- Swett, L. W.** Geometrid notes *Hydriomena*. Canad. Entom. London Can. 50 1918 (293-296). [*Lepidoptera.*] 1467
- Swinhoe, C.** New species of indomalayan Heterocera and descriptions of genitalia, with reference to the geographical distribution of species resembling each other. Ann. Nat. Hist. London 2 1918 (65-95) pls. vii-xi. [*Lepidoptera.*] 1468
- Szépilgeti, G.** *Hymenoptera*, i. Braconidae. Beitr. Land. Süßwasserfauna Deutsch. Südwestafrikas. Hamburg Lief. 2 1918 (185-191). 1469
- Szilády, Z.** Ueber vertikale Verbreitung der Arthropoden. Mit Beispielen aus der Fauna des Retyczát. Zeitschr. wiss. Insbiol. Berlin 14 1918 (67-72 108-117 172-177 266-270). 1470
- Sztern, H.** Wachstumsmessungen an *Sphodromantis bioculata* Burm. Arch-Entwicklungsmech. Leipzig 40 1914 (429-495) pls. xi-xviii. [*Orthoptera.*] 1471
- Szymanski, J. S.** Das Verhalten der Landinsekten dem Wasser gegenüber. Biol. Zentralbl. Leipzig 38 1918 (340-344). 1472
- Takahashi, R.** Aburamushi no san shu ni tsuite. [On three species of plant lice.] Dobuts. Z., Tokyo 30 1918 (368-376). [*Homoptera.*] 1473
- Takahashi, R.** Kaki ni yūshiranseishichū o shozuru shinachū. [On a new species of plant lice producing a winged oviparous female in summer.] Dobuts. Z., Tokyo 30 1918 (458-461). [*Homoptera.*] 1474
- Talbot, G.** *vide* Joicey and Talbot.
- Taylor, F. H.** Australian Tabanidae. No. iii. Proc. Linn. Soc. N.S.W. Sydney 42 1917 (513-528) pl. xxviii. [*Diptera.*] 1475
- Taylor, F. H.** Studies in Australian Tabanidae. Rec. Australian Mus. Sydney 12 1918 (53-70). [*Diptera.*] 1476
- Taylor, J. W.** Scent glands in *Lepidoptera*: their character and functions. Naturalist London 1918 1918 (313-315). 1477
- Taylor, L. H.** The thoracic sclerites of *Hemiptera* and *Heteroptera*. Ann. ent. Soc. Amer. Columbus 11 1918 (225-249) pls. xx-xxiii. 1478
- Taylor, T. H.** Observations on the habits of the turnip flea-beetle. Entomologist London 51 1918 (83-86). [*Coleoptera.*] 1479
- Taylor, T. H.** Oviposition in the celery fly. Ann. appl. Biol. Cambridge 5 1918 (60-61). [*Diptera.*] 1480
- Teodoro, G.** Alcune osservazioni sui saccaromicote del *Lecanium persicae* Fab. Redia Firenze 13 1918 (1-5). [*Homoptera.*] 1481
- Teodoro, G.** Ricerche morfologiche sulla larva del *Clytus arcuatus* L. (Cerambycidae). Redia Firenze 13 1918 (99-103). [*Coleoptera.*] 1482
- Tetley, H.** The structure of the mouth-parts of *Pangonia longirostris* in relation to the probable feeding-habits of the species. Bull. ent. Res. London 8 1918 (253-267) pl. vi. [*Diptera.*] 1483
- Theobald, F. V.** African Aphididae. part iii. Bull. ent. Res. London 8 1918 (273-294). [*Homoptera.*] 1484
- Theobald, F. V.** Notes on new and little-known British Aphides. iv. Entom. London 51 1918 (25-29). [*Homoptera.*] 1485
- Théry, A.** Description d'un *Aphodius* nouveau du Maroc. Bull. Soc. ent. France 1918 1918 (144). [*Coleoptera.*] 1486
- Thompson, Caroline B.** Dual queen in a colony of honey-bees. Science New York 48 1918 (294 & 295). [*Hymenoptera.*] 1487
- Thulin, J.** Ist die Grundmembran eine konstant vorkommende Bildung in dem quergestreiften Muskelfäsern? Arch. mikr. Anat. Bonn 86 1915 (318-327) pl. vii. 1488

**Tillyard, R. J.** The wing-venation of *Lepidoptera* (Preliminary report). P. Linn. Soc. N.S.W. Sydney 42 1917 (167-174). 1489

**Tillyard, R. J.** Mesozoic insects of Queensland. No. 1, Planipennia, Trichoptera, and the new order Protomecaptera. P. Linn. Soc. N.S.W. Sydney 42 1917 (175-200) pls. vii-ix. 1490

**Tillyard, R. J.** Studies in Australian Mecoptera. No. i, the new family Namochoristidae, with descriptions of a new genus and four new species; and an appendix descriptive of a new genus and species from New Zealand. P. Linn. Soc. N.S.W. Sydney 42 1917 (284-301) pls. xvi & xvii. [*Neuroptera*.] 1491

**Tillyard, R. J.** On some new dragonflies from Australia and Tasmania. Proc. Linn. Soc. N.S.W. Sydney 42 1917 (450-479). [*Paraneuroptera*.] 1492

**Tillyard, R. J.** Odonata, Planipennia and Trichoptera from Lord Howe and Norfolk islands. P. Linn. Soc. N.S.W. Sydney 42 1917 (529-544). 1493

**Tillyard, R. J.** Mesozoic insects of Queensland. No. 2, the fossil dragonfly *Aeschnidiopsis* (*Aeschna*) *flindersiensis* Woodward, from the Rolling downs (Cretaceous) series. Proc. Linn. Soc. N.S.W. Sydney 42 1917 (676-692). pls. xlii & xliii. [*Paraneuroptera*.] 1494

**Tillyard, R. J.** Permian and triassic insects from New South Wales, in the collection of Mr. John Mitehell. Proc. Linn. Soc. N.S.W. Sydney 42 1917 (720-756). 1495

**Tillyard, R. J.** Studies in Australian *Neuroptera*. No. 5, the structure of the cubitus in the wings of the Myrmeleontidae. P. Linn. Soc. N.S.W. Sydney 43 1918 (116-122). 1496

**Tillyard, R. J.** On the affinities of two interesting fossil insects from the upper carboniferous of Commeny, France. P. Linn. Soc. N.S.W. Sydney 43 1918 (123-134). 1497

**Tillyard, R. J.** A fossil insect-wing from the roof of the coal-seam in the Sydney harbour colliery. P. Linn. Soc. N.S.W. Sydney 43 1918 (260-264). [*Orthoptera*.] 1498

**Tillyard, R. J.** The panorpoid complex. A study of the phylogeny of the holometabolous insects, with special reference to the subelasses Panorpoidea and Neuropteroidea. Introduction. P. Linn. Soc. N.S.W. Sydney 43 1918 (265-284). [*Neuroptera*.] 1499

**Tillyard, R. J.** The panorpoid complex. Part i, the wing-coupling apparatus, with special reference to the Lepidoptera. P. Linn. Soc. N.S.W. Sydney 43 1918 (286-319) pls. xxix-xxx. 1500

**Tillyard, R. J.** Studies in Australian Mecoptera. No. ii, the wing-venation of *Chorista australis* Klug. P. Linn. Soc. N.S.W. Sydney 43 1918 (395-408) pl. xliii. [*Neuroptera*.] 1501

**Tillyard, R. J.** Mesozoic insects of Queensland. No 3, Odonata and Protodonata. P. Linn. Soc. N.S.W. Sydney 43 1918 (417-436) pls. xliiv & xlv. [*Paraneuroptera*.] 1502

**Tillyard, R. J.** Mesozoic insects of Queensland. No. 4, *Hemiptera Heteroptera*: the family Dunstanidae. With a note on the origin of the *Heteroptera*. P. Linn. Soc. N.S.W. Sydney 43 1918 (568-592) pl. lix. 1503

**Tillyard, R. J.** The panorpoid complex. Part 2, the wing trichiation and its relationship to the general scheme of venation. P. Linn. Soc. N.S.W. Sydney 43 1918 (626-657) pls. lxviii-lxix. 1504

**Tillyard, R. J.** The Micropterygidae not of the jugate type. Ent. News Philadelphia 29 1918 (90). [*Lepidoptera*.] 1505

**Timberlake, P. H.** Key to separate hawaiian *Sarcophaga*. Proc. hawaii. ent. Soc. Honolulu 3 1918 (371 & 372). [*Diptera*.] 1506

**Timberlake, P. H.** Notes on some of the immigrant parasitic *Hymenoptera* of the Hawaiian islands. Proc. hawaii. ent. Soc. Honolulu 3 1918 (399-404). 1507

**Topi, M.** *vide* Grassi and Topi.

**Torka, v.** Raubzug von *Polyergus rufescens* Latr., Deutsche ent. Zeitschr. Berlin 1914 1914 (645). [*Hymenoptera*.] 1508

- Tothill, J. D.** Some new species of Tachinidae from India. *Bull. ent. Res. London* 9 1918 (47-64). [*Diptera.*] 1509
- Tower, W. L.** The mechanism of evolution in *Leptinotarsa*. *Carnegie Inst. Washington Publ.* 263 1918 (340 + xix) 156 figs. Cf. *Nature London* 103 1919 (517). [*Coleoptera.*] 1510
- Townsend, C. H. T.** New muscoid genera, species and synonymy. *Insec. inscit. Washington* 6 1918 (151-182). [*Diptera.*] 1511
- Townsend, C. H. T.** Some muscoid synonymy, with one new genus. *Proc. ent. Soc. Washington* 20 1918 (19-21). [*Diptera.*] 1512
- Townsend, C. H. T.** Note on oviposition of *Gasterophilus nasalis* L. *Canad. Entom. London Can.* 50 1918 (246-248). [*Diptera.*] 1513
- Townsend, C. H. T.** A new muscoid genus from the Chiricahua mountains, Arizona. *Ent. News Philadelphia* 29 1918 (177-178). [*Diptera.*] 1514
- Trägårdh, I.** On a new method of ascertaining the parasites of the respective host-insects in a mixed infestation. *Bull. ent. Res. London* 9 1918 (75-79). 1515
- Treherne, R. C.** *vide* Cameron & Treherne.
- Tullgren, A.** Zur Morphologie und Systematik der *Hemipteren*. i. *Ent. Tidskr. Uppsala* 39 1918 (113-133) figs. 1516
- Turati, Conte E.** Variabilità del *Parnassius apollo pumilus* Stich. e ricerche sull'origine dei *Parnassius*. *Atti Soc. ital. Pavia* 57 1918 (29-89) pls. i-vii, and Nota complementare T.o. 1919 (184-188). [*Lepidoptera.*] 1517
- Turner, A. J.** Revision of Australian *Lepidoptera*. vi. Geometridae. *P. Linn. Soc. N.S.W. Sydney* 42 1917 (304-336 344-390). 1518
- Turner, A. J.** Further notes on some moths from Lord Howe and Norfolk islands in the South Australian museum. *Tr. R. Soc. S. Austral. Adelaide* 42 1918 (276-289). [*Lepidoptera.*] 1519
- Turner, A. J.** Observations on the Lepidopterous family Cossidae and on the classification of the *Lepidoptera*. *Tr. ent. Soc. London* 1918 1918 (155-190). 1520
- Turner, C. H.** Recent literature on the behaviour of the higher invertebrates. *Psych. Bull. Princeton, N.J.* 9 1912 (290-300). 1521
- Turner, C. H.** The locomotions of surface-feeding caterpillars are not tropisms. *Biol. Bull. Woods Hole* 34 (137-148). [*Lepidoptera.*] 1522
- Turner, R. E.** Australian Braconidae in the British museum. *Tr. ent. Soc. London* 1918 1918 (91-114). [*Hymenoptera.*] 1523
- Turner, R. E.** On Braconidae parasitic on *Diatraea saccharalis* in Demorara. *Bull. ent. Res. London* 9 1918 (81 & 82). [*Hymenoptera.*] 1524
- Turner, R. E.** Notes on Braconidae in the British museum. ii, on the Australian species of *Cardiophilinae* and *Doryctinae* *Ann. Nat. Hist. London* 1 1918 (49-57). [*Hymenoptera.*] 1525
- Turner, R. E.** Notes on fossorial *Hymenoptera*; xxxii, on new species in the British museum. *Ann. Nat. Hist. London* 1 1918 (86-96). 1526
- Turner, R. E.** Notes on the Braconidae in the British museum. iii, on new Australian Agathinae. *Ann. Nat. Hist. London* 1 1918 (221-230). [*Hymenoptera.*] 1527
- Turner, R. E.** Notes on fossorial *Hymenoptera*. xxxiii, on some ethiopian species of *Psammocharidae*. *Ann. Nat. Hist. London* 1 1918 (284-293). 1528
- Turner, R. E.** Notes on fossorial *Hymenoptera*. xxxiv, on ethiopian *Psammocharidae* in the British museum. *Ann. Nat. Hist. London* 1 1918 (349-356). 1529
- Turner, R. E.** Notes on fossorial *Hymenoptera*. xxxv, on new *Sphcoidea* in the British museum. *Ann. Nat. Hist. London* 1 1918 (356-364). 1530
- Turner, R. E.** On new *Hymenoptera* of the family *Evanidae* in the British museum. *Ann. Nat. Hist. London* 1 1918 (408-415). 1531

- Turner, R. E. Notes on the Braconidae in the British museum. iv, on new Helconinae mostly Australian. Ann. Nat. Hist. London 2 1918 (163-173). [*Hymenoptera.*] 1532
- Turner, R. E. New Australian *Hymenoptera* of the family Evaniidae in the British museum. Ann. Nat. Hist. London 2 1918 (197-203). 1533
- Turner, R. E. Notes on fossorial *Hymenoptera*. xxxvi, on new African *Philanthinae*. Ann. Nat. Hist. London 2 1918 (459-468). 1534
- Turner, W. B. Female *Lepidoptera* at light-traps. J. Agric. Res. Washington 14 1918 (135-149). 1535
- Turner, W. F. *Nezara viridula* and kernel spot of Pecan. Science New York 47 1918 (490 & 491). [*Heteroptera.*] 1536
- Ubisch, L. v. Ueber den Einfluss von Gleichgewichtsstörungen auf die Regenerationsgeschwindigkeit. (Versuche an *Cloe diptera.*) Arch. Entwickl.-mech. Leipzig 41 1915 (237-250). [*Ephemeroptera.*] 1537
- Ulmer, G. Zur *Trichopteren*-Fauna Deutschlands. ii, Die *Trichopteren* von Thüringen. Zeitschr. wiss. Insbiol. Berlin 13 1917 (28-32 64-69). 1538
- Ussing, Hj. Insektlivet i og ved Gudenaens Delta og Randers Fjord. The insect-life in and at the delta of the rivulet Gudena and the firth of Randers. København Randers Fjords Naturhistorie 1918 (351-392) 47 figs. 1539
- Uyttenboogaart, [D. L.] Verslag van het biologisch onderzoek van de Maas en hare oevers, ingesteld ingevolge opdracht van het Natuurhistorisch Genootschap in Limburg. (Entomologisch onderzoek.) [Bericht über die biologische Untersuchung der Maas und ihrer Ufer, ausgeführt infolge des Auftrags von Seiten des naturhistorischen Vereins in Limburg. Entomologische Untersuchung.] Heerlen Natuurhistorisch Genootschap in Limburg (Jaarboek 1918) (93-112). 1540
- Van Duzee, E. P. Catalogue of the *Hemiptera* of America north of Mexico, excepting the Aphididae, Coccidae and Aleurodidae. Univ. Calif. Publ. Techn. Bull. 2 (xiv + 902). 1541
- Van Duzee, M. C. New North American Dolichopodidae. Ent. News Philadelphia 29 1918 (45-51). [*Diptera.*] 1542
- Van Duzee, E. P. New species of *Hemiptera* chiefly from California. Proc. California Ac. Sci. San Francisco 8 1918 (271-308). 1543
- Van Dyke, E. C. A review of the species of the *Coleopterous* genus *Silis* Latr. which are found in America north of Mexico. J. New York ent. Soc. 26 1918 (161-179) pl. ix. 1544
- Van Dyke, E. C. A new genus and species of cave-dwelling *Carabidae* from the United States. J. New York ent. Soc. 26 1918 (179-181). [*Coleoptera.*] 1545
- Van Dyke, E. C. New species of Buprestidae from the Pacific States. No. 2, Ent. News Philadelphia 29 1918 (53-58). [*Coleoptera.*] 1546
- Van Dyke, E. C. New inter-tidal rock-dwelling *Coleoptera* from California. Ent. News Philadelphia 29 1918 (303-308). 1547
- Vanhöffen, E. Zur Erinnerung an August Brauer. Mitt. zool. Mus. Berlin 9 1918 (1-12) portraits. 1548
- Van Zwaluwenburg, R. H. *vide* Knab.
- Vaternalm, T. Die Entwicklung des Eies von *Dilina tiliae*. Zeitschr. wiss. Insbiol. Berlin 13 1917 (83-84). [*Lepidoptera.*] 1549
- Vaternalm, T. Zur Monographie der Gattung *Amphicyllis*. (*Coleoptera* Lioididae). Zeitschr. wiss. Insbiol. Berlin 13 1917 (237-2:1). 1550
- Vaternalm, T. Zur Monographie der Gattung *Anisotoma* Ill. Zeitschr. wiss. Insbiol. 13 1918 (298-302). [*Coleoptera.*] 1551
- Vaternalm, T. Zur Organisation der Agathidiini. Zeitschr. wiss. Insbiol. Berlin 14 1918 (188-197). [*Coleoptera.*] 1552
- Vayssière, A. and Decroix, E. Sur un mâle du *Bacillus rossii* Fabr. capturé aux environs de Marseille. Bull. Soc. ent. France Paris 1918 1918 (188). [*Orthoptera.*] 1553

- Vuyssière, P. Existence en France du *Diaspis pentagona* Targ. Bull. Soc. ent. France Paris 1918 1918 (242). [*Homoptera.*] 1554
- Vayssièrre, P. *vide* Seabra and Vaysièrre.
- Verhoeff, K. W. Zur vergleichenden Morphologie des Abdomens der *Coleopteren* und über die phylogenetische Bedeutung desselben, zugleich ein zusammenfassender Kritischer Rückblick und neuer Beitrag. Zeitschr. wiss. Zool. Leipzig 117 1917 (130-204) pls. i & ii. 1555
- Verhoeff, K. W. Zur Kenntnis der *Carabus*-Larven. Biol. Centralbl. Leipzig 37 1917 (14-23). [*Coleoptera.*] 1556
- Verhoeff, K. W. Zur Systematik der *Carabus*-Larven. Zeitschr. wiss. Insbiol. Berlin 13 1917 (41-44). [*Coleoptera.*] 1557
- Verhoeff, K. W. Kann *Forficula auricularia* fliegen. Zeitschr. wiss. Insbiol. Berlin 13 1917 (96 & 97). [*Orthoptera.*] 1558
- Verhoeff, K. W. Studien über die Organisation der Staphylinidea. ii. Primitiver und adaptiver Larventypus. Zeitschr. wiss. Insbiol. Berlin 13 1917 (105-109). [*Coleoptera.*] 1559
- Verhoeff, K. W. Studien über die Organisation der Staphylinoidae. iii. Zur Kenntnis der Staphyliniden-Puppen. Zeitschr. wiss. Insbiol. Berlin 14 1918 (42-47 167-171). [*Coleoptera.*] 1560
- Verhoeff, K. W. Neuere Arbeiten über Organisation der *Coleopteren*. Zeitschr. wiss. Insbiol. Berlin 14 1918 (131-135 201-203). 1561
- Vidal y Lopez, M. Un caso teratologico de *Carabus morbillosus* F. Bol. Soc. Ent. españ. Zaragoza 1 1918 (46 & 47). [*Coleoptera.*] 1562
- Viehmeyer, H. *Piochardia schimmeri* sp. n. Ent. Mitt. Berlin 7 1918 (71-74). (*Coleoptera.*) 1563
- Viehmeyer, H. Papuanische Amoisen. Deutsche ent. Zeitschr. Berlin 1914 1914 (515-535). [*Hymenoptera.*] 1564
- Viereck, H. L. New species of North American bees of the genus *Andrena* contained in the collection of the Academy of natural sciences of Philadelphia. Trans. amer. ent. Soc. Philadelphia 43 1917 (365-407). [*Hymenoptera.*] 1565
- Viereck, H. L. Notes on the bee genus *Andrena*. Proc. biol. Soc. Washington 31 1918 (59). [*Hymenoptera.*] 1566
- Viereck, H. L. A list of families and sub-families of ichneumon-flies or the super-family Ichneumonoidea. Proc. biol. Soc. Washington 31 1918 (69-74). [*Hymenoptera.*] 1567
- Villeneuve, J. Descriptions de deux espèces nouvelles du genre *Limosina* Meig. Bull. Soc. ent. France Paris 1918 1918 (79-81). [*Diptera.*] 1568
- Villeneuve, J. De quelques Myodaires d'Afrique. Ann. Soc. ent. France Paris 86 1918 (503-508). [*Diptera.*] 1569
- Vimmer, A. Uebersicht der paläarktischen *Liponeura*-Arten. Wiener ent. Zeit. Wien 36 1917 (123-124). [*Diptera.*] 1570
- Vogel, B. Beitrag zur Kenntnis des Baues und der Lebensweise der Larve von *Lampyrus noctiluca*. Zeitschr. wiss. Zool. Leipzig 112 1915 (291-432) pls. ix-xii. [*Coleoptera.*] 1571
- Vogel, R. Wie kommt die Spreizung und Schliessung der Lamellen des Maikäferfühlers zustande? Biol. Centralbl. Leipzig 38 1918 (130-133). [*Coleoptera.*] 1572
- Vorbrodt, C. *Psodos alticolaria* Mann., *chalybaeus* Zerny und *werhlii* nov. spec. Int. ent. Zeitschr. Guben 12 1918 (147-149). [*Lepidoptera.*] 1573
- Vorbrodt, K. und Müller-Rietz, J. Die Schmetterlinge der Schweiz. 3 Nachtrag. Mitt. schweiz. ent. Ges. Bern 12 1917 (432-529). [*Lepidoptera.*] 1574
- Wagner, H. *Lepidopterum* Catalogus pars 20 *vide* Dalla Torre, pars 21 *vide* Wagner. 1575
- Wagner, H. Sphingidae: subfam. Philampelinae. *Lepidopterorum* catalogus pars 21 Berlin 1915 (223-304). 1576
- Wahlgren, E. Zur Kenntnis schwedischer *Dipteren*. iii. Ent. Tidskr. Uppsala 39 1918 (1-9) 1577

- Wahlgren, E.** Über *Musca pumilionis* Bierkander. Ent. Tidskr. Uppsala 39 1918 (134-139). [*Diptera.*] 1578
- Wahlgren, E.** Einige Geädervariationen in der *Dipteren*-gattung *Omphrale*. Ent. Tidskr. Uppsala 39 1918 (295-297) figs. 1579
- Wahlgren, E.** *Trineura schineri* Beck., ny för Sverige. Ent. Tidskr. Uppsala 39 1918 (340). [*Diptera.*] 1580
- Walden, J.** Preliminary list of Claremont-Laguna *Orthoptera*. J. Ent. Zool. Claremont 10 1918 (21-22). 1581
- Walker, E. M.** The American representatives of *Somatochlora arctica* with descriptions of two new species. Canad. Entom. London Can. 50 1918 (365-375). [*Paraneuroptera.*] 1582
- Walker, J. J.** The butterflies of the Oxford district. Ent. Mo. Mag. London 54 1918 (246-250). [*Lepidoptera.*] 1583
- Walle, K. J.** Vergleichende Untersuchungen über die Segmentierung und äussere Skulptur des Thorax bei den *Lepidopteren*. Helsingfors Acta Soc. Fauna Fenn. 44 No. 6 1917 (1-37) 3 Taf. 1584
- Walther, A.** vide Przi Bram & Walther.
- Walton, C. L.** Some results of a survey of the agricultural zoology of the Aberystwyth area. Parasitology Cambridge 10 1918 (206-266). 1585
- Walton, W. R.** Three new tachinid parasites of *Eleodes*. Proc. ent. soc. Washington 19 1918 (22-25) pl. v. [*Diptera.*] 1586
- Waltz, R.** *Parnassius apollo* in Bayern und einigen Grenzbezirken. Mitt. Münch. ent. Ges. 6 1915 (53-71) pls. i & ii. [*Lepidoptera.*] 1587
- Wanka, Th. v.** Die Gattung *Anthracus* Motsch. und ihre Arten. Wiener ent. Zeit. Wien 34 1915 (93-102). [*Coleoptera.*] 1588
- Wanka, T. v.** Beitrag zur *Coleopteren*fauna von Österr.-Schlesien. Wiener ent. Zeit. Wien 34 1915 (199-214). 1589
- Wanka, T. v.** Zweiter Beitrag zur *Coleopteren*fauna von Österr.-Schlesien. Wiener ent. Zeit. Wien 36 917 (276-280). 1590
- Warnecke, G.** Ist *Colias crocea* Fourc. Standfalter in Deutschland? Zeitschr. wiss. Insbiol. Berlin 13 1918 (302-306). [*Lepidoptera.*] 1591
- Warren, D. C.** The effect of selection upon the sex-ratio in *Drosophila ampelophila*. Biol. Bull. Woods Hole 34 1918 (351-371). [*Diptera.*] 1592
- Wasastjerna, B.** En nykomling för Finlands fjärrfauna, *Sphinx convolvuli* L. [*Sphinx convolvuli* P. neu für Finland]. Helsingfors Medd. Soc. Fauna et Fl. Fenn. 44 1918 (117-118). [Deutsches Ref. 254]. [*Lepidoptera.*] 1593
- Wasmann, E.** Neue Beiträge zur Biologie von *Lomechusa* und *Atemeles*, mit kritischen Bemerkungen über das echte Gästverhältnis. Zeitschr. wiss. Zool. Leipzig 114 1915 (233-402) 2 pls. chart. (*Coleoptera.*) 1594
- Wasmann, E.** Neue Anpassungstypen bei Dorylinongästen Afrikas. (*Col. Staphylinidae*). 218. Beitrag zur Kenntnis der Myrmekophilen. Zeitschr. wiss. Zool. Leipzig 117 1917 (257-360) pls. vii-x. 1595
- Wasmann, E.** Ueber die von v. Rothkirch 1912 in Kamerun gesammelten Myrmekophilen. (227 Beitrag zur Kenntnis der Myrmekophilen.) Ent. Mitt. Berlin 7 1918 (135-149) pl. ii. 1596
- Wasmann, E.** Ueber Ameisenkolonien mit Mendel'scher Mischung. Biol. Centralbl. Leipzig 35 1915 (113-127). [*Hymenoptera.*] 1597
- Wasmann, E.** Nils Holmgrens's Termiten-studien. iv. Biol. Centralbl. Leipzig 35 1915 (379-385). [*Isoptera.*] 1598
- Wasmann, E.** Nachtrag zum Mendelismus bei Ameisen. Biol. Centralbl. Leipzig 35 1915 (561-564). [*Hymenoptera.*] 1599
- Wasmann, E.** Bemerkungen zur neuen Auflage von Calvert's Käferbuch. Biol. Centralbl. Leipzig 37 1917 (108-112). [*Coleoptera.*] 1600
- Wasmann, E.** Bemerkungen zur neuen Auflage von K. Escherich "Die Ameise." Biol. Centralbl. Leipzig 38 1918 (116-130). [*Hymenoptera.*] 1601



- Wasmann, E.** Total Rotblindheit der kleinen Stubenfliege (*Homalomyia canicularis* L.). Biol. Zentralbl. Leipzig **38** 1918 (130). [*Diptera.*] **1602**
- Wasmann, E.** Zur Lebensweise und Fortpflanzung von *Pseudacteon formicarum* Verr. (*Diptera*, Phoridae.) Biol. Zentralbl. Leipzig **38** 1918 (317-328 and 456). **1603**
- Wasmann, E.** Viviparität und Entwicklung von *Lomechusa* und *Atemeles*. 216 Beitrag zur Kenntnis der Myrmekophilen. Wiener ent. Zeit. Wien **34** 1915 (382-393). [*Coleoptera.*] **1604**
- Wasmann, E.** Myrmecophile und termitophile *Coleopteren* aus Ostindien, hauptsächlich gesammelt von P. J. Assmuth S.J. Wiener ent. Zeit. Wien **37** 1918 (1-23) pls. i and ii. **1605**
- Wasmann, E.** *Labiodoros goryi* Westw. var. *bicolor* nov. var. Leiden Zool. Meded. **4** 1918 (251-253). [*Coleoptera.*] **1606**
- Wasmann, E.** Ueber *Pleuropterus dohrni* Rits. und *lujae* Wasm. und die Larve von *Pleuropterus dohrni*. 's Gravenhage Tydschr. Ent. **61** 1918 (76-87). pl. vii. [*Coleoptera.*] **1607**
- Watanabe, K.** Nikasoi to shikasoi to no idenkwankei nk tsuite. [On the hereditary characters of bivoltins and quadrivoltins of silkworms.] Tokyo Sangyo Shikenjo Hokoku [Report of the Sericultural Institute] **3** 1918 (397-437). [*Lepidoptera.*] **1608**
- Watanabe, K.** Kaiko no iro to gaikai no jijo to no kwankei ni tsuite no kenkyu. [Experiments on the relation between the colour of silkworms and external conditions.] Tokyo Sangyo Shikenjo Hokoku [Report of the Sericultural Institute] **3** 1918 (439-456). [*Lepidoptera.*] **1609**
- Watanabe, K.** Kenshoku no notan ni tsuite. [On the variation of the colour of silkworms-cocoons.] Tokyo Ni. Sanshi Kw. Ho. **1918** (493-496). [*Lepidoptera.*] **1610**
- Waterston, J.** On the mosquitoes of Macedonia. Bull. ent. Res. London **9** 1918 (1-12). [*Diptera.*] **1611**
- Waterston, J.** Notes on some blood-sucking and other Arthropods (except Culicidae) collected in Macedonia in 1917. Bull. ent. Res. London **9** 1918 (153-155). **1612**
- Watson, F. E.** A large number of species of butterflies observed in one day's collecting. J. New York Ent. Soc. **26** 1918 (3-7). [*Lepidoptera.*] **1613**
- Watson, J. H.** *Hemileuca burnsi*, its specific validity and habitat. Ent. News Philadelphia **29** 1918 (252-255). [*Lepidoptera.*] **1614**
- Webster, R. L.** Notes on two strawberry slugs *Empria fragariae* Rohwer, *Empria maculata* Norton. Proc. Iowa Acad. Des Moines **23** 1916 (291-296) pl. vii. [*Hymenoptera.*] **1615**
- Webster, R. L.** Food conservation and economic entomology. Proc. Iowa Acad. Des Moines **25** 1918 (117-122). **1616**
- Weise, J.** *Coleoptera*, i. Chrysomelidae und Coccinellidae. Beitr. Land-Süsswasserr. Deutsch. Südwestafrikas Hamburg 1918 **1** (253-275). **1617**
- Weiss, H. B.** Isaac B. Trimble, M.D., early economic entomologist of New Jersey. Ent. News Philadelphia **29** 1918 (29-32). **1618**
- Weiss, H. B.** Additions to insects of New Jersey, No. 5. Ent. News Philadelphia **29** 1918 (309-312). **1619**
- Weiss, H. B. and Dickerson, E. L.** The European mole-cricket, *Gryllotalpa gryllotalpa* L., an introduced insect pest. J. New York ent. Soc. **26** 1918 (18-23) pl. ii. [*Orthoptera.*] **1620**
- Weiss, H. B. and Dickerson, E. L.** The early stage of *Corythucha pergandei* Heid. Ent. News Philad. **29** 1918 (205-209). [*Heteroptera.*] **1621**
- Weiss, H. B. and Dickerson, E. L.** Notes on *Trioxa alacris* Flor in New Jersey. Psyche Boston **25** 1918 (59-63). [*Homoptera.*] **1622**
- Weiss, H. B. and Nicolay, A. S.** Notes on *Closterocerus cinctipennis* Ashm. in New Jersey. Psyche **25** 1918 (128-130). [*Hymenoptera.*] **1623**
- Weiss, H. B. vide** Dickerson and Weiss.

- Weiss, H. B. *vide* Nicolay and Weiss.
- Weland, E. Fjärilsfynd från gränstrakterna av Kalmar och Jönköpings län. Ent. Tidskr. Uppsala 39 1918 (333-340). [*Lepidoptera.*] 1624
- Wells, L. Odonata of Iowa. Prog. Iowa Acad. Decs Moines 24 1917 (327-333). [*Paraneuroptera.*] 1625
- Werner, J. Fortegnelse over *Lepidoptera* samlede i Norge anno 1824-1832 av P.V. Deinboll. Nyt Mag. Naturw. Kristiania 55 1917 (197-208). 1626
- Wesenberg-Lund, C. Anatomical description of the larva of *Mansonia richardii* (Ficalbi) found in Danish fresh waters. København Nath. Medd. 69 1918 (277-328) 37 figs. [*Diptera.*] 1627
- Wheeler, G. Varietal and aberrational nomenclature: a protest. Ent. Rec. London 30 1918 (145-146). 1628
- Wheeler, G. Paired *Lepidoptera* in flight. Ent. Rec. London 30 1918 (152). 1629
- Wheeler, W. M. The Australian honey-ants of the genus *Leptomyrmea* Mayr. Proc. Amer. Ac. Boston 51 1915 (255-286). [*Hymenoptera.*] 1631
- ✓ Wheeler, W. M. The mountain ants of western North America. Proc. Amer. Ac. Boston 52 1917 (457-569). [*Hymenoptera.*] 1632
- Wheeler, W. M. The Australian ants of the ponerine tribe Cerapachyini. Proc. Amer. Ac. Boston 53 1918 (215-265). [*Hymenoptera.*] 1633
- Wheeler, W. M. A list of Indiana ants. Proc. Indiana Ac. 1916 1917 (460-466). [*Hymenoptera.*] 1634
- Wheeler, W. M. A study of some ant larvae, with a consideration of the origin and meaning of the social habit among insects. Proc. Amer. Phil. Soc. Philadelphia 57 1918 (293-343). Cf. F.A.D. Nature 102 p. 308. [*Hymenoptera.*] 1635
- Wheeler, W. M. Ants collected in British Guiana by Mr. C. William Beebe. J. New York ent. Soc. 26 1918 (23-28). [*Hymenoptera.*] 1636
- White, A. The *Diptera* brachycera of Tasmania. Part 3, families, Asilidae, Bombyliidae, Empidae, Dolichopodidae and Phoridae. Pap. Proc. R. Soc. Tasmania Hobart 1916 1917 (148-266). 1637
- White, A. New Australian Asilidae, with notes on the classification of the Asilidae. Pap. Proc. R. Soc. Tasmania Hobart 1917 1918 (72-103). [*Diptera.*] 1638
- White, G. F. A note on the muscular coat of the ventriculus of the honey bee (*Apis mellifica*). Proc. ent. Soc. Washington 20 1918 (152-154). [*Hymenoptera.*] 1639
- White, G. F. *vide* McCray and White.
- Whiting, P. W. Sex-determination and biology of a parasitic wasp *Hadrobracon brevicornis* (Wesmael). Biol. Bull. Woods Hole 34 1918 (250-256). [*Hymenoptera.*] 1640
- Wichgraf, F. Neues aus der afrikanischen *Lepidopteren*-Fauna (Fortssetzung). Deutsche ent. Zeitschr. Berlin 1914 1914 (392-395). 1641
- Wichgraf, F. Neue afrikanische *Lepidopteren*. Int. ent. Zeitschr. Guben 12 1918 (26-30). 1642
- Wickham, H. F. An interesting new species of *Eleodes* (*Coleoptera*, Tenebrionidae). Ent. News Philadelphia 29 1918 (255-257). 1643
- Wilcox, A. M. *Ascogaster carpocapsae*, a parasite of the oriental moth. Psyche Boston 25 1918 (17). [*Hymenoptera.*] 1644
- Wilcox A. M. *vide* Glaser and Wilcox.
- Wileman, A. E. Notes on Japanese *Lepidoptera* and their larvae. Part v. Philipp. J. Sci. Manila D 13 1918 (151-171) pls. i & ii. 1645
- Wileman, A. E. and South, R. Two new species of Sesiidae from Formosa and a new Noctuid moth from Japan. Entomologist London 51 1918 (169). [*Lepidoptera.*] 1646
- Wileman, A. E. and South, R. A new species of the genus *Parallelia* Hübn. from the Philippines. Entomologist London 51 1918 (193). [*Lepidoptera.*] 1647
- Wileman, A. E. and South, R. New species of Pyralidae from Formosa. Entomologist London 51 1918 (217-219). [*Lepidoptera.*] 1648

- Willard, H. F. *vide* Pemberton and Willard.
- Willcocks, F. C. Notes on some insects found in Egypt of medical and veterinary interest. Bull. Soc. ent. Egypte Le Caire 10 1918 (79-90). 1649.
- Willers, W. and Dürken, B. Cellulare Vorgänge bei der Häutung der Insekten. Zeitschr. wiss. Zool. Leipzig 116 1916 (43-44) pl. ii. 1650
- Willey, A. Insect tropisms. Canad. Entom. London Can. 50 1918 (357-360). 1651
- Williams, C. B. The sugar-cane frog-hopper in Grenada. Bull. ent. Res. London 9 1918 (83-87). [*Homoptera.*] 1652
- Williams, C. B. A frog hopper on sugar-cane in British Guiana. Bull. ent. Res. London 9 1918 (163-173). [*Homoptera.*] 1653
- Williams, G. H. Notes on some Egyptian butterflies. Bull. Soc. ent. Egypte Le Caire 10 1918 (91-94). [*Lepidoptera.*] 1654
- Williams, R. C. The genus *Lycaena*, enoptes group. Ent. News Philadelphia, 29 1918 (99 & 102) pls. iv-vi. [*Lepidoptera.*] 1655
- Williamson, E. B. A collecting trip to Columbia, South America. Univ. Michigan Mus. Zool. Miscell. Publ. Ann. Arbor 3 1918 (24 pp.) [*Paraneuroptera.*] 1656
- Williamson, E. B. The genus *Neoneura*. Trans. Amer. ent. Soc. Philadelphia 43 1917 (211-246) pls. ix-xix. [*Paraneuroptera.*] 1657
- Wilson, H. C. A note of treatment of swamps, stream beds, ponds, wells, pools and other mosquito-infested areas for the destruction of their larvae. Bull. Madras Fish. Dep. 11 1918 (161-172). [*Diptera.*] 1658
- Wilson, H. F. A new species of *Macrosiphum* (Aphididae, *Homoptera.*) Ent. News Philadelphia 29 1918 (230). 1659
- Wingelmüller, A. Zwei neue Cionini aus Tonkin. Wiener ent. Zeit. Wien 34 1915 (308-310). [*Coleoptera.*] 1660
- Winkler, A. Ein neuer blinder Tenebrionide aus der Krim. Wiener ent. Zeit. Wien 34 1915 (331-334). [*Coleoptera.*] 1661
- Winther, C. Nogle Træk fra vore Foraars-Macrolepidoptera. [Notes on some Danish *Macrolepidoptera* occurring in the spring.] København Flora og Fauna 1918 (87-88). 1662
- Wolden, B. O. The white admiral or banded purple butterfly in Iowa. Proc. Iowa Acad. Des Moines 23 1916 (269). [*Lepidoptera.*] 1663
- Wood, W. B. and Selkregg, E. R. Further notes on *Laspeyresia molesta*. J. Agric. Washington 13 1918 (59-72) pls. v-x. [*Lepidoptera.*] 1664
- Woods, W. C. Blueberry insects in Maine. Bull. Maine exp. Stat. Orono 244 1915 (249-288) 4 pls. 1665
- Woods, W. C. The biology of the alder flea-beetle, *Altica bimarginata* Say. Bull. Maine exp. Stat. Orono 265 1917 (249-284) 4 pls. [*Coleoptera.*] 1666
- Woods, W. C. The biology of Maine species of *Altica*. Bull. Maine exp. Stat. Orono 273 1918 (149-204) 2 pls. [*Coleoptera.*] 1667
- Woods, W. C. The alimentary canal of the larva of *Altica bimarginata* Say. Ann. ent. Soc. Amer. Columbus 11 1918 (283-313) pls. xxvi & xxvii. [*Coleoptera.*] 1668
- Wuorentaus, Y. Kuolanniomellä lumella esiintyviä hyönteisiä. [Auf der Halbinsel Kola auf Schnee beobachtete Insekten.] Helsingfors Medd. Soc. Fauna Fl. Fenn. 42 1916 (20-22). [Deutsches Ref. 162.] 1669
- Wuorentaus, Y. *Anagrus subfuscus* Först. Suomesta. [*Anagrus subfuscus* Först. aus Finland.] Helsingfors Medd. Soc. Fauna of Fl. Fenn. 43 1917 (32). [Deutsches Ref. 289.] [*Hymenoptera.*] 1670
- Yagi, N. *vide* Harukawa and Yagi.
- Yano, S. and Oyama, M. Shinyoju no shushikisei bachi ni tsuite. [On the parasitic *Hymenoptera* in the seeds of Conifera.] Konch. Sok. Gifu 27 1918 (372-376). 1671
- Young, B. P. Ecological notes on the spring canker-worm (*Paleacrita vernata* Pack.). Canad. Entom. London Can. 50 1918 (267-277). [*Lepidoptera.*] 1672

Zacher, F. Die Geradflügler Deutschlands und ihre Verbreitung. Systematisches und synonymisches Verzeichnis der im Gebiete des Deutschen Reiches bisher aufgefundenen *Orthopteren* Arten. Jena 1917 (287 pp.). 1673

Zammit, T. Rats and parasites in plague epidemics. Arch. melitense Valletta 3 1918 (141-143). [*Aphaniptera.*] 1674

Zeleny, C. Germinal changes in the bar-eyed race of *Drosophila* during the course of selection for facet number. Proc. Indiana Ac. Indianapolis 1917 1918 (72-77). [*Diptera.*] 1675

Zimmermann, A. Einige neue und wenig bekannte paläarktische Hydroptoriden. Ent. Mitt. Berlin 7 1918 (57-71). [*Coleoptera.*] 1676

Zukowsky, B. Aphoristische Skizze ueber die bisher bekannt gewordenen Futterpflanzen der paläarktischen Aegeriidae. Int. ent. Zeitschr. Guben 9 1915 (77-79). [*Lepidoptera.*] 1677

### Bibliographical.

Henriksen, contents of the journal "Ent. Meddel." 1887-1917, 694; Hetschko, Reitter's works and species, 701; McDunnough, Guérins Iconogr., 944; Navrátil, of L. Melichar, 1066; Strand, list of his works, 1451.

### Pedagogy.

Cogan, 296.

### Museums. Collections.

Nova-Scotian insect colls. Brittain, 193.

Bristol Museum, Griffiths pp. 223-227 Ent. 51.

Rippon's Coll. to National Mus. Wales, Ent. News 29 p. 111.

Harrington colls. to Dep. Agric. Canada, Canad. Ent. 50 p. 292.

The Kearfott colls., Canad. Ent. 50 p. 71.

New York entomological Soc., Leng J. N. York ent. Soc. 26 pp. 129-133 and Slosson pp. 134-137.

### Technique. Methods.

Hankin, sectioning wings, J. Asiat. Soc. Bengal 13 1917 pl. lxxxiii; Heikertinger, collecting *Col.*, 667; Potter, drawing illustrations, 1201; Prashad, sections, 1209; Sheldon, Verdigris, 1395.

### Nomenclature.

Chapman 265; Heikertinger, 672; Hendel, 692; Rothschild, 1321; Wheeler, 1628; Types of genera, discussion, Pr. ent. Soc. London 1917 pp. xciv-cii.

### Economic Entomology.

#### General.

Asheroft, 37; Banks, 67; Bridwell, 189; Cooley, 302; Criddle, 320; Crosby & Leonard, 323; Davis, 346; Gurney, 621; Hooker, literature abstracts and summaries, 718; Jones, 782; Keuchenius, 807; Marchal, 975; Marshall, literature summaries, 985; Mosley, 1024; Parker, beneficial, 1136; Pierce, Manual, 1190; Schneider-Orelli, 1366; Scott, etc., insecticides, 1379; Walton, 1585; Webster, 1616; Woods, 1665.

## II.—SUBJECT INDEX.

N.B.—The full reference may be obtained from "Titles" by means of the author's name and number.

### GENERAL.

#### Treaties, Genera Works.

Heymons & Heymons 705.

#### Historical. Biographical.

Engelhart, Danish Entomological Society 1868-1918, 433.

Aldrich, S. W. Williston, 14; Blaisdell, Carl Fuchs, 128; Esben-Petresen, J. C. Nielsen, 437; Gibson, W. H. Harrington with bibliography, 566; Keuchenius, Jensen, 80b; Lundbeck, J. C. Nielsen, 924; Meyer, Wilhelm Koltze, 1003; Pickard-Cambridge, O. Pickard-Cambridge, 1156; Reitter, Josef Stussiner, 1275; Ris, Professor Max Standfuss with bibliography, 1297; Schellenberg and others, Max Standfuss, 1350; Vanhöffen, August Brauer, 1548; Weiss, J. B. Trimble, with bibl., 1618.

*Reports.*

United States, Howard, 724.  
 Holland, Ritzema Bos, 1298, 1299.  
 India, Fletcher, 478.  
 New York, Felt, 458.

*Creatures attacking.*(a) *Coleoptera.*

Barber, *Rhynchophora* in glass-houses, 72; Dickerson & Weiss, 364; Eflatoun, 421; Froggatt, 518; Illingworth, 746; Imms, 748; Jack, 752; Linnaniemi, 906; Marshall, 984; Pierce, 1192; Skaffe, 1408; Speight, 1426; Woods, 1666.

(b) *Lepidoptera.*

Ainslie, 6; Dudgeon, 397; Gough, 598; Hunter, 738; Kleine, 817; Nishitani, 1083; Pouillaude, 1202; Roepke, 1309; Schneider-Orelli, 1365; Wood & Selkregg, *Laspeyresia*, 1664; Young, 1672.

(c) *Diptera.*

Back & Pemberton, *Bactrocera*, 43; Collin, 298; Lutz & Lima, 930; Pemberton & Willard, 1148, 1149, 1150, 1151; Rostrup, 1320; Severin, 1384.

(d) *Hemiptera.*

Jones, 781; Leefmans, 875; Milliken, 1015; Osborn, 1119; Petherbridge & Husain, 1160; Roepke, 1308; Turner, 1536; Williams, 1652.

*Aphidae.*

Boas, *Chermes piceae* and *Min-darus abietinus*, 139; Jones & Gillette, 783; Patch, 1139.

(e) *Thysanoptera.*

Bagnall, 47; Cameron & Treherne, 231; Horton, 719.

(f) *Plecoptera.*

Newcomer, 1075.

*Insects and Diseases of Man.*

Bacot, 44, 45; Barber, 73; Calvert, 228; Cornwall & Menon, 303; Cummings, 327; Davidson, 344; Fitzsimons, 472; Hegh, 662; Hicks, 707; Kirk, 812; Léger & Mouriquand, 878; Lodge, 914; MacGregor, 946; Mesnil & Roubaud, 999; Nuttall, 1093, 1095; Péju & Cordier, 1146; Pierce, 1194;

Ross, 1318; Roubaud, 1330, 1331; Simpson, 1404; Waterston, 1612; Willcocks, 1649; Wilson, 1658; Zammit, 1674.

*Attacks on Animals.*

Bang, 66; Dove, 387; Hadwen & Cameron, 626; Hill, 709; Natvig, 1050.

*Useful Insects.*

Parker, 1136; Turner, 1524.

*Bee-keeping.*

McCray & White, 942.

*Silk.*

Amari, 31; Bolle, 148; Hiratsuka, 712; Katsuki, 790, 791; Nishikawa, 1082; Sasaki, 1345, 1346.

## STRUCTURE.

## General and Miscellaneous.

Back & Pemberton, Of *Ceratitis*, 41.  
 Bordage, Adipose tissue, 152.  
 Geipel, luminous organs, 561.  
 Imms, 747.  
 Kemner, *Col.* larvae, 798.  
 Kitashima, *Saturnia*, 814.  
 Ljungdahl, pupae, 913.  
 Pierce, of *Strepsiptera*, 1191.  
 Quiel, *Collembola*, 1227.  
 Roberts, Head-segments, 1301.  
 Strindberg, of *Mallophaga*, 1454.  
 Vogel, *Lampyris*, 1571.  
 Wesenberg-Lund, larva of *Mansonina*, 1627.

## External of Outer Parts.

Brass, 172; Crampton, thorax of larvae, 309; Crampton, thorax, 310, 311; Janet, ancestral segmentation, 757; Jeziorski, thorax, 769; Kunneth, 839; Nelson, abdominal segments, 1071; Prashad, 1209, 1212; Sloane, 1414; Taylor, thorax *Hemiptera*, 1478; Vaternahm, 1552; Verhoeff, 1561; Verhoeff, abdomen, 1555; Walle, 1584

**Wings.**

Comstock, 300; Kühne, wings and elytra *Col.*, 838; Stellwaag, elytral alula, 1437; Tillyard, 1489, 1496, 1501; Tillyard, Wing-coupling, 1500.

**Mouth.**

Bugnion, 218; Cragg, 305; Heinrich, 675; Koponen, 833, Lindner, 904; Peacock, 1145; Tetley, *Pan-gonia*, 1483.

**Nervous System. Sense Organs.**

Demoll, 356; Jörschke, 772; Lehr, Chordotonal & Johnston organs, 879; McIndoo, olfactory, 947; Tullgren, 1516.

**Myology.**

Bordage, 151; Thulin, 1488.

**Alimentary Canal.**

Bordas, 153, 154, 155, 156, 157; Du Porte, proventriculus, 402; Göldi, 589; Hetschko, malpighian tubes, 702; Sikora, 1400; White, 1639; Woods, 1668.

**Respiratory System.**

Bodine, 140; Carroll, 239; Cullen, 325; Jamieson, 755, tracheation of dragonfly rectum; Carpenter & Pollard, 238; Ferris, 465; Froggatt, 514; Newstead, 1077; Rich, 1284, 1285, 1286.

**Circulatory System.**

Pantel, 1130; Richardson, pulsatile organ, 1288.

**Sex Structures.**

Bethune-Baker, ♂ genitalia *Lycæni-dao*, 107; Bryk, female, 211, 212; Cho-pard, *Orthoptera* male, 268; Crampton, of abdominal termen and male genitalia, 308; Dixey, ♂ genitalia, 374; Harnisch, genitalia, 641; Heinrich, male genitalia ♂, 677; Muir, male genitalia, 1034; Newell, genitalia, 1076; Sharp, male genitalia, 1390, 1391; Smith, Plecoptera, 1417; Strindberg, 1455.

**Glands. Blood.**

Blunck, 138; Pantel, 1131; Dusham, 404, 405; Gautier, blood, 556; Ito, *Corpora allata*, 750, 751.

**PHYSIOLOGY.****Cytology *vide* Development.****General and Miscellaneous.**

Fischer, temperature-experiments, 468.

Glaser, immunity, 586.

Jaques, longevity, 763.

Labitte, vitality of larvae, 851.

**Cycles of Generations.**

Shull, 1399.

**Sex.**

Nachtsheim, 1041; Patterson, 1143; Turner, 1535; Whiting, 1640.

**Hermaphroditism.**

Boveri, 167; De Long, 350; Grön-blom, 614; Joicey & Talbot, 778; Pettey, 1167; Skinner, Gynandromorph *Callosamia angulifera*, p. 369 Ent. News, 29; South, *Dryas paphia*, p. 214 Ent. 51; Standfuss, 1429.

**Functions.*****Circulation.***

Polimanti, 1200.

***Respiration.***

Bodine, 140; Carroll, 239; Cullen, 325; Jamieson, respiration of dragonfly nymphs, 755; Glaser, 585; Kawase, of silkworms, 792, 793; Koch, 824, 825, 826.

***Digestion.***

Sanford, 1341.

**Metabolism.**

Allee & Stein, light and metabolism, 24.

**Colour.**

Marchand, 976.

**Environmental.**

Przibram, temperature, 1222.

**Chemical.**

Ely, 424.

## DEVELOPMENT.

## General and Miscellaneous.

Blunck, 136; Gatenby, polyembryony, 555; Giulio, 583; Janet, 756; Kunkel, of flesh flies, 840; Prashad, 1210; Przibram & Walther, age of mother and size, 1224; Wasmann, viviparity, 1604.

## Regeneration.

Przibram, *Sphodromantis*, 1221, 1223; Kříženecký, *Tenebrio*, 836; Ubisch, *Cloe*, 1537.

## Chromosomes. Cytology.

Bordage, 150; Buchner, accessory nucleus, 214; Carter, Mitosis, terms explained, 241; Federley, Chromosomenstudien an Mischlingen, 452; Gatenby, germ cell segregation, 554; Hoy, somatic chromosomes, 729, 730; Nakahara, amitosis, 1049; Richards, 1287.

## Oogenesis.

Nusbaum-Hilarowicz, 1092.

## Spermatogenesis. Spermatozoa.

Ballowitz, spermatozoa, 64, 65; Goldschmidt, 593; Shaffer, 1386.

## Parthenogenesis.

Cutler, 337; Sharp, Gynarchy, 1387; Lécaillon, 870.

## Embryology.

Hess, 699; Huie, 735; Patterson, 1143; Silvestri, *Platygaster*, 1402; Strindberg, 1454, 1456; Vaternahm, 1549.

## Postembryology. Metamorphosis.

Blunck, 137; Bordage, 150, 151; Bugnion, antenna, 217; Hufnagel, 734; Kemner, *Nothorhina*, metamorphosis; Muir, male genitalia, 1034; Norden-skiöld, 1085; Pantel, 1131; Rabaud, Delayed appearance, 1231; Sasaki, 1344; Shinji, 1397; Spärek, *Hypoderma* (Danish), 1423; Szttern, Growth, 1471; Willers & Dürken, Ecdysis, 1650.

(N-5464 f)

## Larvae and Pupae.

Comstock, nymphs, naiads and larvae, 301; Gramann, 601; Hasebrock, 651; Koponen, *Plecoptera*, 830, 831; Lestage, larvae of *Ephemeroptera*, 893; Verhoeff, larvae and pupae of *Staphylinidae*, 1559, 1560.

## ETHOLOGY.

*Vide etiam* Economic p. 78.

## General.

Rabaud, 1232; Turner, literature on the behaviour of the higher invertebrates, 1521.

## Ant-life. Myrmecophily.

Beebe, 85; Bergroth, 96; Bönner, 142; Bruch, 197, 199; Brun, 205, 206, 207, 208; Chapman, 263; Donisthorpe, 383; Emery, 426; Fleischer, 475; Forel, Brun and instinct, 488; Henning, 693; Hetschko, 704; Kutter, 845, 846; Lea, 868; McAttee, 935; Mann, 974; Normand, 1089; Reichensperger, 1247; Roepke, 1307; Schmitz, 1362; Stumper, 1457, 1458; Torka, 1508; Wasmann, 1594-1599, 1601, 1603, 1604, 1605; Wheeler, 1632, 1635.

## Bee-life.

Bachmann, 40; Bodkin, 141; Buttler-Reepen, 225; Friese, 508, 510; Frisch, 511; Frison, 513; Kablukov & Ginzberg, wax, 786; Reuter, 1282; Schmidt, 1353; Thompson, 1487.

## Wasp-life.

Bouvier, 166; Carpenter, 237; Friederichs, 507; Luther, 927; Macnamara, 948; Pellett, 1147; Poulton, 1203; Schmidt, 1352.

## Termite-life.

Fuller, 529; Schmitz, 1362; Wasmann, 1598, 1605.

## Habitat.

Bezzi, Alpine, 115; Cleare, 274; Parker, 1137; Wuorentaus, Schneisekten, 1669.

**Cavernicolous, Subterranean.**

Czizek, 340; Jeannel, 764; Jeannel & Racovitza, 765; Schmitz & Bequaert, 1364; Van Dyke, 1545.

**Aquatic.**

Alm, 30; Lameere, aquatic to terrestrial, 856; Lundblad, 925; Needham, 1070; Szymanski, of land-insects, 1472.

**Gregariousness.**

Meyer, 1005; Mozier & Snyder, 1027; Poulton, 1201; Snyder, 1422.

**Flight. Migration.**

Bervoets, 106; Demoli, 354; Demoll, flight, 357; Pictet, 1187; Roubaud, 1331; Stellwaag, 1438; Verhoeff, 1558.

**Sound-production.**

Allard, 22, 23; Clainpanain *Cybister*, 273; Gahan, 549.

**Food-habits.**

Barker, 75; Brèthes, 184; Cameron, 229; Davidson, 345; Lécaillon, 871; Mitter, *Pangonia*, 1016; Poulton, 1203; Riley, 1290; Schmitz, 1355.

**Parasitic.**

Bridwell, 188; Brindley, 191; Burke, 220; Cushman, 332; Fenton, 461; Ferris, 466; Gautier, 557; Glaser & Wilcox, 587; Graham, 599; Imms, 747; Malenotti, Chalcid parasites of *Chrysomphalus*, 951; Muesebeck, 1033a; Muir, 1035; Nuttall, 1094; Pemberton & Willard, 1148-1151; Perkins, stylopisation, 1157; Perkins, 1159; Pierce, 1191; Späreck, *Hypoderma*, 1423; Saccharomycetes of *Lecanium*, Todoroo, 1481; Trägårdh, 1515.

**Sex-relations.**

Dixey, nuptial flight, 375; Federley, 455; Harrison, 642; Illingworth, 745; Labitte, 852; Mellerio, abnormal copula, 997; Perkins, 1158; Wheeler, 1629.

**Parental. Oviposition.**

Adler, 3; Awati, 38; Bridwell, 188; Chapman; Criddle, 321; Gautier, of *Apanteles*, 558, 559; Hungerford, 736, 737; Stäger, 1427; Strickland, 1453; Taylor, 1480; Townsend, 1513.

**Phenology. Hibernation.**

Curtis, 328, 329; Eckstein, 416; Graham-Smith, 600; Hutchison, *Musca* 741; Sell, 1383; Arundel, early appearance, Anon., p. 469 Nature 100.

**Instinct. Tropisms.**

Borja-Tarrius, 161; Criddle, insects and light, 320; Demoll, 355; Doflein, 379; Dolley, light and rate of movement, 381; Ege, 422; Lécaillon, 872; Lodge, 914; McEwen, light, gravity, 945; Marchand, *Anopheles* thermotropism, 978; Natzmer, 1051; Turner, 1522; Wasmann, 1602; Willey, 1651.

**Resemblance, Protection, Utility.**

Ainslie, 5; Brecher, *Pieris* experiments, 176; Dixey, 373; Dürken, 398; Heikertinger, 665, 666, 673; Jörschke, 772; Joicey & Talbot, 775; Melin, 996; Mottram, 1025, 1026; Neale, 1068; Nonaka, colour of head and eggs of silkworms, 1084; Pantel & Sinéty, 1132; Poulton, 1206.

**Attitudes. Sleep.**

Chapman, 259; Hykeš, 742; Prochnow, *Elater* springing, 1215; Rabaud, 1233, 1234; Stander, Resting-places *Lep.*, 1431.

**Luminosity.**

Geipel, 561; Harvey, 648; Hess, 699; Isaak, 749; Mast, 989; Vogel, *Lampyrus*, 1571.

**Natural history (particular cases).**

Back & Pemberton, *Ceratitis*, 41, 42; Bresslau, *Culicidae*, 179; Goldsmith, *Cicindelidae*, 594; Nielsen, biology of Tachinidae, 1079; Prell, 1214; Saalas, *Scolytidae*, 1338; Schwetz, *Glossina*, 1378; Stäger, *Cicindela*-larva, 1428.

**Pupal Habits. Cocoons.**

Cleghorn, 75; Cushman, 336; Dewitz, 362; Howard, as storehouses, 725; Main, pupation, 949, 950; Watanabe, 1609.

**Insects, Plants and Flowers.**

Plants and Cecidom. galls, Bagnall & Harrison, 54; Butler, 224; Jansson, 762; Jones, 779; Kenoyer, 805; Pammel & Kenoyer, 1128; Patch, 1141; Woods, *Vaccinium*, 1665.



## Galls.

Bagnall & Harrison, 54, 56; Beutenmuller, 110; Brain, Coccid galls, 171; Brèthes, 180, 182; Enslin, 434; Fagan, 448; Falconer, galls of Huddersfield, Naturalist 1918 p. 166 168; Felt, 460; Gertz, 562; Hedicke, 660, 661; Hertwig, Becher, 698; Jones & Gillette, 783; Rao, 1237.

## VARIATION AND AETIOLOGY.

## Variation.

Aldrich, 12; Donisthorpe, 385; Federley, 453; Heikertinger, 669; Kannan, 789 & Green, 605; Kheil, 809; Marshall & Muller, heterozygosis, 986; Maulik, 991; Stout, 1446; Sturtevant, 1462; Turati, 1517; Wahlgren, 1579; Watanabe, 1610; Zeleny, 1675.

## Teratology.

Brindley, 192; Campos, 234; Heikertinger, 668; Koponen, *Arcynopteryx*, 832; Nelson, eyeless *Apis*, 1072; Pierre, nervures, 1195; Przibram, homoeosis, 1223; Vidal, 1562.

## Hybrids.

Bethune-Baken, 109; Federley, 452; Fujimoto, 526; Greer, 608; Onslow, 1116.

## Heredity.

Bleuler, 134; Bowater, 168; Cleg-horn, 275; Cromwell, 322; Hawkes, in hybrids, 654a; Jennings, 766; Lancefield, 853, 859, 860; Lindner, Federley's work, 905; Maas, silkworm, 933; Macdowell, bristles, 943; Plough, *Drosophila*, 1199; Poulton, 1205; Richards, 1287; Roberts, recessive, 1300; Shull, 1399; Watanabe, of bivoltin and quadrivoltin silkworms, 1608.

## Evolution, Selection, Phylogeny.

Comstock, 300; Crampton, 306, 307, 308; Fenton, 461; Gahan, Prehistoric *Calosoma*, 548; Heikertinger, 664; Janet, 756; Meyere, 1007; d'Orchymont, 1117; Payne, 1144; Tillyard, 1489, 1499, 1500, 1504; Tillyard, *Hemiptera*, 1503; Tower, 1510; Turati, 1517; Turner, 1520; Warren, 1592.

(N-5464 j)

## GEOGRAPHY or FAUNISTIC.

## General.

Distribution-maps, Netolitzky, 1074.

Geographical labelling, Heikertinger, 663.

## Arctic.

Cresson, *Diptera*, 318.

Greenland *Insecta*, .Henriksen & Lundbeck, 695.

## Insular, including New Zealand.

Azores, *Coleoptera*, Alluaud, 29.

Canaries, *Coleoptera*, Alluaud, 29.—*Hymenoptera*, Stitz, 1442.—*Lepidoptera*, Hampson, 630.—*Diptera*, Santos, 1342.—*Coccidae*, Lindinger, 903.—*Psocoptera*, Navás, 1064.

Sudest isld., *Lepidoptera*, Prout, 1216.

Louisiade Archipelago, *Lepidoptera*, Hampson, 629, 630.

Admiralty islands, *Lepidoptera*, Hampson, 632.

Woodlark isld., *Lepidoptera*, Prout, 1216; Woodlark islds., d'Entrecasteaux islds., *Lepidoptera*, Hampson, 632.

Bismarck Arch., *Lepidoptera*, Hampson, 630, 632.

New Britain, *Coleoptera*, Hubenthal, 732.

Fiji islds., *Lepidoptera*, Hampson, 630.

Solomon islds., *Coleoptera*, Moser, 1021; Pic, 1177.—Solomon islds., *Lepidoptera*, Hampson, 630, 632; Swinhoe, 1468.

Carolino islds., *Coleoptera*, Gravely, 603.

Lord Howe and Norfolk islds., *Insecta*, Tillyard, 1493.—*Lepidoptera*, Turner, 1519.—*Coleoptera*, Lea, 868, 869.

New Zealand, *Insecta*, Hilgendorf, 708.—*Lepidoptera*, Hampson, 630; Hudson, 733; Meyrick, 1009; Philpott, 1173.—*Diptera*, Miller, 1014.—*Neuroptera Mecoptera*, Tillyard, 1491.

Falkland islands, *Coleoptera*, Champion, 250.—*Lepidoptera*, Hampson, 630.

Hawaii, *Insecta*, The Hawaiian fauna, Muir, p. 113 J. N. York ent. Soc. 26; Bridwell, 188; Swezey Kauai, P. hawai ent. Soc. 3 p. 379; *Hymenoptera*, Timberlake, 1507.—*Diptera*, Illingworth *Chrysomya rufifacies*, P. hawai ent. Soc. 3; *Diptera*, Timberlake, 1506.—*Homoptera*, Bridwell, 186; Crawford, 314; Giffard, 571; Muir, 1038.

### Palearctic Region.

#### (a) Collectively.

##### *Coleoptera.*

Bernhauer, 99; Breit, 177, 178; Escalera, 438; Obenberger, 1100; Petri, 1162; Pic, 1180; Reitter, 1249-1252, 1254, 1256, 1257, 1265, 1274; Zimmermann, 1676.

##### *Strepsiptera.*

Pierce, 1191.

##### *Hymenoptera.*

Forsius, 491; Habermehl, 623, 624.

##### *Lepidoptera.*

Kennel, 803, 804; Püngeler, 1226.

##### *Diptera.*

Kieffer, 810.

##### *Hemiptera.*

Haupt, 653; Reuter, 1280.

#### (b) Europe, collectively.

##### *Coloptera.*

Müller, 1030.

##### *Hymenoptera.*

Bengtsson, 89; Bondroit, 149.

##### *Diptera.*

Landrock, 862.

#### (c) North Europe and Siberia.

##### *Insecta.*

Frey, Finland, 501, 504; Gertz, Sweden, 562; Grönblom, Finland, 615;

Haanshus, Norway, 622; Hellén, Finland, 683; Jansson, Sweden, *Col.* and *Heteropt.*, 761; Lindberg, Finland, 902.

##### *Coleoptera.*

Frisendahl, Sweden, 512; Hellén, Finland, 678, 679, 681, 682, 684; Jansson, Sweden, 759; Jansson, Sweden, myrmecophilous, 760; Kemner, Sweden, 799; Lindberg, Finland, 901; Reitter, Siberia, 1264; Saalas, Finland, 1335, 1336; Stenius, Finland, 1439, 1439a.

##### *Hymenoptera.*

Hellén, *Hymenoptera*, Finland, 680; Nordenström, Sweden, 1086; Strand, Baltic, 1452; Wuorentaus, Finland, 1670.

##### *Lepidoptera.*

Binning, Sweden, 118; Brunidin, Sweden, 209; Fabricius, Finland, 446; Fabritius, Finland, 447; Federley, Finland, 454; Frey, Finland, 502; Grönblom, Finland, 612, 613, 616, 617; Ljungdahl, Sweden, 912; Löfgvist, Finland, 915; Neander, Sweden, 1069; Nordström, Sweden, 1087, 1088; Orstadius, Sweden, 1118; Rangnow, Sweden, 1239; Sheljuzko, Siberia, 1396; Stichel, E. Siberia, 1441; Wasastjerna, Finland, 1593; Welander, Sweden, 1624; Werner, Norway, 1626.

##### *Diptera.*

Alexander, Siberia, 16; Ammitzböll, Sweden, 32; Binning, Sweden, 119; †Cockerell & Clark, Baltic, 294; Linnaniemi, Finland, 907; Lundström, Finland, 926; Frey, Finland, 505, 506; Ringdahl, Sweden, 1291; Wahlgren, Sweden, 1577, 1580.

##### *Hemiptera.*

Linnaniemi, Finland, *Homoptera*, 909; Öblom, Finland, 1110; Öblom, Finland, *Homoptera*, 1112; Saalas, Finland, 1337.

##### *Plecoptera.*

Koponen, Finland, 829.

##### *Orthoptera.*

Frey, Finland, 503; Linnaniemi, Finland, 908.

## (d) British Islands.

## THE FAUNA AS A WHOLE.

*Coleoptera*.

Blair, *Sphaeriestes*, 121; Britten, 194; Champion, *Atomaria zetterstedti*, 255; Donisthorpe, *Caenozara subglobosa*, 382; Harwood, *Scaphium*, 649; Sharp, *Cerycon*, 1388; Sharp, 1389.

*Strepsiptera*.

Perkins spp. n., 1155, 1156; Pierce, 1191.

*Hymenoptera*.

Bagnall & Harrison, 56; Lyle, 932; Morley, *Liophron saxo*, 1017.

*Lepidoptera*.

Localities, etc., Harrison pp. 140-151 Ent. 51.

*Diptera*.

Bagnall & Harrison, 54, 55; Collin, *Hormopeza*, 299; Grimshaw, *Chortophila pilipyga*, 610; Localities, Kirkpatrick p. 18 Ent. Mag. 54.—Plant galls, Hall p. 162 Ent. 51.

*Heteroptera*.

Edwards, *Notonecta* sp. n., 418.

*Aphidae*.

Haviland, 654; Jackson, Scotland, 753; Theobald, 1485.

*Paraneuroptera*.

Lucas, 918.

*Orthoptera*.

Lucas, 919; Localities and dates, Champion p. 114 Ent. 51.

*Aptera*.

Bagnall, 49, 50, 51, 52.

## LOCAL LISTS.

*Insecta*.

Plymouth, Bracken p. 15, Keys p. 16 Tr. Plymouth Cl. 3; 4 p. 19; Mitchell, 5 pp. 23 & 24.

Bournemouth 1917, Curtis, P. Bournemouth Soc. 9 pp. 46 & 47, and 1918 10 pp. 55-56.

New Forest, Donisthorpe Ent. Rec. 30 pp. 170-173.

Porthcawl and Wallasey, Hallett Rep. Lancash. Chesh. ent. Soc. 41 pp. 1-5.

Yorkshire in 1917, Morley pp. 97 & 93 Naturalist 1918.—Doncaster in 1917, Corbett Naturalist 1918 p. 262.

Bass rock, Evans, 440.

*Coleoptera*.

Cornwall, *Strangalia aurulenta*, Armytage p. 260 Ent. 51.—Cornwall and Devon, Champion p. 203 Ent. Mag. 54.

Plymouth, Mitchell p. 91 Ent. Mag. 54.—Plymouth, Keys p. 250 Ent. Mag. 54.

New Forest *Lema puncticollis*, South p. 215 Ent. 51.

Brighton, Ryle pp. 209-211 Ent. Mag. 54.

Southend, *Staph. pubescens*, Gedye p. 39 Ent. Mag. 54.

Mickleton, Ryle p. 39 Ent. Mag. 54.

Swansea *Hammaticherus* imported, Tomlin p. 255 Ent. Mag. 54.

Crowthorne, W. E. Sharp, 1392.

London *Lophocateres*, Newbery p. 162 Ent. Mo. Mag. 54.—London *Trigonogenius*, Champion p. 40 Ent. Mag. 54.

Gomshall *C. eppelsheimi*, Champion p. 163 Ent. Mag. 54.

Boxhill *Amarochara*, Newbery p. 280 Ent. Mag. 54.

Wimbledon *E. sanguinolentus*, Donisthorpe p. 105 Ent. Rec. 30.

Surrey, Ashdown p. 191 Ent. Rec. 30.

Ealing *Gnorimus nobilis*, Champion p. 188 Ent. 51.

Oxford Walker p. 182 Ent. Mo. Mag. 54.—Oxford *Ot. porcatus* & *Cent. rapae*, Collins p. 209 Ent. Mag. 54.

Barton Mills, Donisthorpe, 384; Barton Mills *Brachonyx*, Donisthorpe p. 76 Pr. ent. Soc. London 1917.

Suffolk, Allen p. 36 Ent. Rec. 30.—Suffolk, Bedrock pp. 159-162 Ent. Mag. 54.

Yorkshire in 1917, Fordham Naturalist 1918 pp. 99-102, 135-137.

Westmorland, Day, 348.

Cumberland, Day Naturalist 1918 pp. 73 & 74.

Scotland *Apion miniatum*, Evans p. 64 Ent. Mag. 54.—Scotland, *Phyllotreta flexuosa*, *Gyrinus elongatus*, Fergusson p. 95 Scott. Nat. 1918.

Clyde *Anchomenus sahlbergi*, Murphy p. 33 Ent. Mag. 54.

Arran *Pterostichus aethiops*, *Aphodius foetens* & *nitidulus*, Fergusson p. 218 Scott. Nat. 1918.—Arran, *Cymindis*, Fergusson p. 122 Scott. Nat. 1918.

Rannoch *Elater tristis*, Fergusson p. 142 Scott. Nat. 1918.

#### *Hymenoptera*.

Oxford *Caraphractus*, Hamm p. 84 Pr. ent. Soc. London 1917.—Oxford, Hamm p. 184 Ent. Mag. 54.

Cheshire *Rhadinoceraea*, Hutton p. 212 Ent. Mag. 54.

Yorkshire, Fordham p. 188 Naturalist 1918.

Doncaster *Trigonalys hahni*, Morley p. 232 Ent. 51.

Kincairdine *R. persuasoria*, Macdonald p. 217 Scott. Nat. 1918.

Ireland *Braconidae* & *Ichneumonidae*, Johnson Irish Nat. 27 pp. 106-109.

Armagh and Donegal *Aculeata*, Johnson Irish Nat. 27 p. 2.

#### *Lepidoptera*.

Guernsey, Lowe, 916.

Cornwall *Anosia plexippus*, Frohawk p. 256 Ent. 51.—Cornwall *Sphinx pinastri*, Clutterbuck p. 83 Ent. 51.—Fowey Cornwall, Stowell p. 238 Ent. 51.

Dartmoor, Bethune-Baker, 108.

Bridport, Curtis, 330.

Isle of Purbeck, ROWLAND-BROWN pp. 244-247 Ent. 51.

New Forest, Dorset, etc., Lister, 910.—New Forest, Pilleau p. 270 Ent. 51.—New Forest *Peronea cristana*, Sheldon, p. 273 Ent. 51.

Hants, Burras pp. 267-270 Ent. 51.

Netley, Robertson p. 14 Ent. Rec. 30.

Winchfield, *Evanesca*, Rattray p. 16 Ent. 51.

Bath, Sich p. 13 Ent. Rec. 30.

Blewbury downs, *M. lineolata* Thornewill p. 161 Ent. 51.

Marlborough, Stowell Rep. Marlborough Coll. Soc. 66 p. 30.—Marlborough, Stowell p. 19 Ent. 51.—Marlborough, ANON pp. 29-34 Rep. Marlborough Coll. 67.

Berkshire *Nomiades semiargus*, Griffiths p. 159 Ent. 51.

Burnham Beeches, *Limenitis*, Campion p. 93 Ent. 51.

Watford *P. daphidice*, Dudley p. 186 Ent. 51.

Oxford, Walker, 1583.—Oxford *Agrotis simulans*, Pickard-Cambridge p. 186 Ent. 51.

Herts *Aporia crataegi*, Nimmy p. 258 Ent. 51.

West Wickham, Kershaw Ent. 51 p. 66.

Surrey and Sussex, *L. sibilla*, Williams p. 153 Ent. Rec. 30; Wakely p. 154 t.c.

Oxshott, James, 754.

Sussex *A. urticae ichnusoides*, Saville p. 257 Ent. 51.

Hastings, Butterfield Hastings Nat. 3 No. 1 p. 81.

Three Bridges *Grapholitha scopariana*, heldon p. 274 Ent. 51.

Thanet *P. machaon* Theobald p. 234 Ent. 51.

Essex, Pierce, 1189.—Essex, Whittle p. 19 Ent. 51.—Essex *V. antiopa*, Maynard p. 280 Ent. Mag. 54.

Cambridge, *Lycaenidae*, Jones p. 100 Ent. 51.

Gloucestersh., Clutterbuck pp. 175-179 Ent. 51.—Gloucestershire *M. athalia*, Clutterbuck p. 186 Ent. 51.

Cheshire *P. moneta*, Imms p. 211 Ent. Mag. 54.—Cannock Chase, Smart pp. 252-256 Ent. 51.

Lancash. and Cheshire, Mansbridge Rep. L. & C. ent. Soc. 40 p. 5-7.—Cheshire *V. antiopa*, Coward p. 92 Ent. Mag. 54.

Liverpool, Cotton Rep. Lancash. Chesh. Ent. Soc. 40 pp. 18-26.

N. England, etc., Harrison pp. 198-200 Ent. 51.

- Yorkshire, *Butterfield*, etc., p. 302 Naturalist 1918.—Skipton, *Butterfield* p. 268 Naturalist 1918.—Huddersfield, *Porritt* p. 268 Naturalist 1918.
- Witherslack, *Pearson* p. 192 Ent. Rec. 30.
- Durham *C. verbasci*, *Gardener* p. 235 Ent. 51.—Durham *C. frazini*, *F.* p. 17 Entom. 51.
- Northumberland, *Murray* p. 358 Naturalist 1918.
- Carlisle *Eucosmia uduolata*, *Ford* p. 214 Ent. 51.
- N. Wales, *Pickard-Cambridge* p. 18 Ent. 51.
- Scotland, *Sphinx convolvuli*, *Renouf* also *Berry* p. 48 Scott. Nat. 1918.—Scotland *V. antiopa*, *J. R.*, p. 142 Scott. Nat. 1918.
- Lothians, *Phibalapteryx lapidata* and *Tortrix foersterana*, *Evans* p. 48 Scott. Nat. 1918.
- Highlands, *Whittle* pp. 63–66 Ent. 51.
- Perthshire, *P. cardui*, *V. antiopa*, *S. populi*; *Brooksbank* p. 217 Scott. Natural. 1918.
- Rannoch, *Metcalfe* pp. 262–267 Ent. 51.
- Rannoch, *E. antiopa*, *Esson* p. 138 Ent. 51.
- Banchory, *E. antiopa*, p. 160, *Ardgay* p. 161, *Frohawk* Ent. 51.
- Dec, *T. crabroniforme*, *Thomson* p. 217 Scott. Nat. 1918.
- Loch Long, *E. antiopa*, *Hoole* p. 160 Ent. 51.
- Banffshire, *Gowan* p. 268 Scott. Nat. 1918.
- Shetland, *Cidaria miata*, *Saxby* Scott. Nat. 1918 p. 23.
- Ireland, *S. convolvuli*, *Halbert* pp. 81–85 Irish Nat. 27.
- Antrim and Down, *S. convolvuli*, *Johnson* Irish Nat. 27 p. 12.
- Tyrone, *G. vernaria*, *Coulter* p. 187 Ent. 51.—East Tyrone, *Greer* pp. 4–6 Irish Nat. 27.—East Tyrone, *Rhop.*, *Greer* pp. 9–11 Ent. Rec. 30.
- Kiltrea, *Thecla betulae*, *Moffat* Irish Nat. 27 p. 172.
- Kerry, *Not. bicoloria*, *Greer* p. 65 Irish Nat. 27.
- Killarney, *N. bicoloria*, *Janson* p. 50 Pr. ent. Soc. London 1917.
- Trichoptera.*
- Cumberland, *Day* p. 40 Ent. Mag. 54.
- Neuroptera.*
- Huddersfield, *Porritt* p. 302 Naturalist 1918.
- Diptera.*
- Bournemouth, *Anopheles*, *P.* p. 53 P. Bournemouth Soc. 10.
- Kent *Didea alneti*, *Harwood* p. 213 Ent. Mag. 54.
- Marlborough *Kirkpatrick* p. 37 Rep. Marlborough Coll. Soc. 66.
- Oxford, *Hamm* 628.—Oxford *Odon-tomyia argentata*, *Hamm* p. 164 Ent. Mag. 54.
- Derbyshire, *Drabble & Drabble*, 389.
- Yorkshire, *Cheetham* p. 268 Naturalist 1918.
- Scotland, *Culicidae*; *Evans* p. 143 Scott. Nat. 1918.
- Dunkeld, *Atylotus*; *Carter* p. 23 Scott. Nat. 1918.
- Lothians, *Tabanus montanus*, *Anisomera nigra*, *Evans* p. 78 Scott. Nat. 1918.
- Hemiptera.*
- E. Yorkshire, *Walsh* p. 302 Naturalist 1918.
- Durham and Northumberland, *Harrison*, 643.
- Northumberland, *Murray* p. 252 Ent. Mag. 54.
- Cumberland, *Murray* p. 92 Naturalist 1918.—Cumberland *Psyllidae*, *Murray* p. 359 Naturalist 1918.—West Cumberland, *Murray* p. 78 Naturalist 1918.
- Paraneuroptera.*
- Devon, *Ae. mixta*, *Newton* p. 115 & *Porritt* p. 141 Ent. 51.
- S. England, *Bracken* pp. 8–10 Tr. Plymouth Cl. 2.
- Ayrshire, *Mackeith* p. 268 Scott. Nat. 1918.
- Argyllshire, *Somatochlora*, *Morton* p. 185 Ent. Mag. 54.

*Orthoptera.*

Devon, Cornwall, Bracken pp. 9-12  
Tr. Plymouth Field Cl.

*Aptera.*

Yorkshire and Derbyshire, 196.

## (e) Central and Eastern Europe.

*Insecta.*

Kryger, Denmark entomological excursions 1868-1918, 837.

Ussing, Gudena and the firth of Randers, 1539.

Uyttenboogaart, Holland, 1540.

Schmitz & Bequaert, Belgium, 1364.

Szilády, Hungary, 1470.

*Coleoptera.*

Reitter, 1255.

Hansen, Danish Curculionidae, 634.

Everts, Holland, 441-445.

Germany, Delahon, 349; Kolbe, 828; Lüllwitz, 922; Neresheimer & Wagner, 1073; Riehn, 1289.

Austria, Binder, 117; Czizek, 340; Petri, 1161; Wanka, 1589, 1590; Fleischer, 473, 475.

Penecke, Rumania, 1152.

Winkler, Crimea, 1661.

*Hymenoptera.*

Jørgensen, Danish bees, 771.

Smits van Burgst, Holland, 1420.

Switzerland, Forel, 486; Kutter, 847.

Germany, Pfankuch, 1172.

*Lepidoptera.*

Denmark, Jensen, 767; Hansen, Isle of Lolland, 635; Knudsen, Jutland, 822; Mikkelsen, Skanderborg, Jutland, 1013; Winther, 1662.

Holland, Bentinck, 90, 91; Eecke, Katalog holländischer Tagfalter, 419.

Switzerland: Culot, 326; Standfuss, Engadine, 1430; Vorbrodt, 1573; Vorbrodt & Müller-Rutz, 1574.

Germany: Goltz, 595; Hoffmann, 713; Lange, 865; Lenz, 885, 886; Möbius *Agrotis loregi*, D. ent. Zeitschr. Iris 31 p. 129; Osthelder, 1120; Waltz, 1587; Warnecke, 1591.

Galicja: Schille, 1351.

*Trichoptera.*

Ulmer, Thuringia, 1538.

*Diptera.*

Landrock, 864; Léger & Mouriquand-878; Schmitz, 1358, 1359.

Nielsen, Jutland, 1080.

Holland: Meyere, 1006; Schmitz, Holländisch Limburg, 1356, 1357.

Germany: Hedicke, 661; †Meunier-amber, 1001; Riedel, Thuringia, Int. ent. Zeitschr. 12 pp. 134, 138, 145, 155; Schmitz, 1360, 1361.

Austria: Böttcher, 143; Landrock, 863; Villeneuve, Bohemia and Hungary, 1568.

*Hemiptera.*

Jensen-Haarup, Denmark, 768.

Germany: Quiel, 1228; Schumacher, 1374.

S.E. Russia, *Aphides*, Haviland p. 200 Ent. Mag. 54.

*Paraneuroptera.*

Scholz, 1367.

*Orthoptera.*

Zacher, Germany, 1673.

## (f) France.

*Coleoptera.*

Du Buysson, 394, 395; Houlbert, 722; †Lesne, Brittany, 888, 892; Lichtenstein, 895; Arras, Beare p. 251 Ent. Mag. 54.

Paris, *Caulotrypes & Pentarthrum*, Honoré Bull. Soc. ent. France 1918 p. 126.

Loire-inférieure, additions, Pionneau pp. 7 & 8 Echange 34.

Auvergne *Orina*, Dufour pp. 19-21 Miscell. ent. 24.

Bordeaux, Lambertie, p. 206. Bull. Soc. ent. France 1918.

Sud-ouest, *Onthophagus*, Bedel p. 271 Bull. Soc. ent. France 1918.—Sud-ouest *Onthophagus*, Lebon p. 61 Misc. ent. 24.

Hustache, *Curculionidae*; Miscell. ent. 24 pp. 38-41.

France mér., Pionneau pp. 24, 41-43 Misc. ent. 24.

*Hymenoptera.*

Bondroit, 149; Lichtenstein & Picard, 897; Pic, 1181; Pigeot, 1198.

*Lepidoptera.*

Foulquier, 492; Joannis, 770; Letacq, Orne, 894; Oberthür, 1107; Oberthür & Houlbert, 1109.

Ancre, *Rhop.*, Keynes p. 90 Ent. 51.

Somme *Rhop.*, Martin p. 146 Ent. 51.

Maine *Ar. levana*, Etendard p. 70 Misc. ent. 24.

Henriot, Gironde & Dordogne, Pr.-verb. Soc. Linn. Bordeaux 70 p. 123-126.

Pyrénées or. McClymont p. 194, Rowland-Brown p. 196, Ent. 51 and McClymont p. 237 t.c.

Alpes-maritimos *Rhopal.*, McClymont p. 71 Entom. 51.

Oberthür, *Gracilipalpus ephialtes*, Bull. Soc. ent. France 1918.

*Trichoptera.*

†Meunier, 1002.

*Diptera.*

Hesse, 700; Pierre, 1196; Ville-neuve pp. 96-98 Bull. Soc. ent. Franco 1918.

*Hemiptera.*

Dep. du Gard additions and corrections, Pionneau Miscell. ent. 24 pp. 9 & 10 & 26.—Vayssière, *Coccidae*, 1554.

*Orthoptera.*

Cuénot, 324; Dép. du Gard, additions, Margier, Cabanès & Hugues, Miscell. ent. 24 pp. 11-14.

## (g) South Europe and Mediterranean Basin.

*Insecta*, collectively.

Spain: Navás, *Neuropteroidea*, 1053, 1055, 1056, 1057, 1058-1060; Seytre, 1385.

Italy: Ghigi, 563; Razzauti, Isola Capraia, 1240.

Corsica: Klapalek, 815.

Macedonia, Burr pp. 65-67 Ent. Rec. 30; Burr, 222; Waterston, 1612; Salonica, Robertson p. 186 Ent. Rec. 30.  
Egypt: Boyd, 169.

*Coleoptera.*

Holdhaus, 714; Reitter, 1266.

Spain: Doderò, 378; Fuente, 523, 524; Jeannel, 764; Vidal *Carabus rugosus*, Bol. Soc. Ent. espan. 1 p. 123.

Italy: Hicker, 706; Müller, 1032; Paganetti-Hummler, 1123, 1124; Reitter, Italy and Tyrol, 1279; Stolz, Italy & Tyrol, 1443.

Reitter, Sicily, 1273.

Sardinia: Hustache, 739; Reitter, 1258.

Herzegovina: Reitter, 1278.

Istria: Reitter, 1262.

Dalmatia: Roubal, 1328.

Albania: Reitter, 1271, 1277.

Serbia: Roubal, 1329.

Greece: Schuster, 1376.

Macedonia: Viehmeyer, 1563.

North Africa: Chobaut, 267; Desbordes, 360; Peyerimhoff, 1169, 1170, 1171; Reitter, 1268; Théry, 1486.

*Hymenoptera.*

Dusmet, 406; Mercet, Spain, 998; Nadig, Valsesia, 1042; Pic, 1181, 1185; Stitz, 1442.

N. Africa: Turner, Egypt, 1526; Turner, Tunis, 1530.

*Lepidoptera.*

Spain: Codina, 295; Hampson, 630.

Fernández, 462; Italy: Rostagno, 1319; Stauder, 1432, 1435.

Corsica: Le Cerf, 873; Lenz, 887.

Cyprus, Hampson, 630.

S. east Europe: Graves pp. 62-64 Ent. Rec. 30.

Macedonia: Barraud, 79; Buresch, 219; *Rhop.*, Rowland-Brown p. 112 Ent. 51; *Geometridae*, Barraud p. 145 Ent. 51.

Cappadocia: Le Cerf, 873.

N. Africa: Graves, Egypt, 604; Egypt, Graves p. 92 Ent. 51; Hampson, 629, 630; Oberthür, 1103; Petroff, Egypt, 1163; Williams, Egypt, 1654.

*Trichoptera*.

Navás, Asia minor, 1064.

*Neuroptera*.

Navás, Algeria, 1052.

Navás, Tunis, 1063; Navás, Mytilene, 1064.

*Diptera.*]

Becker, Greece, 82; Bezzi, Italy, 114, 115; Czizek, 338.

Joyeux, Macedonia, 784; Waterston, Macedonia, 1611.

Townsend, Algeria, 1511.

*Homoptera*.

Bergevin, 92, 93, 94; Seabra, Portugal *Coccidae*, 1380; Theobald, Egypt, *Aphidae*, 1484.

*Plecoptera*.

Spain, Navás, 1062.

*Paraneuroptera*.

Campion, Macedonia, p. 128 Ent. 51.

*Orthoptera*.

La Baume, Balkans, 850; Nadig, Italy, 1043.

(h) *Caucasus, West & Central Asia*.

*Coleoptera*.

Fleischer, Turkestan, 476; Reitter, Persia, 1261; Reitter, Talysch, 1276; Roubal, Caucasus, 1327.

*Hymenoptera*.

Donisthorpe, W. Asia, 386.

Hampson, 630, 632; Korb, Alai, 834; Meyrick, Mesopotamia, 1008.

*Africa*.

*Insecta*, collectively.

Wasmann, 1596.

*Coleoptera*.

Alluaud, 25, 26; Bernhauer, 98, 100; Bickhardt, 116; Blair, 122; Champion,

254; Fleutiaux, 480, 482, 483; Gillet, 572; Gravely, 603; Hoschek-Mühlheim, 720; Hubenthal, 731; Kerremans, 806; Kuntzen, 843, 844; Marshall, 981; Moser, 1020, 1021; Obenberger, 1096, 1098, 1099; Pic, 1175, 1176, 1177, 1184; Reineck, 1248; Reitter, 1268; Wasmann, 1595, 1607; Weise, 617.

*Hymenoptera*.

Bischoff, 120; Brues, 201; Dusmet, 406; Enderlein, 429, 430; Friese, 508, 509; Gahan, 541; Kieffer, 811; Szépligeti, 1469; Turner, 1526, 1528, 1529, 1530, 1534.

*Lepidoptera*.

Eltringham *Rhopalocera*, 423; Fawcett, 451; Gaede, 535-540; Hampson, 629, 630, 632; Janse, 758; Joicey & Talbot, 777; Jones, 780; Kaye, 796; Le Cerf, 874; Meyrick, 1008, 1010; Morrison, Natal *Rhopal.* S. Afric. J. N. H. 1 p. 106; O'Neil, 1115; Prout, 1218, 1219, 1220; Rothschild, 1325; Strand, 1449, 1450; Wichgraf, 1641, 1642.

*Diptera*.

Becker, 80; Bezzi, 113; Grünberg, 619; Lamb, 854; Melander, 995; Simpson, 1404; Townsend, 1511; Ville-neuve, 1569.

*Hemiptera*.

Bergroth, 96; Brain, *Coccidae*, 171; Distant, 369, 370, 371; Muir, 1036, 1037; Seabra & Vayssière, *Coccidae*, 1381; Theobald, *Aphidae*, 1484.

*Thysanoptera*.

Bagnall, 46, 48; Hood, 717.

*Psocoptera*.

Enderlein, 427.

*Isoptera*.

Sjöstedt, 1405.

*Paraneuroptera*.

Martin, 988.

*Orthoptera*.

Borelli, 158; Chopard, 269.

*Aptera*.

Silvestri, 1401.



## Madagascar and Mascarene Islands.

*Coleoptera*.

Alluaud, 27; Bedel, 84; Bourgoin, 164, 165; Champion, 254; Gravely, 603; Grouvelle, Seychelles & Aldabra, 618; Kuntzen, 842; Lesne, Mascarene islds., 891; Pic, 1177.

*Hymenoptera*.

Forel, 489; Friederichs, 507; Schulthess, 1370.

*Lepidoptera*.

Meyrick, 1008; Prout, 1219; Rothschild, 1326.

*Diptera*.

Legendre, 877.

*Hemiptera*.

Bergroth, 97; Brain, Mauritius *Coccidae*, 171; Distant, 369.

## Asia, Tropical and Eastern.

*Insecta*, collectively.

Silvestri, India, 1403.

*Coleoptera*.

Bedel, 83; Bernhauer, 99, 102; Breit, Tibet, 178; Cameron, 232, 232a, 233; Champion, 254, 256; Chatanay, 286; Fleischer, China, 477; Fleutiaux, 479, 481; Gebien, 560; Gravely, 603; Kolbe, China, 827; Lapouge, Laos *Carabus* subg. n. *Miscell. Ent.* 1916 sep. pag. p. 85; Lesne, 889; Marshall, 982, 983; Maulik, India, 994; Moser, 1021; Obenberger, *Agrius*, 1097; Obenberger, 1098; Obenberger, 1100; Ohaus, 1113; Pic, Gobi, Mongolia, 1174; Pic, 1175, 1177, 1182, 1183; Raffray, 1235; Reitter, 1254, 1268; Reitter, Mongolia, 1259; Reitter, China, 1259; Reitter, Buchara, 1263; Schuster, India, 1376; Spaeth, 1424, 1425; Wassmann, India, 1605; Wingelmüller, 1660.

*Strepsiptera*.

Pierce, 1191.

*Hymenoptera*.

Cockerell, 282, 283, 285, 290; Forel, Japan, 487; Rusehka, China, 1334; Turner, Karachi, 1526; Turner, Tibet, 1526; Turner, 1530, 1532; Yano & Oyama, Japan, 1671.

*Lepidoptera*.

Bell, 86; Fawcett, Burma, 451; Hampson, 629, 630, 632; Hering, China, 697; Kaiser, 788; Marlatt, *Pectinophora* indian, 979; Meyrick, 1008; Nagano, Japan, 1044, 1045, 1046, 1047; Oberthür, 1106, 1108; Prout, 1216, 1218, 1219, 1220; Prout, Tibet, 1218; Rothschild, Burma, 1324; Strand, 1447; Strand, Formosa, 1448; Swinhoe, 1468; Wileman & South, Japan & Formosa, 1646; Wileman & South, Formosa, 1648.

*Trichoptera*.

Navás, 1064.

*Neuroptera*.

Navás, 1064.

*Diptera*.

Alexander, Japan, 15; Alexander, Japan & Kamchatka, 16; Awati, 38; Brunetti, 210; Frey, Ceylon, 500; Kinoshita, Japan, 813; Lamb, 854; Matsumura, Japan & Formosa, 990; Prashad, 1211; Rao, 1237; Schmitz, 1362; Shiraki, 1398; Tothill, 1509; Townsend, Ceylon, 1511.

*Hemiptera*.

Baker, Japan, *Aphidae*, 58; Das, India, *Aphidae*, 342; Distant, 367, 368, 369, 372; Essig & Kuwana, Japan, *Aphidae*, 439; Funkhouser, 531; Goot, *Aphidae*, 595; Haupt, 653; Kannan, India, *Coccidae*, 789; Kuwana, Japan, *Nidularia*, 848; Kuwana & Nitobe, Japan, *Coccidae*, 849; Muir, 1036, 1037, 1039; Paiva, 1125, 1126, 1127; Schumacher, Formosa, 1373; Takahashi, Japan, *Aphidae*, 1473, 1474.

*Thysanoptera*.

Bagnall, 46, 47.

*Psocoptera*.

Enderlein, India, 427.

*Paraneuroptera*.

Fraser, India, 495, 496.

*Orthoptera*.

Bolivar, 145, 146, 147; Chopard, 269, 271.

## Asiatic Archipelago.

Java to New Guinea, incl. Philip-  
pines.

*Coleoptera*.

Barber, 72; Bedel, 83; Cameron, 232a, 233; Champion, 254; Gebien, 560; Gravely, 603; Heller, 688, 689, 690; Hubenthal, 731; Kuntzen, 841; Marshall, 983; Moser, 1021; Obenberger, *Buprestidae*, 1097; Ohaus, 1113; Pic, 1177, 1183, 1184; Raffray, 1235; Schultze, 1371, 1372; Schwarz & Barber, 1377; Wasmann, 1606.

*Strepsiptera*.

Pierce, 1191.

*Hymenoptera*.

Cockerell, 277, 282, 283, 284; Crawford, 313; Dusmet, 406; Malenotti, 952; Rohwer, 1311, 1312; Turner, 1527; Viehmeyer, 1564.

*Lepidoptera*.

Eecke, 420; Gaede, 536; Hampson, 629, 630, 632; Kaye, 795; Martin, 987; Meyrick, 1008; Piepers & Snellen, 1188; Prout, 1216, 1218, 1219, 1220; Strand, 1447; Swinhoe, 1468.

Wileman & South, 1647.

*Diptera*.

Felt, 456; Melander, 995; Pettey, 1165; Salm, 1339; Townsend, 1511.

*Hemiptera*.

Bergroth, 95; Distant, 369; Funkhouser, 532; Goot, Java, *Aphidae*, 596; Robinson, Philippines, *Coccidae*, 1305.

*Paraneuroptera*.

Laidlaw, 853; Navás, 1064; Ris, 1292.

*Orthoptera*.

Bolívar, 145, 146; Borelli, 159, 160; Griffini, 609.

## Australia and Tasmania.

*Insecta*, collectively.

†Tillyard, 1490, 1495.

*Coleoptera*.

Carter, 240; Girault, 578; Gravely, 603; Lea, 867, 868, 869; Pic, 1177; Sloane, 1413, 1415.

*Hymenoptera*.

Cockerell, 279, 282; Crawley, 315; Girault, 577; Rohwer, 1311; Turner, 1523, 1525, 1526, 1527, 1531, 1532, 1533; Wheeler, 1631, 1633.

*Lepidoptera*.

Fawcett, 451; Hampson, 629, 632; Hardy, 636; Hardy, Tasmania, *Rhop.*, 639; Lower, 917; Meyrick, 1008; Swinhoe, 1468; Turner, 1518.

*Neuroptera*.

Esben-Petersen, 435, 436; Tillyard, 1491.

*Diptera*.

Hardy, 637; Hardy, Tasmania, 638; Ricardo, 1283; Taylor, 1475, 1476; White, 1638; White, Tasmania, 1637.

*Hemiptera*.

Distant, 369; Froggatt, 516, 517; Hardy, Tasmania, *Homoptera*, 640; Muir, 1036; †Tillyard, 1503.

*Thysanoptera*.

Bagnall, 46; Hood, 716.

*Paraneuroptera*.

Tillyard, 1492; †Tillyard, 1494, 1502.

*Orthoptera*.

Bolívar, 146; Shaw, 1394; Sjöstedt, 1407; †Tillyard, 1498.

## North America.

*Insecta*, collectively.

Brumfiel, 202; †Cockerell, 280; Gibson, Canada, 565; Lutz, 931; Navás, *Neuropteroidea*, 1058, 1059; Weiss, 1619.

Coliseum mountain, Whitehouse  
Canad. Ent. 50 pp. 1-7.

*Coloptera.*

Barber, 72; Blaisdell, 125, 126, 127; Blanchard, 130; Blatchley, 132, 133; Casey, 242, 243, 244; Chagnon, Quebec, 249; Chapin, 257; Dozier, 388; Fall, 449, 450; Ferris, 466; Fisher, 470, 471; Garnett, 551, 553; Goldsmith, 594; Hyslop, 743, 744; Knull, 823; Leng, 880, 883; Leng & Mutchler, 884; Liljeblad, 900; McAtee, 936; Myers, 1040; Nicolay & Weiss, 1078; Notman, 1090; Obenberger, 1099; Robinson, 1306; Schaeffer, 1347, 1348; Schwarz & Barber, 1377; Swaine, 1465; Van Dyke, 1544, 1545, 1546, 1547; Wickham, 1643; Woods, 1667.

Adirondack *Carabidae*, Notman p. 119 J. N. York ent. Soc. 26.

Chomong Lake, Morris pp. 109–115 Canad. Ent. 50.

Ontario, Morris pp. 37–43 Canad. Ent. 50.

*Strepsiptera.*

Pierce, 1191.

*Hymenoptera.*

Beutenmuller, 110, 111, 112; Bradley, 170; Burrill & Smith, 223; Cockerell, 282, 285, 291; Crawford, 313; Cushman, 331; Fenton, 461; Gahan, 542, 543, 545, 546; Girault, 579, 580, 581; Johnson & Ledig, 774; Malloch, 961, 972; Rohwer, 1313, 1316, 1317; Sladen, 1411, 1412; Smith, 1418; Viereck, 1565; WHEELER, 1632, 1634.

*Lepidoptera.*

Ainslie, 7; ANON, 34; Barnes & McDunnough, 76; Braun, 173, 174, 175; Ely, 425; Hampson, 629, 630; Heinrich, 676; Lichti, 899; McAlpine, 934; Meyrick, 1008; Skinner, 1410; Swett, 1466, 1467; Watson, 1613, 1614; Wolden, 1663.

California *Coenonympha brenda*, Ireland p. 231 Ent. News 29.

Texas *Rhopalocera*, Leussler p. 149 Ent. News 29.

*Trichoptera.*

Navás, 1064.

*Neuroptera.*

Navás, 1064.

*Diptera.*

Aldrich, 8, 9, 10, 13; Alexander, 17, 18, 19, 21; Andrews, 33; Brues, 200; Cameron, Saskatchewan, 230; Cresson, 316; Cresson, 318; Dietz, 366; Dyar, 411; Felt, 459, 460; Felt in Wood, 1665; Greene, 606; Hine, 711; Johnson, 773; McAtee, 939; Malloch, 954–960, 962–971, 973; Melander, 995; Metcalf, 1000; Parker, 1133, 1134, 1135; Pettey, 1164, 1166; Rogers, 1310; Smith, 1416; Sturgis, 1459; Sturtevant, 1460, 1461; Townsend, 1511, 1512, 1514; Van Duzee, 1542; Walton, 1586.

Illinois *Phorbia albula*, Malloch p. 32 Ent. News 29.

*Phaonia querceti*, Malloch p. 113 Ent. News 29.

*Hemiptera, collectively.*

Van Duzee, 1541, 1543.

*Heteroptera.*

Barber, 69, 70; Drake, 391, 392; Fracken, 494; Gibson, 567, 568; Knight, 820, 821; Reuter, 1281; Stoner, 1444, 1445.

Parry Sound, Bueno pp. 24–25 Canad. Ent. 50.

*Homoptera.*

Ball, 60; Davis, 347; De Long, 351, 352; Funkhouser, 533, 534; McAtee, 937; Olsen, 1114; Stearns, 1436.

*Aphidae.*

Baker, 57, 59; Gillette & Bragg, 574, 575; Patch, 1140; Wilson, 1659; Swain, 1463, 1464.

*Coccidae.*

Ferris, 463, 467.

*Thysanoptera.*

Cameron & Treherne, 231.

*Isoptera.*

Dobson, 376.

*Zoraptera.*

Caudell, 247.

*Plecoptera.*

Navás, 1064; Smith, 1417.

*Paraneuroptera*.

Brimley, 190; Kennedy, 801; Howe, 727, 728; Walker, 1582; Wells, 1625.

Florida *Argiallagma minutum*, Currie p. 271 Ent. News 29.

*Orthoptera*.

Caudell, 246; Hancock, 633; Hebard, 655; McAtee & Caudell, 941; Piers, 1197; Rehn & Hebard, 1246; Walden, 1581.

*Collembola*.

Folsom, 485.

## Central America.

*Coleoptera*.

Barber, 72; Bernhauer, 103; Casey, 242, 243; Fisher, 469; Gravely, 603; Obenberger, 1096.

*Hymenoptera*.

Cockerell, 281, 282, 284, 285, 289, 292.

*Lepidoptera*.

Dognin, 380; Draudt, 393; Dyar, 407, 412; Hampson, 629, 630, 632; Kaye, 796; Prout, 1218; Schaus, 1349.

*Neuroptera*.

Navás, 1064.

*Diptera*.

Cresson, 316, 317; Dyar, 408, 409, 411; Hine, 710; Ludlow, 920; Melander, 995; Townsend, 1511.

*Hemiptera*.

Ball, 61; Enderlein, 428; Gibson, 568; Muir, 1037.

*Isoptera*.

Banks, 68.

*Paraneuroptera*.

Ris, 1295, 1296; Williamson, 1657.

*Orthoptera*.

Hebard, 656, 657.

Antilles. Incl. Bermudas, excl. Trinidad.

*Insecta*, collectively.

Cardin, 236; Mann, 974.

*Coleoptera*.

Bernhauer, 104, 105; Marshall, 984; Pic, 1177; Pierce, Jamaica, 1192; Sampson, 1340.

*Hymenoptera*.

Cockerell, 284; Girault, 580; Malenotti, Barbados, 953.

*Lepidoptera*.

Dyar, 412; Hampson, Bahamas, 629, 630, 632; Kaye, 796.

*Diptera*.

Cresson, 316; Knab & Van Zwaluwenberg, 818; Melander, 995; Townsend, 1511; Townsend, Bahamas, 1511.

*Hemiptera*.

Drake, 390; Houser, *Coccidae*, 723; Muir, 1039; Williams, Grenada, 1652.

*Thysanoptera*.

Cardin, 235.

*Psocoptera*.

Enderlein, 427.

*Paraneuroptera*.

Navás, 1064.

South America, including Trinidad.

*Insecta*, collectively.

Lutz, Araujo & Filho, 929; Navás, *Neuropteroidea*, 1054; Navás, *Neuroptera* & *Trichoptera*, 1061; Navás, 1065.

*Coleoptera*.

Barber, 72; Bernhauer, 101, 103, 104, 105; Blair, 123; Brèthes, 185; Bruch, 197, 198; Champion, 251-254; Gravely, 603; Heller, 685, 686, 691; Lüderwaldt, 921; Obenberger, 1097, 1098; Pic, 1175, 1177, 1178, 1179, 1183, 1184; Pierce, 1192; Raffray, 1235.

*Hymenoptera*.

Bodkin, 141; Brèthes, 180, 183; Cockerell, 278, 281, 282, 284, 286, 287, 288, 292; Ducke, 396; Forel, 489, 490; Gallardo, 550; Hedicke, 659; Holmberg, 715; Schrottky, 1368, 1369; Turner, 1524; Wheeler, 1636.

*Lepidoptera.*

Dognin, 380; Draudt, 393; Giacomelli, 564; Hampson, 629, 630, 632; Houlbert, 721; Joicey & Talbot, 775, 776; Kaye, 794, 796; Lathy, 866; Meyrick, 1008; Prout, 1216-1220.

*Diptera.*

Brèthes, 181, 182; Cole, Chile, 297; Cresson, 316; Dunn, 400; Dyar, 408, 409, 410, 411; Edwards, Trinidad, 417; Enderlein, 431; Lamb, Trinidad, 855; Lutz, 928; Lutz and Lima, 930; Melander, Trinidad, 995; Pettey, 1164; Townsend, 1511.

*Hemiptera.*

Blanchard, *Alcyrodidæ*, 129; Brumpt & Gomes, 204; Enderlein, 428; Lizer, 911; Muir, 1037, 1039; Reuter, 1281.

*Isoptera.*

Banks, 68.

*Paraneuroptera.*

Ris, 1296; Sjöstedt, 1406; Williamson, 1656, 1657.

*Orthoptera.*

Arribáizaga, 35; Bolívar, 144; Caudell, 245; Chopard, 269, 271; Rehn, 1242-1245.

Wing-nervation and its relation to tracheation, TILLYARD P. Linn. Soc. N.S.W. 43 p. 626-657; The archedictyon Id. T.c. p. 630.

Position of thoracic spiracles in the different Orders, KÜNNETH Zeitschr. wiss. Zool. 112 pp. 70-92 pl. v 1915.

Thoracic sclerites of larvae, CRAMPTON P. ent. Soc. Washington 20 pp. 39-65 pls. v-vii.

Terga and wing basis in *Embioptera*, *Plecoptera* *Dermaptera* and *Coleoptera*, CRAMPTON Psyche 25 pp. 4-11 2 pls.

Termen of abdomen and male genitalia, phylogenetic study, CRAMPTON Bull. Brooklyn ent. Soc. 13 pp. 49-68 7 pls.

Spermiozeugmen (spermatozoa combinations), BALLOWITZ Biol. Centrallbl. 36 pp. 209-216 1916.

The genitalia of the various Orders, NEWELL Ann. ent. Soc. Amer. 11 pp. 109-142 pls. iv-xvii.

Male genitalia, GAHAN Pr. ent. Soc. London 1917 pp. cxiii-cxviii.

Species, RIS Mitt. Ent. Zurich Heft 4 pp. 261-278.

Classification, RIS Mitt. Ent. Zurich Heft 2 pp. 99-120 1916.

Publication and systematic entomology, HEIKERTINGER Wien. ent. Zeit. 36 1917 pp. 151-178.

On systematic entomology, REITTER pp. 221-228 Wien. ent. Zeit. 36 1917.

Nomenclature of different kinds of varieties, ROTHSCHILD Tr. ent. Soc. London 1918 p. 115.—WHEELER Ent. Rec. 30 p. 145; CHAPMAN t.c. pp. 168-170.

The orders of the "Panorpid complex," TILLYARD p. 656 P. Linn. Soc. N.S.W. 43.

*Panneuroptera* p. 55, *Panhomoptera* p. 56, CRAMPTON Psyche 25.

Phylogeny of insects, CRAMPTON Canad. Ent. 50 pp. 285-288.

Phylogeny of holometabolous insects, TILLYARD P. Linn. Soc. N.S.W. 43 pp. 265-284.

Evolution of pattern in the holometabola, DE MEIJERE Tydschr. ent. 61 pp. 57-75.

## II.—SYSTEMATIC.

## GENERAL.

General work, HEYMONS & HEYMONS in Brehm's Tierleben 4th Ed., reviewed by F. WERNER Biol. Centrallbl. 35 pp. 577-581 1915.

† The fossil insects of Commentry revised, with lengthy annotations, LAMERRE Bull. Mus. Paris 23 pp. 141-200 1917.

Ancestral segmentation, 27 metameres, JANET Mitt. schweiz. ent. Ges. 12 pp. 354-367 pl. 1916.

Wing-venation, throughout the Orders, COMSTOCK 423 pp. 9 pls. and 427 figs.

Nymphs, naiads and larvae distinguished, COMSTOCK pp. 222-224 Ann. ent. Soc. Amer. 4.

Metamorphoses of numerous Indian insects, FLETCHER Rep. agric. Inst. Pusa 1917-18, 20 pls.

Flight of insects, DEMOLI Jena 1918 67 pp. 5 pls.; BERVOETS Ann. Zool. Malacol. Belgique 43 pp. 91-135 2 pls. 1914; Flight, steering, STELLWAAG Biol. Centralbl. 16 pp. 30-43 1916.

Vertical distribution, Hungary, SZILÁDY Zeitschr. wiss. Insbiol. 14 p. 67 etc.

Ecdysis and glands, WILLERS & DÜRKEN Zeitschr. wiss. Zool. 116 pp. 43-74 pl. 1916.

Conditions that influence spinning, DEWITZ Zool. Anz. 50 pp. 27-30.

Insect galls, FAGAN pp. 155-176 Amer. Natural. 52.

Insect association, New Zealand, HILGENDORF pp. 135-144 Tr. N.Z. Inst. 50.

Field book of insects North American, LUTZ New York 1918 509 pp. 100 pls.

Recording life-histories, CUSHMAN pp. 112-114 P. ent. Soc. Washington 20.

Parasites and hosts in mixed infestations, TRÄGÅRDH pp. 75-79 Bull. ent. Res. 9.

Results of changing food-plants, ELY pp. 12-18 P. ent. Soc. Washington 20.

Recent work in Australia, c. Nature 102 p. 97.

Insects on snow at high elevations, HOWARD Ent. News 29 pp. 375-377.

Influence of floods, BRUMFIEL Pr. Iowa Ac. 25 pp. 155-174.

†*Protomecoptera* ord. nov. vide *Neuroptera*.

## COLEOPTERA.

### GENERAL.

The abdomen and genitalia, VERHOEFF Zeitschr. wiss. Zool. 117 pp. 130-204 2 pls. 1917.

Development and morphology of male genitalia, MUIR pp. 223-229 pl. x Tr. ent. Soc. London 1918.

Flight, DEMOLL Zool. Anz. 49 p. 285.

Tenth abdominal segment of larva, BRASS 58 pp.

Analsegment und Pygopodium, Koleopteren larven, KEMNER (see title 798).

Nervures of wings and elytra, KÜHNE Zeitschr. wiss. Zool. 112 pp. 692-718 2 pls. 1915.

The alula of clytra, STELLWAAG D.E.Z. 1914 pp. 419-434.

Olfactory organs of a larva, McINDOO J. Morphol. 31 pp. 113-131 fig.

Parthenogenesis, SHARP p. 154 Ent. Mo. Mag. 54.

DELAHON gives a supplement to the catalogue of German *Col.*, consisting largely of new varieties, D.E.Z. 1914 pp. 620-623.

Subfossil *Col.* Brittany, LESNE pp. 397-402 Bull. Mus. Paris 24.

Swedish Coleoptera, JANSSON Ent. Tidskr. 39 pp. 10-20.

Swedish myrmecophilous Coleoptera, JANSSON T.c. pp. 95-96.

List of Reitter's species and writings, HETSCHKO Wien. ent. Zeit. 34 pp. 215-287 1915.

### CICINDELIDAE.

The endoskeleton of head, and anterior coxal cavities, in Cicindelidae and Carabidae, SLOANE pp. 339-342 P. Linn. Soc. N.S.W. 42 1917.

*Cicindela*; habits, GOLDSMITH Pr. Indiana Ac. 1916 pp. 447-455.—*C.*, North American races with corrections of nomenclature, etc., pp. 138-140, *longilabris* var. n. *novaterrae* p. 140, LENG J. N. York ent. Soc. 26.

*Cicindela hybrida*, larval habits, STÄGER Mitt. Ges. Bern 1917 pp. 22-41 figs.; *C. hybrida* ab. n. *delugni* p. 44, TAREL Misc. ent. 24 1919.—*C. flexuosa* ab. n. *atrocyanea*, BARTHE p. 71 Misc. ent. 24 1919. *C. aeneodorsis* sp. n. Northern territory. p. 337, SLOANE P. Linn. Soc. N.S.W. 42 1917.

## CARABIDAE.

*Agonum harrarense*, *shoanum*, spp. n., E. Africa p. 495, ALLUAUD Bull. Mus. Paris 24.

*Amara perspecta* p. 294, *tarsalis*, *guadalupeensis* p. 295, *arcuata* p. 296, *acuminata* p. 297, *mystica*, *hesperia*, p. 298, *keeni*, *lacustrina*, p. 299, *laurana*, *otiosa*, *provoana*, p. 300, *vigilax*, *pomona*, p. 301, *humilis*, *tenax*, p. 302, *rustica* p. 303, *marquettensis*, *aeneopolita*, *nebraskana*, p. 304, *oblongula* p. 305, *diffidens*, *leydeni*, *enervis*, p. 306, *turbata*, *devincta*, p. 307, *wingatei*, *oviformis*, p. 308, *polita*, *piccola*, p. 309, *impedita*, *ebenina*, p. 310, *castalia* p. 311, *aeneolucens* p. 312, spp. n., Amer. bor., CASEY Mem. Col. 8.

*Amerizus crassicornis* p. 176, *longicornis*, *keeni*, p. 166, spp. n., Am. bor., CASEY T.c.

*Anaferonia* gen. n. for part of *Pterostichus* p. 341, *distincta* p. 342, U.S., *evanescens* Mexico p. 343, *pantex*, *vernicala*, p. 344, *pimalis* p. 345, *pubica*, *papago*, p. 346, *iowana* p. 347, *fausta* p. 348, U.S., spp. n., CASEY T.c.

*Anatrechus* gen. n. p. 411 for *T. barbarae* Horn, CASEY T.c.

*Anchomenus sahbergi*, in Scotland, MURPHY p. 33 fig. Ent. Mag. 54.—*A. thoreyi*, KEMNER Ent. Tidskr. 39 p. 96.

*Anilaspis* subg. n. of *Anillus* for *explanatus* Horn, CASEY p. 168 Mem. Col. 8.

*Anillinus* subg. n. vide *Anillus*.

*Anillus* (*Anillinus* subg. n.) *carolinæ* sp. n. U.S., CASEY p. 168 Mem. Col. 8.

*Anomotarus humeralis* p. 435, *ruficornis* p. 436, spp. n. Australia, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Anopthalmus*; notes on Carinthian, GSPAN Wien. ent. Zeit. 37 p. 155 and 156.—*A. schmidti gsapani* subsp. n. p. 24, REITTER Wien. ent. Zeit. 37.

*Antarctia nitida* = (*blanda* End.), CHAMPION p. 170 Ann. Nat. Hist. 1.

*Anthracus*; the species pp. 93–102, *wimmeli* var. n. *reitteri* p. 100, WANKA Wien. ent. Zeit. 34 1915.

(N-5464 f)

*Azoranchus* gen. n. for *Anchomenus aptinoides* Tarn., ALLUAUD p. 253 Bull. Soc. ent. France 1918 1919.

*Bembidiomorphum* gen. n. p. 44, *convexum* sp. n. Chile p. 45, CHAMPION Ent. Mo. Mag. 54.

*Bembidion* (*Odontium*) *opaciceps* p. 8, *levettei*, *binarium*, p. 9, *unicum*, *venator*, *snowi*, p. 12, *vigilans* p. 13, *B. (Ochthedromus) illini*, *sufflatum*, *cheyennense*, p. 15, *regestum*, *nuperum*, p. 16, *B. (Lionepha* subg. n. p. 18), *osculans*, *speculum*, *castum*, p. 20, *serenum*, *lascivum*, *lubricum*, p. 21, *brumale*, *probatum*, *vacivum*, p. 22, *commotum*, *seclusum*, *blanditum*, p. 23, *saturatum*, *laxatum*, *ampliatum*, p. 24, *lividulum*, *improvisum*, p. 25, *adumbratum* p. 26, *fabrum*, *obliviosum*, p. 27, *volatile*, *impium*, p. 28, *deceptor* p. 29, *testatum*, *nescium*, p. 30, *viator*, *illex*, *haruspex*, p. 31, *turbatum*, *conflictum*, p. 32, *rusticum*, *adulium*, *dilutum*, p. 33, *bucolicum*, *gratosum*, p. 34, *repans* p. 35, *B. (Melomalus* subg. n. p. 37), *solutum* p. 38, *adjutor*, *curtulatum*, p. 39, *vespertinum*, *effetum*, *oppressum*, p. 40, *flebile*, *tumefactum*, *decrepitem*, p. 41, *electum*, *extensum*, p. 42, *B. (Liocosmius* subg. n. p. 43, *delectum*, *hilare*, p. 44, *festivum* p. 45, *B. (Peryphus) morosum*, *tartareum*, p. 49, *callidum*, *tritum*, p. 50, *aegrotum*, *inopinum*, p. 51, *concessor*, *oblatum*, p. 52, *avidum*, *perlinax*, p. 53, *umbraticola* p. 54, *porrectum*, *vulsum*, p. 55, *filicorne*, *champlaini*, p. 56, *marinicum* p. 57, *sarpedon* p. 58, *acomantum*, *excursum*, p. 59, *bodipenne* p. 60, *canonicum*, *relectum*, p. 61, *animatum*, *pernotum*, p. 62, *inocuum* p. 63, *scrulatum*, *denveranum*, *tractabile*, p. 64, *actuosum*, *viaticum*, p. 65, *nitens*, *citulum*, p. 66, *inquietum* p. 67, *insopitans*, *histricum*, p. 68, *cogitans*, *oplatum*, p. 69, *merens*, *sedulum*, p. 70, *satelles* p. 71, *renoanum* p. 72, *vancouveri* p. 73, *shastanicum* p. 74, *lepusculum*, *castalium*, p. 75, *integrum*, *sejunctum*, p. 79, *caducum*, *albidipenne*, *parowanum*, p. 80, *petulans* p. 81, *B. (Peryphodes* subg. n. p. 85) *salinarium* p. 86, *B. (Notaphus) idoneum* with subsp. *obsequens*, *efficiens*, p. 90, *continens*, *imperitum*, *prociduum*, p. 91, *augurale* p. 92, *consuetum*, *evidens*, *simulator*, p. 93, *curiosum*, *mobile*, p. 95, *semotum*, *nubiferum*, *gulosum*, p. 96, *devinctum* p. 97, *extricatum*,

b 12

*caudex*, *pinnatum*, p. 98, *derisor* p. 99, *cernens*, *latebricola*, p. 100, *expositum*, *jacobianum*, *formale*, p. 101, *franciscanum*, *ornatellum*, p. 102, *procaz*, *operosum*, p. 103, *debiliceps* p. 104, *imitator*, *provoanum*, p. 105, *monstratum*, *fenisex*, p. 106, *pectile*, *mediocere*, p. 107, *graphicum* p. 108, *retractum*, *exclusum*, p. 109, *marcidum* p. 110, *cornix* p. 111, *callens* p. 112, *fidele*, *novellum*, p. 113, *parabile*, *diligens*, *aleneanum*, p. 114, *perturbatum*, *agitabile*, *atrolucens*, p. 115, *definitum* p. 116, *lassulum* p. 118, *caliginosum*, *placabile*, p. 119, *amnicum*, *festinans*, p. 121, *prosperum*, *luculentum*, p. 122, *argutum* p. 123, *particeps* p. 124, *editum* p. 125, *vulpecula*, *docile*, p. 126, *sociale*, *negligens*, *fugitans*, p. 127, *thespis* p. 128, *impotens*, *aestivum*, p. 129, *frugale*, *imbele*, *gratuitum*, p. 130, *virgatum* p. 131, *rotundiceps*, *tolerans*, *egens*, p. 132, *demissum*, Am. bor., *indigenus*, *pullulum*, Mexico p. 133, *triviale* p. 134, *temperans* p. 135, *pellax* p. 136, *B.* (*Cyclotopha* subg. n. p. 144) *occultum* p. 144, Am. bor., *aztecanum*, *furtivum*, Mexico p. 145, *minax* p. 146, *B.* (*Lopha*) *gregale*, *pugetanum*, p. 148, *adductum*, *saphicum*, p. 149, *strigulosum*, *fastidiosum*, p. 150, *vegetum* p. 151, *tenax*, *veridicum*, p. 152, *relictum* p. 153, *B.* (*Diplocampa*) *digressum*, p. 155, *concretum*, *congruens*, p. 156, *siticum* p. 157, *adolescens*, *umbraticum*, p. 158, *scenicum*, *clemens*, *peregrinum*, p. 159, *vapidum* p. 160, *disparile*, *ampliceps*, p. 161, *tersum*, *invidiosum*, *habile*, p. 162, *remotum* p. 163, Am. bor., spp. n., CASEY Mem. Col. 8.—*B. caseyi* n. n. for *pugetanum*, LENG p. 202 J. N. York ent. Soc. 26.

*Bembidium decorum* var. n. *clermonti* p. 70, POEL Misc. ent. 24 1919.—*B. redtenbacheri* ab. n. *nigrum*, W. KOLBE p. 204, Ent. Mitt. 7.

*Brachynus tsara* sp. n. Madagascar p. 129, ALLUAUD Bull. Soc. ent. France 1918.

*Bradycellus chavesi* sp. n. Azores p. 252, ALLUAUD T.C. 1919.—*B. verbasci* ab. n. *obscurus* Holland, EVERTS Ber. Ned. Ent. Ver. 5 p. 67.

*Bradytus gravidus*, *curtus*, p. 236, *stygialis* p. 207, *nainensis* p. 238, *humphreysi* p. 240, *deceptus*, *specularis*,

p. 241, *relictus*, *obsolescens*, p. 242, *immundus* p. 243, U.S., *aequalis* Mexico p. 242, spp. n., CASEY Mem. Col. 8.

*Brosconymus optatus*, habits, BRIDWELL p. 391 P. hawaii. ent. Soc. 3.

*Calathus aethiopicus* sp. n. E. Africa p. 495, ALLUAUD Bull. Mus. Paris 24.

*Calosoma olivieri*, ALLUAUD p. 251 Bull. Soc. ent. France 1918.

*Calosoma rugosum*, prehistoric specimen, GAHAN p. lxxxix Pr. ent. Soc. London 1917.

†*Carabites* ? *arapahoensis* sp. n. Colorado eocene p. 307, COCKERELL P.U.S. nat. Mus. 54.

*Carabus*, LAPOUGE continues his notes in connection with, Miscell. ent. pp. 81–112 sep. pag., *C.* (*Laocarabus* subg. n. p. 86) *vitalisi* sp. n. Laos p. 85, *C. mannerheimi inchanicus* subsp. n. p. 90; *C. bogdanovi auliensis* p. 92, *prosper* p. 96, *borensis* p. 97, *cordatus* p. 101, *morosus*, p. 105, subspp. n., 1916 and 1919.

*Carabus*; Heer's Swiss species, BORN pp. 372–382 Mitt. schweiz. ent. Ges. 12 1916.

*C. auronitens* ab. n. *letacqi* p. 65, ANTOINE Miscell. ent. 24 1919.—*C.*; var. n. *pyrenaeus cephalotes*, *lineatus inconstatus*, *auronitens allevardensis*, p. 84, *macrocephalus urculoensis*, *auratus olivarius* & *ispaniacus*, p. 85, NICOLAS Misc. ent. 24 1919.

*C. cancellatus* var. n. *beszedesi*. DEPOLI p. 109 Wien. ent. Zeit. 34 1915; *cancellatus* ab. n. *tersculptus* p. 121, FLEISCHER Wien. ent. Zeit. 36 1917.—*Carabus catenulatus*, the variation, EVERTS pp. 64–67 Ber. Ned. ent. Ver. 5.—*Carabus catenulatus* ab. n. *anthracinus* Holland, EVERTS p. 27 T.C.

*C.*; characters of larvae, VERHOEFF pp. 41–44 Zeitschr. wiss. Insbil. 13.—*C.* larva, VERHOEFF Biol. Centralbl. 37 1917 pp. 14–23.

*C.* (*Coptolabus*) *mellinus* sp. n. China p. 639, KOLBE D.E.Z. 1914.

*Carenum fulgidum* p. 407, *bellum* p. 408, spp. n., Northern territory, *floridum* nom. n. for *lepidum* Sl. p. 407, SLOANE P. Linn. Soc. N.S.W. 42 1917.



*Celia lauta, formalis*, p. 248, *finitima, subdepressa*, p. 249, U.S., *consors* Mexico, *modulata* p. 250, *shastanica, semota*, p. 251, *solita, reducta, ellipsis*, p. 252, *nexa*, U.S., *mora* p. 253, *gnara, habilis*, p. 255, *paraba*, p. 256, Mexico, *luxicollis* p. 258, *brumalis, paganica*, p. 259, *defecta, exposita, mimica*, p. 260, *fontinalis, eldorensis*, p. 261, *docilis, brunnescens*, p. 262, *definita, obligata*, p. 263, *pinorum, nevadica*, p. 264, *sodalis* p. 265, *corvina, ampli-pennis, schotti*, p. 266, *sphaerops, merula*, p. 267, *lugubris*, p. 268, *greenei, scolopax*, p. 269, *patula* p. 270, *rotundiceps, jacinto*, p. 272, *farallonica* p. 273, *proba, clementina*, p. 274, *hilaris, evanida, angustior*, p. 275, *sinuosa, elusa*, p. 277, *nupta, thoracica*, p. 278, *hospes, lucina*, p. 279, *proditor, lyncea*, p. 280, *nugator, curticeps, holdemani*, p. 281, *liquida*, Amer. bor., *chihuahuae* Mexico, p. 282, *pimalis, shoemakeri*, p. 283, *politissima* p. 284, *shantzi* p. 285, *lubrica, nigripennis*, p. 286, *volatilis, vegrandis, fluminea*, p. 287, *crenulata* p. 288, *virginica, limbalis, paulula*, p. 289, *scintilla, breviaristis*, p. 290, Amer. bor. spp. n., CASEY Mem. Col. 8.

*Cephalogyna* gen. n. p. 414 for *Anisodactylus loedingi* Schf., CASEY T.c.

*Chlaenius tetrachus* p. 71, *tetraspilus* p. 72, *anthracus* p. 73, spp. n., Ivory Coast, *sulcipennis synaptus* subsp. n. p. 71, ALLUAUD Bull. Soc. ent. France 1918.—*C. xanthomerus, trichrous*, spp. n. E. Africa p. 494, ALLUAUD Bull. Mus. Paris 24.

*Clivina brevisterna* var. n. *major* p. 406, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Comstockia* gen. n. *Ctenodactylini* p. 179, *subterranea* sp. n. Texas p. 182, VAN DYKE J. N. York ent. Soc. 26.

*Cryobius otariidinus, beringi*, p. 374, *breviusculus, delicatus*, p. 375, spp. n., Alaska, CASEY Mem. Col. 8.

*Curtonotus sponsor, concretus*, p. 228, *spadiceus, tartareus*, p. 229, *catenulatus* p. 230, *labradorensis, scrutatus*, p. 231, *rubripennis, deficiens*, p. 232, *argutus, inanis*, p. 233, spp. n., Amer. bor., CASEY T.c.

*Cyclolopha* subg. n. vide *Bembidion*.  
(N-5464 f)

*Cyclotrachelus roticollis* sp. n. Florida p. 349, CASEY Mem. Col. 8.

*Cylindrocharis* gen. n. *Pterostichinae* p. 326, *sulcatula, piceata*, p. 327, spp. n., U.S., CASEY T.c.

*Dromius quadrimaculatus* ab. n. *connexus* Holland, EVERTS Ber. Ned. Ent. Ver. 5 p. 44.

*Dyschirius aeneus* ab. n. *niger* Holland, EVERTS Ber. Ned. Ent. Ver. 5 p. 37.

*Dysidius purpuratus trinaris* subsp. n. p. 377, CASEY Mem. Col. 8.

*Elaphrus caseyi* n. n. for *politus* C., LANG p. 203 J. N. York ent. Soc. 26.

*Eudalia obliquiceps* p. 418, *brunneipennis, nitida*, p. 420, spp. n. Queensland, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Euferonia* gen. n. p. 365, *quadrifera* p. 366, *ingens* p. 367, *umbonata, subaequalis*, p. 368, spp. n. U.S., CASEY Mem. Col. 8.

*Eumolops* gen. n. p. 351 for part of *Evarthrus, ampla, prominens*, p. 353, *sexualis, inflatula*, p. 354, *sulcata*, p. 355, *E. (Evarthrinus* subg. n.), *decepta* p. 357, *impolita* p. 358, spp. n. U.S., CASEY T.c.

*Euthenarus brunneus* sp. n. Queensland p. 412, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Evarthrinus* subg. n. vide *Eumolops*.

*Evarthrus rubripes* p. 359, *blatchleyi, breviformis*, p. 360, *enormis* p. 361, spp. n. U.S., *sigillatus parallelus* subsp. n. p. 359, CASEY Mem. Col. 8.

*Ferestria nanula* sp. n. Alabama p. 364, CASEY T.c.

*Feronalius* gen. n. *Amarinae* for *pterostichinus* Hayw., CASEY p. 226 T.c.

*Feronina* gen. n. for *Pterostichus palmi*, CASEY p. 365 T.c.

*Galerita caseyi* n. n. for *thoracica* C LENG p. 203 J. N. York ent. Soc. 26.

*Gastrellarius* gen. n. *Pterostichinae* p. 338, *atronitens* p. 339, *scolopaceus, deficiens*, p. 340, spp. n. U.S., CASEY Mem. Col. 8.

*Gastrosticta* gen. n. for part of *Feronia* p. 371, *amnicola* p. 372, *subacuta* p. 373, spp. n. U.S., CASEY T.c.

*Gnathaphanas whitei* sp. n. Northern territory p. 410, *philippinensis* Chev. = (*laeviceps* Macl.) p. 411, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Harpalus honestus* ab. n. *pallidipes* p. 160, REITTER Wien. ent. Zeit. 37.

*Helluodema brunneum* sp. n. Northern territory p. 438, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Hydriomicrus* subg. n. of *Bembidion* for *semistriatum* Hald., CASEY p. 87 Mem. Col. 8.

*Hypherpes innatus* p. 328, *spissitarsis* p. 329, *kansanus*, *responzor*, p. 330, *anthrax*, *restrictus*, p. 331, *luscus*, *elumbis*, p. 332, *inctus*, *vivax*, p. 333, *placerensis*, *alamedae*, p. 334, *mercedianus* p. 335, *protensipennis* p. 336, spp. n. Amer. bor., CASEY T.c.

*Isotachys* subg. n. vide *Tachys*.

*Laccoscapus doddi* var. n. *triordinata* p. 406, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Laocarabus* subg. n. vide *Carabus*.

*Lebiomorpha* (Chaud.) n. n. for *Ectroma* Blackb., SLOANE p. 422 P. Linn. Soc. N.S.W. 42 1917.

*Lebistina newillei* sp. n. E. Africa p. 496, ALLUAUD Bull. Mus. Paris 24.

*Lecanomerus lucidus* sp. n. Queensland p. 411, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Leptoferonia* gen. n. for part of *Hypherpes* p. 336, *larvalis*, *fugax*, p. 337, *inopina* p. 338, spp. n. U.S., CASEY Mem. Col. 8.

*Leuchydrium* subg. n. of *Bembidion* for *tigrinum* Lec., CASEY p. 46 T.c.

*Licinopsis bucheli* sp. n. Canaries p. 252, ALLUAUD Bull. Soc. ent. France 1918 1919.

*Liocosmius* subg. n. vide *Bembidion*.

*Lionepha* subg. n. vide *Bembidion*.

*Lobocephalus platysomus* sp. n. Madagascar p. 127, ALLUAUD Bull. Soc. ent. France 1918.

*Loxandrus brunneus* p. 416, *flavilimbus* p. 418, spp. n. Florida, BLATCHLEY Canad. Ent. 50.—*L. lateralis* p. 381, *limatus* p. 382, *ludovicianus* p. 383, *suturalis* p. 384, *cervicalis*, *mundus*, p. 385, *accelerans*, *parallelus*, p. 386,

*cursitans*, *comptus*, p. 387, *scitus*, *contumax*, *fulgens*, p. 388, *parvicollis*, *inquietus*, p. 389, *velocipes*, *vulneratus*, p. 390, *concinus* p. 391, spp. n. U.S., CASEY Mem. Col. 8.

*Lymneops* gen. n. p. 168 near *Bembidion*, *angusticeps* sp. n. California p. 169, CASEY T.c.

*Megasteropus* gen. n. *Pterostichinae*, *gigas* sp. n. Texas, CASEY p. 349 T.c.

*Melomalus* subg. n. vide *Bembidion*.

*Metromenus palmae*, larva, TIMBERLAKE p. 380 P. hawaii. ent. Soc. 3.

*Micratopus*; a tribe of *Bembidiinae*, CASEY p. 3 Mem. Col. 8.

*Microlestes micromys* sp. n. E. Africa p. 497, ALLUAUD Bull. Mus. Paris 24.

*Micromaseus* gen. n. p. 378 for part of *Pterostichus*, *aequicollis* sp. n. Missouri p. 379, CASEY Mem. Col. 8.

*Micromelomalus* sect. n. of *Bembidion*, CASEY p. 37 T.c.

*Microtachys* subg. n. vide *Tachys*.

*Molops victoris* sp. n. Albania p. 1, *apfelbecki plurisetosus* p. 3, *piceus mehadiensis*, *austriacus tridentinus* p. 4 and *a. longulus* p. 5, subspp. n., table of *Molops* pp. 5-12, MÜLLER Ent. Mitt. 7.—*M. matchai* sp. n. Serbia p. 64, ROUBAL N. Beitr. syst. Insk. 1 1917.

*Monoferonia* gen. n. for part of *Evarthrus*, CASEY p. 363 Mem. Col. 8.

*Nebria fuscipunctata weingaertneri* subsp. n. p. 292, SLOANE P. Linn. ent. Zeit. 36 1917.

*Notiophilus biguttatus* ab. n. *pseudogadripunctatus* Holland, *N. hypocrita*, EVERTS Ber. Ned. Ent. Ver. 5 p. 43.

*Nototarus puncticollis* sp. n. Northern territory p. 437, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Omophron rothschildi* sp. n. E. Africa p. 493, ALLUAUD Bull. Mus. Paris 24.—*O. limbatus* ab. n. *nigromaculatus*, Holland, EVERTS Ber. Ned. Ent. Ver. 5 p. 37.

*Ophionea brachydera* sp. n. E. Africa p. 496, ALLUAUD Bull. Mus. Paris 24.

*Paraferonia* gen. n. p. 376 for *Pterostichus tubricus* Lec., CASEY Mem. Col. 8.

*Paralopha* subg. n. of *Bembidion*, for *sulcatum* Lec., CASEY p. 153 T.c.

*Parapheropsophus* subg. n. vide *Pheropsophus*.

*Parargutor* gen. n. p. 377, for *lustrans* Lec. and *atrolineus* sp. n. Oregon, CASEY Mem. Col. 8.

*Paratachys* gen. n., *austinius* Texas p. 174, *clonicus* Panama p. 195, spp. n., CASEY T.c.

*Patrobus labradorinus* p. 395, *minuens* p. 396, *laeviceps*, Labrador, *insularis* Alaska, p. 397, spp. n., CASEY T.c.

*Percosia extensa* p. 244, *latissima*, *ventricosa*, p. 245, spp. n. U.S.; CASEY T.c.

*Pericompsus* (*Tachysops* subg. n. p. 171), *oculaticauda* sp. n. Mexico p. 172, CASEY T.c.

*Peryphodes* subg. n. vide *Bembidion*.

*Pheropsophus* (*Stenaptinus*), *kolbei* p. 437, *uniformis* p. 438, *maculicollis* p. 439, Africa, P. (*Parapheropsophus* subg. n. p. 442), *intermedius* New Britain p. 440, notes on taxonomy, etc., pp. 441-448, *aequinoctialis* var. n. *excellens* and *disjunctus* p. 446, HUBENTHAL D.E.Z. 1914.

*Phloeocarabus anchoralis* sp. n. Queensland p. 433, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Platia queenslandica* sp. n. p. 432, *papua* n. n. for *lineella* Sl. p. 433, SLOANE T.c.

*Platidius latipennis*, *incisus*, p. 399, *strenuus*, *rectus*, p. 400, *sierranus*, *breviusculus*, p. 401, *breviceps* p. 402, *tenuitarsis*, *coloradensis*, *reflexus*, p. 403, *filicornis* p. 404, spp. n. U.S., CASEY Mem. Col. 8.

*Platynus fallianus* n. n. for *deplanatus* Men., LÆNG p. 203 J. N. York ent. Soc. 26.

*Poecilus mexicanus* = (*snowi* G.), CASEY p. 377 Mem. Col. 8.

*Porocara* gen. n. p. 415 near *Eudalia*, *punctata* sp. n. Queensland p. 416, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Pseudargutor* gen. n. p. 378 for *Feronia erythropus* Dej., CASEY Mem. Col. 8.

*Refonia* gen. n. for *Pterostichus moestus*, CASEY p. 371 T.c.

*Sarothrocrepis obtusa* sp. u. N.W. Australia p. 423, SLOANE P. Linn. Soc. N.S.W. 42 1917.

*Scarites rhathymus* sp. n. E. Africa p. 493, ALLUAUD Bull. Mus. Paris 24.

*Scotodipnus zariqueiyi* = (*parvicollis* D.), DODERO p. 104 Butl. Inst. catalan. 1918.

*Selenophorus excisus* Lec. = (*mustus* C.), CASEY p. 413 Mem. Col. 8.

*Selina natalensis* fig p. 223 the same as *westermanni*, ALLUAUD Bull. Soc. ent. France 1918.

*Styphlomerus sinus* sp. n. Madagascar p. 129, ALLUAUD T.c.

*Tachymenis ocularis* sp. n. Guatemala p. 222, CASEY Mem. Col. 8.

*Tachys panamensis* p. 194, *oblitus*, *cuneatus* with subsp. *appalachius*, *iowensis*, p. 195 U.S., *beaumonti* Panama p. 196, *sagar*, *gentilis*, p. 197, *rhodeanus* p. 198, *pallescens* p. 199, *hyalinus*, *temporalis*, *nubifer*, p. 200, *obliquus* p. 201, *spadix laxicollis*, *vernalis*, p. 202, T. (*Isotachys* subg. n. p. 204) *funebis* p. 205, *ornissus* p. 206, *luridicollis*, *torrescans*, *pugnax*, p. 207, *subtropicus* p. 208, *esurialis* p. 209, T. (*Microtachys* subg. n. p. 210), *congestus*, *unistriatus*, p. 212, *rectus*, *flumenalis*, p. 213, *diaphanus* p. 214, Am. bor., spp. n., CASEY T.c.—T. *scutellaris* var. n. *obscurus* Balcan, SAHLBERG Helsingfors Öfvers. F. Vet. Soc. 55 A. No. 15 1913 p. 7.

*Tachysalia* subg. n. of *Pericompsus* for *laetulus* Lec., CASEY p. 173 Mem. Col. 8.

*Tachysops* subg. n. vide *Pericompsus*.

*Tachyta angulata*, *kirbyi*, p. 216, *collaris* p. 218, *arizonica*, *debilicollis*, *californica*, p. 219, spp. n. U.S., CASEY Mem. Col. 8.

*Tachyura mellita* Mexico p. 176, *solita* p. 178, *soror*, *monticola*, p. 179, *sectator* with subsp. *sospes* p. 180, *vernicala*, *congenor*, p. 181, *parallcia*, *brevis*, p. 182, *renoica*, *tahoensis*, p. 183, *apacheana*, *sedula*, p. 184, *profuga* p. 185, *levipes*, *rubricauda*, *ancilla*, p. 186, *fatua*, *saturata*, p. 187, *gaudens*, *fracta*, p. 188, *laredoana*, *serva*, p. 189, Am. bor., spp. n., CASEY T.c.

*Thalassotrechus* gen. n. type *T. barbarae* Horn p. 303, *nigripennis* sp. n. California p. 304, VAN DYKE Ent. News 29.

*Trachelonepha* sect. n. of *Bembidion*, CASEY Mem. Col. 8 p. 37.

*Trechonepha* sect. n. of *Bembidion*, CASEY p. 19 T.c.

*Trechus aethiopicus* sp. n. E. Africa p. 493, ALLUAUD Bull. Mus. Paris 24.—*T. takoensis*, *puritanus*, p. 407, *rhodensis*, U.S., *brumalis* Labrador, *saxatilis* p. 408, *arizonae* p. 409, U.S., spp. n. *pallescens* n. n. for *fulvus* Lec. p. 407, CASEY Mem. Col. 8.

*Triaena shermani* p. 315, *flebilis* p. 316, *vinta*, *vapida*, p. 317, *profuga* p. 318, spp. n. U.S., CASEY Mem. Col. 8.

*Trigonotoma kuntzeni* sp. n. Borneo p. 437, HUBENTHAL D.E.Z. 1914.

*Troglorites* gen. n. near *Speluncarius* p. 273, *breviti* sp. n. Navarre p. 274, JEANNEL Bull. Soc. ent. France 1918 1919.

*Typhloscaris* gen. n. *Scaritini* p. 455, *macrodus* sp. n. Africa p. 456 pl. xiii f. 7, KUNTZEN D.E.Z. 1914.

*Xanthophoea marginipennis* p. 427, *quadricollis* p. 428, *doddi* p. 429, *apicalis* p. 430, *dorsalis* p. 431, spp. n. Australia, SLOANE P. Linn. Soc. N.S.W. 42 1917.

#### PAUSSIDAE.

*Lebiodorus goryi* var. n. *bicolor* Java, WASMANN Zool. Med. 4 p. 251.

*Pleuropterinus* subg. nov. type *Pleuropterus alternans* Westw., WASMANN Tyds. Ent. 61 p. 79.

*Pleuropterus tujae* sp. n. Congo p. 78, *P. dohrni* larva pl. vii, WASMANN T.c.

#### HALIPLIDAE.

*Haliplus fluviatilis* ab. n. *flavus* Holland, EVERTS Ber. Ned. Ent. Ver. 5 p. 44.—*Haliplus havaniensis* (=confluentus Rob.), MUTOHLER p. 93 Bull. Amer. Mus. 38.

#### DYTISCIDAE.

The stink-glands of *Dytiscus*, BLUNCK Zeitschr. wiss. Zool. 117 pp. 205-256 1917.

Sense organs in base of antenna, *Dytiscus*, LEHR Zeitschr. wiss. Zool. 111 pp. 428-444 figs. 1914.

Embryology and metamorphosis of *Dytiscus marginalis*, BLUNCK Zeitschr. wiss. Zool. 111 pp. 76-151 31 figs. 1914.

*Agabus nebulosus* ab. n. *flaviventris* Holland, EVERTS Ber. Ned. ent. Ver. 5 p. 70.

*Bidessus nasutus* and allies, characters pp. 57-61 figs, ZIMMERMANN Ent. Mitt. 7.—*B. minutissimus* abb. n. *quadrinotatus* and *nigropterus*, FUENTE p. 45 Bol. Soc. ent. Españ. 1.

*B. unistriatus* ab. n. *maurus* Holland, EVERTS Ber. Ned. Ent. Ver. 5 p. 67.—*B. shermani* sp. n. Florida p. 82, MUTOHLER Bull. Amer. Mus. 38.

*Celina slossoni* sp. n. Florida p. 85, fig., MUTOHLER T.c.

*Dytiscus marginalis*, metamorphosis, BLUNCK Zeitschr. wiss. Zool. 117 pp. 1-129.

*Hydroporus lepidus bifoveolatus* subsp. n. p. 61, *veterator* Mediterranean n. p. 67, *aequalis* Tangier p. 69, spp. n., figs, ZIMMERMANN Ent. Mitt. 7

*Hyphydrus aubei* ab. n. *obscura* p. 190, DEPOLI Wien. ent. Zeit. 36 1917.

#### GYRINIDAE.

Gyrinidae of Florida, LONG & MUTOHLER pp. 95-98 Bull. Amer. Mus. 38.

#### HYDROPHILIDAE.

Des Gozis continues his tables of the franco-rhenane Hydrophilidae in Miscell. Ent. 26 sep. pag. 81-160.

Hydrophilidae of Florida, LENG & MUTOHLER pp. 98-115 Bull. Amer. Mus. 38.

†*Ademosyne wianamattensis* sp. n. triassic N.S.W. p. 750 fig., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Cerycon sternalis* p. 276, *pumilio* p. 277, spp. n. England, *minutus* var. n. *intermixtus* p. 276, SHARP Ent. Mo. Mag. 54.

*Epimetopus thermanum* sp. n. Arizona p. 130, fig., SCHWARZ & BARBER P. ent. Soc. Washington 19.

*Hydraena inapicipalpis* Tunis, sub-*irregularis* Sicily, spp. n., *grandis* var. n. *obscuriceps*, PIC p. 21 Echange 34.

*Octhebius lapidicolus* sp. n. California p. 306, VAN DYKE Ent. News. 29.

*Spercheus stangli* sp. n. Philippines p. 133, SCHWARZ & BARBER P. ent. Soc. Washington 19.

## STAPHYLINIDÆ.

Larvae and taxonomy, VERHOEFF Zeitschr. wiss. Insbiol. 13 pp. 105-109 1917.

Pupae of Staphylinidae, VERHOEFF pp. 42-47 and 167-171 Zeitschr. wiss. Insbiol. 14.

Habitat and localities of Brazilian Staphylinidae, LÜDERWALDT Zeitschr. wiss. Insbiol. 13 pp. 9-14, etc.

*Acanthoglossa deweti* sp. n. Africa p. 316, BERNHAUER Beitr. Landf. Sudwestafrik. 1.

*Acanthonia* gen. n. p. 272 *Myrmedoniini*, *gigantea* sp. n. Congo with *Anomma* p. 274 pl. vii. figs. 10 & 11, WASMANN Zeitschr. wiss. Zool. 117 1917.

*Acidota cruentata* var. n. *nigrescens* p. 76, FLEISCHER Wien. ent. Zeit. 37.

*Actobius laticeps* sp. n. Singapore p. 86, CAMERON Tr. ent. Soc. London 1918.—*A. cinerascens* var. n. *robustus*, W. KOLBE p. 205 Ent. Mitt. 7.

*Acylophorus rotundicollis* sp. n. Singapore p. 90, CAMERON Tr. ent. Soc. London 1918.—*A. longiceps* sp. n. Borneo p. 172, CAMERON Ent. Mo. Mag. 54.—*A. flavicornis*, *maculicornis*, spp. n., Borneo p. 24, CAMERON T.c.

*Alleochara (Polychara) leonhardi* sp. n. Herzegowina p. 81, BERNHAUER Wien. ent. Zeit. 34 1915.—*A. nitida* ab. n. *unicolor* Holland, EVERTS Ber. Ned. Ent. Ver. 5 p. 45.

*Alianta picipennis* to *Heterota*, CAMERON p. 183 Ent. Mo. Mag. 54.

*Amichorus divinus* sp. n. Costa Rica p. 35, BERNHAUER N. Beitr. syst. Insk. 1 1917.

*Amischa analis*, etc., parthenogenesis, SHARP p. 155 Ent. Mo. Mag. 54.

*Anapoleon* subg. n. vide *Micropolemon*.

*Ancaeus singularis* sp. n. Singapore p. 58, CAMERON Tr. ent. Soc. London 1918.

*Anthobium densicolle* sp. n. Caucasus p. 69, BERNHAUER Wien. ent. Zeit. 34 1915.

*Antropiestus* subg. n. vide *Piestus*.

*Aploderus testaceus* sp. n. Singapore p. 65, CAMERON Tr. ent. Soc. London 1918.

*Araocerus (Scotocerus* subg. n.) *curtipennis* sp. n. Bahia p. 67, BERNHAUER N. Beitr. syst. Insk. 1.

*Astenus orientalis* sp. n. Singapore p. 71, CAMERON Tr. ent. Soc. London 1918.

*Atheta skalitzkyana*, *gilvipennis*, *bigranipennis*, p. 79, Siberia, *A. (Dralica) winkleriana* Crimea, p. 80, *A. (Traumocia) bjelasnicensis* Herzegowina p. 81, spp. n., BERNHAUER Wien. ent. Zeit. 34 1915.

*Belonuchus diversicornis* Brazil, *venezolanus*, p. 104, *falsus*, Venezuela, *eximius* Guadeloupe, p. 105, *xantholinoides*, *simillimus*, Colombia, p. 106, spp. n., BERNHAUER Wien. ent. Zeit. 36 1917.—*B. fassli* sp. n. Cauca p. 37, BERNHAUER N. Beitr. syst. Insk. 1 1917.

*Bledius (Hesperophilus) michaelseni* sp. n. p. 313, BERNHAUER Beitr. Landf. Sudwestafrik. 1.

*Boreaphilus americanus* sp. n. U.S. p. 188, fig., NOTMAN J. N. York ent. Soc. 26.

*Brachydirus aeneipennis* sp. n. Peru p. 115, BERNHAUER Wien. ent. Zeit. 36 1917.

*Callicerus (Sphaerolabus* subg. n.) *sparsicollis* Europe p. 77, BERNHAUER Wien. ent. Zeitschr. 34 1915.

*Calliderma rufum* p. 78, *nitens* p. 79, *rugicolle* p. 80, spp. n. Singapore, CAMERON Tr. ent. Soc. London 1918.

*Conosoma laterale* sp. n. Borneo p. 217, CAMERON Ent. Mo. Mag. 54.—*C. abnormale*, *bilineatum*, p. 49, *nigrovestitum* p. 50, *andinum* p. 51, *parcepunctatum*, *peruvianum*, p. 52, *pilosicorne* p. 53, Amcr. mer., *vitraci* Guadeloupe p. 50, spp. n., BERNHAUER N. Beitr. syst. Insk. 1 1917.

*Coproporus princeps* p. 89, *opalescens* p. 90, *tachiniformis* p. 91, *testaceus* p. 92, spp. n., Amer. mer., *rutilus* abb. n. *piccorufus* and *obscurior* p. 91, BERNHAUER N. Beitr. syst. Insk. 1.

*Cryptobium foveatum* sp. n. Singapore p. 81, CAMERON Tr. ent. Soc. London 1918.

*Cylindropsis zariquieyi* sp. n. Catalonia p. 104, DODERO Butl. Ins. catalun. 1918.

*Diestota?* *clermonti* sp. n. France p. 76, BERNHAUER Wien. ent. Zeitschr. 34 1915.

*Diochus pulchellus* sp. n. Singapore p. 84, CAMERON Tr. ent. Soc. London 1918.

*Dorylobactrus* gen. n. p. 301 near *Dorylostethus*, *schwabi* sp. n. Congo with *Anomma* p. 304 pl. ix f. 28, WASMANN Zeitschr. wiss. Zool. 117 1917.

*Dorylocratus* gen. n. p. 279 near *Dorylomimus*, *rex* sp. n. Congo with *Anomma* p. 281 pl. viii figs. 14-20, WASMANN T.c. 1917.

*Dorylomimus brevicornis*, *laticeps* with var. *anceps*, *breviceps*, spp. n. Congo with *Anomma*, WASMANN p. 298 T.c. 1917.

*Dorylonannus* gen. n. p. 290 for *Dorylomimus lujae* Wasm., WASMANN T.c. 1917.

*Dromanonmma* gen. n. p. 275 near *Dromeciton*, *hirtum* sp. n. Congo with *Anomma* p. 276 pl. vii figs. 12 & 13, WASMANN T.c. 1917.

*Euconosoma* gen. n. p. 215, *elegans* sp. n. Borneo p. 216, CAMERON Ent. Mo. Mag. 54.

*Eulissus lateralis* sp. n. Singapore p. 83, CAMERON Tr. ent. Soc. London 1918.

*Eupolemon* gen. n. *Pygosteninarum*, *costatus* pl. ix f. 31, p. 317, *hospes* p. 318, spp. n. Congo with *Anomma*, WASMANN Zeitschr. wiss. Zool. 117 1917.

*Eupygostenus* gen. n. p. 308, *escherichi* sp. n. Erythraea p. 309 pl. ix f. 29, WASMANN T.c. 1917.

*Geodromicus sibiricus* sp. n. p. 69, REITTER Wien. ent. Zeit. 34 1915.

*Gigarthrus* subg. n. vide *Mimogonus*.

*Goerius similis grigiensis* subsp. n. Italy p. 160, REITTER Wien. ent. Zeit. 37.

*Hemipolemon* subg. n. vide *Micro-polemon*.

*Hesperus terminalis* sp. n. Java p. 104, CAMERON Ent. Mo. Mag. 54.

*Holisus parvus*, *cingulatus*, spp. n., Singapore p. 85, CAMERON Tr. ent. Soc. London 1918.

*Holotrochus nitidus* sp. n. Singapore p. 68, CAMERON T.c.

*Hoplantia chinensis* sp. n. p. 78, BERNHAUER Wien. ent. Zeit. 34 1915.

*Hypomedon fasciatus* p. 74, *lucens*, *granulatus*, p. 75, spp. n., Singapore, CAMERON Tr. ent. Soc. London 1918.

*Isanopus sahlbergi* sp. n. Petropolis p. 109, BERNHAUER Wien. ent. Zeit. 36 1917.

*Lampropygus major* sp. n. Colombia p. 116, BERNHAUER Wien. ent. Zeit. 36 1917.

*Lathropinus haenschi* Ecuador p. 65, *brasilianus*, *argentinus*, p. 66, spp. n., BERNHAUER N. Beitr. syst. Insk. 1.

*Leptochirus andinus*, *peruvianus*, p. 46, *L. (Mesochirus) iconnicoffi*, *L. (Tropiochirus) pachoenis*, p. 47, *tridentatus* p. 48, spp. n., Amer. mer., BERNHAUER T.c. 1917.

*Lesteva fontinalis*, cavernicolous, CZIZEK p. 65 Zeitschr. wiss. Insbil. 14.

*Leucitus rufipennis* sp. n. Borneo p. 171, CAMERON Ent. Mo. Mag. 54.

*Leucocraspedum nigromaculatum* sp. n. Ceylon p. 218, CAMERON T.c.

*Lispinus setosus* p. 59, *minutus* p. 60, spp. n., Singapore, CAMERON Tr. ent. Soc. London 1918.

*Lomechusa* and *Atemeles*, habits, WASMANN p. 382-393 Wien. ent. Zeit. 34 1915.—*L* and *A*, natural history, WASMANN Zeitschr. wiss. Zool. 114 p. 233-402 2 pls. 1915.—*L. wasmanni* sp. n. Talyschgebirge p. 148, REITTER Wien. ent. Zeit. 37.

*Mayetia amplipennis* sp. n. Catalonia p. 106, DODERO Butl. Inst. catalun. 1918.

*Medon rubicundus* sp. n. Singapore p. 73, CAMERON Tr. ent. Soc. London 1918.

*Megalopsidia* n. n. for *Megalops* Er., LENG p. 204 J. N. York ent. Soc. 26.

*Micropolemon* gen. n. p. 318 for *Sympolemon tiro*, *M.* (*Anapolemon* subg. n.) *cornutus* p. 320 pl. ix f. 33, *M.* (*Hemipolemon* subg. n.) *planicollis* p. 321 with var. *schwabi* f. 34, spp. n., Congo, WASMANN Zeitschr. wiss. Zool. 117 1917.

*Mimocete punicum* to *Doryloxenus*, tarsi fig., PEYERIMHOFF p. 130 Bull. Soc. ent. France 1918; habits, NORMAND p. 77 Bull. Soc. ent. France 1918.

*Mimogonus* (*Gigarthrus* subg. n.) *bequaerti* sp. n. Congo p. 298, BERNHAUER Wien. ent. Zeit. 34 1915.

*Mycetoporus horni* n. n. for *tenuis* H., LENG p. 204 J. N. York ent. Soc. 26.

*Myrmecusa kohli* sp. n. Congo with *Anomma* p. 262 pl. vii figs. 1 2 4 & 7, WASMANN Zeitschr. wiss. Zool. 117 1917.

*Myrmecosaurus* = (*Myrmescopaeus* Br.) *vagans* sp. n. Cordoba p. 187 fig., BRUCH Physis 4.

*Myrmedonia scorpio* sp. n. Congo p. 269, WASMANN Zeitschr. wiss. Zool. 117 1917.

*Nannostenus* gen. n. p. 321 for *Pygostenus pusillus* W., WASMANN T.c. 1917.

*Oedichirus densus* sp. n. Natal p. 314, BERNHAUER Beitr. Landf. Sudwestafrik. 1.

*Oligolinus parvus* sp. n. Singapore p. 81, CAMERON Tr. ent. Soc. London 1918.

*Otophrinus octolineatus* sp. n. Borneo p. 218, CAMERON Ent. Mo. Mag. 54.

*Orthidus cupreipennis* sp. n. Singapore p. 89, CAMERON Tr. ent. Soc. London 1918.

*Othius albanicus* sp. n. p. 154, REITTER Wien. ent. Zeit. 37.

*Oxytelus* (*Anotylus*) *granadillae*, *frugicola*, p. 66, *obscurus* p. 67, spp. n., Singapore, CAMERON Tr. ent. Soc. London 1918.

*Paederomimus sulciceps* Peru p. 35, *aterrimus* Colombia, *klmschi*, p. 36, *sydowi* p. 37, Brazil, spp. n., BERNHAUER N. Beitr. syst. Insk. 1 1917.

*Paederus opacicollis* p. 299, *schoutedeni* p. 300, spp. n., Congo, BERNHAUER Wien. ent. Zeit. 34 1915.—*P. incognitus* p. 315, *braunsi* p. 316, spp. n., Africa, BERNHAUER Beitr. Landf. Sudwestafrik. 1.

*Palaminus parvus* sp. n. Singapore p. 71, CAMERON Tr. ent. Soc. London 1918.—*P. bipustulatus* p. 73, *quadripustulatus*, *trapezicollis*, p. 74, *vittiger* p. 75, *pauloensis*, *tener*, p. 76, *spini-ventris* p. 81, *aluticollis*, *apterus*, p. 82, *variiventris* p. 83, *pictus* p. 84, spp. n. Amer. mer., BERNHAUER N. Beitr. syst. Insk. 1.

*Parascopaeus* gen. n. near *Dacnochilus*, *nidius* sp. n. Singapore, CAMERON p. 76 Tr. ent. Soc. London 1918.

*Perierpon* gen. n. near *Medon* & *Lathrobium* p. 317, *hevilli* sp. n. S. Africa p. 318, BERNHAUER Beitr. Landf. Sudwestafrik. 1.

*Phanolinus columbinus*, *gloriosus*, Colombia p. 111, *peruvianus*, *magnificus* Colombia p. 112, spp. n., *pretiosus* subspp. n. *vicarius* p. 110, *viridissimus* p. 111, BERNHAUER Wien. ent. Zeit. 36 1917.

*Philonthus rufescens* sp. n. S. Africa p. 319, BERNHAUER Beitr. Landf. Sudwestafrik. 1.—*P. rufiventris* sp. n. Ceylon p. 170, CAMERON Ent. Mo. Mag. 54.—*P. sulcatus*, *castaneipennis*, p. 87, *belonuchoides* p. 88, spp. n., Singapore, CAMERON Tr. ent. Soc. London 1918.—*P. diamantinus* p. 102, *actinus* p. 103, Bolivia, spp. n., BERNHAUER Wien. ent. Zeit. 36 1917.—*P. (Gabrius) kutiabensis* sp. n., Buchara p. 71, BERNHAUER Wien. ent. Zeitschr. 34 1915.

*Phloeocharis subtilissima* var. n. *hummleri*, BERNHAUER p. 69, Wien. ent. Zeit. 34 1915.

*Phucobius tricolor* sp. n. China p. 125, BERNHAUER Wien. ent. Zeit. 36 1917.

*Phyllodinarda* gen. n. p. 329, *xenoccephala* pl. ix figs. 35 & 36, *kohli* figs. 37–44, p. 330, spp. n., Africa with *Anomma* WASMANN Zeitschr. wiss. Zool. 117 1917.

*Piestus paradoxus* Venezuela, *P. (Antropiestus* subg. n.) *andinus* Colombia, spp. n., BERNHAUER p. 45 N. Beitr. syst. Insk. 1 1917.

*Pinophilus notabilis* sp. n. Singapore p. 70, CAMERON Tr. ent. Soc. London 1918.—*P. insigniventris* sp. n. Guadeloupe p. 65, BERNHAUER N. Beitr. syst. Insk. 1.

*Piochardia schimmeri* sp. n. Macedonia p. 71, VIEHMAYER Ent. Mitt. 7.

*Placusa nitida*, exceptional habits, PEYERIMHOFF p. 225 Bull. Soc. ent. Franco 1918.

*Platystethus robustus* sp. n. India p. 102, CAMERON Ent. Mo. Mag. 54.

*Quedius (Raphirus) taprobanus* sp. n. Ceylon p. 171, CAMERON Ent. Mo. Mag. 54.—*Q. (Raphirus) chinensis* sp. n. p. 74, BERNHAUER Wien. ent. Zeitschr. 34 1915.

*Rhynchocheilus andrewesi* sp. n. India p. 105, CAMERON Ent. Mo. Mag. 54.

*Scopaeus niger* sp. n. Singapore p. 77, CAMERON Tr. ent. Soc. London 1918.

*Scotocerus* subg. n. vide *Araocerus*.

*Somoleptus linearis* sp. n. Singapore p. 82, CAMERON Tr. ent. Soc. London 1918.

*Sphaerotaxus* subg. n. vide *Callicerus*.

*Staphylinus bryanti* sp. n. Ceylon p. 104, CAMERON Ent. Mo. Mag. 54.—*S. (Platydracus) patricius* China p. 71, *consularis* Japan p. 72, *plebeius* Korea p. 73, *S. (Tusgius) praetorius* China p. 74, spp. n., BERNHAUER Wien. ent. Zeitschr. 34 1915.—*S. (Platydracus) pallidipes* p. 107, *mimeticus* Bolivia, *S. (Plesiokinus) cordilleranus* Colombia, p. 108, *S. (Abemus) orizabae* p. 109, spp. n., BERNHAUER Wien. ent. Zeit. 36 1917.

*Stenus secretus* E. Siberia, *S. (Tesusus) pilosiventris* Korea, p. 70, *alticola* Caucasus p. 71, spp. n., BERNHAUER Wien. ent. Zeitschr. 34 1915.—*S. confluens* sp. n. India p. 103, CAMERON Ent. Mag. 54.—*S. (Tesusus) fortepunctatus* p. 68, *S. (Hypostenus) castaneus* p. 69, spp. n., Singapore, CAMERON Tr. ent. Soc. London 1918.—*S. (Hypostenus) sankisianus* sp. n. Congo p. 298, BERNHAUER Wien. ent. Zeit. 34 1915.

*Stilicopsis obliqua, persimilis*, spp. n. Singapore p. 72, CAMERON Tr. ent. Soc. London 1918.

*Styngetus viduus* varr. n. *analisis* and *argentinus, germani* Bolivia, p. 114, *heynei* Peru p. 115, spp. n., BERNHAUER Wien. ent. Zeit. 36 1917.

*Tachinomorphus andinus* sp. n. Peru p. 89, BERNHAUER N. Beitr. syst. Insk. 1.

*Tachinus koreanus, brevicornis* China, spp. n., p. 75, BERNHAUER Wien. ent. Zeit. 34 1915.

*Taenodema sahlbergi* p. 67, *flavovariegatum* p. 68, *apicipenne* p. 73, spp. n., Brazil, BERNHAUER N. Beitr. syst. Insk. 1.

*Thinocharis nigricans* sp. n. Singapore p. 73, CAMERON Tr. ent. Soc. London 1918.

*Thoracochirus umbilicatus, exasperatus*, spp. n., Borneo p. 169, CAMERON Ent. Mo. Mag. 54.

*Thyreocephalus columbicus* sp. n. p. 84, BERNHAUER N. Beitr. syst. Insk. 1.

*Trichodonia* gen. n. *Myrmedoniini* p. 269, *setigera* p. 270 pl. vii figs. 8 & 9, *laticollis, schwabi*, p. 271, spp. n., Africa, WASMANN Zeitschr. wiss. Zool. 117 1917.

*Trigonopselaphus fassli* sp. n. Colombia p. 113, BERNHAUER Wien. ent. Zeit. 36 1917.

*Trilobitidius singularis* sp. n. Congo with *Anomma* p. 353 pl. x. f. 52, WASMANN Zeitschr. wiss. Zool. 117 1917.

*Tripectenopus* gen. n. p. 83 near *Domene, caecus* sp. n. Queensland p. 84 pl. ix. f. 1, LEA Rec. S. Austral. Mus. 1.

*Trogophloeus orientalis, silvestris*. p. 61, *T. (Taenosoma) holophiloides* p. 62, *lucens, littoralis*, p. 63, *rufotestaceus* p. 64, spp. n., Singapore, CAMERON Tr. ent. Soc. London 1918.

*Zyras capiriensis* sp. n. Congo p. 300, BERNHAUER Wien. ent. Zeit. 34 1915.

#### PSELAPHIDAE.

*Apoplectus variabilis* sp. n. Philippines p. 499, RAFFRAY Ann. Soc. ent. France 86..



*Arhytodes myrmecophilus* sp. n. Argentina p. 190 figs., BRUCH Physis 4.

*Arnyllium decipiens* sp. n. Philippines p. 497, RAFFRAY Ann. Soc. ent. France 86.

*Articerus dentiventris* p. 246, *lophosternus* p. 247, Australia, *bispinosus* Lord Howe isld. p. 248, *intercoxalis* p. 249, *cremastogastris* p. 251, *sulciventris* p. 252, *coelogastris* p. 253, Australia, spp. n., LEA Tr. R. Soc. S. Austr. 42.

*Batriscenus tortipes* sp. n. Laos p. 487, RAFFRAY Ann. Soc. ent. France 86.—*B. crassitarsus* p. 495, *heteroceris* p. 496, spp. n., Philippines, RAFFRAY T.c.

*Bergrothia bicarinata* sp. n. Albania p. 53, REITTER Wien. ent. Zeit. 37.

*Bythinus blattynorum* Lombardy p. 111, *wankai* Croatia p. 112, spp. n., REITTER Wien. ent. Zeit. 34 1915.—*B.* ♂ genitalia p. 19 pl. i, *bergamascus* p. 20, *bothrophorus* p. 22, *pinkeri* p. 25, *ganglbauri* p. 26, *sorinensis* p. 28, *pentagonoceras* p. 29, spp. n., Alps and Tyrol, STOLZ Wien. ent. Zeit. 36 1917.—*B. dudichi* sp. n. Tyrol p. 159, REITTER Wien. ent. Zeit. 37.

*Centrophthalmus nitidus* sp. n. Laos p. 494, RAFFRAY Ann. Soc. ent. France 86.

*Cercoceroides laticeps* sp. n. Paraguay p. 487, RAFFRAY T.c.

*Cercoceropsis rugicornis* sp. n. Paraguay p. 485, RAFFRAY T.c.

*Craton cicatricosa* sp. n. Laos p. 488, RAFFRAY T.c.

*Dacnotillus brevis* sp. n. Philippines p. 500, RAFFRAY T.c.

*Euphalepsus pilicornis* p. 479, *gounellei* p. 480, spp. n., Paraguay, RAFFRAY T.c.

*Eupsenina sulcifrons* sp. n. Paraguay p. 482, RAFFRAY T.c.

*Faronus guimjuami* sp. n. Spain p. 107, DODERO Butll. Inst. catalun. 1918.

*Filiger semipanctatus* sp. n. Laos p. 492, RAFFRAY Ann. Soc. ent. France 86.

*Fustiger schwarzi* sp. n. Cuba p. 105, MANN Psyche 25.

*Goniaceroides* gen. n. p. 483 near *Goniacerus, umbilicatus* sp. n. Paraguay p. 484, RAFFRAY Ann. Soc. ent. France 86.

*Hamotoides rossii* sp. n. Paraguay p. 486, RAFFRAY T.c.

*Jubus alternans, heteroceris*, spp. n., Paraguay p. 474, RAFFRAY T.c.

*Mimoplectus* gen. n. p. 490 near *Tychus, orientalis* sp. n. Laos p. 491, RAFFRAY T.c.

*Oxarthrus rugosicollis* sp. n. Paraguay p. 478, RAFFRAY T.c.

*Poroderus longicornis* sp. n. Laos p. 493, RAFFRAY T.c.

*Probatrisus rothkirchi* sp. n. Camerouns p. 138 pl. ii figs. 3-5, WASMANN Ent. Mitt. 7.

*Pselaphini* s. str., tables of the genera, REITTER Wien. ent. Zeit. 37.

*Pselaphodes bakeri* sp. n. Philippines p. 501, RAFFRAY Ann. Soc. ent. France 86.

*Pselaphomorphus brevipennis* sp. n. Paraguay p. 473, RAFFRAY T.c.

*Reichenbachia luzonica* sp. n. p. 498, RAFFRAY T.c.—*R. tubericornis* sp. n. Paraguay p. 482, RAFFRAY T.c.

*Rybaxis pubescens* sp. n. Laos p. 490, RAFFRAY T.c.

*Scalenarthrus punctulatus* sp. n. Paraguay p. 481, RAFFRAY T.c.

*Syrbatus bidenticulatus* p. 475, *naso* p. 476, *caudatus* p. 477, spp. n. Paraguay, RAFFRAY T.c.

*Trimium raffrayi, emonae*, distinguished, REITTER p. 192 Wien. ent. Zeit. 36 1917.

*Trogasteropsis* gen. n., *anophthalmus* sp. n. Catalonia, DODERO Butll. Inst. catalun 1918 p. 107..

## SOYDMAENIDAE.

*Brathinus*; taxonomy, LENG p. 203 J. N. York ent. Soc. 26.

*Cephennium (Geodytes) catalanicum* sp. n. Spain, *thoracicum* var. n. *codinae*, p. 108 DODERO Butll. Inst. catalun 1918.—*C. matronulum* p. 157, *C. (Neocephennium) jablanicense* p. 158, spp. n. Herzegowina, REITTER Wien. ent. Zeit. 37.

*Euconnus motschulskyi* var. n. *dubius* Balcan, SAILBERG Helsingfors Öfvers. F. Vet. Soc. 55 A. No. 15 1913 p. 47.

*Neuraphes (Pararaphes) richteri* p. 103, *schwabi* p. 104; spp. n., Herzegovina, REITTER Wien. ent. Zeit. 34 1915.—*N. (Pararaphes) beszedesi*, *N. (Scydmorephes) matchae*, spp. n., Istria p. 129, REITTER T.c. 1915.

*Stenichnus hilfi* p. 350, *egregius* p. 351, spp. n. Italy, HOLDHAUS Wien. ent. Zeit. 34 1915.

## SILPHIIDAE.

External structure of *Agathidiini*, VATERNAHM pp. 188–197 figs. Zeitschr. wiss. Insbiol. 14.

*Acanthocatops* gen. n. p. 193, *formicetorum* sp. n. Argentina p. 194 fig., BRUCH Physis 4.

*Amphicyllis*: monograph, VATERNAHM Zeitschr. wiss. Insbiol. 13 pp. 237–241 1917.

*Anisotoma*; notes, VATERNAHM pp. 298–302 T.c.

*Bathyscia (Speonesiotes) zoufali*, *B. (Pholeuonella) milotiana*, spp. n. Albania p. 153, REITTER Wien. ent. Zeit. 37.

*Ceuthmonocharis robici* and *freyeri* p. 196, *robici standacheri* subsp. n. p. 199, MÜLLER Wien. ent. Zeit. 37.

*Choleva glauca* sp. n. England p. 31, BRITTON Ent. Mag. 54.—*C. reitteri* sp. n. Carpathians p. 345, PETRI Wien. ent. Zeit. 34 1915.

*Colon stolzi* sp. n. Dalmatia p. 63, ROUBAL N. Beitr. syst. Insk. 1 1917.—*C. pullum* sp. n. Algeria p. 276, PEYERIMHOFF Bull. Soc. ent. France 1918 1919.

*Hydnobius forticornis* sp. n. Chile p. 47, CHAMPION Ent. Mo. Mag. 54.

*Leptinillus aplodontiae* sp. n. California, figs., FERRIS pp. 125–127 Canad. Ent. 50.

*Micragyrtes* gen. n., *ocelligerus* sp. n. Chile, CHAMPION p. 46 Ent. Mo. Mag. 54.

*Silpha nigrita*, habits, WALSH p. 612 Ent. Mo. Mag. 54.

## TRICHOPTERYGIDAE.

*Actidium neresheimeri* sp. n. Germany p. 26, WAGNER Ent. Mitt. 7.

## SCAPHIDIIDAE.

*Arachnoscaphula* gen. n. p. 48, *trisulcata* sp. n. p. 49 Philippines, HELLER Wien. ent. Zeit. 36 1917.

*Scaphidium negro* p. 42, *badium* p. 43, *seriatum* p. 44, spp. n. Philippines, HELLER T.c.

*Scaphosoma liberum* sp. n. Cameroons p. 1, PIC Mélanges 27.—*S. tricolor, stigmatipenne*, p. 46, *biplagiatum* p. 47, spp. n., Philippines, HELLER Wien. ent. Zeit. 36 1917.

*Toxidium pulex* sp. n. Philippines p. 50, HELLER T.c. 1917.

## HISTERIDAE.

*Chlamydopsis formicicola* var. n. *darwinensis* p. 85, *pallida* sp. n. Sydney p. 86, LEA Rec. S. Austral. Mus. 1.

*Gnathoncus nidicola* var. n. *auzati* p. 9, PIC Echänge 34

*Pachylopus glaucus* sp. n. Africa p. 280, BICKHARDT Beitr. Land.-Süßwasserf. Westafirk. 1.—*P. chobauti* sp. n. Algeria p. 58, DESBORDES Bull. Soc. ent. France 1918.—*P. chobauti* is *Saprinus syphax* Reitt., DESBORDES p. 157 T.c.

*Platysoma parallela* = (*quadrifera* C.), CASEY p. 414 Mem. Col. 8.

*Saprinus discoidalis latiformis* subsp. n. p. 414, CASEY T.c.

## NITIDULIDAE.

*Brachypterus pulicarius* ab. n. *nigricornis* Holland, EVERTS Ber. Ned. ent. Ver. 5 p. 71.

*Carpophilus humeralis*, male genitalia, MUIR p. 224 pl. x f. 7 Tr. ent. Soc. London 1918.

## TROGOSITIDAE (or TEMNOCHILIDAE or OSTOMIDAE).

*Aivora minuta* sp. n. Arizona p. 194, SCHAEFFER J. N. York ent. soc. 26.

*Alindria costulata* sp. n. Aldabra, GROUVELLE p. 3 Tr. ent. Soc. London 1918.

*Corticotomus depressus* sp. n. U.S. p. 192, *cylindricus* var. n. *texanus* p. 193, SCHAEFFER J. N. York ent. Soc. 26.

*Nemosoma schwarzi* sp. n. Arizona p. 191, SCHAEFFER T.C.

*Stenodema* gen. n. near *Airora* p. 193, *hicoloriae* sp. n. N. Carolina, SCHAEFFER T.C.

*Temnochila edentata* p. 194, *peninsularis* p. 196 Lower California, *prostrernalis* p. 197, spp. n. U.S., *virescens* synonymy p. 195, SCHAEFFER T.C.

*Tenebroides arizonensis* p. 198, *floridanus* p. 199, spp. n., synonymy of North-american spp., SCHAEFFER T.C.

*Ostoma oregonensis* sp. n. p. 200, SCHAEFFER T.C.

#### COLYDIDÆ.

*Axiocerylon* gen. n. p. 41, *cavicolle* sp. n. Seychelles p. 42 pl. ii f. 13, also including *Cautomus monstrosus* G., GROUVELLE Tr. ent. Soc. London 1918.

*Bothrideres fryeri* sp. n. Aldabra p. 28 pl. i f. 1, GROUVELLE T.C.—*B. opacicollis* sp. n. Philippines p. 304, HELLER Wien. ent. Zeit. 34 1915.

*Cerylon longius* p. 32, *perparvulum* p. 33, *tantillum* p. 35, *gardineri* p. 36 pl. ii f. 14, *liliputanum* p. 38, *curtulum* p. 40, spp. n. Seychelles, GROUVELLE Tr. ent. Soc. London 1918.—*C. monticola* sp. n. Philippines p. 305, HELLER Wien. ent. Zeit. 34 1915.

*Cicones scotti* p. 12 pl. ii f. 9, *compactus* p. 13 f. 16, spp. n. Seychelles, GROUVELLE Tr. ent. Soc. London 1918.

*Colobicones* gen. n. p. 15, *singularis* sp. n. Seychelles p. 16 pl. i f. 8, GROUVELLE T.C.

*Diplotoma capito* sp. n. Seychelles pl. ii f. 11 p. 17, GROUVELLE T.C.

*Ditoma cavicolle* sp. n. Seychelles p. 10 pl. i f. 6, GROUVELLE T.C.

*Lascotonus scotti* sp. n. Seychelles p. 24 pl. i f. 3, GROUVELLE T.C.

*Neotrichus gardineri* p. 19, *parallelocollis* p. 21, spp. n. Seychelles, GROUVELLE T.C.

*Paralyreus* gen. n. *Coxelini* p. 24, *scotti* sp. n. Seychelles p. 25 pl. ii f. 11, GROUVELLE T.C.

*Pseudobotrideres quadratifer* sp. n. Philippines p. 304, HELLER Wien. ent. Zeit. 34, 1915.

*Pycnomerus reitteri* sp. n. Philippines p. 303, Heller T.C.

*Rhopalocerophanus* gen. n. p. 306 near *Rhopalocerinus*, *bakeri* sp. n. Philippines p. 307, HELLER T.C.

*Sarothrius* gen. n. *Apistini* p. 7, *eximius* sp. n. Seychelles p. 8 pl. i f. 7, GROUVELLE Tr. ent. Soc. London 1918.

*Thyroderus sculpticollis* sp. n. Seychelles p. 44 pl. ii f. 12, GROUVELLE T.C.

*Tyrtaeus singularis* sp. n. Seychelles p. 26 pl. i f. 2, GROUVELLE T.C.

#### DISCOLOMIDÆ OR NOTIOPHYGIDÆ.

*Aphanocephalus insularis* p. 49, *binotatus* p. 50 pl. i f. 4, *quadriplagiatus* p. 52 pl. ii f. 10, *subdepressus* p. 53 pl. i f. 5, *acuminatus* p. 55, spp. n. Seychelles, GROUVELLE Tr. ent. Soc. London 1918.

*Discogenia* K., position, GROUVELLE p. 48 T.C.

#### CUCUJIDÆ.

*Laemophloeus nigricollis* var. r. *mendax* Balcan, SAHLBERG Helsingfors Öfvers. F. Vet. Soc. 55 A No. 15 1913 p. 61.—*L. blackburni* = (*frenchi* Bl.), LEA p. 251 Tr. R. Soc. S. Austr. 42.

#### CRYPTOPHAGIDÆ.

*Cryptophagus loevendali*, DONISTHORPE p. 14 Ent. Mag. 54.—*C. populi*, habits, CHAMPION p. 207 Ent. Mo. Mag. 54.

#### LATHRIDIIDÆ.

*Cartodere subcostella* sp. n. Greece p. 66, REITTER Wien. ent. Zeit. 34 1915.

*Lathridius malouinensis* sp. n. Falkland islands p. 174, CHAMPION Ann. Nat. Hist. 1.

#### DERMESTIDÆ.

Dermestid: abdomen and aedeagus, MUIR p. 225 pl. x f. 8 Tr. ent. Soc. London 1918.

*Anthrenus multimaculatus* sp. n. Formosa p. 2, PIC Mélanges 27.

*Attagenus ruficolor* sp. n. Yunnan p. 1, PIC T.C.

*Dermestes vulpinus*, life-history, ILLINGWORTH P. hawai. ent. Soc. 3 pp. 375-378.

*Orphinus formosanus*, *apicalis* Java, spp. n. p. 2, PIC Mélanges 27.

*Pseudothaumaglossa* gen. n., *anthrenoides* sp. n. Brazil, PIC p. 1 Mélanges 27.

*Trogoderma pectinicornis*, metamorphosis, figs., FRERS pp. 90-93 Physis 4.

#### BYRRIIDAE.

*Chalciosphaerium enderleini* sp. n. Falkland islands p. 173, CHAMPION Ann. Nat. Hist. 1.

*Chelonarium australicum* sp. n. Queensland p. 87 pl. i f. 3, LEA Rec. S. Austral. Mus. 1.

#### PARNIDAE.

Parnidae of Florida; LENG and MUTCHLER Bull. Amer. Mus. 38 pp. 115 and 116.

*Elmis chilensis* sp. n. p. 48, CHAMPION Ent. Mo. Mag. 54.

#### LUCANIDAE.

*Cantholethrus peruvianus* sp. n. p. 74, fig., HELLER Ent. Mitt. 7.

*Lissotes kershawi* sp. n. Victoria p. 8 figs., LEA Rec. S. Austral. Mus. 1.

*Systemocerus caraboides* ab. n. *viridicollis* p. 190, DEPOLI Wien. ent. Zeit. 36 1917.

#### PASSALIDAE.

Revision of Passalidae, GRAVELY Mem. Ind. Mus. 7 pp. 1-144, figs.

*Aceraius lamellatus* sp. n. Penang p. 89, GRAVELY T.c.

*Chondrocephalus quinquecornutus* p. 44, *cordiger* p. 45, spp. n., Guatemala, GRAVELY T.c.

*Erionomus trichostigmoides* sp. n. Dar-es-Salaam p. 75, GRAVELY T.c.

*Gonatas tenimbrensis* p. 109 *carolinensis*, *minor* ROON, p. 110, spp. n., GRAVELY T.c.

*Labienuus inaequalis* p. 104, *ptoxoides* p. 105, spp. n. New Guinea, GRAVELY T.c.

*Leptaular sambawae* sp. n. p. 141, GRAVELY T.c.

*Macrolinus obesus* Ceylon p. 80, *depressus* Java p. 81, spp. n., GRAVELY T.c.

*Malagasalus* gen. n. near *Solenocyclus*, *clypeatus* sp. n. Madagascar, p. 69, GRAVELY T.c.

*Mastochilus (Pharochilus) punctiger* p. 99 sp. n. Australia, GRAVELY T.c.

*Oileoides* gen. n. near *Popilius*, *parvicornis* sp. n. Colombia, GRAVELY p. 23 figs. T.c.

*Ophrygonius aequalis* Tonkin, *javenensis*, spp. n., p. 88, GRAVELY T.c.

*Passalus rugosus* p. 52, *catharinae* p. 55, *ecuadorensis* p. 56, *prominens* p. 57, Amer. mer., *spinipes* Nicaragua p. 59, *polli* p. 62, *opacus* p. 63, Amer. mer., *glaber* p. 64 hab. ? spp. n., GRAVELY T.c.

*Popilius amazonicus*, *guatemalae*, spp. n. p. 27, GRAVELY T.c.

*Veturius sinuatosulcatus* p. 35, *spinifer*, *unicornis*, p. 36, *boliviae* p. 38, spp. n. Amer. mer., GRAVELY T.c.

#### SCARABAEIDAE.

Opening and closing of lamellae of antennae, VOGEL Biol. Zentralbl. 39 pp. 130-133.

#### Copriini.

*Aphodius (Volinus) boiteli* sp. n. Marocco p. 144 fig., THÉRY Bull. Soc. ent. France 1918.—*A.c ockerelli* n. n. for *niger* C., LENG p. 207 J. N. York ent. Soc. 26.

*Ateuchus semipunctatus*, sex distinctions, GOGGIO Atti Soc. Toscana 24. p. 105 1915.

*Cathursius spectabilis*, *somalicus*, p. 146, *ninus*, *belus ugandicus*, p. 147, spp. n. Afrika, GILLET Zool. Med. 4.

*Chaetopisthes brunneus* India sp. n. p. 17, WASMANN Wien. ent. Zeit. 37.

*Chaetopisthides* subg. n. of *Chaetopisthes* for *C. sulciger* Wasm. pl. ii f. 12, WASMANN p. 15 T.c.

*Chironitis viridicans* sp. n. Ostafrika, GILLET Zool. Med. 4 p. 149.

*Copris gazellarum*, sp. n. Ostafrika, GILLET p. 148 T.c.—*C. emarginatus* sp. n. Florida p. 54, BLATCHLEY Canad. Ent. 50.

*Cyclotrogus*, gen. n. p. 2, *heimi* pl. i figs. 1 and 2, *nigrita*, spp. n. India p. 4, WASMANN Wien. ent. Zeit. 37.

*Eurycorythoderus* gen. n. p. 11 for *Cory*, *gibbiger* W., *assmuthi*, *fossiger* spp. n. India p. 13 figs., WASMANN T.c.

*Geotrupes typhoeus*, pupation, MAIN p. xc 3 pls. Pr. ent. Soc. London 1917.

*Neochaetopisthes* subg. n. p. 16 for *C. assmuthi* W., WASMANN p. 16 Wien. ent. Zeit. 37.

*Neonitis nigritiae* sp. n. Ostafrika, GILLET Zool. Med. 4 p. 157.

*Onitis guineensis* p. 149, *mendax*, *aeruscator*, p. 151, *multidentatus* p. 152, *cryptodus* p. 158, *coxalis* p. 154, *aeneomicans* p. 155, *tumidus* p. 156, spp. n. Afrika, GILLET, T.c.

*Onthophagus lemur* ab. n. *germari* p. 191, DEPOLI Wien. ent. Zeit. 36 1917.

*Paracorythoderus* gen. n. for *Corythoderus marshalli* p. 10, WASMANN Wien. ent. Zeit. 37.

*Stenocorythoderus* gen. n. p. 11, *braminus* sp. n. India p. 12 pl. i f. 6, WASMANN T.c.

*Termitopisthes* gen. n. p. 13, *nobilis* p. 14 pl. ii f. 1, *laticollis* p. 15 pl. i figs. 9 and 10, spp. n. India, WASMANN T.c.

*Termitotrox* gen. n. p. 4 *Termitotrogini* trib. n., *permirus* sp. n. India pl. i figs. 3-5, WASMANN T.c.

### Melolonthini.

*Anodontonyx vigilans* = (*creber*, *chalcus* and *indignus* Bl.) p. 255, *planiceps* = (*S. parvipes* Bl.), var. n. *ater* p. 257, LEA Tr. R. Soc. S. Australia 42.

*Diphucephala tantilla* sp. n. Queensland p. 545, LEA P. Linn. Soc. N.S.W. 42, 1917.

*Hoplia floridana* sp. n. p. 140, FISHER Canad. Ent. 50.

*Lachnosterna*, ecology in Canada, CRIDDLE pp. 449-454 Agric. Gzz. Canada 5.

*Lepidiota consobrina* sp. n. Queensland p. 183, GIRAULT Entom. 51.

*Melolontha vulgaris*, larval malpighian tubes, HETSCHKO pp. 293-295 Wien. ent. Zeit. 36 1917.

*Naso flavipennis* = (*yorkensis* and *planicollis* Bl.), LEA p. 254 Tr. R. Soc. S. Austr. 42.

*Peritryssus* gen. n. p. 77 near *Pachydema excisus* sp. n. Sicily p. 78, REITTER Wien. ent. Zeit. 37.

*Sphodroxia atripennis* sp. n. Algeria p. 10, PIC Echange 34.

### Rutelini.

*Adoretini*, revision, OHAUS D.E.Z. 1914 pp. 471-514.

*Adoretus calchicus* p. 471, *sundaicus* p. 472, *drescheri* Java, *flavohumeralis* Malacca, p. 473, *cyrtopygus* Timor p. 474, *sumbanus* p. 475, *hypodaenus* Java, *sucki* Borneo p. 476, *calvus* Malay penins., *peregrinus* India, p. 477, *brahmanus* India, *saigonensis* p. 479, *bimarginatus* p. 480, *pleuralis* p. 481, India, *nudostriatus* Rangoon p. 482, *infuscatus* Ceylon p. 483, *ladakanus* p. 484, *lithobius* Kashmir, *andrewesi*, p. 485, *excisus* p. 486, *incurvatus* p. 487, *progradiens*, *decanus*, p. 489, India, *stoliczkae* Kashmir p. 490, *lajoyi* Saigon p. 491, *A. (Chaetadoretus* subg. n.) *timoriensis* p. 492, *silonicus* p. 493, *palawanus* p. 494, *nephriticus* p. 495, *latirostris* p. 496, India, *villicollis* Cambodia, *ungulatus* Bangkok, p. 497, *gymnotopus* India p. 498, *cirroseriatus* Cambodia p. 499, *alocopygus* Tonkin p. 500, *lasius* p. 501, *furcifer* p. 502, N. India, *hirsutus* China and Java, *formosanus* p. 503, *polyacanthus* India p. 504, *trichostigma* Borneo p. 505, *arcuatus*, *costopilosus*, India p. 506, *A. (Lepadoretus* subg. n.) *nietneri* Ceylon p. 507, *piscator* Sumatra, *fuscoseriatus*, p. 508, *chascoproctus* p. 509, Malacca, *wallacei* Singapore, *maniculus* India, p. 510, *moultoni* Borneo p. 511, spp. n., OHAUS T.c.

*Anomala binotata*, early stages, HAYES p. 140 J. econ. Ent. 11.—*A. aenea* var. n. *alpigrada*, ROUBAL p. 72 N. Bcitr. syst. Insk. 1.

*Chaetadoretus* subg. n. vide *Adoretus*.

*Lepadoretus* subg. n. vide *Adoretus*.

*Pachystethus* Bl. to replace *Spilota* Burm., LENG p. 204 J. N. York ent. Soc. 26.

*Prionadoretus* gen. n. p. 512, *serridens* India, *cochinchinensis*, p. 513, *tonkinensis* p. 514, spp. n., OHAUS D.E.Z. 1914.

### Dynastini.

*Cyclocephala villosa*, egg, etc., HAYES p. 136 J. econ. Ent. 11.

*Eupatorus australicus*, fig. 29 pl. xxxi, LEA p. 261 Tr. R. Soc. S. Austr. 42.

*Horonotus optatus* = (*variolicollis* F. = *Palmerstonia minor* and *pusilla* Bl.), LEA p. 262 T.c.

*Semanopterus*; synonymy pp. 257-261, variation and characters pls. xxx-xxxii, LEA T.c.

### Cetoniini.

Notes on Australian, LEA pp. 262 and 263 Tr. R. Soc. S. Austr. 42.

*Acanthovalgus uniformis* sp. n. Sumatra p. 611, MOSER D.E.Z. 1914.

*Anelaphinis sternalis* sp. n. Abyssinia p. 606, MOSER T.c.

*Anocoela* gen. n. near *Glyptothea* p. 575, *ebena* sp. n. Sumatra p. 576, MOSER T.c.

*Cacochroa marginicollis* sp. n. N. Queensland p. 546, LEA P. Linn. Soc. N.S.W. 42 1917.

*Cetonia aurata*, emergence, GAVOY p. 44 Misc. ent. 24 1919.

*Chaetovalgus* gen. n., *fulvosetosus* sp. n. Sumatra, MOSER p. 612 D.E.Z. 1914.

*Coenochilus assmuthi* p. 19 pl. ii f. 18, *obesus* p. 21, spp. n. India, WASMANN Wien. ent. Zeit. 37.—*C. drescheri* sp. n. Java p. 609, MOSER D.E.Z. 1914.

*Coptomia viridicans*, *chrysopyga*, p. 135, *castaneidorsis* p. 136, spp. n., Madagascar, BOURGOIN Bull. Soc. ent. France 1918.

*Cremastochilus* and ants, WOODRUFF p. 110 J. N. York ent. Soc. 26.

*Dasyvalgus nigritus* Java sp. n. p. 610, MOSER D.E.Z. 1914.

*Eucosma maritima* p. 607, *insularis* p. 608, spp. n., W. Africa, MOSER T.c.

*Glycyphana neglecta* Java p. 592, *palawana*, *setifera* Sumbawa, p. 593, *tonkinensis* p. 594, *gracilipes* p. 595, *tonkin*, *parvula* Borneo, *maculipennis* Buru, p. 596, *sarawakensis* p. 579, *viridiceps* p. 598 Dammer, *maculiceps* p. 599 Larat, spp. n., MOSER T.c.

*Gnorimus nobilis* ab. n. *viridissimus* p. 191, DEPOLI Wien. ent. Zeit. 36 1917.

*Lepivalgus* gen. n. p. 613 type *Oreoderus borneensis* Gestro, *striatus* sp. n. Sumatra p. 614, MOSER D.E.Z. 1914.

*Macronota flavosignata* p. 573, *setosa* p. 574, spp. n. Philippines, MOSER T.c.—*M. flavofasciata*, etc., sexes, BOURGOIN pp. 56 and 57 Bull. Soc. ent. France 1918.

*Molynoptera guttiventris* sp. n. Usambara p. 607, MOSER D.E.Z. 1914.

*Oxyperas spectabilis* var. n. *immaculata* p. 592, MOSER T.c.

*Pachnoda congoensis* p. 600, *vitticollis* p. 601, *cincticollis* p. 602, *bukobensis* p. 603, *dimidiata* p. 604, *kordofana* p. 605, spp. n. Africa, MOSER T.c.

*Podovalgus assmuthi* sp. n. India p. 18 pl. ii f. 17, WASMANN Wien. ent. Zeit. 37.

*Protoetia buruensis* p. 577, *tomiana* p. 578, *sulana* p. 579, *keyensis* p. 580, *papua* p. 581, *salamoensis* p. 582, *talaurensis* p. 583, *insularis* Talaur p. 584, *obiensis* p. 585, *moana* p. 586, *maculipennis* Sumba p. 587, *tenuivestis* Celebes p. 588, *albomaculata* Mindanao p. 589, *flavomaculata* Luzon p. 590, spp. n., MOSER D.E.Z. 1914.

*Pygona cyanea*, *earina*, spp. n. Madagascar p. 121, BOURGOIN Bull. Soc. ent. France 1918.

*Rhomborrhina pilifera* sp. n. Formosa p. 573, MOSER D.E.Z. 1914.

### BUPRESTIDAE.

*Buprestidae* of the Mascarene Islands, LESNE Ann. Soc. ent. France 86 pp. 437-472 1 pl.

*Acmaeodera divinula* p. 53, *tibiosa* p. 54, Centr. Africa, *apiceflava* Natal p. 56, 14-*spilota* N. America p. 55, spp. n., OBENBERGER N. Beitr. syst. Insk. 1 1917.—*A. flavofasciata* var. n. *dispersenotata* p. 3, PIC Echange 34.

*Aclenodes montezuma* sp. n. Mexico p. 16, OBENBERGER Ent. Mitt. 7.

*Agrilus leprieuri* Algeria, *impressiceps* Germany, spp. n. p. 2, *viridis* var. n. *purpureicolar*, *subauratus* var. n. *theresae* p. 3, *biscrensis* sp. n. p. 5, PIC Echange 34.—*A. abyssinicus*, *grusinus* Caucasus, p. 209, *pedemontanus* p. 210 with var. sub. *chalybaeus*, *olivaceidorsis* China p. 211, *plasoni* Constantinople p. 212, *fissus* China p. 214, *talyschensis* p. 215, spp. n., also numerous varr. n., OBENBERGER Wien. ent. Zeit. 36 1917.—*A. calamarcanus* Argentina p. 33, *ceylonensis*, *sordidulus* Trichinopoli, p. 34, spp. n., OBENBERGER N. Beitr. syst. Insk. 1 1917.—*A. dozieri* sp. n. Florida p. 67, FISHER P. ent. Soc. Washington 20.

*Anadora coraeiformis* sp. n. Angola p. 127, HOSCHEK-MÜHLHEIM Wien. ent. Zeit. 37.

*Anillara hoscheki* sp. n. Aru. p. 33, OBENBERGER N. Beitr. syst. Insk. 1 1917.

*Ankareus mascarenicus* sp. n. p. 468 pl. i. f. 9, LESNE Ann. Soc. ent. France 86.

*Belionota aenea* var. n. *aruensis* p. 12, OBENBERGER Ent. Mitt. 7.

*Buprestis*; revision of North-american, pp. 75–109 pls. v and vi, *lineata* var. n. *davisi* p. 95, *viridisuturalis* sp. n. p. 100 pl. ii, NICOLAY and WEISS J. N. York ent. Soc. 26.—*Buprestis* food-habits, &c. of north-american, BURKE pp. 334–338 J. econ. Ent. 11.—*B. q-maculatus* var. n. *reducta*, *tarsensis* varr. n. *exclamationis* and *immaculata*, p. 1, *ledereri* var. n. *semiviridescens* p. 9, PIC Echange 34.

*Capnodis tenebrionis* var. n. *undulata* p. 122, FLEISCHER Wien. ent. Zeit. 36 1917.

*Chrysobothris falli* sp. n. California p. 56, VAN DYKE Ent. News 29.—*C. sexfasciata* sp. n. Florida p. 212, SCHAEFFER J. N. York ent. Soc. 26.

(N-5464 j)

*Coroebus subtrifasciatus* sp. n. Sikkim p. 60, OBENBERGER N. Beitr. syst. Insk. 1 1917.

*Cylindromorphus impressifrons* sp. n. Spain, *filum* var. n. *sulcatulus*, PIC p. 2 Echange 34.—*C. filum* ab. n. *mostarensis*, OBENBERGER p. 217 Wien. ent. Zeit. 36 1917.

*Discoderes nigricans* sp. n. Abyssinia p. 60, OBENBERGER N. Beitr. syst. Insk. 1 1917.

*Habroloma hoscheki* sp. n. China p. 217, OBENBERGER Wien. ent. Zeit. 36 1917.

*Julodis marmorea* sp. n. Africa p. 297, KERREMANS Beitr. Landf. Südwestafrik. 1.

*Liopleura nigrocerulea* sp. n. Peru p. 62, OBENBERGER N. Beitr. syst. Insk. 1 1917.

*Mastogenius puncticollis* sp. n. Arizona p. 213, SCHAEFFER J. N. York ent. Soc. 26.

*Megactenodes maderi* sp. n. Cameroons p. 14, OBENBERGER Ent. Mitt. 7.

*Melanophila*; habits, CHAMPION p. 199, W. E. SHARP p. 244, Ent. Mag. 54.—*M. ignicola* sp. n. India, CHAMPION p. 200 Ent. Mo. Mag. 54.—*M. picta* varr. n. *meridionalis* p. 22, *subjuncta*, *4-notata* and *multinotata* p. 23, PIC Echange 34.—*M. californica* sp. n. p. 54, VAN DYKE Ent. News 29.

*Phaenops sibirica* sp. n., *cyanea* var. n. *caeruleolimbata*, p. 1, *recticollis* Taurus sp. n. p. 5, PIC Echange 34.—*P. aerea* and *cyanea viridescens*, PIC p. 60 Bull. Soc. ent. France 1918.

*Pocillonota bridwelli* sp. n. California p. 53, VAN DYKE Ent. News 29.

*Pseudactenodes strandi* sp. n. E. Africa p. 12, OBENBERGER Ent. Mitt. 7.

*Psiloptera (Damsarsila) ertli* p. 123, *manglbergeri* p. 124, *obenbergeri* p. 125, spp. n. Africa, HOSCHEK-MÜHLHEIM Wien. ent. Zeit. 37.

*Ptosima 11-maculata* varr. n. *leprieuri* and *fauconneti* p. 1, *intermedia* p. 6, *lugdunensis* p. 9, *servillorum* p. 13, PIC Echange 34.—*P. 11-maculata* varr. n. *elongata* and *coreana*, PIC p. 3 Mélanges 27.

*Sponsor rufitarsis* p. 446 pl. i f. 1,  
*gyrinoides* p. 447 f. 2, *emmerezi*  
 p. 448 f. 3, *subparallelus* p. 449 f. 4,  
*dermestoides* p. 451 f. 5, *lepidus* p. 452  
 f. 6, *cariei* p. 453 f. 7, *antelmi* p. 455  
 f. 8, Mauritius, *rodrigianus* p. 456, spp.  
 n., LESNE Ann. Soc. ent. France 86.

*Sternocera interrupta vandykei* p. 347,  
*stevensii waterhousei* p. 348, subspp. n.,  
 GARNETT Canad. Ent. 50.

*Stigmodera rostralis* sp. n. Queensland  
 p. 718 fig., CARTER P. Linn. Soc.  
 N.S.W. 42 1917.

*Taphrocera catharinæ* p. 61, *klim-*  
*schi* p. 62, spp. n. Brazil, OBENBERGER  
 Beitr. syst. Insk. 1 1917.

*Trachys lichtensteini* sp. n. France  
 p. 50, DU BUYSSON Miscell. Ent. 24.—  
*T. mandarina* China p. 217, *mand-*  
*jurica* p. 218, spp. n., OBENBERGER  
 Wien. ent. Zeit 36 1917.

*Trigonogya* gen. n. type *Mastogenius*  
*reticulaticollis*, SCHAEFFER p. 213 J. N.  
 York ent. Soc. 26.

#### THROSCIDAE.

Revision of N.-american Throscidae,  
 BLANCHARD pp. 1-26 Tr. Amer. ent.  
 Soc. 43 1917.

*Aulonothroscus parallelus* p. 11, *tere-*  
*trius*, *schwarzi*, p. 12, *laticeps* p. 15,  
*detritus* p. 18, *distans* p. 19, *nodifrons*  
 p. 20, spp. n. U.S.; BLANCHARD T.C.  
 1917.

*Throscus horni* n. n. for *alienus*  
 BONV., BLANCHARD p. 22 T.C. 1917.

#### EUCNEMIDAE.

*Cladidus* n. n. for *Di cladus* BONV.,  
 FLEUTIAUX p. 59 Bull. Soc. ent. France  
 1918.

*Cussolenis* n. n. for *Soleniscus* BONV.,  
 FLEUTIAUX p. 59 T.C.

*Dirhaqus longicornis* var. n. *hun-*  
*garicus*, PIC p. 1 Echange 34.

*Farsus salvazai* sp. n. Tonkin p. 181  
 FLEUTIAUX Ann. Soc. ent. France 87.

*Fornax differens* p. 177, *salvazai*,  
 Tonkin *vitalisi* Laos, p. 178, spp. n.,  
 FLEUTIAUX T.C.

*Galbites* n. n. for *Galba* Guér.,  
 FLEUTIAUX p. 59 Bull. Soc. ent.  
 France 1918.

*Modius* n. n. for *Diomus* BONV.,  
 FLEUTIAUX p. 59 T.C.

*Scython florentini* sp. n. Tonkin p. 180,  
 FLEUTIAUX Ann. Soc. ent. France 87.

#### ELATERIDAE.

Luminous organs of *Pyrophorus*,  
 GEIPEL Zeitschr. wiss. Zool. 112 pp. 239-  
 290, pls. vii and viii 1915.

Explanation of springing, PROCHNOW  
 pp. 81-93, Biol. Centralbl. 35 figs. 1915.

*Adelocera salvazai*, *vitalisi*, Laos p.  
 184, *orientalis* Tonkin p. 185, spp. n.,  
 FLEUTIAUX Ann. Soc. ent. France 87.—  
*A. cristata* sp. n. Cochin China p. 206  
 FLEUTIAUX Bull. Mus. Paris 24.

*Aeolus alluaudi* sp. n. Africa p. 138,  
 FLEUTIAUX Bull. Soc. ent. France  
 1918.—*A. rothschildi*, *mauricii*, spp.  
 n. E. Africa, FLEUTIAUX Bull. Mus.  
 Paris 24.

*Agonischius chapensis* p. 260, *vitalisi*  
 p. 264, *notieri* p. 265, *rufus*, Tonkin,  
*villosus* Cambodia, p. 266, *salvazai*  
 with var. *ruficollis* Laos p. 267, spp. n.,  
 the following varr. n., *dorsalis brun-*  
*nicipes* p. 259, *suturalis dussauti* p.  
 260, *obscuripes ferrugineus*, *sulcicollis*  
*minor*, p. 262, FLEUTIAUX Ann. Soc.  
 ent. France 87.—*A. bariensis* p. 229,  
*vauthieri* p. 230, spp. n. Indo-China,  
 FLEUTIAUX Bull. Mus. Paris 24.

*Agraeus duporti* sp. n. Tonkin p.  
 187, FLEUTIAUX Ann. Soc. ent. France  
 87.—*A. excavatus* sp. n. Cochin China  
 p. 207, FLEUTIAUX Bull. Mus. Paris  
 24.

*Agriotes agonischioides* p. 232, *mol-*  
*lardi* p. 233, spp. n. Tonkin, FLEUTIAUX  
 Bull. Mus. Paris 24.

*Agrypnus nitidus* p. 167, *babaulti* p.  
 168, spp. n. Africa, FLEUTIAUX Bull.  
 Soc. ent. France 1918.

*Anchastus angustus*, *deminutus*, spp.  
 n. Africa p. 139, FLEUTIAUX T.C.

*Athous* (*Megathous*) *demangei*, *A.*  
 (*Stenagostus*) *vitalisi*, p. 243, *A. ebeninus*,  
*decorus* with var. *collaris*, p. 245,  
*variabilis* with var. *ornatus* p. 246,  
*nodieri* p. 247, spp. n. Tonkin, FLEU-  
 TIAUX Ann. Soc. ent. France 87.

*Camposternus mouhoti* varr. n. *vita-*  
*lisi* and *fairmairi* p. 198, *vitalisi*  
 Tonkin p. 199, *regalis* Laos p. 201,  
 spp. n., FLEUTIAUX T.C.



*Cardiophorus tanensis flumineus*, spp. n. Africa p. 169, FLEUTIAUX Bull. Soc. ent. France 1918.—*C. frontalis* sp. n. E. Africa p. 241, FLEUTIAUX Bull. Mus. Paris 24.—*C. beauchenei* p. 226, *parallelus* p. 227, *confusus* p. 228, *costatus* p. 229, *sericatus* p. 230, spp. n. Indo-China, FLEUTIAUX Ann. Soc. ent. France 87.—*C. kambensis, usambaricus, variabilis*, p. 140, *fuscus, variatus*, p. 141, spp. n. Afr. or., FLEUTIAUX Bull. Soc. ent. France 1918.—*C. similis* p. 220, *maculipennis* p. 221, *unguicularis, bifidus*, p. 222, spp. n. Indo-China, FLEUTIAUX Bull. Mus. Paris 24.

*Cardiolarus vitalisi* sp. n. Cambodia p. 231, FLEUTIAUX Ann. Soc. ent. France 87.—*C. lateralis, fulvipes*, spp. n. Tonkin p. 223, FLEUTIAUX Bull. Mus. Paris 24.

*Conoderus subsfasciatus* Laos, *melanocephalus*, p. 207, *nodieri* p. 208, Tonkin, spp. n., FLEUTIAUX Ann. Soc. ent. France 87.—*C. trifasciatus* sp. n. Tonkin p. 215, FLEUTIAUX Bull. Mus. Paris 24.

*Corymbites perpendicularis* p. 248, *tonkinensis, vitalisi*, p. 249, Tonkin, *cambodiensis* p. 250, spp. n., FLEUTIAUX Ann. Soc. ent. France 87.

*Crytohypnus lecontei* n. n. for *planatus* Lec., LENG p. 205 J. N. York ent. Soc. 26.

*Diploconus rugosus* sp. n. Tonkin p. 232, *brevis* var. n. *basalis, melanopterus* varr. n. *sublaevis*, p. 233 and *bimaculatus* p. 234, FLEUTIAUX Ann. Soc. ent. France 87.

*Dolopius marginatus* ab. n. *laczoi* p. 200, FLEISCHER Wien. ent. Zeit. 37.

*Drasterius fouqueti* Tonkin p. 212, *candezei* Annam p. 213, spp. n., *brahminus* var. n. *de-launeyi* p. 213, FLEUTIAUX Ann. Soc. ent. France 87.—*D. varians* sp. n. Africa p. 139, FLEUTIAUX Bull. Soc. ent. France 1918.

*Ectomenogonus melsheimeri* n. n. for *hepaticus* M., LENG p. 206 J. N. York ent. Soc. 26.

*Elater* table of the species, *cinbarinus* var. n. *dimorphus, canaliculatus* sp. n. Smyrna p. 86, *coenobita* var. n. *vallombrosae* p. 86, *sanguinolentus* 4 abb. n. p. 90, *lenkoranus* var. n. *caspicus*, var. n. *corsicus* p. 91, *deplana-*

*tus* sp. n. Turkestan p. 92, *balteatus* abb. n. *succineus* and *adrastiformis* p. 95, *praestus* var. n. *zoufali* p. 96, *nigrinoides* sp. n. Irkutsk p. 101, *juldusanus* sp. n. p. 102, REITTER Wien. ent. Zeit. 37.—*E. cambodiensis* sp. n. p. 214, FLEUTIAUX Ann. Soc. ent. France 87.—*E. sanguinolentus* var. *paleatus*, CAMERON p. 183, SHARP p. 209 Ent. Mo. Mag. 54.

†*Elateridium* nom. n. for *Elaterites* Tilly., *angustius* sp. n. N.S.W. triassic p. 751 fig., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Glyphonyx antennalis* p. 272, *thoracicus* p. 273, spp. n. Tonkin, FLEUTIAUX Ann. Soc. ent. France 87.

*Grypathous galiberti* sp. n. France, DU BUYSSON p. 27 Misc. ent. 24.

*Hemiops tenuistriata* sp. n. Tonkin p. 234, FLEUTIAUX Bull. Mus. Paris 24.

*Heteroderes rothschildi* sp. n. Harrar p. 240, FLEUTIAUX T.c.

*Hypnoidus decoratus* sp. n. Africa p. 139, FLEUTIAUX Bull. Soc. ent. France 1918.—*H. sexmaculatus* p. 168, *babaulti* p. 169, spp. n. Africa, FLEUTIAUX T.c.—*H. fouqueti* sp. n. Saigon p. 224, FLEUTIAUX Ann. Soc. ent. France 87.

*Lacon denticollis* sp. n. E. Africa p. 237, FLEUTIAUX Bull. Mus. Paris 24.—*L. vitalisi* p. 190, *beauchenei* p. 195, spp. n. Tonkin, FLEUTIAUX Ann. Soc. ent. France 87.

*Ludius magnicollis* Laos p. 253, *subnitidus* p. 254, *thoracicus* p. 255, Tonkin, *rugosus* Cambodia p. 256, spp. n., FLEUTIAUX Ann. Soc. ent. France 87.—*L. bonifacyi* sp. n. Tonkin. p. 228, FLEUTIAUX Bull. Mus. Paris 24.—*L. candezei* n. n. for *elegans* C., LENG p. 205 J. N. York ent. Soc. 26.

*Megapenthes duporti* p. 215, *obscuricornis* p. 216, Tonkin, *vitalisi, unicarinatus*, p. 217 Laos, *porrectus* Cambodia p. 218, *melanoanthoides* Tonkin p. 219, *maculatus* Cambodia p. 220, spp. n., *octoguttatus* varr. n. *candezei* and *fulvipes* p. 220, FLEUTIAUX Ann. Soc. ent. France 87.—*M. ochraeipennis* sp. n. Tonkin p. 219, FLEUTIAUX Bull. Mus. Paris 24.

*Melanotus gigas, vitalisi*, Tonkin p. 235, *brunneus* Cambodia p. 237, *lameyi* p. 238, *basalis, fairmairei*, p. 239, *rodieri, dussauti*, p. 240, *rufus* p. 241, Tonkin, *spp. n.*, FLEUTIAUX Ann. Soc. ent. France 87.—*M. blatchleyi* n. n. for *longicornis* Bl., LENG p. 205 J. N. York ent. Soc. 26.

*Melanoxanthus bimaculatus* p. 222, *vitalisi, duporti*, p. 223, *spp. n.* Tonkin, FLEUTIAUX Ann. Soc. ent. France 87.—*M. dominei* sp. n. Tonkin p. 217, FLEUTIAUX Bull. Mus. Paris 24.

*Melanoxus* gen. n. near *Megapenthes* for *africanus* Fl. and *pachyderoides* Schw., FLEUTIAUX p. 194 Bull. Soc. ent. France 1918.

*Monocrepidius substitutus* n. n. for *elongatulus* Schw., FLEUTIAUX p. 206 Ann. Soc. ent. France 87.—*M. caseyi* n. n. for *fnitimus* C., LENG p. 206 J. N. York ent. Soc. 26.

*Octinodes* and *Plastocerus*, synonymical, LENG p. 205 T.c.

*Oistus edmonstoni* sp. n. Oregon p. 127, HYSLOP P. ent. Soc. Washington 19.

*Oxynopterus annamensis* sp. n. p. 212, FLEUTIAUX Bull. Mus. Paris 24.

*Pachelater lesnei* sp. n. Africa p. 170, FLEUTIAUX Bull. Soc. ent. France 1918.

*Pachyderes macrothorax* var. n. *demangei* p. 205, FLEUTIAUX Ann. Soc. ent. France 87.

*Parathous* gen. n. near *Athous, sanguineus* sp. n. Tonkin, FLEUTIAUX p. 242 T.c.

*Parhemiops mouhoti* sp. n. Cambodia p. 274, FLEUTIAUX T.c.

*Pectocera tonkinensis* sp. n. p. 202, FLEUTIAUX T.c.—*P. furinosa* Annam p. 212, *nivea* India p. 213, *spp. n.*, FLEUTIAUX Bull. Mus. Paris 24.

*Penia tonkinensis* sp. n. p. 226, FLEUTIAUX Bull. Mus. Paris 24.

*Perissarthron* gen. n. p. 1 pl. i for *Corymbites trapezium*, HYSLOP Pr. ent. Soc. Washington 19.

*Plastocerus thoracicus* sp. n. Tonkin p. 236, FLEUTIAUX Bull. Mus. Paris 24.

*Psephus anoplischoides, olophoeoides, antennalis, spp. n.* Afr. or. p. 138, FLEUTIAUX Bull. Soc. ent. France 1918.—*P. rugosus* p. 237, *rubidus, depressus* p. 238, *fossulatus* p. 239, *spp. n.* E. Africa, FLEUTIAUX Bull. Mus. Paris 24.

*Pyrophorus* ♂ sex structures p. 4 figs., *arizonicus* pl. iii figs. f and g, *atlanticus* figs. d and c, p. 8, *texanus* figs. a and b p. 9, *spp. n.*, HYSLOP P. ent. Soc. Washington 19.

*Rostricephalus* gen. n. p. 252 near *Proclater, vitalisi* sp. n. Cambodia p. 253, FLEUTIAUX Ann. Soc. ent. France 87.

*Sabathous* gen. n. near *Sephilus, tonkinensis* sp. n., FLEUTIAUX p. 203 T.c.

*Silesis vitalisi* with var. *salvazai* Laos p. 267, *duporti* p. 268, *melanocephalus* p. 269, Tonkin, *cambodiensis* p. 270, *fulvus* Tonkin p. 271, *spp. n.*, FLEUTIAUX T.c.

*Sphenomerus bonnottei* sp. n. Laos p. 214, FLEUTIAUX Bull. Mus. Paris 24.

*Tetralobus villosus* sp. n. Africa p. 168, FLEUTIAUX Bull. Soc. ent. France 1918.

*Tharopsides* gen. n. near *Lepturoides, harmandi* Siam, p. 235, *bakeri* Philippines p. 236, *spp. n.*, FLEUTIAUX Bull. Mus. Paris 24.

*Toxognathus beauchenei* Tonkin p. 276, *mouhoti* Cambodia p. 277, *spp. n.*, FLEUTIAUX Ann. Soc. ent. France 87.

#### RHIPIDOCERIDAE.

*Callirhipis macgregori* p. 378, *viracensis* p. 379, *spp. n.* Philippines, SCHULTZE Philipp. J. Sci. D 13.

#### DASCHILLIDAE, CYPHONIDAE.

*Artematopus nigropunctatus, bifasciatus, spp. n.* Amer. mer., *irroratus* var. n. 4-*notatus*, PIC p. 6 Mél. 27.

*Calvarium* gen. n. p. 14 near *Microcara, maxi* Zanzibar, *mercieri* Gaboon, *spp. n.* p. 15, PIC Mélanges 29.

*Cladobradus* gen. n. near *Aploglossa atritarsis* sp. n. Bogota, PIC p. 3 Mélanges 27.

*Cyphon discocinctus, notatus*, Madagascar, *formosanus, atripennis*, Formosa spp. n., PIC p. 5 *Mélanges* 27.—*C. (Dermestocyphon* subg. n. p. 18), *drianti* Yunnan, *beatyi* Japan, p. 18, *C. gouraudi, reginae, alberti, alexandri, aymERICI*, Madagascar, *wetterlei* Abyssina, p. 19, *lyauteyi* Ashanti, *espereyi, halleri, heroicus, savitchi*, Madura, p. 20, *humberti* Cayenne, *pauu, petri, diazi*, p. 21, *debeneyi*, Banguey, *mangini* Celebes, *gabrielii* Borneo, *foncki* Palawan, *degouttei* Guadeloupe, *garibaldii* Celebes, *henrysi* New Guinea, p. 22, *lemani, huguesi, joffrei, roosevelti*, p. 23, *maistrei, cadornai, liggeti, albricci*, p. 24, Chile, spp. n., PIC *Mélanges* 29.

*Dermestocyphon* subg. n. vide *Cyphon*.

*Elodes clemenceauu, petaini, lloydi*, Madagascar, *pichoni* Chile, p. 16, *sororum* Darjeeling, *wilsoni* Japan, *raynali, estiennei, fagollei*, p. 17, *marnei* p. 18, Chile, spp. n., also varr. n., PIC *Mélanges* 29.

*Ernobiotherius* gen. n., *angustatus* sp. n. Banguey, PIC p. 4 *Mélanges* 27.

*Eubrianax*; larva, LENG p. 205 J. N. York ent. Soc. 26.

*Indiocyphon* gen. n., *allenbyi* sp. n. India, PIC p. 15 *Mélanges* 29.

*Macrocyphon* gen. n. near *Atopida*, *fochi* Perak, *ronarchi* Singapore, *deporti* Borneo, *rimailhoi* Sumatra, spp. n., PIC p. 14 *Mélanges* 29.

*Memorocyphon* gen. n. near *Prionocyphon*, *gallieni* sp. n. India, PIC p. 15 *Mélanges* 29.

*Ora triradiata* p. 95 Guiana, *gamma* Brazil p. 97, *bituberculata* p. 98, *cinnamomea* p. 99, *calcarata* p. 100, Amazons, *cassidiformis* p. 100, *macropus, vigintiguttata*, p. 101, *bifoveifrons* p. 102, Africa, *rugipennis* Madagascar, *antiqua* Batelcian, p. 139, *atrosignata* Assam p. 140, *rugosissima* Perak p. 141, *gibbosa* Borneo p. 142, *compressa* Ceylon, *coronata* Borneo, p. 143, *angularis* Brazil p. 144, spp. n. CHAMPION Ent. Mo. Mag. 54.—*O. costifera* India p. 15, *discoidalis* Java, *albionotata* Sumatra, spp. n., PIC Echange 34.—*O. reginae*

India, *sororum* Brazil, spp. n., *unicolor* var. n. *brunneonotata*, PIC p. 12 *Mélanges* 29.

*Pantheon* gen. n. near *Ptilodactyla*, *heroicum* sp. n. India, PIC p. 13 *Mélanges* 29.

*Prionoscirtes obliquus* sp. n. Penang p. 94, CHAMPION Ent. Mo. Mag. 54.

*Pseudocladotoma* gen. n. p. 3 near *Paralichas, maculata* sp. n. Java p. 4, PIC *Mélanges* 27.

*Scirtes flavomaculatus, multiguttatus*, p. 146, *cincticollis* p. 147, *lutens, buckleyi*, p. 148, *nigrans* p. 188, *trinitalis* p. 189, *forticornis*, Amer. mer., *flavomarginatus* Granada, p. 190, *helvolus, dispersus*, p. 191, *strigosus, laevicollis*, p. 192, Amer. mer., *subcostatus, zambesianus*, p. 193, *validus, africanus*, p. 194, *vittifrons, nigriensis*, p. 195, *helodinus, subulatus, Africa, nigrolimbatus* Madagascar, p. 196, *sphaericus* Borneo p. 197, *bipustulatus, flavocinctus*, p. 219, *flavoguttatus*, Borneo, *decemguttatus* S. India, p. 220, *tetrastigma* Assam p. 221, *ephippiatus, flavonotatus*, Borneo p. 222, *decemnotatus* Perak p. 223, *andamanus* p. 224, *sulcigerus* Borneo p. 256, *auriculatus* Perak, *lacunosus*, p. 257, *excavatus* p. 258, *sexfoveatus*, Borneo, *bifoveatus*, p. 259, *quadrioveatus*, Ceylon, *dichrous* Borneo, *crassicornis* Penang, p. 260, *scaphiformis* India p. 261, *rufotinctus* Borneo p. 262, *floresianus* Flores p. 264, *retusus* Ceram, *atrifrons* Sumatra, p. 265, *acuminatus* Borneo, *patkainus, curvipes*, Assam p. 266, *malayanus* Perak, *melas* India, p. 267, *holosericeus* Borneo p. 268, *cyphonoides* Burma, *matanganus* Borneo, p. 269, *sumatranus* p. 270, *longiusculus, melanurus*, Borneo p. 271, *nilgiriensis* p. 272, spp. n., CHAMPION Ent. Mo. Mag. 54.—*S. atronotatus, bogotensis*, p. 4, *bimaculaticeps* p. 5, spp. n. Am. mer., PIC *Mélanges* 27.—*S. townshendi* Tonkin p. 12, *guillaumati* Laos, *victoris* Banguey, *constans* Ventiane, p. 13, spp. n., PIC *Mélanges* 29.—*S. binter-ruptus* Sikkim, *anceyi* Saigon with var. *borneensis, sinensis* China, p. 16, *deversipennis* Tonkin, *laosensis, lituratus* Laos, *vagenotatus* Banguey, p. 19, spp. n., PIC Echange 34.—*S. tibialis*, life-history, KRAATZ pp. 393-399 pl. Ann. ent. Soc. Amer. 11.

## MALACODERMIDAE.

Luminous organs, GEIPEL Zeitschr. wiss. Zool. 112 pp. 239-290 pls. 1915.

Gregarious *Lycidae*, POULTON Pr. ent. Soc. London 1917 p. lviii.

*Anisotelus latemaculatus* sp. n. India p. 19, PIC Echange 34.

*Astylus*, The sexual characters; *haematostictus* p. 342, *caeruleoinctus* p. 345, *nigrolimbatus* p. 346, *sempustulatus* p. 348, *luteoguttatus* p. 349, *luteicauda* p. 350, *correptus* p. 357, *forcipatus* p. 358, *convexus* p. 359, *curvidens* p. 360, *lebasi* p. 363, *hamatilis* p. 364, *imbricatus* p. 365, *laticauda* p. 366, spp. n. Amer. mer., CHAMPION Ann. Nat. Hist. 2.

*Attalus (Mixis) michaelsoni* sp. n. Africa p. 285, PIC Beitr. Landf., Sudwestafrik. 1.—*A. chinensis* sp. n. p. 211, FLEISCHER Wien. ent. Zeit. 37.—*A. keiensis* sp. n. p. 4, PIC Mélanges 28.—*A. serraticornis*, *dimidiatus*, p. 82, *semirubidus*, *dimissus*, p. 83, *dilatimargo*, *tuberculifrons*, p. 84, *atripennis*, *glabrellus*, *rusticus*, p. 85, *foveiventris* p. 87, *futilis*, *grisellus*, p. 87, spp. n. U.S., FALL Tr. amer. ent. Soc. 43 1917.

*Attalusinus* gen. n. for *Attalus submarginatus* Lec., LENG p. 206 J. N. York ent. Soc. 26.

*Azynotarsus pulicarius* var. n. *martialis* p. 17, PIC Echange 34.

*Brachypterodrilus* gen. n., *pallidipes* sp. n. Banguey, PIC p. 1 Mélanges 28.

*Cantharis atrofoveolatus* Persia, *schrammi* Spain, spp. n. p. 22, *violaceus* var. n. *moraviensis* p. 21, *erichsoni* var. n. *neapolitanus*, *annularis* var. n. *gredosensis*, *nigricans* var. n. *monachi*, *genei* var. n. *sardiniensis*, *inculla* var. n. *laconiensis*, *iliaca* var. n. *cheshirensis*, *coronata* var. n. *calatravensis*, p. 22, PIC Echange 34.

*Carphurus atromaculatus* Java, *birmanicus*, p. 6, *kurandanus* Kuranda, *cinctipennis* Timor, *plicatocollis* New Guinea, p. 7, spp. n., PIC Mél. 27.—*C. astruci* sp. n. China p. 4, PIC, Mélanges 28.

*Driiocephalus* gen. n. near *Phrixothrix pallidipennis* sp. n. Argentina, PIC p. 3 Mélanges 28.

*Drilothilmanus* subg. n., *marginatus* sp. n. Darjeeling, PIC p. 3 T.c.

*Drilus testaceipennis* sp. n. Ivory coast p. 2, PIC Mélanges 28.

*Falsomelyris schulzi* sp. n. Africa p. 286, PIC Beitr. Landf. Sudwestafrik. 1.

*Ichthyurus*, abdominal structure, GAHAN p. cxvi. Pr. ent. Soc. London 1917.

*Lampyris noctiluca*, structure and habits of larva, VOGEL Zeitschr. wiss. Zool. 112 pp. 291-432 4 pls. 1915.

*Malachius hornii* n. n. for *spinipennis* Horn, FALL p. 88 Tr. Amer. ent. Soc. 43 1917.

*Malthodes stolzi* sp. n. Italy p. 380, HICKER Wien. ent. Zeit. 34 1915.—*M. theryi* Marocco, *elongaticornis* Algeria, p. 10, *alatus mediocornis*, Algeria p. 13, spp. n. *lingulanus* var. n. *basicornis* p. 13, PIC Echange 34.

*Melyris viridis* var. n. *sabacuminatus*, PIC p. 287 Beitr. Landf. Sudwestafrik. 1.

†*Metrorhynchites grandis* sp. n. N.S.W. triassic p. 752 fig., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Microlipus productus*, *franciscanus* p. 76, *aequalis* p. 77, spp. n. California, FALL Tr. amer. ent. Soc. 43 1917.

*Pseudothilmanus* gen. n., *alatus* sp. n. India, PIC p. 2 Mélanges 28.

*Rhipidiomorphus* gen. n. near *Pterydrias*, *malaccanus* sp. n., PIC p. 1 Mélanges 28.

*Selasia curtipennis* sp. n. E. Africa, *rhpiceroides* var. n. *discoidalis*, PIC p. 2 Mélanges 28.

*Silis*, the North American, pp. 161-179 pl. ix, *rugosa* p. 168, *filicornis* p. 172, *deserticola* p. 173, *arizonica* p. 174, *fenestrata* p. 175, *tricornis* p. 177, spp. n., *difficilis* var. n. *carbo* p. 168, *pallida* var. n. *maritima* p. 170, VAN DYKE J. N. York ent. Soc. 26.

*Stenocladus bicoloripes* sp. n. Formosa p. 3, PIC Mélanges 28.

*Tanaops angusticeps* p. 69, *ignitus*, *antennatus*, p. 70, *spinifer*, *terminalis*, p. 71, *dubitans*, *minus*, p. 72, *complex*, *repens*, p. 73, spp. n. U.S., FALL Tr. amer. ent. Soc. 43 1917.

*Thonalmus*, peculiarities, MUTCHLER p. 115 J. N. York ent. Soc. 26.

## CLERIDAE.

*Hydnocera binotata* sp. n. California p. 107, CHAPIN P. biol. Soc. Washington 31.

## PTINIDAE, ANOBIIDAE.

*Anobium domesticum*, in N.Z. wood, SPEIGHT N. Z. J. Sci. 1 p. 142.

*Ernobius pini galiberti* subsp. n. p. 9, PIC Echange 34.—*E. pallidipennis* and *pueli*, LAVAGNE pp. 14–16, PIC pp. 21–24, LAVAGNE p. 61 Miscell. ent. 24.

*Mahcoptinus dilaticollis* sp. n. Banguay p. 3, PIC Mélanges 27.

*Niptus tournoueri* sp. n. Mendoza p. 258, PIC Bull. Mus. Paris 23 1917.

*Ptinus subsuturalis* Ceylon, armitagei Borneo, spp. n. p. 2, PIC Mélanges 27.—*P. laticornis* sp. n. Cochinchina p. 259, PIC Bull. Mus. Paris 23, 1917.

*Sitodrepa panicea*, habits, KLEINE pp. 271–277 Zeitschr. wiss. Insbiol. 13.

*Theca sardoa* sp. n. p. 116, REITTER Wien. ent. Zeit. 34 1915.

*Trigonogenius impressicollis* sp. n. Peru p. 258, PIC Bull. Mus. Paris 23 1917.

*Xestobium tessellatum*, voice-habits, GAHAN pp. 121 etc. Entom. 51.

## BOSTRYCHIDAE, LYCTIDAE.

*Dinapate urightii*, early stages, GARNETT pp. 41–43 pl. ii Ent. News 29.

*Lyctus cornifrons australis* subsp. n. p. 292, LESNE Beitr. Landf. Sudwestafrik. 1.

*Sinoxylon parviclava* sp. n. Burma p. 490, LESNE Bull. Mus. Paris 24.

## CROIDAE.

*Cis lineatocribratus* var. n. *malchanus*, REITTER p. 66 Wien. ent. Zeit. 34 1915.—*Cis dunedinensis* n. n. for *pusillus* Dury, *duryi* n. n. for *bicolor* D., LENG p. 207 J. N. York ent. Soc. 26.

*Dimerocis* subg. n., *aurasiacus* sp. n. Algeria, PEYERIMHOFF Bull. Soc. ent. France 1918 p. 277 1919.

*Pityocis*, gen. n. p. 141, *coarctatus* sp. n. p. 142 fig. Algeria, PEYERIMHOFF T.c.

## TENEBRIONIDAE.

Synonymical notes on Australian. CARTER pp. 717 & 718 P. Linn. Soc. N.S.W. 42 1917.

Keys for the subfamilies and tribes of palaeartic Tenebrionidae, REITTER Wien. ent. Zeit. 36 1917 pp. 53–66.

†*Adelidium* gen. n., *cordatum* sp. n. N.S.W. triassic p. 752 fig., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Anatolica sithon* sp. n. Simeretschio p. 83, REITTER Wien. ent. Zeit. 34 1915.

*Arthrodisia planisternum* p. 130, *bucharicus* p. 131, spp. n. Buchara, REITTER T.c. 1915.

*Asida fascicularis*, 3 subsp. n. p. 3, *acuticollis ganglbaueri* subsp. n. p. 4, MÜLLER Wien. ent. Zeit. 36 1917.

*Cabirus femoralis* sp. n. Turkestan p. 85, REITTER Wien. ent. Zeitschr. 34 1915.

*Caedius vollenhoveni* sp. n. Cambodia p. 251, CHATANAY Bull. Mus. Paris 23, 1917.

*Calcar zoufati* sp. n. Tunis p. 89, REITTER Wien. ent. Zeit. 34 1915.

*Camaria boliviensis* sp. n., *parallela* var. n. *multiimpressa*, p. 15, *rufipennis* Brazil p. 16 sp. n., PIC Mélanges 27.

*Campsia pallidipes* sp. n. Brazil p. 16, PIC Mélanges 27.

*Catobleps* gen. n. near *Gonocnemis* p. 149, *blattoides* sp. n. Africa p. 151 fig., BLAIR Ent. Mo. Mag. 54.

*Catopherus* gen. n. p. 713 *Meracanthini*?, *corpulentus* sp. n. N. Queensland p. 714 fig., CARTER P. Linn. Soc. N.S.W. 42 1917.

*Centorus porrecticollis* sp. n. Turkestan p. 90, REITTER Wien. ent. Zeitschr. 34 1915.

*Coniontis hoppingi* p. 7 sp. n. California, *globulina* var. n. *muscula* p. 9, *montana* and *canonica* Cas. variation pp. 11–14, BLAISDELL Ent. News 29.

*Cossyphus*; table p. 129–140, *moniliatus* Africa p. 135, *explanatus* p. 138, *dilatatus* p. 139, India, spp. n., REITTER Wien. ent. Zeit. 36 1917.

*Cuphotes apicalis, coeruleus, spp. n.* Brazil p. 20, PIC Mélanges 27.—*C. bifasciatus, foveolatus*, Amer. mer., *multimaculatus* Costa Rica, *spp. n.* p. 7, also var. n., PIC Mélanges 28.

*Cybopiestes gen. n. Misolampini, csikii sp. n.* Marocco, REITTER p. 150, Wien. ent. Zeit. 36 1917.

*Dacoderus acanthomma sp. n.* Colombia p. 153, BLAIR Ent. Mo. Mag. 54.

*Daedrosia interrupta sp. n.* Queensland p. 710, CARTER P. Linn. Soc. N.S.W. 42 1917.

*Dendarus depressus sp. n.* Baleares p. 86, REITTER Wien. ent. Zeit. 34 1915.

*Divieta subg. n. vide Vieta.*

*Ectyche bicolor sp. n.* Northern territory p. 709, fig., CARTER P. Linn. Soc. N.S.W. 42 1917.

*Eleodes barbata sp. n.* New Mexico p. 256, WICKHAM Ent. News 29.—*E. nunemmacheri* p. 163 with var. *verrucula* p. 164, *propinqua* p. 165, *spp. n. U.S., pimelioides* var. n. *brevisetosa* p. 162, *hispidabris* var. n. *imitabilis* p. 167 and *attenuata* p. 168, BLAISDELL Ent. News 29.—*E. parvicollis* var. n. *squalida* p. 380, *pimelioides* var. n. *patruelis* p. 382, *cordata* var. n. *horrida* p. 383, *inculta* var. n. *affinis* p. 384, *hornii* var. n. *monticola* p. 385, *dentipes* var. n. *perpunctata* p. 386, *gigantea* var. n. *meridionalis* p. 387, BLAISDELL T.C.

*Endostomus cossyphoides* p. 141, *prostrernalis* p. 142, *caudifer, caudatissimus*, p. 143, *immundus* p. 144, *gebieni* p. 145, *longicollis* p. 146, *illitus, kamerunus, integrinus*, p. 147, *crenicostis* p. 148, *spp. n. Africa*, REITTER Wien. ent. Zeit. 36 1917.

*Erulipothydemus gen. n.* p. 19 near *Erulipus, latior* Sumatra, *longipennis* Borneo, p. 20, *spp. n.*, PIC Mélanges 27.

*Eurypimelia subg. n. vide Pimelia.*

*Falsocossyphus = (Catobleps),* PIC p. 15 Echange 34.

*Falsocuphotes gen. n.* near *Poecilasthus, curticornis sp. n.* Goyaz, PIC p. 22 Mélanges 27.

*Gedeon magniceps sp. n.* Buchara p. 60, REITTER Wien. ent. Zeit. 34 1915.

*Gonocephalum annamita* p. 236, *breneri* p. 238, *oureyi* p. 240, *elegans* p. 242, *hasticolle* p. 245, *bradymeroides* p. 248, *fuscoetosum* p. 250, Indo-China, *guerreyi* China p. 244, *brevicornis* Borneo p. 247, *spinicolle* Java p. 248, *spp. n.*, CHATANAY Bull. Mus. Paris 28 1917.

*Helops (Catomus) longiceps sp. n.* Tunis p. 75 with subsp. *minutepunctatus* p. 76, CHOBOUT Bull. Soc. ent. France 1918.

*Hionthisoma coutayari sp. n.* Tunis p. 74, CHOBOUT T.C.

*Kokeniella matthiesseni* p. 127, *gracilicornis* p. 128, *spp. n.*, Persia, REITTER Wien. ent. Zeit. 34 1915.

*Laena himalayana* Simla p. 357, *apfelbecki* Greece p. 358, *edmundi* p. 359, *sulcata* p. 360, Kashmir, *spp. n.*, SCHUSTER Wien. ent. Zeit. 34 1915.

*Leiochrinus ruficolor sp. n.* Borneo p. 24, PIC Mélanges 28.—*L. fulvicollis* var. n. *laterufus*, PIC p. 11 Mélanges 29.

*Leiochrodes mocquerysi* Gaboon, *singularis* Ceylon, *latus* Madura, *apicicornis* Engano, *luteolincatus* Borneo, p. 13, *convexipennis* Engano with var. *frontalis, testaceitarsis* Australia, *violaceipennis* Roon, *sabaeneus* Banguey, *punctatus, luteonotatus*, p. 14, *madurensis*, India, *minutus* Borneo, *atripennis* Solomon islds., p. 15, *spp. n.*, PIC Mélanges 27.—*L. tenebrosus* var. n. *semirufus, discicollis* var. n. *niasensis*, PIC p. 24 Mélanges 28.—*L. kitchneri* Banguey, *haiqi* Palawan, *georgi* Mafor, p. 11, *victoris* Roon, *gloriosus* Banguey, p. 12, *spp. n.*, PIC Mélanges 29.

*Leiochrotina braeti sp. n.* China p. 15, PIC Mélanges 27.

*Leucolaeaphus*; the species, REITTER p. 82, Wien. ent. Zeit. 34 1915.

*Lyprops subrufescens, brevicornis* with var. *scutellaris, senegulensis, subaeneicollis, diversipennis, spp. n.*, Africa, PIC Echange 34 p. 1 hors texte.

*Melanimon (Microzoum) cupreomicans sp. n.* Turkestan p. 88, REITTER Wien. ent. Zeit. 34 1915.

*Meneristes porosus sp. n.* Queensland p. 707, CARTER P. Linn. Soc. N.S.W. 42 1917.

*Mesomorphus vitalisi* p. 233, *rugulosus*, Indo-China, *latiusculus* Burma, p. 234, spp. n., CHATANAY Bull. Mus. Paris 23 1917.

*Micrositus laufferi* sp. n. Spain p. 87, REITTER Wien. ent. Zeit. 34 1915.

*Microtocerus* gen. n. p. 11, *grandicornis* sp. n. Brazil p. 12, PIC Mélanges 28.

*Myladina (Eumilada) fortidens* sp. n. Turkestan p. 88, REITTER Wien. ent. Zeit. 34 1915.

*Nyctozoilus parvus* sp. n. Queensland p. 705, fig., CARTER P. Linn. Soc. N.S.W. 42 1917.

*Omolipus coeruleus* sp. n. Northern territory p. 711 fig., CARTER T.c. 1917.

*Onoterrhus ooddensis* sp. n. S. Australia p. 704, CARTER T.c. 1917.

*Osfyoplesius* gen. n. p. 331 near *Eschatoporis*, *anophthalmus* sp. n. Crimea p. 333, WINKLER Wien. ent. Zeit. 34 1915.

*Otocerus multinotatus*, *cyanescens*, *robustus*, spp. n., Amer. mer. p. 11, PIC Mélanges 28.

*Pedinus tieffenbachi* sp. n. Aetolia p. 84, REITTER Wien. ent. Zeitschr. 34 1915.

*Phaleria bimaculata conicicollis* subsp. n. Albania p. 154, REITTER Wien. ent. Zeit. 37.

*Phylan (Olocrates) wankai* sp. n. Palencia p. 87, REITTER Wien. ent. Zeit. 34 1915.

*Phymatosoma quadrifasciatum* sp. n. Tonkin p. 255, CHATANAY Bull. Mus. Paris 23 1917.

*Pimelia* subg., *Piesterotarsa albinea* Arabia p. 11, *dohrni* Tripolis p. 12, *spursidens* Algeria p. 13, *densata* p. 15, *echidiniformis* Oran p. 18, *imitata* Gafsa p. 20, *arenosa* Nemois p. 21, *mohamedis* Egypt p. 22, spp. n., REITTER Wien. ent. Zeit. 34 1915.

*Pimelia* subg., *Chaetotoma abnormis* Transcaspian p. 23, *areolata* p. 24, *matthiesseni* p. 26, Persia, spp. n., REITTER T.c.

*Pimelia tenuitarsis* Egypt, *schusteri*, *laevidorsis*, p. 33, *edura*, Arabia, *boehmi* Egypt, p. 34, *iscariota* Meso-

potamia p. 35, *adriani* Arabia p. 36, *obscura* Spain p. 37, *furcicosta* Murcia p. 41, spp. n., REITTER T.c.

*Pimelia* subg. *Amblyptera scabrosiformis* sp. n. Marocco p. 57; and various varieties; REITTER T.c.

*Pimelia* subg. *Eurypimelia* subg. n. p. 9 & p. 49, *separanda* Thessaly, *krueperi* Morea p. 54, *puncticollis* Mycene p. 55, spp. n., REITTER T.c.

*Pimeliides*, tables of palaeartic, REITTER pp. 1-63 Wiener ent. Zeit. 34 1915.

*Platydema rufibase* sp. n. Queensland p. 701, CARTER P. Linn. Soc. N.S.W. 42 1917.

*Platyphanes similis* sp. n. Queensland p. 708, CARTER T.c. 1918.

*Plesiophthalmus fossulatus* sp. n. Tonkin p. 253, CHATANAY Bull. Mus. Paris 23 1917.

*Plicatocerus* subg. n. for *Otocerus impressipennis* Ch., PIC p. 11 Mélanges 28.

*Poecilestrostrongylium* subg. n. vide *Strongylium*.

*Poecilosthus rugulosus*, *cyaneipennis*, spp. n. Amazons p. 123, PIC Bull. Soc. ent. France 1918.—*P. ruficolor* p. 20, *notaticollis*, *semiviridis*, *rufonotatus*, *subopacus*, *G-maculatus*, *rufocinctus*, p. 21, spp. n., Amer. mer., PIC Mélanges 27.—*P. interruptus* with var. *ininterruptus*, *luteonotatus*, *humeralis*, *inhumeralis*, p. 8, *pectoralis*, *elongatus*, *nigromaculatus*, p. 9, *4-maculatus*, *subcostatus*, *biundulatus*, *minor*, p. 10, spp. n., Amer. mer., also varr. n., PIC Mélanges 28.

*Prosodes (Prosodinia) digitulus* Turkestan p. 91, *P. (Prosodestes) bucharica* p. 92, spp. n., REITTER Wien. ent. Zeit. 34 1915.

*Pseudotocerus gracilimembris* sp. n. Brazil p. 12, PIC Mélanges 28.

*Saragus subreticulatus* sp. n. Northern territory p. 703, CARTER P. Linn. Soc. N.S.W. 42 1917.

*Scaurini*; tables, REITTER D.E.Z. 1914 p. 369-380.

*Scarvus tristis* var. n. *abbreviatus* p. 371, *vicinus* var. n. *balearicus* p. 372, *puncticollis* var. n. *syriacus* p. 374, *mendax* sp. n. Marocco p. 379, REITTER T.c.

*Scleron elongatum* sp. n. Rangoon p. 235, CHATANAY Bull. Mus. Paris 23 1917.

*Scytodonta inhumeredens* sp. n. Turkestan p. 83, REITTER Wien. ent. Zeit. 34 1915.

*Sepidiini*, tables, REITTER D.E.Z. 1914 pp. 381-392.

*Sepidium vietaeformis*, Cairo and Syria p. 385, *mesopotanicum* p. 386, *immundum* Marocco p. 388, spp. n., *reichei bispinicolis* subsp. n. p. 389, REITTER T.c.

*Setenis plicifrons* Singapore p. 124 fig., *heros Annam* p. 125 pl. i f. 1, *javanica* p. 129 f. 2, *depressa* Ceylon p. 215 fig., *biangulata* S. Chine p. 217 fig., *pedestris* Tonkin p. 218 fig., *setulosa* Nias p. 219 fig., spp. n., GEBIEN Ent. Mitt. 7.

*Strongylium* (*Poecilosthrostrongylium* subg. n.) *amazonicum*, *S. semiopacum*, p. 12, *bahianum*, *triundulatum*, *exca- vaiipenne*, *pulchripenne*, p. 13, *cyaneitarse*, *subiridescens*, *leseleuci*, *punctato- lineatum*, p. 14, *14-maculatum*, *viridi- fasciatum*, *difformipes*, *simplicipes*, p. 15, *tucumanum*, *bisbinotatum*, *purpureo- humerale*, *longilineatum*, *lemoulli*, p. 16, *angustipenne*, *goyassense*, *luteomacu- latum*, *pallidicorne*, p. 17, *x-notatum*, *mirum*, *arcuatipes*, *submacronatum*, p. 18, *singulare*, *wagneri*, *bogotense*, *purpureo- punctum*, p. 19, *meridanum*, *maroni- num*, *subalternatum*, *bilineatocolle*, p. 20, *cyaneomaculatum*, *infemorale*, *diversi- penne*, p. 21, *viridipunctatum*, *atri- penne*, *peruvianum*, *bolivianum*, p. 22, *subtilepunctatum*, *claveri*, *lucidicolle*, *diversicolle*, p. 23, *subopacipenne*, *acrop- teriforme*, p. 24, spp. n., Amer. mer., PIC Mélanges 28.—*S. longicrurum* n. n. for *longipes* C., CARTER p. 716 P. Linn. Soc. N.S.W. 42 1917.

*Tarpela doddi* sp. n. Queensland p. 712 fig., CARTER T.c. 1917.

*Thydemorphus* gen. n. near *Thydemus*, *pilarsis* sp. n. Philippines, PIC p. 19 Mélanges 27.

*Thydemus viridipennis*, *purpureo- ineatus*, Java p. 16, *robustus*, *pur- pureus* with var. *subviridis*, Borneo, *javanus*, *sinuatipes* Sumatra, p. 17, *curtipes* Borneo, *punctatus* Madura,

*minutus* Java, *curvipes* Banguey, *raf- frayi*, p. 18, *parvulus* p. 19, Zanzibar, spp. n., PIC Mélanges 27.—*T. vicinus* Nias p. 1, *viridicollis* Sumatra, *testacei- cornis* Java, p. 2, PIC Echange 34 hors texte.

*Tretothorax*, allied to *Dacoderus*, BLAIR p. 152 Ent. Mo. Mag. 54.

*Trigonoscelis granulata* sp. n. Buchara p. 90, REITTER Wien. ent. Zeit. 34 1915.

*Vieta* (*Divieta* subg. n.) *punctipennis* Red Sea p. 390, *holdhausi* Khartoum p. 391, spp. n., REITTER D.E.Z. 1914.

#### CISTELIDAE.

*Heliotaurus gestroi* sp. n. Algeria p. 257, PEYERIMHOFF Bull. Soc. ent. France 1918 1919.

*Hymenorus elbertae* sp. n. Florida p. 57, BLATCHLEY Canad. Ent. 50.

*Tanychilus opacus* sp. n. Northern Territory p. 715 fig., CARTER P. Linn. Soc. N.S.W. 42 1917.

#### NILIONIDAE.

*Nilio luteonotatus* p. 10, *latipennis*, *insuturalis*, *ruficeps*, *argentinus* with var. *brasiliensis*, *punctatissimus*, p. 11, *ruber*, *rufescens*, *gounellei* with var. *notatus*, *minutus*, *punctatus*, p. 12, spp. n., Am. mer., PIC Mélanges 27.

#### LAGRIIDAE.

*Heterogria sinensis*, *brunneovittata*, China, *longipilis* Java, spp. n., PIC Echange 34 p. 15.

*Colparthrum viturati*, *bisulatum* with var. *piceum*, spp. n., Amer. mer. p. 2, hors texte, PIC Echange 34.

*Foveostatira* subg. n. vide *Statira*.

*Spinostatira* subg. n. of *Statira* for *S. gounellei* etc., PIC p. 22 Mélanges 27.

*Statira chatanayi*, *vuilleti*, spp. n., Goyaz p. 95 *fulvicollis* var. n. *boissoni* p. 96, synonymy, PIC Bull. Soc. ent. France 1918.—*S. curvipes* p. 16, *rectipes* p. 19, spp. n., Brazil, PIC Echange 34.—*S. (Foveostatira) impressicollis*, *sulcati- collis*, *atroapicalis*, *S. inaequalis*, *viridi- bilineata*, p. 2, *anticefenestrata* este-



*bana*, *latefasciata*, *subobliquata*, *caparona*, *lemoulti*, *pallidicoxis*, *pallidipes* *pujoli*, p. 3, *longipennis*, *conconvipes*, *diversesculpta*, *missionensis*, *subpilipes*, *ordinaria*, p. 4, spp. n., Amer. mer., PIC Echange 34 hors texte.—*S. spinipes* p. 22, *inarmipes*, *submucronata*, *bifoveicollis*, *pilosa*, p. 23, *superba*, *S. (Foveostatira* subg. n. p. 24) *foveicollis*, *atricornis*, *singularithorax*, p. 24, spp. n., Amer. mer., PIC Mélanges 27.—*S. wilsoni*, *pershingi*, *petaini*, *lloydi*, p. 8, *fochi*, *joffrei*, *castelnavi*, *alberti*, p. 9, *allenbyi*, *francheti*, *venizelosi*, *alexandri*, p. 11, spp. n., Amer. mer., also varr. n., PIC Mélanges 29.

ANTHICIDAE, PEDILIDAE, XYLOPHILIDAE.

*Anthicus vassei* sp. n. Mozambique p. 262, PIC Bull. Mus. Paris 23 1917.—*A. gobiensis* sp. n., *biplicatulus* var. n. *latestaceus*, PIC p. 256 Bull. Mus. Paris 23 1917.—*A. bremeri* var. n. *inapicalis*, *humilis* var. *lavagnei* Puel is *peranxious* Rey, p. 67, *carthaginiensis* var. n. *subopaculus* p. 68, PIC Misc. ent. 24 1919.—*A. humilis* *lavagnei*, *bremeri* *pseudo-lavagnei*, abb. n., p. 55, PUEL Misc. ent. 24 1919.—*A. obscuripes*, habits, NORMAND p. 79 Bull. Soc. ent. France 1918.

*Cadogenius* gen. n. near *Eurygenius* p. 212, *ohausi* sp. n. Ecuador p. 213 fig., HELLER Ent. Mitt. 12.

*Formicomus vassei* p. 261, *obconiceps* p. 262, spp. n. Mozambique, PIC Bull. Mus. Paris 23 1917.

*Xylophilus (Euglenes) atronotatus* Africa p. 259, *H. genjiensis* India p. 260, spp. n., PIC Bull. Mus. Paris 23 1917.

*Hypaspistes pubescens* sp. n. Mozambique p. 260, PIC T.c. 1917.

*Notoxus dilaticornis* sp. n. Mozambique p. 261, PIC T.c. 1917.

*Pedilus signatipennis* sp. n. Turkestan p. 200, FLEISCHER Wien. ent. Zeit. 37.

*Pseudonotoxus vicinus* sp. n. Congo p. 261, PIC T.c. 1917.

*Xylophilostenus* gen. n., *octophyllus* sp. n. Tasmania pl. xxix f. 2, LEA p. 563 P. Linn. Soc. N.S.W. 42 1917.

*Xylophilus microcerus* p. 547 pl. xxix f. 1, *intricatus* p. 548, Australia, *pentaphyllus* Tasmania p. 550, *spinipes* p. 551, *opacicollis* p. 552, *longicarpus* p. 553, Australia, *microderes*, *impresiceps*, p. 554, *variicornis* p. 555, *micromelas* p. 556, Tasmania, *bimaculiventris* N.S.W. p. 557, *convexiceps* p. 558, *inflatipennis* p. 561, *villosicornis* p. 562, Tasmania, *subseraticornis* Australia p. 560, spp. n., LEA, T.c. 1917.

MORDELLIDAE.

*Anaspis bilaciniata*, *helvetica*, spp. n., p. 14, *thoracica* varr. n. *marialis* and *notatithorax* p. 14, *flava* var. n. *fauconneti* p. 13, PIC Echange 34.

*Anthobates = (Pentaria) dispar*, p. 154, *bicolor* p. 155, *pallidus* p. 156, spp. n., U.S., LILJEBLAD Canad. Ent. 50.

*Diclidia propinqua*, *greeni*, spp. n. U.S. p. 153, LILJEBLAD T.c.

*Mordellistena frosti* p. 156, *masoni*, *nunenmacheri*, p. 157, spp. n., U.S., LILJEBLAD T.c.

RHIPHIDORIDAE.

*Pelecotomoides subparallela* sp. n. N.S.W. p. 564, LEA P. Linn. Soc. N.S.W. 42 1917.

*Rhipidius* sp. Colombia, HELLER p. 128 Wien. ent. Zeit. 37.

MELOIDAE.

*Epicauta watsoni* sp. n. Florida p. 58, BLATCHLEY Canad. Ent. 50.—*E. lucinati* sp. n. Catamarca p. 360, BRÈTHES Physis 4.

*Lytta vesicatoria*, experiments, HEIKERTINGER Biol. Centralbl. 37 pp. 446-460.

*Lyttalydulus* is a lapsus for *Lyttolydulus*, REITTER p. 124 Wien. ent. Zeit. 34 1915.

*Meloe proscarabaeus*, embryonic period, WALSH p. 162 Ent. Mag. 54.

*Picnoseus*; characters and species, DENIER Bull. Soc. ent. France 1918 pp. 208-210.

*Tegrodera erosa* var. n. *inornata*, BLAISDELL p. 334 Canad. Ent. 50.

*Tetraonyx catamarcensis* sp. n. p. 361, BRÈTHES Physis 4.

## OEDEMERIDAE.

*Anoncodes melanura* ab. n. *obscurata* p. 110, DEPOLI Wien. ent. Zeit. 34 1915.—*A. alpina* ab. n. *cuprea* p. 121, FLEISCHER Wien. ent. Zeit. 36 1917.

*Copidita incisa* p. 569 pl. xxxi f. 4, *pachymera* p. 570 f. 7, *medioglava* p. 571 figs. 5 and 6, *tenicornis* p. 572, *gracilis*, *flava*, p. 573, spp. n. Australia, LEA P. Linn. Soc. N.S.W. 42 1917.

*Dohrnia undulaticollis* sp. n. N.S.W. p. 568, LEA T.C. 1917.

*Oedemera vilis* sp. n. Caucasus p. 44, ROUBAL N. Beitr. syst. Insk. 1 1917.

*Pseudolycus tarsalis* p. 565 pl. xxix f. 3 Tasmania, *bivitticollis* N.S.W. p. 566, spp. n., LEA P. Linn. Soc. N.S.W. 42 1917.

*Xanthochroa barbara* sp. n. Algeria p. 143, PEYERIMHOFF Bull. Soc. ent. France 1918.

## PYTHIDAE.

*Pytho depressus* ab. n. *chloropterus* Holland, EVERETS Ber. Ncd. Ent. Ver. 5 p. 72 and Tydsehr. Ent. 51 p. lii.

*Sphaeriestes*; the british, characters, synonymy, BLAIR pp. 77-84 Ent. Mo. Mag. 54.

## EURYSTETHIDAE OR AEGIALITIDAE.

*Eurystethes subopacus* sp. n. California p. 308, VAN DYKE Ent. News 29.

## CURCULIONIDAE.

Palaearctic Rhynchophora, REITTER Fauna germanica 5 343 pp. 16 pls. 1916.

The Danish Curculionidae (Danish), HANSEN København G.E.C. Gad 1918 342 pp. 151 fig.

The male genitalia of Rhynchophora, SHARP pp. 209-222 pl. ix Tr. ent. soc. London 1918.

*Acaerus*, to *Hylobiinae*, MARSHALL p. 158 Ann. Nat. Hist. 2.

*Acalles*; palaearctic localities, MEYER pp. 396-398 Wien ent. Zeit. 34 1915.—*A. creticus* sp. n. p. 139, REITTER Faun. germ. 5 1916.—*A. punctaticollis*, habits, LICHTENSTEIN p. 254 fig. Bull. soc. ent. France 1918.

*Acythopeus gilvonotatus* sp. n. on orchids at Washington, Philippines? p. 17 pl. iv, BARBER P. ent. Soc. Washington 19.

*Alcides ephippiatus* Ceylon p. 154, *siamodelta* Laos, *javanodelta* Java, p. 155, *ceramodelta* Ceram p. 156, *muiri* Timor-laut p. 157, spp. n., corrections to Catalogue p. 157, MARSHALL Ann. Nat. Hist. 2.—*A. mindanaoensis*, *insularis*, p. 271, *merrilli*, *mindorensis*, p. 272, *luzonensis*, *tagalicus*, p. 273, *cantunduanensis*, *schuetzei*, p. 274, *tuylori* with subsp. *panayensis* p. 275, spp. n. Philippines, SCHULTZE Philipp. J. Sci. D 13.

*Amalorrhynchus* gen. n. p. 179 for *Ceuthorrhynchus melanarius* Steph., REITTER Faun. germ. 5 1916.

*Amalus latibasis* sp. n. West Caucasus p. 179, REITTER T.c.

*Antarctobius rugirostris* p. 53 Tierra del Fuego, *laticauda* Chile p. 54, spp. n., CHAMPION Ent. Mo. Mag. 54.

*Anthonomus grandis*, new food-plant, MCGREGOR p. 78 P. ent. Soc. Washington 20.

*Apion hibisci*, *albidulum*, p. 219, *eccentricum* p. 220, *brunnicornis*, *eriongoni*, *frontellum* p. 221, *pertentum* p. 222, spp. n., U.S., FALL J. N. York ent. Soc. 26.—*A. (Eutrichapion) punctirostre* var. n. *araxellum*, REITTER p. 255 Faun. germ. 5 1916.—*A. aragonicum*, habits, CHOBUAT p. 90 Bull. Soc. ent. France 1918.

*Apoderus horridulus* p. 139, *tessmanni*, *rothkirchi*, p. 143, spp. n. Africa, KUNTZEN Mitt. zool. Mus. Berlin 8 1915.

*Attelabus nitens* var. n. *fascicollis* and *rubricollis*, Araxes, REITTER p. 267 Faun. germ. 5 1916.

†*Balaninus*? *becklyi* sp. n. Coalmont U.S. p. 307 figs., COCKERELL P. U.S. Nat. Mus. 54.

*Bothynoderes*, the French species, PUEL pp. 45-48 Misc. ent. 24 1919.

†*Calandrites*? *ursorum* sp. n. Colorado eocene p. 308 fig., COCKERELL P. U.S. Nat. Mus. 54.

*Calendra* versus *Calandra*, LENG p. 210 J. N. York ent. Soc. 26.

*Calidiopsis lineata* sp. n. Mindanao p. 376 pl. i f. 5, SCHULTZE Philipp. J. Sci. D 13.

*Callistolixus* subg. n. p. 90, *L. cylindricus*, REITTER Faun. germ. 5 1916.

*Catasarcus*; notes and synonymy, LEA pp. 265–267 Tr. R. Soc. S. Austr. 42.

*Cathormiocerinus* subg. n. for *Cathormiocerus globulosus* Esc., ESCALERA p. 9 Trab. Mus. Madrid Zool. 38.

*Cathormiocerus*, the Spanish and Mogador, pp. 1–64, *atlanticus* n. n. for *hystrix* Esc. p. 13, *impunctatus* p. 14 sp. n. Mogador, *maritimus* var. n. *armoricus* p. 17, *mogadoricus* p. 18, *gaditanus* p. 21, *estrellanus* p. 25, *nevadensis* p. 32, *alticola*, *moroderi* p. 34, *C.* (*Scharmus*) *championi* p. 36, *seguranus* p. 37, *martinegi* p. 39, *tenuicornis*, *salinus* p. 40, *transmontanus* p. 43, *terolensis* p. 45, *biseriatus* p. 47, *bacaresonsis* p. 50, *inflaticapus* p. 56, *crassiscapus* p. 57, spp. n., ESCALERA T.c.

*Ceuthorrhynchus doderoi* sp. n. Sardinia p. 74, HUSTACHE Ann. Mus. Genova 48.—*C.* (*Oprohinus*) *coelioides* sp. n. Valencia p. 165, *C. viridipennis* var. n. *julianus* Grecco p. 172, REITTER Faun. germ. 5 1916.

*Chaerodrosus* subg. n. of *Polydrosus* for *Foucارتيا karamani*, REITTER p. 57 T.c. 1916.

*Chiloncus gabrieli* Greece, *ruficornis* (All.) Constantine, p. 189, *scythropoides*, *sitoniformis* Palestine, p. 190, spp. n., REITTER Wien. ent. Zeit. 34 1915.

*Chilonorrhinus* gen. n. p. 190 near *Chiloncus*, *sitonoides* Algeria, *sahlbergi* Jericho, spp. n. p. 191, REITTER T.c. 1915.

*Chloëbius aksuanus*, *julduanus*, p. 106, *nasalis* Turkestan, *mandschuricus* p. 107, spp. n., REITTER T.c. 1915.

*Chlorophanus*, table pp. 171–184; *fumigatus* Adana, *argentatus* Gobi, p. 173, *rubripes* Mantchuria p. 174, *plicatirostris*, p. 175, *peregrinus* p. 176, Transbaikal, *circassicus* p. 180, *anatolicus* p. 182, spp. n., REITTER T.c. 1915.—*C. kubanicus* Caucasus, *tokatensis*, spp. n. p. 81, REITTER T.c. 1916.

*Cholus cattleyae* = (*cattleyarum* B.) p. 14, *forbesii* Pasc. pl. iv figs. 1 & 1A p. 15, BARBER P. ent. Soc. Washington 19.

*Cionus tonkinensis* p. 308 sp. n. Tonkin, WINGELMÜLLER Wien. ent. Zeit. 34 1915.

*Compsolixus* subg. n. p. 90, *L. junci* and *ascanii*, REITTER Faun. germ. 7 1916.

*Corigetus heikertingeri* sp. n. Aulic-Ata p. 123, REITTER Wien. ent. Zeit. 34 1915.

*Craponius ianequalis*, BROOKS pp. 1–19 Bull. U.S. Dep. Agric. 730.

*Ctenaphides maculatus* Pasc. (as *Eurhynchus*) = (*gymnostictus* Lea), LEA p. 270 Tr. R. Soc. S. Austr. 42.

*Cylus*; the species, pls. xxxi & xxxii, p. 605, larva pl. xxxiv, PIERCE J. Agric. Res. 12.

*Cylindrobarris* gen. n. p. 8, *ornata* sp. n. Nyasaland p. 11 pl. i MARSHALL Ann. Nat. Hist. 1.

*Decilaus infaustus* Pasc. (as *Drassicus*) = (*coryssopus* Lea), LEA p. 271 Tr. R. Soc. S. Austr. 42.

*Deiradognathus* gen. n. p. 4 near *Haplocorynus*, *fasciatus* sp. n. Rhodesia p. 6 pl. i, MARSHALL Ann. Nat. Hist. 1.

*Dieletus* subg. n. pp. 40 & 44, *Phyllobius argentatus* L., REITTER Faun. germ. 5 1916.

*Dilixellus* subg. n. p. 91, *Ileomus ferrugatus* and *bardanae*, REITTER T.c. 1916.

*Diodyrhynchus austriacus* var. n. *fulvipennis*, REITTER p. 260 T.c. 1916.

*Dionorenus* subg. n. of *Ceuthorrhynchus*, *C. squamulosus* Bris., etc., REITTER p. 153 T.c. 1916.

*Diplapion* subg. n. for *A. confluentis* etc., REITTER p. 241 T.c. 1916.

*Drusenatus* gen. n. pp. 175 & 180 for *Poophagus nasturtii*, REITTER T.c. 1916.

*Elleschus scanicus* = (*Dorytomus nothus* Rey), HUSTACHE p. 38 Misc. ent. 24 1919.

*Epacticus suturalis* p. 574, *aspratilis* p. 575, spp. n. Australia, LEA P. Linn Soc. N.S.W. 42 1917.

- Erythraption* p. 3, *desideratum* p. 4, *fraudator* p. 5, *brachypterum* p. 7, spp. n. England, SHARP, Ent. Mo. Mag. 54.
- Essolithna* = (*Chaodius*), LEA p. 264 Tr. R. Soc. S. Austr. 42.
- Ethelcus* subg. n. of *Ceuthorrhynchus*, *pollinarius* etc., REITTER p. 152 Faun. germ. 5 1916.
- Eucactophagus weissi* orchid-houses Washington p. 21 pl. iv figs. 4a and b, *biocellatus* Panama p. 22 f. 5 spp. n., BARBER P. ent. Soc. Washington 19.
- Eudocimus* n. n. for *Eudocimus* Schönh., LENG p. 210 J. N. York ent. Soc. 26.
- Eulixus* subg. n. *Lix. iridis*, REITTER p. 90 Faun. germ. 5 1916.
- Euolamus* subg. n. of *Dorytomus* p. 198, *hirtipennis* Bed., REITTER T.c. 1916.
- Euscepes batatac* pl. 32 f.e. metamorphosis, PIERCE p. 608 figs. J. Agric. Res. 12.
- Eutrachapion* subg. n. p. 243, *A. columbinum*, *spenci*, etc., REITTER Faun. germ. 5 1916.
- Euvolvulus* subg. n. of *Rhynchites* for *cupreus*, REITTER p. 262 T.c. 1916.
- Falklandius inaequalis* sp. n. Falkland islds. p. 184, CHAMPION Ann. Nat. Hist. 1.
- Glocianus* subg. n. of *Ceuthorrhynchus* p. 153, *C. punctiger* etc., REITTER Faun. germ. 5 1916.
- Gymnetron hispidum* and allies, synonymy, HUSTACHE p. 39 Misc. ent. 24 1919.
- Hadrophyes* subg. n. of *Corimalia* for *auletoides* R., REITTER p. 239 Faun. germ. 5 1916.
- Hapaliscus* subg. n. p. 91, *L. noctuinus* etc., REITTER T.c. 1916.
- Haplonyx*; notes, LEA p. 270 Tr. R. Soc. S. Austr. 42.
- Haversia* gen. n. *Erirrhinides* p. 185, *albolimbata* sp. n. Falkland islds. p. 186, CHAMPION Ann. Nat. Hist. 1.
- Homalocyrus pretiosus* sp. n. Luzon p. 375 fig. 9, SCHULTZE Philipp. J. Sci. D 13.
- Hormops*; taxonomy etc., BLATCHEY p. 155 J. N. York ent. Soc. 26.
- Hypera bidentata* sp. n. Falkland islands p. 176, CHAMPION Ann. Nat. Hist. 1.
- Hypophyes* subg. n. of *Corimalia*, *C. pallidulus* auctt., REITTER p. 239 Faun. germ. 5 1916.
- Ithycerus*; to *Belidae*, ♂ genitalia, SHARP p. 215 pl. x J. N. York ent. Soc. 26.
- Listroderes quadrituberculatus* p. 51, *katerensis* p. 52, spp. n. Tierra del Fuego, CHAMPION Ent. Mo. Mag. 54.—*L. biangulatus* p. 177, *griseonotatus* p. 179, spp. n. Falkland islds., CHAMPION Ann. Nat. Hist. 1
- Litodactylus leucogaster* subsp. n. *semiruber* Corfu, REITTER p. 177 Faun. germ. 5 1916.
- Lixestus* subg. n. for *Lixus vibex*, REITTER p. 89 T.c. 1916.
- Lixochelus* subg. n. p. 91, *L. elongatus* and *cardui*, REITTER T.c. 1916.
- Lixoglyptus* subg. n. p. 91 for *L. spartii* etc., REITTER T.c. 1916.
- Lixopachys* subg. n. p. 91 for *Lixocleoniformis*, REITTER T.c. 1916.
- Lycosura breweri* Pasc. (as *Pantoreites*) = (*inermis* Lea), LEA p. 268 Tr. R. Soc. S. Austr. 42.
- Macrocyrtus ilocanus* sp. n. Luzon p. 372 fig. 10, SCHULTZE Philipp. J. Sci. D 13.
- Magdalininae*; the North-american genera and groups, PIERCE pp. 73-78 P. ent. Soc. Washington 20.
- Magdalinus*, table of N.-american, ID. p. 75 T.c.
- Magdalis altaiensis* sp. n., REITTER p. 125 Faun. germ. 5 1916.
- Marklissus* subg. n. of *Ceuthorrhynchus*, *C. quadridens* etc., REITTER p. 153 T.c. 1916.
- Mecistocerus aloes* sp. n. Transvaal p. 7, MARSHALL Ann. Nat. Hist. 1.
- Mecocorynus*, localities, pp. 448-451, KUNTZEN D.E.Z. 1914.
- Mesagroicus hofferi*, sp. n. Rumania p. 219, PENECKE Wien. ent. Zeit. 36 1917.

*Metapocyrtus chrysogrammus* sp. n. Philippines p. 453 pl. xiii figs. 3 & 4, KUNTZEN D.E.Z. 1914.—*M. (Artapocyrtus) panayensis* p. 373 f. 4, *M. (Orthocyrtus) orbiferooides* f. 7, *M. congestus* f. 3, p. 374, spp. n. Philippines, SCHULTZE Philipp. J. Sci. D 13.

*Mogulones* subgen. n. of *Ceutorrhynchus*, *geographicus* etc., REITTER p. 152 Faun. germ. 5 1916.

*Myllocerops flicicornis* Ussuri p. 119, *fortis* China p. 120, *sectator*, *mitis*, Mantchuria p. 121, spp. n., REITTER Wien. ent. Zeit. 34 1915.

*Myllocerus laticornis* p. 121, *illitus* p. 122, *setarius* p. 123, spp. n. China, REITTER T.c. 1915.

*Nanoschetus* subgen. n. type *Phyll. cylindricollis* Gyll., REITTER Faun. germ. 5 1916.

*Neopanus* subgen. n. of *Magdalis*, *cerasi* L., REITTER p. 123 T.c. 1916.

*Neripletenus* subgen. n. *Phyllobius*, *P. singularis* sp. n. Kultscha, REITTER T.c. p. 41 1916.

*Olamus* subgen. n. of *Dorytomus* p. 198, *D. rufulus* etc., etc., REITTER T.c. 1916.

*Omydaus luridus* = (*fuliginosus* = *A. = immansuetus* = *plinthoides*), LEA p. 272 Tr. R. Soc. S. Austr. 42.

*Oprohinus* subgen. n. of *Ceuthorrhynchus*, *C. suturalis*, etc., REITTER p. 153 Faun. germ. 5 1916.

*Opsittis atomaria* = (*Sediantha maritima* Lea), LEA p. 268 Tr. R. Soc. S. Austr. 42.

*Orethelcus* subgen. n. of *Ceuthorrhynchus* p. 151, *C. dohrni* Faust, REITTER Faun. germ. 5 1916.

*Ortholixus* subgen. n. for *L. sanguineus*, REITTER p. 90 T.c. 1916.

*Osmichanes* subgen. n. type *Phyll. serripes* Desb., REITTER T.c. 1916.

*Otiorrhynchus guttatus* Laibach p. 338, *O. (Arammichnus) subopacus* Syria p. 340, spp. n., PETRI Wien. ent. Zeit. 34 1915.—*O. caestipes*, PLANET p. 226 Bull. Soc. ent. France 1918.

*Oxyops gemella*, LEA p. 268 Tr. R. Soc. S. Austr. 42.

*Pachyporopterus satyrus* P. = (*inominatus* P.), LEA p. 271 T.c.

*Pachyrrhynchus helleri* sp. n. Luzon p. 452 pl. xiii figs. 1 & 2, KUNTZEN D.E.Z. 1914.—*P. venustus*, early stages, p. 276, figs., SCHULTZE Philipp. J. Sci. D 13.

*Palaeopus costicollis* Jamaica p. 269 fig., *grenadensis* Grenada, *subgranulatus* St. Vincent p. 271, spp. n., MARSHALL Bull. ent. Res. 8.—*P. diascorae* sp. n. Jamaica p. 611 pl. 32 f. E., PIERCE J. Agric. Res. 12.

*Phrenoemia*; taxonomy, LEA p. 269 Tr. R. Soc. S. Austr. 42.

*Phyllobius (Ustavenus)* subgen. n.) *nudiamphus* sp. n. Mardin, REITTER Faun. germ. 5 1916.—*P. calcaratus* variation, heredity, EDWARDS p. 105 Ent. Mo. Mag. 54.

*Phytonomus fulvonotatus, fulvilineatus*, spp. n. Algeria p. 24, PIC Echange 34.

*Piezocorynus virginicus* sp. n. U.S., LENG p. 11 J. N. York ent. Soc. 26.

*Pirapion* subgen. n. of *Apion* p. 243, *striatum* and *immune*, REITTER Faun. germ. 5 1916.

*Platymycterus* gen. n. for part of *Corigetus* type *C. feae* p. 245, *deceptor* p. 248, *himalayensis* p. 249, *moestus* p. 250, *kashmirensis, sjocstedti*, p. 251, spp. n. India, MARSHALL Ann. Nat. Hist. 1.

*Polycatus panayensis* sp. n. Philippines p. 376 fig. 8, SCHULTZE Philipp. J. Sci. D 13.

*Polydrosus cervinus* var. n. *subnudus* Holland, EVERTS Ber. Ned. Ent. Ver. 5 p. 46.

*Prenesdus* subgen. n. of *Ceuthorrhynchus*, *C. inhumeralis* Schultze, REITTER p. 153 Faun. germ. 5 1916.

*Prisistus* subgen. n. of *Ceuthorrhynchus*, *caucasicus* Kirsch, REITTER p. 152 T.c. 1916.

*Proapocyrtus* gen. n. near *Apocyrtus insularis* sp. n. Philippines fig. 1, SCHULTZE p. 371 Philipp. J. Sci. D 13.

*Psalidium*, localities, corbels etc., HELLER pp. 191–193 Wien. ent. Zeit. 34 1915.

*Psalidura*; male structure, GAHAN p. cxx Pr. ent. Soc. London 1917.

*Pseudanthonomus validus*, life-history, Woods pp. 270-276 figs. Bull. Maine exp. Stat. 244 1915.

*Pseudapocyrtus multimaculatus* sp. n. Luzon p. 372 fig. 2, SCHULTZE Philipp. J. Sci. D 13.

*Pseudostyphlus orthochaetinus* sp. n. Altai, REITTER p. 197 Faun. germ. 5 1916.

*Ptochus eurynotus, csikii*, Mongolia, p. 117, *mithras* Manchuria p. 118, spp. n., REITTER Wien. ent. Zeit. 34 1915.

*Raymondionymus benjami*, variation, DODERO p. 110 Butll. Inst. catalun. 1918.—*R. marqueti*, distribution, LICHTENSTEIN pp. 17 & 18 Miscell. ent. 24.

*Rhinoncus sanguinipes* sp. n. Hanover p. 176, REITTER Faun. germ. 5 1916.

*Rhynchites (Pselaphorhynchites) rubripes* sp. n. Transbaikal p. 263, REITTER T.c. 1916.

*Rhynchophorus palmarum* in U.S., SHARP p. 225 J. N. York ent. Soc. 26.

*Rhytidoderes albidus* sp. n. Amasia, PETRI Wien. ent. Zeit. 34 1915.

*Sphrigodes gunni* sp. n. Transvaal p. 2 pl. i f. 1, MARSHALL Ann. Nat. Hist. 1.

*Stephanocleonus hexagraptus* sp. n. Mongolia p. 343, PETRI Wien. ent. Zeit. 34 1915.

*Stereonychus hemileucus* sp. n. Tonkin p. 309, WINGELMÜLLER Wien. ent. Zeit. 34 1915.—*S. gibbifrons*, habits, LICHTENSTEIN p. 94 Bull. Soc. ent. France 1918.

*Sympiezomias cupreovirens* sp. n. Natal p. 1, MARSHALL Ann. Nat. Hist. 1.

*Sysciophthalmus crawshayi* sp. n. Tierra del Fuego, CHAMPION Ent. Mo. Mag. 54 p. 35; on p. 64 this is identified with *Anomphthalmus insolitus* Fairm.

*Taphrotopium* subgen. n. of *Apion* p. 241, for *A. sulcifrons* and *brunnipes*, REITTER Faun. germ. 5 1916.

*Trachytlixus* subgen. n. for *Lix. vulneratus*, REITTER p. 91 T.c. 1916.

*Trachyphloeus ascendens* sp. n. Algeria p. 258, PEYERIMHOFF Bull. Soc. ent. France 1918 1919.

*Trypopermnon sanfordi* sp. n. Peru p. 603 pl. 28, PIERCE J. Agric. Res. 12.

*Tychius maximus* Merv p. 341, *griseus* Turkestan, *T. (Miccotrogus) pubicollis* Transcaspian, p. 342, spp. n., PETRI Wien. ent. Zeit. 34 1915.

*Tylodrusinus* subgen. n. of *Polydrosus, julianus* sp. n. Kultscha, REITTER p. 56 Faun. germ. 5 1916.

*Udanellus* subgen. n. pp. 41 & 45, *Phyllobius brevis* Gyll. etc., REITTER 1916.

*Ustavenus* subgen. n. pp. 41 & 43, *Phyllobius piri* Linn., REITTER T.c. 1916.

*Zacladus* nom. n. for *Allodactylus* Weise, REITTER p. 143 T.c. 1916.

#### SCOLYTIDÆ.

*Scolytidae*, not *Ipidæ*, LENG p. 210 J.N. York ent. Soc. 26.

*Scolytidae (Ipidæ)* of Centr. Europe, REITTER Faun. germ. 5, 1916 pp. 269-306 pls. 167 & 168.

*Scolytidae* of Canada, 143 pp., 31 pls., SWAINE Bull. 14 Canad. Dep. Agric. Ent.

*Alniphagus* gen. n. type *Hylesinus aspericollis* Lec., SWAINE p. 73 T.c.

*Carphoborus radiatae* sp. n. California p. 57, SWAINE T.c.

*Cryphalus canadensis* Chamberlain sp. n., SWAINE p. 88 T.c.

*Hylastes longicollis* sp. n. Idaho p. 79, SWAINE T.c.

*Hylurgopinus* gen. n. type *Hylastes rufipes* Eich., SWAINE p. 74 T.c.

*Hypothenemus ritchiei* sp. n. Jamaica p. 295, SAMFSON Bull. ent. Res. 8.

*Ips laticollis* p. 116, *dubius* p. 119, spp. n., Canada, SWAINE Bull. Dep. Agric. Ent. Canada 14.

*Leperisinus criddlei* sp. n. Quebec p. 72, SWAINE T.c.

*Phloeosinus prostratus* sp. n. Algeria p. 259, PEYERIMHOFF Bull. Soc. ent. France 1918 1919.

*Pityophthorus pseudotugae* p. 99, *carmeli* p. 100, *torreyanae* p. 101, *ser-ratus* p. 103, spp. n. U.S., SWAINE Bull. Dep. Agric. Ent. Canada 14.

*Pityogenes knechteli* sp. n. Alberta p. 106, SWAINE T.c.

*Pseudopityophthorus* gen. n. type *minatissimus* Zimm., SWAINE p. 93 T.c.

*Xyloterinus* gen. n. type *Bostrichus pallipes* Say, SWAINE p. 83 T.c.

## ANTHRIBIDAE.

*Anthrribus subroseus* sp. n. Greece p. 9, REITTER Faun. germ. 5 1916.

*Rhaphitropis* subgen. n. p. 7 for *Tropideres* part (*oxyacanthae*, etc.) REITTER T.c. 1916.

*Tropiderinus* subgen. n. p. 5 for *Tropideres munieri* Bed., REITTER T.c. 1916.

## CERAMBYCIDAE.

Annotated list of California Cerambycidae, 226 spp., GARNETT Canad. Ent. 50 pp. 172, etc.

Larva believed to be 40 years old, JACQUES p. 175 Pr. Iowa Ac. 25.

*Acanthocinus aeditis*, habits, importation, BARTLETT p. 137 Ent. Mo. Mag. 54.

*Agapanthia simplicicornis* ab. n. *hegyrovskyi*, ROUBAL p. 63 N. Beitr. syst. Insk. 1 1917.—*A. cardui* var. n. *ruficornis* p. 5, PIC Exchange 34.

*Akimerus berchmansii* sp. n. Akbes p. 353, BREIT Wien. ent. Zeit. 34 1915.

*Anoplistes diabolicus* sp. n. Siberia p. 170, REITTER Wien. ent. Zeit. 34 1915.

*Anthophilax viridis viridipennis* subsp. n. p. 416, CASEY Mem. Col. 8.

*Apomecyna multinotata* p. 5, *multinotata*, *excavaticeps*, China, *maculaticollis* Formosa, p. 6, spp. n., *niveosparsa* var. n. *tonkinea* p. 5, PIC Mélanges 28.

*Bethelium*, varieties and synonymy pp. 89–91, *subopacum* sp. n. Cairns p. 92, LEA Rec. S. Austral. Mus. 1.

*Bebius cylindricus* sp. n. Adelaide p. 92 pl. ix. f. 6, LEA T.c.

*Calliopedia* subg. n. vide *Rhopalopus*.

*Centrodera decolorata lacustris* subsp. n. p. 416, CASEY Mem. Col. 8.

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*Chlorophorus inhumeralis* Yunnan, *tainanensis* Formosa, spp. n., *subobliteratus* n. n. for *obliteratus* P., PIC p. 4 Mélanges 28.—*C. clemenceau* sp. n. Tonkin p. 7, PIC Mélanges 29.—*C. nigripes* var. n. *perfidus*, *nivipictus* var. n. *persicus*, BREIT p. 355 Wien. ent. Zeit. 34 1915.

*Clytus devastator*, habits, BACK p. 411 pl. xii J. econ. Ent. 11.—*C. arcuatus* larva, ambulatory processes, TEODORO pp. 99–103 Redia 13 figs.

*Conizonia* [sic] *guerini* var. n. *luteopubens* p. 17, *Gonizonia* [sic] *guerini* var. n. *lineata* p. 11, PIC Exchange 34.

*Demonax subobscuricolor* sp. n. Yunnan p. 5, PIC Mélanges 28.—*D. fochi* Tonkin, *marnei* Yunnan, spp. n., p. 7, PIC Mélanges 29.

*Dimorphocosmisoma* gen. n. near *Cosmisoma*, *diversicornis* sp. n. Yunnan, PIC p. 6 Exchange 34.

*Doliops imitator* sp. n. Luzon p. 377 f. 6, SCHULTZE Philipp. J. Sci. D 13.

*Dorcadion 4-maculatum* var. n. *clementinum* p. 11, PIC Exchange 34.

*Eupogonius fraxini* sp. n. Pennsylvania, KNULL p. 132 Ent. News 29.

*Evodinus bifasciatus* var. n. *plasoni*, BREIT p. 353 Wien. ent. Zeit. 34 1915.

*Exocentrus curtipennis* sp. n. Japan p. 10, PIC Mélanges 27.

*Falsodebilis* gen. n. near *Ischnorrhabda* p. 9, *metallica* sp. n. Yunnan p. 10, PIC Mélanges 27.

*Geropa* (as *Achryson*) *concolor* Lec. = (*aequicollis* C.), CASEY p. 415 Mem. col. 8.

*Homoemota tricolor* sp. n. N.S. Wales p. 94, LEA Rec. S. Austral. Mus. 1.

*Idoemea* = (*Malthophia* C.), CASEY p. 415 Mem. col. 8.

*Lamia aeditis*, metamorphosis, BARBEY Bull. Soc. Vaud. 51 pp. 577–582 6 pls.

*Leptorhaddium* and *Xylosteus*, confusion, PIC p. 23 Exchange 34.

*Leptura hybridula* var. n. *atronotata* p. 5, PIC T.c.

*Lepturges spermophagus* sp. n. Mexico p. 173, FISHER P. ent. Soc. Washington 19.

*Lychrosia albonotatus* sp. n. Tonkin p. 10, PIC Mélanges 27.

*Merionoeda australiae* sp. n. Queensland p. 576 pl. xxix f. 8, LEA P. Linn. Soc. N.S.W. 42 1917.

*Mesolita scutellata, interrupta*, p. 99, *ephippiata* p. 101, *myrmecophila* p. 102, spp. n., Australia, figs., LEA Rec. S. Austral. Mus. 1.

*Microclytus gazellula* and *gibbulus*, LENG p. 8 J. N. York Ent. Soc. 26.

*Neodorcadion quadrilineatum* sp. n. Mongolia p. 355, BREIT Wien. ent. Zeit. 34 1915.

*Nothorrhina muricata* metamorphosis, KEMNER Ent. Tidskr. 39 p. 322 figs. 1-7.

*Oberia pupillata* var. n. *luteonotata*, p. 5, PIC Echange 34.

*Ochyra variabilis* sp. n. W. Australia p. 93, LEA Rec. S. Austral. Mus. 1.

*Perissus thibetanus, biluteofasciatus* Tonkin, spp. n. p. 5, PIC Mélanges 28.

*Phoracantha semipunctata* in Argentina, fig., BRUCH p. 354 Physis 4.

*Plagionotus arcuatus* var. n. *martialis* p. 15, PIC Echange 34.

*Pogonochaerus tuberculatus* sp. n. Japan p. 10, PIC Mélanges 27.—*P. caroli icosiensis* subsp. n. p. 143, PEYERIMHOFF Bull. Soc. ent. France 1918.

*Protamnernus trimaculatus* sp. n. Queensland p. 98 f. 8, LEA Rec. S. Austral. Mus. 1.

*Purpuricenus goetzei, frommi*, p. 37, spp. n., Africa, *laetus* subsp. n. *glauvingi, kambanus, cubalicus*, p. 36, KUNTZEN Mitt. Zool. Mus. Berlin 8 1915.

*Rhagium bifasciatum* ab. n. *connexum* Holland, EVERTS Ber. Ned. Ent. Ver. 5 p. 73.

*Rhesus caesariensis* sp. n. Syria p. 10, PIC Echange 34.

*Rhopalopus* (*Calliopedia* subg. n.) *reitteri* sp. n. Austria p. 186, BINDER Wien. ent. Zeit. 34 1915.

*Saperda punctata* var. n. *gallica* p. 5, PIC Echange 34.

*Stenopterus ater* varr. n. *theryi* and *ruficollis* p. 23, PIC T.c.

*Stenostola*, the species, MÜLLER pp. 293-297 Wien. ent. Zeit. 34 1915.

*Strangalia aurulenta* ab. n. *reducta* p. 121, FLEISCHER Wien. ent. Zeit. 36 1917.

*Tetraopes collaris* (= *vegansensis* C.), CASEY p. 416 Mem. Col. 8.

*Tetropium castaneum* var. n. *rufomarginatum*, ROUBAL p. 64 N. Beitr. syst. Insk. 1 1917.

*Tetrops praeusta* var. n. *angorensis* p. 11, PIC Echange 34.

*Tillomorpha mediofasciata* sp. n. p. 95 pl. ix. f. 7 Queensland, *nirogastru* p. 96 Lord Howe isld., spp. n., LEA Rec. S. Austral. Mus. 1.

#### BRUCHIDAE.

*Bruchidae* and parasites in Hawaii, oviposition, BRIDWELL pp. 465-505 P. hawai. ent. Soc. 3.

*Bruchus michaelsoni, cavithorax*, spp. n., Africa p. 287, PIC Beitr. Landf. Sudwestafrik. 1.

*Spermophagus multilineolatus* Yunnan, *semiannulatus* Manilla, p. 7, *javanus, kiotensis, minasensis, longicornis*, p. 8, *latipennis, fulvopubens*, Africa, *sinensis*, p. 9, spp. n., PIC Mélanges 27.

#### CHRYSOMELIDAE.

The male and female structures, and functions, HARNISCH Zeitschr. wiss. Zool. 114 pp. 1-94 pl. 1915.

*Altica bimarginata*, life-history, etc., WOODS Bull. Maine exp. Stat. 265 pp. 249-284, 4 pls.; alimentary canal, WOODS Ann. ent. Soc. Amer. 11 pp. 283-313 2 pls.—*A. corni* p. 156, *rosae* p. 174, *ulmi* p. 182, spp. n., U.S., natural history, WOODS Bull. Maine exp. Stat. 273.

*Anteriscus fuelleborni* p. 453, *transvaalensis* p. 454, *bistriatus* p. 455, *venustus* p. 456, *baumanni* p. 457, *zenkeri* p. 459, *holdhausi* p. 460, *ahlwarthi* p. 461, spp. n., Africa, REINECK Mitt. Zool. Mus. Berlin 7 1915.

*Aphthona damarorum* p. 269, *relucens* p. 270, spp. n., Africa, WEISE Beitr. Landf. Sudwestafrik. 1.



*Arsipoda kingensis* distinct from *variegata*, LEA p. 274 Tr. R. Soc. S. Austr. 42.

*Aspidomorpha birmanica* p. 544, *andrewesi* Nilgiri hills p. 546, spp. n., SPAETH D.E.Z. 1914.—*A. chandrika* p. 322 fig., *spæthi* p. 324, spp. n., India, MAULIK Ann. Nat. Hist. 1.

*Aulonodera* gen. n. near *Longitarsus* p. 50, *darwini* sp. n. Chile p. 51, CHAMPION Ent. Mo. Mag. 54.

*Calopepla reicheana* to *Epistictia* = (*selecta* Boh.), MAULIK pp. 74-76, fig. Ann. Nat. Hist. 1.

*Cassida nilgirica* p. 549, *petulans* p. 550, *saginata* p. 553, *iusta* p. 554, *flavoguttata* p. 555, *flavoscutata* p. 556, *aspectabilis* p. 557, *ellipticollis* p. 558, *occursans* p. 560, India, *corruptrix* p. 561, *fumida* p. 562, Burma, spp. n., SPAETH D.E.Z. 1914.—*C. fastuosa*, food-plants, DONISTHORPE p. xlvii Pr. ent. Soc. London 1917.

*Chaetocnema compressa* ab. n. *aeneicollis* p. 122, FLEISCHER Wien. ent. Zeit. 36 1917.

*Chalcoides fulvipennis* sp. n. Spain p. 18, *aurea* subsp. n. *syriaca*, var. n. *purpurascens*, *aurata* var. n. *subunicolor*, *fulvicornis* var. n. *libanicola*, *plutus* var. n. *punctatithorax*, *gemmata* var. n. *semiviridis* and *semicyaneus* p. 19, PIC Echange 34.

*Chalepus rubra*, natural history p. 398 pl. xi, NICOLAY & WEISS Canad. Ent. 50.

*Chesomela* gen. n. p. 260 near *Melasma*, *hottentotta* sp. n. Africa p. 261, WEISE Beitr. Landf. Sudwestafrik. 1.

*Chrysmela fastuosa* ab. n. *obscura* p. 121, FLEISCHER Wien. ent. Zeit. 36 1917.—*C. varians* ab. n. *pulchella* p. 76, FLEISCHER Wien. ent. Zeit. 37.

*Chytra nigrocincta* varr. n. *cyprica* p. 11, *remireducta* p. 15, PIC Echange 34.

*Colasposoma varendorffi* sp. n. Africa p. 256, WEISE Beitr. Landf. Sudwestafrik. 1.

*Coptocephala sexstigma* sp. n. Algeria p. 17 with var. *impressiceps* p. 18, *melanocephala* varr. n. *theryi andalusiacae*, *rubicunda* var. n. *dalmatina* p. 17, *aeneopicta* varr. n. *biinterrupta*,

(n-5464 f)

*biscrensis* and *trimaculata* p. 23, PIC Echange 34.—*C. scopolina* ab. n. *inornata*, FLEISCHER p. 106 Wien. ent. Zeit. 37.—*C. floralis* ab. n. *humeralis*, FUENTE p. 46 Bol. Soc. Ent. Españ. 1.

*Coptocycla sigillata* Gorb., SPAETH p. 363 Wien. ent. Zeit. 34 1915.

*Crioceris fuscomaculata*, variation, LEA p. 273 Tr. R. Soc. S. Austr. 42.

*Cryptocephalus tibetanus* p. 35, *dorsiger* Turkestan p. 36, *leonhardi* Italy p. 42, spp. n., notes on the genitalia with figs. and varr. n. of the *sericeus* and *violaceus* groups, BREIT Wien. ent. Zeit. 37.—*C. clytomorphus* p. 395, *sudanensis* p. 397, *herero* p. 398, *egues* p. 399, *eurygraphus* p. 400, *pantherinus* p. 401, *menelik* p. 402, *craspedotus* p. 403, *tesmanni* p. 404, *clavurecevi* p. 407, *frommi* p. 409, *maceratus* p. 416, *methneri* p. 420, *mesomelas* p. 423, *flavapex*, *kunzeni*, p. 425, *scabiosus*, *aduanus*, p. 431, *oricola* p. 433, *tritransversatus* p. 434, *evanescens* p. 435, *dimorphisticus* p. 436, *diadema* p. 438, *graueri* p. 440, *lasureus*, *pyrrhocnemis* p. 442, *procerulus* p. 446, spp. n., Africa, *moliroensis* n. n. for *strigicollis* Jac. p. 446, REINECK Mitt. Zool. Mus. Berlin 7 1915.—*C. majoricensis* sp. n. Mallorca p. 44, FUENTE Bol. Soc. ent. Españ. 1.—*C. 6-punctatus* var. n. *subnigrofasciatus*, *8-punctatus* varr. n. *subhumeralis*, *colmarensis*, *multiinterruptus*, p. 23, and *sanguinariarius* p. 24, PIC Echange 34.

*Dactylispa desertorum* sp. n. Africa p. 271, WEISE Beitr. Landf. Sudwestafrik. 1.—*D. xanthopus*, variation, figs., MAULIK pp. 70-74 Ann. Nat. Hist. 1.

*Diabrotica balleata*, hibernation, SELL pp. 93-98 Ent. News 29.

*Diaphanops westermanni* = (*meyricki* and *parallelus* Bl.), LEA p. 272 Tr. R. Soc. S. Austr. 42.

*Docemina* gen. n. near *Docema* p. 49, *crassipes* sp. n. Tierra del Fuego p. 50, CHAMPION Ent. Mo. Mag. 54.

*Epistictia weisei* sp. n. Kanara p. 542, SPAETH D.E.Z. 1914.

*Epitrix fasciata* sp. n. Florida p. 56, BLATCHLEY Canad. Ent. 50.

*Exosoma pectoralis* sp. n. Africa p. 263, WEISE Beitr. Landf. Sudwestafrik. 1.

*Galerucella tenella*, natural history, EFFLATOUN p. 206 figs. Ann. appl. Biol. 4.—*G. decora*, life-history, WOODS pp. 286–288 2 pls. Bull. Maine exp. Stat. 244.

*Gastroidea caesia*, natural history, GOE Ent. News 29 pp. 224–226.

*Geomela lamellifera* p. 579 Australia, *tasmaniensis*, *montana*, p. 580, *nobilis* p. 581, Australia, spp. n., LEA P. Linn. Soc. N.S.W. 42 1917.

*Glyphocassis* gen. n. p. 547 for *Cassida trilineata* Hope, SPAETH D.E.Z. 1914.

*Haltica*, parthenogenesis, SHARP p. 155 Ent. Mo. Mag. 54.—*H.*; abnormal sculpture, HEIKERTINGER Wien. ent. Zeit. 34 p. 377, 1915.—*H. probata*, life-history, MOZNETTE pp. 13–19, pl. J. Ent. Zool. 9.

*Halticidae*, abnormally placed thoracic foveae; HEIKERTINGER Wien. ent. Zeit. 34 p. 394 fig. 1915.

*Hebdomecosta* gen. n. p. 361, *reitteri* sp. n. China p. 362, SPAETH Wien. ent. Zeit. 34 1915.

*Lacoptera vigintisexnotata*, 19-notata, *hospita*, *multinotata*, variation, figs., MAULIK pp. 319–322 Ann. Nat. Hist. 1.

*Lema bilineata*, metamorphosis, FRERS p. 336, plate Physis 4.

*Macrolenes bimaculata* ab. n. *transversa* p. 110, DEPOLI Wien. ent. Zeit. 34 1915.

*Melixanthus conradti* p. 448, *convexior*, *pilosiventris*, p. 449, spp. n., Africa, REINECK Mitt. Zool. Mus. Berlin 7 1915.

*Metriona conchyliata* India p. 564, *truncatipennis* p. 565 Burma, *desultrix* India p. 566, *expromta* Annam p. 567, spp. n., SPAETH D.E.Z. 1914.

*Monachusulus* n. n. for *Monachus* Suffr., LENG p. 208 J. N. York ent. Soc. 26.

*Monolepta tristis* p. 263, *misella* p. 264, *desertorum*, *michaelseni*, *contaminata*, p. 265, *arenaria* p. 226, spp. n., Africa, WEISE Beitr. Landf. Sudwestafrik. 1.

*Oomela coccinelloides* p. 577, *bimaculata*, *distincta* pl. xxix f. 9, p. 578, spp. n., Australia, LEA P. Linn. Soc. N.S.W. 42 1917.

*Pausiris desertorum* sp. n. Africa p. 255, WEISE Beitr. Landf. Sudwestafrik. 1.

*Phyllotreta hochellingeri* sp. n. Croatia p. 17, FLEISCHER Wien. ent. Zeit. 36 1917.—*P. undulata*, *nemorum*, habits, TAYLOR pp. 83–86 Entom. 51.

*Podagricae deserticola* sp. n. Africa p. 268, WEISE Beitr. Landf. Sudwestafrik. 1.

*Silana* gen. n. p. 563 for *Cassida farinosa* Boh., SPAETH D.E.Z. 1914.

*Stylosomus pubescens* var. n. *liberlinus* p. 23, PIC Echange 34.

*Thlaspidomorpha* gen. n. p. 563 for *Coptocyclus balyi* Boh., SPAETH D.E.Z. 1914.

*Tituboea macropus* var. n. *armeniaca*, *chobauti* var. n. *semijuncta*, p. 18, PIC Echange 34.

#### EROTYLIDAE.

*Acropteroxys divisa* = (*thoracina* Cas.) p. 211, *gracilis* var. n. *texana* p. 212, SCHAEFFER J. N. York ent. Soc. 26.

*Callilanguria scrupulosa* sp. n. Luzon p. 26, HELLER Wien. ent. Zeit. 37.

*Chirolanguria* gen. n. p. 27 *provocatrix* sp. n. Philippines p. 28 fig., HELLER T.c.

*Coenolanguria levibasis* sp. n. Philippines p. 25, HELLER T.c.

*Ganluria* gen. n. near *Ectrapezidera* p. 29, *subimpressa* sp. n. Luzon p. 30 fig., HELLER T.c.

*Episcapha curvicrus* p. 118 Tonkin, *tetracycla* Amboina, *psiloides* Laos, *lugubris*, p. 119, *insignita* p. 120, China, spp. n., BEDEL Bull. Soc. ent. France 1918.

*Guritana* gen. n. near *Chirolanguria*, *ascendens* sp. n. Luzon, HELLER p. 31 Wien. ent. Zeit. 37.

*Languria denticulata* n.n. for *apicalis* Schaeff., *convexicollis* = (*interstitialis* Cas.), SCHAEFFER p. 211 J. N. York ent. Soc. 26.

*Megalodacne dominula* sp. n. Madagascar p. 193, BEDEL Bull. Soc. ent. France 1918.

*Platycladoxena philippinensis* sp. n. p. 32, HELLER Wien. ent. Zeit. 37.

*Triplax mesosternalis* = (*monostigma* Cas.), SCHAEFFER p. 212 J. N. York ent. Soc. 26.

## ENDOMYCHIDAE.

*Anamorphus waltoni* sp. n. Florida p. 423, BLATCHLEY Canad. Ent. 50.

*Sphaerosoma glabrum* and *globosum* distinguished, REITTER p. 126 Wien ent. Zeit. 34 1915.—*S.* synonymy, etc., REITTER Wien. ent. Zeit. 36 1917.

## COCCINELLIDAE.

Coccinellid. habits, fertility, ROSS pp. 344-347 Agric. Gaz. Canada 5.

*Adalia bipunctata* ab. n. *marginotata* and *semifasciata*, DEPOLI p. 109 Wien. ent. Zeit. 34 1915.

*Aulis michaelsoni* sp. n. Africa p. 574, WEISE Beitr. Landf. Sudwestafrik 1.

*Coccinella* 11-*punctata* subsp. n., *boreolittoralis*, ab. n. *westmanni*, DONISTHORPE Ent. Rec. 30 pp. 121-128 pl. vii.—*C. decempunctata* ab. n. *disjuncta*, WANKA p. 280 Wien. ent. Zeit. 36 1917.—*C. septempunctata*, abundance in 1918, TASCHENBERG p. 214 Ent. Mitt. 7.

*Epilachna corrupta* var. n. *cuprea* p. 153, COCKERELL Ent. Rec. 30.

*Hippodamia variegata* ab. n. *ditylotus*, DONISTHORPE p. 29 Ent. Rec. 30.

*Hyperaspis nigrosuturalis* sp. n. Florida p. 420, BLATCHLEY Canad. Ent. 50.

*Propylaea* 14-*punctata* var. n. *fuminensis* p. 110, DEPOLI Wien. ent. Zeit. 34 1915.

*Rhizobius bipartitus* sp. n. Spain p. 44, FUENTE Bol. Soc. ent. Españ. 1.

*Scymnus capitatus*, larva fig., metamorphosis, ARROW p. 8 Ent. Mo. Mag. 54.

*Solanophila arenaria* sp. n. Africa p. 272, WEISE Beitr. Landf. Sudwestafrik. 1.

*Subcoccinella* 24-*punctata*, metamorphosis, SCHMIDT p. 39-41 figs. Zeitschr. wiss. Insbil. 14.—*S.* 24-*punctata* var. n. *parvinacula* p. 109, DEPOLI Wien. ent. Zeit. 34 1915.

## STREPSIPTERA.

Pairing of *Stylops*, PERKINS Ent. Mo. Mag. 54 pp. 129-131.

Second supplement to revision, PIERCE P.U.S. nat. Mus. 54 pp. 391-504 pls. lxiv-lxxviii.

*Agalliaphagus uhleri* sp. n. Colorado p. 479 pl. lxxiii, PIERCE T.c.

*Callipharixenos* nov. gen. *Callipharixenidae* fam. n., *muiri* sp. n. Amboina, PIERCE p. 431 pl. lxviii figs. 2-7 T.c.

*Chrysocorixenos* gen. n. p. 432, *siamensis* sp. n. p. 433 pl. lxviii f. 1, PIERCE T.c.

*Cyrtocaraxenos* gen. n. *javanensis* sp. n. pl. lxxviii figs 1-6, PIERCE p. 475 T.c.

*Dacyrtocara* gen. n. *oncometopiae* pl. lxxiv figs. 1-4, p. 473, *undata* p. 474 figs. 5 & 6, spp. n., Georgia, PIERCE T.c.

*Delphacixenos* gen. n. p. 475, *anomalocerus* sp. n. Poltava pl. lxxv figs. 1-6 p. 476, PIERCE T.c.

*Elenchinus* gen. n. *heidemanni* sp. n. Maryland pl. lxviii fig. 10-12, PIERCE p. 481 T.c.

*Halictoxenus cylindrici, tumulorum*, spp. n., England p. 75 figs., PERKINS Ent. Mo. Mag. 54.—*H. arnoldi* sp. n. England p. 107, PERKINS T.c.

*Katastylops* subg. n. p. 454 for *S. polemonii*, PIERCE 2nd Suppl.

*Liburnelenchus* nom. n. for *Mecynocera* P., PIERCE p. 481 T.c.

*Muirixenos* gen. n. *dicranotropidis* pl. lxxvi f. 1, *perkinsiellae* figs. 2-5, spp. n., Java, PIERCE p. 472 T.c.

*Neostylops* gen. n. p. 455 for *S. crawfordi, shannoni* sp. n. Maryland p. 456, PIERCE T.c.

*Prostylops* subg. n. p. 455 for *S. pilipedis*, PIERCE T.c.

*Pseudozenos neomezicanus* sp. n. p. 463 pl. lxxii figs 2-7, PIERCE T.C.

*Stylops wilkellae* p. 70, *hammella nevinsoni*, *bimaculatae*, p. 71, *analis*, *spreti*, p. 73, spp. n., England, PERKINS Ent. Mo. Mag. 54.—*S. championi* England p. 440 pl. lxx figs. 5 & 6, *moestae* Washington p. 443, *krygeri* Denmark p. 445, *bisalicidis* Alabama, *erigeniae*, p. 446, *satictariae* p. 449, Illinois, *medionitans* Colorado, *sinuatus* Illinois, p. 450, *grandior* Montana p. 451, *diaboli* Dakota, *neonanae* Georgia p. 454, spp. n., PIERCE 2nd Suppl. P. U.S. Nat. Mus. 54.

*Tetrozocera* gen. n. p. 428, *santschii* sp. n. Kairoan p. 429 pl. lxvi figs. 1-4, PIERCE T.C.

## HYMENOPTERA.

Australian aculeata, notes, HACKER Mem. Queensland Mus. 6 pp. 106-111 2 pls.

Hymenoptera of Brit. Guiana, 161 species, habits, etc., BODKIN pp. 297-321 pls. xxi-xxiii Tr. ent. Soc. London 1917.

Embryology, STRINDBERG Zeitschr. wiss. Zool. 112 pp. 1-47 2 pls. 1915.

## APIDAE.

Importance of genera, ROBERTSON Science 48 p. 368.

The bees of S.W. Africa, FRIESE Beitr. Landf. Sudwestafrik. 1 1918 pp. 415-452.

Revision of the Apidae of Brazil, DUCKE Enumerac. Hym. Brazil 1916 pp. 17-173.

Continuation of a catalogue of the Danish bees (Danish), JØRGENSEN Flora og Fauna 1918 pp. 117-123 to be continued.

Bee-life, BUTTEL-REEPEN, Braunschweig 1915.

Social instinct, FRISCH pp. 183-187 Biol. Zentralbl. 38.

Proterandry, ROBERTSON Ent. News 29 pp. 340-342.

Styloped bees, PERKINS pp. 115-128 Ent. Mo. Mag. 54.

Blütenbiologische Beobachtungen, JANSSON Ent. Tidskr. 39 pp. 206-215.

Reconsideration of Eugster's gynandromorph bees, BOVERI Arch. Entwickelgesch. 41 pp. 264-311 2 pls. 1915.

*Agapostemon* (*Pseudagapostemon*) *xanthorhinus* sp. n. Chile p. 343, COCKERELL Canad. Ent. 50.—*A. viequesensis* sp. n. Porto Rico p. 419, COCKERELL Ann. Nat. Hist. 2.

*Allodape albipennis* var. n. *longula*, FRIESE p. 436 Beitr. Landf. Sudwestafrik. 1.

*Andrena melanospila*, *delicatula*, spp. n., China p. 481, COCKERELL Ann. Nat. Hist. 2.—*A. abacta* p. 365, *albiculla* p. 366, *argentscopa* p. 368, *barbarica* p. 369, *citrinivirga* p. 371, *coactipostica* p. 372, *columbiana* p. 374, *confederata* p. 375, *elongatula* p. 378, *fuscisignata* p. 379, *mariposorum* p. 382, *mellitarsis* p. 384, *omnivirga* p. 385, *tincta* p. 387, *trivialis* p. 388, *A. (Gonandrena* subg. n.) *persimulata* p. 390, *A. (Parandrena) parachalybea* p. 391, *A. (Ptilandrena) biscutellata* p. 393, *determinata* p. 394, *tonkaworum* p. 396, *yaquiorum* p. 397, *A. (Scrapter) morrisonella* p. 399, *neonana* p. 400, *trapezoides* p. 402, *A. (Trachandrena) ceanothi* p. 404, spp. n., Amer. bor.; *angustitarsata huardi* n. race p. 368, *nasoni fulvodorsata* var. n. p. 385, *perezana thaspiiformis* n. race p. 386, *imitatrix profunda* var. n. p. 398; VIERECK Tr. Amer. ent. Soc. 43 1917.—*A. opacissima* p. 165, *polilissima* p. 166, spp. n., Idaho, COCKERELL Ann. Nat. Hist. 1.

*Andrena*; the following new names are proposed by VIERECK, *parviceps basilaris* for *parviceps basalis*, *plesia* for *consimilis* Alf., *ephippium dorsatula* for *e. dorsalis* Le Pel., *panurgoides* for *panurgina* Per., *amanda* for *pretiosa* Mor., *quadrifasciatula* for *quadrifasciata* Mor., *simulatilis* for *simulans* Per., *smaragdula* for *smaragdina* Schmied., *sordidella* for *sordida* Mor., *wilkella* K. = (*winkleyi* V.); p. 59 P. biol. Soc. Washington 31, *wilkella* = (*winkleyi*), MALLOCH p. 61 T.C.—*A. wilkella* and allies, characters, synonymy, PERKINS p. 36 Ent. Mo. Mag. 54.

*Androgynella subrixator* sp. n. Mindanao p. 140, COCKERELL Philipp. J. Sci. D 13.

- Anthidium syriacum* p. 3, *amanusense* p. 4, spp. n., DUSMET Trab. Mus. Madrid 22 1915.—*A. strigatum*, nest, FRIESE Mitt. Zool. Mus. Berlin 8 pp. 25–30 1915.
- Augochlora callichlorura* p. 689, *maroniana* p. 690, spp. n., Guiana, COCKERELL Bull. Amer. Mus. 38.—*A. (Odontochlora) lyoni* sp. n. Venezuela p. 418, COCKERELL Ann. Nat. Hist. 2.—*A. flammea*, etc., COCKERELL p. 211 Entom. 51.
- Bombus lapponicus* var. n. *schlueteri*, TRAUTMANN p. 92, *terrestris* var. n. *flavoscutellaris* p. 96, Int. ent. Zeitschr. 9 1915.—*B.*; ethological notes, BACHMANN pp. 71–111 Mitt. Munchn. ent. Ges. 6 1915; *B.*; pairing habits, *Psithyrus* and *Bombus*, HARRISON Ent. Rec. 30 pp. 11 & 12.—*B. terrestris*, nest, food-habits, SCHMIDT pp. 14–16 Zeitschr. wiss. Insbiol. 14.—*B. auricomus*, habits, nest, FRISON pp. 43–48 pl. ii. Ann. ent. Soc. Amer. 11.
- Brachynomada subminiata* sp. n. Argentina, COCKERELL p. 27 Canad. Ent. 50.
- Callometlitta nigrofasciata* sp. n. Tasmania p. 164, COCKERELL Ann. Nat. Hist. 1.
- Ceratina bicuneata*, *C. (Chloroceratina)* subg. n.) *cygnura*, spp. n., Luzon p. 143, COCKERELL Philipp. J. Sci. D 13.—*C. sericea*, nest, SCHROTTKY p. 629 D.E.Z. 1914..
- Chloroceratina* subg. n. vide *Ceratina*.
- Coelioxys annamensis* p. 14, *amboinensis* p. 15 *raffrayi* Zanzibar p. 16, spp. n. *planidens* var. n. vel sp. n. p. 17, DUSMET Trab. Mus. Madrid Zool. 22.—*C. bakeri* var. n. *atripes* p. 129, *cothura* sp. n. Luzon p. 130, COCKERELL Philipp. J. Sci. D 13.—*C. ambrosettii* p. 3, *expectata* p. 5, *sosias* p. 7, *joergensentiella* p. 9, *bonplandiana* p. 10, *hubrichiana* p. 146, *hickeni* p. 148, *rosarina* p. 150, *domestica* p. 154, *bicinctulata* p. 156, *magistralis* p. 158, *mesopotamiea* p. 163, spp. n., Argentina, *humahuakae* var. n. *oblita* p. 2, HOLMBERG Physis 4.—*C. bruneri* sp. n. Argentina p. 138, COCKERELL Canad. Ent. 50.
- Colletes gigas* sp. n. China p. 158, *friesci* n. n. for *mongolicus* Fr. p. 159, COCKERELL Ann. Nat. Hist. 1.—
- C. chubutensis* p. 137, *rufosignatus* p. 138, spp. n., Chubut, COCKERELL Canad. Ent. 50.
- Crocisa radoszkowskyi* sp. n. Amboina p. 13, DUSMET Trab. Mus. Madrid 22 1915.
- Ctenocorynura* gen. n. near *Rhinocorynura*, *vernoniae* sp. n. Paraguay, SCHROTTKY p. 628 D.E.Z. 1914.
- Curtisapis* gen. n. type *H. coriaceus* Sm., ROBERTSON p. 91 Ent. News 29.
- Dasiapis tropicalis* sp. n. Mexico p. 27, COCKERELL Tr. amer. ent. Soc. 44.
- Diadasia callura* sp. n. Argentina p. 36, COCKERELL T.C.
- Epeoloides* = (*Viceeckella* Sw.), *pilosula* = (*nearcticus* Ducke and *ceanothina* Cock.), CRAWFORD p. 167 P. ent. Soc. Washington 19.
- Epeolus humillimus* sp. n. Washington p. 160, COCKERELL Ann. Nat. Hist. 1.
- Epicharis maculata* var. n. *barticana*, COCKERELL p. 689 Bull. Amer. Mus. 38.
- Epimelissodes*, compositon, ROBERTSON p. 92 Ent. News 29.
- Euglossa decorata* var. n. *ruficauda*, *ignita* var. n. *chlorosoma*, COCKERELL p. 688 Bull. Amer. Mus. 38.
- Euryglossa hypoleuca*, *semicastanea*, spp. n., Brisbane p. 115, *neglectula* var. n. *mica* p. 116, COCKERELL Mem. Queensland Mus. 6.—*E. tasmanica* sp. n. p. 164, COCKERELL Ann. Nat. Hist. 1.
- Euryglossella globuliceps* sp. n. Brisbane p. 116, COCKERELL Mem. Queensland Mus. 6.
- Exomalopsis albovitata* Oaxaca, *chlorina* New Mexico, p. 477, *thermalis*, *crucis*, Mexico, p. 478, spp. n., COCKERELL Ann. Nat. Hist. 2.
- Exoneura melaena*, *gracilis*, spp. n., Queensland p. 119, *hackeri* var. n. *incerta* p. 120, COCKERELL Mem. Queensland Mus. 6.
- Florilegus barticanus* sp. n. Guiana p. 690, COCKERELL Bull. Amer. Mus. 38.
- Gonandrena* subg. n. vide *Andrena*.

*Halictus duplocinctus, michaelsoni*, p. 428, *arenicola, windhukensis*, p. 429, *nitidiusculus* var. n. *niveohirtus* p. 430, FRIESE Beitr. Landf. Sudwestafrik. 1.—*H. clarigaster, eboracensis, speculellus, brisbanensis*, spp. n., Queensland p. 117, COCKERELL Mem. Queensland Mus. 6.—*H. nesiotus* p. 169, *baguionis* p. 170, spp. n., Philippines, CRAWFORD P. ent. Soc. Washington 19.—*H. ripariellus, typographicus*, spp. n., Colorado p. 261, *pectoraloides* var. n. *beatulus, orontis* n. n. for *divergens* Pérez, p. 262, COCKERELL Entom. 51.—*H. xanthinus* sp. n. Panama p. 348, COCKERELL Canad. Ent. 50.—*H. (Chloralictus) bruneriellus* sp. n. Argentina p. 139, COCKERELL Canad. Ent. 50.

*H. minutissimus* = (*arnoldi* S.), PERKINS p. 253 Ent. Mo. Mag. 54.

*Heriades sauteri philippinensis* subsp. n. p. 141, COCKERELL Philipp. J. Sci. D 13.

*Hesperapis laticeps, fulvipes*, p. 166, *arenicola* p. 167, spp. n., California, CRAWFORD P. ent. Soc. Washington 19.

*Heterosarus* gen. n. type *Calliopsis parvus*, ROBERTSON p. 91 Ent. News 29.

*Holmbergiapis* nom. n. for *Scirtetica* H., COCKERELL p. 36 Tr. Amer. ent. Soc. 44.

*Leptergatis globulifera* sp. n. Venezuela p. 421, COCKERELL Ann. Nat. Hist. 2.

*Macronomia* subg. n. *Nomia*, COCKERELL p. 468 Ann. Durban Mus. 1917 [overlooked last year].

*Megachile windhukiana* p. 447, *cinctiventris* p. 448, *alborufa, albopilosa*, p. 449, spp. n., Africa, FRIESE Beitr. Landf. Sudwestafrik. 1.—*M. (Paramegachile) kobensis* sp. n. Japan p. 159, *M. femoratella* n. n. for *femorata* Sm. 1879 p. 160, COCKERELL Ann. Nat. Hist. 1.—*M. penangensis* p. 387, *facetula* Borneo, *ramera*, p. 388, *subignita* p. 389, Singapore, spp. n., COCKERELL Ann. Nat. Hist. 2.—*M. davaonensis, bakeri*, p. 134, *ocellifera, metallescens*, p. 135, *rufosulva, chlorura*, p. 136, *navicularis* p. 138, *structilis, merrilli*, p. 139, *mcgregori* p. 140, spp. n.,

Philippines, *philippinensis* var. n. *vizayana* p. 137, COCKERELL Philipp. J. Sci. D 13.—*M. simpliciformis* sp. n. Queensland p. 119, COCKERELL Mem. Queensland Mus. 6.—*M. diligens* sp. n. Amer. bor., SLADEN p. 303 Canad. Ent. 50.

*M[elipona] longitarsis* p. 88, *impunctata* p. 101, *bahiana* p. 169, spp. n., Amer. mer., also some subspp. n. and varr. n., DUCKE Enum. Abch. Brazil 1916.

*Melissodes albocollaris* Mexico, *atramentata* Colombia, p. 30, *svastrina* Argentina p. 31, spp. n., *bimaculata morrilli* subsp. n. Mexico p. 29, COCKERELL Tr. amer. ent. Soc. 44.—*M. bomplandianus* sp. n. Argentina p. 629, SCHROTKY D.E.Z. 1914.

*Melissoptila pulchricornis* sp. n. Argentina p. 32, COCKERELL Tr. Amer. ent. Soc. 44.

*Mesotrichia subrolutilis* sp. n. Mindanao p. 141, COCKERELL Philipp. J. Sci. D. 13.—*M. confusa viridissima* subsp. n. p. 385, COCKERELL Ann. Nat. Hist. 2.—*M. dormeyeri* var. *caeruleiformis*, COCKERELL p. 137 Entom. 51.

*Neocorynura discolor* = (*Augochlora tisiphone* Grib.), COCKERELL p. 419 Ann. Nat. Hist. 2.

*Neotrypetes* gen. n. type *T. productus*, ROBERTSON p. 91 Ent. News 29.

*Nomada persica* p. 6, *syriaca* p. 8, spp. n., DUSMET Trab. Mus. Madrid 22 1915.—*N. calloptera* p. 479, *pyrifera* p. 480, spp. n. Japan, COCKERELL Ann. Nat. Hist. 2.—*N.*, and their hosts, PERKINS J. Torquay Soc. 1918 7 pp.—*N. furva*, host, PERKINS p. 226, Ent. Mo. Mag. 54.

*Nomia testacea* p. 630, *gratiosa, magniventris*, p. 631, *rubripes* p. 632, *brevipes, burorum*, p. 633, *nudiventris, fulvipes*, p. 634, spp. n. Africa, FRIESE D.E.Z. 1914.—*N. junodiella* p. 430, *kamerunensis, rona*, p. 431, spp. n. Africa FRIESE Beitr. Landf. Sudwestafrik. 1.—*N. anthracoptera* sp. n. Singapore p. 103, COCKERELL Entom. 51.—*N. notha* sp. n. Philippines p. 112, COCKERELL Entom. 51.—*N. (Hoplonomia) expulsa* sp. n. Guiana p. 161, COCKERELL Ann. Nat. Hist. 1.

*Odontalictus* gen. n. *H. ligatus* Say, ROBERTSON p. 91 Ent. News 29.

*Odyneropsis melancholicus* sp. n. Argentina p. 631, SCHROTTKY D.E.Z. 1914.

*Osmia mosaica* sp. n. Africa p. 444, FRIESE Beitr. Landf. Sudwestafrik. 1.

*Oxaea haematura* sp. n. Argentina p. 252, COCKERELL Ent. News 29.

*Oxytroglossa posadensis* sp. n. Argentina p. 627, SCHROTTKY D.E.Z. 1914.

*Pachyprosopis indicans* sp. n. Brisbane p. 116, COCKERELL Mem. Queensland Mus. 6.

*Palaeorhiza melliceps* sp. n. Queensland p. 115, COCKERELL T.c.

*Panurginus callurus, vagabundus, Argentina, p. 169, nitescens p. 170, planatus p. 171, Mexico, spp. n., COCKERELL Ent. News 29.*

*Paracolletes hackeri, helichrysi, spp. n. Queensland p. 112, COCKERELL Mem. Queensland Mus. 6.*

*Parasphecodes insculptus* sp. n. Queensland p. 118, COCKERELL T.c.

*Prosopis* and *Nesoprosopis*, suppl. descriptions, FULLAWAY pp. 393-397 P. hawaii. ent. Soc. 3.—*P. brevior* sp. n. Queensland p. 164, COCKERELL Ann. Nat. Hist. 1.—*P. aurifera* sp. n. Queensland p. 113, COCKERELL Mem. Queensland Mus. 6.—*P. holomelaena* Java p. 421, *coroicensis* Bolivia p. 422, *flavohumeralis* Paraguay, *howardiella*, p. 423, *subgrisea* p. 424, Mexico, *knabi* Guatemala p. 425, spp. n., COCKERELL Ann. Nat. Hist. 2.

*Psithyrus vestalis* and *bohemicus*, synonymy, varr. n. BLÜTHGEN Ent. Mitt. 7 p. 188-197.

*Ptiloglossa giacomellii* sp. n. Argentina p. 625, SCHROTTKY D.E.Z. 1914.

*Rhathymus beebii* sp. n. Bartica p. 688, COCKERELL Bull. Amer. Mus. 38.

*Rhopalictus collicladurus* p. 344, *melanocladus* p. 345, spp. n. Chile, *corinogaster chilbeensis* subsp. n. p. 344, COCKERELL Canad. Ent. 50.

*Sarogaster* nom. n. for *Gnathodon*, ROBERTSON p. 92 Ent. News 29.

*Seladonia* gen. n. type *H. seladonius* F., ROBERTSON p. 91 T.c.

*Stelis manni* sp. n. Arizona p. 168, CRAWFORD P. ent. Soc. Washington 19.

*Svastra sapucacensis* Paraguay, *leucostoma*, p. 34, *caracaramensis, reductor*, p. 35, Argentina, spp. n., COCKERELL Tr. amer. ent. Soc. 44.

*Tetralonia michaelsoni* p. 442, *obscuriceps, rikattaensis*, p. 443, spp. n. Africa, FRIESE Beitr. Landf. Sudwestafrik. 1.—*T. eophila* n. n. for *orientalis* B. and S., COCKERELL p. 35 Tr. amer. ent. Soc. 44.

*Thygater bruneri* sp. n. Argentina p. 28, COCKERELL T.c.

*Trachusa manni* sp. n. Arizona p. 167, CRAWFORD P. ent. Soc. Washington 19.

*Trigona parastigma* sp. n. Centr. America p. 165, COCKERELL Ann. Nat. Hist. 1.—*T. pallidicincta* Singapore, *melanotricha*, p. 386, *rufibasalis* p. 387, Borneo, spp. n., COCKERELL Ann. Nat. Hist. 2.—*T. beccarii* var. n. *albofasciata*, FRIESE p. 451 Beitr. Landf. Sudwestafrik. 1.

*Xenoglossa howardi* sp. n. Mexico p. 420, COCKERELL Ann. Nat. Hist. 2.—*X. rhodophila* sp. n. Mexico p. 27, COCKERELL Tr. amer. ent. Soc. 44.

*Xenoglossodes lusor* p. 32, *manca* p. 33, spp. n. Argentina, COCKERELL T.c.

*Xylocopa collaris penangensis* subsp. n. p. 384, COCKERELL Ann. Nat. Hist. 2.—*X. melanura* sp. n. Mexico p. 29, COCKERELL Tr. amer. ent. Soc. 44.—*X. fimbriata*, nest p. 299 pls. xxi and xxii, BODKIN Tr. ent. Soc. London 1917.

*Zaodontomerus*, ROBERTSON p. 92 Ent. News 29.

*Zaperdita* gen. n. type *P. maura*, ROBERTSON p. 91 T.c.

#### DIPLOPTERA (VESPIDAE, EUMENIDAE).

*Monerebia ephippium*, nests p. 108 pl. xxxi, HACKER Mem. Queensland Mus. 6.

*Pachodynerus argentinus*, metamorphosis, pp. 322-325, figs., FRERS Physis 4.

*Polistes metricus*, habits, PELLETT p. 275-284 Pr. Iowa Ac. 23 1916.

*Polybioides tabida*, nidification, BOUVIER p. 278 Bull. Soc. ent. France 1918.

*Vespa flavida* n. n. for *pennsylvanica* auctt., *albida*, *norvegicoidea*, p. 72, *acadiaca*, *atropilosa*, p. 472, spp. n. Canada, SLADEN Ottawa Nat. 32.—*V. germanica* nest habits, SCHMIDT pp. 153-160 Zeitschr. wiss. Insekt. 13, 1917; teratological, CHAPMAN fig. p. xlix Pr. ent. Soc. London 1917.

## FOSSORIA.

Prey of brazilian Fossoria, POULTON pp. xxxv-xl Pr. ent. Soc. London 1917.

North-american localities of *Bembicini*, COCKERELL pp. 59 60 Ent. News 29.

*Ampulex senex* sp. n. E. Africa p. 474, BISCHOFF Mitt. zool. Mus. Berlin 7 1915.

*Batozonus fuliginosus*, treatment of prey, CARPENTER p. lix Pr. ent. Soc. London 1917.

*Bembex*, preying on *Lepidoptera*, CARPENTER p. xli T.c.

*Bembilula discisa*, food is Hemiptera, BRÈTHES p. 348 Physis 4.

*Brachycistis dentata* p. 262, *micrommata* p. 265, *eripis* p. 266, *ioachinensis* p. 267, *arenivaga* p. 269, *protracta* p. 270, *noctivaga* p. 272, *thermarum* p. 274, *stygia* p. 276, *crassa* p. 277, *eremi* p. 279, *B. (Brachycistellus) paupercula* p. 282, *marcida* p. 283, spp. n. Amer. bor., BRADLEY Tr. amer. ent. Soc. 43 1917.

*Cerceris bagandarum* p. 465, *sodalis* p. 466, *andersoni* p. 467, spp. n. Africa, TURNER Ann. Nat. Hist. 2.—*C. spinipleuris* n. n. for *varipes* Smith 1873, TURNER p. 91 Ann. Nat. Hist. 1.

*Chlorion (Protophax) nyanzae* p. 358, *rufiscutis* p. 359, *observabilis* p. 360, spp. n. Africa, TURNER T.c.

*Chyphotes caleziensis* sp. n. California p. 284, BRADLEY Tr. amer. ent. Soc. 43 1917.

*Cryptochilus gowdeyi* sp. n. Uganda p. 351, TURNER Ann. Nat. Hist. 1.

*Cryptosalix contristans* p. 354, *indocilis perluctuosus*, p. 355, *elgonensis* p. 356, spr. n. Africa, TURNER T.c.

*Cyphononyx subauratus* sp. n. Nyasaland, TURNER p. 349 T.c.

*Elis (Mesa) ugandensis* sp. n. p. 86, *tricolor longiceps* and *l. shuckardi* subsp. n. p. 87, TURNER T.c.

*Gorytes (Anmatomus) madecassus* sp. n. p. 99, SCHULTHESS N. Beitr. syst. Insk. 1.

*Hemipepsis lacustris* p. 285, *quadraticollis* p. 288, *refulgens* p. 289, *vestitipennis* p. 290, *mlanjensis* p. 291, *heteroneura* p. 292, *H. (Tetraodontonyx) titan* p. 293, spp. n. Africa, TURNER Ann. Nat. Hist. 1.

*Motes nugiferae* sp. n. Uganda p. 362, TURNER T.c.

*Myrmosa (Myrmosula subg. n. p. 249), banksi* p. 250, *blakei* p. 251, spp. n. U.S., BRADLEY Tr. amer. ent. Soc. 43 1917.

*Myrmosilae*: revision of North-american, BRADLEY pp. 247-290 6 pls. T.c. 1917.

*Myrmosula subg. n. vide Myrmosa.*

*Neotiphia gen. n., acuta* sp. n. Texas, MALLOCH p. 9 Bull. Illinois N. H. Surv. 13 No. 1.

*Philanthus ruandanus* sp. n. Africa p. 473, BISCHOFF Mitt. zool. Mus. Berlin 7, 1915.—*P. ramakrishnae* sp. n. Mysore p. 361, TURNER Ann. Nat. Hist. 1.—*P. fossulatus* p. 459, *flagellarius* p. 460, *nigrohirtus* p. 461 with subsp. *calvus* p. 462, *strigulosus* p. 464, spp. n. Africa, also synonymy of others, TURNER Ann. Nat. Hist. 2.

*Protostigmus gen. n., Sphecoidea* p. 356, *championi* sp. n. Tunis p. 357, TURNER Ann. Nat. Hist. 1.

*Pseudagenia pseudocyphononyx* sp. n. Nyasaland p. 352, TURNER T.c.

*Rhopalum ornatipes* p. 92 Nigeria, *spinulifer* Queensland p. 93, spp. n., *imbelle* a valid species, TURNER T.c.

*Spheg (Psammophila) mahatma* p. 88 Tibet, *sheffieldi* Nyasaland p. 89, *S. (Parapsammophila) testaceipes* E. Africa p. 90, spp. n., TURNER T.c.—*S. luciani* sp. n. Argentina p. 347, BRÈTHES Physis 4.

*Spilomena indostana* sp. n. Bombay p. 358, TURNER Ann. Nat. Hist. 1.

*Stizus persimilis* sp. n. E. Africa p. 91, TURNER T.c.—*S. dewitzi propodealis* subsp. n. p. 473, BISCHOFF Mitt. zool. Mus. Berlin 7 1915.

*Tachysphex fulvicornis* sp. n. India p. 363, TURNER Ann. Nat. Hist. 1.



*Tachytes diversicornis* Karachi, *nilotica* Egypt, p. 94, *rufiscutis* Nyasaland p. 95, spp. n., TURNER T. c.

*Tiphia canaliculata* p. 10, *tuberculata* p. 14, *subcarinata*, *rugulosa*, p. 15, *clypeolata* p. 16, *incisurata*, *occidentata*, p. 17, *similis* p. 18, *affinis*, *aterrima*, p. 19, *arida*, *texensis*, p. 20, *tegulina* p. 21, *conformis*, *imitatrix*, *inaequalis*, p. 22, *robertsoni*, *winnemanae*, *reticulata*, p. 23, spp. n. U.S., *punctata* var. n. *intermedia* p. 21, MALLOCH Bull. Illinois N.H. Surv. 13.

*Trypoxylon fletcheri* sp. n. Assam p. 363, TURNER Ann. Nat. Hist. 1.

*Xylocrabro umbrosus* sp. n. Paraguay p. 624, SCHROTTKY D.E.Z. 1914.

## FORMICIDAE.

The ants of France and Belgium, 174 pp. 83 figs., BONDROIT Ann. Soc. ent. France 87.

The ants of Switzerland, FOREL, Beilage Mitt. schweiz. ent. Ges. 12 1915 74 pp.

The mountain ants of western North America, peculiarities, distribution, etc., WHEELER P. Amer. Ac. 52 1917 pp. 457-569.

Ants of South Carolina, SMITH pp. 17-29 Ent. News 29.

Experiments on the life and habits of ants (Danish), EGE København Naturens Verden 2 1918 p. 20-37 6 figs.

Notes on ants in Valsesia, NADIG pp. 331-341 Atti Soc. ital. 56.

Ant larvae, figures pp. 296-311, nature of ant-life pp. 293-343, WHEELER P. Amer. phil. Soc. 57 pp. 293-343; review, Nature 102 p. 308 by F. A. D.

The orientation problem, BRUN Biol. Centralbl. 35 pp. 190-207 and 225-251 1915 and 36 pp. 261-303.

Myrmecological notes, KUTTER Biol. Centralbl. 37 pp. 429-437 1917.

Notes on Leach paper 1825, DONISTHORPE pp. 8 and 9 Ent. Rec. 30.

Mixed, or hybrid, colonies, WASMANN Biol. Centralbl. 35 pp. 113-127 1915 and pp. 561-565 1915.

Pseudogynes, WASMANN Zeitschr. wiss. Zool. 114 pp. 233-402 pls. chart 1915.—Pseudogynes, *Lomechusa* and *Atemeles*, REICHENSPERGER pp. 145-152 Zeitschr. wiss. Insbiol. 13 1917.

Period of marriage-flights, CRAWLEY p. 168 Ent. Rec. 30.

Ant psychology, HENNING pp. 208-220 Biol. Zentralbl. 38.

Biting powers of ants, McATTEE Amer. Mus. J. 18 pp. 141-147 pl.

Prolonged life of a headless ant, CHAPMAN p. 42 Ent. Rec. 30.

*Acromyrmex (Trachymyrmex) gaigei* sp. n. Colombia p. 618, FOREL D.E.Z. 1914.

*Aenictus hamifer spinosior* n. st. p. 335, STITZ Mitt. zool. Mus. Berlin 8 1917.

*Anisopheidole* subg. n. of *Pheidole* for *P. froggatti*, FOREL p. 616 D.E.Z. 1914.

*Anochetus africanus* var. n. *friederichsi* Madagascar p. 155, FOREL Bull. Soc. Vaud. 52.

*Aphaenogaster friederichsi* sp. n. Madagascar p. 151, FOREL Bull. Soc. Vaud. 52.—*A. testaceo-pilosa cabylia* n. st. p. 341, STITZ Mitt. zool. Mus. Berlin 8 1917.—*A. uinta* sp. n. Utah p. 517 *subterranea* var. n. *manni* p. 516, WHEELER P. Amer. Ac. 52 1917.

*Azteca trigona* n. st. *gaigei* p. 618, FOREL D.E.Z. 1914.

*Camponotus lichtensteini* sp. n. Montpelier p. 74. BONDROIT Ann. Soc. ent. France 87.—*C. (Myrmogonia) aureopilus* sp. n. New Guinea p. 531, VIEHMEYER D. E. Z. 1914.—*C. maculatus* var. n. *berkeleyensis* p. 619 and *subrostrata* p. 620, FOREL D.E.Z. 1914.—*C. maculatus* var. n. *rectinotus* p. 351, st. n. *occipitalis* p. 352, STITZ Mitt. Zool. Mus. Berlin 8 1917.—*C. caryae* Fitch anterior to *fallax* Nyl., WHEELER p. 466 Pr. Indiana Ac. 1916 1917.—*C. (Myrmobrachys) bebei* sp. n. Brit. Guiana p. 27, WHEELER J. N. York ent. Soc. 26.

*Cardiocondyle wheeleri* sp. n. New Guinea p. 518, VIEHMEYER D.E.Z. 1914.

*Cataglyphis tibialis* sp. n. Pyrenees p. 39, BONDROIT Ann. Soc. ent. France 87.

*Cataulacus mocquersii* var. n. *nainei* p. 724, FOREL Bull. Soc. Vaud. 51.

*Cremastogaster*, synonymy p. 184, subgen. n. *Nematocrema*, *Orthocrema*, *Eucrema*, *Neocrema*, *Sphaerocrema*, *Paracrema*, p. 182, SANTSCHI Bull. Soc. ent. France 1918.—*C. ornatipilis* sp. n. Brit. Guiana p. 25, WHEELER J. N. York ent. Soc. 26.—*C. scutellaris* var. n. *lichtensteini* p. 114, BONDROIT Ann. Soc. ent. France 87.—*C. brevispinosa* var. n. *scurra* p. 615, FOREL D.E.Z. 1914.—*C.*, feeding *Harpagomyia*, POULTON p. xxix P. ent. Soc. London 1918.

*Dolichoderus taprobanae* var. n. *friedrichsi* p. 618, FOREL D.E.Z. 1914.—*D. mariae* var. n. *blatchleyi* p. 462, WHEELER Fr. Indiana Ac. 1916 1917.

*Dorymyrmex tener richteri*, male, *exsanguis* variation, GALLARDO p. 29 Physis 4.

*Eucrema* subg. n. vide *Cremastogaster*.

*Euponera havilandi* var. n. *fochi* Durban p. 155, FOREL Bull. Soc. Vaud. 52.—*E. lutea*, ♀, CRAWLEY p. 86 Ent. Rec. 30.

*Eusphinctus hackeri* p. 229, *E. (Nothosphinctus) manni* p. 236, spp. n. Australia, WHEELER P. Amer. Ac. 53.

*Formica decipiens*, *pyrenaica*, p. 52, Pyrenees, *lefrancoisi* France p. 54, *dalcqi* Pyr. p. 63, spp. n., *cinerea* var. n. *selysi* p. 54, *rufa* var. n. *grouvellei* p. 56, BONDROIT Ann. Soc. ent. France 87.—*Formica*; numerous varr. n. from North America pp. 533–554, *hewitti* sp. n. Canada p. 552, WHEELER P. Amer. Ac. 52 1917.—*F. picea*, habits, instinct, BÖNNER Biol. Centralbl. 35 pp. 65–77 pl. 1915.—*F. truncicola*, robbing *fusca* nest, HÄMEL Zeitschr. wiss. Insbil. 13 p. 34.

*Formicina belgarum* p. 31, *microgyna* p. 33, spp. n., *flava* var. n. *morboosa* p. 28, *umbrosa* var. n. *sabalarum* p. 30, BONDROIT Ann. Soc. ent. France 87.

*Formicoxenus nitidulus*, STUMPER pp. 160–179 Biol. Zentralbl. 38.

*Iridomyrmex glaber* var. n. *consimilis* p. 529, *epinotalis* sp. n. New Guinea p. 530, VIEHMAYER D.E.Z. 1914.—*I. emeryi* sp. n. Australia p. 90, CRAWLEY Ent. Rec. 30.

*Lasius*, application of name, FOREL p. 724 Bull. Soc. Vaud. 51.—*L. brevicornis microps* subsp. n. p. 526, *flavus claripennis* subsp. n. p. 527, *L. (Formicina) humilis* sp. n. Nevada p. 528, *L. interjectus californicus* p. 531, *coloradensis* and *arizonicus*, p. 532, subsp. n., WHEELER P. Amer. Ac. 52 1917.

*Leptomyrmex*, monograph pp. 255–286, *erythrocephalus* varr. n. *mandibularis*, *decipiens* and *cnemidatus* p. 268, *wiburdi* sp. n. N.S.W. p. 272 with var. *pictus* p. 273, WHEELER P. Amer. Ac. 1915.

*Leptothorax lichtensteini* Montpellier p. 123, *cordieri* Corsica p. 126 with var. *rougeti* p. 127, *aveli* p. 127 with var. *pici* p. 128, *tristis*, *rabaudi*, p. 129, *curvithorax*, *berlandi*, p. 130, *racovitzai*, *massiliensis*, p. 133, *grouvellei* p. 135, France, spp. n., *angustulus* var. n. *bordagei* p. 137, BONDROIT Ann. Soc. ent. France 87.—*L. denticulatus* Canaries p. 336, *laciniatus* Algeria p. 338, spp. n., *angustulus* var. n. *angustinode* p. 336, STITZ Mitt. Zool. Mus. Berlin 8 1917.—*L. acervorum* var. n. *calderoni* p. 617, FOREL D.E.Z. 1914.—*L. nitens* var. n. *mariposa*. p. 507, *nevadensis rudis* subsp. n. p. 508, *rugatulus* var. n. *medicirufus*, subsp. n. *brunnescens* p. 510, *muscorum* var. n. *septentrionalis* p. 511, *acervorum crassipilis* subsp. n. p. 513, *emersoni hirtipilis* subsp. n. p. 515, WHEELER P. Amer. Ac. 52 1917.

*Liometopum apiculatum luctuosum*, male, FOREL p. 619 D.E.Z. 1914.

*Meranoplus minor* sp. n. Australia p. 89, CRAWLEY Ent. Rec. 30.

*Messor bouvieri* sp. n. Eur. mer. p. 154, BONDROIT Ann. Soc. ent. France 87.—*M. barbarus rufula* n. n. for *rufa* F., FOREL p. 156 Bull. Soc. Vaud. 52.—*M. barbarus* varr. n. *grandiceps* p. 343 *brevispinosus* and *laeviceps* p. 344, *planiceps* sp. n. Algeria p. 344, STITZ Mitt. Zool. Mus. Berlin 8 1917.

*Monomorium destructor* var. n. *pallidus*, *M. (Holcomyrmex) evansi* sp. n., Mesopotamia p. 166, DONISTHORPE Ent. Rec. 30.—*M. salomonis* var. n. *obscuratum*, *niloticum gracilicorne* n. st. p. 346, STITZ Mitt. Zool. Mus. Berlin 8 1917.

*Myrmecina graminicola* var. n. *grouvellei* p. 116, BONDROIT Ann. Soc. Ent. France 87.

*Myrmecocystus viaticus* var. n. *laevior* p. 348, STITZ Mitt. Zool. Mus. Berlin 8, 1917.

*Myrmica specioidea* France and Belgium p. 100, *rolandi* p. 101, *wesmaeli* p. 106, Pyr. or., *arduennae* var. n. *pyrenaea* p. 106, BONDROIT Ann. Soc. Ent. France 87.—*M. scabrinodis* var. n. *emeryana* p. 617, FOREL D.E.Z. 1914.—*M. brevinodis* var. n. *ataskensis* p. 503, *scabrinodis* var. n. *monticola* p. 505, WHEELER P. Amer. Ac. 52 1917.—*M. nests*, CHAPMAN p. 190 Ent. Rec. 30.

*Nematocrema* subg. n. vide *Cremastogaster*.

*Neocrema* subg. n. vide *Cremastogaster*.

*Orthocrema* subg. n. vide *Cremastogaster*.

*Paracrema* subg. n. vide *Cremastogaster*.

*Pheidole annemariæ* sp. n. Madagascar p. 152, FOREL Bull. Soc. Vaud. 52.—*P. amplificata* sp. n. New Guinea p. 517, VIEHMEYER D.E.Z. 1914.—*P. longiscapa* n. st. *martensis*, var. n. *scabrocciput*, p. 616, *gaigei* sp. n. Colombia p. 616, FOREL D.E.Z. 1914.—*P. pallidula* var. n. *inermis* and *cicatricosa*, *megacephala* var. n. *obtusa*, p. 340, STITZ Mitt. Zool. Mus. Berlin 8 1917.

*Pheidologeton australis* var. n. *mjoebergi* p. 723, FOREL Bull. Soc. Vaud. 51.

*Phyracaces heros* p. 240, *leae* p. 243, *fervidus* p. 245, *scrutator* p. 247, *rugulinodis* p. 249, *mullewanni* p. 251, *sticosus* p. 252, *elegans* p. 254, *larvatus* p. 257, *senescens* p. 259, spp. n. Australia, WHEELER P. Amer. Ac. 53 1918.

*Podomyrma gibbula* p. 523, *keysleri* p. 524, spp. n. New Guinea, *ruficeps* var. n. *opacula* p. 525, VIEHMEYER D.E.Z. 1914.

*Polyergus rufescens* var. n. *fusciventris* p. 555, WHEELER P. Amer. Ac. 52 1917.

*Polyrhachis dolichocephala* sp. n. p. 532, *arcuata* var. n. *denselineata* p. 533, *escherichi* sp. n. p. 534, New

Guinea, VIEHMEYER D.E.Z. 1914.—*P. gestroi moeschiella* n. n. for var. *rufiventris* For., *hostilis intricata* var. n., p. 726, FOREL Bull. Soc. Vaud. 51.

*Ponera parva* sp. n. Marseilles p. 85, BONDROIT Ann. Soc. Ent. France 87.—*P. myrmicarum* p. 144, *rothkirchi* p. 145, spp. n. Cameroons, WASSMANN Ent. Mitt. 7.—*P. opaciceps* var. n. *gaigei* p. 615, FOREL D.E.Z. 1914.

*Proformica ferreri* sp. n. Spain p. 41, BONDROIT Ann. Soc. Ent. France 87.

*Pseudomyrma spinicola* n. st. *gaigei* p. 615, FOREL D.E.Z. 1914.

*Rhytidoponera foreli* sp. n. p. 88, *numeensis borealis* subsp. n. p. 89, CRAWLEY Ent. Rec. 30.

*Rogeria foreli* n. st. *gaigei* p. 617, FOREL D.E.Z. 1914.

*Solenopsis (Synsolenopsis?) bruchi* sp. n. Cordoba p. 150, FOREL Bull. Soc. Vaud 52.

*Sphaerocrema* subg. n. vide *Cremastogaster*.

✓*Stenamamma brevicorne sequoiarum* subsp. n. p. 520, WHEELER P. Amer. Ac. 52 1917.

*Strumigenys rothkirchi* sp. n. Cameroons p. 14, WASSMANN Ent. Mitt. 7.

*Synsolenopsis* subg. n. for *S. tenuis weiseri*, FOREL p. 155 T.c.

*Sysphincta itoi* sp. n. Japan p. 717, FOREL Bull. Soc. Vaud. 51.

*Tetramorium wagneri* sp. n. New Guinea p. 528, *bicolor tricarinarum* subsp. n. p. 529, VIEHMEYER D.E.Z. 1914.—*T. coespitum* var. n. *ruginode* p. 339, STITZ Mitt. Zool. Mus. Berlin 8 1917.

*Trapeziopelta santschii* sp. n. New Guinea p. 515, VIEHMEYER D.E.Z. 1914.

*Vollenhovia subtilis magna* subsp. n. p. 525, *punctata* p. 526, *papuana* p. 527, spp. n. New Guinea, VIEHMEYER T.c.

## CHRYSIDIDÆ.

*Chrysis (Dichrysis) frederichsi* sp. n. Madagascar p. 98, SCHULTHESS N. Beitr. syst. Insk. 1.—*C. hirsuta*, TRAUTMANN p. 165 Zeitschr. wiss. Insbiol. 14.

## ICHNEUMONIDAE.

Sixteen families of Ichneunoidea are listed, and their subfamilies (many of which are new) 88 in number; VIERECK pp. 69-74 P. biol. Soc. Washington 31. The families adopted are *Vipionidae*, *Agriotypidae*, *Alysiidae*, *Lysiognathidae*, *Vanhorniidae*, *Stephanidae*, *Pachylommidae*, *Banchidae*, *Capitoniidae*, *Braconidae*, *Myersiidae*, *Evanidae*, *Eupachylommidae*, *Roproniidae*, *Trigonalidae*, *Ichneumonidae*.

List of Ichneumonidae, Holland, SMITS van BURUST, 48 pp.

Types of Provancher's Hymenoptera continued, GAHAN & ROHWER Canad. Ent. 50 pp. 28-33 etc.

Aquatic Hymenoptera, metamorphoses, etc., HENRIKSEN Ent. Meddel. 12 1918 pt. 2 pp. 137-251 14 figs.

*Amesospilus* gen. n. for part of *Henicospilus*, *herero* sp. n. Africa, ENDERLEIN p. 222 Beitr. Landf. Sudwestafrik. 1.

*Anarthronota solitaria* sp. n. Germany p. 307, HABERMEHL Zeitschr. wiss. Insbiol. 13.

*Angitia polynesiensis* = (*plutellae* and *hellulae* V.), TIMBERLAKE p. 400 P. hawai. ent. Soc. 3.

*Apaeticus amoenus* sp. n. Germany p. 58, HABERMEHL Zeitschr. wiss. Insbiol. 13 1917.

*Banchus femoralis*, PFANKUCH D.E.Z. 1914 pp. 535-539.

*Barichneumon amabilis* sp. n. Germany p. 22, HABERMEHL Zeitschr. wiss. Insbiol. 13 1917.

*Campoplex libauensis* sp. n. p. 157, STRAND Ent. Mitt. 7.

*Coelocryptus rufinus* = (*Plectocryptus romani* Pf.), PFANKUCH p. 541 D.E.Z. 1914.

*Cremastus areolaris* sp. n. Ignalino p. 158, STRAND Ent. Mitt. 7.—*C. sannio* p. 225, *flavithorax* p. 226, spp. n., Africa, ENDERLEIN Beitr. Landf. Sudwestafrik. 1.

*Cryptus crassitarsis* Savognin p. 146, *hispanicus* p. 147, *turanus* Alai p. 148, *solitarius* Germany p. 149, *algericus*, *rufiventris* Alai, p. 150, spp. n., HABERMEHL Zeitschr. wiss. Insbiol. 14.—

*C. thomsoni* sp. n. Africa p. 214, ENDERLEIN Beitr. Landf. Sudwestafrik. 1.

*Diacritus muliebris*, synonymy, CUSHMAN p. 162 P. ent. Soc. Washington 19.

*Dochyteles luteipes*, *heydeni*, p. 26, *rhaeticus* p. 27, spp. n., HABERMEHL Zeitschr. wiss. Insbiol. 13 1917.

*Enirospilus* (sic) (*Dispilus*) *run-diensis* sp. n. E. Africa p. 476, BISCHOFF Mitt. Zool. Mus. Berlin 7 1915.

*Ephialtes pfefferi* sp. n. Germany p. 165, HABERMEHL Zeitschr. wiss. Insbiol. 13 1917.

*Epiurus inquisitoriella*, synonymy, CUSHMAN p. 11 P. ent. Soc. Washington 20.

*Eripterimorpha scirpophagae* p. 563, *javensis* p. 564, *dammermani* p. 565, spp. n., Java, ROHWER P. U.S. nat. Mus. 54.

*Exephanes rhenanus* sp. n. p. 51, HABERMEHL Zeitschr. wiss. Insbiol. 14.

*Gambus antefurcalis* sp. n. Africa p. 213, ENDERLEIN Beitr. Landf. Sudwestafrik. 1.

*Glypta algerica* p. 227 sp. n., HABERMEHL Zeitschr. wiss. Insbiol. 13 1917.—

*G. macrura* sp. n. Munich p. 118, HABERMEHL Zeitschr. wiss. Insbiol. 14.

*Glyptichneumon* gen. n., *phaeogenoides* sp. n. Germany p. 114, HABERMEHL Zeitschr. wiss. Insbiol. 13 1917.

*Gnathochorisis terebrata* sp. n. Ignalino p. 159, STRAND Ent. Mitt. 7.

*Gonioprymnus serratitibia* sp. n. Afrika p. 227, ENDERLEIN Beitr. Landf. Sudwestafrik. 1.

*Habromyx japonicum* Kriech., metamorphosis (Japanese), NAWA Konch. Sek. Gifu 27 pp. 96-100 pl.

*Hemiteles hemerobii* sp. n. Bremen p. 539, PFANKUCH D.E.Z. 1914.—*H. tenellus*, TIMBERLAKE p. 400 P. hawai. ent. Soc. 3.

*Henicospilus sinicarinatus* p. 218, *techowii* p. 219, *dinteri* p. 220, *luebberti* p. 221, spp. n., Africa, ENDERLEIN Beitr. Landf. Sudwestafrik. 1.

*Hoplocryptus ignalinoensis* sp. n. p. 154, STRAND Ent. Mitt. 7.

*Hypselogastrina* gen. n. *Gravenhorstaria*, *saliina* sp. n. Africa, ENDERLEIN p. 217 Beitr. Landf. Sudwestafrik. 1.

*Ichneumon melanoleucus* sp. n. Munich p. 12, HABERMEHL Zeitschr. wiss. Insbiol. 14.

*Ischnus solitarius* sp. n. Voages p. 113, HABERMEHL Zeitschr. wiss. Insbiol. 13 1917.

*Iseropus coelebs*, synonymy, CUSHMAN p. 12 P. ent. Soc. Washington 20.

*Nopectis rubi* sp. n. N. Africa, *attaci* n.n. for *japonica* Ulbr., HABERMEHL p. 117 Zeitschr. wiss. Insbiol. 13 1917.

*Lissonota schmiedeknechti* p. 308, *pusilla* p. 310, *silvatica* p. 311, *facialis*, *nigricoxis*, p. 315, *amabilis* p. 316, Germany, spp. n., HABERMEHL Zeitschr. wiss. Insbiol. 13; *L. algerica*, *rufithorax* Mascara, *sesiae* Hamburg, p. 6, *L. (Asphragis) eximia*, *incerta*, p. 7, Germany, spp. n., HABERMEHL Op. cit. 14.

*Lissonotopsis* gen. n. p. 234, *rufa* sp. n. Algeria p. 306, HABERMEHL Op. cit. 13 1917.

*Melanichneumon nigridens* sp. n. Hosse p. 48, HABERMEHL Op. cit. 14.

*Meniscus turanus* Alai, *similis* Germany, p. 232, *lissonotoides* Worms p. 233, spp. n., HABERMEHL Op. cit. 13 1917.

*Mesochorus herero* sp. n. Africa p. 216, ENDERLEIN Beitr. Landf. Sudwestafrik. 1.

*Neotypus michaelsoni* sp. n. Africa p. 212, ENDERLEIN T.c.

*Ophion occidentalis* Morl. = (*larseni* End.), CHAMPION p. 168 Ann. Nat. Hist. 1.

*Paniscus parvus* sp. n. Africa, ENDERLEIN p. 232 Beitr. Landf. Sudwestafrik. 1.

*Phaeogenes fur* sp. n. Ignalino p. 153, STRAND Ent. Mitt. 7.

*Phygadeuon horniamus* sp. n. Ignalino p. 154, STRAND T.c.

*Physeteles nassavicus* p. 51 Rhine, *bequaerti* Algeria p. 52, spp. n., HABERMEHL Zeitschr. wiss. Insbiol. 13 1917.

*Pimpla ignalinoensis* sp. n. p. 155, STRAND Ent. Mitt. 7.—*P. pomorum* metamorphosis IMMS, male MORLEY Ann. Appl. Biol. 4 pp. 211–227 figs.—*P. instigator*, on *Hymenoptera*, MORLEY p. 163 Ent. Mo. Mag. 54.

*Pimplidea tenuicornis*, *aequalis*, synonymy, CUSHMAN p. 10 P. ent. Soc. Washington 20.

*Platylabus dubitator*, *alpinus* St. Moritz, spp. n. p. 57, HABERMEHL Zeitschr. wiss. Insbiol. 13 1917.

*Pleurodontoplax* gen. n. p. 228 near *Holcopimpla*, *congoensis*, *pulchra*, p. 229, *nigriventris* p. 230, spp. n. Africa, ENDERLEIN Beitr. Landf. Sudwestafrik. 1.

*Polysphinctopsis* gen. n. for *P. eximia* Schm., HABERMEHL p. 167 Zeitschr. wiss. Insbiol. 13 1917.

*Proscus crassiceps* sp. n. p. 114, HABERMEHL T.c. 1917.

*Pseudopimpla* gen. n. p. 164, *algerica* sp. n. p. 165, HABERMEHL T.c. 1917.

*Scammatonotum* gen. n. near *Paniscus*, *herero* sp. n. Africa, ENDERLEIN p. 231 Beitr. Landf. Sudwestafrik. 1.

*Scenopathus* gen. n. near *Cratocryptoides*, *ferrugineus* sp. n. Africa, ENDERLEIN p. 215 T.c.

*Xorides rufus* sp. n. Algeria p. 10, HABERMEHL Zeitschr. wiss. Insbiol. 14.

*Zachresta ochreiventris* p. 223, *africana*, *pedunculata*, p. 224, spp. n., Africa, ENDERLEIN Beitr. Landf. Sudwestafrik. 1.

## BRACONIDAE.

*Isaria* parasitic on cocoons, LYLE p. 227 fig. Entom. 51.

*Archihymenidae* fam. n., of complex affinities, ENDERLEIN p. 195 Beitr. Landf. Sudwestafrik. 1.

*Archihymen* gen. n. p. 196, *priscus* sp. n. S.W. Africa p. 197 pl. v. figs. 1–8, ENDERLEIN T.c.

Revision of *Neoncurus*, *Elasmosoma* and *Phylacter*, BENGTONSON Lund Univ. Arsskr. N.F. Avd. 2 14 No. 21 pp. 1–47 19 figs.

*Acanthodoryctes* gen. n. p. 55 type *Iphiaulax morleyi* Frogg., *gilberti* sp. n. Queensland p. 56, TURNER Ann. Nat. Hist. 1.

*Agathiella meridionalis* Tasmania p. 110, *unimaculata*, *tenuissima*, *festinata*, p. 111, *maligna*, Australia, *rugosa* Tasmania, p. 112, *minima* Queensland p. 113, spp. n., TURNER Tr. ent. Soc. London 1918.

*Amyosoma leuzerae* sp. n. Java p. 557, ROHWER P. U.S. Mus. 54.

*Apanteles pallidocinctus* p. 588, *ugandensis*, *gowdeyi*. p. 589, spp. n., Uganda, GAHAN P. U.S. nat Mus. 54.—*A. (Protapanteles) bataviensis*, *A. belippae*, p. 566, *javensis* p. 567, spp. n., Java, ROHWER P. U.S. nat. Mus. 54.—*A. glomeratus*, DONISTHORPE p. xlviii Pr. ent. Soc. London 1917; oviposition GAUTIER C.R. Soc. Biol. 81 p. 801 and p. 1152, and ADLER Zeitschr. wiss. Insbiol. 14 pp. 182-186; larval habits, GAUTIER C.R. Soc. Biol. 81 pp. 197-199.—*A. congregatus*, cocoon making, CUSHMAN p. 133 P. ent. Soc. Washington 20.—*A. lacteicolor* and *Meteorus versicolor*, natural history, larvae, MUESEBECK pp. 191-206 4 pls. J. Agric. Res. 14.

*Ascogaster carpocapsae* host, WILCOX p. 17 Psyche 25.

*Austrohelcon* gen. n. p. 166, *meridionalis*, *erythrocephalus*, spp. n., Victoria p. 167, TURNER Ann. Nat. Hist. 2.

*Biroia solitaria* sp. n. Australia, TURNER p. 229 Ann. Nat. Hist. 1.

*Brachycoryphus pulchellus* sp. n. Africa p. 476, BISCHOFF Mitt. zool. Mus. Berlin 7 1915.

*Bracon suavis* sp. n. Africa p. 189, SZÉPLIGETI Beitr. Landf. Sudwestafrik. 1.—*B. walkeri* Australia, *bimaris* Tasmania, spp. n., TURNER Tr. ent. Soc. London 1918 p. 93.

*Braunsia wallacei* New Guinea, *diversipennis* Queensland, spp. n., TURNER p. 224 T.c.

*Brulleia chinensis* sp. n. p. 171, TURNER Ann. Nat. Hist. 2.

*Calohelcon* gen. n., *obscuripennis* sp. n. Victoria, TURNER p. 165 T.c.

*Campyloneurus profugus* p. 100, *praeclarus*, *praepotens*, p. 101, spp. n. Australia, TURNER Tr. ent. Soc. London 1918.

*Cardiochiles assimulator* p. 49, *dissimulator* p. 50, *verticalis*, *uniformis*, p. 51, spp. n. Australia, TURNER Ann. Nat. Hist. 1.

*Coeloides scolyticida* var. n. *melanostigma* p. 151, STRAND Ent. Mitt. 7.

*Cremonops dissimilis*, *marginipennis*, p. 222, *commulator* p. 223, spp. n., Australia, TURNER Ann. Nat. Hist. 1.

*Cyanopterus innotatus* sp. n. Queensland p. 95, TURNER Tr. ent. Soc. London 1918.

*Diolcogaster circumvectus* sp. n. England p. 105, LYLE Entom. 51.

*Disophrys signatipennis* p. 225, *ruberima*, *rufifrons*, p. 226, *diversipes*, *exornata*, p. 227, *diluta*, *similipicta*, p. 228, *nigropectus* p. 229, spp. n., Australia, TURNER Ann. Nat. Hist. 1.

*Doryctes striatelloides* sp. n. Igalino p. 152, STRAND Ent. Mitt. 7.

*Ernestiella* and *Schoenlandiella* Cam. merged in *Cardiochiles*, TURNER p. 52 Ann. Nat. Hist. 1.

*Gymnoscelus rufoniger* Tasmania p. 169, *rufithorax* Melbourne p. 170, spp. n., TURNER Ann. Nat. Hist. 2.

*Hadrobracon brevicornis*, biology, WHITING Biol. Bull. 34 pp. 250-256.

*Helcon unicornis* sp. n. Indo-China p. 172, TURNER Ann. Nat. Hist. 2.

*Hormiopterus choenobivorus* sp. n. Java p. 570, ROHWER P. U.S. nat. Mus. 54.

*Iphiaulax callosus* sp. n. Africa p. 188, SZÉPLIGETI Beitr. Landf. Sudwestafrik. 1.—*I. transiens* sp. n. Australia p. 95, TURNER Tr. ent. Soc. London 1918.—*I. medianus* habits, MOORE pp. 318 & 319 Tr. ent. Soc. London 1917.

*Ipothrocon ingressor*, *pallidicolor*, p. 102, *quadricolor* p. 103, *gilberti*, *torridus*, p. 104, *fraterculus* p. 105, spp. n. Australia, TURNER Tr. ent. Soc. London 1918.—*I. saccharalis* sp. n. Guiana p. 81, TURNER Bull. ent. Res. 9.

*Liodyctes nigridorsalis* p. 53, *erythrothorax*, *atriceps*, p. 54, spp. n. Australia, TURNER Ann. Nat. Hist. 1.

*Macrobracon nobilis* sp. n. Queensland p. 96, TURNER Tr. ent. Soc. London 1918.

*Megalohelcon* gen. n. p. 163, *torresensis* sp. n. p. 164, TURNER Ann. Nat. Hist. 2.

*Megalommum annulatum* sp. n. Tasmania and Australia p. 97, TURNER Tr. ent. Soc. London 1918.

*Merinotus xanthocephalus* sp. n. Queensland p. 98, TURNER T.c.

*Meteorus kleini* sp. n. Africa p. 191, SZÉPLIGETI Beitr. Landf. Sudwestafrik. 1.—*M. hyphanthrae*, cocoon formation, CUSHMAN p. 134 P. ent. Soc. Washington 20.

*Microbracon cephi* sp. n. Dakota p. 19, GAHAN P. ent. Soc. Washington 20.

*Microdus rufobrunneus* p. 106, *xanthopsis*, *rufithorax*, p. 107, *martialis* p. 108, spp. n. Australia, TURNER Tr. ent. Soc. London 1918.—*M. diatrææ* sp. n. Guiana p. 82, TURNER Bull. ent. Res. 9.

*Microgaster fasciipennis* sp. n. Uganda p. 587, GAHAN P.U.S. nat. Mus. 54.

*Microplitis ruricola* sp. n. England, LYLE p. 132 Entom. 51.

*Oncophanes hesperidis* sp. n. Java p. 569, ROHWER P. U.S. nat. Mus. 54.

*Opius ponerophagus* sp. n. India on *Dacus oleae* var., SILVESTRI p. 426, figs. Atti Acc. Lincei 25 2 1916.—*Opius humilis* and *Diachasma tryoni*, larvae, structure, natural history, *D. fullawayi*, PEMBERTON & WILLARD J. Agric. Res. 15 pp. 419-466 many figs. also J. con. Ent. 12 pp. 285-296 3 pls.; and 14 pp. 605-610.

*Parahelcon konowi* (= *Opius euthyrhini* Cam.), TURNER p. 165 Ann. Nat. Hist. 2.

*Platygathis* gen. n. p. 113 near *Disophrys*, *leacna* sp. n. S.W. Australia p. 114, TURNER Tr. ent. Soc. London 1918.

*Platybracon javensis* sp. n. p. 568, ROHWER P. U.S. nat. Mus. 54.

*Rhogas penetrator* Sm. to *Aspidocolpus*, TURNER p. 170 Ann. Nat. Hist. 2.

*Stigmatobracon* gen. n. *Braconinae* p. 91, *xanthostigma*, *basipennis*, *diversipennis*, p. 92, *torresensis* p. 93, spp. n., Australia, TURNER Tr. ent. Soc. London 1918.

(n-5464 j)

*Sycosoter lavagnei*, structure, metamorphosis, LICHTENSTEIN & PICARD Trav. Inst. Montpellier 29 pp. 440-474.

*Trichiohelcon* gen., n. for *Iphiaulax phoracanthæ* Frogg., TURNER p. 168 Ann. Nat. Hist. 2.

*Vipio michaelsoni* sp. n. Africa p. 186, SZÉPLIGETI Beitr. Landf. Sudwestafrik. 1.

*Zombrus thomsoni* p. 189, *minor* p. 190, spp. n., Africa, SZÉPLIGETI T.c.

#### STEPHANIDAE.

*Coelostephanus* is a synonym of *Gymnoscelus*, TURNER p. 173 Ann. Nat. Hist. 2.

#### EVANIIDAE.

*Evania flavocoxalis* sp. n. Cameroons p. 93, BRUES Psyche 25.—*E. albicoxa* sp. n. Madagascar p. 97, SCHULTHESS N. Beitr. syst. Insk. 1.

*Foenus rugosissimus* sp. n. Australia p. 413, TURNER Ann. Nat. Hist. 1.—*F. autumnalis* W. Australia p. 200, *exilis* Tasmania, *macrocephalus* Victoria p. 201, *bicarinatus* W. Australia p. 203, spp. n., TURNER Ann. Nat. Hist. 2.

*Hyptiogaster arenicola* p. 408, *asymetrica* p. 409, *inacqualis* p. 410, *nitidiuscula* p. 411, *floricola*, Australia, *minima* Tasmania, p. 412, spp. n., TURNER Ann. Nat. Hist. 1.

*Pristaulacus*, habits, LICHTENSTEIN & PICARD Bull. Soc. ent. France 1918 p. 109.—*P. fuscocostalis* p. 414, *fulvus* p. 415, spp. n. Queensland, TURNER Ann. Nat. Hist. 1.

*Pseudofoenus cylindricus* p. 197, *fluvialis* p. 198 Australia, *isthmalis* p. 199 Tasmania, spp. n., TURNER Ann. Nat. Hist. 2.

#### CHALCIDIDAE, MYMARIDAE.

Suggestions as to taxonomy of Cameron's Australian species, GIRAULT pp. 117 and 118 Insec. inscit. 6.

Polyembryony, GATENBY Q. J. micr. Sci. 63 pp. 175-196 2 pls.

GIRAULT, A. A. Descriptions of new chalcids, privately published in 1917, cf. P. ent. Soc. Washington 20 p. 18; not seen by Recorder.

Parasitic Hymenoptera in the seeds of conifers n. spp. YANO & OYAMA Konch. Sek. Gifu 27 pp. 372-376.

*Abbella (Ittys) perditrix* sp. n. Arizona p. 25, GAHAN P. ent. Soc. Washington 20.

*Anaphes cinctus*, BLUNCK pp. 140-142, fig. Zeitschr. wiss. Zool. 111 1914.

*Aphelinus bovelli* sp. n. Barbados, p. 77, figs., *chrysomphali* p. 31 pl. i f. 7, *silvestrii* p. 36 f. 8, MALENOTTI Redia 13.

*Aphycus melanostomatus*, natural history, metamorphosis, IMMS pp. 341-369 10 figs. Q. J. microsc. Sci. 38.—*A. hesperidum* p. 46 pl. ii f. 25, MALENOTTI Redia 13.

*Aspidiotiphagus citrinus* p. 20 pl. i f. 1, *lounsburyi* p. 25 pl. ii f. 9, MALENOTTI Redia 13.

*Blastothrix britannica*, natural history, structure, metamorphosis, IMMS Q. J. microsc. Sci. 38 pp. 294-341 24 figs.

*Blepyrus mexicanus*, TIMBERLAKE p. 403 P. hawai. ent. Soc. 3.

*Bruchobius laticeps* Crawf., GIRAULT p. 129 Ent. News 29.

*Callimome tsugae* n. sp., YANO & OYAMA Konch. Sek. Gifu 27 pp. 372-376.

*Casca luzonica* sp. n. p. 73, MALENOTTI Redia 13 figs.

*Cerchysius*, females, *whittieri* sp. n. San Francisco, GIRAULT p. 66 Ent. News 29.

*Chalcis ovata* var. *abesiae* a distinct species, ROHWER p. 18 P. ent. Soc. Washington 20.

*Charitopodinus* gen. n. for *Eupelminus swezyi*, BRIDWELL p. 486 P. hawai. ent. Soc. 3.

*Cleonymus californicus* sp. n. p. 11, GIRAULT J. Ent. Zool. 9 1917.

*Closterocerus cinctipennis* hosts and metamorphosis, WEISS & NICOLAY pp. 128-130 Psyche 25.

*Decatoma subimmaculata* sp. n. California p. 11, GIRAULT J. Ent. Zool. 9 1917.

*Dibrachys clisiocampae*, habits, GRAHAM Ann. ent. Soc. Amer. 11 pp. 175-180 pl.

*Eomyrmar fenestrarum* sp. n. Queensland p. 198, GIRAULT Redia 13.

*Eupelmus alhazeni* sp. n. Queensland p. 197, GIRAULT T.c.

*Eurytoma monemae* sp. n. China p. 161, RUSCHKA Ent. Mitt. 7.

*Eusandalum californicum, obscurum, alpinum, georgia*, p. 8, *arizona* p. 9, spp. n., U.S., GIRAULT J. Ent. Zool. 9 1917.

*Gonatocerus ornatus* sp. n. Arizona p. 23, GAHAN P. ent. Soc. Washington 20.

*Grotiusomyia* gen. n. p. 125 *Ophelinini*, type *Miotropsis nigricans* How., GIRAULT Ent. News 29.

*Idarnes* = (*Idarnomorpha* G.) characters, GIRAULT p. 129 T.c.

*Megastigmus cryptomeriae, thuyopsis, inamurae*, spp. n., YANO & OYAMA Konch. Sek. Gifu 27 pp. 372-376.—*M. amelanchieris* sp. n. U.S. in seeds, CUSHMAN p. 81 P. ent. Soc. Washington 19 larva pl. x.

*Mesolelaps cyaneiventris* Ashm., GIRAULT p. 129 Ent. News 29.

*Metalaptus torquatus* pp. 81-92, figs., MALENOTTI Redia 13.

*Omphalchrysocharis petiolatus* sp. n. U.S. p. 131, GIRAULT Ent. News. 29.

*Perilampus batavus* sp. n. Holland, SMITS VAN BURGST Ber. Ned. Ent. Ver. 5 p. 64.

*Pleurotropis kansensis* sp. n. p. 128, GIRAULT Ent. News 29.

*Polycystus clypeatus* sp. n. St. Vincent p. 128, GIRAULT T.c.

*Polynema joulei* sp. n. Queensland, GIRAULT p. 197 Redia 13.—*P. imitatrix* sp. n. P. ent. Soc. Washington 20.

*Prestwichia aquatica*, BLUNCK pp. 142-147 Zeitschr. wiss. Zool. 111 1914 figs.

*Propachyneuron*, invalid, GAHAN p. 66 P. ent. Soc. Washington 20.



*Prospallella fasciata*, MALENOTTI p. 28 pl. i f. 5 Redia 13.

*Pseudomphale eudami* sp. n. St. Vincent p. 130, GIRAULT Ent. News 29.

*Pseudopteroptrix* gen. n., *imitatrix* sp. n., FULLAWAY p. 464 P. hawaii. ent. Soc. 3.

*Pteromalus*, waiting for oviposition, POULTON p. lvi P. ent. Soc. London 1917.

*Rileya heterogaster* p. 141, *compressiventris* p. 143, *regularis* p. 147, *similaris* p. 149, spp. n., U.S., GAHAN P. ent. Soc. Washington 20.

*Schizonotus sieboldii*, larval habits, CUSHMAN p. 128 pl. xiv P. ent. Soc. Washington 19.

*Secundeisenia mexicana* Ashm., GIRAULT p. 126 Ent. News 29.

*Signiphora (Matritia) simillima* sp. n. Madrid p. 170, MERCET Rev. Ac. Madrid 16 1917.—*S. merceti* p. 40 pl. ii f. 17, MALENOTTI Redia 13.

*Stomatoceras unipunctatipennis* with var. *americensis*, *leuicornis*, spp. n. U.S. p. 127, GIRAULT Ent. News 29.

*Sycophila incerta* Ashm., GIRAULT p. 129 T.c.

*Syntomaspis amelanchieris* sp. n. U.S. in seeds, CUSHMAN p. 82 larva pl. x. P. ent. Soc. Washington 19.

*Tetrastichus asparagi* in France, FERRIÈRE Verh. Schweizer Ges. Aarau 1917 p. 276.—*T. giffardianus*, larva etc., PEMBERTON & WILLARD J. Agric. Res. 15 pp. 448-454 figs.

*Tragiicola* gen. n. *Eucharidae*, *haumani* sp. n. Argentina, BRÈTHES p. 83 Bull. Soc. ent. France 1918.

*Trichogramma evanescens*, earliest development, GATENBY pp. 161-174 Q. J. micr. Sci. 63 pl. xiii.

#### PROCTOTRYPIDAE, BETHYLIDAE.

*Anteoninae*, biology etc. pp. 177-212 & 243-278, FENTON Ohio Nat. 19.

*Aphelopus dikraneuri* pp. 257 & 276, *comesi* p. 277, spp. n., Ohio, FENTON Ohio Nat. 18.—*A. theliae* sp. n. New York p. 151, GAHAN Canad. Ent. 50.

*Basalys loxotropalis* sp. n. Kurland p. 150, STRAND Ent. Mitt. 7.

(n-5464 f)

*Chelogyne osborni* sp. n. pp. 256 & 272 Ohio, FENTON Ohio Nat. 18.

*Epyris michaelsoni*, *windhukiensis*, spp. n. Africa p. 205, KIEFFER Beitr. Landf. Südwestafrik. 1.

*Galesus silvestrii* larva, PEMBERTON & WILLARD J. Agric. Res. 15 pp. 458-461 figs.

*Gonatopus affinis* p. 266, *punctatus* p. 268, *inimicus* p. 270, spp. n., Ohio, FENTON Ohio Nat. 18.—*G. erythrodes*, life-history pp. 203-205, FENTON T.c.

*Holepyris wagneri* sp. n. Africa p. 206, KIEFFER Beitr. Landf. Südwestafrik. 1.

*Parasierola leuconcura* sp. n. Africa p. 204, KIEFFER Beitr. Landf. Südwestafrik. 1.

*Platygaster dryomyiae*, embryology, SILVESTRI Atti Acc. Lincei 25 2 p. 121 1916.

*Pristocera ? ferruginea* sp. n. Africa p. 475, BISCHOFF Mitt. Zool. Mus. Berlin 7 1915.

*Scleroderma immigrans* sp. n. Oahu p. 484, BRIDWELL P. hawaii. ent. Soc. 3.

*Trichopria rhopalica* sp. n. S.W. Africa p. 207, KIEFFER Beitr. Landf. Südwestafrik. 1.

*Usakosia* gen. n. p. 203, *albipennis* sp. n. Africa p. 204, KIEFFER T.c.

#### CYNIPIDAE.

*Amblynotus slossonae* p. 171, *semirugosus* p. 172, spp. n., U.S., CRAWFORD P. ent. Soc. Washington 19.

*Andricus impositus* sp. n. New York p. 320, BRUTENMULLER Ent. News 29.

*Chrestosema pallidipes* male, HEDICKE p. 636 D.E.Z. 1914.

*Conaspidea* gen. n. *Aspicerinae*, *neotropica* sp. n. Tucuman, HEDICKE p. 635 D.E.Z. 1914.

*Cothonaspis steinbachi* sp. n. Argentina p. 636, HEDICKE T.c.

*Eugonaspis* gen. n. *Cynipinae*, *surinamensis* sp. n., HEDICKE p. 637 T.c.

*Liopterium bifasciatum* female, HEDICKE p. 634 T.c.

b 15-2

*Neralsia fiebrigi* sp. n. Paraguay p. 635, HEDICKE T.c.

*Periclistus castanopsidis* sp. n. California p. 251, BEUTENMULLER Ent. News 29.

*Rhodites oregonensis* p. 305, ashmeadi p. 306, ostensackeni, bassetti, p. 307, spp. n., Oregon, BEUTENMULLER Canad. Ent. 50.

HYMENOPTERA PHYTOPHAGA OR  
TENTHREDINOIDEA.

Photographs of larvae, MORICE pls. B. and C. Proc. ent. Soc. London 1917, p. xlvii.

Abnormal galls, ENSLIN pp. 77-80 Ent. Mitt. 7.

*Allantus (Labidia) sefrensis* sp. n. p. 12, PIC Echange 34.

*Amasis crassicornis* var. n. sub-fasciata, PIC p. 197 Bull. Soc. ent. France 1918; *A. crassicornis* var. n. gallica p. 12, PIC Echange 34.

*Ancyloneura wollastoni* sp. n. N. Guinea p. 438, ROHWER Ann. Nat. Hist. 2.

*Aprosthem a atritarsis* sp. n. Algeria p. 12, PIC Echange 34.

*Augomonoctenus* gen. n., libocedrii sp. n. Oregon, ROHWER p. 81 P. ent. Soc. Washington 20.

*Cephidæ*; North American larvae pp. 174-179 pl. xxi, MIDDLETON Proc. Ent. Soc. Washington 19.

*Cephus obscuriventris* Lebanon p. 1, luteonotatus Algeria p. 2, spp. n., pygmaeus var. n. palaestinus p. 2, PIC Echange 34 hors texte.—*C. cinctus* and *pygmaeus*, ROHWER p. 139 P. ent. Soc. Washington 19.

*Cladius viminalis*, oviposition, CHAPMAN p. 9 Ent. Mag. 54.

*Dolerus bicolor, violaceus*, spp. n. France p. 3, PIGEOT Echange 34.

*Empria fragariae* and *maculata*, WEBSTER Proc. Iowa Ac. 23 1916 pp. 291-296 pl. vii.

*Forficulotarpa* subg. n. of *Megalodontes* for *M. levaillanti* Lue., PIC p. 12 Echange 34.

*Hemitaxonus multicinctus* early stages, HALL p. 28 P. ent. Soc. Washington 19.

*Idiogastra* subf. n. for *Oryssus*, ROHWER p. 89 P. ent. Soc. Washington 19.

*Janus foersteri* var. n. *ulmi, luteipes* var. n. *diversipes*, PIC Echange 34 p. 1 hors texte.

*Laurentia*; North American species, ROHWER pp. 157-159 P. ent. Soc. Washington 20.

*Lygaeonematus compressicornis* larval palisades, MORICE p. lxix Pr. ent. Soc. London 1917.

*Macrophya sanguinolenta* var. n. *borealis* Nord-Europa p. 151, *sibirica* Jeniscisk p. 152 sp. n., FORSIUS Helsingfors Medd. Soc. Fauna Fenn. 44.—*M. monastirensis* sp. n. p. 4, *postica* race n. *luteomaculata* p. 3, PIC Echange 34 hors texte.

*Monoplopus saltuum* var. n. *aegyptiacum* p. 12, PIC Echange 34.

*Neodiprion* gen. n. p. 83, *N. (Zadripion* subg. n.) *vallicola* p. 84, *N. dyari* p. 85, *scutellatus, mundus*, p. 86, *virginiana* p. 87, *affinis* p. 88, *maura* p. 89, spp. n., ROHWER P. ent. Soc. Washington 20.

*Neoeuryus tasmanica* sp. n. p. 439, ROHWER Ann. Nat. Hist. 2.

*Oryssus*; parasitic, BURKE pp. 87-89 P. ent. Soc. Washington 19.—The larvae, ROHWER pp. 90-98 pls. xi and xii T.c.

*Paramacrophya* subgen. n., FORSIUS Medd. Soc. Fauna Fenn. 44 p. 152.

*Perga dorsalis* larval habits, FROGGATT p. 668 P. Linn. Soc. N.S.W. 43.

*Philomastix macleaii* W. (as *Perga*) = (*glaber* Fr.), FROGGATT p. 671 T.c.

*Polyclonus*, valid characters, ROHWER pp. 439 Ann. Nat. Hist. 2.

*Pontania proxima* larval habits, RABAUD Bull. Sci. France Belgique 52 pp. 303-323.

*Pseudotaxonus* gen. n., COSTA Prospetti [omitted from the new genera in Rec. 1894].

*Pteronus sertifer* oviposition, GREEN p. 1 Pr. ent. Soc. London 1917.

*Pterygophorus bifasciatus* sexes, FROGGATT p. 670 P. Linn. Soc. N.S.W. 43.

*Rhogogaster viridis* var. n. *nigroscutellata* Finland, FORSIUS Helsingfors Medd. Soc. Fauna Fenn. 44 p. 150.

*Schizocera bleusei* sp. n. Pyr. or. p. 11, Pico Echange 34.

*Tenthredella atra* var. *orbitalis* Åland p. 143, *moniliata* var. *flavoscutellata* Süd-Finland p. 143, *fagi* var. *nigerrima* Süd-Finland p. 143, *velox* var. *colonooides* Erzgebirge p. 144, *flavicornis* var. *pallior* Europa p. 144, *livida* var. *rubripes* und var. *rubeola* p. 144, *gracilis* Sibiria p. 144, *ussuriensis* Sibiria p. 145, *sibiricola* Sibiria p. 146, *enstini* Sibiria p. 147, *stigma* Sibiria p. 149 spp. et varr. n., FONSUS Helsingfors Medd. Soc. Fauna Fenn. 44.

*Trichiosoma tibiale* emergence, CHAPMAN p. 11 Ent. Mo. Mag. 54.

*Xiphydria obtusiventris* sp. n. Queensland p. 433, ROHWER Ann. Nat. Hist. 2.—X., the North American pp. 105–111, *hicoloriae* sp. n. p. 109, ROHWER Ent. News 29.

*Zadiprion* subg. n. vide *Neodiprion*.

*Zenarge* gen. n. p. 435 subf. n. *Zenarginae* p. 434, *turneri* sp. n. Sydney p. 436, ROHWER Ann. Nat. Hist. 2.

## LEPIDOPTERA.

The classification of *Lepidoptera*, A. J. TURNER pp. 166–190 Tr. ent. Soc. London 1918: *Protocossidae* the ancestors of *Lep. Heteroneura* p. 186.

List of the families and subfamilies of *Lepidoptera*, their types and a key to the families, HAMPSON Nov. zool. 25 pp. 366–394. The families are 89 in number, of which 34 are Microlepidoptera. No taxonomy beyond the family is mentioned.

Tabulation and comparison of Hübner's Tentamen and Verzeichniss, DURRANT Ent. Rec. 30 suppl. (16 pp. published in 1918.)

MCDUNNOUGH replies to critics, discussing Hübner &c., Ent. News 29 pp. 187–191.

Wing-venation (nervuration) and classification, *Lep. Homoneura* and *Heteroneura*, TILLYARD P. L. Soc. N.S.W. 42 1917 pp. 167–174 figs.

Wing-coupling apparatus, classification, *Homoneura* and *Heteroneura*, TILLYARD P. Linn. Soc. N.S.W. 43 pp. 286–319 2 pls. and figs.

Segmentation and sculpture of Thorax, WALLE Acta Soc. Fauna Fenn. 44 No. 6. 1917 pp. 1–37 3 pls.

Primary character of markings in Lepidopterous pupae, VAN BEMMELEN Amsterdam Versl. 26 pp. 1543–1552 (Dutch) Proc. 21 pp. 58–67 (English).

Concealment by markings; MOTT-RAM P.Z.S. 1917 pp. 253–257.

Recapitulatory attitude in drying wings, CHAPMAN pp. 338–345 Tr. ent. Soc. London 1917.

Elements of sphragidology, BRYK Ark. Zool. 11 No. 18 pp. 1–38 pls.

The description of larvae, GILLMER Int. ent. Zeitschr. 9 pp. 81–84 1915.

Influence of ether on pupae, GRAMANN. Verh. Schweizer Ges. 1917 p. 275.

A synopsis of the Macrolepidoptera of Sealand (Danish), JENSEN Flora og Fauna 1918 pp. 105–112 to be continued.

Swedish lepidoptera, NEANDER, Ent. Tidskr. 39 pp. 31–53.

Annotated supplement to the lepidoptera of Switzerland, VORBRONT and MULLER-RUTZ Mitt. Schweiz. ent. Ges. 12 1917 pp. 432–529.

Lepidoptera of Pirin mountains, Macedonia, BURESCH p. 97 etc 3 pls. Zeitschr. wiss. Insbil. 14.

Teratology, BRYK Ent. Mitt. 7 pp. 88–93.

Temperature—experiments, FISHER Biol. Centralbl. 35 pp. 145–153 1915.

Scent in *Lepidoptera*, TAYLOR pp. 313–315 Naturalist 1918; MORLEY p. 363 T.c., SMART p. 364 T.c.

Proportion of sexes attracted by light, TURNER pp. 135–189 J. Agric. Rec. 14.

Cocoons as storehouses of birds, HOWARD p. 15 Ent. News 29.

The Heath collection, WALLIS p. 262 etc., Canad. Ent. 50.

†*Dunstania*; found to be *Hemiptera-Heteroptera*, TILLYARD pp. 568–592, P. Linn. Soc. N.S.W. 43.

## RHOPALOCERA.

*Rhopalocera* from E. Africa, annotated list, ELTRINGHAM pp. 322-337 Tr. ent. Soc. London 1917.

Wet-season and dry forms, intermixture, ROGERS p. lxxiii-lxv Pr. ent. Soc. London 1917.

*Androconia* in seasonal forms, BALL Ann. zool. malacol. Begique 48 pp. 141-143.

Double-headed butterflies, MORTENSEN Vid. Medd. 69 pp. 83-94 pl.

Nuptial flight, DIXEY pp. li-lv Pr. ent. Soc. London 1917.

Pairing in flight, WHEELER Ent. Rec. 30 p. 152.

List of British *Rhop.*, ROWLAND-BROWN Entomologist 51 p. 1.

Varieties of British *Rhop.*, JONES, pp. 248-252 Entom. 51.

Butterflies at Eastbourne season 1916, ADKIN P. S. London ent. Soc. 1917-18 pp. 8-11.

Sphragidophorous *Rhop.*, BRYK Ent. Tidskr. 39 pp. 143-147.

## PAPILIONIDAE.

Classification of Papilionidae, KAISER Mitt. Münchn. ent. Ges. 8 1917 pp. 3-20 and 25.

The *Papilionidae* of Celebes, MARTIN Deutsche ent. Zeitschr. Iris 29 1915 pp. 50-90.

*Equitidae* in place of *Papilionidae*, HAMPSON Nov. zool. 25.

Annotated list of Zerynthiinae pp. 64-75, of Parnassiinae pp. 218-262, ROTHSCHILD Nov. zool. 25.

*Dorarchon* nom. n. for *Archon* auctt., ROTHSCHILD p. 219 Nov. zool. 25.

*Eurycyus cressida kuehni*, and *c. intermedius* subsp. n. p. 66, ROTHSCHILD T.c.

*Luehdorfia puziloi yezoensis* subsp. n. p. 64, *japonica formosana* subsp. n. p. 65, ROTHSCHILD T.c.—*L. puziloi* ab. n. *flvomaculata*, WARNECKE p. 64 N. Beitr. syst. Insk. 1 1917.

*Papilio escherichi* sp. n. Cameroons p. 71, GAEDE Int. ent. Zeitschr. 9 1915.—*P. erlaces chinchipensis*, *iphidamas ayabacensis*, p. 259, *harmodius tabaconus*

p. 260, subsp. n., JOICEY and TALBOT P.Z.S. London 1917.—*P. illyris hamatus* E. Africa p. 271, *polydorus ulawaensis* Solomon islds. p. 272, subsp. n., JOICEY and TALBOT T.c.—*P. latreillei genestieri* subsp. n. p. 187, OBERTHÜR Bull. Soc. ent. France 1918.

*Papilio agamemnon lasius* subsp. n. Simalur, VAN EECKE Zool. Med. 4 p. 73.—*Papilio belus* var. n. *chrysomaculatus lycidas* var. n. *adlatus*, NIEPELT Int. ent. Zeitschr. 9 p. 70 1915.—*P. bianor*, in England, WHICHER p. 16 Entom. 51; GIBBONS p. 45 T.c.; SIMES p. 15 Ent. Rec. 30; in Haats, ROIG. p. 212 Entom. 51.—*P. dardanus lamborni* f.n. ♀, POULTON p. 335 Tr. ent. Soc. London 1917.—*P. dardanus* mimetic females, LAMBORN p. lxxvi Pr. ent. Soc. London 1917.—*P. lycophron*, gynandromorph, JOICEY and TALBOT p. 273 pl. ii P.Z.S. London 1917.—*P. machaon*, variation, REUSS pp. 97-101 113 Int. Ent. Zeitschr. 12.—*P. machaon* ab., ROWLAND-BROWN p. 184 Ent. 51.—*P. mayo* f. n. *decurio* Andamans, NIEPELT p. 104 Ind. ent. Zeitschr. 11 1917.—*P. neophilus parianus* ab., JOICEY and TALBOT p. 275 P.Z.S. London 1917.—*P. podalirius*, OBERTHÜR variation pls. 485-487 pp. 355-363, *p. lucifer* var. n. AVINOFF p. 360 f. 4008, Et. Léop. comp. 16.—*P. polytes romulus*. POULTON p. lxxx Pr. ent. Soc. London 1917.—*P. priamus* KAISER pp. 39-45 Mitt. Münchn. ent. Ges. 8 1917.—*P. ridleyanus* var. n. *fumatus* p. 58, NIEPELT Int. ent. Zeitschr. 9 1915.—*P. troilus ilioneus*, BARNES and McDUNNOUGH p. 61 Contr. 4.—*P. tynderaeus* ab. n. *fraudatus*, GAEDE p. 105 Int. ent. Zeitschr. 9 1915.

*Parnassius*; new forms, being translation from Awinow 1913, Mitt. Münchn. ent. Ges. 7 1916 p. 43-64 pl.—*P. apollo*, in Bavaria, WALTZ p. 53-71 2 pls. Mitt. Münchn. ent. Ges. 6 1915; *P. apollo*, variation, new forms, phylogeny, TURATI Atti Soc. ital. 57 p. 29-89 and 184-188 7 pls.; *P. apollo mnemosyne*, BRYK Ent. Tidskr. 39 p. 143 144.—*P. clodius*, synonymy, BARNES and McDUNNOUGH p. 61 and 62 Contr. 4.—*P. mnemosyne bosniacus* subsp. n. p. 223 *phoebus utahensis* subsp. n. p. 233, *apollo pyrenaiis* ab. n. *seminovarae* p. 235, *a. turatii* p. 237 subsp. n., *discolobus verityi* subsp. n. p. 249, *delphius macdonaldi* subsp. n.

p. 256, ROTHSCHILD Nov. zool. 25.—*P. phoebus* f. n. *binaria* p. 197 fig., STICHEL Zeitschr. wiss. Insbiol. 14.—*P. tenedius* var. n. *nigromaculata* Altai, NIEPELT p. 118 Int. ent. Zeitschr. 9 1915.

*Sericinus telamon leechi* subsp. n. p. 70, ROTHSCHILD Nov. zool. 25.

*Teinopalpus imperialis*, the three forms, ROTHSCHILD p. 68 T.c.

*Zerynthia polyxena* ab. n. *vitrina* p. 73, *rumina* ab. n. *distorta* p. 75, ROTHSCHILD T.c.

## PIERIDAE.

*Ascidae* in place of *Pieridae*, HAMPSON p. 385 Nov. zool. 25.

Experiments as to coloration of pupa of *P. brassicae*, DÜRKEN Zeitschr. wiss. Zool. 116 p. 587–626 3 pls. 1916. Also BRECHER Arch. Entwicklmech. 43 pp. 88–221 5 pls. 1917.

*Appias sabina* var. n. *latimarginata*, GAEDE p. 105 Int. ent. Zeitschr. 9 1915.

*Catasticta lathyi* sp. n. Ecuador p. 261, *philone nimbata*, *flisa tamboensis*, p. 260, *nimbice peruviana* p. 261, subsp. n., JOICEY AND TALBOT P.Z.S. London 1917.

*Colias crocea*, its standing distribution, STAUDER p. 29–34 Zeitschr. wiss. Insbiol. 13 1917; WARNECKE T.c. p. 302–306; *croceus*, spring-brood distribution, FRITSCH p. 32 D. ent. Zeitschr. Iris 32; *crocea mediterranea* and allies, STAUDER D. ent. Zeitschr. Iris 31 p. 67–82.—*C. hecla sulitelma* and *nastes werdandi*, early stages, SELZER p. 41 Int. ent. Zeitschr. 9 1915.—*C. hyale nigrofasciata*, fig., STICHEL p. 198 Zeitschr. wiss. Insbiol. 14.—*C. viluensis* f. n. *sulphurco-flava*, SHELJUZHIKO p. 104 N. Beitr. syst. Insk. 1.

*Delias* and *Huphina*, resemblances among New Guinea species, their true genera, DIXEY pp. 118–129 Tr. ent. Soc. London 1918.

*Eronia leda* var. n. *inargyrata* p. 109, GAEDE Int. ent. Zeitschr. 9 1915.

*Euchloe cardamines*, pupal colour, FROHAWK p. 41 Ent. 51.—*E. cardamines* ab. n. *subtusflavovenata*, REUSS p. 54 Int. ent. Zeitschr. 9 1915.

*Eurema lisa* = (*euterpe* Men.), BARNES and McDUNNOUGH p. 67 Contr. 4.

*Eurymus occidentalis*, BARNES & McDUNNOUGH p. 65 T.c.

*Leodonta zenobia monticola* subsp. n. Peru p. 260, JOICEY & TALBOT P.Z.S. London 1917.

*Leptosia medusa* var. n. *fuscolimbata* p. 105, GAEDE Int. ent. Zeitschr. 9 1915.

*Mylothris sulphurea*, ♀, *bernice* f. n. *pallescens*, GAEDE p. 105 T.c.

*Phulia nymphula*, REED p. 313 Physis 4.—*P. reedi*, sp. n. Argentina (= *nymphula* Reed), GIACOMELLI p. 341 Physis 4.

*Pieris*; notes on, ADKIN p. 36 etc. Entom. 51.—*P. brassicae* var., ADKIN pl. ii p. 64 P.S. London Ent. Soc. 1917–18; migrations, PICTET Verh. Schweizer Ges. 1917 p. 277.—*P. gidica* varr. n. *sulphurea* p. 105, *pallida* p. 106, *calypso* var. n. *costimacula* p. 109, GAEDE Int. ent. Zeitschr. 91 915.—*P. napi frigida* p. 63, *n. marginalis* p. 64, BARNES & McDUNNOUGH Contr. 4.—*P. zoraida* sp. n. Cameroons p. 71, GAEDE Int. ent. Zeitschr. 9 1915.

*Pinacopteryx*: *charina* and allies, characters, genitalia, scent-scales, synonymy, etc., figs., DIXEY pp. 191–208 Tr. ent. Soc. London 1918.

*Terias nicippe*, variation of colour of pupae, resemblance to point of attachment, AINSLIE p. 78 P. ent. Soc. Washington 19.

## ITHOMIIDAE.

*Athesis clearista colombiensis* subsp. n., *vitrala* sp. n. Peru, KAYE p. 77 Ann. Nat. Hist. 1.

*Callithomyia alexirrhoe concolor* subsp. n. p. 81, *viridipuncta* sp. n. Ecuador with ab. *confluens* p. 82, KAYE T.c.

*Hymenitis joiceyi* p. 85, *oneidodes* p. 86, spp. n. Ecuador, KAYE T.c.

*Hypoleria ina negrina* subsp. n. p. 85, KAYE T.c.

*Hyposcada attilodes* sp. n. Bolivia p. 82, KAYE T.c.

*Napeogenes curvilutea* p. 78, *diaphanosa*, *opacella*, p. 79, *mesosticta*, *polymela* p. 80, spp. n. Amer. mer., *zurippa apobsoleta* subsp. n. p. 81, KAYE T.c.

*Pteronymia catenata*, *grandipennis*, Peru, *amplificata* Ecuador, spp. n. p. 84, KAYE T.c.

*Scada perpuncta* sp. n. Colombia p. 83, KAYE T.c.

*Tithorea bonplandii joiceyi* subsp. n. p. 78, KAYE T.c.

DANAIIDAE, HELICONIIDAE,  
ACRAEIDAE.

The Danaidae of Celebes, MARTIN D. ent. Zeitschr. Iris 23 p. 72-107 and 29 p. 4-19 1914 and 1915.

*Acraea allhoffi* var. *rubrofasciata* distinct species, *karscheni* var. n. *cruentata*, p. 111, GAEDE Int. ent. Zeitschr. 9 1915.—*A. bailunduensis* sp. n. Angola p. 28, *pudorella reducta* subsp. n., *periphanes interposita* subsp. n., p. 29, WICHGRAF Int. ent. Zeitschr. 12.

*Danaida, dorippus* and *chrysippus*, ELTRINGHAM p. 323 Tr. ent. Soc. London 1917.

*Euidinae* in place of *Heliconiinae*, HAMPSON p. 385 Nov. zool. 25.

*Euploea malayica harmseni* subsp. nov. Simalur, p. 79, *aegyptus lippus* subsp. n. Simalur p. 80, VAN EECKE Zool. Med. 4.

*Heliconius melpomene*, associations, KAYE p. iv P. ent. Soc. London 1918.

*Hestia leuconoe lasiaka* subsp. n. Simalur, VAN EECKE Zool. Med. 4 p. 79.

*Planema leopoldina* var. n. *intermissa* p. 111, GAEDE Int. ent. Zeitschr. 9 1915.

NYMPHALIDAE.

Danaidae in place of *Nymphalidae*, HAMPSON p. 385 Nov. Zool. 25.

*Aglais urticae*, ab., RICHARDSON p. 15 Entom. 51.

*Agrias rodriguezi* sp. n. Guatemala p. 388, SCHAUS Ent. News. 29 1918.

*Anaea xenocrates punctimarginale* subsp. n. p. 232, KAYE Ann. Nat. Hist. 2.

*Araschnia levana*, distribution in France, DUPONT pp. 86-88 Misc. ent. 24 1919.

*Argynnis apacheana* sp. n. (= *nokomis* Edw. 1872), SKINNER p. 67 Ent. News. 29.—*A. paphia*, BRYK Ent. Tidskr. 39 p. 144 figs. 1-7; *A. paphia*, ab., fig., LINSTOW p. 127 Int. ent. Zeitschr. 9 1915.—*A. pales f. n. radiata*, NORDSTRÖM Ent. Tidskr. 39 p. 311 fig. 2; *improba* Id. p. 316 figs. 3 & 4.

*Aterica galene omissa* subsp. n. p. 340, ROTHSCHILD Nov. Zool. 25.

*Brenthis helena ingens* var. n. p. 71 pl. xi figs. 5 and 6, BARNES and McDUNNOUGH Contr. 4.

*Catacroptera cloanthi intermedia*, subsp. n. p. 344, ROTHSCHILD Nov. Zool. 25.

*Catagramma excelsior* and varr., KAYE p. ii P. ent. Soc. London 1918.—*C. cynosura*, melanic ab., JOICEY and TALBOT p. 275 pl. i f. 3 P.Z.S. London 1917.

*Catuna crithea pallidior, angustata albidior*, subsp. n. p. 341, ROTHSCHILD Nov. Zool. 25.

*Cethosia myrina bemmeleni* var. n. Bocton, JURRIANSE and LINDEMANS Zool. Med. 4 p. 256.

*Charaxes maudei* sp. n. p. 271, *smaragdalis orientalis* subsp. n. p. 272, E. Africa, JOICEY and TALBOT P.Z.S. London 1917.—*C. protoctea* var. n. *aequidistans*, GAEDE p. 109 Int. ent. Zeitschr. 9 1915.

*Chersonesia peraka incerta* subsp. nov. Simalur, VAN EECKE Zool. Med. 4 p. 88.

*Chlorippe speciosissima* sp. n. Haiti p. 231, KAYE Ann. Nat. Hist. 2.

*Colacnis tiltraustes* var. n. *diaphana* p. 57, NIEPELT Int. ent. Zeitschr. 9 1915.

*Crenis pechueli rhodesiana, boisduvali omissa, trimeni angolensis* and *major*, subsp. n., ROTHSCHILD p. 342 Nov. Zool. 25; *C. pechueli* var. n. *albicans* p. 111, GAEDE Int. ent. Zeitschr. 9 1915.

*Cymothoe radialis* sp. n. Cameroons, *ehmkei* var. n. *intermedia*, GAEDE p. 109 T.c. 1915.—*C. superba*, ♂, p. 72, GAEDE Int. ent. Zeitschr. 9 1915.

*Diastogyna glaucopsis* sp. n. Cameroons p. 109, GAEDE Int. ent. Zeitschr. 9 1915.

*Dione vanillae galapagensis*, STICHEL p. 80 N. Beitr. syst. Insk. 1.

*Dynamine agatha* Ob., KAYE p. iii P. ent. Soc. London 1913.

*Eriboea hebe clavata* subsp. nov. Simalur, VAN ECKE Zool. Med. 4 pp. 91 92.

*Euphaedra lupercoides* p. 338, *graueri* p. 339, *difficilis* p. 340, spp. n. Africa, *imperialis gabonica* p. 338, *xypete ansorgei* p. 339, *gausape landbecki*, *cypris aureola*, p. 340, subspp. n., also 4 varr. n., *E. symphona* valid p. 339, ROTHSCHILD Nov. Zool. 25.—*E. medon neustetteri* Congo with var. *interpreta*, NIEPALT p. 58 Int. ent. Zeitschr. 9 1915.—*E.*; 12 new African varr. with names, GAEDE p. 110 111 Int. ent. Zeitschr. 9 1915.

*Euphydryas magdalena* sp. n. Arizona p. 71 pl. xi figs. 1-4, BARNES and McDONNOUGH Contr. 4.

*Euryphene plistonax* var. n. *flavitaenia* p. 110, GAEDE Int. ent. Zeitschr. 9 1915.

*Hypolimnias salmactis magnifica* p. 343, *montevronis major*, *dinaracha grandis*, *dubius poensis* and *mayottensis*, p. 344, subspp. n., ROTHSCHILD Nov. Zool. 25.

*Melitaea*; Munich species, LENZ pp. 26-39 Mitt. Münchn. ent. Ges. 8 pp. 26-39.—*M. trivialis catapelioides* subsp. n. Italy, STAUDER p. 57 Zeitschr. wiss. Insbiol. 14.—*M. iberica* ab. n. *nigrolunulata* p. 158, FERNANDEZ Bol. Soc. ent. Espan. 1.—*M. hoffmanni segregata* var. n. p. 72 pl. xi figs. 8-10, *flavula* sp. n. Colorado, BARNES and McDUNNOUGH Contr. 4.

*Mesoxanthaethosia albeola* and *reducta*, subspp. n. p. 343, ROTHSCHILD Nov. Zool. 25.

*Neptis mildbraedi* sp. n. Cameroons p. 38, GAEDE Int. ent. Zeitschr. Guben 9 1915.—*N. comorarum leighi*, *ochracea parvimacula*, *exaleuca suffusa*, subspp. n. p. 342, *incongrua occidentalis* p. 343 subspp. n., *navaei* sp. n. Nyasaland p. 343, ROTHSCHILD Nov. Zool. 25.—*N. nata declinata* subsp. n. Simalur,

*soma sumatrensis* subsp. n., *vikasi pallida* subsp. nov. Simalur, p. 89, VAN ECKE Zool. Med. 4 1918.

*Palla moderata* sp. n. Cameroons p. 71, GAEDE Int. ent. Zeitschr. 9 1915.

*Polygrapha cyanea*, ♀. p. 263 pl. f. 2, JOICEY and TALBOT P.Z.S. London 1917.

*Precis omissa* sp. n. Cameroons, *natalica angolensis* subsp. n. and *natalensis* f. n., *archesia* f. n. *corydoni*, ROTHSCHILD p. 345 Nov. Zool. 25.—*P. orithya* ab. n. *flava* p. 26, *octavia* f. n. *transiens*, *amestris* f. n. *intermedia*, p. 28, WICHGRAF Int. ent. Zeitschr. 12.

*Pseudacraea poggei* f. *mimetica* n. *carpenteri*, POULTON p. 12 P. ent. Soc. London 1918.

*Pyrameis cardui*, ff. n. *rosacea* and *brunnea-albimaculata*, REUSS p. 131 Int. ent. Zeitschr. 9 1915.

*Tanaëcia heliophila picta* subsp. nov. Simalur, VAN ECKE Zool. Med. 4 p. 91.

*Vanessa caryae* varr. n. *intermedia* p. 111 and *letcheri* p. 112, *cardui* var., *atalanta* var. n. *edwardsi*, p. 113, figs., GRINNELL Psyche 25.—*V. urticae*, NORDSTRÖM Ent. Tidskr. 39 p. 307 fig. 1.—*V. urticae* ab., SCHMEHL p. 120 Int. ent. Zeitschr. 11 1917.

*Vila eueidiformis* sp. n. Brazil p. 201 pl. f. 1, with ab. *radiata* f. 1a, JOICEY and TALBOT P.Z.S. London 1917.

## SATYRIDAE.

*Maniolinae* in place of *Satyriinae*, HAMPSON p. 385 Nov. zool. 25.

*Satyridae*; Dr. Verity's views of races discussed, BETHUNE-BAKER pp. 178-183 Ent. Rec. 30.

*Caerois rufomarginata* sp. n. Peru p. 82, LATHY Entom. 51.

*Coenonympha arcania* ab. n. *leandroides*, KHEIL p. 41 Int. ent. Zeitschr. 12.

*Elymnias panthera exsulata* subsp. n. Simalur, VAN ECKE Zool. Med. 4 p. 82.

*Elymniopsis bammakoo* var. n. *hybrida* p. 58, NIEPALT Int. ent. Zeitschr. 9 1915. [This generic name is not to be found in the lists.—Ed.]

*Erebia*; many new subsp. and forms are named by FRUHSTORFER D. ent. Zeitschr. Iris 31 pp. 83-110.—*E. gorge pirinica* p. 224 figs., *tyndarus macedonica* p. 226 figs., subsp. n. Macedonia, BURESCH Zeitschr. wiss. Insbiol. 14.—*E. rossii* var. n. *polyopsis*, SHELJUZHKO p. 104 N. Beitr. syst. Insk. 1.—*E. epiphron vogesiaca*, VAN DER GOLTZ pp. 107-119 Deutsche ent. Zeitschr. Iris 28 1914.—*E. lappona* ab. n. *classi* p. 80 fig., HEINRICK Int. ent. Zeitschr. 11, 1917.—*E. pronoe*, bavarian forms, OSTHELDER Mitt. München. ent. Ges. 7 pp. 81-91 1916.—The *Erebia* of of Oberstdorfer, GOLTZ pp. 64-68 Mitt. München. ent. Ges. 7 1916.

*Melanargia galathea*, the type and variation, BETHUNE-BAKER p. 180 Ent. Rec. 30.

*Mycalesis houyi, milbraedi, completa*, spp. n. Camerouns p. 71, GAEDE Int. ent. Zeitschr. 9 1915.

*Oeneis lucilla* sp. n. Colorado p. 69 pl. xi figs. 16-18, BARNES & McDUNNOUGH Contr. 4.

*Oreixenica flynni* sp. n. Tasmania p. 146, HARDY Pr. R. Soc. Tasmania 1916.

*Pararge aegeria*, brood from late eggs, PERKINS pp. 52-55 P.S. London ent. Soc. 1917-18.—*P. megaera*, fitful appearance, ADKIN p. 257 Entom. 51.

*Satyrus arethusa strumata* subsp. n. Macedonia p. 228 pl. iii figs. 1-4, BURESCH Zeitschr. wiss. Insbiol. 14.—*S. espunaensis* var. n., KORB p. 99 Mitt. Münchn. ent. Ges. 7 1916.—*S. semele*, BRYK Ent. Tidskr. 39 p. 147 fig. 8; *S. semele*, the variation, BETHUNE-BAKER p. 178 Ent. Rec. 30.

*Tisiphane distincta* sp. n. Guiana p. 82, LATHY Entom. 51.

#### MORPHIDAE AND ALLIES.

*Arginae* in place of *Morphinae*, HAMPSON p. 385 Nov. zool. 25.

*Amathusia phidippus melanops* subsp. nov. Simalur, VAN EECKE Zool. Med. 4 p. 83.

*Morpho rhetenor*, n. subsp., DICKSEE p. xlix P. ent. Soc. London 1917.

*Stichophthalma tytlteri* sp. n. Burma p. 310, ROTHSCHILD Nov. Zool. 25.

#### ERYCINIDAE OR RIODINIDAE.

*Plebejidae* in place of *Erycinidae*, HAMPSON p. 385 Nov. zool. 25.

The Riodinidae of Java, PIEPERS & SNELLEN Rhop. Java 1918.

*Apodemia mormo* var. n. *deserti* p. 75, pl. xii figs. 1 and 2, *multiplaga* Schaus figs. 8-10, BARNES & McDUNNOUGH Contr. 4.

*Culephelis australis* = (*costaricicola* Str.), STICHEL p. 58 N. Beitr. syst. Insk. 1 1917.—*C. perditalis* sp. n. Texas p. 75 pl. xii figs. 5-7, BARNES & McDUNNOUGH Contr. 4.

*Charis craspediodonta* sp. n. Mexico p. 335, DYAR P.U.S. nat. Mus. 54.

*Corrachia leucoplaga* = (*Lemonias tablazonis* Str.), STICHEL p. 59 N. Beitr. syst. Insk. 1 1917.

*Emesis mandana* = *mandana angulariformis* Str.), STICHEL p. 58 N. Beitr. syst. Insk. 1 1917.

*Ipidecla monenoptron* sp. n. Mexico p. 336, DYAR P. U.S. nat. Mus. 54.

*Orimba cleomedes* = (*Esthemopsis inariella* Str.), STICHEL p. 58 N. Beitr. syst. Insk. 1 1917.

*Sabalia burnsi* sp. n. Africa p. 18 PROUT Ann. Nat. Hist. 1.

#### LYCAENIDAE.

*Cupidinidae* in place of *Lycaenidae*, HAMPSON p. 385 Nov. zool. 25.

Field notes on Lycaenidae, Nigeria, FARQUHARSON pp. lxi and lxii P. ent. Soc. London 1917.

Indian Lycaenidae; BELL in common butterflies of India parts 19-22 pl. H J. Bombay Soc. 25 and 26.

The *Lycaenidae* of Java, PIEPERS & SNELLEN Rhop. Java 1918.

*Agriades coridon*, gynandromorph, CASTLE-RUSSELL p. 153 Ent. Rec. 30.

*Allotinus suka* sp. n. Java p. 13 pl. xix f. 12b and pl. xxvii f. 181, PIEPERS & SNELLEN Rhop. Java.

*Arhopala weelii* sp. n. Java p. 77 pl. xxiv f. 114, PIEPERS & SNELLEN T.C.

*Azamus ubaldus*, GRAVES p. 184 Ent. 51.—*A. ubaldus* = (*L. ethoda* and *itea*, Walk.), GRAVES p. 98 Entom. 51.



*Castalius ananda vileja* subsp. n. Sumatra p. 25, *rosimon godarti* form. nov. Malayischer Archipel. p. 27, *ethion ethionides* p. 29, *ethion sangarius* Bawean p. 29, *ethion gadames* Lombok-Sumba. p. 29, *ethion icenus* Borneo p. 30 subsp. n. *fasciatus adorabilis* subsp. n. Celebes p. 32, *roxus pothuis* subsp. n. Sumatra, Malayische Halbinsel, *roxus manovus* subsp. n. Borneo p. 34, *roxus astapus* subsp. n. Java p. 35, *roxus odon* subsp. n. Lombok-Sumba p. 35, *roxus odon xisana* form. n. Sumbawa p. 35, *elna noliteia* subsp. n. mit *elina* form. n. Sikkim-Birma p. 37, *elna elvira* subsp. n. Sumatra, Borneo, *elna hilina* subsp. n. Nias p. 38, *elna rhodana* subsp. n. Celebes p. 39, *mindarus vocetius* subsp. n. Neu Pommern p. 40, *caleta garasa* subsp. n. Philippinen p. 42, FRUHSTORFER Tyds. Ent. 61 pls. iii & iv.

*Chilades trochilus*, abb. n., GRAVES p. 97 pl. i Entom. 51.

*Chliaria tora pumilina* subsp. n. Sumatra, VAN ECKE Zool. Med. 4 p. 96.

*Chrysophanus dispar* Holland, SELZER p. 81 Int. ent. Zeitschr. 12.—*C. dispar rutilus* food-plants etc., PUREFOY p. lxxii P. ent. Soc. London 1917; *C. dispar* var. *rutilus* in dept. Aube, LUCAS p. 185 Bull. Soc. ent. France 1918; *C. dispar rutilus*, in Aube, LUCAS p. 280 Bull. Soc. ent. France 1918.—*C. virgaureae*, variation, forms., COURVOISIER D. ent. Zeitschr. Iris 32 pp. 1-32.

*Cupido albicosta* sp. n. Cameroons p. 112, GAEDE Int. ent. Zeitschr. 9 1915.

*Cyaniris astynome* sp. n. (= *oreas* L. part), OBERTHÜR p. 238 Bull. Soc. ent. France 1918.

*Deudorix unda* sp. n. Cameroons p. 72, GAEDE Int. ent. Zeitschr. 9 1915.—*D. ignita* sp. n. Java pl. xxvi p. 141 (no description) p. 90, PIEPERS & SNELLEN Rhop. Java.

*Epitola urania* and *posthumus* distinguished, POULTON p. 23 P. ent. Soc. London 1918.

*Gerydus boisduwali* biology, ROEPKE Tyds. Ent. 61 pp. 1-16 3 pls.

*Heliophorus saphir birmana* Birma p. 50, *viridipunctata eventa* China p. 52 subsp. n., FRUHSTORFER Tyds. Ent. 61 pl. vi.

*Hypolycaena erylus splendidus* subsp. n. Simalur, VAN ECKE Zool. Med. 4 p. 96.

*Lachocnema divergens* sp. n. Cameroons p. 72, GAEDE Int. ent. Zeitschr. 9 1915.

*Larynopoda lircaea* var. n. *innocentia* p. 111, GAEDE T.c. 1915.

*Liphyra brassolis* f. n. *extensa*, *grandis* (= *castnia* Strand), GAEDE p. 404 Mitt. zool. Mus. Berlin 8 1917.

*Lycaena alcon*, natural history, CHAPMAN, OBERTHÜR & POWELL Ét. Lép. comp. 16 pp. 267-330 7 pls.—*L. argus* ab. n. *flavodentata*, STAUDER p. 119 D. ent. Zeitschr. Iris 28 1914.—*L. enoptes* allies, genitalia, WILLIAMS pp. 99-102 pls. iv-vi Ent. News 29.

*Lycaenesthes abruptus* sp. n. Cameroons p. 72, GAEDE Int. ent. Zeitschr. 9 1915.—*L. arnoldi* sp. n. p. 19, JONES Proc. Rhod. Sc. Ass. 16.—*L. emolus minor* subsp. nov., VAN ECKE Zool. Med. 4 p. 94.

*Orthomiella*, synonym of *Una*, FRUHSTORFER Tyds. Ent. 61 p. 54.

*Pentila cloetensi* ab. n. *elfriedana* p. 101, *occidentatum* ab. n. *congoana* p. 102, STRAND Int. ent. Zeitschr. 12.

*Philotes glaucon* and *enoptes*, BARNES & McDUNNOUGH pp. 77-79 Contr. 4.

*Plebeius argus*, *liguricus*, characters, pls. i and ii pp. 3-8, *sareptensis* pl. iv, *argus armoricana* pls. v and vi, CHAPMAN Ent. Rec. 30.—*P. argus* scandinavian, synonymy, ROWLAND-BROWN pp. 73-81 Entom. 51.

*Taraka hamada mendesia*, Südost-Asien p. 23, *hamada rivata* Java p. 24, subsp. n., FRUHSTORFER Tyds. Ent. 61.

*Tarucus* revision, ♂ genitalia, androconia, pp. 269-276, pls. xiv-xx, *balkanica* var. n. *arehana* p. 277, *ben-galensis* Calcutta pl. xiv f. 8, *mediterranea* figs. 7-7b, p. 281, *dharta* Darjeeling p. 291 pl. xiv f. 15, sp. n., BETHUNE-BAKER Tr. ent. Soc. London 1917.

*Thecla bunnirue*, *viggia*, p. 336, *nippia*, *janthodonia*, *vevenae*, *muri-dosca*, p. 337, spp. n. Mexico, DYAR P. U.S. nat. Mus. 54.

*Tomares ballus* subsp. n. *maresticus* p. 97 pl. i figs. 1 & 2, GRAVES Entom. 51.

*Una pontis rovoreae* subsp. n. Birma, FRUHSTORFER Tyds. Ent. 61 p. 54 fig. pl. vi.

*Virachola livia*, abb. n., figs., GRAVES p. 97 pl. i Entom. 51.

#### HESPERIIDAE.

*Erynnidae* in place of *Hesperidae*, HAMPSON p. 386 Nov. zool. 25.

*Hesperidae* etc. and salt, NEAVE p. lxxvii P. ent. Soc. London 1917.

*Apallaga separata* Strand is *Celaenor-rhinus mokeezi*, GAEBDE p. 401 Mitt. zool. Mus. Berlin 8 1917.

*Atrytone kumskaka* Scudd., BARNES & McDUNNOUGH p. 80 Contr. 4.

*Baoris caesia* p. 30, *aequalis* p. 31, spp. n. E. Africa, GAEBDE Int. ent. Zeitschr. 11 1917.

*Butleria penaea* sp. n. Mexico p. 338, DYAR P. U.S. nat. Mus. 54.

*Carcharodus altheae*, early stages, POWELL pp. 343-352 Et. Lép. comp. 16.—*C. baeticus*, early stages, natural history, pl. 500, p. 255-261, FOULQUIER Et. Lép. comp. 16.

*Catia jobrea* sp. n. Mexico p. 338, DYAR P. U.S. nat. Mus. 54.

*Celaenorhinus kiku* sp. n. China p. 55 pl. iv f. 6, HERING Mitt. zool. Mus. Berlin 9.

*Copaodes*; notes, SKINNER p. 150 Ent. News 29.

*Crossiura penicillata* Nicov. p. 59 pl. iv figs. 2 & 3, HERING Mitt. zool. Mus. Berlin 9.

*Cyclopides abscissa* sp. n. E. Africa p. 30, GAEBDE Int. ent. Zeitschr. 11 1917.

*Ebrietas lachesis* sp. n. Mexico p. 338, DYAR P. U.S. nat. Mus. 54.

*Erynnis comma* ab. n. *immaculata* p. 158, FERNÁNDEZ Bol. Soc. ent. Españ. 1.

*Halpe perbella* sp. n. China p. 56 pl. iv f. 7, HERING Mitt. zool. Mus. Berlin 9.

*Hesperia*; *centaureae*, *andromedae*, *sibirica*, pl. viii, *alpina*, *sidae*, *antonia*, pl. ix, undersides figured, CHAPMAN p. 145 Ent. Rec. 30; and t.c. pl. xii, *serratulae*, *onopordi*, *carlinae*, *fritillum*; pls. x and xi genital ♂ appendages, pp. 161-165.

*Kedestes chacooides* sp. n. W. Africa p. 126, GAEBDE Int. ent. Zeitschr. 9 1915.

*Lerema hypozona* sp. n. Mexico p. 339, DYAR P. U.S. nat. Mus. 54.

*Orthophoetus lidderdati melli* subsp. n. p. 54 pl. iv f. 1, HERING Mitt. zool. Mus. Berlin 9.

*Padraona sophistes*, *inculta*, spp. n. Mexico p. 340, DYAR P. U.S. nat. Mus. 54.—*P. zena* var. n. *zenoides* p. 104, STRAND Int. ent. Zeitschr. 12.

*Pamphila horus* Edw., BARNES & McDUNNOUGH p. 80 Contr. 4.—*P. silvius* ab. n. *fasciata*, SOURÖDER p. 48 Int. ent. Zeitschr. 11 1917.

*Pardaleodes kelembaensis* sp. n. Congo p. 103, STRAND Int. ent. Zeitschr. 12.—*Pardaleodes edipus* and *sator*, distinguished, GAEBDE p. 402 Mitt. zool. Mus. Berlin 8 1917.

*Parnara fallax*, *gemina*, with var. *trigemina*, spp. n. Cameroons, GAEBDE p. 126 Int. ent. Zeitschr. 9 1915.

*Pisola pussa* sp. n. China p. 53 pl. iv f. 4, HERING Mitt. zool. Mus. Berlin 9.

*Platylesches ertli* sp. n. E. Africa p. 30, GAEBDE Int. ent. Zeitschr. 11 1917.

*Preneis hemizona* sp. n. Mexico p. 339, DYAR P. U.S. nat. Mus. 54.

*Pseudosarbia campicola* sp. n. Brazil p. 230, KAYE Ann. Nat. Hist. 2.

*Sarangesa*; nesting habits, WILSON p. lxxvii Pr. ent. Soc. London 1917.—*S.*, habits, POULTON p. 26 P. ent. Soc. London 1918.

*Scobura conjata* sp. n. China p. 58 pl. iv f. 5, HERING Mitt. zool. Mus. Berlin 9.

*Thespieus gayra* sp. n. Mexico p. 339, DYAR P. U.S. nat. Mus. 54.

**Heterocera.**

## CASTNIIDAE, EUSCHEMONIDAE.

Revision of *Castnia*, taxonomy, and division into several genera, figures of the species and reproduction of old drawings; HOULBERT in Oberthur Et. Lep. Comp. 15, 736 pp., 55 pls. and many text-figs. The new species were published and recorded last year. 179 species are recognised, arranged in 33 genera, and these genera are placed under "souches phylétiques", which according to an explanation given are the "equivalents of genera." There are thus two sets of generic names which we give in full.

**S.p. *Daedalus*. *Cyparissias* gen. n.** p. 91 for *C. daedalus* allies, 7 spp., HOULBERT T.c.

**S.p. *Cacica*. *Amaula* gen. n.** p. 123, for *C. oberthueri* Houlb. allies, 8 spp., HOULBERT T.c.

**S.p. *Pylades*. *Corybantes* Hübn.**, including *pylades* Cr. and 5 others, HOULBERT p. 179 T.c.

**S.p. *Schreibersi*. *Eupalamides* Hübn.** for *schreibersi*, *zerynthia* and *actor*, p. 158 HOULBERT T.c.

**S.p. *Humboldti*. *Castniomera* gen. n.** p. 201 with subgg. *Melanosema* and *Phaeosema*, HOULBERT T.c.

*Melanosema* subg. n. of *Castniomera* for *C. atymnius* Dalm. p. 201 HOULBERT T.c.

*Phaeosema* subg. n. of *Castniomera* for *C. humboldti* Boisd. and 5 others, HOULBERT p. 201 and 206 T.c.

**S.p. *Licus*. *Castnia* Fabr.**, consists of *C. licus* Dr. and 5 others, HOULBERT p. 220, *sebai* sp. n. Surinam p. 227 pl. RB, T.c.

**S.p. *Harmodius*. *Erythrocastnia* gen. n.** p. 253 for *C. harmodius* Cr., HOULBERT T.c.

**S.p. *Evalthe*. *Xanthocastnia* gen. n.** p. 262 for *C. evalthe* Fabr. and 5 others.

**S.p. *Dalmani*. *Graya* Buch.** for *C. dalmanii* Gray, HOULBERT p. 284 T.c.

**S.p. *Hegemon*. *Athis* Hübn.** for *hegemon* Koll. and nine others, HOULBERT p. 288 T.c.

**S.p. *Josepha*. *Paysandisia* gen. n.** p. 311 for *C. josepha* Oberth., HOULBERT T.c.

**S.p. *Icarus*. *Elina* gen. n.** p. 325 for *icarus* Cr. and seven others, HOULBERT T.c.

**S.p. *Chremes*. *Ceretes* Boisd.** for *marcel-serresi* Goed., *thais* and *gracilima*, HOULBERT p. 354 T.c.

**S.p. *Phalaris*. *Sympalamides* Hübn.** for *mimon* Hübn. and seven others, HOULBERT p. 380 T.c., *mimon* var. n. *lombardi* p. 381.

**S.p. *Huebneri*. *Ypanema* gen. n.** p. 406 for *C. huebneri* Latr. and three others, HOULBERT T.c.

**S.p. *Amycus*. *Schaefferia* gen. n.** p. 421 for *amycus* Cr., *meditrina* and *alboinsignita*, HOULBERT T.c.

**S.p. *Inca*. *Aciloea* gen. n.** p. 436 for *C. inca* Walk. and 10 others, *inca* var. n. *mexicana* p. 441 fig. 152, *rutila* var. n. *rutiloides* p. 451 fig. 154, HOULBERT T.c.

**S.p. *Pallasia*. *Imara* gen. n.** p. 470 for *pallasia* Esch. and four others, HOULBERT T.c.

**S.p. *Galinthias*. *Spilopastes* gen. n.** p. 481 for *galinthias* Hoppl., HOULBERT T.c.

**S.p. *Cochrus*. *Prometheus* Hübn.** for *cochrus* Fabr. and *garbei* F., HOULBERT p. 485 T.c.

**S.p. *Therapon*. *Orthia* Boisd.** for *therapon* Koll. and four others, HOULBERT p. 503 T.c.

**S.p. *Divia*. *Cyanostola* gen. n.** p. 514 for *divia* Butl. and *tricolor* Feld., HOULBERT T.c.

**S.p. *Cronis*. *Haemonides* Hübn.** for *cronis* Cr. and 5 others, HOULBERT p. 526 T.c.

**S.p. *Acraeoides*. *Herrichia* Buch.** for *acraeoides* Gray, HOULBERT p. 546 T.c.

**S.p. *Hecate*. *Ircila* gen. n.** p. 553 for *hecate* H.S., HOULBERT T.c.

**S.p. *Gramivora*. *Tephrostola* gen. n.** p. 558 for *gramivora* Schaus, *fenestrata* sp. n. Parana p. 560 pl. 462 f. 3847, HOULBERT T.c.

**S.p. *Mimica*. *Xanthospila* gen. n.** p. 563 for *mimica* Feld. and *corrupta* Schaus, HOULBERT T.c.

*S.p. Marcus. Enicospila* gen. n. p. 566 for *marcus* Jord., HOULBERT T.c.

*S.p. Linus. Cabirus* Hübn. for *linus* Cr. and four others, HOULBERT p. 569 T.c.

*S.p. Pellonia. Boisduvalia*, gen. n. p. 584 for *pellonia* Druce and seventeen others, HOULBERT T.c.

*S.p. Zagraea. Gazera* Boisd. for *zagraea* Feld. and eight others, HOULBERT p. 623 T.c.

*S.p. Pelasgus. Nasca* gen. n. p. 646 for *pelasgus* Cr., *fulvofasciata* H. and *unifasciata* Feld., HOULBERT T.c.

*S.p. Erycina. Westwoodia* gen. n. p. 653 for *erycina* W., *pelopia* Dr. and *pelopioides* Dr., HOULBERT T.c.

*Tascina*=(*Neocastnia* H.), and the family is *Tascinidae*, HAMPSON p. 377 Nov. zool. 25.

*Oedematopis* Pr., a synonym of *Apoprognecus*, *A. hesperistis*=(*Oe. jansi* Pr.), HAMPSON T.c.

## SPHINGIDAE.

Catalogue of Philampelinae, 234 spp., WAGNER Lep. Cat. 21.

The hawk-moths of Mashonaland; O'NEIL pp. 158-168 Rhodes. agric. J. 15.

New aberrations, CLOSS p. 1 Int. ent. Zs. Guben 9 1915.

Pupae of north-american Sphingidae, MOSHER p. 403-441 Ann. ent. Soc. Amer. 11 pl.

*Acherontia atropos* f.n. *obscurata*, CLOSS p. 154 Int. ent. Zeitschr. 11 1917. —*A. styx*, larval voice, BANNERMAN p. 759 J. Bombay Soc. 25.

*Celerio euphorbiae* f. n. *rubra*, CLOSS p. 242 Int. ent. Zeitschr. 11.

*Ceridia heughini*, ♀, GAEDE p. 125 Int. ent. Zeitschr. 9 1915.

*Chaerocampa alecto*, larva, SCOTT p. 299 J. Bombay Soc. 26.—*C. elpenor*, abnormal larva, HART p. 172 Irish Nat. 27.

*Dilina tiliae* ab. n. *trimaculata* p. 137 fig. BROMBACHER Int. ent. Zeitschr. 9 1915, GILLMER ab. n. Op. cit. 10 1916 p. 1.

*Gurelca masuriensis* f. n. *purpureo-signata*, CLOSS p. 154 Int. ent. Zeitschr. 11 1917.

*Herse cingulata* f. n. *pallida*, CLOSS p. 154 T.c. 1917.

*Pholus satellitia* f. n. *rosea*, *vitis* f. n. *pallida*, CLOSS p. 154 T.c. 1917.

*Polyptychus kindunus* sp. n. Congo p. 115, STRAND Int. ent. Zeitschr. 12.

*Protoparce sexta* f. n. *fuliginosa*, CLOSS p. 154 Int. ent. Zeitschr. 11 1917.

*Pseudoclanis postica* f. n. *pallida*, CLOSS p. 242 T.c. 1917.

*Smerinthus kindermanni* f. n. *obscura*, CLOSS p. 154 T.c. 1917.

*Xylophanes neoptolemus* subsp. n. *trinitatis* Trinidad p. 96, CLOSS T.c. 1917. *X. tersa* f. n. *tristis*, CLOSS p. 242 T.c. 1917.

## Aegeriidae OR Sesiidae.

Food-plants of the european Aegeriidae, ZUKOWSKY p. 77-79 Int. ent. Zeitschr. 9 1915.

*Canopia auritincta* sp. n. Formosa p. 169, WILEMAN & SOUTH Entom. 51.

*Gaea palmi*, male, p. 178 pl. xx figs. 13 and 15, BARNES & McDUNNOUGH Contr. 4.

*Melittia arrecta* sp. n. Burma p. 181, MEYRICK Exot. Micr. 2.—*M. arcangeli*, resemblance to *Mallophora*, GIACOMELLI p. 365 Physis 4.

*Memythrus polistiformis*, BROOKS pls. 3-5 pp. 21-28 Bull. U.S. Dep. Agric. 730.

*Paranthrene tricincta* sp. n. Formosa p. 169, WILEMAN and SOUTH Entomol. 51.

*Sanninoidea exitiosa*, gravid eggs, figs., PETERSON p. 50 J. econ. Ent. 11.

*Sesia rhodothictis* p. 179, *pentazona*, Assam; *anisozona* Burma, *pyrosoma* Bartaica, p. 180, spp. n. MEYRICK Exot. Micr. 2.

*Synanthedon martjanovi* sp. n. Jenisei p. 104, SHELJUZHKO N. Beitr. syst. Insk. 1.

- BOMBYCES, s.l.  
(including HEPIALIDAE, COSSIDAE,  
PSYCHIDAE, etc.)  
Dipteridae, *vide* p. 173.
- Acragidae* in place of *Dalceridae*,  
HAMPSON p. 385 Nov. zool. 25.
- Attacidae* in place of *Saturniadae*,  
HAMPSON p. 384 T.c.
- Ceruridae* in place of *Notodontidae*,  
HAMPSON p. 384 T.c.
- Charideidae* fam. n. (= *Pempostolinae*  
Jord.) p. 378 derived from *Zygaenidae*,  
HAMPSON T.c.
- Chrysotypidae* in place of *Argyroty-*  
*pidae*, HAMPSON p. 385 T.c.
- Ectropidae* in place of *Chrysopolo-*  
*nidae*, HAMPSON p. 385 T.c.
- Epicnoterygidae* in place of *Hetero-*  
*gymidae* p. 385, HAMPSON T.c.
- Eucoclytidae* fam. n. for *Cocytianae*  
Rothsch., HAMPSON p. 366 T.c.
- Heterogeneidae* in place of *Lima-*  
*codidae*, HAMPSON p. 385 T.c.
- Hypoptidae* in place of *Rataridae*,  
HAMPSON p. 385 T.c.
- Phalaenoididae* n. n. for *Agaristidae*,  
HAMPSON p. 383 T. c.
- Callimorphidae*, not *Hypsidae*, as  
family, HAMPSON p. 384 T.c.
- Syssphingidae* in place of *Ceratocam-*  
*pidae*, HAMPSON p. 384 T.c.
- Teragridae* in place of *Arbelidae*,  
HAMPSON p. 385 T.c.
- Figures of Japanese larvae, WILEMAN  
pp. 161-171 pls. iv. and v Philipp. J. Sci.  
D 13.
- Wing-markings of *Arctiidae*, VAN  
BEMMELEN Amsterdam Proc. 20 pp. 849-  
860 (English), Versl. 26 pp. 894-905  
(Dutch).
- Luminosity from pronotum, *Arctia*  
*caja*, ISAAK Biol. Centralbl. 36 pp. 216-  
218 figs. 1916.
- Acantharctia bicoloria*, *flaviccstata* with  
var. *baumanni*, spp. n. Cameroons p. 125,  
GAEDE Int. ent. Zeitschr. 9 1915.
- Acyttara* gen. n. *Cossidae* p. 165 type  
*tigrata* Schaus, TURNER Tr. ent. Soc.  
London 1918.
- Aethodes* gen. n. near *Paraegocera*  
p. 216, *angustipennis* sp. n. Natal p. 217,  
HAMPSON Nov. zool. 25.
- Afrida hemicycla* sp. n. Colombia  
p. 103, HAMPSON T.c.
- Aganais diastrophia* sp. n. Madagascar  
p. 316, PROUT Ann. Nat. Hist. 1.
- Aglia tau*, gynandromorph, STAND-  
FUSS Mitt. Ent. Zurich p. 154-170 pl.  
1917.
- Agylla cryptosema* sp. n. Colombia  
p. 100, HAMPSON Nov. zool. 25.
- Amalthocera* Boisd. = (*Callibaptis*  
Jord.), HAMPSON p. 379 T.c.
- Amata fulvibasalis* Cameroons, *con-*  
*genita* Madras spp. n. p. 93, HAMPSON  
T.c.
- Anaemosia* gen. n. near *Prolobosia*,  
*albida* sp. n. C. Africa, HAMPSON p. 101  
T.c.
- Anthela nigristigma* sp. n. Queensland  
p. 248 f. 28, FAWCETT P.Z.S. London  
1917.
- Antheraea episcopatis* sp. n. Assam  
p. 21 pl. i, KAISER Mitt. Münchn. ent.  
Ges. 8 1917.—*A. roylei*, larvae, ALLAN  
p. 300 J. Bombay Soc. 26.
- Anthrocera scabiosa*, BINNING Ent.  
Tidskr. 39 p. 100.
- Anticyra bossumensis* sp. n. Cameroons  
p. 125, GAEDE Int. ent. Zeitschr. 9  
1915.
- Apantesis ornata* var. n. *hewletti*  
p. 88 pl. xiii figs. 3 and 4, BARNES and  
McDUNNOUGH Contr. 4.
- Apateles gladys* p. 134, *sadisma*  
p. 135, spp. n. Mexico, DYAR Insec.  
insect. 6.
- Apolhosia* gen. n. near *Syntomimorpha*,  
*conformis* sp. n. Centr. Africa, HAMPSON  
p. 100 Nov. zool. 25.
- Arachnis picta* var. n. *verna* p. 90  
pl. xiii figs. 5 and 6, BARNES and  
McDUNNOUGH Contr. 4.
- Araeomolis nigripuncta* sp. n. Guiana  
p. 266 pl. f. 6, JOYCE and TALBOT P.Z.S.  
London 1917.
- Asura metahyala* Philippines, *melan-*  
*apyga* Formosa, spp. n. p. 106, HAMPSON  
Nov. zool. 25.

*Autochloris crinopoda* sp. n. Cayenne with ab. *lutea*, KAYE p. 226 Ann. Nat. Hist. 2.

*Automolis ignivena* Peru p. 266 pl. f. 7, *ochreogaster* Paraguay f. 8, *ochreomarginata* Guiana f. 9, p. 267, spp. n., JOICEY and TALBOT P.Z.S. London 1917.

*Bithra aganice* sp. n. E. Africa p. 235 f. 11, FAWCETT P.Z.S. London 1917.

*Bombyx mori*, crossing races, CLEGHORN pp. 133-146 P.Z.S. London 1918.—*B. yamamai* and *pernyi*, rearing of, Japanese, Tokyo, Ni. Sanshi Kw. Ho. pp. 418-422.

*Calocasia betulae* sp. n. Germany p. 45, LENZ Mitt. Munchn. ent. Ges. 8 1917.

*Calamidia pamphaea* sp. n. Lord Howe isld., TURNER p. 277 Tr. R. Soc. S. Austr. 42.

*Caligula boisduvali*, metamorphoses, 2 pls., CRETSCHMAR D. ent. Zeitschr. Iris 31 pp. 110-121.

*Callidrepana?* *hirayamai* sp. n. Japan, NAGANO Konch. Sek. Gifu 27 pp. 356-361.

*Camerunia lactiflora* sp. n. Tanganyika p. 393, WICHGRAF D.E.Z. 1914.

*Cana sugitanii* n. sp. Japan, NAGANO Konch. Sek. Gifu 27 pp. 356-361.

*Caprima chrysosoma* Aru islds. p. 412, *esthla* p. 416 Goodenough isld., spp. n., PROUT Ann. Nat. Hist. 2.

*Caripodia consimilis* sp. n. Africa p. 100, HAMPSON Nov. Zool. 25.

*Carthara crenulosa* sp. n. Mexico p. 359, DYAR P. U.S. Nat. Mus. 54.

*Ceropia*, pupation, WHITE p. 289 Canad. Ent. 50.

*Celama nakagawai* sp. n. Japan, NAGANO Konch. Sek. Gifu 27 pp. 448-451.—*C. phaotermina* Peru, *endotherma* Assam, *concinna* C. Africa, spp. n. p. 95, HAMPSON Nov. Zool. 25.—*C. scruposa* sp. n. Costa Rica p. 240, DRAUDT Seitz Fauna exot. Americana 6.

*Ceratopacha minor* sp. n. Cameroons p. 73, GAEDDE Int. ent. Zeitschr. 9 1915.

*Chamaita nubifera* sp. n. Philippines p. 107, HAMPSON Nov. Zool. 25.

*Chilena geyri* f. 1, *malacosomoides* f. 2, pl. viii, ROTHSCHILD Nov. Zool. 25.

*Chionaema nyasica* sp. n. p. 102, HAMPSON Nov. Zool. 25.

*Chrostosoma halli* Guatemala, *guianensis*, spp. n. p. 227, KAYE Ann. Nat. Hist. 2.

*Chrysostola aurantivena* sp. n. Brazil p. 94, HAMPSON Nov. Zool. 25.

*Cicinnus alcuna* Guiana p. 26, *corallina* Colombia p. 27, spp. n., DOGNIN Hét. nouv. 14.

*Claphe nubiplena* n.n. for *nebulosa* D., DOGNIN p. 26 T.c.

*Clemensia plumbeifusca* sp. n. Peru p. 105, HAMPSON Nov. Zool. 25.

*Cosmosoma ochreipennis* sp. n. Peru p. 228, KAYE Ann. Nat. Hist. 2.

*Cossidae*, taxonomy, with new genera, A. J. TURNER pp. 155-166 Tr. ent. Soc. London 1917.

*Cossus cossus*, ab. n. *aceris*, GRIEF p. 84 Int. ent. Zeitschr. 12.

*Crinophora* gen. n. *Amatidae* p. 325, *bicellulata* p. 326, *palawanica* p. 327, spp. n. Philippines, KAYE Ann. Nat. Hist. 1.

*Crothaema*; vide *Tortricidae*.

*Ctenosia nephelistis* sp. n. Centr. Africa p. 98, HAMPSON Nov. Zool. 25.

*Cyclidia substigmara superstigmara* and s. *intermedia* subspp. n. p. 416, PROUT Ann. Nat. Hist. 2.

*Darna pluricincta, tolimata*, spp. n. Colombia p. 2, DOGNIN Hét. nouv. 14.

*Diacrisia vagans*, races, synonymy, BARNES & MCDUNNOUGH pp. 85-88 Contr. 4.

*Dicentria moribunda* sp. n. Mexico p. 134, DYAR Insec. inscit. 6.—*D. obligata* sp. n. Mexico, p. 359, DYAR P. U.S. nat. Mus. 54.

*Diduga excisa* p. 107, *metaleuca* p. 108, spp. n. Philippines, HAMPSON Nov. Zool. 28.

*Dilophura* gen. n. *Charideidae* p. 382 for *Byblisia caudata* Jord., HAMPSON Nov. Zool. 25.

- Dryocampa bilineata* sexes, variation, GIACOMELLI pp. 363-365 *Physis* 4.
- Dypsessa vaulgeri* figs. 7 and 8 pl. viii, ROTHSCHILD Nov. Zool. 25.
- Endromis versicolora*, biological notes OUEMANS Ber. Ned. Ent. Ver. 5 pp. 98-103.
- Epiphora vera* sp. n. JANSE p. 85 Ann. Durb. Mus. 2.
- Eterusia proprimarginata* sp. n. China p. 312, PROUT Ann. Nat. Hist. 1.
- Eubaphe costata pallipennis* var. n. p. 85 pl. xiv f. 14, BARNES & McDUNNOUGH Contr. 4.
- Eucereon melathoracica* sp. n. Colombia p. 94, HAMPSON Nov. Zool. 25.
- Euclea fuscipars* sp. n. Mexico p. 366, DYAR P. U.S. nat. Mus. 54.
- Eugoa arcuata* sp. n. Philippines p. 108, HAMPSON Nov. Zool. 25.
- Eugraphosia* gen. n. p. 103 near *Cyclopera*, *rubrizonca* sp. n. Peru p. 104, HAMPSON T.c.
- Euproctis rivularis* sp. n. W. Africa, p. 125, GARDNER Int. ent. Zeitschr. 9 1915.—*E. rubricosta* sp. n. E. Africa p. 242 f. 7, FAWCETT P.Z.S. London 1917.—*E. croceola* n.n. for *crocea* Wilem. p. 345, *flexuosana* n.n. for *flexuosa* Wilem. p. 346, *divisella* n.n. for *divisa* W. 1863, p. 347, *celebesa* sp. n. p. 348, *tonkinensis* sp. n. p. 350, *calvella*, *flavolimbatalana*, spp. n. Java p. 351, *biplagatana* n.n. for *biplagata* Heyl. p. 352, STRAND in Seitz Grossschmetterl. Faun. indoaustral.
- Euryzonosia atricincla* sp. n. C. Africa p. 107, HAMPSON Nov. Zool. 25.
- Fumea ominosa* sp. n. p. 45, *luticoma* p. 59, spp. n., MEYRICK Ann. Trans. Mus. 6.
- Gingla beovava* sp. n. Mexico p. 366, DYAR P. U.S. nat. Mus. 54.—*G. mas* sp. n. Mexico p. 137, DYAR Insec. inscit. 6.
- Glaucostola maroniensis* sp. n. Guiana p. 268 pl. f. 10, JOICEY & TALBOT P.Z.S. London 1917.
- Gloveria concinna* p. 355 *rubicundens*, *obsoleta*, *sodom*, *latipennis*, p. 356, spp. n. Mexico, DYAR P. U.S. nat. Mus. 54.
- Gymnelia semicincla* sp. n. Colombia p. 228, KAYE Ann. Nat. Hist. 2.
- Helictinidia tornensis* sp. n. Colombia p. 417, PROUT Ann. Nat. Hist. 2.
- Hemiceras obliquiplaga* sp. n. Mexico p. 359, DYAR P. U.S. nat. Mus. 54.
- Hemileuca electra* var. n. *clio* p. 81 pl. xiii figs. 1 and 2, BARNES & McDUNNOUGH Contr. 4.—*H. burnsi* validity, habitat, WATSON pp. 252-255 Ent. News 29.—Injury by urticating spines of *Hemileuca* larva, CAFFEY J. econ. Ent. 11 pp. 363-367.
- Hepialus sylvinus*, habits, BLAIR p. 212 Ent. 51.—*H. lupulinus*, pairing, SMART p. 269 Naturalist 1918.
- Heterocampa cubana* pl. xx f. 14, p. 128, BARNES & McDUNNOUGH Contr. 4.
- Heterocoma* gen. n. *Cossidae*, *albistriga* sp. n. Arizona pl. xx figs. 16 and 17, p. 179, BARNES & McDUNNOUGH T.c.
- Heteronygmia aurelia* sp. n. E. Africa p. 242 f. 16, FAWCETT P.Z.S. London 1917.
- Holocera rhodesiensis* sp. n. JANSE p. 83 Ann. Durb. Mus. 2.
- Hyperborea kozhantshikovi* sp. n. Siberia p. 104, SHELUZHKO N. Beitr. syst. Insk. 1.
- Hypopta actileuca* sp. n. Mexico p. 367, DYAR P. U.S. Nat. Mus. 54.
- Ichoria leucopus* sp. n. Mexico p. 341, DYAR T.c.
- Idalus flavithorax* sp. n. Brazil p. 265 pl. f. 4, JOICEY & TALBOT P.Z.S. London 1917.
- Ilema aurantisquamata*, *costiplicata* p. 98, *maculifascia*, *fractifascia*, *nebulifera*, *achrosis*, p. 99, spp. n. Centr. Africa, HAMPSON Nov. Zool. 25.—*I. haploa* sp. n. Lord Howe isld. p. 277, TURNER Tr. R. Soc. S. Austr. 42.
- Ilice*; genitalia of North American, BARNES & McDUNNOUGH pp. 82-84 pl. xiv Contr. 4.—*I. albizonca* sp. n. Peru p. 103, HAMPSON Nov. zool. 25.

*Lacipa albula* sp. n. E. Africa p. 242 pl. 1 f. 8, FAWCETT P.Z.S. London 1917.

*Lambessa staudingeri* figs. 9, 12, 13 and 14, *decolorata virago* f. 11 larva, *d. sordidior* f. 20 larva, *d. albescens* larva f. 21, *d. sordidior* figs. 15 and 16, *d. albescens* figs. 19 and 22, ROTHSCHILD pl. viii Nov. zool. 25.

*Lamprochrysa* gen. n. *Charideidae* for *Diospage triplex* Plotz, HAMPSON p. 379 Nov. zool. 25.

*Lepasta concordens* sp. n. Costa Rica p. 356, DYAR P. U.S. nat. Mus. 54.

*Lymantria takamukui* sp. n. Japan, NAGANO Konek. Sek. Gifu 27 pp. 410-415.

*Macrocyllara* gen. n. *Cossidae* p. 160 for *Culama expressa* Luc., TURNER Tr. ent. Soc. London 1918.

*Malacosoma franconica brunneo-olivacea* pl. viii figs. 4 & 10, ROTHSCHILD Nov. zool. 25.

*Megalopyge lapena* var. n. *heteropuncta*, BARNES & McDUNNOUGH p. 158 Contr. 4.

*Melanchroiopsis* gen. n. *Agaristidae*, *acroleuca* sp. n. Mexico, DYAR p. 341 P. U.S. nat. Mus. 54.

*Melese flavescens* sp. n. Argentina p. 268 pl. f. 11, JOICEY & TALBOT P.Z.S. London 1917.

*Mesothen demicostata* sp. n. Colombia p. 229, KAYE Ann. Nat. Hist. 2.

*Metarctia paremphares* var. n. *fulvociliata* p. 73, GAEDE Int. ent. Zeitschr. 9 1915.

*Milochrista cruenia* sp. n. Ceylon p. 106, HAMPSON Nov. zool. 25.

*Molippa simillima* and *sabina*, DUKINFELD-JONES p. 117 ♂ ♀ corrected figures pls. iii and iv Tr. ent. Soc. London 1918.

*Narasodes metatroga* sp. n. Philippines p. 101, HAMPSON Nov. zool. 25.

*Neoduma* gen. n. near *Heliosia* p. 101, *ectozona* sp. n. Philippines p. 102, HAMPSON T.c.

*Neonerita metaphoenica* sp. n. Guiana p. 265 pl. f. 5, JOICEY & TALBOT P.Z.S. London 1917.

*Neritos purpureotincta* sp. n. Guiana p. 269 pl. f. 13, JOICEY & TALBOT T.c.

*Neurochyta* gen. n. *Lasiocampidae* p. 181 type *edna* Swinh., TURNER Tr. ent. Soc. London 1918.

*Nilgiricola* gen. n. p. 104 near *Syntomimorpha*, *sicciana* sp. n. Madras p. 105, HAMPSON Nov. zool. 25.

*Nola rufizonalis* sp. n. Colombia p. 96, HAMPSON T.c.—*N. celata* Costa Rica; *perluta* Colombia, spp. n., DRAUDT in Seitz Faun. exot. americ. 6.

*Notodontidae*; descriptions and figures of pupae, MOSHER pp. 58-73 2 pls. Bull. Maine exp. Stat. 259 1917.

*Nudaria mesombra* sp. n. Philippines p. 107, HAMPSON Nov. zool. 25.

*Nudaurelia princeps* sp. n. Africa p. 498 with var. *callichroma* p. 500, *oubie* var. n. *angolanus* p. 501, LE CERF Bull. Mus. Paris 24.—*N. carnegi* sp. n. JANSE Ann. Durb. Mus. 2 p. 78.—*N. macrophthalma* ff. n. *editha* p. 392 and *elisa* p. 393, WIEHGRAF D.E.Z. 1914.

*Nyctemeru pellex frosti*, *luctuosum rostrigera*, subspp. n., PROUT p. 317 Ann. Nat. Hist. 1.

*Odontosia sieversi*, distribution, ff. n. *stringei* figs. 1 and 2, *grolei* figs. 1-4, *patricia* sp. n. Vladivostok p. 38 pl. i f. 20, STICHEL pp. 25-38 Zeitschr. wiss. Insbiol. 14.

*Ogoa malagassica* sp. n. Antananarivo p. 365, ROTHSCHILD Nov. Zool. 25.

*Olene vagans* and *willingi*, larvae, BARNES & McDUNNOUGH p. 130 Contr. 4.

*Opharus ochracea* sp. n. Peru p. 269 pl. f. 12, JOICEY & TALBOT P.Z.S. 1917.

*Otroeda varunaea tenuimargo* subsp. n., PROUT p. 318 Ann. Nat. Hist. 1.

*Pachygastris davidis* figs. 23-25, *serrula palaestinensis* figs. 26-28, ROTHSCHILD pl. viii Nov. zool. 25.

*Pachypasa*; Lord ROTHSCHILD figures on pl. i, *josua vaucheri* figs. 1 & 16 larva f. 4, *j. josua* figs. 17 & 18 larva f. 3, *trifolii mauretanicus* larva f. 2, *serrula* figs. 5 & 6, *serrula palaestinensis* figs. 7 & 8 larva f. 15, *serrula undulata* figs. 9-11 larva figs. 13 & 14, *serrula* ab. *brunnea* figs. 12 & 19, Nov. zool. 25.



- Palaeotype* gen. n. *Lithosiidae* for *Trischalis submarginata* Rothsch., HAMPSON p. 109 Nov. zool. 25.
- Paradoxosia* gen. n. p. 105 near *Iadopterum, rufipex* sp. n. Uganda p. 106, HAMPSON T.c.
- Parasemia plantaginis* abb. n. *schaerwerae* and *albidioides* p. 72, figs., HEINRICH Int. ent. Zeitschr. 11 1917.
- Pericallia pannycha* sp. n. Mexico p. 341, DYAR P. U.S. nat. Mus. 54.
- Phaegorista bisignibasis* p. 417, *trialbata* p. 418, spp. n. Africa, PROUT Ann. Nat. Hist. 2.
- Phaeosia dimorpha* sp. n. Philippines p. 98, HAMPSON Nov. zool. 25.
- Phaeosina* gen. n. *Notodontidae, atra* sp. n. Cameroons, GAEBDE p. 125 Int. ent. Zeitschr. 9 1915.
- Phalaenoides* to replace *Agarista*, HAMPSON p. 216 Nov. zool. 25.
- Pheia serpens* Amazons p. 227, *nanata* Peru p. 228, spp. n. KAYE Ann. Nat. Hist. 2.
- Phiala chrysargyra* sp. n. Africa p. 394, WICHGRAF D.E.Z. 1914.
- Philenora euphileta* sp. n. Lord Howe Isl. p. 278, TURNER Tr. R. Soc. S. Austr. 42.
- Philosamia cynthia*, ab., JOIOBY & TALBOT p. 275 P.Z.S. London 1917.
- Philotherma flavescens, simplex*, spp. n. Africa p. 395, WICHGRAF D.E.Z. 1914.
- Phragmatobia faroulti* f. 3, *breveti* f. 5, *occidentalis* f. 6, pl. viii, ROTHSCHILD Nov. zool. 25.
- Phryganopsis holoxantha* sp. n. C. Africa p. 97, HAMPSON Nov. zool. 25.
- Poecilocampa populi bajuvarica* subsp. n. p. 198 f. 3, STICHEL Zeitschr. wiss. Insbil. 14.
- Pompostola semiaurata* var. n. *sanguiniquitta*, GAEBDE p. 80 Int. ent. Zeitschr. 9 1915.
- Porthesia similis*, eating apples, HAINES p. 18 Ent. 51.
- Postanila* gen. n. *Notodontidae* near *Litodonta, decurrens* sp. n. Mexico, DYAR p. 357 P. U.S. nat. Mus. 54.
- Pseudaphelia flavomarginata* sp. n. E. Africa, *simplex* var. n. *rebeli*, GAEBDE p. 72 Int. ent. Zeitschr. 9 1915.
- Pseudapiconoma bumba* sp. n. Congo p. 114, STRAND Int. ent. Zeitschr. 12.
- Pseudlepsita holoxantha* sp. n. C. Africa p. 100, HAMPSON Nov. zool. 25.
- Pseudodiptera* gen. n. *Syntomidae* near *Apisa* p. 229, *musiforme* sp. n. Congo p. 230, KAYE Ann. Nat. Hist. 2.
- Psilacron eugraphica, monostigma*, spp. n. Mexico (p. 358, DYAR P. U.S. nat. Mus. 54.
- Psychidae*; cases of, BURROWS pl. i p. 27 P.S. London ent. Soc. 1917-18.
- Psychonoctua poam* sp. n. Mexico p. 366, DYAR P. U.S. nat. Mus. 54.
- Pyromorpha aurora* sp. n. Mexico p. 366, DYAR P. U.S. nat. Mus. 54.
- Rhodesana mintha* sp. n. E. Africa p. 241 f. 19, FAWCETT P.Z.S. London 1917.
- Rhyncopyga discalpa* sp. n. Bugaba p. 228, *semirufa subochrea* subsp. n. p. 229, KAYE Ann. Nat. Hist. 2.
- Rocselia costiplagiata* sp. n. Centr. Africa p. 96, HAMPSON Nov. zool. 25.—*R. nigromaculata* sp. n. Japan, NAGANO Konch. Sek. Gifu 37 pp. 410-418.—*R. pseudermana* sp. n. Mexico p. 365, DYAR P. U.S. nat. Mus. 54.—*R. biconigera* Am. mer., *deglupta* Bolivia, *canescens* Costa Rica, *argyraspis* Colombia; p. 236, *effusa* Quindin p. 237, *flaviscapula, stilbina*, Colombia, *punctilinea* Costa Rica, p. 238, *semicrema* with f. n. *apiciplaga, godalma, excelsior*, Am. mer., p. 239, spp. n., *medioscripta* f. n. *basifusca* p. 239, DRAUDT Seitz Faun. exot. americana 6.
- Roptrophalaena* nom. n. *Eucocyiadae* fam. n., HAMPSON p. 366 Nov. zool. 25.
- Rothschildia jorulla*, retarded emergence, ROWLEY p. 363 Canad. Ent. 50.
- Salluca amathynta* sp. n. Mexico p. 358, DYAR P. U.S. nat. Mus. 54.
- Samia cecropia*, abnormality, LAURENT p. 161 pl. ix Ent. News 29.

*Saturnia pavonia infumata*, DEMATSON p. 233 Bull. Soc. ent. France 1918.—*S. pernyi* in Manchuria, NOZAWA Sangyo Simpo [Sericultural magazine] Tokyo pp. 164–170.

*Saurita pebasa* sp. n. Peru p. 226, KAYE Ann. Nat. Hist. 2.

*Scaptosyle pseudoblabia* sp. n. Philippines p. 102, HAMPSON Nov. zool. 25.

*Scoliacma albicostata* sp. n. N. Guinea p. 97, HAMPSON T.c.

*Siccia paucipuncta, pallens*, spp. n. Africa p. 104, HAMPSON T.c.

*Sibine pauper* sp. n. Mexico p. 365, DYAR P. U.S. nat. Mus. 54.

*Spilosoma melanochroa* sp. n. Madras p. 216, HAMPSON Nov. Zool. 25.

*Stenocyttara* gen. n. *Cossidae* p. 164 type *sabulosa* Schaus, TURNER Tr. ent. Soc. London 1918.

*Supernola* gen. n. near *Nola, subrufa* sp. n. Borneo, HAMPSON p. 96 Nov. zool. 25.

*Symmerista odontomys* sp. n. Mexico p. 357, DYAR P. U.S. nat. Mus. 54.

*Syntomis polyxo* sp. n. E. Africa p. 234 f. 10, FAWCETT P.Z.S. London 1917.

*Thosea undosa* f. 6, *perseis* f. 4 p. 244, *chloris* f. 5 p. 245, spp. n., FAWCETT T.c.

*Thyrogonia cyaneotincta* C. Africa p. 94 sp. n., HAMPSON Nov. zool. 25.

*Tigridania* gen. n. *Syntomidae* near *Sarosa* p. 225, *quadricincta* sp. n. Amazons p. 226, KAYE Ann. Nat. Hist. 2.

*Tigrioides aurantiaca* Philippines, *chionostola* New Guinea, spp. n. p. 97, HAMPSON Nov. zool. 25.

*Tolype lowriei* sp. n. California p. 122 pl. xx figs. 10 & 11, BARNES & McDUNNOUGH Contr. 4.

*Tospitis brunneiplaga* sp. n. Bhutan p. 102, HAMPSON Nov. zool. 25.

*Triprocris rosetta* sp. n. Mexico p. 366, DYAR P. U.S. nat. Mus. 54.

*Trischalis convoluta* sp. n. Philippines p. 108, HAMPSON Nov. zool. 25.

*Urojana* gen. n. *Janidae, eburea* sp. n. W. Africa, GAEDE p. 73 Int. ent. Zeitschr. 9 1915.

*Xanthospilopteryx houyjenensis* Cameron, *aurea* Angola, spp. n., WICHGRAF p. 26 Int. ent. Zeitschr. 12.—*X. longipennis* var. n. *bodaensis*, GAEDE p. 80 Int. ent. Zeitschr. 9 1915.

*Xylotrypa* gen. n. *Cossidae* type *Xyleutes strigillata* Feld., TURNER Tr. ent. Soc. London 1918 p. 162.

*Zeuzera pyrina* f. n. *paulomaculata*, STICHEL p. 200 f. 2 Zeitschr. wiss. Insbiol. 14.

*Zygaena*; hybridising, BETHUNE-BAKER p. 61 Ent. Rec. 30; ONSLOW p. 148 T.c.; GREER p. 187 T.c.—*Z.*; var. et hybrids in S. France, FOULQUIER pp. 262–266 Et. Lép. comp. 16.—*Z. achilleae* and *filipendulae*, interbreeding, HACKAUF p. 104 Int. ent. Zeitschr. 9 1915.—*Z. transalpina* ab. n. *avellanea*, PROBASKA Int. ent. Zeitschr. 9 p. 51 1915.—*Z. carniolica* var. n. *media*, REISS p. 202 Int. ent. Zeitschr. 11.—*Z. filipendulae, trifolii* and *loniceriae* in England, BUCKSTON P. S. London Soc. 1917–18 pp. 1–5.—*Z. minos*, valid, larva, RAGUSA p. 203 Bull. Soc. ent. France 1918.

#### NOCTUIDÆ.

Revision of Noctuidæ of Algeria, with numerous plates to which there is no reference in the text, OBERTHÜR Et. Lep. comp. 16.

Discussion of the Noctuidæ of the Barnes and McDunnough checklist, DOD pp. 7–16 etc. Canad. Ent. 50.—BARNES & McDUNNOUGH discuss these notes T.c. pp. 192–195.

*Abacena rectilinea* sp. n. Brazil p. 175, HAMPSON Nov. Zool. 25.

*Acaenica* gen. n. p. 182 near *Eustrotia, diaperas* sp. n. E. Africa p. 183, HAMPSON T.c.

*Acanthofrontia dicycla, atricosta*, spp. n. Africa p. 187, HAMPSON T.c.

*Achaea hypopolia, cupreitincta*, p. 208, *ferreotincta, violascens*, p. 209, spp. n. Africa, HAMPSON T.c.—*A. orbigeru* sp. n. New Guinea p. 403, fig., GAEDE Mitt. Zool. Mus. Berlin 8 1917.

*Acidaliodes irrorata* sp. n. Peru p. 158, HAMPSON Nov. zool. 25.

*Acontia dohertyi* Sambawa, *talauta* Talaut isld., spp. n. p. 74, SWINHOE Ann. Nat. Hist. 2.

*Acopa bistrigata* sp. n. Arizona p. 107 pl. xvii f. 18, BARNES & McDUNNOUGH Contr. 4.

*Acrapex roseola* sp. n. C. Africa p. 155, HAMPSON Nov. zool. 25.

*Acripia kilimandjaronis* sp. n. p. 18, STRAND Int. ent. Zeitschr. Guben 9 1915.

*Acronycta luteola* sp. n. Assam p. 141, HAMPSON Nov. zool. 25.—*A. ybasis*, *fumeola*, spp. n. Mexico p. 346, DYAR P. U.S. nat. Mus. 54.

*Adisura bella* sp. n. E. Africa p. 73, GAEDE Int. ent. Zeitschr. 9 1915.

*Agrotis doufanae* p. 90 figs. 4072 & 4073, *bugeaudi* p. 94 figs. 4080 & 4081, Algeria spp. n., *celsicola* var. *guedelanea* p. 99 f. 4084, OBERTHÜR Et. Lép. comp. 16.—*A. melania* n. sp. Japan, NAGANO Konch. Sek., Gifu 27 pp. 487–492.—*A. fortiter* sp. n. Colorado p. 92 pl. xv. f. 4, BARNES & McDUNNOUGH Contr. 4.—*A. olearia* Mexico, *medioatra* Yemen, p. 111, *paramensis* Colombia p. 112, spp. n., HAMPSON Nov. zool. 25.—*A. collina*, LANGE p. 122–129 D. ent. Zeitschr. Iris. 31.—*A. fimbria* p. 222 fig. 2, *pronuba* p. 223 figs. 3, 31, *baja* p. 224 figs. 7, 32, *griseceus* p. 225 fig. 6, pupae, LJUNGDAHL Ent. Tidsk. 39.

*Alesua* gen. n. *Hypeninae*, *etialis* sp. n. Mexico, p. 353, DYAR P. U.S. nat. Mus. 54.

*Aletia empyrea* sp. n. New Zealand p. 61, HUDSON Ent. Mag. 54.

*Ammonoconia caccimacula*, pupa, LJUNGDAHL Ent. Tidskr. 39 p. 235 fig. 28.

*Amphidrina pseudagrotis* sp. n. C. Africa p. 143, HAMPSON Nov. zool. 25.

*Amphipyra yama* sp. n. Japan p. 67, SWINHOE Ann. Nat. Hist. 2.

*Amya magnifoveata* p. 180, *rubrirena* p. 181, spp. n. Africa, HAMPSON Nov. zool. 25.

*Anepia* nom. n. for *Epia* Hübn. Verz. p. 214, HAMPSON p. 116 T.c.

*Angitia medioplica* p. 176, *seminigra*, *camptosema*, p. 177, spp. n. Amer. mcr., HAMPSON T.c.

*Annaphila astrologa* sp. n. Arizona p. 109 pl. xix f. 11, BARNES & McDUNNOUGH Contr. 4.

*Antaplaga varrara*, *alesaea*, spp. n. Mexico p. 350, DYAR P. U.S. nat. Mus. 54.

*Anthodes* gen. n. p. 142 type *acynodonta* Dogn., HAMPSON Nov. zool. 25.

*Anua obsolescens* p. 205, *hypoxantha* p. 206, spp. n. Africa, HAMPSON T.c.—*A. clementi* sp. n. Australia p. 76, SWINHOE Ann. Nat. Hist. 2.

*Argiva sumbana* p. 82, *luzonica*, *ceramica*, p. 83, spp. n., SWINHOE T.c.

*Ariathisa emboloma* sp. n. N.S.W. p. 233, LOWER Tr. R. Soc. S. Austral. 42.

*Aroana baliensis* p. 173, *porphyrea* Travancore p. 174, spp. n., HAMPSON Nov. zool. 25.

*Aspidifrontia abyssinica* sp. n. p. 122, HAMPSON T.c.

*Athetis mozambica* p. 143, *roastis*, *melanerges*, p. 144, *soudanensis*, Africa, *iberica* Albarracin, *corticea* China, p. 145, *atricticta* Mashonaland, p. 146, spp. n., HAMPSON T.c.

*Aulotarache atrisignata* sp. n. Zomba p. 189, HAMPSON T.c.

*Autographa californica* in Canada, GIBSON pp. 132–136 Agric. Gaz. Canada 5.

*Bastilla* gen. n. near *Parallelia* type *redunca* Sw., SWINHOE p. 78 Ann. Nat. Hist. 2.

*Beana umbrina* sp. n. Luzon p. 198, HAMPSON Nov. zool. 25.

*Beara achromatica* sp. n. Manila p. 202, HAMPSON T.c.

*Bertula adra* sp. n. Assam p. 92, SWINHOE Ann. Nat. Hist. 2.

*Blenina alena* sp. n. Queensland p. 69, SWINHOE T.c.

*Bomolocha clypea* India, *commixtura* Lombok, p. 93, *variegata* Borneo, *uniformis* Assam, p. 94, spp. n., SWINHOE T.c.—*B. dicialis* sp. n. Mexico p. 354, DYAR P. U.S. nat. Mus. 54.

*Borolia carminata* New Guinea, *rufidefinita* Peru, *leucospila* Luzon, spp. n. p. 125, HAMPSON Nov. zool. 25.

*Bouda* gen. n. *Acronyctinae*, *pallipars*, *hidalgontis*, spp. n. Mexico, DYAR p. 347 P. U.S. nat. Mus. 54.

*Brachygalea albida* sp. n. Argentina p. 127, HAMPSON Nov. zool. 25.

*Brevspecten icarus* sp. n. E. Africa p. 240 f. 24, FAWCETT P.Z.S. London 1917.—*B. pomona* sp. n. Cape York p. 88, SWINHOE Ann. Nat. Hist. 2.

*Bryomima olivaria* sp. n. Mexico p. 129, HAMPSON Nov. zool. 25.

*Bryophila rosinans* p. 10 pl. 490 f. 4034 Algeria, *tatsientuica* Tibet p. 12 fig. 4040, spp. n. ?, *simulatricula albomacula* f. n. p. 9 fig. 4033, OBERTHÜR Et. Lep. comp. 16.—*B. griseola* n. sp. Japan, NAGANO Konch. Sek. Gifu 27 pp. 448-451.—*B. atrimixta* sp. n. W. China p. 138, HAMPSON Nov. zool. 25.

*Busseola fuscantis* sp. n. C. Africa p. 153, HAMPSON T.c.

*Caenurgya triangula* sp. n. Arizona p. 116 pl. xv f. 13, BARNES & McDUNNOUGH Contr. 4.

*Calamia lutosa* ab. n. *rufovenosa*, SCHILLE p. 120 Zeitschr. wiss. Insbiol. 14.

*Calloruga* gen. n. type *Corgatha pulchra* B.-B., HAMPSON p. 169 Nov. Zool. 25.

*Callyna melanosema* Ceylon, *chalcoperas* Philippines, p. 157, HAMPSON T.c.

*Calymnia cineles* sp. n. Mexico p. 133, DYAR Insec. inscit. 6.

*Calymniodes ferrealis* p. 150, *leucopis*, Colombia, *obliquirena* Arizona, p. 151, spp. n., HAMPSON Nov. zool. 25.

*Camptylochila julia* pl. xviii f. 13, *diminuendis* f. 12, spp. n. U.S. p. 126, BARNES & McDUNNOUGH Contr. 4.

*Capnodes azulca* sp. n. Khasia hills p. 59, SWINHOE Ann. Nat. Hist. 2.

*Caradrina suavis* p. 56 f. 4055, *divitefimbriata* p. 58 f. 4058 Algeria, spp. n., *flavida delectans* var. p. 58 figs. 4056 and 4057, OBERTHÜR Et. Lép. comp. 16.—*C. selini*, variation, HASEBROEK pp. 18-20, Int. ent. Zeitschr. 11 1917.

*Carea intermedia*, *innocens*, spp. n. India p. 73, SWINHOE Ann. Nat. Hist. 2.—*C. purpureolineata* Penang p. 200, *lentilineata*, *flavidirubra*, Selangor p. 201, spp. n., HAMPSON Nov. zool. 25.

*Cariona* gen. n. near *Patala* p. 83, type *albicincta* Koll., SWINHOE p. 83 Ann. Nat. Hist. 2.

*Cassandria phoenicias* sp. n. Panama p. 199, HAMPSON Nov. zool. 25.

*Catoblemma renalis* Borneo p. 160, *cremorna* Tunis p. 161, spp. n., HAMPSON T.c.

*Catocala*; north-American, with larvae and genitalia illustrated, BARNES & McDUNNOUGH Mem. Amer. Mus. 3 pp. 1-47 22 pls.—*C.*; descriptions of North-American larvae, BARNES & McDUNNOUGH Bull. Amer. Mus. 38 pp. 147-177.

*Cerynea albivitta* C. Africa p. 168, *pallens* Solomon islds. p. 169, spp. n., HAMPSON Nov. zool. 25.—*C. sumatrana* sp. n. p. 68, SWINHOE Ann. Nat. Hist. 2.

*Chabuata sygclela*, *iota*, spp. n. Mexico p. 344, DYAR P. U.S. Nat. Mus. 54.—*C. cerastidia* sp. n. Peru p. 120, HAMPSON Nov. zool. 25.

*Chalciope saina* sp. n. Nias p. 80, SWINHOE Ann. Nat. Hist. 2.

*Chalcopasta sinuata*, *restricta*, spp. n. Mexico p. 152, HAMPSON Nov. zool. 25.—*C. chalcophantis*, *anopis*, spp. n. Mexico p. 348, DYAR P. U.S. nat. Mus. 54.

*Chamyris sirius* sp. n. Texas p. 111 pl. xvii f. 17, BARNES & McDUNNOUGH Contr. 4.

*Characoma melanographa* p. 193, *nigricollaris* p. 194, spp. n. Transvaal, HAMPSON Nov. zool. 25.—*C. sumatrana* sp. n. p. 68, SWINHOE Ann. Nat. Hist. 2.

*Charæas graminis* ab. n. *manca*, LJUNGDAHL Ent. Tidskr. 39 p. 83 fig. 2; *C. graminis* pupa, LJUNGDAHL Ent. Tidskr. 39 p. 225 fig. 4.

*Chloantha polyodon*, pupa, LJUNGDAHL T.c. p. 237 figs 25 41.

*Chloridea marmada* sp. n. Australia p. 65, SWINHOE Ann. Nat. Hist. 2.

*Chytonix leucosema* sp. n. Venezuela p. 137, HAMPSON Nov. zool. 25.

*Cirphis multipunctata* Assam, *rufescens* Ceylon, p. 122, *metalampra*, *homocoptera*, Africa p. 123, *atrisignata* Colombia, *leucophelebia* Argentina, *miasticta* Nigeria, p. 124, spp. n., HAMPSON T.c.—*C. incognito* sp. n. Texas p. 99 pl. xvii figs. 6 & 9, BARNES & McDUNNOUGH Contr. 4.

*Cladocera polybela*, early stages pp. 71–81, OBERTHÜR Et. Lép. comp. 16.

*Cladocerotis oeneus* sp. n. E. Africa p. 236 f. 12, FAWCETT P.Z.S. London 1917.

*Clytie euryphaea* sp. n. Arabia p. 214, HAMPSON Nov. zool. 25.

*Cobubatha rustica* sp. n. Mexico p. 351, DYAR P. U.S. nat. Mus. 54.

*Cobusa restricta* sp. n. Nigeria p. 212, HAMPSON Nov. zool. 25.

*Conicochyta* gen. n. p. 137 type *Chytonix olivacea* Wilem., HAMPSON T.c.

*Conicofrontia mesoscia* sp. n. Natal p. 156, HAMPSON T.c.

*Constra graefiana* pl. xv f. 16, p. 102 synonymy, BARNES & McDUNNOUGH Contr. 4.

*Conservula alambica* Cameroons p. 74, *malagasa* Madagascar p. 79, spp. n., GAEBDE Int. ent. Zeitschr. 9 1915.

*Copicucullia basipuncta* sp. n. California p. 100 pl. xvi f. 5, BARNES & McDUNNOUGH Contr. 4.

*Cordylepalpa ferruginea*, *calochroa*, spp. n. New Guinea p. 133, HAMPSON Nov. zool. 25.

*Corgatha chionocraspis* Natal p. 174, *xanthobela* Philippines, *ochrida* Uganda, p. 175, spp. n., HAMPSON T.c.—*C. nawai*, *gifuensis*, n. spp. Japan, NAGANO Konch. Sek. Gifu 27 pp. 410–415.

*Cortyla setifera* sp. n. C. Africa p. 214, HAMPSON Nov. zool. 25.—*C. minyas*, fig. 17, *griseacea* f. 18, p. 239, FAWCETT P.Z.S. London 1917.

*Craniophora ligustri*, pupa, LJUNGDAHL Ent. Tidskr. 39 p. 222 figs. 5, 30.

*Cryphia pervertens* pl. xviii f. 8, *villificans* f. 9, spp. n. U.S. p. 113, BARNES & McDUNNOUGH Contr. 4.

*Ctenusa rectilinea* f. 31, p. 239, FAWCETT P.Z.S. London 1917.

*Cucullia bistrana* p. 167, figs. 4125 & 4126, sp. n.?, OBERTHÜR Et. Lép. comp. 16.—*C. costaricensis* sp. n. p. 126, HAMPSON Nov. zool. 25.

*Cynisca* gen. n. near *Calpe*, *thisbe* sp. n. E. Africa f. 13, FAWCETT P.Z.S. London 1917.

*Demas coryli*, pupa, LJUNGDAHL Ent. Tidskr. 39 p. 217 figs. 1 29.

*Dermaleipa meterythra* sp. n. Centr. Africa, HAMPSON p. 205 Nov. zool. 25.

*Derthisa trimacula* ab. n. *alba* p. 162, FERNÁNDEZ Bol. Soc. ent. Españ. 1.

*Diastema dosceles* sp. n. Mexico p. 352, DYAR P. U.S. nat. Mus. 54.

*Diloba coeruleocephala*, pupa, LJUNGDAHL Ent. Tidskr. 39 p. 232 figs. 19 38.

*Diomea nasea* sp. n. Borneo p. 89, SWINHOE Ann. Nat. Hist. 2.

*Dischalis* gen. n. near *Hypangitia*, *leucomera* sp. n. Madras, HAMPSON p. 188 Nov. zool. 25.

*Doryodes bistrialis* pl. xvii figs. 4 & 5, var. n. *grandipennis* figs. 1 & 2, p. 117, *tenuistriga* sp. n. Texas p. 118 pl. xvii figs. 10 & 11, BARNES & McDUNNOUGH Contr. 4.

*Drasteria graphica* var. n. *atlantica* p. 119, BARNES & McDUNNOUGH T.c.

*Dryobola protea*, pupa, LJUNGDAHL Ent. Tidskr. 39 p. 237 fig. 26.

*Dysgonia manillana* p. 78, *frustorferi* Papua p. 79, spp. n., SWINHOE Ann. Nat. Hist. 2.

*Dysmilichia proleuca* sp. n. Zomba p. 147, HAMPSON Nov. zool. 25.

*Echolemlia singalesia* sp. n. Kandy p. 132, HAMPSON T.c.

*Elaeognatha phanerotola* sp. n. Peru p. 199, HAMPSON T.c.

*Emmonodia padanga* sp. n. Sumatra p. 75, SWINHOE Ann. Nat. Hist. 2.

*Enispa albida* Gold Coast, *rufapicia* Ceylon, spp. n. p. 161, HAMPSON Nov. zool. 25.

*Epia amabilis* sp. n. California p. 96 pl. xvi f. 4, BARNES & McDUNNOUGH Contr. 4.

*Epineuronia popularis* p. 225 figs 9, 33, *cæspitilis* p. 226 fig. 12 pupae, LJUNGDAHL Ent. Tidskr. 39.

*Epunda concolor* Algeria p. 143 figs. 4120 and 4121 sp. n.? OBERTHÜR Et. Lép. comp. 16.

*Ercheia anvira* Borneo, *careona* Celebes, p. 77, *enganica* Engano p. 78, spp. n., SWINHOE Ann. Nat. Hist. 2

*Erebus sapaaraea* Celebes p. 84, *niasana* p. 85, *malanga*, *philippinensis*, p. 86, spp. n., *ephosphoris* = (*leuco-taenia*) p. 84, SWINHOE T.c.

*Eriopus albivitta* Cape Colony, *nigeriensis*, p. 134, *semicircularis* Christmas isld., *argyrosemastis* Fiji, p. 135, spp. n., HAMPSON Nov. zool. 25.

*Eriopyga constans* p. 344, *phanerozona*, *pansapha*, *cacoceona*, p. 345, spp. n. Mexico, DYAR P. U.S. Nat. Mus. 54.

*Erythrophaia canroberti* sp. n. Algeria p. 182 f. 4130, OBERTHÜR Et. Lép. comp. 16.

*Ethionodes* gen. n. p. 146 type *Xanthograpta brunnei-plaga* B.-B., HAMPSON Nov. zool. 25.

*Eublemma rufolineata* Louisiade islds., *melasema*, *rufimixta*, p. 163, *pyrochroa*, *henichiona*, p. 164, *flavibasis*, *flavescens*, *exanimitis*, p. 165, Africa, spp. n., HAMPSON T.c.

*Eulocastra pallida*, *poliogramma*, *car-nibasalis*, C. Africa p. 185, *phaeella* Madras, *albipunctella* Borneo, p. 186, spp. n., HAMPSON T.c.

*Eumichtis cyprasta* Cyprus p. 127, *canariensis* p. 128, spp. n., HAMPSON T.c.—*E. connecta*, to *Anytus*, p. 93, BARNES & McDUNNOUGH Contr. 4.

*Eumuelleria* gen. n. *Hadeninae*, *chiopis* sp. n. Mexico, DYAR p. 343 P. U.S. Nat. Mus. 54.

*Euplexia argyrosemastis* sp. n. New Guinea p. 131, HAMPSON Nov. zool. 25.

*Eurotype anceps*, synonymy, p. 101, BARNES & McDUNNOUGH Contr. 4.

*Eustrotia rubrisignata* p. 183, *obli-guisignata*, *magniplagia*, *perirrorata*, p. 184, spp. n. Africa, HAMPSON Nov. zool. 25.—*E. deltoidalis* sp. n. Mexico p. 352, DYAR P. U.S. Nat. Mus. 54.

*Eutelia* replaced by *Phlogophora* p. 190, HAMPSON Nov. zool. 25.

*Eutricopis nexilis* var. n. *subcolorata* p. 109, BARNES & McDUNNOUGH Contr. 4.

*Euxoa alphonsina* sp. n. Spain p. 158, *mendeli* abb. n. *indentata* and *deleta*, *villiersi* ab. n. *suffusa* p. 160, FERNÁNDEZ Bol. Soc. ent. Españ. 1.—*E. cymographa* E. Africa p. 109, *iriolucua* Falkland islds., *xanthosemata* Russia, p. 110, spp. n., HAMPSON Nov. zool. 25.—*E. cabara* sp. n. Sumatra p. 66, SWINHOE Ann. Nat. Hist. 2.—*E. discilinea*, *parsimonia*, spp. n. Mexico p. 342, DYAR P. U.S. Nat. Mus. 54.—*E. cinnabarina* sp. n. California p. 92 pl. xv f. 1, BARNES & McDUNNOUGH Contr. 4.

*Feltia atridiscata* sp. n. Tibet p. 111, HAMPSON Nov. zool. 25.

*Gadirtha guineana* sp. n. Papua p. 70, SWINHOE Ann. Nat. Hist. 2.

*Giaura areihusa* sp. n. East Africa p. 238 f. 14, FAWCETT P.Z.S. London 1917.

*Globususa* gen. n. *Hypenidae*, *curiosa* sp. n. Philippines, SWINHOE p. 91 Ann. Nat. Hist. 2.

*Goniocalpe leucotrigona* sp. n. Cameroons p. 203, HAMPSON Nov. zool. 25.

*Goniotermasia* gen. n. type *Perciana bistrigata* B.-B., *centrimacula* sp. n. Venezuela, HAMPSON p. 136 T.c.

*Gonodes albifascia* sp. n. Peru p. 147, HAMPSON T.c.

*Grotella spaldingi* pl. xvii f. 16 p. 92, BARNES & McDUNNOUGH Contr. 4.

*Gyrtona scotialis* sp. n. Solomon islds. p. 193, HAMPSON Nov. zool. 25.

*Hadena adusta* p. 233 figs. 20, 39, *monoglypha* p. 234 fig. 21, *sublustris* p. 234 fig. 22, *rurea* p. 235 fig. 23, *illyrica* p. 235 fig. 24, pupae, LJUNGDAHL Ent. Tidskr. 39.

*Hadjina obscura* sp. n. E. Africa p. 148, HAMPSON Nov. zool. 25.

- Haemaphysbia phlaeomicta* sp. n. C. Africa p. 166, HAMPSON T.c.
- Hemeroplanis*, synonymy, BARNES & McDUNNOUGH p. 122 Contr. 4.
- Hemigrotella* gen. n., *argenteostriata* sp. n. California pl. xvii f. 15, p. 91, BARNES & McDUNNOUGH T.c.
- Herminidae* Guén., valid, composition, and Aretiid affinities, FORBES p. 224 J. N. York ent. Soc. 26.
- Holocryptis albida* sp. n. Gold coast p. 166, HAMPSON Nov. zool. 25.
- Homaea striatalis* sp. n. C. Africa p. 205, HAMPSON T.c.
- Homoglaea variegata* sp. n. Arizona p. 103 pl. xv f. 7, BARNES & McDUNNOUGH Contr. 4.
- Hoplotarache hemiselenias* sp. n. Cameroons p. 188, HAMPSON Nov. zool. 25.—*H. albiocula* sp. n. California p. 114 pl. xvii f. 12, BARNES & McDUNNOUGH Contr. 4.
- Hydroeciodes aspasta* p. 343, *pothen* p. 344, spp. n. Mexico, DYAR P. U.S. nat. Mus. 54.—*H. mormon* p. 130, *impica*, *traversa*, p. 131, spp. n. Mexico, DYAR Insec. inscit. 6.
- Hypaetra minima* sp. n. Luzon p. 80, SWINHOE Ann. Nat. Hist. 2.
- Hypangitia* gen. n., *peratopsis* sp. n. Paraguay, HAMPSON p. 178 Nov. zool. 25.
- Hypanua roseitincta* sp. n. Natal p. 206, HAMPSON T.c.
- Hypermilichia* gen. n. p. 146 near *Idalima* type *colon* Dogn., HAMPSON T.c.
- Hypeuthina numida*, early stages, POWELL in Oberth. Et. Léop. comp. 16 pp. 28-51.
- Hypocarea* gen. n. p. 201 type *Remigia conspicua* Leech, HAMPSON Nov. zool. 25.
- Hyposada devia* New Guinea p. 172, *carneolincta* C. Africa p. 173, spp. n., HAMPSON T.c.
- Hyssia rufmixta* p. 120, *pallidicosta* p. 121, spp. n., C. Africa, HAMPSON T.c.—*H. umbra* sp. n. Mexico p. 130, DYAR Insec. inscit. 6.
- Iambia nigella* sp. n. China p. 139, HAMPSON Nov. zool. 25.
- Iambiodes nyctostola* sp. n. Centr. Africa p. 139, HAMPSON T.c.
- Lamprothripa gilvaria* sp. n. Assam p. 196, HAMPSON Nov. zool. 25.
- Leocyma candace* f. 20, p. 239, FAWCETT P.Z.S. London 1917.
- Lepteria sacraria* sp. n. Peru p. 155, HAMPSON Nov. zool. 25.
- Leucania algerica* sp. n. p. 19 figs. 4045 & 4046, OBERTHÜR Et. Léop. comp. 16.
- Leucocnemis variabilis* sp. n. California p. 106 pl. xvii figs. 13 & 14, BARNES & McDUNNOUGH Contr. 4.
- Libyphaenis* gen. n. near *Leucosigma*, *virescens* sp. n. Nigeria, HAMPSON p. 141 Nov. zool. 25.
- Lithacodia mesoplaga* sp. n. Burma p. 182, HAMPSON T.c.—*L. indeterminata* sp. n. Louisiana p. 114 pl. xviii f. 3, BARNES & McDUNNOUGH Contr. 4.—*L. substellata* sp. n. Mexico p. 351, DYAR P. U.S. nat. Mus. 54.
- Locastra* = (*Cecidipta*), *L. excoecariae* gall, BRÈTHES p. 356 fig. Physis 4.
- Lophoceramica simplicifactor* sp. n. Mexico p. 346, DYAR P. U.S. nat. Mus. 54.
- Lophocerynea* gen. n. near *Eustrotia* type *Phanaspa punctata* B.-B., HAMPSON p. 168 Nov. zool. 25.
- Lophocyllara argyropasta* sp. n. C. Africa p. 172, HAMPSON T.c.
- Lophoruza cretonia* sp. n. Australia p. 68, SWINHOE Ann. Nat. Hist. 2.
- Luperina dayensis* p. 130 figs. 4106-4115 sp. n. Algeria, OBERTHÜR Et. Léop. comp. 16.—*L. extensa* to *Protogrotis* p. 94 fig. pl. xv f. 2, BARNES & McDUNNOUGH Contr. 4.
- Lycaugesia rubribasis* Panama sp. n. p. 171, HAMPSON Nov. zool. 25.
- Lycophotia falclandica* Falkland islds., *leuconeura* Persia, p. 113, *interfasciata* Mexico, *ignelincta* Transvaal, *punctilineata* Peru, p. 114, spp. n., HAMPSON T.c.
- Mamestra advena* p. 227 figs. 11, 34, *tincta* p. 228 figs. 14, 35, *brassicoe* p. 229 figs. 10, 36, *oleracea* p. 230 fig. 15, *contigua* p. 230 fig. 13, *pisii* p. 230 fig. 16, *trifolii* p. 231 fig. 17, *dentina* p. 231 figs. 8, 37, pupae, LJUNGDAHL Ent. Tidskr. 39.

*Margiza partitalis* sp. n. Mexico p. 352, DYAR P. U.S. nat. Mus. 54.

*Marzigetta* gen. n. *Hypheninae*, *obliqua* sp. n. Mexico p. 353, DYAR T.c.

*Mastigophorus asynetalis* sp. n. Mexico p. 353, DYAR P. U.S. nat. Mus. 54.

*Maurilia rufirena*, *atrirena*, spp. n. Nigeria p. 202, HAMPSON Nov. zool. 25.—*M. heterochroa* f. n. *suffusa*, *arcuata* new forms, *conjuncta* Togo, *bilineata*, spp. n. p. 80, GAEDE Int. ent. Zeitschr. 9 1915.—*M. tunicata* Queensland, *undaira* p. 71, *fortis* New Guinea, *dalama* Queensland p. 72, spp. n., *instabilis* and *iconica* distinguished p. 71, SWINHOE Ann. Nat. Hist. 2.

*Megastopolia* nom. n. for *Poliiothripa* Hamps. Cat. Lep. Phal., HAMPSON p. 196 Nov. zool. 25.

*Merolonche doli* sp. n. New York p. 105 pl. xvi f. 6, BARNES & McDUNNOUGH Contr. 4.

*Mesembreuxoa melanopis* sp. n. Mexico p. 341, DYAR P. U.S. nat. Mus. 54.

*Metaemene rudariodes* sp. n. Luzon p. 186, HAMPSON Nov. zool. 25.

*Metopoceras albarracina* sp. n. Spain p. 127, HAMPSON T.c.

*Metria phaeobasalis* Guiana p. 212, *phoenicopasta* Peru p. 213, spp. n., HAMPSON T.c.

*Micromonodes endotherma* sp. n. Mexico p. 133, DYAR Insec. insect. 6.

*Microphaea orientalis* sp. n. Borneo p. 176, HAMPSON Nov. zool. 25.

*Microxestis ecuadorensis* sp. n. p. 204, HAMPSON T.c.

*Mimasura miltochristodes* sp. n. Kumasi p. 186, HAMPSON T.c.

*Miselia ruffusa* C. Africa p. 116, *usticolor* Mexico p. 117, *viridirufa* E. Africa, *syntypica* Argentina, p. 118, *runica* Arizona p. 119, *mixta* (= *Perigea falsa* ♂ Gr.) p. 117, spp. n., HAMPSON T.c.

*Monodes tenuifascia* p. 147, *goyensis* p. 148, spp. n., Argentina, HAMPSON T.c.

*Morrisonia macropis* sp. n. New Zealand p. 121, HAMPSON T.c.

*Mycterophora rubricans* sp. n. California p. 123 pl. xviii figs. 1 & 2, BARNES & McDUNNOUGH Contr. 4.

*Namangana thyatirodes* sp. n. Africa p. 149, HAMPSON Nov. zool. 25.—*N. viridescens* sp. n. Arizona p. 108 pl. xv f. 12, BARNES & McDUNNOUGH Contr. 4.

*Nanaguna rufitincta* sp. n. New Guinea p. 195, HAMPSON Nov. zool. 25.

*Nanarhyncha* gen. n. near *Hesperoithripa*, *nolophaca* sp. n. W. Africa, HAMPSON p. 195 T.c.

*Negeta albiplagiata* p. 203, *semialba* p. 204, spp. n. W. Africa, HAMPSON T.c.

*Neocerynea* gen. n. type *Capnodes sabulosa* Schaus, HAMPSON p. 168 T.c.

*Neophaenis lichenea* sp. n. Venezuela p. 140, HAMPSON T.c.

*Neophaeus* gen. n. *Acronyctinae*, *chalcospilans* sp. n. Mexico, DYAR p. 350 P. U.S. nat. Mus. 54.

*Nephelestis sabatta* sp. n. Mexico p. 342, DYAR T.c.

*Nephelodes demaculata* sp. n. California p. 97 pl. xv f. 3, BARNES & McDUNNOUGH Contr. 4.

*Nigramma rubripictalis*, *perstriatalis*, spp. n., Louisiade Arch. p. 192, HAMPSON Nov. zool. 25.

*Nocloa lamiota*, *beata*, spp. n. Mexico p. 349, DYAR P. U.S. nat. Mus. 54.

*Nyctipao acuta* sp. n. Burma p. 249 f. 26, FAWCETT P.Z.S. London 1917.

*Ochrothripa mesopis* sp. n. C. Africa p. 196, HAMPSON Nov. zool. 25.

*Odontestra conformis* sp. n. Cape Colony p. 119, HAMPSON T.c.—*O. avilla* sp. n. E. Africa p. 236 f. 15, FAWCETT P.Z.S. London 1917.

*Oediblemma* gen. n. p. 159 near *Phoenicophanta*, *trogoptera* sp. n. Transvaal p. 160, HAMPSON Nov. zool. 25.

*Oedibrya* gen. n. p. 138 type *Catamezia cinnamomima* Rothsch., HAMPSON T.c.

*Oenoptrea albimacula* sp. n. Panama p. 171, HAMPSON T.c.



*Oncocnemis primula* sp. n. California p. 100 pl. xvii f. 3, BARNES & McDUNNOUGH Contr. 4.

*Oraesia camaguina* sp. n. Philippines p. 90, SWINHOE Ann. Nat. Hist. 2.

*Orrhodia rubigo*, valid species, HENRIOT pp. 331-339 Et. Léop. comp. 16.

*Oruza dolichognatha* Nigeria, *chionocraspis* Venezuela, spp. n. p. 170, HAMPSON Nov. zool. 25.

*Ostha memoria* sp. n. Mexico p. 354, DYAR P. U.S. nat. Mus. 54.

*Ozarba concolor* Peru, *chionoperas* Transvaal, p. 179, *abscondita* Peru p. 180, spp. n., HAMPSON Nov. zool. 25.—*O. nebula* sp. n. Louisiana p. 111 pl. xviii f. 5, BARNES & McDUNNOUGH Contr. 4.—*O. implora squamicornis* spp. n. Mexico p. 351, DYAR P. U.S. nat. Mus. 54.

*Pachygnathesis* gen. n., *squamata* sp. n. Louisiade islds., HAMPSON p. 156 Nov. zool. 25.

*Pamora* gen. n. *Acronyctinae*, *hyperion* sp. n. Mexico, DYAR p. 338 P. U.S. nat. Mus. 54.

*Parachabora pseudanaetia* sp. n. Mexico p. 355, DYAR T.c.

*Parahypenodes* gen. n. p. 123, *quadralis* sp. n. Quebec p. 124 pl. xviii f. 6, BARNES & McDUNNOUGH Contr. 4.

*Parallelia eclipsifera* Luzon, *albilinea* E. Africa, p. 210, *semilunaris* New Guinea, *perexcursata* Nigeria, p. 212, spp. n., HAMPSON Nov. zool. 25.—*P. postica* sp. n. Philippines p. 193, WILEMAN & SOUTH Entom. 51.

*Parastichtis oxylus* p. 237 f. 22, *lyris* p. 238 f. 25, spp. n. E. Africa, FAWCETT P.Z.S. London 1917.

*Pardasena punctilinea* sp. n. C. Africa p. 194, HAMPSON Nov. zool. 25.

*Patula moriola* Amboina, *ordoxia* Solomon islds. *ipsa* Ceylon, spp. n. p. 88, SWINHOE Ann. Nat. Hist. 2.

*Perigea niphosticta* sp. n. Venezuela p. 131, HAMPSON Nov. zool. 25.

*Perigrapha ciliassa* sp. n. Taurus p. 19, PÜNGELER Mitt. Münchn. ent. Ges. 8 1917.

*Perynea pulchella* sp. n. Japan, NAGANO Konch. Sek. Gifu 27 pp. 448-451.

*Phlegelonía atribasalis* sp. n. Bismarck Arch. p. 191, HAMPSON Nov. zool. 25.

*Phlogophora crassicornis* p. 148 figs. 3972-3975 sp. n. Algeria, OBERTHÜR Et. Léop. comp. 16.—*P. endoleuca* Cameroons, *affinis*, Formosa, spp. n., p. 190, HAMPSON Nov. zool. 25.

*Phobosia medialis* Colombia p. 158, *micralis* Mexico, *argentifera* Brazil, p. 159, spp. n., HAMPSON T.c.

*Phytometra euchroa* sp. n. Natal p. 215, HAMPSON T.c.

*Plecoptera polymnia* f 23 p. 239, FAWCETT P.Z.S. London 1917.

*Plectothripa* gen. n. near *Elesma* p. 197, *excisa* sp. n. Singapore p. 198, HAMPSON Nov. zool. 25.

*Pleonectyptera trilineosa* sp. n. Mexico p. 355, DYAR P. U.S. nat. Mus. 54.

*Polia salmonea* f. 4118, *rosinata* f. 4119, spp. n.? Algeria, OBERTHÜR Et. Lep. comp. 16.—*P. chi*, pupa, LJUNGDAHL Ent. Tidskr. 39 p. 236 figs. 27 40.—*P. subjuncta* var. n. *eleonora* p. 95 pl. xvi f. 1, *hanhami* var. n. *semicarnea* f. 6, *pulverulenta* Sm. figs. 2 & 3, BARNES & McDUNNOUGH Contr. 4.

*Porosagrotis atricentrica* sp. n. Argentina p. 109, HAMPSON Nov. zool. 25.

*Potopsis* gen. n. *Acronyctinae*, *sparганиotis* sp. n. Mexico, DYAR p. 337 P. U.S. nat. Mus. 54.

*Procriosis albizona* sp. n. E. Africa p. 187, HAMPSON Nov. zool. 25.

*Procus albilineaola* sp. n. Japan p. 160, WILEMAN & SOUTH Entom. 51.

*Protocryphæ* gen. n. p. 112 type *Eustrotia secta* Gr., BARNES & McDUNNOUGH Contr. 4.

*Protomeceras mimicaria*, early stages, OBERTHÜR pp. 202-213 Et. Léop. comp. 16.

*Pseudacontia modestella* sp. n. California p. 110 pl. xvi f. 14, BARNES & McDUNNOUGH Contr. 4.

*Pseudomecia* gen. n. type *Hypomecia lithoxylea* B.-B., HAMPSON p. 142 Nov. zool. 25.

- Pteronycta cervicornis* sp. n. E. Africa p. 240 f. 21, FAWCETT P.Z.S. London 1917.
- Pucialia* replaced by *Sebagena* W., HAMPSON p. 196 Nov. zool. 25.
- Raghuva thomatae* p. 38 fig., *biocularis* p. 39 fig., spp. n. Africa, GAEDE Int. ent. Zeitschr. 9 1915.
- Renia nemoralis* sp. n. Texas p. 127 pl. xv figs. 16 & 11, BARNES & McDUNNOUGH Contr. 4.
- Rhizotype cristifer, senescens* spp. n. Mexico p. 132, DYAR Insec. inscit. 6.
- Rhyacia uclesina* p. 161, *ibeasi* p. 162, spp. n. Spain, *kermesina* ab. n. *pallida* p. 162, FERNÁNDEZ Bol. Soc. ent. Españ. 1.
- Rhyncholita diaperas* sp. n. Brazil p. 153, HAMPSON Nov. zool. 25.
- Rhyparia purpurata* var. n. *gerda* p. 81, WARNECKE Int. ent. Zeitschr. 12.
- Schinia terrifica* sp. n. Colorado p. 91 pl. xviii f. 14, BARNES & McDUNNOUGH Contr. 4.
- Scopifera insurrecta* sp. n. Mexico p. 354, DYAR P. U.S. nat. Mus. 54.
- Scotogramma fulgora* sp. n. California p. 94 pl. xvi f. 9, BARNES & McDUNNOUGH Contr. 4.
- Sebagena metaphaea* sp. n. Jamaica p. 196, HAMPSON Nov. zool. 25.
- Selenis sueroides*, SKINNER p. 44 Ent. News 29.
- Selepa oranga* sp. n. Sarawak p. 69, SWINHOE Ann. Nat. Hist. 2.
- Sericia sumbana* sp. n. p. 90, SWINHOE T.c.
- Sideridis unipunctata*, Biologie, ROEFKE Teysmannia Batavia 29 pp. 270-275.
- Steniscadia albifera* sp. n. Chiriqui p. 200, HAMPSON Nov. zool. 25.
- Stenoloba umbrifera* sp. n. China p. 179, HAMPSON T.c.
- Stenopterygia rustincta* sp. n. Borneo p. 129, HAMPSON T.c.
- Stictoptera talagi* n. n. for *tongluana* Sw., SWINHOE p. 68 Ann. Nat. Hist. 2.
- Stictothripa griseola* sp. n. Colombia p. 200, HAMPSON Nov. zool. 25.
- Stilbia apposita* sp. n. Arizona p. 106 pl. xvi f. 8, BARNES & McDUNNOUGH Contr. 4.
- Stiria phalaenoides* sp. n. Mexico p. 133, DYAR Insec. inscit. 6.—*S. intermixta* sp. n. Mexico p. 349, DYAR P. U.S. Nat. Mus. 54.
- Syneda abrupta* Arizona p. 119 pl. xix figs. 12 & 14, *pulchra* California p. 121 f. 4, spp. n., *tejonica* Behr. figs. 5 and 6, *hudsonica* figs. 7 & 8, var. n. *heatli* p. 122 figs. 9 & 10, BARNES & McDUNNOUGH Contr. 4.
- Syngatha semipurpurea* sp. n. E. Africa p. 172, HAMPSON Nov. zool. 25.
- Taeniocampa witzenmanni* early stages pp. 107-115, OBERTHÜR Et. Lép. comp. 16.
- Taphonia testacealis* sp. n. Mexico p. 354, DYAR P. U.S. nat. Mus. 54.
- Tarache yemensis* sp. n. p. 189, HAMPSON Nov. zool. 25.—*T. cora* sp. n. Arizona p. 115 pl. xvii figs. 19 & 20, BARNES & McDUNNOUGH Contr. 4.
- Tetrachela* gen. n. type *Harpagophana diacrisioides* Rothsch., HAMPSON p. 126 Nov. zool. 25.
- Timora rosea* sp. n. E. Africa, *bimaculata* var. n. *unifasciata*, GAEDE p. 39 Int. ent. Zeitschr. 9 1915.
- Tiracola nonconformens* sp. n. Mexico p. 343, DYAR P. U.S. nat. Mus. 54.
- Toana excisa* Jamaica p. 166, *perangulata* Ceylon, *flaviceps* E. Africa, p. 167, spp. n., HAMPSON Nov. zool. 25.
- Tolna hypogrammica, cryptoleuca*, spp. n. C. Africa p. 207, HAMPSON T.c.
- Trachea lobisemastis, euryscia*, Africa p. 130, *perfumosa* California p. 131, spp. n., HAMPSON T.c.—*T. monica* Arizona pl. xv f. 9, *serrula* California pl. xvi f. 7, spp. n., BARNES & McDUNNOUGH p. 104 Contr. 4.
- Tranoses perangulata* Peru, *punctilinea* Colombia, spp. n. p. 154, HAMPSON Nov. zool. 25.
- Triaena psi* and *tridens*, TURNER & CHAPMAN pp. 93-95 Ent. Rec. 30.
- Trichestra molybdesis* p. 115, *chlorochroa* p. 116, spp. n. Mexico, HAMPSON Nov. zool. 25.

*Trichosilia* gen. n. near *Metalepsis* type, *Noctua acarnea* Smith, HAMPSON p. 112 T.c.

*Tridentifrons microsema* sp. n. Java p. 153, HAMPSON T.c.

*Trilophonota umbrimedia* sp. n. Sikkim p. 181, HAMPSON T.c.

*Trogocraspis* gen. n. near *Cautaeschra*, *durbanica* sp. n., HAMPSON p. 162 T.c.

*Tumidifrontia roseincta* sp. n. C. Africa p. 150, HAMPSON T.c.

*Vestermannia albiorbis* sp. n. Selangor p. 203, HAMPSON T.c.

*Willkara* gen. n. *Hypenidae* p. 92, *nigerrima* sp. n. Nias p. 93, SWINHOE Ann. Nat. Hist. 2.

*Xanthodes* G. to replace *Acontia* Tr., HAMPSON p. 200 Nov. zool. 25.

*Xylinissa strigosa* sp. n. Peru p. 128, HAMPSON T.c.

*Xylomoea lignea* sp. n. Venezuela p. 148, HAMPSON T.c.

*Xylomyges cognata* var. n. *minorata* p. 97 pl. xvi f. 11, *februalis* sp. n. California p. 98 pl. xvi f. 12, BARNES & McDUNNOUGH Contr. 4.

*Zaleplumbeolinea* sp. n. Jamaica p. 213, HAMPSON Nov. zool. 25.

## DIOPTIDAE.

*Dioptidae*, revision of the family, PROUT Nov. zool. 25 pp. 395-429.

*Anticoreura* gen. n. p. 427 type *C. salmoni* Dr., PROUT T.c.

*Brachyglene schausi*, *circumlata*, *patinata*, spp. n. Amer. mer. p. 419, PROUT T.c.

*Cleptophasia* gen. n. p. 405 for *Oricia scissa* Warr., PROUT T.c.

*Cyanotricha* gen. n. p. 426 type *Sangala necyria* Feld., PROUT T.c.

*Diopsis stenothyris* p. 416, *paracyma*, Rio Madeira, *proix* Upp. Amazons, p. 417, spp. n., *ilerdina curvifascia* subsp. n. p. 41, *climax* sp. n. Pebas, *egla* ab. n. *phaedima* p. 418, PROUT T.c.

*Dolophrosyne* gen. n., *mirax* sp. n. Peru, PROUT p. 403 T.c.

*Eudiptis* gen. n. p. 416 type *D. otanes* Dr., PROUT p. 416 T.c.

*Getta clite probles* subsp. n. p. 427, PROUT T.c.

*Hadesina anomala* sp. n. Amazons p. 418, PROUT T.c.

*Isostyla* gen. n. type *Diopsis erycinoides* Feld., c. *purefacta*, *intersecta biguadrata* subsp. n., PROUT p. 415 T.c.

*Josia brevifascia*, *esoterica*, p. 421, *insincera* p. 423, spp. n. Amer. mer., *consuetu cassia* p. 421, *draconis tenuifascia*, *megacra fruhstorferi*, *aureiflua flavipars*, p. 422, subspp. n., *abrupta* ab. n. *icca* p. 421, PROUT T.c.

*Lepractea* gen. n. p. 420 for *Actea minuta* Dr., PROUT T.c.

*Momonipta empheres* Peru p. 412, *euchonthoides* Bolivia p. 413, spp. n., *subcoerulea felderi* subsp. n. p. 413, PROUT T.c.

*Myonia ederi* Colombia p. 400, *cuneiplaga* Surinam p. 401, *conigera* Peru, *leechi* Santarem p. 402, *seducta* Venezuela, *basiuvitta* Brazil p. 403, spp. n., *semiplaga plenioplaga* subsp. n., *labana* 5 forms n., p. 402, PROUT T.c.

*Phaeochlaena gyon* ab. n. *ochrophanes*, subspp. n. *lampra* and *fucata*, p. 398, *solilucis* ab. n. *perintrusa* p. 399, PROUT T.c.

*Phanoptis* gen. n., *cyanomelas* Feld., PROUT p. 414 T.c.

*Polyptychia* gen. n. p. 428 type *Thyrgis fasciculosa* Feld., PROUT T.c.

*Pseudoricia* gen. n. p. 406 for *Josiodes sibyllae* Druce, PROUT T.c.

*Scea curvilimes*, *erasa*, spp. n. Peru, *caesiopicta subcyanea*, *servula steinbachi*, subspp. n., PROUT p. 425 T.c.

*Scotura atelozona* Amazons, *ovisigna* Colombia, p. 407, *vestigiata* Ecuador, *distinguenda* Amazons, p. 408, spp. n., *fulviceps abstracta* subsp. n. p. 408, PROUT T.c.

*Tithraustes latialbata* sp. n. Ecuador p. 409, PROUT T.c.

*Tolimicola* gen. n. p. 403, *fassli* sp. n. Colombia p. 404, PROUT T.c.

*Xenomigia villiodes* sp. n. Colombia p. 406, PROUT T.c.

*Xenorma* gen. n. for *Phaeochlaena cytheris* Druce, c. *australis* subsp. n., PROUT p. 404 T.c.

- GEOMETRIDAE (incl. URANIIDAE  
EPIPLEMIDAE, CYMATOPHORIDAE).
- Revision of Australian Geometridae;  
TURNER P. Linn. Soc. N.S.W. 42 1917  
pp. 304-336 & 344-390.
- The distribution of the genera of  
Bistoninae, continuation, HARRISON  
Naturalist 1918 pp. 68-72 etc.
- Descriptions and figures of pupae,  
MOSHER pp. 35-56 3 pls. Bull. Maine  
exp. Stat. 259 1917.
- Abraxas grossulariata* ab. n. *exqui-*  
*sita*, RAYNOR p. 189 Ent. Rec. 30.
- Acidalia bucephalaria* sp. n. California  
p. 135 pl. xxiii f. 2, BARNES & McDUN-  
NOUGH Contr. 4.
- Amaurinia plana* Panama p. 12,  
*viridiflava* Colombia p. 13, spp. n.,  
DOGNIN Hét. nouv. 14.
- Amelora lithopepla* sp. n. W. Aus-  
tralia p. 234, LOWER Tr. R. Soc. S.  
Austr. 42.
- Amphidasis betularia*, inbreeding varr.  
BOWATER p. 41 Ent. Rec. 30.
- Anisodes (Pisoraca) concinnipicta* sp.  
n. Colombia p. 314, PROUT Ann.  
Nat. Hist. 1.—*A. (Brachycola) clan-*  
*destina* sp. n. Khasia hills p. 414,  
PROUT Ann. Nat. Hist. 2.
- Anomoctena* gen. n. near *Borbacha*,  
*trisecta* sp. n. Brisbane, TURNER p.  
319 P. Linn. Soc. N.S.W. 42 1917.
- Anitrygodes callibotrys* sp. n. Congo  
p. 27, PROUT Ann. Nat. Hist. 1.
- Anurapteryx* gen. n. p. 376 type  
*Coronidia beckeri* Druce, HAMPSON Nov.  
zool. 25.
- Apicia aberrans* sp. n. Mexico p.  
360, DYAR P. U.S. nat. Mus. 54.—  
*A. remorta* sp. n. Mexico p. 135, DYAR  
Insec. inscit. 6.
- Apoprogenidae* fam. n. p. 376,  
HAMPSON Nov. zool. 25.
- Aporoctena aprepes* sp. n. Queens-  
land p. 321, TURNER P. Linn. Soc.  
N.S.W. 42 1917.
- Aprosita* gen. n. for *Satraparchis*  
*macrocossa* Low., TURNER p. 387 T.c.
- Berta angustimedia* sp. n. Assam p.  
76, PROUT Nov. zool. 25.

*Boarmia semiothisata* sp. n. Corsica  
p. 47, LENZ Mitt. Münchn. ent. Ges.  
8 1917.—*B. eudela* p. 374, *tephroleuca*  
p. 348, *almocyma* p. 349, *lococyma*,  
*acrotypa*, p. 351, *lozographa* p. 353,  
*delosticha*, *zaloschema*, p. 355, *panconita*  
p. 357, *eugraphica* p. 359, *taeniota*,  
*crimnodes*, p. 360, *nyctopora* p. 361,  
spp. n. Australia, TURNER P. Linn.  
Soc. N.S.W. 42 1917.

*Bombycia viminalis*, pupa, LJUNG-  
DAHL Ent. Tidskr. 39 p. 232 fig. 18.

*Bonatea griseolata* sp. n. Mexico p.  
360, DYAR P. U.S. Nat. Mus. 54.—  
*B. funereoides* p. 16, *flavilineata* p. 17, spp.  
n. Colombia, DOGNIN Hét. nouv. 14.

*Brachycola ? microsticta* sp. n. Lord  
Howe isld., TURNER p. 278 Tr. R. Soc.  
S. Austr. 42.

*Callhistia grandis latiplaga* subsp. n.  
p. 32, PROUT Ann. Nat. Hist. 1.

*Cambogia cogitata* p. 10, *pseudobada*  
p. 11, Am. mer., *parva* p. 12 Costa Rica.  
spp. n., DOGNIN Hét. nouv. 14.

*Curipeta hyperythrata* sp. n. Mexico p.  
361, DYAR P. U.S. nat. Mus. 54.

*Chlenomorpha* gen. n. *Selidosemidae*  
p. 233, *sciogramma* sp. n. N.S.W. p.  
234, LOWER Tr. R. Soc. S. Austr. 42.

*Chrysocraspeda euryodia*, *auristigma*,  
New Guinea p. 80, *phaedra* Sudest isld.  
p. 81, spp. n., PROUT Nov. zool. 25.

*Cleora clarivenata* sp. n. Congo p. 32,  
PROUT Ann. Nat. Hist. 1.—*C. bathyscia*  
p. 371, *praecisa* p. 372, spp. n. Australia  
TURNER P. Linn. Soc. N.S.W. 42  
1917.—*C. idiocrossa* sp. n. Norfolk  
island p. 284, TURNER Tr. R. Soc. S.  
Austr. 42.—*C. (Selidosema) dionaria*  
sp. n. Arizona p. 153 pl. xx f. 6, BARNES  
& McDUNNOUGH Contr. 4.

*Cnephora subdiscofasciata* sp. n.  
Colombia p. 24, DOGNIN Hét. nouv. 14.

*Comibaena hypotampes* sp. n. Tibet.  
p. 19, PROUT Ann. Nat. Hist. 1.

*Coronidia leucosticta* Peru p. 369,  
*brachyura* Ecuador p. 372, *flavidorsata*  
p. 373 Colombia, *monotona* Peru,  
*aeneophlebia* Ecuador, p. 374, spp. n.,  
HAMPSON Nov. zool. 25.

*Cosymbia dyschroa* sp. n. Trinidad  
p. 25, PROUT Ann. Nat. Hist. 1.

*Craspedosis niveosignata latesignata* subsp. n., PROUT p. 316 Ann. Nat. Hist. 1.

*Crocallis elinguaris* ab. n. *obviaria*, LJUNGDAHL Ent. Tidskr. 39 p. 89 fig. 3B; *C. elinguaris* ab. n. *juncta*, SCHILLE p. 121 Zeitschr. wiss. Insbiol. 14.

*Dasytyle ienosa* var. n. *geminilinea* p. 25, DOGNIN Hét. nouv. 14.

*Diastictis hypomochla, glarcosa*, spp. n., Queensland p. 316, TURNER P. Linn. Soc. N.S.W. 42 1917.

*Dithecodes phaenomeris* New Guinea p. 77, *mys* Guiana p. 87, spp. n., PROUT Nov. zool. 25.

*Dysphania translucida* ab. n. *xanthhora* p. 76, PROUT Nov. zool. 25.

*Dystroma mulleolata* p. 137 pl. xxi figs. 7 & 8, *brunnecata* p. 138 f. 9, BARNES & McDUNNOUGH Contr. 4.

*Ectropis mochlosema* p. 328, *odontophora* p. 334, spp. n. Queensland, TURNER P. Linn. Soc. N.S.W. 42 1917.

*Ennomos erosaria* ab. n. *angulifera*, DEMAISON p. 234 Bull. Soc. ent. France 1918.

*Erateina peloria* and *allicis*, synonymy and variation, DOGNIN p. 13 Hét. nouv. 14.

*Erebocchlora rustcostaria* ab. n. *albida*, *fusimacula* probably var. of *chamaelconis*, DOGNIN p. 8 Hét. nouv. 14.

*Eumacrodus euthysticta* sp. n. Brazil p. 88, PROUT Nov. zool. 25.

*Euphyia unangulata* pl. xxi f. 3 p. 140, BARNES & McDUNNOUGH Contr. 4.

*Eupithecia mendicata* sp. n. California p. 143 pl. xxii f. 4, and figs. of other American spp., BARNES & McDUNNOUGH T.c.—*E. harlequinaria* p. 214 pl. iii, BLACKMORE Canad. Ent. 50.

*Eustroma fasciata* sp. n. Alaska p. 137 pl. xxi f. 1, BARNES & McDUNNOUGH Contr. 4.—*E. reticulata*, NURSE p. 33 Entom. 51.

*Flavinia stenochroa* sp. n. Brazil p. 31, PROUT Ann. Nat. Hist. 1.—*F. allogaster* sp. n. Peru p. 415, PROUT Ann. Nat. Hist. 2.

*Glaucina simularia* sp. n. California p. 152 pl. xxi f. 14, *puellaria* Dy. pl. xxii figs. 12 & 13, BARNES & McDUNNOUGH Contr. 4.

*Gonodontis? simplicius* sp. n. California p. 155 pl. xx figs. 4 & 5, BARNES & McDUNNOUGH T.c.

*Hamalia apiozona* sp. n. Brazil p. 26, PROUT Ann. Nat. Hist. 1.

*Hammaptera nivesecta* var. n. *olivofusca* Colombia p. 5, DOGNIN Hét. nouv. 14.

*Heterocrita metis* sp. n. E. Africa p. 244 f. 30, FAWCETT P.Z.S. London 1917.

*Heteroptila* gen. n. type *Selidosema argyroplaca* M., *xylina* sp. n. Townsville, TURNER p. 369 P. Linn. Soc. N.S.W. 42 1917.

*Heterorachis melanophragma* sp. n. Madagascar p. 314, PROUT Ann. Nat. Hist. 1.

*Hybernia, aurantiara, defoliaria*, male antennae figs., GREEN p. xciii Pr. ent. Soc. London 1917.—*H. defoliaria*, larval abundance, JOANNIS p. 202 Bull. Soc. ent. France 1918.

*Hydriomena canescens, praerupta*, spp. n. New Zealand p. 125, PHILPOTT Tr. N.Z. Inst. 50.—*H. macdunnoughi* sp. n. Brit. Columbia p. 296, SWETT Canad. Ent. 50.—*H. henshawi* var. n. *expurgata* pl. xxi f. 6, *shasta* var. n. *borcessata* f. 5, p. 139, *irata* var. n. *quaesitata* f. 4 p. 140, BARNES & McDUNNOUGH Contr. 4.

*Hylemera lepta* sp. n. E. Africa p. 243 f. 29, FAWCETT P.Z.S. London 1917.

*Hypochrosis chlorosticha* sp. n. Cape York p. 381, TURNER P. Linn. Soc. N.S.W. 42 1917.

*Ira medullata* sp. n. Mexico p. 135, DYAR Insec. inscit. 6.

*Itame simpliciatata* sp. n. Arizona p. 150 pl. xxi f. 15, *sericeata* figs. 16-20, synonymy p. 149, BARNES & McDUNNOUGH Contr. 4.

*Larentia alpinata* sp. n. Switzerland, CULOT p. 63 Bull. Soc. ent. France 1918.—*L. didymata*, ab. n. *cuneigera*, BALFOUR p. lxxvi Pr. ent. Soc. London 1917.—*L. polimela* var. n. *ornata* Colombia, DOGNIN p. 9 Hét. nouv. 14.

*Larophylla* gen. n. near *Lychnographa*, *animeta* sp. n. Sydney, p. 389, TURNER P. Linn. Soc. N.S.W. 42 1917.

*Lipotaxia* gen. n. type *Lipomelia rubicunda* Warr., *segmentata subvestita* subsp. n., PROUT p. 87 Nov. zool. 25.

*Lonchotura* gen. n. *Sematuridae* p. 375 type *Coronidia ocyclus* Boisd., HAMPSON Nov. zool. 25.

*Lophosema* gen. n. p. 377 for *Gastrina catasticta* T., TURNER P. Linn. Soc. N.S.W. 42 1917.

*Lychnographa* gen. n. p. 387, *heroica*, *aguara*, spp. n. Australia p. 388, TURNER T.c. 1917.

*Lyelliana dryophila* p. 373, *ancyloma* p. 379, spp. n. Australia, TURNER T.c. 1917.

*Lygris populata*, european forms, pp. 604-645 pl. xiv, f. n. *binderi* p. 645, figs. 9 & 10, MARSCHNER D.E.Z. 1914.

*Macaria adonis* sp. n. California p. 148 pl. xxi f. 12, BARNES & McDUNNOUGH Contr. 4.

*Melinoides angasmarcata* Peru p. 20 sp. n., *flavotincta* ♀ p. 21, DOGNIN Hét. nouv. 14.

*Melanophia unipunctaria* to *Macaria* p. 148 pl. xxi figs. 10 & 11, BARNES & McDUNNOUGH Contr. 4.

*Mennis ficulnea albifera* subsp. n. p. 31, PROUT Ann. Nat. Hist. 1.

*Mesedra pulverulenta* sp. n. Colombia p. 19, DOGNIN Hét. nouv. 14.

*Mesoleuca platymesa* sp. n. Mexico p. 136, DYAR Insec. inscit. 6.

*Metasiopsis trichroa* sp. n. Colombia p. 29, PROUT Ann. Nat. Hist. 1.

*Metrocampa celaenephes* sp. n. Australia p. 380, TURNER P. Linn. Soc. N.S.W. 42 1917.

*Mimaletis paucialbata* sp. n. Rhodesia p. 315, PROUT Ann. Nat. Hist. 1.

*Nasusina*, the spp. p. 141, *insipidata* pl. xxii f. 4 p. 143, BARNES & McDUNNOUGH Contr. 4.

*Nemorina aemularia* Arizona p. 134, *punctularia* California p. 135, spp. n., BARNES & McDUNNOUGH T.c.

*Nesalcis cediopasa* sp. n. Mexico p. 362, DYAR P. U.S. nat. Mus. 54.

*Notoreas incompta* sp. n. New Zealand p. 126, PHILPOTT Tr. N.Z. Inst. 50.

*Oenoptila atripunctaria* var. n. *cretaticosta* p. 16, DOGNIN Hét. nouv. 14.

*Oospila florepicta* ab. n. *pulchripicta* p. 82, PROUT Nov. zool. 25.

*Operophthera brumata*, SCHNEIDER-ORELLI Zeitschr. wiss. Insbiol. 13 pp. 192-197 1917.

*Paleacrita vernata*, ecology, YOUNG pp. 267-277 Canad. Ent. 50.

*Paurocoma conioa* sp. n. N.S.W. p. 235, LOWER Tr. R. Soc. S. Austral. 42.

*Perizoma? albifascia* sp. n. Colombia p. 4, DOGNIN Hét. nouv. 14.

*Phasiane hebetata* pl. xxi f. 13, synonymy p. 149, BARNES & McDUNNOUGH Contr. 4.

*Pherotesia dentata* sp. n. Mexico p. 362, DYAR P. U.S. nat. Mus. 54.

*Phigalia pedaria*, variation, TURNER p. 95 Ent. Rec. 30.

*Philtraea elegantaria paucimacula* var. n. p. 154 pl. xx f. 3, BARNES & McDUNNOUGH Contr. 4.

*Physocleora enana rondiscata* subsp. n. Colombia, DOGNIN p. 14 Hét. nouv. 14

*Pigia flexistrigata extensa* subsp. n. p. 27, PROUT Ann. Nat. Hist. 1.

*Pisoraca diplosticta* sp. n. Cameroons p. 25, PROUT T.c.

*Plagodis kuetingaria*, pl. xxiii f. 3 p. 135, BARNES & McDUNNOUGH Contr. 4.

*Plataea trilinearia astrigaria* var. n. p. 150 pl. xx f. 1, BARNES & McDUNNOUGH T.c.

*Praesos catadela* sp. n. Cape York p. 385, TURNER P. Linn. Soc. N.S.W. 42 1917.

*Psaliodes geminisigna* sp. n. Colombia p. 9, DOGNIN Hét. nouv. 14.

*Psodos wehrlii* sp. n. Switzerland p. 148, VORBRODT Int. ent. Zeitschr. 12.

*Pterotaeta obliviscata* sp. n. Arizona p. 152 pl. xxi f. 21, BARNES & McDUNNOUGH Contr. 4.

*Ptochophyle ozophanes* Perak, *dippyramida* Tenasserim, p. 22, *anisocosma* Malay penins. p. 23, *vinosa* Borneo p. 24, spp. n., PROUT Ann. Nat. Hist. 1.—*P. exiela* sp. n. Celebes p. 79, PROUT Nov. zool. 25.

*Ptychopoda korbi* sp. n. Spain p. 20, PÜNGELER Mitt. Münchn. ent. Ges. 8 1917.—*P. complexaria amazonensis* subsp. n. p. 29, *delilloides* sp. n. Peru p. 30, PROUT Ann. Nat. Hist. 1.

*Pyrinia flavida* Guiana p. 22, *flavoapicata* Brazil, *fletifera* Bolivia p. 23, spp. n., DOGNIN Hét. nouv. 14.

*Racheospila irregularia* sp. n. Texas p. 134, BARNES & McDUNNOUGH Contr. 4.—*R. cara* sp. n. Mexico p. 362, DYAR P. U.S. nat. Mus. 54.

*Rhodomena fractisignata* var. n. or sp. n. *multisignata*, DOGNIN p. 7 Hét. nouv. 14.

*Rhodostrophia tremiscens* sp. n. W. China p. 77, PROUT Nov. zool. 25.

*Sabulodes accentuata* sp. n. Arizona p. 166 pl. xxiii f. 4, BARNES & McDUNNOUGH Contr. 4.—*S. rotundata* sp. n. Costa Rica p. 18, DOGNIN Hét. nouv. 14.

*Selenia gynaecon*, *cucore*, *cacocore*, spp. n. Mexico p. 361, DYAR P. U.S. nat. Mus. 54.

*Semaecopus concatenans*, *discosa*, spp. n. Mexico p. 136, DYAR Insec. inscit. 6.—*S. nossis* p. 84, *rotundata*, *discors*, p. 85, *offlexa*, *ascia*, *hoffmansii*, p. 86, spp. n. Amer. mer., *subrubra dominicana*, *pusulata aurantirufa*, subsp. n. p. 84, PROUT Nov. zool. 25.—*S. ciliata* Panama, *smithi* Colombia, p. 20, *preptocycla* Amazons p. 21, spp. n., PROUT Ann. Nat. Hist. 1.—*S. subtranslucens* sp. n. Colombia p. 413, PROUT Ann. Nat. Hist. 2.

*Sematuroidae* Guen. distinguished from *Uraniadae*, HAMPSON p. 367 Nov. zool. 25.

*Sicya medangula* sp. n. Mexico p. 360, DYAR P. U.S. nat. Mus. 54.

*Somatina transvehens* Hainan p. 81, *exacta* Peru p. 88, spp. n., PROUT Nov. zool. 25.

*Spargania fallaciosa* sp. n. Colombia p. 6, DOGNIN Hét. nouv. 14.—*S. bellipicta* = (*illustrata* B. and McD.), BARNES & McDUNNOUGH p. 140 Contr. 4.

*Spilodes bifilata* sp. n. Peru p. 20, DOGNIN Hét. nouv. 14.

*Stammnodes deceptiva* sp. n. Arizona p. 136 pl. xxiii f. 1, BARNES & McDUNNOUGH Contr. 4.

*Stenalcidia pallida* sp. n. Loja p. 15, DOGNIN Hét. nouv. 14.

*Symmetroctena eutheta* p. 322, *scotina* p. 323, spp. n. Australia, TURNER P. Linn. Soc. N.S.W. 42 1917.

*Synclysmus nigrocristatus* sp. n. Madagascar p. 313, PROUT Ann. Nat. Hist. 1.

*Synegiodes obliquifascia* sp. n. Assam p. 78, PROUT Nov. zool. 25.

*Syneora* gen. n. p. 363 type *Hemero-phila mundifera* Walk., *lygdina* sp. n. W. Australia p. 365, TURNER P. Linn. Soc. N.S.W. 42 1917.

*Tephroclystia*, *analis*, *chimera*, *capitata*, p. 363, *endonephella*, *microleuca*, *supporta*, *alogista*, p. 864, *pertacta* p. 365, spp. n. Mexico, DYAR P. U.S. nat. Mus. 54.—*T. subanis* sp. n. Mexico p. 137, DYAR Insec. inscit. 6.

*Therina negata* sp. n. Mexico p. 136, DYAR Insec. inscit. 6.

*Thyatiridae* to replace *Cynatophoridae*, HAMPSON p. 384 Nov. zool. 25.

*Timandra nelsoni* India p. 78, *oligoscia* Tibet p. 79, spp. n., PROUT Nov. zool. 25.

*Tricentra auctidisca* p. 82, *gibbi-margo*, *T. ? amibomena*, p. 83, spp. n. Guiana, PROUT T.c.

*Triphosa petronata* Corsica p. 493 ♂ and ♀ genitalia figs., *agnata* Cappodicia p. 412 with f. *oberthueri*, spp. n., *sabaudiata* ab. n. *thierry-miegi* p. 413, LE CERF Bull. Mus. Paris 24 pl. ix.

*Xanthorhoe pseudostinaria* sp. n. New Zealand p. 61, HUDSON Ent. Mag. 54.—*X. macdunnoughi* p. 17, *atlinensis* p. 18, *blackmorei* p. 21, spp. n. Brit. Columbia, SWETT Canad. Ent. 50.—*X. ? aphantia* sp. n. Lord Howe isld. p. 278, TURNER Tr. R. Soc. S. Austr. 42.

## PYRALIDAE, THYRIDIDAE.

*Thyrididae*; catalogue, 499 spp.,  
DALLA TORRE Berlin 1914.

Revision of *Hypsotropinae*, HAMPSON  
P. zool. Soc. London 1918 pp. 55-131.

*Ancylolomia chrysolinealis* p. 247 f.  
2, *gracilis* p. 248 f. 1, spp. n. E. Africa,  
FAWCETT P.Z.S. London 1917.

*Analyta (Hyperanalyta) pseudoapicalis* sp. n. Formosa p. 61, STRAND D.  
ent. Zeitschr. Iris 22.

*Anarmodia glaucescens* Ecuador, *tes-*  
*selliferalis* Peru, spp. n. p. 193, HAMPSON  
Ann. Nat. Hist. 2.

*Anarnatula gen. n. Epipaschiinae,*  
*hyporhoda* sp. n. Mexico, DYAR p. 371  
P. U.S. nat. Mus. 54.

*Aripana (Pyralocymatophora subg.*  
n.) p. 34, *A. ? dichrocrocidalis* p. 35,  
spp. n. Formosa, *lactiferalis* ab. n.  
*apicipicta* p. 37, STRAND D. ent. Zeitschr.  
Iris 32.

*Azochis trichotarsalis* Venezuela p.  
183, *cymographalis* Ecuador p. 184,  
spp. n., HAMPSON Ann. Nat. Hist. 2.

*Baptotropa gen. n. type Patna tri-*  
*colorella*, HAMPSON p. 116 P.Z.S.  
London 1918.

*Betoua majuscula* sp. n. E. Africa  
p. 379, GAEDE Mitt. zool. Mus. Berlin  
8 1917.

*Bocchoris contortilinealis* = (*Nacoleia*  
*verroniae* D.), DYAR p. 368 P. U.S. nat.  
Mus. 54.

*Bocotarcha microselene* Colombia,  
*caeruleotincta* N. Guinea, spp. n. p.  
194, HAMPSON Ann. Nat. Hist. 2.

*Calamochrous pyraustalis* sp. n. For-  
mosa p. 75, STRAND D. ent. Zeitschr.  
Iris 32.—*C. fulvitinctalis* sp. n. Admir-  
alty islds. p. 194, HAMPSON Ann. Nat.  
Hist. 2.

*Calamotropa gen. n. Hypsotropinae,*  
*pulverivena* sp. n. Australia, HAMPSON  
p. 91 P.Z.S. London 1918.

*Calliphlycta gen. n. near Calamo-*  
*chrous, metaxantha* sp. n. W. Australia  
HAMPSON p. 190 Ann. Nat. Hist. 2.

*Canaea janenschii* sp. n. p. 378 fig.  
Africa, GAEDE Mitt. zool. Mus. Berlin 8  
1917.

*Ceara albifasciata* sp. n. E. Africa p.  
63, HAMPSON P. zool. Soc. London  
1918.

*Cecidothyris guttulata* to *Oxycophina*,  
fig., GAEDE p. 377 Mitt. zool. Mus.  
Berlin 8.

*Chalcidoptera contraria* p. 392, *nigri-*  
*cans* p. 393, spp. n. Africa, *appensalis*  
var. n. *aethiops* p. 393, GAEDE T.C. 1917.  
—*C. orbidiscalis* sp. n. Cameroons p.  
127, HAMPSON Ann. Nat. Hist. 1.

*Chortonoeca gen. n. p. 80, leuco-*  
*craspia* sp. n. Algeria p. 81, HAMPSON  
P.Z.S. London 1918.

*Cirrhocrisia excavata* var. n. *con-*  
*juncta* p. 389, GAEDE Mitt. zool. Mus.  
Berlin 8 1917.

*Coenotropia gen. n. Hypsotropinae,*  
*limitella* sp. n. Paraguay, HAMPSON p.  
89 P.Z.S. London 1918.

*Commotria mesiella* Africa, *arrhab-*  
*della* Peru, p. 108, *tripartella* China,  
*neurius, erythrogratia, rufimedia*, p. 109,  
*rhodoneura, rufidelineata, miosticta,*  
*phoenicias*, p. 110, *rosella, albinervella,*  
*venosella, rhodochroa*, p. 111, *casta-*  
*neipars, prophaeella, phlebiciella*, Africa,  
*enervella* Formosa, p. 112, spp. n.,  
HAMPSON T.C.

*Comorta albivenella* sp. n. Formosa  
p. 214, WILEMAN & SOUTH Entom.  
51.

*Cornifrons actualis* sp. n. California  
p. 168 pl. xxii f. 18, BARNES & McDUN-  
NOUGH Contr. 4.

*Crambus bartellus* p. 170 pl. xxiv f.  
3, *ericellus* f. 4, *modestellus* f. 5, *angu-*  
*latus* f. 15, p. 171, spp. n. U.S., BARNES  
& McDUNNOUGH T.C.—*C. hemichroi-*  
*ellus*, natural history, AINSIE pp. 51-62  
Ann. ent. Soc. Amer. 11.

*Critonia phaeoneura* Formosa p. 119,  
*leucopleura* p. 120, *sarcoida* p. 121,  
Africa, spp. n., HAMPSON P.Z.S. London  
1918.

*Crocidophora velialis* sp. n. E. Africa  
p. 398, GAEDE Mitt. zool. Mus. Berlin-  
8 1917.—*C. ruficostalis* p. 184, *megaptyona*  
Africa, *rufitinctalis* Formosa, p. 185,  
spp. n., HAMPSON Ann. Nat. Hist. 2.—  
*C. kosenponialis, nectariphila*, p. 66,  
*carapina* p. 67, spp. n. Formosa, STRAND  
D. ent. Zeitschr. Iris 32.



*Cryptoblates formosella* sp. n. Formosa p. 219, WILEMAN & SOUTH Entom. 51.

*Delogenes* gen. n. *Phycitidae*, *limo-  
doxa* sp. n. New Zealand, MEYRICK p. 132 Tr. N. Z. Inst. 50.

*Diasemia calcaralis* p. 73, *lepido-  
neurialis* p. 74, spp. n., Formosa, STRAND D. ent. Zeitschr. Iris 32.—*D. delosticha* sp. n. Norfolk isld. p. 285, TURNER Tr. R. Soc. S. Austr. 42.

*Diatraea subbivittalis* sp. n. E. Africa p. 388, GAEDE Mitt. zool. Mus. Berlin 8 1917.

*Dichocrocis polystidzalis* p. 131, *rubritinctalis* p. 132, *biplagialis*, Africa, *leucostolalis* Peru, p. 133, spp. n., HAMPSON Ann. Nat. Hist. 1.

*Dichogama diffusalis* sp. n. Venezuela p. 127, HAMPSON T.c.

*Dismidila tocista* sp. n. Mexico p. 471, DYAR P. U.S. nat. Mus. 54.

*Dracaenura arfakalis* sp. n. New Guinea p. 94, SWINHOE Ann. Nat. Hist. 2.

*Embryoglossa aethiopicalis* sp. n. Nigeria p. 387, GAEDE Mitt. zool. Mus. Berlin 8 1917.

*Emmalocera endopyrella* Assam, *actinoleuca* p. 127, *polychroella* p. 128, Africa, *eremochroa* W. Australia p. 130, spp. n., HAMPSON P.Z.S. London 1918.

*Endotricha dyschroa* sp. n. Norfolk isld. p. 284, TURNER Tr. R. Soc. S. Austr. 42.

*Entephria nigrianaalis* p. 391, *straminealis* p. 392, spp. n., Africa, GAEDE Mitt. zool. Mus. Berlin 8 1917.

*Ephestia patriciella* sp. n. Cuba p. 140, DYAR Insec. inscit. 6.

*Epidauria perfasciella*, *chionocraspis*, Africa p. 92, *subcostella* Yunnan p. 93, spp. n., HAMPSON P.Z.S. London 1918.

*Epipagis* (= *Sameodes*) *setinalis* Formosa, *costistictalis* Amer. mer., spp. n., HAMPSON p. 277 Ann. Nat. Hist. 1.

*Ethiotropa* gen. n. *Hypsotropinae*, *pyramerella* sp. n. Nigeria, HAMPSON p. 116 P.Z.S. London 1918.

(n-5464 f)

*Eublemmodes* gen. n. *Epipaschiinae*, *contumacialis* sp. n. W. Africa, GAEDE p. 389 Mitt. zool. Mus. Berlin 8 1917.

*Eucardinia* gen. n. p. 138 *Phycitinae* for *Ulophora caricae* D., DYAR Insec. inscit. 6.

*Eurrhyarodes nymphulalis* sp. n. Formosa p. 38, STRAND D. ent. Zeitschr. Iris 32.

*Evergestis inglorialis* sp. n. Peru p. 183, *dognini* n.n. for *obliquialis* Dogn. p. 182, HAMPSON Ann. Nat. Hist. 2.

*Filodes tenuimarginalis* sp. n. Celebes p. 127, HAMPSON Ann. Nat. Hist. 1.

*Furcivena atribasalis* sp. n. Peru p. 276, HAMPSON Ann. Nat. Hist. 1.

*Glyphodes inclusalis* p. 395, *bitri-  
angulatis* p. 396, *parallelalis* p. 397, spp. n., Africa, GAEDE Mitt. zool. Mus. Berlin 8 1917.

*Gonopionea biconicalis* p. 198, *flavida-  
lis*, *coniferalis*, p. 196, spp. n., Colombia, HAMPSON Ann. Nat. Hist. 2.

*Hapalia* (= *Pionea*) *bifossata* p. 393, *lobibasalis*, *magnifovealis*, p. 394, Am. mer., *endotrichialis* Formosa, *glaucostigmatis*, *nigristriatalis*, p. 395, *tristigmatis*, *distictalis*, p. 396, *flavipartalis*, *umbriferalis*, p. 397, *lunilinealis*, Amer. mer., *conisanalis*, p. 398, *rubritactalis*, *carbonifusalis*, *conistolalis*, p. 399, Africa *pulverulenta* Ceylon, *poliostolalis* Formosa, p. 400, spp. n., HAMPSON T.c.

*Hedylepta* (*Subhedylepta* subg. n.) *pilocrocualis* sp. n. Formosa p. 44, STRAND D. ent. Zeitschr. Iris 32.

*Hemiscopsis suffusalis* var. n. *obscuralis* p. 74, STRAND T.c.

*Hydropionea oblectalis* (= *eumoros* Dy.), BARNES & McDUNNOUGH p. 170 Contr. 4.

*Hypsotropa subcostella* Africa, *pervittella* Punjab p. 68, *ochraceella* Timor, *biscrensis* Algeria, p. 69, *ochricostella*, *chionorhabda*, Africa p. 70, *fusifasciata* Ceylon, *purpurella* Africa p. 71, *punctinervella* Ceylon p. 72, *cremoricosta* Colorado, *niveicosta* Argentina, *periphaea* Nigeria, *tripartalis* Formosa p. 74, *rosescens* Ceylon, *diaphaea* p. 75, *monostidza*, *graptophlebia*, *endorhoda*, p. 76, *polysticella*, Africa, *leucocraspis* Argentina p. 77, spp. n., HAMPSON P.Z.S. London 1918.

b 17—2

*Laetilia cardini* p. 139, *obscura* p. 140, spp. n., Cuba, DYAR Insec. inscit. 6.

*Lampridia? vetustalis* sp. n. Formosa p. 55, STRAND D. ent. Zeitschr. Iris 32.

*Lamprosema* Hübn. (= *Nacoleia*) *pectinalis* China p. 133, *anaemicalis* Peru, *leucopis* N. Guinea, p. 134, *pogonotornalis* Peru, *aurantia* N. Guinea, p. 135, *bryalis* p. 136, *inglorialis*, *lateritialis*, p. 252, *chrysanthalis* p. 253, Africa, *flavizonalis* N. Guinea, *ceruinicosta*, p. 254, *griseicosta*, *rufilinealis*, p. 255, *monocampialis*, *leuconephralis*, p. 256. Amer. mer., *furcirenalis* Cape Colony, *truncitornalis* Queensland, p. 257, *strigivenalis* Ecuador, *niphosemalis* N. Guinea, p. 258, *oediproctalis* Solomon islds., *platyproctalis* Ké islds., p. 259, *flaviterminalis* Peru p. 260, spp. n., HAMPSON Ann. Nat. Hist. 1.

*Laurentia albivenella* sp. n. Formosa p. 90, HAMPSON P.Z.S. London 1918.

*Leechia formosensis* sp. n. p. 218, WILEMAN & SOUTH Entom. 51.

*Leotropa* gen. n. *Hypsotropinae*, *phoenicias*, *sarcina*, Africa, p. 64, *papuanensis* Ron isld. p. 65, spp. n., HAMPSON P. zool. Soc. London 1918.

*Lepyrodes reussi* sp. n. E, Africa p. 397, GAEDE Mitt. zool. Mus. Berlin 8 1917.

*Leucinodella agrotorodes* sp. n. Formosa p. 62, STRAND D. ent. Zeitschr. Iris 32.

*Leucinodes translucidalis* sp. n. E. Africa p. 398, GAEDE Mitt. zool. Mus. Berlin 8 1917.

*Liopasia apicenotata* Trinidad p. 191, *leucoperalis* Peru, *incoloralis* E. Africa, p. 192, spp. n., HAMPSON Ann. Nat. Hist. 2.

*Loxostege* = (*Phlyctaenodes*) *obliquivalis* Transvaal, *aureodiscalis* W. Australia, spp. n., p. 189, HAMPSON T.c.—*L. anartalis* Gr. pl. xxii f. 15, var. f. 16, *terpnalis* California f. 20, p. 160, *unilinealis* pl. xxiv f. 1 Arizona *parvipicta* California pl. xxiii f. 10, spp. n., BARNES & McDUNNOUGH Contr. 4.

*Loxotegopsis curialis* sp. n. Utah p. 166 pl. xxiv f. 8, BARNES & McDUNNOUGH Contr. 4.

*Lygropia syleptalis* sp. n. Formosa p. 56, STRAND D. ent. Zeitschr. Iris 32.—*L. falsalis* sp. n. Mexico p. 368, DYAR P. U. S. nat. Mus. 54.—*L. leucostolalis* Africa, *fulvescens*, p. 271, *gilvicostalis* p. 272, Amer. mer., spp. n., HAMPSON Ann. Nat. Hist. 1.

*Macalla phoenopasta* sp. n. Lord Howe isld. p. 279, TURNER Tr. R. Soc. S. Austr. 42.

*Macrothea bilinealis* pl. xxiv f. 11, *angulalis* f. 12, spp. n., California p. 173, BARNES & McDUNNOUGH Contr. 4.

*Marasmia pauperalis* sp. n. Formosa p. 41, STRAND D. ent. Zeitschr. Iris 32.

*Margaronia* (= *Glyphodes*) *albianalis* p. 272, *semirufalis*, *monothyralis*, *punctilinealis*, p. 273, *viridilinealis*, Amer. mer., *lobisignalis* Africa, *approximalis* N. Guinea, p. 274, *titanicalis* Solomon islds., *euchlorisalis* Peru, p. 275, *polystrigalis* New Guinea p. 276, spp. n., HAMPSON Ann. Nat. Hist. 1.

*Marwitzia* gen. n. near *Dichocrocis*, *centiguttalis* sp. n. E. Africa, p. 395, GAEDE Mitt. zool. Mus. Berlin 8 1917.

*Masepha tessmanni*, *flavimaculata*, spp. n., Africa p. 391, GAEDE T.c.

*Mathoris magica* sp. n. W. Africa p. 381 fig., GAEDE T.c.

*Mecyna insulicola* sp. n. Lord Howe isld. p. 280, TURNER Tr. R. Soc. S. Austr. 42.

*Megalophota* gen. n. p. 117 *Hypsotropinae*, *leonella* sp. n. W. Africa p. 118, HAMPSON P. zool. Soc. London 1918.

*Megastis erythrostolalis* sp. n. Venezuela p. 181, HAMPSON Ann. Nat. Hist. 2.

*Melitara parabates* p. 175 pl. xxii f. 21, BARNES & McDUNNOUGH Contr. 4.

*Mesodiphlebia ochraceella* sp. n. Argentina p. 62, HAMPSON P.Z.S. London 1918.

*Mesolia bipunctella* sp. n. Formosa p. 217, WILEMAN & SOUTH Entom. 51.

*Metacratelia* gen. n. type *Anerastia pulverulella*, *perirrorella* Mashonaland, *miasticta* Mexico, spp. n., HAMPSON p. 79 P.Z.S. London 1918.

- Metallarcha thioscia* p. 235, *clethroides* p. 236, spp. n. Australia, LOWER Tr. R. Soc. S. Austr. 42.
- Metasia roseociliatis* sp. n. Africa p. 195, HAMPSON Ann. Nat. Hist. 2.
- Moodna inanimella* sp. n. Mexico p. 372, DYAR P. U.S. Nat. Mus. 54.
- Navasota persectella* Timor, *haemaphaeella* Louisiade Arch., *leuconevrella*, *rhionophlebia*, p. 66, *discipunctella*, Africa, *syrggia* Tucuman, p. 67, spp. n., HAMPSON P. Zool. Soc. London 1918.
- Neurina africalis* sp. n. W. Africa p. 394, GAEDE Mitt. Zool. Mus. Berlin 8 1917.
- Noctuella annuliferalis* var. n. *quinquealis* p. 400, *purialis* sp. n. E. Africa p. 401, GAEDE T.c.—*N. anartalis* Turkestan p. 406, *josialis* Venezuela p. 407, spp. n., HAMPSON Ann. Nat. Hist. 2.—*N. palmalis* p. 167 pl. xxiii f. 5, *virula* p. 168 f. 9, spp. n. California, BARNES & McDUNNOUGH Contr. 4.
- Nesophora taihokualis* sp. n. Formosa p. 43, STRAND D. ent. Zeitschr. Iris. 32.
- Olyca ponderosella* sp. n. California p. 175 pl. xxii f. 22, BARNES & McDUNNOUGH Contr. 4.
- Omphisa leucostolalis* sp. n. Africa p. 182, HAMPSON Ann. Nat. Hist. 2.
- Pachynoa melanopyga* sp. n. Formosa p. 69, STRAND D. ent. Zeitschr. Iris. 32.
- Parramatta placidella* sp. n. California p. 177 pl. xxiv f. 17, BARNES & McDUNNOUGH Contr. 4.
- Patissa ? imparella* sp. n. Formosa p. 218, WILEMAN & SOUTH Entom. 51.
- Patna venatella*, *brunneicostella*, spp. n. Africa p. 117, HAMPSON P.Z.S. London 1918.
- Pegostoma subterminalis* sp. n. Bloemfontein p. 406, HAMPSON Ann. Nat. Hist. 2.
- Phlyctaenia angustalis* pl. xxii f. 19 p. 162, *berberalis* pl. xxiv f. 2 p. 163, spp. n. California, BARNES & McDUNNOUGH Contr. 4.
- Phlyctaenodes iotaeniatis* sp. n. Transvaal p. 399, GAEDE Mitt. zool. Mus. Berlin 8 1917.—*P. anpingialis* sp. n. p. 70 with form *formosibia* p. 71 Formosa, STRAND D. ent. Zeitschr. Iris. 32.
- Phostria* (= *Phryganodes*) *xanthoproctalis* Venezuela, *purpureonitens* d'Entrecasteaux islds., *flaviceps* Peru, p. 128, *aterrimalis* Cameroons, *chrysonera*, *disciiridescens*, p. 129, *euryleucalis*, Peru, *albescentalis* E. Africa, p. 130, *internervalis* Colombia, *aracoesoma* Cameroons, p. 131, spp. n., HAMPSON Ann. Nat. Hist. 1.
- Piletocera nigridentalis* sp. n. E. Africa p. 126, HAMPSON T.c.
- Pilocrocis melachrysi* Peru, *cupreinitens* Jamaica, p. 125, *caustichroalis* Peru p. 126, spp. n., HAMPSON T.c.
- Pionea suisharyonensis* p. 76, *P. ? nea* p. 78, *P. schenklingsi* p. 79, spp. n. Formosa, STRAND D. ent. Zeitschr. Iris 32.—*P. cacidus* sp. n. Mexico p. 138, DYAR Insec. inscit. 6.
- Platygraphis* gen. n. near *Entephria*, *isabella* sp. n. Mexico, DYAR p. 367 P. U.S. nat. Mus. 54.
- Platytes damon* sp. n. California p. 172 pl. xxiv figs. 13 & 14, BARNES & McDUNNOUGH Contr. 4.
- Polygrammodes tessellatis* sp. n. Cameroons p. 399, GAEDE Mitt. zool. Mus. Berlin 8 1917.—*P. junctilinealis* Africa, *purpureorufalis*, p. 185, *flavescens* p. 186, Peru, spp. n., HAMPSON Ann. Nat. Hist. 2.
- Polyocha plinthochroa* Transvaal p. 124, *achromatella* N.S. Wales, *fuscicostella* Nigeria, p. 126, spp. n., HAMPSON P. Zool. Soc. London 1918.
- Prinanaestria* gen. n. type *Tinea lotella* Hüb., HAMPSON P.Z.S. London 1918 p. 80.
- Proconica flavimaculatis* sp. n. Cameroons p. 394, GAEDE Mitt. Zool. Mus. Berlin 8, 1917.
- Prophtasia sphalmatella* Mashonaland, *epiteuxis* Burma, *glaucophaea* India, *amphichea* W. Africa, p. 105, *pyrostroma* Punjab p. 106, spp. n., HAMPSON P.Z.S. London 1918.
- Proterozexis orbiferalis* fig., *rittiferalis* fig., p. 380, *arcuatilis* p. 381 fig., spp. n. Africa, GAEDE Mitt. Zool. Mus. Berlin 8 1917.

*Psara* = (*Pachyzancla*), *palpalis* Cameroons, *barbipalpalis*, *normalis*, p. 187, *retrorsalis*, *melanosoma*, p. 188, Am. mer., spp. n., HAMPSON Ann. Nat. Hist. 2.

*Puriella* gen. n. *Pyraustinae* p. 88, *problematica* sp. n. Formosa p. 89, STRAND D. ent. Zeitschr. Iris 32.

*Pyralocymatophora* subg. n. vide *Aripana*.

*Pyrausta sexplagalis* sp. n. W. Africa p. 399, GAEDE Mitt. Zool. Mus. Berlin 8 1917.—*P. pectinalis*, *fulviflavalis*, Am. mer., *violascens*, p. 401, *fulvilinealis*, *distictalis*, Africa, *leucoplacalis*, p. 402, *xanthyalinalis*, Am. mer., *microdentalis*, p. 403, *pulverumbralis*, Africa, *fulvilinealis*, Ecuador, p. 404, *xanthocephala* Mexico, *infuscalis* Sikhim, p. 405, *auricinctalis*, p. 406, Africa, spp. n., HAMPSON Ann. Nat. Hist. 2.—*P. masculina*, *suisharyella* p. 81, *suisharyonalis* p. 82, *tapa* p. 83, *pata*, *austa*, p. 84, *P. ? kosemponalis* p. 85, *saecalis* p. 86, *hoozana* p. 87, spp. n. Formosa, STRAND D. ent. Zeitschr. Iris 32.—*P. ochreicostalis* p. 163 pl. xxiii f. 8, *zonalis* pl. xxiv f. 10, *pythialis* pl. xxiii f. 7, p. 164, *inveterascalis* f. 6, *tuolumnalis* f. 11, *merrickalis* pl. xxiv f. 9 p. 165, *emigralis* f. 7 p. 166, spp. n. U.S., BARNES & McDUNNOUGH Contr. 4.—*P. euchromistes* sp. n. Mexico p. 138, DYAR Insec. inscit. 6.

*Raphimetopus* gen. n. type *Anerastia spinifrontella* Rag., HAMPSON p. 78 P.Z.S. London 1918.

*Rhotosomia vausignalis* sp. n. Peru p. 188, HAMPSON Ann. Nat. Hist. 2.

*Rhinaphe approximella* Queensland p. 82, *sangirensis* Celebes, *phaeostrotella* Ceylon, p. 85, *lateritella* Nigeria, *venilineella* Sudan, p. 86, *endonephele* Brazil, *ignetiuncta*, *furvimaacula*, Argentina, p. 87, spp. n., HAMPSON P.Z.S. London 1918.

*Rhodoneura bryaxis* sp. n. E. Africa p. 246 f. 9, FAWCETT P.Z.S. London 1917.—*R. nudicornis*, *fejunalis*, p. 375, *plagalis*, *meriani*, *betousalis* fig., p. 376, spp. n. Africa, GAEDE Mitt. Zool. Mus. Berlin 8, 1917.

*Saborma papuacola* sp. n. New Guinea p. 123, HAMPSON P. Zool. Soc. London 1918.

*Saluria carnescens* Argentina, *psanmatella* Algeria, *semiroscella* W. Africa, p. 94, *nigiriensis* Madras p. 95, *stictophora*, *flavicosta*, Africa, *stictella* Bahamas, p. 96, *lentistrigella* W. Africa, *desertella* Australia, p. 97, *flavipurpurella tenuicosta*, Paraguay, *neuricella*, Queensland, p. 98, *proleucella* W. Africa, *grammivena* Australia, p. 99, *rhodophaea*, *subcostella*, Africa p. 100, *distictella*, Queensland, *rufella* Bengal, p. 101, *mesomelanella*, *interpunctella*, S. Africa, *insignificella* Paraguay, p. 103, spp. n., HAMPSON T.c.

*Sameodesma* gen. n., *flavicostalis* p. 278, *undilinealis* p. 279, spp. n. Africa, HAMPSON Ann. Nat. Hist. 1.

*Sameodes mittochristalis* var. ? *equicalcaralis*, STRAND p. 61 D. ent. Zeitschr. Iris 32.

*Sceliodes nodiferalis* sp. n. E. Africa p. 400, GAEDE Mitt. Zool. Mus. Berlin 8 1917.

*Scirpophaga nigropunctata* sp. n. Formosa p. 218, WILEMAN & SOUTH Entom. 51.

*Scoparia tritocirra* sp. n. Norfolk isld., p. 286, TURNER Tr. R. Soc. S. Austr. 42.—*S. declivis*, *scripta*, p. 126, *caliginosa* p. 127, spp. n. New Zealand, PHILPOTT Tr. N.Z. Inst. 50.—*S. stereostigma*, *anadonta*, p. 369, *anagantis*, *cyclophora*, *flexuosa*, p. 370, spp. n. Mexico, DYAR P. U.S. Nat. Mus. 54.

*Siboga albimedtella* Simla, *dialeucella* Kashmir, *zeavora* Malay States, spp. n. p. 113, HAMPSON P.Z.S. London 1918.

*Statina rosinella* sp. n. Nigeria p. 60 HAMPSON T.c.

*Stenia mononalis* sp. n. Mexico p. 369, DYAR P. U.S. Nat. Mus. 54.

*Strigina eguttalis* sp. n. Gaboon p. 378 fig., GAEDE Mitt. Zool. Mus. Berlin 8 1917.

*Subhedylepta* subg. n. vide *Hedylepta*.

*Surathia rufistrigalis* sp. n. E. Africa p. 247 f. 3, FAWCETT P.Z.S. London 1917.—*S. ? albistigma* sp. n. Formosa p. 217, WILEMAN & SOUTH Entom. 51.

*Sylepta disciselenalis* E. Africa, *molybdopasta* Bismarck Arch., p. 260, *subcyanoealba* Cameroons, *crenilinealis* New Guinea, *grisealis* Peru, p. 261,

*brunneiterminalis* Nigeria p. 265, *procti-*  
*zonalis* China, *ochrotichroa* Assam, p.  
266, *hemipolialis*, *albipunctalis*, p.  
267, *cupralis*, *fulviceps*, Amcr. mcr.,  
*ochritinctalis* d'Entrecasteaux islds.,  
p. 268, *eryterminalis* Formosa, *roga-*  
*tionis*, p. 269, *sulphureotincta*, *micro-*  
*scticialis*, p. 270, *maculilinealis* p. 271,  
Africa, spp. n., HAMPSON Ann. Nat.  
Hist. 1.—*S. lularis* p. 50, *evergisticalis*  
p. 51, *haryolalis* p. 52, *kosenponis*  
p. 53, spp. n. Formosa, *imbutalis*  
var. ? *taihokualis* p. 49, STRAND D.  
ent. Zeitschr. Iris 32.

*Symphleps inops* sp. n. E. Africa  
p. 382, GAEDE Mitt. Zool. Mus. Berlin  
8 1917.

*Syngamia subnebulosalis* sp. n. Mexico  
p. 368, DYAR P. U.S. Nat. Mus. 54.

*Tapinolopha* gen. n. *Epipaschiinae*  
p. 371, *variegata* sp. n. Mexico p. 372,  
DYAR T.c.

*Thaumatopsis actuellus* sp. n. Florida  
p. 172 pl. xxiv. f. 6, BARNES & Mc-  
DUNNOUGH Contr. 4.

*Thliptoceras androstigmata* N. Guinea  
p. 279, *xanthomerialis* Africa, *xanthoper-*  
*alis* Surinam, p. 280, spp. n., HAMPSON  
Ann. Nat. Hist. 1.—*T. arcotifera* sp. n.  
Formosa p. 64, STRAND D. ent. Zeitschr.  
Iris 32.

*Tirathuba* sp. n. pl. xiv f. 2 p. 98,  
FLETCHER Rep. agric. Inst. Pusa 1917-  
18.

*Titania subargentalis* sp. n. Colorado  
p. 161, BARNES & McDUNNOUGH  
Contr. 4.

*Thascula oregonella* sp. n. p. 175 pl.  
xxiv f. 16, BARNES & McDUNNOUGH  
T.c.

*Ulopeza disjunctalis* sp. n. Cameroons  
p. 126, HAMPSON Ann. Nat. Hist. 1.

#### PTEROPHORIDAE ORNEODIDAE.

*Orneodes tesserata* p. 34, *photaula*  
p. 55, spp. n., MEYRICK Ann. Transv.  
Mus. 6.

*Platyptilia bullifera* sp. n., MEYRICK  
p. 7 Ann. Transv. Mus. 6.

*Trichoptilus paludum*, ORSTADIUS  
Ent. Tidskr. 39 p. 71 fig. 1.

#### TORTRICIDAE.

List of the families of *Microlepidoptera*,  
DURRANT pp. 386-394 Nov. zool. 25.

The male genitalia of *Tortricidae*,  
HEINRICH P. ent. Soc. Washington 19  
pp. 137 & 138.

*Acroclita macroma* sp. n. Norfolk  
isld. p. 287, TURNER Tr. R. Soc. S.  
Austr. 42.

*Adoxophyes peritoma* sp. n. Mada-  
gascar p. 167, MEYRICK Exot. Micrl. 2.

*Ancylis uncana*, life-history, SHELDON  
pp. 125-127 Entom. 51.—*A. complanata*  
metamorphosis, WEBSTER pp: 42-44 J.  
econ. Ent. 11.

*Archips cerasivorana* larva, parasites,  
BAIRD Agric. Gaz. Canada 5 pp. 766-  
771 figs.

*Argyroploce laurentiana* Hadjin, p. 75  
pl. iii figs. 7 & 8 with var. *flava*,  
*fluviana* Usgent p. 77 f. 9, *camillana*  
Altai p. 78 f. 10, *pallidana* Changai p. 80  
f. 11, spp. n., KENNEL Mitt. Münchn.  
ent. Ges. 8.—*A. asterota* p. 12, *caryo-*  
*coma*, *erythropha*, p. 11, *propitia* p. 12,  
*encharacta*, *exhilarata*, *sponditis* p. 50,  
spp. n., MEYRICK Ann. Transv. Mus. 6.—  
*A. plumbifera* Erivan p. 419 pl. xvii  
f. 38 sp. n., KENNEL Pal. Tort.

*Cacoecia idana* Sajon p. 51 pl. ii f. 1,  
*celsana* Dscharkent p. 52 f. 2. *alexiana*  
Eibes p. 53 f. 4, spp. n., KENNEL Mitt.  
Münchn. ent. Ges. 8.—*C. termias com-*  
*pacta* p. 164, *philippa*, *hemixantha*  
p. 165, India, *symmetra*, *ochrostoma*,  
Congo p. 166, spp. n., MEYRICK Exot.  
Micrl. 2.

*Capua metacentra* sp. n. India p. 163,  
MEYRICK Exot. Micrl. 2.—*C. aridela*  
sp. n. Norfolk isld. p. 286, TURNER Tr.  
R. Soc. S. Austr. 42.

*Carposina exsanguis* sp. n., MEYRICK  
p. 8 Ann. Transv. Mus. 6.—*C. sarcanthes*  
sp. n. New Zealand p. 133, MEYRICK  
Tr. N.Z. Inst. 50.

*Cnephasia flavisecta*, *pachydesma*,  
spp. n. p. 91, MEYRICK Ann. Transv.  
Mus. 6.

*Crothaema* from *Limacodidae*, *mystica*  
sp. n. Natal, MEYRICK p. 163 Exot.  
Micrl. 2.

*Doloploca dominicana* p. 64 pl. ii f. 17, *agricolana* p. 65 f. 18, spp. n. palaeartic, KENNEL Mitt. Münchn. ent. Ges. 8.

*Eboda celligera* sp. n. Bengal p. 170, MEYRICK Exot. Micrl. 2.

*Epilema victoriana* p. 86 pl. iii figs. 18 and 19, *jodocana* p. 87 f. 20, *corneliana* p. 88 f. 21, *buddhana* p. 92, spp. n. W. Asia, KENNEL Mitt. Münchn. ent. Ges. 8.

*Epichorista theatralis* sp. n. New Zealand p. 128, PHILPOTT Tr. N.Z. Inst. 50.—*E. sicca* ♂, MEYRICK p. 163 Exot. Micrl. 2.

*Eucosma bisecta*, *decipiens*, *glyphicodes* p. 10, *inscita* p. 9, *drastica*, *lobostola*, p. 49, *opsonoma* p. 48, *thalameuta* p. 49, *thematica* p. 48, spp. n., MEYRICK Ann. Transv. Mus. 6.

*Eudemis* embryology, HUTE P. R. Soc. Edinburgh 38 pp. 154–165 2 pls.

*Eurythecta curva* sp. n. New Zealand p. 127, PHILPOTT Tr. N.Z. Inst. 50.

*Euxanthis angelana* Spain p. 68 pl. ii f. 21, *priscillana* p. 69 f. 22, *herminiana* p. 70 f. 2, Dscharkent, *emiliana* Tannuola p. 71 f. 24, *lucindana* p. 72 pl. iii figs. 1 and 2, *annana* p. 73 fig. 3, Juldus, spp. n., KENNEL Mitt. Münchn. ent. Ges. 8.—*E. umbraculata* sp. n., MEYRICK p. 8 Ann. Transv. Mus. 6.

*Evetria tessulatana*, metamorphosis, JOANNIS p. 212 Bull. Soc. ent. France 1918.

*Grapholitha leplastriana*, distribution, food, JOANNIS pp. 234–237 Bull. Soc. ent. France 1918.

*Hemimene blasiana* Gastein p. 89 pl. iii figs. 23 and 24, *ambrosiana* Kentei p. 90 f. 25, spp. n., KENNEL Mitt. Münchn. ent. Ges. 8.—*H. embolaea* sp. n. p. 51, MEYRICK Ann. Transv. Mus. 6.

*Homalernis arystis* sp. n. Assam. p. 169, MEYRICK Exot. Micrl. 2.

*Laspereysia rosinana* sp. n. Saján p. 88 pl. iii f. 22, KENNEL Mitt. Münchn. ent. Ges. 8.—*L. areata*, *excoriata*, p. 13, *victrix* p. 12, *violescens* p. 51, spp. n., MEYRICK Ann. Transv. Mus. 6.—*L. molesta*, natural history, metamorphosis, WOOD & SELKREGG J. Agric. Res. 13 pp. 59–72 6 pls.

*Lipoptycha tamerlana* sp. n. Dscharkent p. 91 pl. iii f. 26, KENNEL Mitt. Münchn. ent. Ges. 8.

*Palpoerinia* gen. n., *ottoniana* sp. n. pl. ii. f. 20, p. 66, KENNEL Mitt. Münchn. ent. Ges. 8.

*Pandurista* gen. n. p. 166 near *Cacoecia*, *stictocrossa*, sp. n. New Guinea p. 167, MEYRICK Exot. Micrl. 2.

*Peronea siderota* sp. n. Ceylon, p. 171, MEYRICK T.c.

*Peronea cristana*, varr., SHELDON pp. 10–14 & p. 42 Entom. 51.

*Phaloniu faustana* Dscharkent p. 73 pl. iii f. 4, *amana* Beyrout p. 74 f. 5, *piana* Dscharkent p. 75, spp. n., KENNEL Mitt. Münchn. ent. Ges. 8.

*Phiaris gordiana* sp. n. Tannuola p. 81 pl. iii f. 12, KENNEL T.c.

*Polychrosis ephippias*, Indian species, MEYRICK p. 11 Ann. Transv. Mus. 6.

*Schoenotenes exarthra* sp. n. New Guinea p. 169, MEYRICK Exot. Micrl. 2.—*S. capnosema* sp. n. Norfolk isld. p. 287, TURNER Tr. R. Soc. S. Austr. 42.

*Semasia luciana* p. 81 pl. iii f. 13, *sybillana* p. 82 f. 14, *briggittana* p. 83 f. 15, *metana* p. 84 f. 16, *ursulana* p. 85 f. 17, spp. n., Centr. Asia, KENNEL Mitt. Münchn. ent. Ges. 8.

*Tenthreutis* gen. n. near *Cnephasia*, *sphaerocosma* sp. n. Sikkim, MEYRICK p. 170 Exot. Micrl. 2.

*Thiodia anatoliana* p. 532 pl. xx f. 39, *caradjana* p. 533 f. 40, spp. n. Erivan, KENNEL Pal. Tort.

*Tortricodes adamana* sp. n. Altai p. 65 pl. ii. f. 19, KENNEL Mitt. Münchn. ent. Ges. 8.

*Tortrix laurana* p. 53 pl. ii figs. 5 and 6, *elsana* f. 8, *eulogiana* figs. 9–11, p. 55, *dorana* p. 60 f. 12, *olgana* p. 61 f. 13, *crispinana* f. 14, *agathana* f. 15, p. 62, *andreana* p. 64 f. 16, spp. n., palaeartic, KENNEL Mitt. Münchn. ent. Ges. 8.—*T. corroborata*, *metapyrrha*, spp. n. p. 8, MEYRICK Ann. Transv. Mus. 6.—*T. synastra* Madagascar p. 167, *dinota* Nyasaland, *illiberalis*, *segnis*, Sikkim, p. 168, *hilarantha* New Guinea p. 169, spp. n., MEYRICK Exot. Micrl.

2.—*T. argyrospila*, ravages, CAESAR pp. 321–323 *Canad. Ent.* 50.—*T. pronubana*, disappearance, MOREAU p. 99 *Bull. Soc. ent. France* 1918.

## TINEIDAE (incl. MICROPTERYGIDAE, etc.)

*Phycidae* in place of *Tineidae*, DURRANT p. 387 *Nov. zool.* 25.

*Micropterygidae* not of the jugate type, TILLYARD *Ent. News* 29 p. 90.

*Acrocercops aphrocyma pyramidota*, spp. n., p. 39, MEYRICK *Ann. Transv. Mus.* 6.—*A. loxias, selmatica, orthostacta*, p. 174, *eriplaca, prosacta, supplex*, p. 175, *eranista, epiclina, bifrenis*, p. 176, *phractopa, cyanodeta, labyrinthica*, p. 177, spp. n. India, MEYRICK *Exot. Micrl.* 2.—*A. affinis* sp. n. California p. 233, BRAUN *Canad. Ent.* 50.

*Aeolanthes diacritica* Assam, *meniscias* Burma, spp. n. p. 196, MEYRICK *Exot. Micrl.* 2.

*Aetherastis circulata* sp. n. Travancore p. 190, MEYRICK T.c.

*Agriophara parilis* sp. n. New Guinea p. 197, MEYRICK T.c.

*Anacampsis clacocoma* p. 19, *exsulata* p. 20, spp. n., MEYRICK *Ann. Transv. Mus.* 6.—*A. anisopa* p. 140, *primigenia*, Colombia, *rivalis* India, p. 141, *lanquens* Ecuador p. 142, spp. n., MEYRICK *Exot. Micrl.* 2.—*A. innocuella*, habits, DAVIS p. 111 *J. N. York ent. Soc.* 26, also FORBES p. 228 T.c.

*Anarsia apicata* (?), *subfulvescens, spicata*, p. 21, spp. n. MEYRICK *Ann. Transv. Mus.* 6.—*A. omoptila* p. 147, *altercata, veruta*, p. 148, spp. n. India, MEYRICK *Exot. Micrl.* 2.

*Anaxyrina* gen. n. *Gelechiadae* p. 98, *cyanopa* sp. n. Coorg p. 99, MEYRICK T.c.

*Anaetotricha superciliosa, annixa*, p. 198, *clivosa, capsulata*, p. 199, *sarcinata, substricta*, p. 200, spp. n. Amer. mer., MEYRICK T.c.

*Antispila argyrozona* sp. n. p. 35, MEYRICK *Ann. Transv. Mus.* 6.

*Apatetris* = (*Epiphthora* M., *Calyptritis* M., *Didactyloa* Wals., *Proactica*

Wals., *Cecidophaga* Wals.), *leucoglypta* sp. n. Kanara, MEYRICK p. 117 *Exot. Micrl.* 2.

*Apolactis* gen. n. *Gelechiadae* for *drimylota* sp. n., MEYRICK p. 52 *Ann. Transv. Mus.* 6.

*Archimaga philomima* Assam, *euplocamis* Ceylon, spp. n. p. 171, MEYRICK *Exot. Micrl.* 2.

*Archisopha* gen. n. near *Allotalanta, foliosa* sp. n. Ceylon, MEYRICK p. 214 T.c.

*Argyresthia iopteura* Kumasn, *melitaula* Colombia, *chalcochrysa* Canada, spp. n. p. 187, MEYRICK T.c.—*A. pallidella* sp. n. California p. 231, BRAUN *Canad. Ent.* 50.

*Aristotelia incitata* p. 117, *resinota* Assam, *argodecta* Ceylon, *ingravata* India, p. 118, *agatha* Assam, *semiophanes* Ceylon, *articulata* India, p. 119, spp. n., MEYRICK *Exot. Micrl.* 2.—*A. peribapta* sp. n. S. Australia p. 237, LOWER Tr. R. Soc. S. Austr. 42.

*Atasthalistis gorgopa* sp. n. New Guinea p. 115, MEYRICK *Exot. Micrl.* 2.

*Atteva sphaerodoxa* sp. n. New Guinea p. 189, MEYRICK T.c.

*Aulotropha* gen. n. *Oecophoridae, pentasticta* sp. n., MEYRICK p. 32 *Ann. Transv. Mus.* 6.

*Autosticha acharacta* p. 153, *conciliata* p. 154, spp. n. India, MEYRICK *Exot. Micrl.* 2.

*Auximobasis obstricta* Bartica, *normalis* Colombia, spp. n. p. 160, MEYRICK T.c.

*Battaristis specularis* sp. n. India p. 142, MEYRICK T.c.

*Blastobasis arguta* p. 36, *egens* p. 37, *extensa* p. 55, spp. n., MEYRICK *Ann. Transv. Mus.* 6.—*B. transcripta, explorata*, India, *cophodes*, p. 158, *aphilodes* p. 159, Amer. mer., spp. n. MEYRICK *Exot. Micrl.* 2.—*B. episema, dyssema*, spp. n. Lord Howe isld. p. 281, TURNER Tr. R. Soc. S. Austr. 42.

*Borkhausenia practicoles* sp. n. Madagascar p. 213, MEYRICK *Exot. Micrl.* 2.—*B. honorata, sabulosa*, spp. n. New Zealand p. 128, PHILPOTT Tr. N.Z. Inst. 50.—*B. thranias* var., MEYRICK p. 135 Tr. N. Zealand Inst. 50.

*Brachmia dryadopa* p. 25, *fiscinata* p. 26, *octophora*, spp. n., MEYRICK Ann. Transv. Mus. 6.—*B. vecors* p. 112, *rusticana*, *officiosa*, *perumbrata*, *resoluta*, p. 113, *sitiens*, *engraptia*, *philomusa*, India, *melicephala* Burma, p. 114, spp. n., MEYRICK Exot. Micrl. 2.—*B. antichroa* sp. n. Ceylon p. 156, MEYRICK T.c.

*Brachyacma sciritis* sp. n. Madras p. 149, MEYRICK T.c.

*Brenthia leucatomia* sp. n. p. 36, MEYRICK Ann. Transv. Mus. 6.—*B. harmonica* p. 192, *trilampas*, Philippines, *salinata*, p. 193, *coronigera* p. 194, India, spp. n., MEYRICK Exot. Micrl. 2.

*Bucculatrix praecipua* p. 42 sp. n., MEYRICK Ann. Transv. Mus. 6.—*B. tetanota* p. 183, *crateracma*, *verax*, p. 184, *mendax*, *univoca*, p. 185, spp. n. India, MEYRICK Exot. Micrl. 2.—*B. ceanothiella*, *latella*, p. 246, *quadrigemina*, *eupatoriella*, p. 247, *insolita* p. 248, *pervenis* p. 249, spp. n. U.S., BRAUN Ent. News. 29.

*Calamotis* gen. n. *Hyponomeutidae* p. 188, *prophracta* sp. n. Kanara p. 189, MEYRICK Exot. Micrl. 2.

*Ceranthes* gen. n. *Oecphoridae*, *thiota*, sp. n., MEYRICK p. 33, Ann. Transv. Mus. 6.

*Cerconotu ptlosema* sp. n. Cayenne p. 201, MEYRICK Exot. Micrl. 2.

*Ceromitia benedicta*, *resonans*, p. 47, *holosticta* p. 59, MEYRICK Ann. Transv. Mus. 6.

*Chelaria austerodes* p. 22, *loxosaris* p. 21, spp. n., MEYRICK T.c.

*Chirocompa decurrens* sp. n. p. 30, MEYRICK T.c.

*Cholotia cardinata*, *melanogastra*, spp. n., MEYRICK p. 28 T.c.

*Chrysoryctis* ? *idiochroa* sp. n. N.S.W. p. 238, LOWER Tr. R. Soc. S. Austr. 42.

*Cladophantis* gen. n. *Xyloryctidae* p. 33, for *xylophracta* p. 34, sp. n., MEYRICK Ann. Transv. Mus. 6.

*Cnaphostola* gen. n. p. 131 near *Thiotricha*, *adamantina* sp. n. Assam p. 132, MEYRICK Exot. Micrl. 2.

*Coesyra melancholica* sp. n. Assam p. 218, MEYRICK T.c.

*Coleophora gryphipennella*, larval habits, STÄGER pp. 204-207 & 235-237 Zeitschr. wiss. Insbiol. 13 1917.—*C. drypidis*, erroneously *drymidis*, JOANNIS p. 111 Bull. Soc. ent. France 1918.—*C. volkei* sp. n. California p. 135, HEINRICH P. ent. Soc. Washington 19.

*Commatica placoterma* sp. n. Colombia p. 146, MEYRICK Exot. Micrl. 2.

*Compsolechia* gen. n. p. 137 includes many American *Anacamptis*, *metagramma* Japan p. 138, *corymbas*, *parmata*, *astroconis*, p. 139, *lingulata*, *salebrosa*, p. 140, Amer. mer., spp. n., *diazoeucta* n. n. for *trajectella* Walk., *amazonica* n. n. for *suffusella* Walk., p. 138, MEYRICK T.c.

*Crobylophora daricella*, *xanthochyta*, spp. n. p. 41, MEYRICK Ann. Transv. Mus. 6.

*Crocantbes euryppya*, *gelastis*, *rhodantha*, p. 97, *autodocha* p. 98, spp. n. New Guinea, MEYRICK Exot. Micrl. 2.

*Crocogma* gen. n. near *Eridachtha*, *isocola* sp. n. Assam, MEYRICK p. 100 T.c.

*Crypsithyris insolita* p. 57, *spissa* p. 43, spp. n., MEYRICK Ann. Transv. Mus. 6.

*Cryptolechia perversa* India, *ichnitis* Guiana, spp. n. p. 222, MEYRICK Exot. Micrl. 2.

*Daemonercha* gen. n. *Metachanididae*, *cyprophanes* sp. n., MEYRICK p. 27 Ann. Transv. Mus. 6.

*Decadarchis thrasymacha* sp. n. New Guinea p. 186, MEYRICK Exot. Micrl. 2.

*Dectobathra*; a synonym, spp. referred to *Helcystogramma* & *Julactis*, MEYRICK p. 145 T.c.

*Deimnestra* gen. n. type *Hypelictis thyrsicola* M., MEYRICK p. 150 T.c.

*Delonoma pyrrohoplecta* sp. n. New Guinea p. 219, MEYRICK T.c.

*Demcpractis* gen. n. *Gelechiadae*, *tonae* sp. n. Assam, MEYRICK p. 154 T.c.

*Depressaria neoxesta*, *orthobathra*, spp. n. p. 31, MEYRICK Ann. Transv. Mus. 6.—*D. endryopa*, *nymphidia*, Colorado, *symmochlota* Canada, MEYRICK p. 223 Exot. Micrl. 2.



*Desmaucha* gen. n. near *Strobisia* p. 146, *chrysostruma* sp. n. Bartica p. 147, MEYRICK T.C.

*Dichomeris stromatias* sp. n. p. 23, MEYRICK Ann. Transv. Mus. 6.—*D. ceponoma* p. 151, *hastata*, India, *tactica* Ecuador, p. 152, spp. n., MEYRICK Exot. Micrl. 2.

*Dicranoctetes* gen. n. p. 250 near *Hieroxestis*, *angularis* sp. n. Maryland, p. 251, BRAUN Ent. News 29.

*Diocosma eotrocha* sp. n. p. 33, MEYRICK Ann. Transv. Mus. 6.

*Dolerothera* gen. n. near *Erechthias*, *amphiplecta* sp. n. Ceylon, MEYRICK p. 186 Exot. Micrl. 2.

*Dolichernis jubata* sp. n. New Zealand p. 131, PHILPOTT Tr. N.Z. Inst. 50.

*Dragmatucha biviva* p. 25, *obsepta* p. 24, spp. n., MEYRICK Ann. Transv. Mus. 6.

*Eleonoma phaeopasta* sp. n. Lord Howe isld. p. 280, TURNER Tr. R. Soc. S. Austr. 42.

*Empedaula* gen. n. p. 148 near *Chelaria*, *insipiens* sp. n. Bengal p. 149, MEYRICK Exot. Micrl. 2.

*Encolpotis helipelta* sp. n. Assam p. 153, MEYRICK T.C.

*Encrasima communicata* sp. n. Bengal p. 154, MEYRICK T.C.

*Endophthora pallacopsis* sp. n. New Zealand p. 134, MEYRICK Tr. N.Z. Inst. 50.

*Eomichla xyetidota* sp. n. Guiana, p. 215, MEYRICK Exot. Micrl. 2.

*Ephysteris chersaea* = (*oschophora* M.), MEYRICK p. 131 T.C.

*Epicephala strepsiploca* Bombay, *ancylopa* Assam, spp. n. p. 173, MEYRICK Exot. Micrl. 2.

*Epiphractis thysanarcha* sp. n. p. 53, MEYRICK Ann. Trans. Mus. 6.

*Epiphthora delochorda* sp. n. S. Australia p. 237, LOWER Tr. R. Soc. S. Austr. 42.

*Epithectis lacunosa* sp. n. p. 16, MEYRICK Ann. Transv. Mus. 6.—*E. zophochalca* sp. n. New Zealand p. 133, MEYRICK Tr. N.Z. Inst. 50.

*Eretmobela* gen. n. near *Setomorpha*, *phaeosema* sp. n. Lord Howe isld. p. 282, TURNER Tr. R. Soc. S. Austr. 42.

*Eretmocera fuscipennis* Zell., *lunifera* Zell., *derogatella* Walk., *miniata* Wals., *dorsistriga* Wals., and *carteri* Wals. = *fuscipennis*, MEYRICK Ann. Trans. Mus. 6.

*Erineda aenea* sp. n. Ohio p. 229, BRAUN Canad. Ent. 50.

*Ethmia glandifera* sp. n. p. 37, MEYRICK Ann. Transv. Mus. 6.—*E. pagiopa* sp. n. Kashmir p. 189, MEYRICK Exot. Micrl. 2.

*Eucryptogona secularis* p. 45 sp. n., MEYRICK Ann. Transv. Mus. 6.

*Eulechria typicantha* sp. n. New Guinea p. 214, MEYRICK Exot. Micrl. 2.—*E. photinella* to *Trachypepla*, MEYRICK p. 134 Tr. N. Zeal. Inst. 50.

*Euphilltra tricena* sp. n. N. S. Wales p. 219, MEYRICK Exot. Micrl. 2.

*Ezegetia* gen. n. p. 249 near *Erioptris*, *crocea* sp. n. California p. 250, BRAUN Ent. News 29.

*Exinotis neozona* sp. n. Bartica p. 159, MEYRICK Exot. Micrl. 2.

*Gelechia horiacula* p. 133, *caecigena*, *planodes*, India, *multinotata* Bartica, p. 134, spp. n., MEYRICK T.C.—*G. secunda*, *revoluta*, p. 17, *tetraleuca* p. 18, *G. exoenota* p. 52, spp. n. MEYRICK Ann. Trans. Mus. 6.—*G. sparsa* sp. n. New Zealand p. 128, PHILPOTT Tr. N.Z. Inst. 50.

*Glaucolepis* gen. n. p. 201 for *Nepticula saccharella* Br., BRAUN Tr. Amer. ent. Soc. 43 1917.

*Glyphipteryx decachrysa* sp. n. p. 36, MEYRICK Ann. Transv. Mus. 6.—*G. xyridota* p. 194, *oxycopis*, Assam, *lanista* Carolina, *semisparsa* India, p. 195, spp. n., MEYRICK Exot. Micrl. 2.—*G. barbata* sp. n. New Zealand p. 130, PHILPOTT Tr. N.Z. Inst. 50.

*Gracilaria corrugata*, *semmophanes*, *vibrans*, sp. n. p. 40, MEYRICK Ann. Transv. Mus. 6.—*G. recitata* p. 178, *mastopis*, Assam, *amphidelta* Canada, p. 179, spp. n., MEYRICK Exot. Micrl. 2.—*G. hypericella* Ohio, *ferruginella* California, spp. n. p. 235, BRAUN Canad. Ent. 50.—*G. theaeavora* Wlsm., HATTA (Japanese), Konch. Sek. Gifu 27 pp. 234-237.

*Gracilariidae*; revision of the north-american, ELY pp. 29-77 pls. vi-ix P. ent. Soc. Washington 19.

*Gynncogramma racemosa* sp. n. p. 38, MEYRICK Ann. Transv. Mus. 6.—*G. atmocycla* sp. n. Congo p. 190, MEYRICK Exot. Micrl. 2.

*Hapsifera atrisecta* p. 58 sp. n., MEYRICK Ann. Transv. Mus. 6.

*Harpagandra* gen. n. *Xyloryctidae*, *cryphiodes* sp. n. Bartica, MEYRICK p. 210 Exot. Micrl. 2.

*Helcystogramma iridosoma* sp. n. Queensland p. 144, MEYRICK T.c.

*Hesperarcha* gen. n. p. 38, *Hyponomeutidae*, *pericentra* sp. n., MEYRICK Ann. Transv. Mus. 6.

*Heterozyga gyrospila* sp. n. Capetown p. 219, MEYRICK Exot. Micrl. 2.

*Hieroderis?* *stellata* sp. n. New Zealand p. 129, PHILPOTT Tr. N.Z. Inst. 50.

*Hieroxestis protonima* p. 185, *clino-nima* p. 180, spp. n. India, MEYRICK Exot. Micrl. 2.

*Holcocera pugionaria, adjutrix*, p. 161, *limicola, sympasta, cylindrota*, p. 162, spp. n. Amer. mer., MEYRICK T.c.

*Homaloxestis lochitis* p. 101, *ceroxesta, xylotripta*, p. 102, spp. n. India, MEYRICK T.c.

*Hyalochna* gen. n. *Oecophoridae*, *allevata* sp. n., MEYRICK p. 30 Ann. Transv. Mus. 6.

*Hyponomeuta padella, metamorphosis*, HUFNAGEL Arch. Zool. exp. 57 pp. 47-202 4 pls.

*Idioglossa triumphalis* p. 56 sp. n., MEYRICK Ann. Transv. Mus. 6.

*Idiophantis croconota* sp. n., Madagascar p. 129, MEYRICK Exot. Micrl. 2.

*Imma synconista* Kanara p. 191, *melanosphena* Australia p. 192, spp. n., MEYRICK T.c.

*Istrianis* gen. n. near *Recurvaria*, *crauropa* sp. n. Kanara, MEYRICK p. 130 T.c.

*Iulactis* gen. n. *semifusca* sp. n. Queensland, and *Dectobaltru insignis* M., MEYRICK p. 145 T.c.

*Labdia caulota* p. 27, *L. macrobela* p. 52 spp. n., MEYRICK Ann. Transv. Mus. 6.

*Lachnostola* gen. n. *Gelechiadae*, *amphizeucta* sp. n., MEYRICK, p. 22 T.c.

*Lactura heliantha* sp. n. New Guinea p. 190, MEYRICK Exot. Micrl. 2.

*Lampronia quadripunctella*, variation pp. 146-148, *unipunctella* and *quinquepunctella*, abb. n. p. 148, STON Ent. Rec. 30.

*Latrologa* gen. n. near *Recurvaria*, *aoropis* sp. n. Ceylon, MEYRICK p. 132 Exot. Micrl. 2.

*Lecithocera* and *Brachmia* rearranged p. 102, *L. nardinopa, immobilis*, India, *coleasta* p. 103, *caligula*, New Guinea, *effera, ptochas*, p. 104, *digna, perfida, macella, desolata*, p. 105, India, *glaphyritis* Ceylon, *chersitis* Korea, *prudens* New Guinea, p. 106, *neosticta, contracta, integrata*, India, *frustata* Congo, p. 107, *acrosphales*, Madagascar, *insidians, responsa, eludens*, p. 108, *syntropha, jugalis*, India, *caustospila* Assam, *pyrimodes* Madagascar, p. 109, *malacta* Comoro islds., *caccilia, combusta*, Ceylon p. 110, *fortis* India p. 111, spp. n., MEYRICK T.c.—*L. perpersa* sp. n. Assam p. 153, MEYRICK T.c.—*L. binotata* sp. n. p. 24, MEYRICK Ann. Transv. Mus. 6.

*Leptocopa* gen. n. p. 220 *Oecophoridae*, *notoplecta* sp. n. Queensland p. 221, MEYRICK Exot. Micrl. 2.

*Leucoptera autographa* p. 40 *obelacma* p. 41 spp. n., MEYRICK Ann. Transv. Mus. 6.

*Leuronoma* gen. n. *Gelechiadae*, *chlorotoma, veterascens*, spp. n., MEYRICK p. 16 T.c.

*Limnoecia efulgens* sp. n. p. 27, MEYRICK T.c.—*L. pycnogramma* sp. n., N.S.W. p. 239, LOWER Tr. R. Soc. S. Austr. 42.

*Lithocolletis ganodes, menaea*, p. 172, *iteina* p. 173, spp. n. India, MEYRICK Exot. Micrl. 2.—*L. populifoliella*, hibernation, JOANNIS p. 150 Bull. Soc. ent. France 1918.

*Lyonetia exarthrota* sp. n. Assam p. 183, MEYRICK Exot. Micrl. 2.—*L. prunifoliella* p. 76 fig. 5, *prunifoliella ab. albella* p. 76 fig. 6, *ledi* p. 76 fig. 7, ORSTADIUS Ent. Tidskr. 39.—*L.*, sp. cf. *clercckella*, life-history, HARUKAWA and YAGI Ber. Ohara Inst. 1918 pp. 335-348 pl. viii.

*Lysitona* gen. n. *Tineidae*, *euryacta* sp. n., MEYRICK p. 57 Ann. Transv. Mus. 6.

*Machimia trifurcata* p. 215, *pagidotis*, *plectanota*, p. 216, *cancanodes* p. 217, spp. n. Guiana, MEYRICK Exot. Micrl. 2.

*Macrobathra gentilis* sp. n. Kanara p. 212, MEYRICK T.c.

*Melasina salicoma* p. 45 sp. n., MEYRICK Ann. Transv. Mus. 6.

*Meleonoma implexa* sp. n. India p. 220, MEYRICK Exot. Micrl. 2.

*Mesoelecta chimerina* and *angustella*, MEYRICK p. 218 T.c.

*Mesothyrza docilis* sp. n. Coorg. p. 221, MEYRICK T.c.

*Microcolona pantomima* sp. n. p. 53, MEYRICK Ann. Transv. Mus. 6.

*Microschismus cymatias* sp. n. p. 35, MEYRICK T.c.

*Mnesistega* gen. n. near *Homaloxestis*, *talantodes* sp. n. Coorg, MEYRICK p. 101 Exot. Micrl. 2.

*Mnesteria spiculifera* sp. n. Ceylon p. 152, MEYRICK T.c.

*Monopis lamprostola* p. 43 sp. n., MEYRICK Ann. Transv. Mus. 6.

*Myrmecozela convallata* p. 57 sp. n., MEYRICK T.c.

*Nepicula crypsixantha* p. 43 sp. n., MEYRICK T.c.—*N. homophaea*, *argyrodoxa*, p. 181, *neodora* p. 182, spp. n. India, MEYRICK Exot. Micrl. 2.—*N. scintillans* p. 167, *quadrinotata* p. 168, *intermedia* p. 171, *cerea* p. 172, *purpuratella* p. 176, *paludicola* p. 177, *canadensis* p. 185, *similella* p. 188, spp. n. Amer. bor., BRAUN Tr. amer. ent. Soc. 43, 1917.

*Nepticulidae* of North America, BRAUN pp. 155–209 4 pls. Tr. amer. ent. Soc. 43.

*Noeza pyropis* p. 149, *cinclidias* p. 150, spp. n. Cayenne, MEYRICK Exot. Micrl. 2.

*Neurobathra* gen. n. *Gracilariidae*, type *strigifinitella* Clem., ELY p. 41 P. ent. Soc. Washington 19.

*Neurolipa* gen. n. *Gracilariidae*, type *randiella* Busck, ELY p. 39 T.c.

*Neurostrata* gen. n. *Gracilariidae*, type *gunniella* Busck, ELY p. 41 T.c.

*Ochsenheimeria birdella*, ORSTADIUS Ent. Tidskr. 39 p. 71 fig. 2.

*Odites cuculans*, *incolumis*, spp. n. p. 54, MEYRICK Ann. Transv. Mus. 6.—*O. atonopa* sp. n. India p. 197, MEYRICK Exot. Micrl. 2.

*Oegoconia praeramis* sp. n. Ceylon p. 155, MEYRICK T.c.

*Onebala homogramma* sp. n. p. 25, MEYRICK Ann. Transv. Mus. 6.—*O. metriodes*, *sophronistis*, spp. n. Kanara p. 112, MEYRICK Exot. Micrl. 2.

*Oniophila certa* sp. n. p. 57, MEYRICK Ann. Transv. Mus. 6.

*Opogona oxydesma* sp. n. Kanara p. 185, MEYRICK Exot. Micrl. 2.

*Opostega idiocoma* p. 42, *melitardis*, *tincta*, p. 41, spp. n., MEYRICK Ann. Transv. Mus. 6.—*O. bistrigulella* sp. n. California p. 245, BRAUN Ent. News 29.

*Opostegidae*; affinities, head and mouth of larvae and of *Nepticulidae*, *Tischeriidae* and *Leucopterygidae*, HEINRICH P. ent. Soc. Washington 20 pp. 27–34 pls. i–iv.

*Opsigenes* gen. n. *Oecophoridae*, *paracincta* sp. n., MEYRICK p. 30 Ann. Transv. Mus. 6.

*Ornix spiraeifoliella* sp. n. Brit. Columbia p. 234, BRAUN Canad. Ent. 50.—*O.* sp., life-history, HARUKAWA & YAGI Ber. Okara Inst. 1918 pp. 325–333 pl. v.

*Orthenches polita* sp. n. New Zealand p. 131, PHILPOTT Tr. N.Z. Inst. 50.

*Oxymachaeris* Wals. redescribed p. 42, *euryzancla* sp. n. p. 43, MEYRICK Ann. Transv. Mus. 6.

*Paracharactis* gen. n. for *Machimia mitosema* Turn., MEYRICK p. 215 Exot. Micrl. 2.

*Paraleucoptera* gen. n. p. 21 type *Cemiostoma albella* Chamb. and *susinnella* H. S., HEINRICH P. ent. Soc. Washington 20.

*Paraphyllis autophora* sp. n. p. 224, MEYRICK Exot. Micrl. 2.

*Parapsectris ferulata* sp. n. p. 17, MEYRICK Ann. Transv. Mus. 6.

*Parectopa praestricta* p. 39 sp. n., MEYRICK T.c.—*P. asynacta* Assam, *affirmata* Peru, spp. n. p. 178, MEYRICK Exot. Micrl. 2.—*P. zorionella* sp. n. New Zealand p. 62, HUDSON Ent. Mag. 54.

*Pectinophora gossypiella*, geographical, MARLATT Science 48 pp. 309–312.

*Periacma turbinea* sp. n. Burma, p. 221, MEYRICK Exot. Micrl. 2.

*Philarga* gen. n. near *Cryptolechia*, *autochlora* sp. n. Kanara, MEYRICK p. 222 T.c.

*Philoptila* gen. n. near *Nosphistica*, *effrenata* sp. n. Kanara, MEYRICK p. 111 T.c.

*Phrixosceles melanostola* sp. n. p. 39, MEYRICK Ann. Transv. Mus. 6.

*Phthorimaea geomicta* p. 18, *pendens* p. 19, spp. n., MEYRICK T.c.—*P. mixolitha*, *atalopis*, *suasoria*, p. 135, *subcaerulea* p. 136, spp. n. Ceylon, MEYRICK Exot. Micrl. 2.

*Phycodyta* gen. n. *Tineidae*, *neritis* sp. n., MEYRICK p. 58 Ann. Transv. Mus. 6.

*Phyllocnistis toparcha*, *oxyopa*, p. 182, *synglypta* p. 183, spp. n. India, MEYRICK Exot. Micrl. 2.—*P. sorhageniella*, ORSTADIUS Ent. Tidskr. 39 pp. 72 figs. 3–4.

*Pigritia astuta* sp. n. Colombia p. 160, MEYRICK Exot. Micrl. 2.

*Pityocona* gen. n. near *Aristotelia* p. 116, *xeropsis* sp. n. India p. 117, MEYRICK T.c.

*Platybathra hysterota* sp. n. p. 38, MEYRICK Ann. Transv. Mus. 6.

*Platyedra*, MEYRICK p. 136 Exot. Micrl. 2.

*Plocamosaris*, to *Oecophoridae*, MEYRICK p. 224 T.c.

*Polyhymno hostilis*, *intorta*, p. 19, spp. n., MEYRICK Ann. Transv. Mus. 6.—*P. alcimacha* sp. n. India p. 129, MEYRICK Exot. Micrl. 2.

*Porthmologa deltophanes* sp. n. p. 53, MEYRICK Ann. Transv. Mus. 6.

*Procelestis zelotypa* sp. n. p. 54, MEYRICK Ann. Transv. Mus. 6.

*Promalactis scalmotoma* sp. n. p. 29, MEYRICK Ann. Transv. Mus. 6.—*P. bathroclina* Ceylon p. 212, *cornigera* Kumaon p. 213, spp. n., MEYRICK Exot. Micrl. 2.

*Promenesta isotrocha* sp. n. Argentina p. 209, MEYRICK T.c.

*Proterochyta* gen. n. p. 56, type *Elachista epicoena* M., MEYRICK Ann. Transv. Mus. 6.

*Protobathra coenotypa* sp. n. Ceylon p. 155, MEYRICK Exot. Micrl. 2.

*Protomacha convervata* sp. n. p. 31, MEYRICK Ann. Transv. Mus. 6.

*Pseudocrates* gen. n. near *Psammodis*, *antisphena*, p. 99, *sorilica* p. 100, spp. n. India, MEYRICK Exot. Micrl. 2.

*Ptilogenes leucoptila*, *deftua*, p. 210, *crateroptila*, *metacystis*, p. 211, spp. n. Guiana, MEYRICK T.c.

*Pycnodytis* gen. n., for *erebaulta* sp. n., MEYRICK p. 15 Ann. Transv. Mus. 6.

*Pycnodytis irrigata* sp. n. Madagascar p. 120, MEYRICK Exot. Micrl. 2.

*Pycnostola crateraula*, *merista*, *ochraula*, p. 14, *spilodoma* p. 15, spp. n., MEYRICK Ann. Transv. Mus. 6.

*Recurvaria orsicoma* p. 130, *trichaspis* p. 131, spp. n. Ceylon, MEYRICK Exot. Micrl. 2.—*R. nanella*, natural history, wings, ♂ genitalia, MIGNONE Atti Acc. Lincei 25 1 pp. 343 423 539 etc. 1916.

*Sabatınca*, the flight and resting attitude, PHILPOTT p. 318 P. Linn. Soc. N.S.W. 43.—*S. aurella* sp. n. New Zealand p. 63, HUDSON Ent. Mag. 54.—*S. barbarica* sp. n. New Zealand p. 132, PHILPOTT Tr. N.Z. Inst. 50.—*S. eodora* sp. n. New Zealand p. 134, MEYRICK Tr. N.Z. Inst. 50.

*Sagephora exsanguis* sp. n. New Zealand p. 131, PHILPOTT Tr. N.Z. Inst. 50.

*Sapheneutis certificata*, *diplopsamma*, spp. n., p. 45, MEYRICK Ann. Transv. Mus. 6.

*Scalideutis ulocoma* sp. n. Kanara p. 220, MEYRICK Exot. Micrl. 2.

*Scardia polystacta* p. 47, sp. n., MEYRICK Ann. Transv. Mus. 6.

*Schemataspis* gen. n. *Gelechiadae* type *gradata* MEYRICK p. 144 Exot. Micrl. 2.

*Schiffermuelleria helminthias, pedicata*, spp. n. p. 29, MEYRICK Ann. Transv. Mus. 6.

*Sclerophricta* gen. n. Tineidae, *tyreuta* sp. n., MEYRICK p. 46 T.c.

*Scythris nigripersa* sp. n. p. 37, MEYRICK T.c.—*S. charon* Carolina, *spumifera*, p. 156, *commota, azenopa, sitarcha*, India, *lychnitis* Mesopotamia, p. 157, spp. n., MEYRICK Exot. Micrl. 2.

*Semnostoma* gen. n. near *Thiotrichia*, *leucochalca*, p. 127, *poecilopa, barathrota, scatebrosa*, p. 128, spp. n. Assam, MEYRICK T.c.

*Simacthis euclista* sp. n. Burma p. 192 MEYRICK T.c.—*S. gratiosa*, MEYRICK p. 55 Ann. Transv. Mus. 6.

*Stenoma acridula* p. 201, *infrenata, bilinguis*, p. 202, *desecta, pseudacma*, p. 203, *cymbalista, crepitans, figularis*, p. 204, *sequestra, plebicola*, p. 205, *eminens, dryocosma, seducta*, p. 206, *pardalodes, paramochla*, p. 207, *chilosema, assignata*, p. 208, *scapularis, sacra*, p. 209, Guiana, *aphrophanes* Brazil p. 208, spp. n., MEYRICK Exot. Micrl. 2.

*Stomopteryx phacopa* Peru p. 136, *praecipitata* Bombay, *rastrifera, prolapsa*, Ceylon, p. 137, spp. n., MEYRICK T.c.

*Streptothyris* gen. n. *Oecophoridae*, *tanyacta* sp. n., MEYRICK p. 32 Ann. Transv. Mus. 6.

*Swammerdamia cuprescens* sp. n. Brit. Columbia, BRAUN p. 231 Canad. Ent. 50.

*Symmoca indagata* p. 155, *alacris* p. 156, spp. n. Kanara, MEYRICK Exot. Micrl. 2.

*Symphoristis* gen. n. *Elachistidae* p. 55, *ptychospila* sp. n. p. 56, MEYRICK Ann. Transv. Mus. 6.

*Syrmadavula* gen. n. *Gelechiadae*, *automorpha* sp. n., MEYRICK p. 26 T.c.

*Talaeporia mesochlora* p. 44 sp. n., MEYRICK T.c.

*Tanaoctenota* nom. n. for *Tanaoctena* Turn., MEYRICK p. 188 Exot. Micrl. 2.

*Tanyzancla* gen. n. near *Harpella*, *crocanthopa* sp. n. New Guinea, MEYRICK p. 218 T.c.

*Telphusa confixa* sp. n. p. 51, MEYRICK Ann. Transv. Mus. 6.—*T. inferialis* Bengal, *destillans* Assam, p. 133, MEYRICK Exot. Micrl. 2.

*Thiotricha perfora, complicata*, Coorg, *xanthaspis*, p. 122, *scioplecta, balanopa, oxygramma*, p. 123, *synacma*, Assam, *cuneiformis, clinopeda*, Coorg, p. 124, *nephodesma, operaria, polyaula*, p. 125, *obvoluta, rhodomicta*, p. 126, Assam, spp. n., MEYRICK T.c.

*Thylacosceles radians* sp. n. New Zealand p. 129, PHILPOTT Tr. N.Z. Inst. 50.

*Thyrsostoma diplobathra* p. 120, *macrodelta, chelophora, fissilis*, p. 121, spp. n., Assam, MEYRICK Exot. Micrl. 2.

*Timyra corythista* sp. n. Madras p. 98, MEYRICK T.c.

*Tinea*; application of the name, discussion, Fr. ent. Soc. London 1917 pp. xciv-cii.—*T. capnitis* sp. n. Norfolk isld. p. 288, TURNER Tr. R. Soc. S. Austr. 42.

*Tincola asperata, euplocamis, phaeocephala, zygodes*, spp., n., p. 44, MEYRICK Ann. Transv. Mus. 6.

*Titanomis tetragona* sp. n. New Zealand p. 62, HUDSON Ent. Mo. Mag. 54.

*Trachydora iocharis* sp. n. p. 28, MEYRICK Ann. Transv. Mus. 6.

*Trachypepla semilauta* sp. n. New Zealand p. 129, PHILPOTT Tr. N.Z. Inst. 50.

*Trichembola* gen. n. near *Chilopselaphus, opisthopa* India, p. 115, *segnis, epichorda*, Assam, *fuscata* Ceylon, p. 116, spp. n., MEYRICK Exot. Micrl. 2.

*Trichotaphe bryoxantha, conclusa, hortulana*, p. 23, *turgida* p. 24, spp. n., MEYRICK Ann. Transv. Mus. 6.

*Trichotaphe sphyrocopa* p. 150, *cyclospila*, Maroni, *ilucescens* Assam, p. 151, spp. n., MEYRICK Exot. Micrl. 2.

*Trisyntopa* gen. n. Tineidac, *euryspoda* sp. n. N.S.W., p. 238, LOWER Tr. R. Soc. S. Austr. 42.

*Tyriomorpha* gen. n. *Glyphipterygidae*  
type *phoenissa* Butl., MEYRICK p. 191  
Exot. Micrl. 2.

*Tyromantis* gen. n. near *Gymnobathra*,  
*metaxantha* sp. n. Madagascar, MEYRICK  
p. 217 T.c.

*Utomia acicularis, melanobathra*,  
spp. n., Ecuador p. 146, MEYRICK T.c.

*Xylorycta atelactis* sp. n. New Guinea  
p. 197, MEYRICK T.c.

*Xyrosaris lichneuta* sp. n. Assam  
p. 188, MEYRICK T.c.—*X. ochroplagiata*  
sp. n. U.S. p. 232, BRAUN Canad. Ent.  
50.

*Zalithia barydesma* p. 142, *autodesma*,  
*auxiliaris*, Amer. micr., *viridescens*  
Assam p. 143, spp. n., MEYRICK Exot.  
Micrl. 2.

*Zelleria rorida* sp. n. New Zealand  
p. 130, PHILPOTT Tr. N. Z. Inst. 50.

*Zesticodes* gen. n. *Tineidae*, *cyanoscia*  
sp. n., MEYRICK p. 46 Ann. Trans. Mus.  
6.

### TRICHOPTERA.

List of *Trichoptera* of Thuringia,  
ULMER Zeitschr. wiss. Insbiol. 13  
pp. 28-32 & 64-69 1917.

*Agapetus odonturus* sp. n. Spain p. 750  
figs., NAVÁS Rev. Ac. Madrid 15 1917.

*Beraea valirana* sp. n. Andorra p. 749,  
NAVÁS T.c.

*Caborius* nom. n. for *Allophylax*  
Banks, NAVÁS p. 362 Mem. Ac. Barcel-  
lona 14.

*Chimarraha canosa* sp. n. Argentina  
p. 503 figs., NAVÁS Rev. Ac. Madrid 16.

*Diplectrona clara* sp. n. Escorial  
p. 748 figs., NAVÁS Rev. Ac. Madrid 15  
1917.

*Grammotaulius basilicus* sp. n. Es-  
corial p. 745 figs., NAVÁS T.c.

*Isocentropus* gen. n. p. 407 near  
*Platycentropus, lutzinus* sp. n. Argentina  
p. 408, NAVÁS Rev. Ac. Madrid 16.

*Ithytrichia lamellaris*, LUNDBLAD Ent.  
Tidskr. 39 p. 342.

*Leptocerus aragonicus* p. 364 Spain,  
*rieli* p. 365 France, spp. n., NAVÁS

Mem. Ac. Barcelona 14.—*L. nygmaticus*  
Cappadocia, *stigmaticus* New Mexico,  
spp. n., NAVÁS Mem. Pont. Acc.  
Romana 3 p. 8 1917.

*Limnophilus diacanthus* sp. n. Escorial  
p. 745, figs., NAVÁS Rev. Ac. Madrid  
15 1917.

†*Mesopsyche* gen. n. p. 180 *Meso-*  
*psychidae* fam. n., *triareolata* sp. n.  
triassic Queensland p. 182 pl. viii f. 1.  
TILLYARD P. Linn. Soc. N.S.W. 42  
1917.

*Neophylax sinuatus* sp. n. Montana,  
NAVÁS Mem. Pont. Acc. Romana 3  
p. 10 1917.

*Nostrafilla* gen. n. near *Leptophylax*,  
*lutzi*, p. 499, *stigmata* p. 500, *bruchina*.  
p. 501, spp. n., Argentina, NAVÁS Rev.  
Ac. Madrid 16.

*Philopotamus hispanicus*, male p. 174  
figs., var. n. *aurea* p. 175, var. n. *lucida*  
p. 176 and var. n. *grisea* p. 177, NAVÁS  
Mem. Ac. Barcelona 13 No. 7 1917.

†*Phryganea ulmeri* sp. n. tertiary  
Provence, MEUNIER p. 198 figs. Ent.  
Mitt. 7.

*Phylloicus distans* sp. n. Chile p. 226  
fig., NAVÁS Bol. Soc. Aragon 17.

*Rhyacophila andorrana* sp. n. p. 177,  
NAVÁS Mem. Ac. Barcelona 13 No. 7  
1917.

*Rhyacophylax mesembrinus* sp. n.  
Argentina p. 503, NAVÁS Rev. Ac.  
Madrid 16.

*Sortosa* gen. n. *Rhyacophilidae* p. 227,  
*Sortosini* trib. n., *fusca* sp. n. Chile,  
p. 228, NAVÁS Bol. Soc. Aragon 17.

*Stenophylax barnolanus* sp. n. An-  
dorra p. 173 fig., NAVÁS Mem. Ac.  
Barcelona 13 No. 7 1917.—*S. caesareus*  
Cappadocia, *maroccanus* Tetuan, spp. n.,  
NAVÁS Mem. Ac. Pont. Romana 3  
p. 21 1917.—*S. (Allophylax) indicus*  
sp. n. Darjiling, NAVÁS T.c. p. 9 1917.

†*Triassopsyche* gen. n. p. 182 *Meso-*  
*psychidae*, *dunstani* sp. n. triassic  
Queensland p. 183 pl. vii f. 2, TILLYARD  
P. Linn. Soc. N.S.W. 42 1917.

*Triplectides monotona* sp. n. Chile  
p. 225, NAVÁS Bol. Soc. Aragon 17.

*Verger* gen. n. p. 362 for *Halesus*  
*porteri* N., NAVÁS p. 362 Mem. Ac.  
Barcelona 14.

## NEUROPTERA.

Including PANORPATAE and  
 PROTOMECOPTERA.

Wing structure and classification,  
 TILLYARD pp. 116–122 figs. P. Linn. Soc. N.S.W. 43.

Classification of *Neuroptera* and allies,  
 the "Panorpid complex" stated,  
 TILLYARD pp. 626–657 T.c.

Neuropteroidea and Panorpoidea,  
 phylogeny, introduction, TILLYARD P.  
 Linn. Soc. N.S.W. 43 pp. 265–284;  
 wing-coupling apparatus, Id. T.c.  
 pp. 286–319 figs. 2 pls.

Monograph of Raphidiidae, NAVÁS  
 Arch. Inst. Catalan. 1918 93 pp. figs.

Review of Doflein, BUCHNER pp. 46–  
 48 Biol. Centralbl. 37.

*Acanthacorydalis imperatrix* sp. n.  
 Tonkin, NAVÁS Mem. Acc. Pont.  
 Romana 3 p. 18 1917.

*Acanthoplectron* gen. n. p. 10, *tenellum*  
 sp. n. p. 11 textfig. 4 pl. i fig. 4 Aus-  
 tralia, ESBEN-PETERSEN Ark. Zool. 11  
 No. 26.

*Anomaloplectron* gen. n. p. 8, *lineati-*  
*pennae* sp. n. p. 9 textfig. 3 pl. i fig. 3,  
 Australia, ESBEN-PETERSEN T.c.

†*Archipanorpa* gen. n. p. 191 of the  
 ord. n. *Protomecoptera* p. 188, *magnifica*  
 sp. n. triassic Queensland p. 191 pl. viii  
 figs. 4–6 and pl. ix, TILLYARD P. Linn.  
 Soc. N.S.W. 42 1917.

*Austrogynnocnemis* gen. n. type *G.*  
*bipunctata* Esb.-Pet., ESBEN-PETERSEN  
 p. 206 P. Linn. Soc. N.S.W. 42 1917.

*Berotha neuropunctata* sp. n. N.S.W.  
 p. 213 pl. xiii f. 9, ESBEN-PETERSEN P.  
 Linn. Soc. N.S.W. 42 1917.—*B. mjoe-*  
*bergi* sp. n. Australia, ESBEN-PETERSEN  
 Ark. Zool. 11 No. 26 p. 32 pl. ii fig. 6.

*Boriomyia*, maintained, NAVÁS p. 163  
 Mem. Ac. Barcelona 13 No. 7.

*Bullanga* gen. n. near *Gatsara*, *binaria*  
 sp. n. Tonkin, NAVÁS Mem. Pont. Acc.  
 Romana 3 p. 15 1917.

*Callinemurus marganus* sp. n. Chile  
 p. 219, NAVÁS Bol. Soc. Aragon 17.

(N-5464 j)

*Ceratoleon* gen. n. *Distoleonini*, *brevi-*  
*cornis* sp. n. N.S.W., figs., ESBEN-  
 PETERSEN p. 207 P. Linn. Soc. N.S.W.  
 42 1917.

*Chorista australis*, the wings, TIL-  
 LYARD p. 395–408 pl. xliii, P. Linn. Soc.  
 N.S.W. 43.

*Choristella* gen. n. p. 298 *Nanno-*  
*choristidae*, *philpotti* sp. n. New Zealand  
 p. 299 fig., TILLYARD P. Linn. Soc.  
 N.S.W. 42 1917.

*Chrysopa euprepia*, *pilosella*, p. 369,  
*xanthocephala*, *indiga*, p. 370, spp. n.,  
 Tunis figs., NAVÁS Mitt. schweiz. ent.  
 Ges. 12 1916.—*C. extranea* sp. n.  
 N.S.W. p. 216 pl. xiv f. 12, ESBEN-  
 PETERSEN P. Linn. Soc. N.S.W. 42  
 1917.—*C. anomala* p. 535, *metastigma*  
 p. 536, *nautarum* p. 537, *leai* p. 538,  
*araucariae* p. 539, *waiteti* p. 540,  
*norfolkensis* p. 541, spp. n. Norfolk isld.,  
 TILLYARD P. Linn. Soc. N.S.W. 42  
 1917.—*C. vegeta* sp. n. New Mexico,  
 NAVÁS Mem. Pont. Acc. Romana 3  
 p. 6 1917.—*C. mendocensis* p. 85, *plesia*  
 p. 86, *venulosa* p. 87, spp. n., Argentina,  
 NAVÁS Physis 4.—*C. nosina*, male,  
*jaffuelina* sp. n. Chile, p. 222, NAVÁS  
 Bol. Soc. Aragon. 17.

*C. vulgaris* var. n. *entoneura*, *flavi-*  
*frons* var. n. *valnerata*, p. 167, *viridana*  
 var. *montana* a distinct species p. 169,  
*iberica* var. n. *polysticta*, *septempunctata*  
 var. n. *punctulata*, p. 18, NAVÁS Mém.  
 Ac. Barcelona 13 No. 7 1917.—*C. vul-*  
*garis* var. n. *festiva*, *inversa*, p. 350,  
 and *stigmata* p. 351, *tenella* var. n.  
*detersa* p. 351, *granatensis* var. n.  
*tergata*, *flavifrons* var. n. *inclyta*, p. 352,  
*7-punctata* var. n. *hernandezii*, *prasina*  
 var. n. *abluta*, p. 353, *hypsilon* var. n.  
*haematica* p. 354, NAVÁS Mem. Ac.  
 Barcelona 14.—*C. lanata* var. n.  
*climacia* p. 405, NAVÁS Rev. Ac.  
 Madrid 16.

*Chrysopiella argentina* varr. n. *acysta*,  
*extranea* and *trapezia*, NAVÁS p. 494  
 figs. T.c.

*Colobopterus par* sp. n. Argentina p.  
 491, NAVÁS T.c.

*Cosina*, valid, ESBEN-PETERSEN p.  
 210 P. Linn. Soc. N.S.W. 42 1917.—  
*C. maculata* sp. n. Australia, ESBEN-  
 PETERSEN Ark. Zool. 11 No. 26 p. 23  
 pl. iii fig. 4.

*Creoleon* nom. n. for *Creagris* Hag., TILLYARD p. 436 P. Linn. Soc. N.S.W. 43.

*Cueta pilosa* sp. n. Tonkin, NAVÁS Mem. Pont. Acc. Romana 3 p. 14 1917.

*Dicylochrysa* gen. n. *Chrysopidae*, *fulva* sp. n. Queensland pl. xiii f. 10, ESBEN-PETERSEN p. 214 P. Linn. Soc. N.S.W. 42 1917.

*Dilar*, the species, KŁAPÁLEK pp. 194-201 figs., KŁAPÁLEK Wien. ent. Zeit. 36 1917.

*Drepanacra instabilis insularis* subsp. n., *norfolkensis* sp. n. Norfolk island, TILLYARD p. 532 P. Linn. Soc. N.S.W. 42 1917.

*Eidoleon* gen. n. for *bistrigatus* Rambur, ESBEN-PETERSEN Ark. Zool. 11 No. 26 p. 15.

*Erma* gen. n. *Ermini* trib. n. *Raphidioptera*, *abdita* sp. n. Spain, NAVÁS p. 356 Mem. Ac. Barcelona 14.

*Estoca* gen. n. *Inocellidarum* trib. n. *Fiblini* p. 91, *peyerimhoffi* sp. n. Laghouat p. 92, figs., NAVÁS Arch. Inst. Catalan 1918.

*Euclimacia flavicostata* sp. n. Cape York p. 217 pl. xv f. 13, ESBEN-PETERSEN P. Linn. Soc. N.S.W. 42 1917.

*Formicaleo formicarius*, habits, intelligence, DOFLEIN 138 pp. 10 pls. Jena 1916.

*Gama*; validity, NAVÁS p. 162 Mem. Ac. Barcelona 13 No. 7.

*Glenoleon annulatus* sp. n. Australia, ESBEN-PETERSEN Ark. Zool. 11 No. 26 p. 7 textfig. 2 pl. i fig. 2.

*Hemerobius discretus* sp. n. New Mexico, NAVÁS Mem. Pont. Acc. Romana 3 p. 5 1917.—*H. hageni* sp. n. Chile, p. 223, NAVÁS Bol. Soc. Aragon. 17.—*H. pinnatus* sp. n. Argentina p. 406, NAVÁS Rev. Ac. Madrid 16.—*H. subnebulosus* var. n. *obscurus* p. 164, *buyssoni* male p. 165 fig., NAVÁS Mem. Ac. Barcelona 13 No. 7 1917.

*Hemerodromia*, characters, NAVÁS p. 164 T.c.

*Ucteroleon* gen. n., *exilis* sp. n. Australia, ESBEN-PETERSEN Ark. Zool. No. 26 p. 16 pl. iii fig. 1.

*Jaffuelia* gen. n. near *Lemolemus* p. 217, *chilensis* sp. n. p. 218, NAVÁS Bol. Soc. Aragon. 17.

*Ledoscius* gen. n. near *Glenurus*, *penningtoni* sp. n. Argentina, fig., NAVÁS p. 493 Rev. Ac. Madrid 16.

*Leptoleon* gen. n. p. 18, *regularis* sp. n. p. 19 pl. iii fig. 3 Australia, ESBEN-PETERSEN Ark. Zool. 11 No. 26.

*Licura* gen. n. near *Callinemurus*, *ferus* sp. n. Chile, p. 220, NAVÁS Bol. Sol. Aragon. 17.

†*Mesopanorpa* gen. n. p. 747, *Mesopanorpidae* fam. n. p. 746, *wianamattensis* sp. n. N.S.W. triassic p. 747 fig., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

†*Mesopanorpodes* nom. n. for *Mesopanorpa*, TILLYARD Op. cit. 43 p. 435;

*Micrasema togatum*, larva, KŁAPÁLEK p. 207 Wien. ent. Zeit. 36 1917.

*Mjoebergia* gen. n., *fulviguttata* sp. n. Australia, ESBEN-PETERSEN Ark. Zool. 11 No. 26 p. 13 pl. i fig. 7.

*Myiodactylus roseistigma* sp. n. Cape York p. 211 pl. xii f. 6, ESBEN-PETERSEN P. Linn. Soc. N.S.W. 42 1917.—*M. howensis* sp. n. Lord Howe isld. p. 542, figs., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Myrmeleon croceus* sp. n. Australia, ESBEN-PETERSEN Ark. Zool. 11 No. 26 p. 20 pl. ii fig. 1.—*M. nigromarginatus* sp. n. W. Australia p. 209 pl. xi f. 5, ESBEN-PETERSEN P. Linn. Soc. N.S.W. 42 1917.—*M. nigratus* sp. n. Chile p. 215, NAVÁS Bol. Soc. Aragon 17.

*Myrmeleonellus* gen. n. p. 17, *pallidus* sp. n. p. 18 pl. ii fig. 3 Australia, ESBEN-PETERSEN Ark. Zool. 11 No. 26.

*Nannochorista* gen. n. p. 292, *Nannochoristidae* fam. n. p. 289, *Mecoptera*, *dipterooides*, p. 293 pl. xvi f. 1, *holostigma*, f. 2, *maculipennis* f. 3, p. 294, Tasmania, *eboraca* Australia p. 295 f. 4, spp. n. TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Neurorthus*, characters p. 202, spp. pp. 203-206 figs., KŁAPÁLEK Wien. ent. Zeit. 36 1917.

*Niremberge*; NAVÁS p. 165 Mem. Ac. Barcelona 13 No. 7.

*Nodita ramosa* sp. n. Guatemala, NAVÁS Mem. Pont. Acc. Romana 3 p. 16 1917.



*Nothochrysa polemia* sp. n. Mytilene, NAVÁS T.C. p. 6 1917.—*N. subcostalis* sp. n. Tonkin, NAVÁS T.C. p. 17 1917.—*N. nigrinervis* sp. n. N.S.W. p. 215 pl. xiv f. 11, ESBEN-PETERSEN P. Linn. Soc. N.S.W. 42 1917.—*N. punctistigma* sp. n. Australia, ESBEN-PETERSEN Ark. Zool. 11 No. 26 p. 28 pl. ii fig. 7.

*Panorpa meridionalis* varr. n. *liberata* and *germanizans*, p. 171, NAVÁS Mem. Ac. Barcelona 13 No. 7.

*Parasemidalis fulvinervosa* sp. n. Australia, ESBEN-PETERSEN Ark. Zool. 11 No. 26 p. 35 textfig. 14.—*P. nigriceps* sp. n. New York p. 355, NAVÁS Mem. Ac. Barcelona 14.

†*Permochorista* gen. n. *Permochoristidae* fam. n. of *Mecoptera* p. 732, *australica, mitchelli* p. 734 fig., spp. n. Permian N.S.W. p. 733 fig., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Protoplectron gerstaeckeri* sp. n. Australia, ESBEN-PETERSEN Ark. Zool. 11 No. 26 p. 11 textfig. 5 pl. i fig. 6.—*P. striatellum* sp. n. N.S.W. p. 204, ESBEN-PETERSEN P. Linn. Soc. N.S.W. 42 1917.

†*Protopsychoopsis* gen. n. p. 178 *Prohemerobiidae, venosa* sp. n. triassic Queensland p. 180 pl. viii f. 3, TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Pseudoformicaleo nubeculus*, synonymy, ESBEN-PETERSEN p. 204 P.L.S. N.S.W. 42.

*Psmammoleon sinuatus* = (*guttipes* Banks), NAVÁS p. 161 Mem. Ac. Barcelona 13 No. 7.

*Stalis didyma* p. 742, *excelsior* p. 743, spp. n. Spain, figs., NAVÁS Rev. Ac. Madrid 15 1917.

*Stenorrhacus stecki* sp. n. Gafsa p. 367 pl. xxiv f. 1, NAVÁS Mitt. schweiz. ent. Ges. 12, 1916.

†*Sycopteron symmetricum* Bolton is not *Mecoptera* but possibly *Psocoptera*; TILLYARD p. 129-134 P. Linn. Soc. N.S.W. 43.

*Symmathetes moestus* var. n. *ioannis*, NAVÁS Mem. Pont. Acc. Romana 3 p. 13 fig. 1917.

*Tahulus caligatus*, maintained, NAVÁS p. 161 Mem. Ac. Barcelona 13 No. 7.

*Ululodes brachycera* sp. n. Argentina p. 84, NAVÁS Physis 4.

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## DIPTERA.

FREY, Ein Beitrag zur Kenntnis der Dipterenfauna Ceylons. Helsingfors Öfers. F. Vet. Soc. 59 A. No. 20 1917 (1-36).

The mouth-parts, LINDNER Zool. Anz. 50 pp. 19-27 figs.

Diptera as part of the "Panorpid complex," TILLYARD pp. 641-644 figs. P. Linn. Soc. N.S.W. 43.

Italian alpine *Diptera*, biology, BEZZI Mem. Soc. ital. 9 pp. 1-164 2 pls.

Diptera with reduced wings, SCHMITZ p. 179 Wien. ent. Zeit. 36 1917.

Farthest north *Diptera* (*Fucellia* and *Phormia*), ALDRICH p. 33 Psyche 25.

*Diptera* and snails, SCHMITZ Biol. Centralbl. 37 pp. 24-43 1917.

Blood-sucking flies of Saskatchewan, CAMERON pp. 556-561 Agric. Gaz. Canada 5.

Statistics as to *Diptera* frequenting privies in Montana, PARKER pp. 143-146 Ent. News 29.

Mode of resistance by larvae to desiccation, KEILIN pp. 102-104 Bull. Soc. ent. France 1918.

Beitrage zur Kenntnis der Dipteren Finlands. Supplement 4. *Bibionidae, Chironomidae, Tipulidae* LUNDSTROM Acta Soc. Fauna Fenn. 44 No. 2 1916 pp. 1-26 2 Taf.

Descriptions of genera and species (already dealt with in Ann. Soc. ent. France 83 pp. 120-130) brought from E. Africa, BECKER Voyage Alluaud Diptères 5 1915.

Mimicry in *Diptera*, MELIN Ent. Tidskr. 39 pp. 239-204.

## CECIDOMYIIDAE.

Key to the tribes and genera, FELT pp. 296-324 Philipp. J. Sci. D 13.

List of british *Cecidomyiidae*, and of plants bearing their galls, BAGNALL & HARRISON Tr. ent. Soc. Lond. 1917 pp. 346-426.

Cecid. galls in India, RAO pp. 299-306 pl. x J. Asiat. Soc. Bengal 13.

*Allomyia* gen. n. near *Cystiphora, juniperi* sp. n. Colorado, FELT p. 380 J. econ. Ent. 11.

*Asphondylia vitea* p. 284, *callicarpae* p. 285, spp. n. Luzon, FELT Philipp. J. Sci. D 13.—*A. dondiae* sp. n. California, FELT p. 381 J. econ. ent. 11.

*Cecidomyia clavula* and *rundbeckiae* Beut. to *Lestodiplosis* p. 179, *meibomia* to *Dasyneura* p. 180, *meibomiaefoliae* to *Hyperdiplosis* p. 181, FELT Bull. Amer. Mus. 38.

*Contarinia obesa* sp. n. Albany p. 110, FELT Bull. N. York St. Mus. 202.

*Diceromyia* gen. n. near *Zalepidota* p. 283, *vernontiae* sp. n. Luzon p. 284, FELT Philipp. J. Sci. D 13.

*Dicrodiplosis fulva* p. 153, *longicornis* p. 156, *rubida* p. 158, spp. n. U.S., FELT Bull. N. York St. Mus. 202.

*Heliodiplosis* gen. n. near *Kamptodiplosis*, *spatholobi* sp. n. Luzon, FELT p. 291 Philipp. J. Sci. D 13.

*Hyperdiplosis banksi* p. 294, *relicta* p. 295, spp. n. Luzon, FELT T.c.

*Kamptodiplosis* gen. n. near *Kalodiplosis reducta* sp. n. Luzon, FELT p. 290 T.c.

*Karschomyia viburni*, male genitalia f. 75, p. 177, FELT Bull. N. York State Mus. 202.

*Kronodiplosis* gen. n., *nichancoi* sp. n. Luzon, FELT p. 289 Philipp. J. Sci. D 13.

*Lasioptera manilensis* sp. n. p. 288, FELT T.c.—*L. fructuaria* sp. n. Maine, FELT p. 268 Bull. Maine exp. Stat. 244 1915.—*L. aeschynomenis* sp. n. Buenos Aires, BRÈTHES Physis 4 p. 312.

*Lobodiplosis triangularis* p. 163, *cincta* p. 165, spp. n., U.S., FELT Bull. N. York State Mus. 202.

*Luzonomyia* gen. n. near *Oligotrophus*, *symphorematae* sp. n. Luzon, FELT p. 282 Philipp. J. Sci. D 13.

*Mycodiplosis cincta* sp. n. New York p. 203, FELT Bull. N. York St. Mus. 202.—*M. packardi* sp. n. U.S. p. 382, FELT J. econ. Ent. 11.

*Neolasioptera erigrontis* (= *L. podagreae* Beut.), FELT p. 179 Bull. Amer. Mus. 38.

*Oncodiplosis sarcobati*, male, FELT p. 384 J. econ. Ent. 11.

*Pectinodiplosis* gen. n. for *Cont. erratica* p. 132, FELT Bull. N. York St. Mus. 202.

*Peridiplosis* gen. n. p. 160 type *Cecid. quercina* F., FELT T.c.

*Profeltiella orientalis* sp. n. Luzon p. 292, FELT Philipp. J. Sci. D 13.

*Retinodiplosis albitarsis* sp. n. U.S. p. 383, FELT J. econ. Ent. 11.

*Schizomyia acalyphae* p. 286, *diplosisci* p. 287, spp. n. Luzon, FELT Philipp. J. Sci. D 13.

*Thecodiplosis cockerelli* sp. n. Colorado p. 381, FELT J. econ. Ent. 11.

*Tricontarinia luzonensis* sp. n. p. 293, FELT Philipp. J. Sci. D 13.

*Youngomyia producta* sp. n. New York p. 150, FELT Bull. N. York St. Mus. 202.

#### MYCETOPHILIDAE.

Tables of the european *Mycetophilidae* LANDROCK Wiener ent. Zeit. 37 pp. 55-72 & 107-120.

On *Sciaridae* with reduced maxillary palpi, SCHMITZ pp. 88-111 Tydschr. Ent. 61.

Examination of the types in von Roser's collection, LANDROCK pp. 36-39 Wien. ent. Zeit. 36 1917.

† *Allodia clavata* sp. n. amber p. 84, MEUNIER N. Jahrb. Mineral 1917 3.

*Allostoomma subterranea*, SCHMITZ p. 100 Tydschr. Ent. 61.

† *Archaemacrocera* gen. n., *cincinna* sp. n. amber, MEUNIER p. 88 N. Jahrb. Mineral 1917 3.

*Boletina quadrinaculata* sp. n. Japan p. 441 pl. xxiv f. 4, MATSUMURA Addit. 2.

† *Boletina brahmi* sp. n. amber p. 85 pl. x figs. 35-37, MEUNIER N. Jahrb. Mineral 1917 3.

† *Brachypeza grandis* sp. n. amber, MEUNIER p. 82 T.c. 1917.

*Coclosia silvatica*, sp. n. Austria p. 109 fig., LANDROCK Wien. ent. Zeit. 37.

† *Cordyla furcula*, *mycotheriformis*, spp. n. amber p. 83, MEUNIER N. Jahrb. Mineral 1917 3.

*Corynoptera* Winn. is ♂ *Epidapus*, SCHMITZ p. 93 Tydschr. Ent. 61.

†*Diomonus sepultus* sp. n. amber  
p. 94, MEUNIER N. Jahrb. Mineral 1917  
3.

†*Dziedzicka johannseni* sp. n. amber  
p. 93, MEUNIER T.C. 1917.

*Epidapus atomarius*, metamorphosis  
p. 370 figs., *absoloni* sp. n. Karst p. 374,  
CZISEK Wien ent. Zeit. 34 1915.—  
*Epidapus*: structure, synonymy,  
CZIŻEK pp. 283–291 Wien ent. Zeit.  
36 1917; *Epidapus* and *Pholeosciara*,  
identity, SCHMITZ pp. 88–92 Tydschr.  
Ent. 61.

*Ezechia thomsoni* sp. n. New Zealand  
p. 4, MILLER N.Z. J. Sci. 1.

*Hesperodina moiwana* sp. n. Japan  
p. 438 pl. xxiv f. 1, MATSUMURA Addit.  
2.

*Hyperlasion* gen. n. *Sciarides*, *was-*  
*manni* sp. n. Holland, SCHMITZ Tyds.  
Ent. 61 p. 95.

*Leptomorphus walkeri* var. n. *forcipata*  
p. 107, LANDROCK Wien ent. Zeit. 37.

*Macrocera pseudopusilla* n. n. for  
*pusilla* Winn. p. 82, *longibrachiata*  
Germany p. 85 sp. n., *magna* n. n. for  
*grandis* Lundstr. p. 89, *pilosa* Germany  
p. 95, *lapponica* n. n. for *nana* Zett.  
p. 101, LANDROCK Wien ent. Zeit. 36  
1917.

*Mycetophilus geniculatus* sp. n. Japan  
p. 439 pl. xxiv f. 2, MATSUMURA Addit.  
2.—*Mycetophila hetschkoi* sp. n. Austria  
p. 34, LANDROCK Wien ent. Zeit. 37.—  
*M. meridigera* sp. n. Porto Rico p. 140,  
larva dung-bearing pl. viii, KNAB &  
VAN ZWALUWENBURG Ent. News 29.

*Mycomyia panorpiformis* sp. n. Japan  
p. 440 pl. xxiv f. 3, MATSUMURA Addit.  
2.

*Neosciara* gen. n., *falcata*, *fochi*, p. 331,  
*joffrei*, *quadrifurcata*, p. 332, *luteola*,  
*lobosa*, p. 333, *petaini*, *grandis*, *trifolii*,  
p. 334, *polychaeta*, *conglomerata*, p. 335,  
*ovata*, *trifurca*, p. 336, *pilata*, *ericia*,  
p. 337, *penna*, *pollicus*, *hamata*, p. 338,  
*felti*, *macroptera*, p. 339, *subtrivialis*,  
*sexdentata*, p. 340, *perfecta* p. 341,  
spp. n. Am. bor., PETTEY Ann. ent.  
Soc. Amer. 11.

†*Phronia unifurcata* sp. n. amber,  
MEUNIER p. 81 N. Jahrb. Mineral 1917  
3.

†*Platyura crassicornis* sp. n. amber  
p. 91, MEUNIER T.C. 1917.

*Sciara thoracica* sp. n. Japan p. 436  
pl. xxiii f. 30, MATSUMURA Addit. 2.—  
*S. bispinosa*, *nichancoi*, spp. n. Luzon,  
PETTEY p. 215 figs. Philipp. J. Sci  
D 13.—*S. trifolii* sp. n. Idaho p. 420,  
figs., PETTEY J. econ. Ent. 11.—*S.*  
*forceps*, *multisetifera*, p. 328, *cylindrica*  
p. 329, *psittacus*, *globosa*, p. 330, spp. n.  
U.S., *paradoxa* p. 341, *columbia* p. 342,  
spp. n. Amer. mer., PETTEY Ann. ent.  
Soc. Amer. 11.

†*Syntenna dama* p. 78, *oblita* p. 79,  
*minuta* p. 80, spp. n. Amber, MEUNIER  
N. Jahrb. Mineral. 1917 3.

*Trichonta fusca* p. 115, *largolamellata*  
p. 116, spp. n. Hungary, LANDROCK  
Wien ent. Zeit. 37.

## CHIRONOMIDAE.

*Adiamesa ursus* sp. n. Bäreninsel  
p. 104, KIEFFER Ent. Mitt. 7.

*Camptochironomus* subg. n. vide  
*Chironomus*.

*Camptocladius pallidipes* sp. n.  
Ignalino p. 99, KIEFFER Ent. Mitt. 7.

*Ceratopogon raphaelis* n.n. for *blan-*  
*chardi* Salm, SALM p. 135 Bull. Soc.  
zool. France 42 1917.

*Chironomus prolicitaris* Lapponia  
sp. n., LUNDSTROM Acta Soc. Fauna  
Fenn. 44 No. 2 1916 p. 8.—*C. horni*  
p. 41, *subviridis*, *viridellus*, p. 42,  
*androgynae*, *longiforceps*, p. 43, *sub-*  
*riparius* p. 44, *C. (Camptochironomus*  
subg. n.) *subaprilinus* p. 45, *C. (Crypto-*  
*chironomus* subg. n.) *chlorolobus* p. 46,  
*tener*, *imberbipes*, p. 48, *gracilior* p. 49,  
spp. n. Baltic, KIEFFER Ent. Mitt. 7.—  
*C. suzukii* sp. n. Japan p. 446 pl. xxiv  
f. 9, MATSUMURA Addit. 2.

*Cryptochironomus* subg. n. vide *Chiro-*  
*nomus*.

*Culicoides esmoneti* p. 136 figs.,  
*javanicus* p. 139, spp. n. Java, SALM  
Bull. Soc. zool. France 42 1917.

*Dasyhelea inclusa*, *zavreli*, spp. n.  
Bohemia p. 188, KIEFFER Ent. Mitt. 7.

*Dianesa lundstroemi* sp. n. (= *arctica*  
Kieff.), KIEFFER p. 105 T.c.

*Dolichopelma* gen. n. near *Chironomus*, *pusillum* sp. n. Danzig, KIEFFER p. 36 T.c.

*Glyptotendipes gracilis* sp. n. Danzig p. 98, *iridis* n.n. for *sparganii* var. p. 97, *niveipennis* var. n. *foliicola* p. 95, KIEFFER T.c.

*Johannsenomyia annulicornis* sp. n. Illinois p. 230, MALLOCH Ent. News 29.

*Microtendipes chlorosoma* p. 51, *coracellus* p. 52, Baltic, *distalis*, *confusus*, Bohemia, p. 51, spp. n., KIEFFER Ent. Mitt. 7.

*Palpomyia bispinosa* Lapponia sp. n., LUNDSTROM Acta Soc. Fauna Fenn. 44 No. 2 1916 p. 15.

*Paratrichocladus* subg. n. ? p. 204, SANTOS Mem. Ac. Barcelona 14.

*Polypedilum*, larval structure, PRASHAD Rec. Ind. Mus. 14 pp. 71-74 pl.

*Prochironomus anomalus* sp. n. Bohemia p. 99, KIEFFER Ent. Mitt. 7.

*Procladius albinervis* sp. n. Baltic 107, KIEFFER T.c.

*Prodiamesa rivicola* sp. n. Italy 110, BEZZI Mem. Soc. ital. 9.

*Prodiamesa bathyphila* Germany, *nitida* Hungary, spp. n. p. 102, KIEFFER Ent. Mitt. 7.

*Protenthes vilipennis* sp. n. Hungary p. 164, KIEFFER T.c.

*Psectrocladius hirtimanus* sp. n. Danzig p. 100, KIEFFER T.c.

*Psectrotanypus brevicar* var. n. *diplosis*, KIEFFER p. 166 T.c.

*Psilodiamesa* gen. n., *spitzbergensis* sp. n., KIEFFER p. 104 T.c.

*Scopelodromus canariensis* sp. n. p. 167, SANTOS Mem. Ac. Barcelona 14.

*Syndiamesa* gen. n., *macronyx* Italy, p. 103, *lobifera*, *albipennis*, p. 104 Asia minor, spp. n., KIEFFER Ent. Mitt. 7.

*Tanypus* (*Macropelopia*) *tenuiventris* Germany, *curvinervis* Italy, p. 168, *rectinervis*, *atrinervis*, Hungary, *fulvus* Bohemia, p. 169, *glabridorsum*, *circumscriptus*, *flavopilosus*, Bohemia, *bitensis* Bitsch, p. 170, *subtennis*, *tenuiventris*, Hungary, *marginatus*, p. 177, *imberbis*, *T. (Peritaphreusa) zavreli*, p. 178,

*gracilicalcar* p. 179, *hirtimanus*, *subrectus*, p. 180, *fulvonotatus*, *curticalcar*, *ensiger*, p. 181, *tenuicalcar*, *fasciiger*, p. 182, *setiger*, *remotus*, p. 183, *albipennis*, Bohemia, *tetrastictus*, *gracilis*, Hungary, *laticar* Baltic, p. 184, *flavidellus* Bohemia p. 186, spp. n., KIEFFER T.c.

*Tendipes noctivagus* sp. n. Canaries p. 169, fig., *dorsalis* varr. n. *discolor*, *parvulus*, p. 182, SANTOS Mem. Ac. Barcelona 14.

*Trichotanypus parvulus* p. 163, *fusci-ventris* p. 164, Baltic, *ferrugineus* Hungary p. 108, *obtusus* Bohemia, *stilifer* Hungary, p. 109, spp. n., *rivulorum* var. n. *acutus* p. 108, *caliciformis* var. n. *nudimanus* p. 109, KIEFFER Ent. Mitt. 7.

#### CULICIDAE.

Thorax and wing structure of *Anopheles*, PRASHAD Ind. J. med. Res. 5 pp. 610-640, 5 pls. Development of thoracic buds, PRASHAD T.c. pp. 641-655 pls.

*Culicidae*, habits in Germany, BRESLAU Biol. Centralbl. 37 pp. 507-530.

Hibernation in Germany, ECKSTEIN Biol. Zentralbl. 38 pp. 530-536.

Respiration of *Culex* larva, KOCH Zool. Anz. 50 pp. 105-111.

Culicidae in alkaline water, BALLOWE p. 96 Psyche 25.

Distance Culicidae can fly, WRIGHT p. 511 J. Bombay Soc. 25.

Malaria in England, BACOT Essex Nat. 18 pp. 241-263 3 pls.

The Culicidae of Macedonia sex characters, etc., WATERSTON Bull. ent. Res. 9 pp. 1-12.

DE RAADT und VAN SETERS, Bestimmungstabelle für ostindische Anophelinen (Holländisch) Tydschr. Vergel. Geneesk. 4 pp. 90-95.

*Aedes*; classification by ♂ genitalia pp. 71-86, *oligopistus* Trinidad p. 76, *polyagrus* Panama p. 77, spp. n., DYAR Insec. inscit. 6.—*A. whitmorei* sp. n. Colombia p. 128, DUNN P. ent. Soc. Washington 20.—*A. (Ochlerotatus) eucephalaeus* Surinam p. 127, *camposanus* Ecuador p. 128, *Ae. (Taeniorhynchus?) thelcter* Texas p. 129, spp. n., DYAR Insec. inscit. 6.

*Anopheles*, in Württemberg, PRELL pp. 242–249 Zeitschr. wiss. Insbiol. 13 1917.—*A.*, in Argonne, PÉJU AND CORDIER C.R. Soc. Biol. 81 p. 1039.—*A.* and larva, habits, PRELL Zeitschr. wiss. Insbiol. 13 pp. 257–271.—*A.*; thermotropism, MARCHAND pp. 130–135 Psyche 25.—*A. maculipennis*, flight, ROUBAUD C.R. Ac. Paris 167 p. 967–969; oviposition, ROYER p. 211 fig. Bull. Soc. ent. France 1918.

*Anopheles*; the american subgenera revised, DYAR pp. 141–157 Insec. inscit. 6.—*A. annandalei* sp. n. India p. 123, larva and pupa p. 124 pl. xvii, PRASHAD Rec. Ind. Mus. 15.

*Anopheles*, cf. *Dendropeadimum*.

*Anophelini*; natural history Madagascar, LEGENDRE pp. 493–495 C.R. Soc. Biol. 81.

*Cacoculex* subg. n. p. 100 for *C. habitator* H., D. and K., DYAR Insec. inscit. 6.

*Chaetomyia flava*, oviposition, fig., STRICKLAND J. Straits Asiat. Soc. 75 1917.

*Chaoborus manilensis*, larva and pupa p. 154 pl. xix figs. 1–7, PRASHAD Rec. Ind. Mus. 15.

*Choeroporpa* subg. n. p. 103 type *Culex anips* D., DYAR Insec. inscit. 6.

*Culex*; male genitalia pp. 86–111 pls. iii & iv, *ousqua* Panama p. 99, *C. (Choeroporpa* subg. n.) *iolambis* Panama p. 106, *C. (Mochlostyrax)* *moorei* Demerara p. 108, spp. n., DYAR T.c.—*C. surinamensis* p. 121, *usquatus*, Surinam, *C. (Melanoconion)* *zeteci*, p. 122, *dunni* p. 123, *C. (Choeroporpa)* *tecmarsis* p. 124, *C. (Helcoporpa* subg. n.) *myntes* p. 135, Panama, *C. (Mochlostyrax)* *algoistus* Surinam p. 126, spp. n., DYAR Insec. inscit. 6.—*C. peccator* p. 119, *floridanus* p. 120, larvae, DYAR & BARRET Insec. inscit. 6.—*C. pipiens*, capacity of increase, GLASER Biol. Centralbl. 37 pp. 531–533 1917; effects of salts on larvae, GOFFERIE Mitt. zool. Inst. Westfäl 1918 pp. 9–11.

*Culicini*; key of genera on male characters, DYAR p. 88 Insec. inscit. 6.

*Dendropeadimum* subg. n. for bromelicolous *Anopheles*, DYAR & KNAB p. 141 Insec. inscit. 6.

*Helcoporpa* subg. n. vide *Culex*.

*Limatus durhami*, male proboscis, LUDLOW p. 127 Psyche 25.

*Mansonia*, male genitalia pp. 112–115, *hypocindyna* sp. n. Brazil p. 115, DYAR Insec. inscit. 6.—*M. richardii*, larva, anatomy, WESENBURG-LUND Nath. Medd. 69 pp. 277–328 37 figs.—*M. titillans*, natural history, DUNN pp. 260–269 & 288–295 Ent. News 19.

*Megarrhina towadensis* sp. n. Japan p. 445 pl. xxiv f. 8, MATSUMURA Addt. 2.

*Psorophora citites* sp. n. Texas p. 124, DYAR Insec. inscit. 6.

*Stegomyia*; in Madagascar, LEGENDRE p. 832 C.R. Soc. Biol. 81.—*S. fuscata*, vitality of eggs, BACOT Parasitol. 10 p. 280.

*Trichoprosopon wilsoni* sp. n. Panama p. 66, LUDLOW Psyche 25.

*Wycomyia aphobema* sp. n. Surinam p. 120, DYAR Insec. inscit. 6.

#### BIBIONIDÆ, SIMULIIDÆ.

*Scatopse notata*, metamorphosis, MORRIS pp. 102–108 pl. x Ann. appl. Biol. 5.

*Simulium*, the french species p. 97, *vittatum* var. n. *delphinense* p. 98, VILLENEUSE Bull. Soc. ent. France 1918.

*Simulium* as the cause of cattle-diseases (Danish), BANG København Mdskf. Dyrk. 30 pp. 148–179 2 figs.

#### BLEPHAROCERIDÆ, DIXIDÆ.

Some notes, BAGNALL Vasculum 4 pp. 53–57.

*Hapalothrix lugubris*, larva, HETSCHKO p. 201 pl. iii Wien. ent. Zeit. 37.

*Liponeura*; the palaearctic, VIMMER p. 123 Wien. ent. Zeit. 36 1917.—*L. infuscata* sp. n. Japan p. 444 pl. xxiv f. 7, MATSUMURA Addt. 2.—*L.* pupa, ENGEL p. 70 Mitt. Munchn. ent. Ges. 7 1916.

*Dixa montana*, larva and pupa p. 156 pl. xix figs. 8–14, PRASHAD Rec. Ind. Mus. 15.

TIPULIDAE, PTYCHOPTERIDAE,  
RHYPHIDAE.

Catalogue of the Nematocera polyneura of Jutland, NIELSEN Flora og Fauna 1918 pp. 1-11.

Notes on Japanese Tipulidae, ALEXANDER Ann. ent. Soc. Amer. 11 pp. 443-449.

For synonymy of Matsumura's *Tipulidae*, below see ALEXANDER p. 67 J. N. York Ent. Soc. 26.

Wing-nervuration, specially of *Pediciini*, ALEXANDER pp. 201-205 pl. xii Ent. News 29.

Anomalies of nervuration, PIERRE pp. 60-62 figs. Bull. Soc. ent. France 1918.

*Alfredia* gen. n. *Petauristinae* p. 20, *acrobata* sp. n. Alps Valtellina p. 22, figs., BEZZI Atti Soc. ital. 57.

*Amalopsis spectralis* sp. n. India p. 321, BRUNETTI Rec. Ind. Mus. 15.

*Anchimonogoma* gen. n., *simplex* sp. n. India, BRUNETTI p. 316 T.c.

*Aporosa aurantia* sp. n. India p. 289, BRUNETTI T.c.

*Bicellaria alpina* sp. n. Italy p. 75, BEZZI Mem. Soc. ital. 9.

†*Ceratocheilus eridanus* sp. n. amber p. 96, MEUNIER N. Jahrb. Mineral 1917 3.

*Cladura interrupta* sp. n. India p. 319, BRUNETTI Rec. Ind. Mus. 15.

*Conithorax* gen. n. near *Limnobia-rhynchus* p. 298, *latifrons* p. 299, *brevifrons* p. 300, spp. n. India, BRUNETTI T.c.

*Ctenophora nohirae* p. 452 pl. xxiv f. 14, *isshikii* p. 453 f. 15, *biguttata* p. 455 f. 16, spp. n. Japan, MATSUMURA Addit. 2.

*Cylindrotoma splendens*, life-history, CAMERON pp. 67-89 Ann. ent. Soc. Amer. 11.

*Daimiotipula* gen. n., *daimio* sp. n. Japan pl. xxv f. 5, p. 463, MATSUMURA Addit. 2.

*Dicranomyia lucida*, *forcipula*, p. 128, *omissinervis*, *complicata*, p. 129, spp. n. Holland, DE MEYERE Tyds. Ent. 61.—*D. bicolor*, *promineus*, *niveiapicalis*,

p. 285, *pictipes* p. 286, spp. n. India, BRUNETTI Rec. Ind. Mus. 15.—*D. rhipidioides* sp. n. p. 381 California, ALEXANDER Canad. Ent. 50.—*D. trinotata*, pupa, ENGEL p. 69 Mitt. Münchn. ent. Ges. 7 1916.

*Dicranophragma multipunctipennis*, sp. n. India p. 329, BRUNETTI Rec. Ind. Mus. 15.

*Dictenidia horikawae* sp. n. Japan p. 449 pl. xxiv f. 12, MATSUMURA Addit. 2.

*Dolichozeza costalis* sp. n. India pp. 277, BRUNETTI Rec. Ind. Mus. 15.

†*Empeda schummeli* sp. n. amber p. 98, MEUNIER N. Jahrb. Mineral 1917 3.

*Epiphragma klossi* Malay states p. 330, *vicina* Assam p. 331, spp. n., BRUNETTI Rec. Ind. Mus. 15.

*Eriocera albo guttata* sp. n. Japan p. 469 pl. xxv f. 10, MATSUMURA Addit. 2.—*E. aurantia*, *nigro-apicalis*, p. 335, *pulchriorax*, *rufiventris*, p. 336, *gravelyi*, *decorata*, p. 337, *tripunctipennis* p. 338, *caliginosa*, *kempi*, p. 339, *maculiventris* p. 340, spp. n. India BRUNETTI Rec. Ind. Mus. 15.—*E. brevipila* p. 164, *rubrinota* p. 165, spp. n. U.S., ALEXANDER Canad. Ent. 50.

*Erioptera pilipennis* Oregon p. 382, *E. (Mesocyphon) needhami* New York p. 383, spp. n., ALEXANDER Canad. Ent. 50.—*E. cinctipennis* sp. n. California p. 286, ALEXANDER Ent. News 29.—*E. megophthalma* sp. n. Amer. bor. p. 60, ALEXANDER Canad. Ent. 50.—*E. troglodyta* sp. n. Trinidad p. 425, EDWARDS Ann. Nat. Hist. 1.

*Formotipula* gen. n., *holoserica* sp. n. Formosa p. 456 pl. xxiv f. 17, MATSUMURA Addit. 2.

*Gagamba* gen. n. near *Limnophila*, *takei* sp. n. Japan pl. xxv f. 12, p. 472, MATSUMURA T.c.

*Geranomyia nigronotata* p. 287, *flaviventris* p. 288, spp. n. India, BRUNETTI Rec. Ind. Mus. 15.

*Globericera* gen. n. p. 471, *moriokana* sp. n. Japan p. 470 pl. xxv f. 11, MATSUMURA Addit. 2.

*Gonomyia kansensis* sp. n. p. 158, figs., ALEXANDER Canad. Ent. 50.—*G. spinifer* sp. n. California p. 384, ALEXANDER T.c.

*Gymnastes bistratiopennis* p. 307, *pennipes* p. 308, **spp. n.** India, BRUNETTI Rec. Ind. Mus. 15.

*Lasiomastix subtennicornis* sp. n. U.S. p. 61, ALEXANDER Canad. Ent. 50.

*Libnotes undulata* sp. n. Japan p. 467 pl. xxv f. 8, MATSUMURA Addit. 2.

*Lechria nepalensis* sp. n. India p. 317, BRUNETTI Rec. Ind. Mus. 15.

*Limnobia flavocincta* p. 289, *marginata*, *confinis*, p. 290, *bipunctata*, *tritincta*, p. 291, *5-notata*, *longipennis*, p. 292, *nigrescens*, *punctithorax*, p. 293, **spp. n.** India, BRUNETTI T.C.

*Limnophila dimidiata* sp. n. Holland, DE MEYERE Tydschr. Ent. 61 p. 132.—*L. annulipes* p. 324, *parvicellula*, *glabra*, p. 325, *fusca*, *incompleta*, *inconsequens*, p. 326, *flavipennis* p. 327, *ornatipennis* p. 328, **spp. n.** India, BRUNETTI Rec. Ind. Mus. 15.—*L. (Dactylolabis) nitidithorax* sp. n. California p. 288, ALEXANDER Ent. News 29.

†*Limnophila electrina* sp. n. Baltic amber, COCKERELL & CLARK p. 115 fig. Canad. Ent. 50.

†*Macromastix bornhardti* sp. n. amber p. 99, MEUNIER N. Jahrb. Mineral 1917 3.

*Mesocyphona gracilis* sp. n. Assam p. 310, BRUNETTI Rec. Ind. Mus. 15.

*Molophilus armatus* p. 130, *medius*, *crassipygus*, *ocultus*, *bihamatus*, p. 131, **spp. n.**, Holland, DE MEYERE Tyds. Ent. 61.—*M. perflaveolus* p. 160, *spiculatus* p. 161, *ursus* p. 162, **spp. n.**, U.S., ALEXANDER Canad. Ent. 50.

*Momyoma splendida*, *kempii*, p. 313, *flava* p. 314, **spp. n.**, India, BRUNETTI Rec. Ind. Mus. 15.

*Nephrotoma stejnegeri* sp. n. Kamchatka p. 74, ALEXANDER J. N. York ent. Soc. 26.

*Nesopeza geniculata* sp. n. Tokyo p. 448, ALEXANDER Ann. ent. Soc. Amer. 11.—*N. albitarsis*, *longicornis*, p. 278, *picicornis* p. 279, **spp. n.** India, BRUNETTI Rec. Ind. Mus. 15.

*Nippotipula* gen. n. p. 457 for *nubifera* Coq., MATSUMURA Addit. 2.

*Oropeza satsuma* sp. n. Japan p. 67, ALEXANDER J. N. York ent. Soc. 26.

*Pachyrhina forcipata* sp. n. Lyons p. 230 figs., PIERRE Bull. Soc. ent. France 1918.—*P. fuscoflava* p. 275, *parvinotata*, *hypocrites*, p. 276, **spp. n.** India, BRUNETTI Rec. Ind. Mus. 15.—*P. makiella* sp. n. Formosa p. 468 pl. xxv f. 7, MATSUMURA Addit. 2.—*Pachyrhina* as distinct from *Nephrotoma* p. 105, revision of north-american pp. 105–140 4 pls.; *P. osleri* p. 112, *hybrida* p. 113, *macrophallus* p. 114, *puncticollis* p. 115, *perdita* p. 116, *hirsutula* p. 118, *urocera* p. 119, *cornifera* p. 120, *calinota* p. 121, *opacivittata*, *montana*, p. 123, *evasa* p. 124, *nexilis* p. 125, *festina* p. 126, *temeraria* p. 128, *costomarginata* p. 129, *beutenmuelleri* p. 130, *cingulata* p. 131, *obliterata* p. 133, *wyalusingensis* p. 134, *latevittata* p. 135, *approximata* p. 136, *stigmatica* p. 137, **spp. n.** Am. bor.; *snowii alternata* p. 117, *macrocera gnata* and *m. atrocyra* p. 118, *tenuis hamata* p. 121, *sodalis miclans* p. 129, *subsp. n.*, DIETZ Tr. amer. ent. Soc. 44.

*Phyllolabis flavida* sp. n. California p. 287, ALEXANDER Ent. News 29.

*Platytipula* gen. n. p. 459, *moiwana* sp. n. Japan p. 458 pl. xxv f. 2, MATSUMURA Addit. 2.

*Plesiomygoma* gen. n., *venosa* sp. n. Assam, BRUNETTI p. 314 Rec. Ind. Mus. 15.

*Protoplasa vanduzeei* sp. n. California p. 285, ALEXANDER Ent. News 29.

*Pselliophora hoppo* sp. n. Formosa p. 448 pl. xxiv f. 11, MATSUMURA Addit. 2.—*Pselliophora approximata*, *flavofasciata*, p. 259, *aurantia*, *latifasciipennis*, p. 260, **spp. n.** India, BRUNETTI Rec. Ind. Mus. 15.

*Ptychoptera scutellaris* sp. n. Japan p. 473 pl. xxv f. 13, MATSUMURA Addit. 2.

*Rhamphidia fratella*, *abnormalis*, **spp. n.** India p. 296, BRUNETTI Rec. Ind. Mus. 15.

*Rhypholophus cornutus*, *uncinatus*, **spp. n.** Holland, DE MEYERE Tydschr. Ent. 61 p. 130.

*Rhyphus sukuzii* sp. n. Japan p. 443 pl. xxiv f. 6, MATSUMURA Addit. 2.

*Stibadocerella* gen. n. *Cylindrotomini*, *pristina* sp. n. Assam, BRUNETTI Rec. Ind. Mus. 15.

*Teucholabis angusticapitis* Assam, *ornata* Ceylon with var. *assamensis* spp. n. p. 306, BRUNETTI T.c.

*Tinyta longipyga* Fennia p. 20, *lucata* Ponoj p. 22, spp. n., LUNDSTRÖM Acta Soc. Fauna Fenn. 44 No. 2 1916.—*T. asio, tategamae*, p. 68, *kuzuensis, bubo*, p. 69, *aluco* p. 70, *striz* p. 71, Japan, *kamchatkensis, gynaptera* E. Siberia, p. 72, *subcentralis* Kamchatka p. 73, spp. n. ALEXANDER J. N. York ent. Soc. 26.—*T. quadrifasciata* sp. n. Japan p. 460 pl. xxv f. 3, MATSUMURA Addit. 2.—*T. borneensis* n. n. for *pallida* Walk. p. 263, *gravelyi* p. 264, *contigua, similina*, p. 265, *fumifascipennis fumicosta*, p. 266, *flavoides, filicornis*, p. 267, *rustiventris, flavithorax*, p. 268, *fasciculata*, p. 269, *brevis* p. 270, spp. n. India, BRUNETTI Rec. Ind. Mus. 15.—*T. aperta* n. n. for *imperfecta* Al., *sackeaniana*, p. 62, *aprilina* p. 63, *helderbergensis* p. 64, *huron* p. 66, *fultonensis* p. 67, U.S., *bergrothiana* Alaska p. 68, *macrolaboides* U.S. p. 69, *coracina* p. 70 Alaska, spp. n., ALEXANDER Canad. Ent. 50.—*T. margarita* New York p. 243, *kirbyana* p. 244, Alaska, spp. n., ALEXANDER T.c.—*T. entomophthorae* p. 385, *kanensis* p. 411, U.S., *alaska* p. 412, *flavibasis* p. 414, *flavoumbrosa* p. 415, U.S., spp. n., ALEXANDER Canad. Ent. 50.—*T. xanthomela* n. n. for *Pachyrhina californica* Doane, DIETZ p. 107 Tr. amer. ent. Soc. 44.

*Togotipula* gen. n., *pulverosa* sp. n. Japan pl. xxv. f. 6, pl 465, MATSUMURA Addit. 2.

*Trentepohlia ornatepennis* sp. n. India p. 315, BRUNETTI Rec. Ind. Mus. 15.

*Tricyphona protea* sp. n. Washington p. 242, ALEXANDER Canad. Ent. 50.

*Utomorpha sierricola* sp. n. Washington p. 163, ALEXANDER T.c.

*Xiphusa jozana* sp. n. Japan p. 451 pl. xxiv f. 13, MATSUMURA Addit. 2.

*Yamatotipula* gen. n., *nohirae* sp. n. Japan pl. xxv f. 4, p. 461, MATSUMURA T.c.

#### STRATIOMYIIDAE. SCENOPINIDAE.

*Acanthinoides* gen. n. p. 367, *albo-pilosus* Formosa pl. xxi f. 28, *basalis* Japan p. 368 f. 29, spp. n., MATSUMURA Addit. 2.

*Allognosta sapporensis* sp. n. p. 371 pl. xxii f. 1, MATSUMURA T.c.

*Argyrobrithes* gen. n. *Pachygastrinae* p. 46, *argenteus* sp. n. Africa p. 47, GRÜNBERG Mitt. zool. Mus. Berlin 8 1915.

*Beris jezoensis* sp. n. Japan p. 370 pl. xxi f. 30, MATSUMURA Addit. 2.

*Chrysochroma apicale* sp. n. Japan p. 374 pl. xxii f. 4, MATSUMURA T.c.

*Chrysochroma consors* p. 64, *opulentum* p. 65, *testaceum* p. 66, spp. n. W. Africa, GRÜNBERG Mitt. zool. Mus. Berlin 8 1915.

*Diplephippium tessmanni* sp. n. Spanish Guinea p. 57, GRÜNBERG T.c.

*Hermetiomina* gen. n. p. 53, *Pachygastrinae, melaleuca* sp. n. Spanish Guinea p. 55, GRÜNBERG T.c.

*Hermione amoena*, larva, ENGEL p. 71 Mitt. Münchn. ent. Ges. 7 1916.

*Myxosargus nigricornis* sp. n. U.S. p. 71, GREENE P. ent. Soc. Washington 20.

*Neopachygaster maculicornis*, larva pl. xvii f. 4 p. 146, GREENE P. ent. Soc. Washington 19.

*Odontomyia hirayamae* sp. n. Japan p. 364 pl. xxi f. 26, MATSUMURA Addit. 2.—*O., australiana*, HARDY pp. 61-62 P. R. Soc. Tasmania 1917.

*Omphrale fenestralis* p. 295 figs. 1-3, *nigra* p. 29 figs. 4-6 variation, WAHLGREN Ent. Tidskr. 39.

*Paraptecticus* gen. n., *viduatus* sp. n. Spanish Guinea, GRÜNBERG p. 62 Mitt. zool. Mus. Berlin 8 1915.

*Platyna denudata* sp. n. Cameroons p. 43, GRÜNBERG T.c. 1915.

*Platynomorpha* gen. n. p. 44, *doryphora* sp. n. Africa p. 45, GRÜNBERG T.c. 1915.

*Psapharomys* gen. n. p. 50 *Pachygastrinae, salebrosa* sp. n. W. Africa p. 52, GRÜNBERG T.c. 1915.

*Plecticus mesozanthus, cinctifrons*, spp. n. Spanish Guinea p. 61, GRÜNBERG T.c. 1915.

*Rhaphiocera hakiensis* sp. n. Japan p. 372 p. xxii f. 3, MATSUMURA Addit. 2.



*Sagaricera* gen. n. p. 63 near *Plecticus*, *aenescens* sp. n. Spanish Guinea p. 64, GRÜNBERG Mitt. zool. Mus. Berlin 8 1915.

*Stelocceromys* gen. n. (*Pachygastrinae*) p. 48, *anthracina* sp. n. Cameroons p. 49, GRÜNBERG T.c. 1915.

*Stratiomys*, larval vitality, LABITTE Bull. Mus. Paris 23 1917.

#### TABANIDAE.

*Tabanidae*; species in Costa Rica, HINE pp. 291-296 Tr. amer. ent. Soc. 43 1917.

Abdominal pattern in Tabanidae, MARCHAND Tr. amer. ent. Soc. 44 pp. 171-179 pl. ix.

*Caenoprosopon hamlyni* sp. n. Queensland p. 521, TAYLOR P. Linn. Soc. N.S.W. 42 1917.

*Chrysops basalis* sp. n. p. 64 pl. ii figs. 2 & 3, Japan, SHIRAKI Taihoku exp. Stat.

*Chorizoneura (Pangonia) longirostris*, proboscis, feeding, MITTER Ind. J. med. Res. 5 pp. 523-528 pl.

*Chorizoneura yezeoensis* sp. n. p. 19 pl. iii f. 1, SHIRAKI Taihoku exp. Stat.

*Diatomineura auripleura* sp. n. Australia p. 516, TAYLOR P. Linn. Soc. N.S.W. 42 1917.—*D. cydister* p. 58, *regisgeorgii*, *bicolorata*, p. 60, spp. n. W. Australia, TAYLOR Rec. austral. Mus. 12.

*Ectenopsis vulpecula* var. n. *nigripennis* p. 63, TAYLOR Rec. austral. Mus. 12.

*Erephapsis neotricolor* p. 55, *vicina* with var. *georgii* p. 57, TAYLOR T.c.

*Haematopota sakhalinensis* p. 104 pl. ii f. 8, *ormosana* p. 109 f. 6, spp. n., SHIRAKI Taihoku exp. Stat.

*Isshikia* gen. n. p. 435 for *D. japonica* Big., SHIRAKI T.c.

*Palimmeomyia* gen. n. near *Caenoprosopon*, *celaeospila* sp. n. Queensland, TAYLOR p. 518 P. Linn. Soc. N.S.W. 42 1917.

*Pangonia longirostris* mouth-parts and food-habits, TETLEY pp. 253-267 pl. vi Bull. ent. Res. 8.

*Pelecorhynchus mirabilis* sp. n. Australia p. 513, TAYLOR P. Linn. Soc. N.S.W. 42 1917.—*P. cristaloides montanus* subsp. n. p. 269, HARDY P. R. Soc. Tasmania 1916 1917.—*P. igniculus*, *albolineatus*, spp. n. Tasmania p. 64, HARDY P. R. Soc. Tasmania 1917.—*P. distinctus* p. 53, *tillyardi* p. 54, spp. n., TAYLOR Rec. Austral. Mus. 12.

*Silvius stradbrokei* p. 519, *psarophanes* p. 520, spp. n. Australia, TAYLOR P. Linn. Soc. N.S.W. 42 1917.—*S. minor* sp. n. S. Australia p. 62, TAYLOR Rec. Austral. Mus. 12.

*Tabanus kotoshoensis* p. 193 pl. iv f. 5, *arisanus* p. 198 f. 6, *sapporoensis* p. 202 f. 7, *toyensis* p. 251 pl. v f. 4, *fulvimediodides* p. 219 f. 8, *okinawanus* p. 277 pl. vi f. 3, *sapporoenus* p. 295 pl. vii f. 3, *takasagoensis* p. 323 f. 2, *miyakei* p. 273 pl. vi f. 2, spp. n., *coquilletti* n. n. for *tenebrosus* Coq. p. 392, SHIRAKI Taihoku exp. Stat.—*T. albotibialis* p. 382 pl. xxii f. 11, *bivittatus* p. 384 f. 12, spp. n. Japan, MATSUMURA Addit. 2.—*T. wynyardensis* sp. n. Tasmania p. 269 HARDY P. R. Soc. Tasmania 1916 1917.—*T. musgravi* p. 64, *rainbowi* p. 66, *pseudobasalis*, *indefinitus*, p. 68, spp. n. Australia, TAYLOR Rec. austral. Mus. 12.—*T. hackeri* p. 522, *confusus* p. 523, *rufoabdominalis* p. 525, *brisbanensis* p. 526, spp. n. Australia, TAYLOR P. Linn. Soc. N.S.W. 42, 1917.—*T. tarandinus*, BINNING Ent. Tidskr. 39 p. 100.—*T. americanus*, etc., habits in Florida, MOZIER & SNYDER P. ent. Soc. Washington 19 pp. 115-126; habits, SNYDER pp. 141-145 P. ent. Soc. Washington 19.

#### LEPTIDAE.

*Atherix satsumana* sp. n. Japan p. 343 pl. xxi f. 7, MATSUMURA Addit. 2.

*Leptis basalis* p. 345 pl. xxi f. 9, *japonica* p. 346 f. 10, *sanjodakeana* p. 348 f. 12, *costimacula* p. 350 f. 13 Japan, *karafutonis* Saghalien p. 351 f. 14, spp. n., MATSUMURA T.c.

#### COENOMYIIDAE, XYLOPHAGIDAE.

*Arthropeas sachalinensis* sp. n. p. 362 pl. xxi f. 24, MATSUMURA Addit. 2.

*Coenomyia basalis* sp. n. Japan p. 358 pl. xxi figs. 20 & 21, MATSUMURA T.c.

*Dialysis arakawae* sp. n. Japan p. 352 pl. xxi f. 15, MATSUMURA T.c.

*Xylomyia longicornis* sp. n. Japan p. 360 pl. xxi f. 22, MATSUMURA T.c.

*Xylophagus maculatus* sp. n. Japan p. 361 pl. xxi f. 23, MATSUMURA T.c.

## THEREVIDAE.

*Anabarrhynchus maritimus* sp. n. Tasmania p. 271, HARDY P. R. Soc. Tasmania 1916 1917.

*Psilocephala sapporensis* sp. n. p. 337 pl. xxi f. 2, MATSUMURA Addit. 2.

*Thereva maruyamana* p. 338 pl. xxi f. 3, *ishikariana* p. 340 f. 4, spp. n. Japan, MATSUMURA T.c.

## MYDAIDAE.

*Mydas clavatus*, larva and pupa pl. xvii figs. 1 & 2 p. 147, GREENE Proc. ent. Soc. Washington 19.

## ASILIDAE.

*Asilus hopponis* Formosa p. 329 pl. xx f. 20, *fallaciosus* p. 331 f. 21, *okina-wensis* p. 333 f. 23, Japan, spp. n., MATSUMURA Addit. 2.—*A. aureus* sp. n. Victoria p. 90, WHITE P. R. Soc. Tasmania 1917.—*A. gilvipes*, *comosus*, p. 319, *vescus*, *delicatulus*, p. 320, *formosus*, *citus*, *compositus*, p. 321, spp. n. U.S., HINE Ohio Nat. 18.

*Atomosia culicivora* sp. n. Queensland p. 83, WHITE P. R. Soc. Tasmania 1917.

*Brachyrrhopala nitidus* var. n. *dissimilis* p. 271, HARDY P. R. Soc. Tasmania 1916 1917.—*B. bella* sp. n. Australia p. 74, WHITE P. R. Soc. Tasmania 1917.

*Ceraturgus kawamurae* sp. n. Japan p. 293 pl. xix f. 4, MATSUMURA Addit. 2.

*Cerdistus australis* sp. n. Sydney p. 62, RICARDO Ann. Nat. Hist. 1.

*Chrysopogon pallidipennis* p. 72, *rubidipennis* p. 73, spp. n. Australia WHITE Proc. R. Soc. Tasmania 1917.

*Cryptopogon* gen. n. p. 76, *vernaculus* sp. n. New S. Wales p. 77, WHITE T.c.

*Cyrtopogon platycerus*, ESCHER-KÜNDIG p. 274 Verh. Schweizer Ges. Aarau 1917.

*Dasyllis thoracica*, larva and pupa. GREENE pl. xviii figs. 1 & 2 p. 149 P. ent. Soc. Washington 19.

*Dasypogon purpuripenne* Formosa p. 322 pl. xx f. 14, *takasagense* p. 323 f. 15, *sapporensis* p. 324 f. 16 Japan, spp. n., MATSUMURA Addit. 2.

*Dicolonus argentatus* sp. n. Japan p. 295, pl. xix f. 9, MATSUMURA T.c.

*Dioctria rakanensis* p. 301 pl. xix f. 11 sp. n. Japan, MATSUMURA T.c.—*D. banksi* n. n. for *longicornis* Banks, *henshawi* n. n. for *flavipes* Banks, JOHNSON p. 103 Psyche 25.

*Eicherax nigripes*, HINE p. 297 Tr. amer. ent. Soc. 43 1917.

*Eumecosoma calverti* sp. n. Costa Rica p. 296, HINE T.c. 1917.

*Laphria karafutonis* Saghalien p. 302 pl. xix f. 12, *hakiensis* Japan p. 304 f. 13, *formosana* p. 306 f. 15, *tuipinensis* p. 307 f. 16, Formosa, *olucoguruna* p. 308, *flavidorsum* p. 310 pl. xx f. 3, Japan, *ogasawarenensis* Bonin isld. p. 313 f. 6, *yamatonis* p. 314 f. 7, *okina-wensis* p. 316 f. 9, Japan, *molodomariensis* Saghalien p. 317 f. 10, *nigrovittata* p. 318 f. 11, *ishikii* p. 320 f. 12, Japan, spp. n., MATSUMURA Addit. 2.—*L. variana* p. 84, *comata* p. 85, spp. n. Australia, WHITE P. R. Soc. Tasmania 1917.—*L. aktis* p. 152, *janus* p. 153, *coquillettii* p. 157, *trux* p. 158, *aimatis* p. 160, *scorpio* p. 163, *index* p. 164, *ithypyga*, *sicula*, p. 165, *winnemana* p. 168, spp. n. U.S.; *vivax anthemoni* subsp. n. p. 156, *trux* var. n. *audax* p. 158, *felis* varr. n. *atripes* p. 162 and *varipes* & *crocea* p. 163, McATEE Ohio Nat. 19.

*Leptogaster minomensis* sp. n. Japan p. 342 pl. xxi f. 6, MATSUMURA Addit. 2.—*L. autumnalis* sp. n. Tasmania p. 153, WHITE P. R. Soc. Tasmania 1916 1917.

*Metalaphria aurifacies* sp. n. N.S.W. p. 81, P. R. Soc. Tasmania 1917.

*Microstylum dimorphum* sp. n. Riukiu p. 291 pl. xix figs. 3, 3a, MATSUMURA Addit. 2.

*Myelaphus jozanus* sp. n. Japan p. 294 pl. xix f. 5, MATSUMURA T.c.

*Neodioctria* gen. n. p. 58, *australis* sp. n. Australia p. 59, RICARDO Ann. Nat. Hist. 1.

*Neoitamus abditus* sp. n. Tasmania p. 178, WHITE P. R. Soc. Tasmania 1916 1917.—*Neoitamus* divided, vide *Rhabdotoitamus* and *Trichoitamus*, *lividus* p. 93, *divaricatus* p. 94, spp. n. Australia, WHITE P. R. Soc. Tasmania 1917.—*N. gibbonsi* p. 64, *australis* p. 65, spp. n. Sydney, RICARDO Ann. Nat. Hist. 1.

*Neosaropogon nigrinus* sp. n. Queensland p. 60, RICARDO T.c.

*Nusa queenslandi* sp. n. Queensland, RICARDO T.c.

*Ommatius pilosus* p. 169, *levis* p. 170, spp. n. Tasmania, WHITE P. R. Soc. Tasmania 1916 1917.—*O. obscurus* sp. n. N.S.W. p. 89, WHITE P. R. Soc. Tasmania 1917.—*O. distinctus* sp. n. Queensland p. 66, RICARDO Ann. Nat. Hist. 1.

*Promachus horishanus* p. 327 pl. xx f. 20, *formosanus* p. 328 f. 19, spp. n. Formosa, MATSUMURA Addit. 2.

*Pycnopogon hatakeyamae* p. 296 pl. xix f. 7, *apicalis* p. 298 f. 8, *nikkoensis* p. 299 f. 9, spp. n. Japan, MATSUMURA T.c.

*Rhabdotoitamus* gen. n. p. 89 and 95, *volaticus* p. 97, *claripes* p. 98, *rusticanus* p. 100, *lautus* p. 101, spp. n. Australia, WHITE P. R. Soc. Tasmania 1917.

*Saropogon dissimulans* sp. n. Australia p. 75, WHITE T.c.

*Stenommatius* gen. n. p. 335, *formosanus* sp. n. p. 334 pl. xx f. 24, MATSUMURA Addit. 2.

*Stenopogon flavipennis* sp. n. Sydney p. 79, WHITE P.R. Soc. Tasmania 1917.

*Thereutria pulchripes* sp. n. Australia p. 80, WHITE T.c.

*Trichoitamus* gen. n. pp. 89 & 91 for *rudis* Walk., WHITE T.c.

## ACRO CERIDAE OR CYRTIDAE.

*Oncodes shibakawae* sp. n. Japan p. 379 pl. xxii f. 9, MATSUMURA Addit. 2.—*O. alluaudi* E. Africa p. 148 pl. i f. 1, BECKER Voyage Alluaud Diptères

5.—*O. flavescens*, synonymy p. 267, HARDY P. R. Soc. Tasmania 1916 1917.—*O. basalis*, synonymy, HARDY p. 60 Pr. R. Soc. Tasmania 1917.

*Philopota globulifera* sp. n. Japan p. 379 pl. xxii f. 8, MATSUMURA Addit. 2.

*Villalus* gen. n. p. 61 *Oncodinae*, *chilensis* sp. n. p. 63, figs., COLE Ent. News 29.

## BOMBYLIIDAE.

*Anastoechus suzukii* sp. n. Japan p. 275 pl. xviii f. 18, MATSUMURA Addit. 2.

*Anthrax jezoensis* p. 280 pl. xviii f. 23, *yamashiroensis* p. 281 f. 24, Japan, *ogasawarensis* Bonin isld. p. 282 f. 25, *koshunensis* Formosa p. 283 f. 26, spp. n., MATSUMURA T.c.—*A. velox* p. 211, *argentipennis* p. 212, spp. n. Tasmania, WHITE P. R. Soc. Tasmania 1916 1917.

*Argyromoeba boninensis* sp. n. p. 284 p. xviii f. 27, MATSUMURA Addit. 2.

*Bombylius palliolatus* p. 194, *chrysendetus* p. 195, spp. n. Tasmania, WHITE P. R. Soc. Tasmania 1916 1917.—*B. shibakawae* p. 276 pl. xviii f. 19, Japan, *watanabet* p. 277 f. 20 Formosa, spp. n., MATSUMURA Addit. 2.

*Cyrtomorpha* gen. n. *Bombyliinae* p. 185, *paganica* sp. n. Tasmania p. 186, WHITE P. R. Soc. Tasmania 1916 1917.

*Docidomyia* gen. n. p. 203, *puellaris* sp. n. Tasmania p. 204, WHITE T.c. 1917.

*Edmundiella* gen. n. p. 347 *Lomatiinae* *niveifrons* sp. n. Greece p. 348, BECKER Wien. ent. Zeit. 34 1915.

*Geron hilaris* sp. n. Tasmania p. 188, WHITE P. R. Soc. Tasmania 1916 1917.

*Marmasoma* gen. n. p. 188 near *Lepidophora*, *sumptuosa* sp. n. Hobart p. 190, WHITE T.c. 1917.

*Sisyromyia* gen. n. p. 197 for *B. auratus* etc., WHITE T.c. 1917.

*Syrtropus* [sic] *hoppo* p. 285 pl. xviii f. 28 Formosa, *suzukii* p. 287 f. 20, *nitobei* p. 288, f. 30, Japan, spp. n., MATSUMURA Addit. 2.

## EMPIDAE.

*Ctenodrapetis aristalis* p. 205, *cuneipennis* p. 206, spp. n. Philippines, MELANDER Ann. ent. Soc. Amer. 11.

*Drapetis aliternigra, bispina*, p. 192, *diversa, flavicornis*, p. 193, *inermis, infumata*, p. 194, *micropyga, naica*, p. 195, *pilosa, setulosa*, p. 196, *trichura* p. 197, spp. n. U.S., *scissa* p. 204, MELANDER T.c.

*Elaphropeza calva* p. 206, *inflexa, Panama, comata* Trinidad, p. 207, *laeta* p. 208 with varr. *ungulifera* and *nigrocalcarata, luteicollis, nigricans*, p. 209, *pleuralis* Panama, *plumea* Orizaba, p. 210, *rectineura* Panama, *seminigra* Costa Rica, p. 211, *simplicipes* Jamaica, *tenera* Panama, p. 212, *uniseti* Philip pines p. 213, *upsilon* Jamaica, *vittata* Florida, p. 214, spp. n., MELANDER T.c.

*Empimorpha plumipes* sp. n. Japan p. 356 pl. xxi f. 18, MATSUMURA Addit. 2.

*Empis dasythrix* sp. n. Holland and Belgium, DE MEYERE Tyds. Ent. 61 p. 132.—*E. flavobasalis* sp. n. Japan p. 353 pl. xxi f. 16, MATSUMURA Addit. 2.—*E. bellatorius* p. 232, *sericatus* p. 233, *aquilus* p. 234, *flabilis* p. 235, spp. n. Tasmania, WHITE P. R. Soc. Tasmania 1916 1917.

*Eudrapetis* subg. n. p. 187, *armata* p. 197, *discalis, diversipes*, p. 198, *dorsiseta* p. 199, *facialis, nitens*, p. 200, *nuda, oedimera*, p. 201, *parvicornis, pennescens*, p. 202, *plumipes, quadri-setosa*, p. 203, U.S., *spinipes* Cameroons p. 205, spp. n., *septentrionalis* var. n. *mexicana* p. 204, MELANDER Ann. ent. Soc. Amer. 11.

*Hilara efficiens* p. 222, *balearia, nimia*, p. 223, *nubila* p. 224, *mollicella* p. 225, spp. n. Tasmania, WHITE P. R. Soc. Tasmania 1916 1917.

*Hilarimorpha maculata* sp. n. Japan p. 357 pl. xxi f. 19, MATSUMURA Addit. 2.

*Hilaropus* gen. n. p. 220, *pallidifurca* p. 227, *nigrimanus, peregrinus*, p. 228, *echinatus* p. 230, spp. n. Tasmania, WHITE P. R. Soc. Tasmania 1916 1917.

*Hormopeza obliterata*, COLLIN p. 278 Ent. Mo. Mag. 54.

*Ironomyia* gen. n. p. 216 *Hybotinae, nigromaculata* sp. n. Tasmania p. 217, WHITE P. R. Soc. Tasmania 1916 1917.

*Leptozeza rubrithorax* p. 243, *levicosta* p. 244, *serraticosta* p. 245, spp. n. Tasmania, WHITE T.c. 1917.

*Microphorus hiemalis* sp. n. Tasmania p. 240, WHITE T.c. 1917.

*Rhamphomyia filicauda* sp. n. Greenland, LUNDBECK p. 608 fig. Consp. Faun. Groen. 2.—*R. propinqua* p. 134, *serotina* p. 137, spp. n. Holland, DE MEYERE Tyds. Ent. 61.—*R. sapporensis* sp. n. p. 355 pl. xxi f. 17, MATSUMURA Addit. 2.—*R. aprilis* p. 238, *septembris* p. 239, spp. n. Tasmania, WHITE P. R. Soc. Tasmania 1916 1917.

*Sciadocera* gen. n. p. 218 *Hybotinae, rufomaculata* sp. n. Tasmania p. 219, WHITE T.c. 1917.

*Synechus (Epiccia) helvolus* p. 5, *luteicornis* p. 6, spp. n. Ceylon, FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917.

*Tachista nigerrima* sp. n. Italy p. 112, BEZZI Mem. Soc. ital. 9.

*Tenontomyia* gen. n. p. 236, *graciliipes* sp. n. Tasmania p. 237, WHITE P. R. Soc. Tasmania 1916 1917.

## DOLICHOPIDAE.

*Argyra albicans*, early stages, MARCHAND pp. 216-220 figs. Ent. News 29.

*Arachnomyia* gen. n. p. 252, *arborum* sp. n. Tasmania p. 253, WHITE P. R. Soc. Tasmania 1916 1917.

*Chrysotus degener* Ceylon sp. n., FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917 p. 11.

*Diaphorus setosus* p. 254, *communis* p. 255, spp. n. Tasmania, WHITE P. R. Soc. Tasmania 1916 1917.

*Hydrophorus curvipes* p. 48, *argentatus* p. 50, spp. n., California, VAN DUZEE Ent. News 29.

*Liparomyia* gen. n. p. 255 near *Anepsiomyia, sedata* sp. n. Tasmania p. 256. WHITE P. R. Soc. Tasmania 1916 1917.

*Paraclius nigrocaudatus* p. 47, *flavicornis* p. 48, spp. n. U.S., VAN DUZEE Ent. News 29.

*Parasyntormon lepus* sp. n. California p. 45, VAN DUZEE T.c.

*Psilopus nebulosus* sp. n. Japan p. 375 pl. xxii f. 5, MATSUMURA Addit. 2.—*P. lutheri* p. 7, *viridicollis* p. 9, spp. n. Ceylon, FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917.

*Sciapus chalceus* sp. n. Tasmania p. 250, WHITE P. R. Soc. Tasmania 1916 1917.

*Systenus adpropinquans*, larva, ENGEL p. 73 Mitt. Münchn. ent. Ges. 7 1916.

*Tachytrechus laticrus* sp. n. (Coq.) New Jersey p. 46, VAN DUZEE Ent. News 29.

#### LONCHOPTERIDÆ.

*Lonchoptera*, gynarchy, ALDRICH p. 33 Psyche 25.—*L. rakonensis* sp. n. Japan p. 376 pl. xvii f. 6, MATSUMURA Addit. 2.

#### PHORIDÆ.

*Aphiochaeta coequalis* sp. n. Holland, SCHMITZ Heerlen Natuurhist. Gen. Limburg Jaarboek 1918 p. 153.—*A. limburgensis* p. 57 Holl. Limburg, *lucifrons* p. 58 Holl. Limburg and Deutschland, *rubra* p. 59, Deutschland, *luteipes* p. 60 Holl. Limburg and Deutschland, *mixta* p. 61, *hirticus* p. 62, Holl. Limburg, spp. n., SCHMITZ Ber. Ned. Ent. Ver. 5.—*A. pseudociliata*, notes on, SCHMITZ p. 77 T.c.—*A. dilatata* p. 183, *scopalis* p. 184, *palpata* p. 186, *pulla* p. 187, *capillaris* p. 189, *centralis* p. 190, *modesta* p. 193, spp. n. U.S., BRUES Insec. inscit. 6.—*A. quadri-punctata* sp. n. Illinois p. 147, MALLOCH Ent. News 29.

*Apocephalus pictus* sp. n. Illinois p. 146, MALLOCH T.c.

*Braula*; taxonomy, structure, SCHMITZ Wiener ent. Zeit. 36 1917.

*Conicera japonica* sp. n. p. 377 pl. xxii f. 7, MATSUMURA Addit. 2.

*Dohrniphora transformata* p. 312 figs., *vorax* p. 318 figs., *asmuthi* p. 322 figs., spp. n. India, SCHMITZ Wien. ent. Zeit. 34 1915.—*D. venusta*, life-history, JONES pp. 299-302 pl. xvii Ent. News 29.

*Paraspinophora* and *Wandolleckia* pp. 32-42, SCHMITZ Biol. Centralbl. 37 1917.

*Puliciphora tokyoensis* n. sp., KINO-SHITA Dobuts. Z. Tokyo 30 p. 402.—*P. anceps* sp. n. India p. 324 fig., SCHMITZ Wien. ent. Zeit. 34 1915.

*Pseudacteon formicarum*, natural history, WASMANN Biol. Zentralbl. 38 pp. 317-328.

*Pseudoplastophora* gen. n. p. 327 near *Plastophora*, *caudataria* sp. n. India p. 328, SCHMITZ Wien. ent. Zeit. 34 1915.

*Trineura schineri*, WAHLGREN Ent. Tidskr. 39 p. 340.

*Truphæoneura pauciseta* p. 28, *uncinata* p. 31, Holland, *dudai* p. 32 Holland Deutschland, *tumidula* p. 33 Deutschland, *hypopygialis* p. 34 Deutschland, *aprilina* p. 35 Holland, spp. n., SCHMITZ Ber. Ned. Ent. Ver. 5.—*T. intempesta* sp. n. Deutschland, SCHMITZ p. 74 T.c.—*T. radiosetosa* sp. n. Deutschland, SCHMITZ T.c. p. 89.

#### PLATYZEIDÆ, PIPUNCULIDÆ.

*Agathomyia collini*, MORLEY p. 88 Entom. 51.

*Dorylas (Pipunculus) ater* etc. syn onymy, BECKER pp. 63-66 Wien. ent. Zeit. 34 1915.

*Pipunculus kumamotoensis* sp. n. Japan p. 380 pl. xxii f. 10, MATSUMURA Addit. 2.

#### SYRPHIDÆ.

*Acrophila jozana* sp. n. Japan p. 205 pl. xvi f. 19, MATSUMURA Addit. 2.

*Baccha nubilipennis* p. 225 pl. xvii f. 6, *fulvicostalis* p. 227 f. 7, spp. n. Japan, MATSUMURA T.c.

*Bacchiopsis* gen. n. p. 208, *vespiformis* sp. n. Japan p. 207 pl. xvi f. 20, MATSUMURA T.c.

*Brachyopa nikkoensis* sp. n. Japan p. 234 pl. xvii f. 12, MATSUMURA T.c.—*B. vacua*, larva and pupa, GREENE pl. xix f. 3 p. 154 P. ent. Soc. Washington 19.

*Cheilosia motodomariensis* Saghalien p. 240 pl. xvii f. 17, *fluvipes* Japan p. 244 f. 20, spp. n., MATSUMURA Addit. 2.

*Chrysogaster semiopaca* sp. n. Japan p. 243 pl. xvii f. 19, MATSUMURA T.c.

*Chrysotoxum japonicum* sp. n. p. 253 pl. xvii f. 28 sp. n., MATSUMURA T.c.—*C. coloradensis* sp. n. p. 70, GREENE P. ent. Soc. Washington 20.

*Cnemedon trochanteratus* sp. n. Illinois p. 127, MALLOCH P. ent. Soc. Washington 20.

*Criorhina apicalis* sp. n. Japan p. 221 pl. xvii f. 3, MATSUMURA Addit. 2.—*C. decora*, early stages, GREENE pl. xviii figs. 1 & 2 p. 153 P. ent. Soc. Washington 19.

*Eristalis toyoharensis* sp. n. Saghalien p. 235 pl. xvii f. 13, MATSUMURA Addit. 2.—*E. okinawensis* Japan p. 262 pl. xviii f. 6, sachalinensis p. 263 f. 7, arisanus Formosa p. 265 f. 8, spp. n., MATSUMURA T.c.—*E. lucorum*, AMITZBÖLL Ent. Tidskr. 39 p. 99.—*E.*, the resemblance to bee, HEIKERTINGER pp. 1-5, Zeitschr. wiss. Insbiol. 14.

*Eumerus japonicus* sp. n. p. 195 pl. xvi f. 11, MATSUMURA Addit. 2.

*Ferdinandia suzukii* sp. n. Japan p. 224, pl. xvii f. 5, MATSUMURA T.c.

*Helophilus akakurensis* p. 246 pl. xvii f. 262, *lateralis* p. 248 f. 23, spp. n. Japan, MATSUMURA T.c.

*Mallota japonica* p. 201 pl. xvi f. 16, *takasagensis* p. 204 f. 18, *rubripes* pl. xvii f. 1, p. 218, spp. n. Japan, MATSUMURA T.c.

*Melanostoma incisum* sp. n. Japan p. 194 pl. xvi f. 10, MATSUMURA T.c.

*Melithreptus suzukii* sp. n. Japan p. 261 pl. xviii f. 5, MATSUMURA T.c.

*Merapioidius japonicus* sp. n. Japan p. 223 pl. xvii f. 4, MATSUMURA T.c.

*Merodon kawamurae* sp. n. Japan p. 257 pl. xviii f. 1, MATSUMURA T.c.

*Microdon bifasciatus* p. 255 pl. xvii f. 29, *jezoensis* p. 256 f. 30, spp. n. Japan, MATSUMURA T.c.

*Milesia yayeyamana* p. 231 pl. xvii f. 10, *elegans* p. 232 f. 11, spp. n. Japan, MATSUMURA T.c.

*Nephomyia* gen. n. near *Nausigaster*, *bombiformis* sp. n. Japan pl. xvii f. 2, MATSUMURA p. 220 T.c.

*Paragopsis* gen. n., *griseofasciatus* sp. n. Japan pl. xvii f. 25, MATSUMURA p. 250 T.c.

*Paragus jozanus* sp. n. Japan p. 193 pl. xvi f. 9, MATSUMURA T.c.

*Platychirus perpallidus*, life-history pp. 167-172, fig. 11, METCALF Bull. exp. Stat. Maine 263 1917.

*Sphiximorpha horishana* sp. n. Formosa p. 187 pl. xvi f. 2, MATSUMURA Addit. 2.

*Spilomyia jozankeana* sp. n. Japan p. 197 pl. xvi f. 18, MATSUMURA T.c.

*Spilomyia suzukii* sp. n. Japan p. 230 pl. xvii f. 9, MATSUMURA T.c.

*Stenocheilosia* gen. n. p. 242, *isschikii* sp. n. Japan p. 241 pl. xvii f. 18, MATSUMURA T.c.

*Syrphus okinawensis* sp. n. Japan p. 258 pl. xviii f. 2, MATSUMURA T.c.—*S. oronoensis* sp. n. U.S. p. 162, with life-history fig. 10, *knabi* life-history p. 172 fig. 12, METCALF Bull. Maine exp. Stat. 263 1917.

*Temnocera spinigera*, larval habits, BRUCH p. 332 *Physis* 4.

*Temnostoma nitobei* sp. n. Japan p. 200 pl. vi f. 15, MATSUMURA Addit. 2.

*Vespiomyia* gen. n., *6-maculata* sp. n. Japan pl. xvii f. 8, MATSUMURA p. 228 T.c.

*Volucella nitobei* p. 211 pl. xvi f. 24, *6-maculata* p. 213 f. 27, spp. n. Japan MATSUMURA T.c.—*V. suzukii* p. 236 pl. xvii f. 14, *terauchii* p. 237 f. 15, spp. n. Japan, *pellucens* var. n. *japonica* p. 238 f. 16, MATSUMURA T.c.

*Xylota formosana* sp. n. p. 231 pl. xvii f. 26, MATSUMURA T.c.

*Xanthogramma divisa*, life-history, METCALF pp. 154-162 figs. 8, 9 & 12 Bull. Maine exp. Stat. 263 1917.

#### CONOPIDAE.

*Conops hanaxonensis* p. 267 pl. xviii f. 10, *nigricans* p. 268 f. 11, *jozankeanus* p. 269, spp. n. Japan, MATSUMURA Addit. 2.

*Ocemymia nitapensis* p. 272 pl. xvii f. 15 Japan, *ogumae* Saghalien p. 274 f. 16, spp. n., MATSUMURA T.c.

*Physocephala jezoensis* sp. n. Japan p. 270, MATSUMURA T.c.

## OESTRIDAE.

An account of the biology of the botflies, SPÆRCK (Danish) *Naturens Verden* 2 pp. 125–133 6 figs.

Lateral spiracles of larvae, CARPENTER & POLLARD P. *Irish Ac.* 34 B pp. 73–84 6 pls.

*Cephenomyia trompe*, larvae pp. 119–121 pl. i f. 1, NATVIG *Tromsø Mus. Aarsh.* 38 and 39.

*Cuterebra infulata* p. 122, *nigricans*, *sarcophagoides*, p. 123, *schmatzi* p. 124, spp. n. Brazil figs., LUTZ *Mem. Inst. Oswaldo Cruz* 10.

*Dermatobia*; notes on, LUTZ pp. 130–134 T.c.

*Gastrophilus*; in N. America, DOVE *Bull. U.S. Dep. Agric.* 597 51 pp. 5 pls.—*G. intestinalis*, *haemorrhoidalis*, *nasalis*, larvae, natural history in Canada, HADWEN & CAMERON *Bull. ent. Res.* 9 pp. 91–106 pl. ii.—*G. nasalis*, oviposition, TOWNSEND p. 246 *Canad. Ent.* 50.—*G. veterinus*, synonyms, RAILLIET p. 102 *Bull. Soc. zool. France* 43.

*Loewioestrus* gen. n. p. 152 type *Cephalomyia variolosa* Loew, TOWNSEND *Insec. inscit.* 6.

*Microcephalopsis* gen. n. p. 153 type *Microcephalus neugebaueri* Portch. 1881, TOWNSEND T.c.

*Neokirckia* gen. n. p. 153, type *Kirckia minuta* R. and B., TOWNSEND T.c.

*Oedemagena tarandi*, natural history, NATVIG p. 117 *Tromsø Mus. Aarsh.* 38 and 39.

*Rhinocestrus purpureus*, synonyms p. 103, 104, RAILLIET *Bull. Soc. zool. France* 43.

*Rhinogastrophilus* gen. n. p. 152 type *Oestrus nasalis* L., TOWNSEND *Insec. inscit.* 6.

## MUSCIDAE CALYPTERATAE.

Specific distinctions in larval spiracles, FROGGATT P. *Linn. Soc. N.S.W.* 43 pp. 658–667 pl. lxx.

Synonymy of Muscidae (not given in detail below), TOWNSEND pp. 19–21 P. ent. Soc. Washington 20.

(π-5464 j)

Notes on 19 species of African Muscidae, VILLENEUVE pp. 503–508 *Ann. Soc. ent. France* 86.

Biology of Tachinidae, NIELSEN (Danish) *Nath. Medd.* 69 1918 pp. 247–262.

*Achaetina* gen. n. type *Musca ciliata* Fabr., MALLOCH p. 67 P. *biol. Soc. Washington* 31.

*Acronaristopsis* gen. n. *bahamensis* sp. n., TOWNSEND p. 178 *Insec. inscit.* 6.

*Acroptena villosa*, *subarctica*, p. 184, *zetterstedtii*, *incisurata*, p. 185, spp. n. Sweden, RINGDAHL *Ent. Tidskr.* 39.

*Afrowohlfortia* gen. n., *pachylyli* sp. n. S. Africa, TOWNSEND p. 159 *Insec. inscit.* 6.

*Allophora daimio* sp. n. Japan p. 405 pl. xxiii f. 2, MATSUMURA *Addit.* 2.

*Anisia towadensis* sp. n. Japan p. 398 pl. xxii f. 25, MATSUMURA T.c.

*Anthomyia brassicae*, biology (Danish), ROSTRUP København, *Tids. Plan-teavl* 25 1918 pp. 256–313 9 figs.

*Argentoepalpus* gen. n. p. 178 type *Epalpus niveus* T., TOWNSEND *Insec. inscit.* 6.

*Argyrochaetona* gen. n., *cubana* sp. n., TOWNSEND p. 167 T.c.

*Ariciella* gen. n., *flavicornis* sp. n. Texas p. 66, MALLOCH P. *biol. Soc. Washington* 31.

*Auchmeromyiella* gen. n., *angola* sp. n. Africa, TOWNSEND p. 154 *Insec. inscit.* 6.

*Aulacocephalopsis* gen. n. p. 165, type *Aulacephala badia* Gerst., TOWNSEND T.c.

*Aulacophyto* gen. n., *auromaculata* sp. n. Peru, TOWNSEND p. 158 T.c.

*Binghamimyia* gen. n., *reclinata* sp. n. Peru, TOWNSEND p. 176 T.c.

*Biomyia cleodivora* sp. n. Nebraska p. 25 figs. pl. v, WALTON P. ent. Soc. Washington 19.

*Bombobrachycoma* gen. n. p. 157 type *Brachycoma davidsoni* Coq., TOWNSEND *Insec. inscit.* 6.

*Bombyliomyia apicalis* sp. n. Formosa p. 389 pl. xxii f. 17, MATSUMURA Addit. 2.

*Bonellimyia* gen. n. p. 177 type *Tachina haemorrhoidalis* Fall., TOWNSEND *Insec. inscit.* 6.

*Byomyioides* gen. n. p. 388, *cyaneus* sp. n. Formosa, p. 387 pl. xxii f. 16, MATSUMURA Addit. 2.

*Chaetona japonica* sp. n. p. 396 pl. xxii f. 23, MATSUMURA T.c.

*Chaetoplagia asiatica* sp. n. Kumaon p. 55 figs., TOTHILL Bull. ent. Res. 9.

*Charadrella macrosoma*, characters, ALDRICH p. 31 *Psyche* 25.

*Chiricahuia* gen. n. p. 177 *Melanophorinae, cavicola* sp. n. Arizona p. 178, TOWNSEND Ent. News 29.

*Chirosia facettii* sp. n. Italy p. 144, BEZZI Mem. Soc. ital. 9.

*Chlorobrachycoma* gen. n. p. 155, *splendida* sp. n. Peru p. 156, TOWNSEND *Insec. inscit.* 6.

*Chlorometaphyto* gen. n. p. 180, type *Gymnochaeta vivida* Willist., TOWNSEND T.c.

*Chortophila longipennis* p. 189, *pili- mana* p. 190, *rondanii* p. 191, *salicis* p. 192, *pilitibia* p. 193, *tarsata* p. 194, spp. n. Sweden, RINGDAHL Ent. Tidskr. 39.—*C. bompadrei* sp. n. Italy p. 113, *grisella* var. n. *alpina* p. 115, BEZZI Mem. Soc. ital. 9.

*Coenosia cella* Ceylon sp. n., FREY Helsingfors Öfvers. F. vet. Soc. 59 A No. 20 1917 p. 17.

*Compsomyiops* gen. n. p. 153, type *Calliphora fulvipes* Macq., TOWNSEND *Insec. inscit.* 6.

*Comyopsis* gen. n., *fumata* sp. n. Nicaragua, TOWNSEND p. 176 T.c.

*Doryphorophaga*; definition and species, SMITH pp. 122-124 P. ent. Soc. Washington 19.

*Elcodiphaga* gen. n. p. 23 near *Phasmophaga, caffreyi, pollinosa*, spp. n. New Mexico p. 24, figs. pl. v, WALTON P. ent. Soc. Washington 19.

*Eophyto* gen. n. p. 163, *ceylanica* sp. n. p. 164, TOWNSEND *Insec. inscit.* 6.

*Eremomyioides* gen. n. type *Eremomyia cylindrica* St., *parkeri* sp. n. U.S., MALLOCH p. 67 P. biol. Soc. Washington 31.

*Erythromelana* gen. n. p. 174, *jaena* sp. n. Peru p. 175, TOWNSEND *Insec. inscit.* 6.

*Eubrachynera* gen. n., *debilis* sp. n. Dakota, TOWNSEND p. 162 T.c.

*Eunemorilla* gen. n., *peruviana* sp. n., TOWNSEND p. 177 T.c.

*Euparaphyto auromaculata* Peru sp. n. p. 157, TOWNSEND T.c.

*Eupelecotheca* gen. n., *celer* sp. n. U.S., TOWNSEND p. 169 T.c.

*Euptilopsis* gen. n. p. 180 type *Ptilopsis sexmaculata* R. D., TOWNSEND T.c.

*Eutrixopsis* gen. n., *javana* sp. n., TOWNSEND p. 166 T.c.

*Fannia matterata* sp. n. Sweden, RINGDAHL Ent. Tidskr. 39 p. 149.

*Frontina kashmiri* sp. n. p. 57 figs., TOTHILL Bull. ent. Res. 9.

*Frontiniella* gen. n., *pararcilla* [sic] sp. n. = (*Frontina ancilla* Coq.), TOWNSEND p. 21 P. ent. Soc. Washington 20.

*Fucellia rejecta* p. 171, *evermanni* p. 173, *hinei, aestuum* p. 178, spp. n. N. America, ALDRICH p. Calif. Ac. 4.

*Girschneria* gen. n., *mirabilis* sp. n. Europe, TOWNSEND p. 181 *Insec. inscit.* 6.

*Glossina* and *Pupipara*; polypneustic lobes of larvae, NEWSTEAD Ann. trop. Med. 12 p. 93-107 figs.—*G. bionomics*, Gold coast, SIMPSON Bull. ent. Res. 8 pp. 193-214, *palpalis* var. n. *pallida* p. 197.—*G.*, habits in Congo, SCHWETZ Ann. trop. Med. 11 pp. 365-398.

†*Glossina veterna* sp. n. Florissant, COCKERELL p. 310 pl. lv P. U.S. nat. Mus. 54.

*Gonia himalensis* sp. n. Kumaon p. 52 figs., TOTHILL Bull. ent. Res. 9.

*Graphomuscina* gen. n., *africana* sp. n. Angola, TOWNSEND p. 152 *Insec. inscit.* 6.

*Gymnaporina* gen. n. p. 170 type *Gymnostylia fasciata* Macq., TOWNSEND T.c.



*Gymnochaeta immisi* sp. n. Kumaon p. 47 fig., TOTHILL Bull. ent. Res. 9.

*Gymnopalpus* gen. n. near *Thelaira*, *setipennis* sp. n. Guatemala, TOWNSEND p. 172 Insec. inscit. 6.

*Gymnopsa* gen. n. *Sarcophagini*, *texana* sp. n., TOWNSEND p. 161 T.c.

*Hemipyrellia* gen. n., *curriei* sp. n. Liberia, TOWNSEND p. 154 T.c.

*Hemyda nigrata* sp. n. Japan p. 395 pl. xxii f. 22, MATSUMURA Addit. 2.

*Huascarodexia* gen. n., *pulchra* sp. n. Peru, TOWNSEND p. 276 Insec. inscit. 6.

*Huascaromusca* gen. n., *cruciata* sp. n. Peru, TOWNSEND p. 155 T.c.

*Hydrotaca*; the North American, MALLOCH p. 30-33 Bull. Brooklyn ent. Soc. 13.—*H. cristata* sp. n. Massachusetts Id. p. 93 T.c.—*H. orbitalis* p. 311, *comata* p. 312, spp. n. U.S., ALDRICH Canad. Ent. 50.—*H. houghi* sp. n. Illinois p. 110, MALLOCH Bull. Brooklyn ent. Soc. 11 1916.

*Hylemyia pluvialis* sp. n. Ontario, MALLOCH p. 310 Canad. Ent. 50.

*Hystricocnema* gen. n. p. 160, type *Sarcophaga robusta* Aldr., TOWNSEND Insec. inscit. 6.

*Hystrichodexia pueyrredoni* sp. n. Argentina p. 115, BRÈTHES Physis 4.

*Imitomyia* gen. n. ? for *Himanostoma sugens*, BEZZI p. 273 Boll. Lab. Portici 12 1917.—*I. sugens* rediscovered = (*Saskatchewan canadensis* S.m.), ALDRICH p. 64 Canad. Ent. 51.

*Leskia fasciata* sp. n. Japan p. 303 pl. xxii f. 21, MATSUMURA Addit. 2.

*Leskiopalpus depile* Coq. (as *Myobia*) = (*calidus* Towns.), SMITH p. 125 P. ent. Soc. Washington 19.

*Limnophora freyii* p. 150, *puberula*, *spinitibia*, p. 151, *septentrionalis* p. 152, *longpipes* p. 153, *jämtlandica*, *subalpina*, p. 154, *arenosa* p. 155, *micans* p. 156, *unicolor* p. 157, spp. n. Sweden, RINGDAHL Ent. Tidskr. 39.

*Lophosia excisa* sp. n. Kumaon p. 58 fig., TOTHILL Bull. ent. Res. 9.

*Mantidophaga* gen. n., *stagnoman-tidis* sp. n. U.S., TOWNSEND p. 160 Insec. inscit. 6.

(N-5464 j)

*Musca domestica*, over wintering, gestation, spermatheca, HUTCHISON J Agric. Res. 13 pp. 149-170 pl. xiii.—*M. autumnalis*, hibernation, POULTON p. 22 P. ent. Soc. London 1918.

*Mydaca lapponica* p. 148, *pulchella* p. 149, spp. n. Sweden, RINGDAHL Ent. Tidskr. 39.

*Neochirosia* gen. n. *Coenosiinae*, *setiger* sp. n. Illinois p. 36, MALLOCH Bull. Brooklyn ent. Soc. 12 1917.

*Neohylemyia* gen. n. near *Proboscimyia* p. 37, *proboscidalis* sp. n. Illinois p. 38, MALLOCH T.c. 1917.

*Neonyctia* gen. n., *ciliata* sp. n. U.S., TOWNSEND p. 163 Insec. inscit. 6.

*Nephochaetona* gen. n., *mima* sp. n. Peru, TOWNSEND p. 174 T.c.

*Nephoplagia* gen. n. p. 171, *arcuata* sp. n. Peru p. 172, TOWNSEND T.c.

*Obolocera* gen. n. p. 180 type *Homoeonychia rapae* Sm., TOWNSEND T.c.

*Ochromyia jejuna* mouth-parts, CRAIG J. Ind. med. Res. 5 pp. 516-522 pl.

*Ocypeta pandulata* sp. n. Japan p. 399 pl. xxii f. 26, MATSUMURA Addit. 2.

*Oestrohillarella* gen. n. p. 162 type *Hilarella aristalis* Coq., TOWNSEND Insec. inscit. 6.

*Ormiophasiu* gen. n. p. 164, *busckii* sp. n. Panama p. 165, TOWNSEND T.c.

*Orthaporis* gen. n., *similis* sp. n. Brazil, TOWNSEND p. 167 T.c.

*Ossidingia* gen. n., *ornata* sp. n. Cameroons, TOWNSEND p. 170 T.c.

*Oxyaporis* gen. n. p. 170 type *Gymnostyilia ornata* B.B., TOWNSEND T.c.

*Panacemyia* gen. n., *panamensis* sp. n., p. 164, TOWNSEND T.c.

*Paraphania fuscipennis* sp. n. Kumaon p. 54 figs., TOTHILL Bull. ent. Res. 9.

*Pegomyia*; the subg. *Calythea* is a distinct gen., MALLOCH p. 68, MALLOCH P. biol. Soc. Washington 31.—*P. lundbeckii* sp. n. Sweden, RINGDAHL Ent. Tidskr. 39 p. 188.—*P. affinis* larval habits, GREENE p. 160 P. ent. Soc. Washington 20.

*Pelecotheca* gen. n. p. 168, *panamensis* sp. n. p. 169, TOWNSEND *Insec. inscit.* 6.

*Phania sapporensis* sp. n. p. 400 pl. xxii f. 27, MATSUMURA *Addit.* 2.

*Phaonia marinellii* n. n. for *chalinata* Stein, BEZZI p. 84 *Mem. Soc. ital.* 9.

*Phasia jezoensis* sp. n. p. 403 pl. xxiii f. 1, MATSUMURA *Addit.* 2.

*Philaematomyia indica* sp. n. p. 530, structure pls. 1-liv, AWATI *Ind. J. med. Res.* 5.

*Phormia sordida*, validity, VILLENEUVE p. 158 *Bull. Soc. ent. France* 1918.

*Phyllogaster littoralis*, MALLOCH p. 81 *Canad. Ent.* 50.

*Phyllolabella* gen. n., *robusta* sp. n. Brazil, TOWNSEND p. 168 *Insec. inscit.* 6.

*Pogonomyia spinitaris* sp. n. Colorado p. 184, ALDRICH *Ent. News* 29.

*Pollenoides* gen. n. p. 407, *kuyanianus* sp. n. Formosa p. 406 pl. xxiii f. 3, MATSUMURA *Addit.* 2.

*Polygastropsis* gen. n. p. 173 type *Polygaster brasiliensis* T., TOWNSEND *Insec. inscit.* 6.

*Prosalpia dentiventris* sp. n. Sweden, RINGDAHL *Ent. Tidskr.* 39 p. 189.

*Protaporja* gen. n., *galerucae* sp. n. Caucasus, TOWNSEND p. 171 *Insec. inscit.* 6.

*Pseudogymnostoma* gen. n. p. 151, *inflatum* sp. n. Angola p. 152, TOWNSEND T.c.

*Pseudophaonia* gen. n. type *Aricia orichalcea* St., MALLOCH p. 66 *P. biol. Soc. Washington* 31.

*Pygophora immaculipennis* p. 15, *lutescens* p. 17, spp. n. Ceylon, FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917.

*Pyrellia inventrix* = (*hemichlora* Big.), VILLENEUVE p. 508 *Ann. Soc. ent. France* 86.

*Rhynchocoenops* gen. n. type *Hoplogaster obscuricula* R., BEZZI p. 77 *Mem. Soc. ital.* 9.

*Santschia* gen. n. *Tephromyini*, *algeriensis* sp. n., TOWNSEND p. 161 *Insec. inscit.* 6.

*Sarconesiopsis* gen. n. *Muscini*, *caerulea* sp. n. Peru, TOWNSEND p. 156 T.c.

*Sarcophaga* of Hawaii, TIMBERLAKE *P. hawai. ent. Soc.* 3 p. 371.—*S. lunigera* sp. n. Vienna, BÖTTCHER p. 434 *D.E.Z.* 1914.—*S. californica* sp. n. p. 32, PARKER *J. Ent. Zool.* 10.—*S. vancouverensis* sp. n. p. 122 fig., PARKER *Canad. Ent.* 50.—*S. niagarana* sp. n., PARKER p. 28 fig. *J. N. York ent. Soc.* 26.

*Servillia suzukii* sp. n. Japan p. 391 pl. xxii f. 19, MATSUMURA *Addit.* 2.—*S. transversa* p. 48, *ursinoidea* p. 50, spp. n. India, figs., TOTHILL *Bull. ent. Res.* 9.

*Spilochaetosoma* gen. n. p. 125, *californica* sp. n. p. 126, SMITH *P. ent. Soc. Washington* 19.

*Spilogaster socialis* St. to *Emesomyia* p. 68, MALLOCH *P. biol. Soc. Washington* 31.

*Stenaulacotheca* gen. n. type *Sarcophaga spatulata* Aldr., TOWNSEND p. 162 *Insec. inscit.* 6.

*Tachina nakanensis* sp. n. Japan p. 392 pl. xxii f. 20, MATSUMURA *Addit.* 2.

*Thelairophasia* gen. n., *transita* sp. n. Peru, TOWNSEND p. 173 *Insec. inscit.* 6.

*Therobia abdominalis*, structure, TOWNSEND p. 165 T.c.

*Therobiopsis* gen. n. p. 166 type *Aulacephala braueri* Kert., TOWNSEND T.c.

*Trichoduroopsis* gen. n. p. 169 type *Trichodura recta* Schin., TOWNSEND T.c.

*Tricophticus* = (*Alloestylus*), MALLOCH p. 66, *P. biol. Soc. Washington* 31.

*Vanderwulpella* gen. n. p. 181 type *Xanthomelana anceps* Wulp., TOWNSEND *Insec. inscit.* 6.

*Ugimyia sericaria* development in stomach, SASAKI Sanyo Shik. Hokoku Tokyo 3 pp. 377-396 3 pls.

*Uraporia* gen. n. p. 170 type *Aporia rudata* Schin., TOWNSEND *Insec. inscit.* 6.

## MUSCIDAE ACALYPTRATAE.

- Acicura semiangusta* p. 19, *tetrachaeta* p. 20, spp. n. Rhodesia figs., BEZZI Bull. ent. Res. 9.
- Agrolimna* subg. n. vide *Notiphila*.
- Agromyza*; north-american, partial key, MALLOCH pp. 315–318 Canad. Ent. 50.—*A. deceptiva* p. 78, *angulicornis* p. 79, *assimilis* p. 80, spp. n. Illinois, MALLOCH T.c.—*A. simulata* sp. n. Illinois p. 178, MALLOCH T.c.—*A. indecora* sp. n. Illinois p. 130, MALLOCH T.c.—*A. laterella*, life-history, CLAASEN pp. 19–16 2 pls. Ann. ent. Soc. Amer. 11.—*A. pusilla*, food-plants, ALDRICH p. 33 Psyche 25.
- Anomoeceros* gen. n. near *Thyridula* p. 397, *hispidus* sp. n. Rhodesia p. 398, LAMB Ann. Nat. Hist. 1.
- Anthracophaga distichiae* sp. n. California, MALLOCH p. 386 J. econ. Ent. 11.
- Aprometopis minima* sp. n. India p. 330, LAMB Ann. Nat. Hist. 1.
- Apyrgota personata* sp. n. Pernambuco p. 11 f. 26, LUTZ & LIMA Mem. Inst. Oswaldo Cruz 10.
- Asteia pusillima* Ceylon sp. n., FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917 p. 32.
- Atissiella* gen. n. *Ephydridae*, *setulosa* sp. n. Costa Rica, CRESSON p. 55 Tr. amer. ent. Soc. 44.
- Bactrocera cucurbitae*, in Hawaia, BACK & PEMBERTON Bull. U.S. Dep. Agric. 693 31 pp. figs.
- Baryglossa* gen. n. *Trypanicidae* p. 244, *histris* sp. n. Congo p. 245, BEZZI Bull. ent. Res. 8.
- Botanobia (Oscinis) bispina*, spiniger, spp. n. Illinois p. 119, MALLOCH Bull. Brooklyn ent. Soc. 13.
- Braula* vide *Phoridae*.
- Calobates suzukiana* sp. n. Japan p. 431 pl. xxiii f. 26, MATSUMURA Addit. 2.
- Camaromyia acrophthalma* sp. n. Africa p. 40, BEZZI Bull. ent. Res. 9.
- Camilla atidis* Ceylon sp. n., FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917 p. 30.
- Carpophthoromyia pseudotrileta* p. 225, *superba* p. 226, spp. n. Africa, figs., BEZZI Bull. ent. Res. 8.
- Celyphus koannani* sp. n. Formosa p. 435 pl. xxiii f. 29, MATSUMURA Addit. 2.
- Ceratitis capitata*, in Hawaia, habits, parasites, natural history, BACK & PEMBERTON 117 pp. 20 pls. Bull. U.S. Dep. Agric. 536: also 640 43 pp.
- Cestoplectus* gen. n. *Chloropidae* p. 390, *intuens* sp. n. Ceylon p. 392, LAMB Ann. Nat. Hist. 1.
- Chelyophora magniceps* sp. n. Sudan p. 229, BEZZI Bull. ent. Res. 8.
- Chloria demandata*, copula, LINDNER p. 21 Zeitschr. wiss. Insbiol. 14.
- Chloropisca glabra*, habits, life-history, PARKER pp. 368–380 J. econ. ent. 11.
- Chlorops pumilionis*, WAHLGREN Ent. Tidskr. 39 p. 134.—*C. lutheri* Ceylon sp. n., FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917 p. 27.
- Chrysomya demandata*, spread, ALDRICH p. 34 Psyche 25.
- Clusia occidentalis* sp. n. Washington p. 4, MALLOCH P. ent. Soc. Washington 20.
- Clusioididae*; revision of North-american, MALLOCH pp. 2–8 T.c.
- Conradina suspensa* sp. n. Congo p. 223 fig., BEZZI Bull. ent. Res. 8.
- Cordileura vierecki*, amans, p. 134, *adrogans* p. 135, spp. n. U.S., CRESSON Ent. News 29.
- Creodonta*; variation, ALDRICH pp. 63–66 Ann. ent. Soc. Amer. 11.
- Crepidohamma* gen. n. *Drosophilinae*, *brasiliense* sp. n. Brazil, ENDERLEIN p. 185 Wien. ent. Zeit. 34 1915.
- Cypselia stenhammari*, *zetterstedti* nom. n., WAHLGREN Ent. Tidskr. 39 p. 1.
- Dacus oleae* var. n. *asiatica* p. 425 India, SILVESTRI Atti Acc. Lincei 25 2 1916.—*D. yayeyamanus* sp. n. Okinawa p. 413 pl. xxiii f. 10, MATSUMURA Addit. 2.
- Dichaeta caudata*, CRESSON p. 65 figs. Tr. amer. ent. Soc. 43 1917.
- Dicraeus incongruus* sp. n. Canada p. 339, ALDRICH Canad. Ent. 50.

- Discocerina flavitarsis* Ceylon sp. n., FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917 p. 30.—*D. pulchra* p. 56, *nitida*, *nepos*, *trilineata*, p. 57, *setulosa* p. 58, *aenea* p. 59, spp. n. Costa Rica, CRESSON Tr. amer. ent. Soc. 44.
- Drosophila alabamensis* sp. n. p. 38, STURTEVANT J. N. York ent. Soc. 26.—*D. quinqueannulata* Ceylon sp. n., FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917 p. 31.—*D.*, the nearctic pp. 441-446, *duncani* sp. n. Illinois p. 446, STURTEVANT Bull. Amer. Mus. 38.—*D. paradoxa* sp. n. Trinidad with *Clastoptera*, LAMB p. 159 fig. Bull. ent. Res. 9.
- Drosophila* experiments; vide JENNINGS pp. 247-261 Amer. Nat. 52; LANCEFIELD Biol. Bull. 35 pp. 207-210; LANCEFIELD Amer. Natural 52 p. 462 & 556-558; MACDOWELL J. exp. Zool. 23 pp. 109-146; McEWEEN J. exp. zool. 25 pp. 49-106; MARSHALL & MULLER J. exp. Zool. 22 pp. 457-470; PLOUGH J. exp. Zool. 24 pp. 147-209; RICHARDS Biol. Bull. 35 pp. 199-266; ROBERTS J. exp. Zool. 27 pp. 151-192; STURTEVANT Science 48 p. 72; WARREN Biol. Bull. 34 pp. 351-371.
- Eccoptomera infuscata* sp. n. Sweden, WAHLGREN Ent. Tidskr. 39 p. 2.
- Elachiptera dubia* sp. n. Natal p. 386, LAMB Ann. Nat. Hist. 1.
- Elaphromyia siva* Ceylon sp. n., FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917 p. 19.
- Ensina siphonina* sp. n. E. Africa p. 33, BEZZI Bull. ent. Res. 9.
- Ephydra rostrata* n. n. for *pygmaea* Willist., CRESSON p. 66 Tr. amer. ent. Soc. 44.—*E. gracilis*, transported, ALDRICH p. 30 Psyche 25.
- Epimadiza nigra* p. 346, *nitida* p. 347, spp. n. S. Africa, LAMB Ann. Nat. Hist. 1.
- Epochra canadensis*, life-history, habits, SEVERIN Bull. Maine exp. Stat. 264 1917 pp. 177-247 pls.
- Euresta (Pliomelaena)* subg. n.) p. 30, *strictifrons* p. 31, spp. n. Durban, figs., BEZZI Bull. ent. Res. 9.
- Eupyrgota omorii* sp. n. Japan p. 410 pl. xxiii f. 7, MATSUMURA Addit. 2.
- Euribia perpallida* p. 35, *disci-pulchra* p. 36, *tristrigata* p. 37 fig., spp. n. Africa, BEZZI Bull. ent. Res. 9.
- Eutretosoma millepunctatum* sp. n. Erythraea p. 26, BEZZI T.c.
- Gampsocera mutata* var. n. *grandis*, LAMB p. 390 Ann. Nat. Hist. 1.
- Gymnosoma kuramamum* sp. n. Japan p. 435 pl. xxiii f. 28, MATSUMURA Addit. 2.
- Helomyza nigrinervis* p. 3, *nivalis* p. 4, *confusa* p. 6, spp. n., Sweden, WAHLGREN Ent. Tidskr. 39.
- Heteromeriugia flaviseta*, larva. MALLOCH p. 7 P. ent. Soc. Washington 20.
- Heteromyza longiseta* p. 6, *opomyzina* p. 8, WAHLGREN Ent. Tidskr. 39.
- Heteroscinis* gen. n. *Meroscininae* p. 339, *variegata* p. 340, *ornata* p. 342, spp. n., Rhodesia, LAMB Ann. Nat. Hist. 1.
- Hexachaeta ishikii* sp. n. Japan p. 421 pl. xxiii f. 17, MATSUMURA Addit. 2.
- Hippelates ocellata* sp. n. Ceylon p. 388, LAMB Ann. Nat. Hist. 1.
- Hydrellia calverti*, *spenicornis*, spp. n. Costa Rica p. 48, figs., CRESSON Tr. amer. ent. Soc. 44.
- Ilythea caniceps* p. 50, *calverti*, *fenestralis*, p. 51, *obscura* p. 52, spp. n. Costa Rica, CRESSON T.c.
- Lasiopleura zeylanica* sp. n. Ceylon p. 388, LAMB Ann. Nat. Hist. 1.
- Lasiosina canadensis* sp. n. p. 337, ALDRICH Canad. Ent. 50.
- Lauxania (Minettia) spiculata* Ceylon sp. n., FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917 p. 21.
- Leucotaeniella* gen. n. p. 227 near *Taeniosola*, *trispila* p. 228, *pentaspila* p. 229, spp. n. Africa, BEZZI Bull. ent. Res. 8.
- Limosina appendiculata* Bohemia p. 79, *corivalis* Hungary p. 81, VILLENEUVE Bull. Soc. ent. Franco 1918.
- Lonchaea taipinensis* sp. n. Formosa p. 426 pl. xxiii f. 21, MATSUMURA Addit. 2.—*L. tarsata*, larva, ENGEL p. 74 Mitt. Münchm. ent. Ges. 7 1916.

*Lanchnotus* gen. n. *Meroscininae*  
p. 337, *formosus* sp. n. Natal p. 338,  
figs., LAMB Ann. Nat. Hist. 1.

*Macrorotalis* gen. n. p. 433, *taiwanus*  
sp. n. Formosa p. 432 pl. xxiii f. 27,  
MATSUMURA Addit. 2.

*Madiza concolor* sp. n. Oregon p. 69,  
GREENE P. ent. Soc. Washington  
20.—*M. (Siphonella) setulosa* sp. n.  
Illinois p. 110, MALLOCH Bull. Brooklyn  
ent. Soc. 13.

*Meroscinis foveata* p. 333, *planis-*  
*cutellata* p. 335, Ceylon, *validissima*  
Natal p. 336, spp. n., LAMB Ann. Nat.  
Hist. 1.

*Napaea nigripes* sp. n. Costa Rica  
p. 64, CRESSON Tr. amer. ent. Soc. 44.

*Nostima immaculata* sp. n. Costa  
Rica p. 49, CRESSON T.c.

*Notiphila punctifera* Am. mer. p. 34,  
*bicolor* U.S. p. 35, *facialis* Panama  
p. 38, *nudipes* p. 43, *loewi* p. 44, *flori-*  
*densis*, *biseriata*, *cognata*, p. 46, U.S.,  
*fulvimana* Cuba p. 47, *N. (Agrolimna*  
*subg. n. p. 48) atripes* p. 50, *occidentalis*  
p. 51 with var. *minima*, *atrisetis*,  
*olivacea*, p. 52, with var. *aenigma*  
p. 54, *bispinosa* p. 58 fig., U.S. spp. n.,  
*virgata* var. n. *pura* p. 41, *frontalis*  
var. n. *signata* p. 57, CRESSON Tr.  
Amer. ent. Soc. 43 1917.

*Ochtheroidea centralis*, *fuscipennis*,  
p. 60, *similis*, *lucis*, p. 61, spp. n.  
Costa Rica, CRESSON Tr. Amer. ent.  
Soc. 44.

*Ocnerioxa woodi* sp. n. Africa p. 14  
fig., BEZZI Bull. ent. Res. 9.

*Ocneros mundus*, wing fig. p. 250,  
BEZZI Bull. ent. Res. 8.

*Orthacheta amoena* sp. n. Pennsyl-  
vania p. 133, CRESSON Ent. News 29.

*Oscinella plana*, *leptomyzoides*, p.  
139, *gracilior* p. 140, spp. n. Holland,  
DE MEYERE Tyds. Ent. 61.—*O. cey-*  
*lonica* Ceylon sp. n., FREY Helsingfors  
Öfvers. F. Vet. Soc. 59 A No. 20 1917  
p. 29.—*O. planicollis* to *Elachiptera*,  
ALDRICH p. 341 Canad. Ent. 50.

*Oscinis longipes* Natal p. 395, *bis-*  
*triata* E. Africa p. 396, spp. n., LAMB  
Ann. Nat. Hist. 1.—*O. criddlei* p. 341,  
*scabra* p. 342, spp. n. Canada, ALDRICH  
Canad. Ent. 50.—*O. frit*, COLLIN pp.  
81-96 Ann. appl. Biol. 5.

*Oscinoides* gen. n. *Chloropidae* p. 86,  
*arpidia* sp. n. Illinois p. 87, MALLOCH  
Bull. Brooklyn ent. Soc. 11 1916.

†*Palaeotanyzepta* gen. n., *spinosa* sp.  
n. amber, MEUNIER p. 101 N. Jahrb.  
Mineral 1917 3.

*Parallelomma rudicornis*, *dimidiata*,  
p. 135, *vicina* p. 136, spp. n. U.S.,  
CRESSON Ent. News 29.

*Pardalaspis* gen. n. p. 233 type  
*Trypeta punctata* Wied., *quinaria* sp.  
n. Rhodesia p. 235, BEZZI Bull. ent.  
Res. 8.

*Peronyma sarcinata*, STURTEVANT p.  
35, J. N. York ent. Soc. 26.

*Plagiops* gen. n. near *Psilopa* p. 53,  
*nitidifrons* sp. n. Costa Rica p. 54,  
CRESSON Tr. amer. ent. Soc. 44.

*Plagiotoma rudolphi*, *jonasi*, *trivita-*  
*tata*, spp. n. Brazil p. 10 figs., LUTZ &  
LIMA Mem. Inst. Oswaldo Cruz 10.

*Pliomelaena* subg. n. vide *Euaresta*.

*Poecilohetaerus vittatus* Ceylon sp. n.,  
FREY Helsingfors Öfvers. F. Vet. Soc.  
59 A No. 20 1917 p. 22.

*Pseudophortica* gen. n. for *Drosophila*  
*obesa* Loew, STURTEVANT p. 37 J. N.  
York ent. Soc. 26.

*Pseudotephritis corticalis*, metamor-  
phoses, GREENE pl. xx p. 155 P. ent.  
Soc. Washington 19.

*Psilopa meridionalis* sp. n. Costa  
Rica p. 52, *willistoni* n. n. for *nigri-*  
*mana* Willist. p. 53, CRESSON Tr.  
amer. ent. Soc. 44.

*Pterandrus* gen. n. type *Ceratilis rosa*  
p. 231, *volucris* sp. n. E. Africa p. 232,  
BEZZI Bull. ent. Res. 8.

*Ptiloniola neavei* sp. n. Nyasaland p.  
247, BEZZI T.c.

*Rhacochlaena fasciolata* p. 248, wing  
fig. p. 249, BEZZI T.c.

*Rhagoletis sapporensis* sp. n. p. 422  
pl. xxiii f. 18, MATSUMURA Addit. 2.  
—*R. pomonella*, in *Vaccinium*, WOODS  
pp. 252-266 Bull. Maine exp. Stat.  
244.

*Sapromyza hirayamae* sp. n. Japan p.  
425 pl. xxiii f. 20, MATSUMURA Addit.  
2.

*Scatella nitidifrons* sp. n. Costa Rica  
p. 67, CRESSON Tr. amer. ent. Soc. 44.

*Scathophaga nigrolanata* Greenland p. 136, *nigrolimbata* New York p. 137, spp. n., CRESSON Ent. News 29.

*Scolioththalmus micans* sp. n. India p. 331, LAMB Ann. Nat. Hist. 1.

*Sepsis lieveni* Ceylon sp. n., FREY Helsingfors Öfvers. F. Vet. Soc. 59 A No. 20 1917 p. 25.

*Siphonella robusta* sp. n. Rhodesia p. 343, LAMB Ann. Nat. Hist. 1.

*Siphunculina intonsa* sp. n. Ceylon p. 345, LAMB T.c.

*Spathulina acrosticta* sp. n. Durban p. 29, BEZZI Bull. ent. Res. 9.

*Spheroocera tarsalis* sp. n. Sweden, WAHLGREN Ent. Tidskr. 39 p. 1.

*Spilographa nigricans* sp. n. Japan p. 421 pl. xxiii f. 17, MATSUMURA Addit. 2.

*Tephrella rufiventris* sp. n. Erythraea p. 23 fig., BEZZI Bull. ent. Res. 9.

*Tephritis vernoniicola* sp. n. Erythraea p. 15, BEZZI T.c.—*T. hirayanac* sp. n. Japan p. 425 pl. xxiii f. 19, MATSUMURA Addit. 2.

*Tetanocera scutellata* sp. n. Okinawa p. 427 pl. xxiii f. 22, MATSUMURA T.c.

*Themarictera*, BEZZI p. 243 includes *Trypeta flaveolata* Fabr. and *laticeps* Loew p. 244, BEZZI Bull. ent. Res. 8.

*Tricimba setosa* sp. n. Natal p. 393, LAMB Ann. Nat. Hist. 1.

*Trigonometopus ishidae* sp. n. Japan p. 428 pl. xxiii f. 23, MATSUMURA Addit. 2.

*Trirhithrum* gen. n. p. 236 type *Ceratitidis nigra* Grah., *gagatinum* p. 238, *occipitale* p. 239 spp. n. Africa, *nigerimum* varr. n. *leucopsis* p. 240 and *coffear* p. 241, BEZZI Bull. ent. Res. 8.

*Trypanea hexapoda* p. 43 fig., *urophora* p. 44 fig., spp. n. Africa, *aucla* var. n. *repleta* p. 45 fig., BEZZI Bull. ent. Res. 9.

*Trypaneidae*, table of ethiopian genera, BEZZI pp. 216–221 Bull. ent. Res. 8.

*Trypeta mikado* p. 414 pl. xxiii f. 11, *scutellaris* p. 416 f. 12, *s-nigrum* p. 417 f. 14, *misakiana* p. 419 f. 15, spp. n. Japan, MATSUMURA Addit. 2.

*Trypetidae*; food-plants at Oxford, HAMM pp. 87–91 Ent. Mo. Mag. 54.

*Ula macroptera*, larvac, ENGEL p. 75 Mitt. Münchn. ent. Ges. 7 1916.

*Xanthorrhachista* p. 241 and *X. cephalia* p. 242, BEZZI Bull. ent. Res. 8.

*Zacompsia*, characters, STURTEVANT p. 35 J. N. York ent. Soc. 26.

#### PUPIPARA.

*Braula*, vide *Phoridae*.

*Melophagus ovinus*, life-history, pp. 77–107, HILL P. R. Soc. Victoria 21.

*Tricholbius caecus* sp. n. Trinidad p. 424, EDWARDS Ann. Nat. Hist. 1.

*Glossina* see *Muscidae*.

#### APHANIPTERA.

DE RAADT. Bestimmungstabelle indischer Flöhe (Holländisch) Tydschr. Vergel-Genesck. Leiden 4 pp. 86–88.

#### HEMIPTERA.

Determination of Hemiptera described by Contarini, SCHUHMACHER Ent. Mitt. 7 pp. 32–34.

Catalogue of North American Hemiptera, 902 pp., VAN DUZEE.

Ausführliche Beschreibung einiger paläarktischen Hemipteren, REUTER Helsingfors Öfvers. F. Vet. Soc. 55 A No. 14 1913 pp. 1–111 Taf.

Thoracic sclerites of *Hemiptera*, TAYLOR Ann. ent. Soc. Amer. 11 pp. 225–249 4 pls.

The naming of varieties, PARSHLEY pp. 64 & 65 Psyche 25.

Eggs and emergence, BUTLER p. ii P. ent. Soc. London 1918.

Resemblance and protection in *Hemiptera*, HEIKERTINGER pp. 169–196 & 219 Zeitschr. wiss. Insbiol. 13 1917.

**Heteroptera.**

Plants attacked by *Heteroptera*, BUTLER pp. 132-136 Ent. Mo. Mag. 54.

Trichobothria of *Heteroptera*, TULL-GREN Ent. Tidskr. 39 pp. 113-133 figs.

†*Dunstaniiidae* a family of *Heteroptera*, for *Dunstania* and the following two genera;

†*Dunstaniopsis* gen. n. p. 584 fig. 18, *triassica* sp. n. Queensland p. 585, TILLYARD T.c.

†*Paradunstania* gen. n. p. 585, *affinis* sp. n. Queensland triassic p. 586 f. 20, TILLYARD T.c.

The origin of the *Heteroptera*, pp. 586-592 T.c.

**PENTATOMIDAE.**

*Acesines bambusana* sp. n. India p. 144, DISTANT Faun. brit. Ind. Rhynch. 7.

*Aeliomorpha pusana* sp. n. India p. 128, DISTANT T.c.

*Agonoscelis campbelli* sp. n. India p. 137, DISTANT T.c.

*Asylana* gen. n. near *Asyla* p. 123, *punjabensis* sp. n. p. 124, DISTANT T.c.

*Bainbriggianus* gen. n. near *Paracritheus*, *fletcheri* f. 69 sp. n. Pusa, DISTANT p. 135 T.c.

*Brochymena sulcata* sp. n. California p. 276, VAN DUZEE P. Calif. Ac. 8.

*Carbula aliena* sp. n. India p. 133, DISTANT Faun. brit. Ind. Rhynch. 7.

*Carpocoris sulcatus* sp. n. California p. 275, VAN DUZEE T.c.

*Caystrus scutellatus* sp. n. Benagl p. 127, DISTANT Faun. brit. Ind. Rhynch. 7.

*Coptosoma marginifrons* p. 111, *ostensum*, India, *haragamensis* Ceylon, p. 112, *campbelli*, *fuscomaculatum*, p. 113, *liliputianum*, India, *fletcheri* Ceylon, p. 114, *lebongensis* Sikkim p. 115, spp. n., *breddini* n. n. for *punctatissimum* Br. p. 112, DISTANT T.c.

*Cydnus ater* sp. n. India p. 117, DISTANT T.c.

*Dalpada tauriformis* sp. n. India p. 120, DISTANT T.c.

*Dinocoris triplerus*, maternal care, RAU p. 75 Ent. News 29.

*Elasmucha albicincta* sp. n. India p. 149, DISTANT Faun. brit. Ind. Rhynch. 7.

*Erthesina aberrans* sp. n. Bengal p. 121, DISTANT T.c.

*Eusarcocoris major* sp. n. Bombay p. 132, DISTANT T.c.

*Geotomus acrostictus* sp. n. India p. 118, DISTANT T.c.

*Graphosoma semipunctatum* var. n. *incompletum* p. 236, FUENTE Bol. Soc. Argon 17.

*Halyomorpha fletcheri* sp. n. Burma p. 129, DISTANT Faun. brit. Ind. Rhynch. 7.

*Hermolans robustus* sp. n. India p. 132, DISTANT T.c.

*Iphiarusa compacta* Dist. (as *Anaxandra* f. 73 = (*aratrix* Bredd.), DISTANT p. 145 T.c.

*Keriahana* gen. n. for *Menida elongata* f. 72, DISTANT p. 143 T.c.

*Khondana* gen. n. for *Menida rubripilaga* f. 71, DISTANT p. 143, T.c.

*Lactistes latus* sp. n. India p. 116, DISTANT T.c.

*Neocarbula* gen. n., *capitata* f. 68 sp. n. India, DISTANT p. 134 T.c.

*Neonevisanus* gen. n. near *Nevisanus* p. 121, *rugosus* sp. n. India p. 122, DISTANT T.c.

*Nezara viridula*, natural history, JONES Bull. U.S. Dep. Agric. 689 27 pp. figs.—*N. abnormis*, metamorphosis, PENNINGTON pp. 332-334 Physic 4.

*Peribabus pallidicornis* Lena sp. n. REUTER Helsingfors Öfvers. F. Vet. Soc. 55 A No. 14 1913 p. 16.

*Placosternum ficusius* sp. n. Simla p. 139, DISTANT Faun. brit. Ind. Rhynch. 7.

*Plautia picturata* sp. n. Bombay p. 136, DISTANT T.c.

*Saontarana* gen. n. near *Nevisanus*, *burmanica* f. 66 sp. n., DISTANT p. 122 T.c.

*Sastragala modesta* sp. n. India p. 148, DISTANT T.c.

*Sciocoris luteofasciatus* p. 325, *funebris*, *nepalensis*, p. 326, spp. n. India, DISTANT T.c.

*Seppolia nigrofusca* sp. n. India p. 131, DISTANT T.c.

*Solenostethium planiusculum* Tanager sp. n., REUTER *Oftvers. F. Vet. Soc.* 55 A No. 14 1913 p. 5.

*Tiarocoris suffusus* sp. n. Bengal p. 111, DISTANT Faun. brit. Ind. Rhynch. 7.

*Trichopepla vandykei* p. 271, *californica* p. 272, *aurora* p. 273, *grossa* p. 274, spp. n., VAN DUZEE P. Calif. Ac. 8.

## COREIDAE.

The Coreidae of North America, FRACKER Ann. ent. Soc. Amer. 11 pp. 255-280 2 pls.

*Acanthocephala*; american species GIBSON & HOLDRIDGE pp. 237-241 Canad. Ent. 50.

*Agrophopus antennatus* sp. n. Cape Town p. 50, DISTANT Entom. 51.—*A. orientalis* sp. n. India p. 172, DISTANT Faun. brit. Ind. Rhynch. 7.

*Akbaratus fasciatus* p. 165, *fumosus* p. 166, spp. n. India, DISTANT T.c.

*Alydus tomentosus* sp. n. Colorado p. 267, FRACKER Ann. ent. soc. Amer. 11.

*Anisoscelini*, key, *Anisoscelaria* and *Chondroceraria* divisions, GIBSON & HOLDRIDGE pp. 1-4 Psyche 25.

*Anoplocnemis binotata* sp. n. Assam p. 153, DISTANT Faun. brit. Ind. Rhynch. 7.

*Brunsellius elongatus* sp. n. Texas-serim p. 157, DISTANT T.c.

*Cletus bovillus* sp. n. India, *stali* n. n. for *bipunctatus* Westw., DISTANT p. 158 T.c.

*Colpura denticollis* sp. n. Luzon p. 45, BERGROTH Philipp. J. Sci. D 13.

*Corizus parvipictus* p. 168, *macro-pictus*, India, *subfasciatus* Ceylon, p. 169, *multimaculatus*, *pronotalis*, *imperialis*, p. 170, India, spp. n., DISTANT Faun. brit. Ind. Rhynch. 7.

*Craspedum campbelli*, *butleri*, spp. n. India p. 159, DISTANT T.c.

*Daclera levana* sp. n. India p. 162 f. 77, DISTANT T.c.

*Dicorymbus* gen. n. near *Mutusca* p. 48, *nigridens* sp. n. Luzon p. 49, BERGROTH Philipp. J. Sci. D 13.

*Eusthetus insularis* sp. n. India p. 6, PAIVA Rec. Ind. Mus. 15.—*E. khandalana* p. 163, *nigrellus*, *fulvescens* p. 164, *atomarius* p. 165, spp. n. India, DISTANT Faun. brit. Ind. Rhynch. 7.

*Harmostes angustatus* sp. n. California p. 277, VAN DUZEE P. Calif. Ac. 8.

*Homalocolpura sorbar* sp. n. Luzon p. 47, BERGROTH Philipp. J. Sci. D 13.

*Homoeocerus apicicornis* p. 154, *picturatus*, *borealis*, *australis*, p. 155, *indus* p. 156, spp. n. India, DISTANT Faun. brit. Ind. Rhynch. 7.

*Hypselopus pronotalis* f. 78 p. 167, *mimicus* p. 168, spp. n. India, DISTANT Faun. brit. Ind. Rhynch. 7.

*Marcus formicinus* sp. n. Luzon p. 52, BERGROTH Philipp. J. Sci. D 13.

*Mictis formidabilis* sp. n. Ceylon p. 151, DISTANT Faun. brit. Ind. Rhynch. 7.

*Rhodoclia convictionis*, to *Coreidae*, SCHUMACHER p. 186 Zeitschr. wiss. Insbiol. 14.

*Stachyocnemus apicalis* var. n. *cinereus* p. 276 pl. xxv, FRACKER Ann. ent. Soc. Amer. 11.

*Therapha diluta* sp. n. India p. 172, DISTANT Faun. brit. Ind. Rhynch. 7.

*Xenoceraea* gen. n. near *Dicorymbus* p. 50, *bakeri* sp. n. Mindanao p. 51, BERGROTH Philipp. J. Sci. D 13.

## LYGAEIDAE OR MYODOCHIDAE.

Genera of Rhyparochrominae of United States, BARBER pp. 71-88 Psyche 25.

Corrections to Torre Bueno's New York *Scolopostethi*, BARBER p. 51 Ent. News 29.

*Abanus ugandensis* sp. n. p. 269, DISTANT Ann. Nat. Hist. 2.

*Adauctus nigrocapitatus* sp. n. India p. 195, DISTANT Faun. brit. Ind. Rhynch. 7.



*Aethalotus apicimaculatus* sp. n.  
E. Africa p. 173, DISTANT Ann. Nat.  
Hist. 2.

*Agunga compactilis* sp. n. Luzon  
p. 103, BERGROTH Philipp. J. Sci.  
D 13.

*Albanyaria* gen. n. p. 258 near  
*Fontejus, multicolorata* sp. n. W.  
Australia p. 259, DISTANT Ann. Nat.  
Hist. 2

*Anisosoma* gen. n. near *Ischnodemus*  
p. 69, *lativentris* sp. n. Luzon p. 70,  
BERGROTH Philipp. J. Sci. D 13.

*Antillocoris helvipennis* sp. n. Luzon  
p. 86, BERGROTH Philipp. J. Sci.  
D 13.

*Aphanus littoralis* p. 262, *ferrugineus*  
p. 263, *abigera, nigrellus*, p. 264,  
spp. n. Africa, *apicatis* = (*erosus* Dist.)  
p. 263, DISTANT Ann. Nat. Hist. 2.—  
*A. lateralis* p. 198, *discoquillatus, ornatus*,  
p. 199, spp. n. India, DISTANT Faun.  
brit. Ind. Rhynch. 7.—*A. funestus*  
sp. n. Indo-China p. 243, DISTANT  
Entom. 51.

*Appolonius picturatus* f. 87 sp. n.  
India p. 191, DISTANT Faun. brit.  
Ind. Rhynch. 7.

*Arrianoides* gen. n., *australis* sp. n.  
Queensland, p. 491, DISTANT Ann.  
Nat. Hist. 2.

*Artemidorus myrmecodes* sp. n. Luzon  
p. 114, BERGROTH Philipp. J. Sci. D 13.

*Aspilocoryphus fraternus, signatus*,  
spp. n. India p. 180, DISTANT Faun.  
brit. Ind. Rhynch. 7.

*Astacops caniceps* Luzon p. 53,  
*limdiventris* Palawan p. 54, *fulvi-*  
*ventris* Luzon p. 55, *melampus* n. n.  
for *nigripes* Dist. p. 57, BERGROTH  
Philipp. J. Sci. D 13.—*A. subochraceus*  
sp. n. Queensland p. 416, DISTANT  
Ann. Nat. Hist. 1.—*A. tigrinus* sp. n.  
Mindoro p. 486, DISTANT Ann. Nat.  
Hist. 2.

*Austropamera* gen. n., *turneri* sp. n.  
Queensland, p. 490, DISTANT T.c.

*Bedunia praecipua* sp. n. Luzon  
p. 77, BERGROTH Philipp. J. Sci.  
D 13.

*Blissus latus* sp. n. India p. 188,  
DISTANT Faun. brit. Ind. Rhynch. 7.

*Bochrus hoabinhensis* p. 241, *ton-*  
*kinensis* p. 242, spp. n., DISTANT  
Entom. 51.

*Bosbequius australis* sp. n. p. 260,  
DISTANT Ann. Nat. Hist. 2.

*Caenopamera* gen. n. for *Pseudo-*  
*pamera forreri* Dist., BARBER p. 45  
J. N. York ent. Soc. 26 and Psyche 25.

*Cligenes assimulans* p. 84, *validulus*  
p. 85, spp. n. Luzon, BERGROTH  
Philipp. J. Sci. D 13.—*C. fraternus*  
sp. n. Ceylon p. 197, DISTANT Faun.  
brit. Ind. Rhynch. 7.

*Coenocoris torridus* Queensland p.  
176, *floridulus* Tonkin p. 177, spp. n.  
DISTANT Ann. Nat. Hist. 2.

*Cryphula abortiva* sp. n. Arizona  
p. 63, BARBER J. N. York ent. Soc. 26.

*Cymoninus philippinus* sp. n. p. 64,  
BERGROTH Philipp. J. Sci. D 13.

*Cymus sulcicollis* sp. n. Luzon p. 65,  
BERGROTH T.c.

*Daerlac nigricans* sp. n. Sydney  
p. 492, DISTANT Ann. Nat. Hist. 2.

*Dieuches parvipictus, consimilis*, p.  
266, *smithi, sloggetti*, p. 267, spp. n.  
Africa, DISTANT T.c.

*Diniella insignis* sp. n. India p. 198,  
DISTANT Faun. brit. Ind. Rhynch. 7.—  
*D. antennalis* sp. n. Tonkin p. 243,  
DISTANT Entom. 51.

*Dinomachus kurandae, doddi*, spp. n.  
Queensland p. 488, DISTANT Ann.  
Nat. Hist. 2.

*Domiduca* gen. n., *exemplificata*  
sp. n. India p. 184, DISTANT Faun. brit.  
Ind. Rhynch. 7.

*Dudia* gen. n. near *Entisbenus* p. 105,  
*comptula* sp. n. Luzon p. 106, BER-  
GROTH Philipp. J. Sci. D 13.

*Esuris fulgidus* sp. n. Arizona p. 51,  
BARBER J. N. York ent. Soc. 26.

*Eucosmetus nigronitens* sp. n. India  
p. 191, DISTANT Faun. brit. Ind.  
Rhynch. 7.

*Exopamera* gen. n. p. 257 near  
*Pseudopamera, arthiopica* sp. n. E.  
Africa p. 258, DISTANT Ann. Nat.  
Hist. 2.

*Fabulinus* gen. n. near *Thebanus*, *mysorensis* f. 90, p. 195, *gemmatus* p. 196, spp. n. India, DISTANT Faun. brit. Ind. Rhynch. 7.

*Faelicianus summus* p. 87, *exilicornis* p. 90, spp. n. Philippines, BERGROTH Philipp. J. Sci. D 13.

*Geocoris lutulentus* p. 188, *rufipennis*, *rutiloides*, *erebus*, p. 189, *varipes* p. 190, spp. n. India, DISTANT Faun. brit. Ind. Rhynch. 7.

*Geocoroides* gen. n., *polytretus* f. 86 sp. n. India, DISTANT p. 190 T.c.

*Germalus humeralis*, *coloratus*, spp. n. Queensland p. 178, DISTANT Ann. Nat. Hist. 2.

*Gonatas natalensis* sp. n. p. 270, DISTANT T.c.

*Graptostethus inornatus* p. 421 Malay Arch., *parvinotatus* Biserat, *parvus* Queensland, p. 422, *electus*, *rufus*, Africa p. 423, spp. n., DISTANT Ann. Nat. Hist. 1.—*G. carpenteri*, *flammatas*, spp. n., Africa p. 175, DISTANT Ann. Nat. Hist. 2.

*Harmostica* n. n. for *Edulica* Dist., BERGROTH p. 107 Philipp. J. Sci. D 13.

*Kolenetrus* gen. n. p. 49 type *Rhyparochromus plenus* Dist., BARBER J. N. York Ent. Soc. 26 and Psyche 25.

*Lachnophoroides rudolfianus* sp. n. Soudan p. 262, DISTANT Ann. Nat. Hist. 2.

*Laryngodus australiae* H. S., DISTANT p. 259 T.c.

*Lemnius bakeri* sp. n. Luzon p. 99, BERGROTH Philipp. J. Sci. D 13.

*Lethaeus quadripunctatus*, *breviceps*, p. 91, *retusus* p. 92, *maquilingensis* p. 94, *robustus* p. 95, spp. n. Philippines, BERGROTH T.c.—*L. pictus* p. 243, *maculipennis* p. 244, spp. n. Indo-China, DISTANT Entom. 51.

*Lisepochroa laeviuscula* sp. n. Luxon p. 101, BERGROTH Philipp. J. Sci. D 13.

*Locutius* gen. n. near *Bosbequius*, *atratus* f. 88, p. 192, *brunneus*, *pallascens*, p. 193, spp. n. India, DISTANT Faun. brit. Ind. Rhynch. 7.

*Lygaeosoma contaminatum* sp. n. India p. 181, DISTANT Faun. brit. Ind. Rhynch. 7.

*Lygaeus campbelli* sp. n. India p. 179, DISTANT T.c.—*L. lagosensis* p. 420, *tonkinensis* p. 421, spp. n., DISTANT Ann. Nat. Hist. 1.—*L. negus*, *dives*, spp. n. Africa p. 174, DISTANT Ann. Nat. Hist. 2.—*L. degeni* Abyssinia sp. n. p. 257, DISTANT T.c.

*Macropes albosignatus* p. 177, *nigrolineatus* p. 188, spp. n. Africa, DISTANT T.c.—*M. simoni* sp. n. Philippines p. 486, DISTANT T.c.—*M. lacertosus* sp. n. Luzon p. 66, BERGROTH Philipp. J. Sci. D 13.—*M. femoralis*, *consobrinus*, *pronotalis*, p. 186, *consimilis*, *abbreviatus*, p. 187, spp. n. India, DISTANT Faun. brit. Ind. Rhynch. 7.

*Malezonotus* gen. n. p. 54 type *Trapezonotus rufipes* Stål, *fuscus* sp. n. New Jersey p. 56, BARBER J. N. York ent. Soc. 26 and Psyche 25.

*Maxaphanus* gen. n. near *Aphanus*, *africanus* sp. n., DISTANT p. 265 Ann. Nat. Hist. 2.

*Melanotelus sordidus* sp. n. India p. 180, DISTANT Faun. brit. Ind. Rhynch. 7.

*Metadieuches* gen. n. p. 267, type *Dieuches dispar* Hagl., DISTANT Ann. Nat. Hist. 2.

*Melochus holsti* sp. n. Tsushima p. 265, DISTANT T.c.—*M. illustris* sp. n. India p. 200, DISTANT Faun. brit. Ind. Rhynch. 7.

*Microspilus sternalis* sp. n. Madagascar p. 420, DISTANT Ann. Nat. Hist. 1.

*Mizaldus montiscandens* sp. n. Philippines p. 86, BERGROTH Philipp. J. Sci. D 13.

*Narbo metochoides* sp. n. Luzon p. 82, BERGROTH T.c.

*Naudarensia rolandi* sp. n. Australia p. 492, DISTANT Ann. Nat. Hist. 2.

*Neoblissus parasitaster*, macropterous form, figs., BRUCH p. 353 Physis 4.

*Nysiodes* gen. n., *typus* f. 83, p. 182, *faustus* p. 183, spp. n. India, DISTANT Faun. brit. Ind. Rhynch. 7.

- Nysius ericae*, life-history, MILLIKEN J. Agric. Res. 13 pp. 571-578 2 pls.
- Oncopeltus vagus* Aru islds. etc., *consors nigroflavatus*, Queensland p. 418, *niloticus* Blue Nile, *erebus* E. Africa, p. 419, spp. n., DISTANT Ann. Nat. Hist. 1.
- OSSIPAGA* gen. n., *ceylanica* f. 85 sp. n., DISTANT p. 185 Faun. brit. Ind. Rhynch. 7.
- Oxycarenus bicoloratus* n. n. for *bicolor* Dist., BERGROTH p. 73 Philipp. J. Sci. D 13.
- Ozophora ampliatus* sp. n. Arizona p. 52, BARBER J. N. York ent. Soc. 26.
- Pachygrontha cruenta* sp. n. Mindanao p. 72, BERGROTH Philipp. J. Sci. D 13.
- Pamera vitalisi*, *gemmata*, spp. n. Indo-China p. 242, DISTANT Entom. 51.—*P. tricolorata* sp. n. Queensland p. 489, DISTANT Ann. Nat. Hist. 2.
- Pamerana subinermis* p. 79, *procera* p. 80, *subgenerica* p. 81, spp. n. Mindanao, BERGROTH Philipp. J. Sci. D 13.
- Paradiueches pallipes* sp. n. India p. 201, DISTANT Faun. brit. Ind. Rhynch. 7.
- Peritrechus saskatchewanensis* sp. n. p. 60, BARBER J. N. York ent. Soc. 26.
- Pirkimerus parviceps* sp. n. Luzon p. 67, BERGROTH Philipp. J. Sci. D 13.
- Plinthisus indentatus* p. 109, *longisetosus* p. 110, *pallidus* p. 111, spp. n. U.S., BARBER P. ent. Soc. Washington 20.
- Poecantius variegatus* sp. n. Africa p. 268, DISTANT Ann. Nat. Hist. 2.—*P. vittatus* sp. n. Luzon p. 83, BERGROTH Philipp. J. Sci. D 13.
- Polycrates tibialis*, *uniformis*, spp. n. India p. 194, DISTANT Faun. brit. Ind. Rhynch. 7.
- Pseudocnemodus* gen. n. ? p. 79 type *canadensis* Prov., BARBER Psyche 25.
- Ptochiomera ferruginea*, BARBER p. 46 J. N. York ent. Soc. 26.
- Ptychoderrhis* gen. n. p. 97, *bipunctata* sp. n. Luzon p. 99, and *Aphamus indicus* Dall., etc., BERGROTH Philipp. J. Sci. D 13.
- Pyrrhobaphus guttaticollis* sp. n. Damma isld. p. 176, DISTANT Ann. Nat. Hist. 2.
- Rhabdomorphus* gen. n. near *Macropes* p. 68, *longurio* sp. n. Luzon p. 69, BERGROTH Philipp. J. Sci. D 13.
- Rhiobia* gen. n. near *Ichnorhynchus* p. 58, *praeceps* p. 59, *longirostris* p. 61, spp. n. Luzon, BERGROTH T.C.
- Rhiophila* gen. n. near *Pylorgus* p. 61, *breviceps* sp. n. Luzon p. 62, BERGROTH T.C.
- Rhodiginus pullatus* sp. n. Luzon p. 100, BERGROTH T.C.
- Sadoletus valdezi* p. 107, *bakeri* p. 108, *voluptarius*, *montanellus*, p. 109, *montivagus* p. 110, *vulvatus* p. 111, spp. n. Luzon, BERGROTH T.C.
- Scolopostethus pacificus* sp. n. California p. 65, BARBER J. N. York ent. Soc. 26.
- Scopiasstes turneri* p. 416, *elegans*, *linearis*, p. 417, spp. n. Queensland, DISTANT Ann. Nat. Hist. 1.—*S. nigripes* = (*Astacops melampus* Bergr.), DISTANT p. 486 Ann. Nat. Hist. 2.
- Sphragisticus simulatus* sp. n. New Mexico p. 58, BARBER J. N. York ent. Soc. 26.
- Tachytatus* gen. n. near *Vertomannus* p. 75, *prolixicornis* sp. n. Luzon p. 76, BERGROTH Philipp. J. Sci. D 13.
- Teracrius bipunctatus* sp. n. Luzon p. 71, BERGROTH T.C.
- Thebanus antennatus* sp. n. India p. 197, DISTANT Faun. brit. Ind. Rhynch. 7.—*T. nigrinus* sp. n. Burma p. 261, DISTANT Ann. Nat. Hist. 2.
- Togodolentus* gen. n. near *Eremocoris*, *genuinus* sp. n. California, BARBER p. 64 J. N. York ent. Soc. 26 and Psyche 25.
- Trapezonotus derivatus* Arizona, *diversus* California, BARBER, p. 57 J. N. York ent. Soc. 26.
- Tropistethus aurantiacus* sp. n. India p. 197, DISTANT Faun. brit. Ind. Rhynch. 7.
- Valonetus* gen. n. near *Ptochiomera*, *pilosus* sp. n. Texas, BARBER p. 50 J. N. York Ent. Soc. 26 and Psyche 25.
- Valtissius* gen. n. p. 62 type *Petissius diversus* Dist., BARBER J. N. York ent. Soc. 26 and Psyche 25.
- Zeridoneus* gen. n. for *Perigenes costalis* Van Duz., BARBER p. 45 J. N. York ent. Soc. 26 and Psyche 25.

## TINGITIDAE.

*Corythuca spinulosa* p. 79, *contaminata*, *pallipes*, p. 82, *parshleyi*, *exigua*, p. 83, *piecei* p. 85, *cyrta*, *betulae*, p. 86, *heidemanni* p. 87, *coloradensis*, *elegans*, p. 89, *salicata* p. 90, *occidentalis*, p. 91, *borealis* p. 92, *brunnea*, *bellula*, p. 93, *lactea* p. 94, Am. bor. *mexicanus* p. 95, *mali*, *drakei*, p. 98, *confraterna* p. 102, Am. bor., spp. n., GIBSON Tr. amer. ent. Soc. 44.—*C. essigi* sp. n. California p. 385, DRAKE J. econ. Ent. 11.—*C. parshleyi*, life-history, WEISS & DICKERSON Canad. Ent. 50 p. 401.—*C. spinulosa*, early stages, DICKERSON & WEISS pp. 121-125 Ent. News 29.—*C. pergandei*, early stages, WEISS & DICKERSON pp. 205-209 figs. T.c.

## BERYTIDAE.

*Iterduca* gen. n. near *Taprobanus*, *prima* f. 81 sp. n. India, DISTANT p. 174 Faun. brit. Ind. Rhynch. 7.

*Jalysus sobrinus*, in Argentina, PENNINGTON p. 335 Physis 4.

*Leptodictya bambusae* sp. n. Porto Rico p. 174, DRAKE Ohio Nat. 18.

*Leptostyla mcclreshi* sp. n. Haiti p. 175, DRAKE T.c.

*Teleonemia vidua* p. 278, *monile* p. 279, spp. n. California, VAN DUZEE P. Calif. Ac. 8.—*T. schwarzi* p. 326, *consors* p. 327, *barberi* p. 328, spp. n. U.S., DRAKE Ohio Nat. 18.

## REDUVIIDAE, NABIDAE.

*Aristonabis reuteri* p. 117, *poppiusi* p. 118, spp. n. Philippines, BERGROTH Philipp. J. Sci. D 13.

*Coranus subapterus*, feeding, egg, BUTLER p. 16 Ent. Mag. 54.

*Hammatoscelis annulipes* Sign., BERGROTH p. 207 Wiener ent. Zeit. 37.

*Harpactor varians* sp. n. India p. 11, PAIVA Rec. Ind. Mus. 15.

*Hendecacentrus* gen. n. p. 209, near *Canthesanchus*, *adulterinus* sp. n. Madagascar p. 210, BERGROTH Wiener ent. Zeit. 37.

*Melanolestes picipes*, variation, PARSHLEY p. 64 Psyche 25.

*Triatoma chagasi* sp. n. Brazil, BRUMPT & GOMES Ann. Paulistas med. 3 1914.

## ACANTHIIDAE. HENICOCEPHALIDAE.

*Acanthia batnearum* sp. n. Luzon p. 123, BERGROTH Philipp. J. Sci. D 13.

*Henicocephalus myrmecophilus* sp. n. Algoa Bay p. 292, BERGROTH Wien. ent. Zeit. 34 1915.—*H. bakeri* sp. n. Luzon p. 115, BERGROTH Philipp. J. Sci. D 13.

*Systelloderes capillicornis* sp. n. Luzon p. 116, BERGROTH T.c.

## GERRIDAE, VELIIDAE, HEBRIDAE.

*Hebrus*, oviposition, HUNGERFORD p. 13 pl. i figs. 1-5 J. N. York ent. Soc. 26.—*H. balnearis*, *rufescens* spp. n. Luzon p. 120, BERGROTH Philipp. J. Sci. D 13.

*Microvelia* synonymy, BUTLER p. 212 Ent. Mag. 54.—*M. (Kirkaldya) sexualis* sp. n. Patalung Riv. p. 77, fig., PAIVA Mem. Asiat. Soc. Bengal 6 1917.—*M. burmanica* sp. n. Shan states p. 21 pl. viii f. 2, PAIVA Rec. Ind. Mus. 14.—*M. atrolineata* sp. n. Luzon p. 122, BERGROTH Philipp. J. Sci. D 13.

*Onychotrechus lyra* sp. n. Shan states p. 24 pl. viii f. 3, PAIVA Rec. Ind. Mus. 14.

*Velia y-alba* sp. n. Shan states p. 20 pl. viii f. 1, PAIVA Rec. Ind. Mus. 14.

*Ventidius distanti* sp. n. Shan states p. 25 pl. viii f. 4, PAIVA Rec. Ind. Mus. 14.

## CAPSIDAE OR MIRIDAE.

Key to the subfamilies and figs. of claws, KNIGHT pp. 40-43 pl. iii J. N. York ent. Soc. 26.

Amerikanische Miriden, REUTER Öfvers. F. Vet. Soc. 55 A No. 18 1913 pp. 1-64 Taf.

Destroyers of *Psocidae*, SCHUMACHER pp. 217 & 218 Zeitschr. wiss. Insbiol. 13 1917.

Capsidae of apple trees, PETHERBRIDGE & HUSAIN Ann. appl. Biol. 4 pp. 179-205 3 pls.

*Apolodotus* and *Angerianus*, position, SCHUMACHER p. 35 Ent. Mitt. 7.

*Atomoseelis peregrinus* sp. n. California p. 303, VAN DUZEE P. Calif. Ac. 8.

*Chamus bellus* p. 72 fig., *tuberculatus* p. 73, spp. n. Congo, DISTANT Bull. ent. Res. 9.

*Europella sparsa* sp. n. California p. 305, VAN DUZEE T.c.

*Hadronema infans* p. 296, *albescens* p. 297, spp. n. California, VAN DUZEE T.c.—*H. confraternata* p. 83, *splendida* p. 84, spp. n. New Mexico, GIBSON Canad. Ent. 50.

*Homoecoris* gen. n. p. 236 for *Dimorphocoris tristis*, FUENTE Bol. Soc. Aragon 17.

*Lopidea*, North-American, claspers, etc., figs., pp. 210–216 pl. xiii, *picta*, *incurva*, p. 214, *major*, *texana*, p. 215, spp. n., KNIGHT Ent. News. 29.—*L. arizonae* p. 172, *apache*, *navajo*, p. 173, *lateralis* p. 174, *garryae*, *lepidii*, p. 175, *minima* p. 176, spp. n. Arizona figs., KNIGHT T.c.—*L. occidentalis* sp. n. California p. 296, VAN DUZEE P. Calif. Ac. 8.

*Lycidocoris modestus* p. 71 fig., *thoracicus* p. 72 fig., spp. n. Congo, DISTANT Bull. ent. Res. 9.

*Lygus abroniae* sp. n. California p. 289, VAN DUZEE P. Calif. Ac. 8.

*Mertila malayensis*, Biology, ROEPKE Teysmannia Batavia 29 pp. 201–212.

*Miris dolabratus*, life-history, OSBORN J. Agric. Res. 15 pp. 175–200 pl. xii; also Bull. Maine exp. Station 276 1919 16 pp. pl.

*Monolocnica conspurcata* Brasilia sp. n., REUTER Helsingfors Öfvers. F. Vet. Soc. 55 A No. 18 1913 p. 63.

*Neurocolpus simplex* sp. n. California p. 281, VAN DUZEE P. Calif. Ac. 8.

*Oncerometopus californicus* sp. n. p. 280, VAN DUZEE T.c.

*Orthotylus hamatus* p. 298, *albo-costatus* p. 299, spp. n. California, VAN DUZEE T.c.—*O. virens*, food-plant, DAY p. 227 Ent. Mo. Mag. 54

*Pallacocoris candidus* sp. n. California p. 288, VAN DUZEE P. Calif. Ac. 8.

*Paracalocoris? trivittatus* Peruvia sp. n., REUTER Öfvers. Finsk. Vet. Soc. 55 A No. 18 1913 p. 4.

*Parthenicus covilleae, candidus*, spp. n. California p. 300, VAN DUZEE P. Calif. Ac. 8.

*Peritropis poppiana* sp. n. Luzon p. 118, BERGROTH Philipp J. Sci. D 13.

*Phytocoris plenus* p. 282, *frateuscul* p. 283, *hirtus* p. 284, *geniculatus*

p. 286, *concors*, *ventralis*, p. 287, spp. n. California, VAN DUZEE P. Calif. Ac. 8.

*Pilophorus discretus* p. 290, *tomentosus* p. 291, *tibialis* p. 292, *crassipes* p. 293, *lactus* p. 294, spp. n. California, VAN DUZEE T.c.—*P. walshii*, life-history, FULTON pp. 93–96 Ann. ent. Soc. Amer. 11.

*Plagiognathus pictipes* sp. n. California p. 305, VAN DUZEE P. Calif. Ac. 8.

*Platytyellus robustus* Georgia sp. n., REUTER Helsingfors Öfvers. Finsk. Vet. Soc. 55 A No. 18 1913 p. 32.

*Psallus croceus* sp. n. California p. 302, VAN DUZEE P. Calif. Ac. 8.

*Tuponia lucida* p. 303, *dubiosa* p. 304, spp. n. California, VAN DUZEE T.c.

## SALDIDAE.

*Salda* and *Lamprocanthia*, oviposition, HUNGERFORD pp. 15–17 pl. i figs. 6–12 J. N. York ent. Soc. 26.

## HYDROCORIZAE.

Food of aquatic *Hemiptera*, RILEY Science 48 p. 545.

*Aphelocheirus aestivalis*, the varieties, HARTWIG D.E.Z. 1914 pp. 416–418.

*Corixa unicolor* pl. viii f. 10, *septemlineata* f. 9, spp. n. Shan states p. 30, PAIVA Rec. Ind. Mus. 14.

*Enithares intha* sp. n. Shan states p. 27 pl. viii f. 5, PAIVA T.c.

*Helotrephes balnearius* sp. n. Luzon p. 125, BERGROTH Philipp J. Sci. D 13.

*Micronecta substriata* pl. viii f. 11, *soror* f. 12, p. 31, *fulva* p. 32 f. 13, spp. n. Shan states, PAIVA Rec. Ind. Mus. 14.

*Notonecta halophila* sp. n. England, EDWARDS p. 58 Ent. Mo. Mag. 54.—*N.*, spp., oviposition, gonapophyses, HUNGERFORD pp. 241–245 pls. xiv and xv Ent. News. 29.

*Nychia infusata* sp. n. Shan states p. 28 pl. viii f. 6, PAIVA Rec. Ind. Mus. 14.

*Plea quinquenotata* f. 7, *areolata* f. 8, spp. n. Shan states p. 29, PAIVA T.c.

*Ranatra linearis*, feeding attitude, CHEESMAN p. 334 figs. P.Z.S. London 1917.

**Homoptera.**

Revision of the Homoptera of Formosa, SCHUMACHER Mitt. Zool. Mus. Berlin 8 pp. 71-134 1915.

Continuation of the synopsis of the Danish Cicad., JENSEN-HAARUP Flora og Fauna 1918 pp. 33-40 97-104 46 figs.

Parasitised *Homoptera*, MUIR p. 137 Ent. Mo. Mag. 54.

**CICADIDÆ.**

Key to Tasmanian *Cicadidae*, HARDY pp. 70 71 P. R. Soc. Tasmania 1917.

*Cicadidae* of south-eastern United States pp. 141-154 pls. vii and viii, DAVIS J. N. York ent. Soc. 26.

*Cicadatra viridis* p. 231, *stenoptera* p. 232, spp. n. Persia, HAUPT Wien. ent. Zeit. 36 1917.

*Cryptotympana dubia* sp. n. Tsingtau p. 229, HAUPT T.c. 1917.

*Diemeniana lillyardi* sp. n. Tasmania p. 69, HARDY P. R. Soc. Tasmania 1917.

*Enneaglena* gen. n. p. 232 *Tibicininae*, *annulata* sp. n. Taurus p. 233 fig., HAUPT Wien. ent. Zeit. 36 1917.

*Okanugana viridis* sp. n. U.S. p. 153 pl. viii figs. 4 and 5, DAVIS J. N. York ent. Soc. 26.

*Salvazana imperialis* sp. n. Laos p. 196, DISTANT Ann. Nat. Hist. 1.

*Tettigia permagna* sp. n. Taurus p. 230, HAUPT Wiener ent. Zeit. 36 1917.

*Tibicen davisii* var. n. *harnedi* pp. 143 & 146 pl. vii f. 4, DAVIS J. N. York ent. Soc. 26.

*Vagitanus* gen. n. near *Cicadatra*, *vientianensis*, *luangensis*, spp. n. Laos, DISTANT p. 197 Ann. Nat. Hist. 1.

**FULGORIDÆ AND PERMOFULGORIDÆ.**

Notes on Delphacids in Hawaii, GIFFARD P. hawaii. ent. Soc. 3 pp. 407-412.

*Burginia acuticeps* sp. n. Algeria p. 160, figs., BERGEVIN Bull. Soc. ent. France 1918.

*Catonia helena* p. 306, *necopina* p. 307, spp. n. California, VAN DUZEE P. California Ac. 8.

*Cenchreini*; the genera, with synonymy, MUIR pp. 231 & 232 Ent. Mo. Mag. 54.

*Chanithus longirostris*, *pannonicus*, HAUPT p. 257 Wien. ent. Zeit. 36 1917.

*Cyclokara sordidulum* sp. n. Porto Rico p. 416, MUIR P. hawaii. ent. Soc. 3.

*Delphacodes mardiniae* p. 427 figs., *nigrifacies* p. 428, spp. n. Martinique, MUIR T.c.

*Derbe championi* Panama, *fowleri* Guatemala, spp. n., MUIR p. 230 Ent. Mo. Mag. 54.—*D. fritillaris* Boh., to *Proutista*, MUIR p. 235 T.c.

*Dictyophora*; Melichar's table, HAUPT p. 255 Wien. ent. Zeit. 36 1917.

*Dictyophorodelphax swezeyi* sp. n. Honolulu p. 386, BRIDWELL P. hawaii. ent. Soc. 3.

*Diospolis elongata* (= *Philadelphica pandani* Kirk.), *annetti* sp. n. Nigeria, MUIR p. 176 Ent. Mo. Mag. 54.

*Epotiocerus rubrostriatus* sp. n. Formosa p. 121, SCHUMACHER Mitt. zool. Mus. Berlin 8 1915.

*Fulgora vitalisia* p. 198, *atroalba* p. 199, spp. n. Indo-China, DISTANT Ann. Nat. Hist. 1.

*Gergithoides* gen. n. *Issinae*, *carinatifrons* sp. n. Formosa, SCHUMACHER p. 126 Mitt. zool. Mus. Berlin 8 1915

*Gergithus robustus* sp. n. Formosa with var. *hoozanensis*, SCHUMACHER p. 127 T.c. 1915.

*Hemisphaerius hoozanensis* sp. n. Formosa p. 128, SCHUMACHER T.c. 1915.

*Herpis aburiensis* sp. n. Africa p. 236, MUIR Ent. Mo. Mag. 54.

*Hysteropterum candidum* sp. n. Algeria p. 260, figs., BERGEVIN Bull. Soc. ent. France 1918 1919.

*Kervillea* gen. n. near *Hysteropterum* p. 104, *ancyrana* sp. n. Angora p. 175, BERGEVIN T.c.

*Lamenia obscura* Ball, MUIR p. 415 P. hawaii. ent. Soc. 3.

*Megamelus brevifrons* sp. n. Prussia p. 260, HAUPT Wien. ent. Zeit. 36 1917.

*Mysidia pseudonebulosa* p. 423, *neonebulosa* p. 424, spp. n. Bartica, MUIR P. hawai. ent. Soc. 3.—*M. elatior* to *Heronax*, *spreti* to *Basilcocephalus*, MUIR p. 230 Ent. Mo. Mag. 54.

*Neodiotrombus* gen. n. for *Thracia basalis* Walk., MUIR p. 204 T.c.

*Neomalaxa* gen. n. p. 426 near *Zuleika*, *flava* sp. n. Porta Rico p. 427, MUIR P. hawai. ent. Soc. 3.

*Nesosydne phyllostegiae* p. 405, *cyrtandricola* p. 407, spp. n., Hawaii, MUIR T.c.

*Oliarus stenocephalus* p. 258, *brachycephalus* p. 259, Buchara, *interruptus* Turkestan p. 260, spp. n., HAUPT Wien. ent. Zeit. 36 1917.

*Oliocerini*; genera tabulated, MUIR pp. 237 and 238 Ent. Mo. Mag. 54.

*Pamendange* = (*Paraprotista* M.), *distanti* Ceylon, p. 202, *grahami* Africa, *pseudoabscissa* Sula, p. 203, spp. n., MUIR T.c.

*Paraprotista matsumurae* sp. n. Japan and Formosa p. 422, MUIR P. hawai. ent. Soc. 3.

*Patara*, taxonomy, MUIR p. 416 T.c.—*P. pattersoni* sp. n. W. Africa p. 233, MUIR Ent. Mo. Mag. 54.

†*Permofulgor* gen. n. p. 370 *Permofulgoridae* fam. n. p. 729, *belmontensis* sp. n. Permian N.S.W. p. 731 fig., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

†*Permoscarta* gen. n. p. 726, *mitchelli* sp. n. Permian N.S.W. p. 728, fig., TILLYARD T.c. 1917.

*Persis stacli*, *fuscinervis*, spp. n. Guiana p. 417, MUIR P. hawai. ent. Soc. 3.

*Phaciocephalus parishi*, *bipunctata*, spp. n. Bartica p. 418, MUIR T.c.

*Phenice*, *D. fasciolata* is the type of, MUIR p. 207 Ent. Mo. Mag. 54.—*P. neavei* sp. n. Africa p. 235, MUIR T.c.

*Platocera rubicundum* sp. n. Bartica p. 421, MUIR P. hawai. ent. Soc. 3.

*Protista pseudodecisa* sp. n. Australia, MUIR p. 177 Ent. Mo. Mag. 54.—*P. wilemani* sp. n. Formosa p. 243, MUIR T.c.

*Pseudohelcita* gen. n. for *Zoraida walkeri* Dist., MUIR p. 204 T.c.

*Punana puertoricensis* sp. n. p. 425, MUIR P. hawai. ent. Soc. 3.

*Purusha pulverosa* sp. n. Tonkin p. 200, DISTANT Ann. Nat. Hist. 1.

*Pyrrhoneura mlanjensis* sp. n. Africa p. 239, MUIR Ent. Mo. Mag. 54.

*Robigus pattersoni* sp. n. Africa p. 241, MUIR T.c.

*Sumangala* and *Mecynorhynchus*, synonymous, MUIR p. 231 T.c.

*Symidia* gen. n. *Cenchrini*, *flava* sp. n. Demerara, MUIR p. 234 T.c.

*Syntames nigrolineatus* p. 419, *sufflavus* p. 420, spp. n. Bartica, MUIR P. hawai. ent. Soc. 3.—*S. chiriquensis* valid = (*nigrolineatus* Muir), MUIR p. 233 Ent. Mo. Mag. 54.

*Tettigometra depressa*, HAUPT p. 261 Wien. ent. Zeit. 36 1917.

*Ugyops occidentalis* sp. n. Porto Rico p. 425, MUIR P. hawai. ent. Soc. 3.

*Zoraida distanti* Africa p. 204, *ridleyi* Singapore, *kirkaldyi* Ceylon, p. 205, *aburiensis* Africa, *wallacei* Singapore, p. 206, spp. n., MUIR Ent. Mo. Mag. 54.

## MEMBRACIDAE.

Membracidae of Cayuga lake basin, FUNKHOUSER pp. 177-445 44 pls. Mem. Cornell Univ. exp. Stat. 11 [not seen by Recorder *vide* Canad. Ent. 50 p. 179].

*Anchonoides variegatus* sp. n. Singapore p. 4. FUNKHOUSER J. Straits Asiat. Soc. 79.

*Centrotoscelus luteus* p. 30, *concauus* p. 31 pl. i figs 11 & 12 spp. n. Luzon, FUNKHOUSER Philipp J. Sci. D 13.

*Centruchus laticornis* sp. n. Singapore p. 9. FUNKHOUSER J. Straits Asiat. Soc. 79.

*Cryptaspidia nigris* sp. n. Luzon p. 36 figs. 17 and 18, FUNKHOUSER Philipp. J. Sci. D 13.

*Gargara projecta* Singapore p. 10, *penangi* p. 11, *triangulata* p. 12, *nervosa*, *sordida*, p. 13, Singapore spp. n., FUNKHOUSER J. Straits Asiat. Soc. 79.—*G. maculipennis* p. 32 pl. i figs. 13 & 14, *pinguis* p. 33 figs. 15 & 16, *rugonervosa*, p. 34, *irrorata* p. 35, spp. n. Philippines, FUNKHOUSER Philipp. J. Sci. D 13.

*Heliria rubidella* sp. n. Colorado p. 28, BALL P. biol. Soc. Washington 31.

*Nilantama minutispina* sp. n. Penang p. 3, FUNKHOUSER J. Straits Asiat. Soc. 79.

*Platycentrus taurinus* sp. n. California p. 29, BALL P. biol. Soc. Washington 31.

*Pyrgonata longiturris* sp. n. Luzon p. 23 pl. i figs. 1 & 2, FUNKHOUSER Philipp. J. Sci. D 13.

*Stictolobus trilineatus* sp. n. Louisiana, FUNKHOUSER p. 186 pl. xi Ent. News 29.

*Telonaca* gen. n. p. 27 near *Telamona*, *ramona* sp. n. California p. 28, BALL P. biol. Soc. Washington 31.

*Tricentrus spinicornis* p. 6, *brunncus* p. 7, *truncaticornis* p. 8, spp. n. Singapore, FUNKHOUSER J. Straits Asiat. Soc. 79.—*T. robustus* p. 26 pl. i figs. 3 & 4, *laticornis* p. 27 figs. 5 & 6, *fasciipennis* p. 28 figs. 7 & 8, spp. n. Luzon, FUNKHOUSER Philipp. J. Sci. D 13.

*Xanthosticta* Buckt. composition, FUNKHOUSER p. 21 T.c.

*Xiphistes orientalis* sp. n. Singapore p. 1, FUNKHOUSER J. Straits Asiat. Soc. 79.

#### CERCOPIDAE.

*Lepyronia batrachoides* sp. n. Siberia p. 237, HAUPT Wien. ent. Zeit. 36 1917.

*Macropsis verrucosa* sp. n. Turkestan p. 239, HAUPT T.c. 1917.

*Philaenus infumatus* sp. n. Switzerland p. 238, HAUPT T.c. 1917.—*P. parallelus* sp. n. Wisconsin p. 3, STEARNS Ent. News 29.

*Symphypyga* gen. n. p. 239 near *Agallia*, *obsoleta* p. 241, figs., *tristis*, Buchara, *leopardina* Turkestan fig., p. 242 spp. n., HAUPT Wien. ent. Zeit. 36 1917.

*Taihorina* gen. n. p. 84 near *Modiglianella*, *geisha* sp. n. Formosa p. 85, SCHUMACHER Mitt. zool. Mus. Berlin 8 1915.

*Tomaspis trifasciata* sp. n. Algeria p. 234, HAUPT Wien. ent. Zeit. 36 1917.—*T. flavilatera* early stages figs., WILLIAMS pp. 163-173 Bull. ent. Res. 9.—*T. saccharina* Grenada, WILLIAMS pp. 83-87 Bull. ent. Res. 9.

*Tricophora musiva* sp. n. Algeria p. 235, *maclata* var. n. *egestosa* p. 236, HAUPT Wien. ent. Zeit. 36 1917.

#### JASSIDAE.

Review of the genera of *Eupterygidae*, 16 being adopted, McATEE P. biol. soc. Washington 31 pp. 109-124.

*Aconura atrata* sp. n. India p. 77, DISTANT Faun. Brit. Ind. Rhynch. 7.

*Aeternus* gen. n. near *Kunasia*, *hieroglyphicus* f. 25 sp. n. Tenasserim, DISTANT p. 50 T.c.

*Agallia uhleri*, figs. of wings of parasitised, PIERCE pl. lxxiii p. 499 P. U.S. nat. Mus. 54.

*Aguriahana* gen. n. near *Typhlocyba*, *metallica* f. 62 sp. n. Himalaya, DISTANT p. 105 Faun. B.I.R. 7.

*Ahenobarbus* gen. n., *assamensis* sp. n. f. 12, DISTANT p. 28 T.c.

*Alebra bicincta* p. 240, *eburnea* p. 241 spp. n. Tennessee, *albostrigella* var. n. *rubrafrons* p. 240, figs., DE LONG Ohio Nat. 18.

*Allectus* gen. n. p. 75 near *Aconura*, *notatus* f. 43 sp. n. India p. 76, DISTANT Faun. B.I.R. 7.

*Anomiana* gen. n. *Typhlocybinæ*, *longula* f. 65, sp. n. India, DISTANT p. 109 T.c.

*Apphia* gen. n. p. 4 near *Tettigoniella*, *burmanica* sp. n. p. 5 f. 1, DISTANT T.c.

*Athysanus decoratus* p. 246, *sanguinisparvus*, *rugulosus* p. 248, Buchara, *translucidus* Amur p. 249, spp. n., HAUPT Wien. ent. Zeit. 36 1917.



*Augulus* gen. n. near *Typhlocyba* p. 98, *typicus* f. 59 sp. n. Assam p. 99, DISTANT Faun. B.I.R. 7.

*Banus maculosus* sp. n. India p. 55, DISTANT T.c.

*Bharata* gen. n. near *Atkinsoniella*, *insignis* sp. n. Burma, fig., DISTANT p. 12 T.c.

*Bituitus* gen. n. near *Scaphoideus* p. 70, *projectus* sp. n. India f. 38 p. 71, DISTANT T.c.

*Bolanus* gen. n. *Typhlocybinæ*, *baeticus* f. 53 sp. n. India, DISTANT p. 89 T.c.

*Bolanusoides* gen. n. *Typhlocybinæ*, *heros* f. 54 sp. n. India, DISTANT p. 90 T.c.

*Bumizana* gen. n. near *Cephalelus*, *elongata* f. 14 sp. n. India, DISTANT p. 32 T.c.

*Campbellinella* gen. n. near *Scaphoideus*, *illustrata* f. 36 sp. n. India, DISTANT p. 69 T.c.

*Camulus* gen. n. near *Typhlocyba*, *ornatus* f. 58, p. 97, *bellulus*, *modestus*, p. 98, spp. n. India, DISTANT T.c.

*Carvaka* gen. n. *Jassinæ*, *picturata* f. 21 p. 40, *thoracica*, *modesta*, *ochrophara*, p. 41, spp. n. India, DISTANT T.c.

*Chikkaballapura* gen. n. p. 107 *Typhlocybinæ*, *maculosa* f. 64, *quinque-maculata*, spp. n. India p. 108, DISTANT T.c.

*Cicadella marathonsensis* sp. n. Texas p. 3, OLSEN Bull. Amer. Mus. 38.

*Coroticus* gen. n. near *Varta*, *tesselatus* fig. 23 sp. n. India, DISTANT p. 45 Faun. B.I.R. 7.

*Crispina* gen. n. p. 76 near *Aconura*, *nigrisigma* f. 44 sp. n. India p. 77, DISTANT T.c.

*Cunedda* gen. n. near *Jassus*, *phaeops* sp. n. Assam f. 24, DISTANT p. 46 T.c.

*Deltocephalus signatus* sp. n. Crimea p. 245 figs., HAUPT Wien. ent. Zeit. 36 1917.—*D. nigrofacialis* f. 47 p. 81, *darjilingensis*, *coloratus*, *campbelli*, p. 82, *butleri*, *capitatus*, *trimaculatus*, India, *fuscovarius* Ceylon, p. 83, spp. n. DISTANT Faun. B.I.R. 7.—*D. marginatus* sp. n. Columbus p. 228, DE LONG Ohio Nat. 18.—*D. alboneura* sp. n. p. 236 figs. Tennessee, DE LONG T.c.

(n-5464 f)

*Didius* gen. n. near *Eupelix*, *sexualis* f. 18 sp. n. Calcutta, DISTANT p. 36 Faun. B.I.R. 7.

*Dio* gen. n. near *Banus*, *facialis* sp. n. Himalaya f. 28, DISTANT p. 56 T.c.

*Divitiacus* gen. n. near *Phlepsius*, *primus* fig. 31 sp. n. India, DISTANT p. 59 T.c.

*Dixianus* subg. n. vide *Phlepsius*.

*Drabescus notatus* sp. n. Formosa p. 99, SCHUMACHER Mitt. zool. Mus. Berlin 8 1915.

*Empoanara* gen. n. *Typhlocybinæ*, *militaris* f. 63, p. 106, *sternalis*, *lineolata*, p. 107, spp. n., India, DISTANT Faun. B.I.R. 7.

*Emposca terminalis*, *rubronotata*, *fuscofasciata*, *atropurpurea*, p. 92, *nigroscutellata*, *devastans*, *nagpurensis*, *radha*, p. 93, spp. n. India, DISTANT T.c.—*E. australis* sp. n. p. 568 figs., FROGGATT Agric. Gaz. N.S.W. 29.—*E. trifasciata*, fig., early stages, WEISS & DICKERSON Canad. Ent. 50 pp. 201-205.—*E. mali*, attacks man, BECKER p. 101 Psyche 25.

*Emposcanara* gen. n., *prima* f. 55, *binotata*, spp. n. India, DISTANT p. 94 Faun. B.I.R. 7.

*Erythroneura ador* sp. n. Nova Scotia p. 361, McATEE Canad. Ent. 50.

*Euacanthus militaris*, *bellus*, spp. n. Darjiling p. 11, DISTANT Faun. brit. Ind. Rhynch. 7.

*Eupteryx sanguinolenta* f. 57 p. 96, *paivana* p. 97, spp. n. India, DISTANT T.c.

*Eutettix lugubris*, *bengalensis* f. 32, spp. n. India p. 60, DISTANT T.c.

*Faenius* gen. n. near *Bolinlila*, *lynchi* f. 4, p. 14, *butleri* p. 15, spp. n. India, DISTANT T.c.

*Galerius* gen. n. near *Aconura*, *indicatrix* f. 45, p. 78, *aberrans* p. 79, spp. n. India, DISTANT T.c.

*Goniagnathus fumosus*, *bicolor*, *obesus*, spp. n. India p. 43, DISTANT T.c.

*Gunghuayana cingalensis* sp. n. f. 33, DISTANT p. 62 T.c.

*Gunhilda* gen. n. near *Deltocephalus*, *noctua* f. 52 sp. n. India, DISTANT p. 88 T.c.

*Gypona spadix* sp. n. Tennessee p. 235, figs., DE LONG Ohio Nat. 18.

*Hecalus facialis* p. 29, *capitatus, godavariensis*, p. 30, spp. n. India, DISTANT Faun. B.I.R. 7.

*Hussa* gen. n. near *Scaphoideus, insignis* f. 35 sp. n. India, p. 68, DISTANT T.c.

*Iowanus* subg. n. vide *Phlepsius*.

*Jassus fryeri* Ceylon p. 47, *albororatus, coonoorensis*, p. 48, India, *excelsus* Burma, *ostentus* Travancore p. 49, spp. n., DISTANT Faun. B.I.R. 7.

*Kana signata* p. 34 fig. 16, *illuminata* p. 35 f. 17, *modesta* p. 36, spp. n. India, DISTANT T.c.

*Kolla raja* p. 7, *pronotalis, ganesa*, p. 8, *diaphana, tigrina, kodaiana* p. 9, *atrontotata*, India, *eliyana* Ceylon, p. 10, spp. n., DISTANT T.c.

*Kutara nigrofacialis* sp. n. India p. 42, DISTANT T.c.

*Lampridius* gen. n. near *Phlepsius, spectabilis* f. 30 sp. n. Burma, DISTANT p. 58 T.c.

*Leofa* gen. n. near *Deltocephalus, mysorensis* f. 50, p. 86, *affinis* f. 51, *sanguinalis*, p. 87, *unicolor, pedestris*, p. 88, spp. n. India, DISTANT T.c.

*Mahalana* gen. n. near *Scaphoideus, fidelis* f. 34, p. 63, *lugubris* p. 64, spp. n. India, DISTANT T.c.

*Malichus* gen. n. p. 24 near *Tambila, capitatus* sp. n. Ceylon p. 25 f. 10, DISTANT T.c.

*Maximianus* gen. n. near *Aconura, notatus* f. 46, p. 79, *cephalicus* p. 80, spp. n. India, DISTANT T.c.

*Mohunia modesta* sp. n. Burma p. 29, DISTANT T.c.

*Nakula* gen. n. near *Gessius, multicolor* f. 20 sp. n. Burma, DISTANT p. 39 T.c.

*Nandidrug* gen. n. p. 74, *speciosum* f. 42, *viridicans*, p. 75, spp. n. India, DISTANT T.c.

*Nealiturus* nom. n. for *Aliturus* Dist., DISTANT p. 63 T.c.

*Nesosteles hospes*, distinct, TIMBERLAKE p. 381 P. hawai. ent. Soc. 3.

*Nirvana insignis* sp. n. Travancore, DISTANT p. 33 Faun. B.I.R. 7.

*Omaranus* gen. n. p. 5 near *Tettigoniella, typicus* sp. n. Calcutta p. 6 f. 2, DISTANT Faun. brit. Ind. Rhyneh. 7.

*Ootacamundus* gen. n. near *Phlepsius, typicus* f. 29 p. 57, *minutus* p. 58, spp. n. India, DISTANT T.c.

*Ophiuchus* gen. n. p. 33 near *Nirvana, princeps* f. 15 sp. n. Travancore p. 34, DISTANT T.c.

*Orosius* gen. n. near *Deltocephalus, albicinctus* f. 49 sp. n. India, DISTANT p. 85 T.c.

*Paivanana* gen. n. typo *Typhlocyba indra* p. 95 f. 56, *dirga* sp. n. India p. 96, DISTANT T.c.

*Parabolocratus lutescens* sp. n. India, *rusticus* f. 7 n. n. for *viridis* Dist., DISTANT p. 31. T.c.

*Paralimnus facialis* p. 62, *lesroyi* p. 63, spp. n. India, DISTANT T.c.

*Paternus* gen. n. near *Scaphoideus, pusanus* f. 39 sp. n. India, DISTANT p. 72 T.c.

*Penthimia nilgiriensis* p. 16, *montana, badia*, India, *vittatifrons* Ceylon, p. 17, *majuscula, variabilis* f. 6, p. 18, *funebis, thoracica*, p. 19, *flavocapitata* p. 20, *fraterna, quadrinotata*, p. 21, *noctua, attenuata* f. 8, p. 22, India, spp. n., DISTANT T.c.

*Petaloccephala taihorensis* sp. n. Formosa p. 92, SCHUMACHER Mitt. zool. Mus. Berlin 8 1915.

*Phlepsius comma* sp. n. Buchara p. 243, HAUPT Wien. ent. Zeit. 36 1917.—*P. (Iowanus* subg. n.) *elongatus* p. 382, *hebraeus, handlirschi*, p. 383, spp. n. Mexico, *P. (Texanus* subg. n.) *eugeneus* p. 384, *mexicanus* p. 385, *hosanus* p. 386, spp. n. *P. (Dixianus* subg. n.) *utahnus* Ball p. 387, *P. (Zioninus* subg. n.) for *extremus* Ball p. 388, BALL Ann. ent. Soc. Amer. 11 figs.

*Phrynomorphus ootacamundus* p. 51, *olivescens, coronatus*, p. 52, spp. n. India, DISTANT Faun. B.I.R. 7.

*Placidus orientalis* sp. n. Formosa p. 104, SCHUMACHER Mitt. zool. Mus. Berlin 8 1915.

*Platyretus connexus* f. 19 p. 37, *himalayanus*, *albognatus*, p. 38, spp. n. India, DISTANT Faun. B.I.R. 7.

*Postumus* gen. n. near *Deltocephalus*, *facialis* f. 48 sp. n. India, DISTANT p. 84 T.c.

*Prasutagus* gen. n. near *Phlepsius*, *pulchellus* f. 27 sp. n. India, DISTANT p. 53 T.c.

*Sabimaaryana* sp. n. Darjiling p. 47, DISTANT T.c.

*Sabinamorpha speciosissima* var. n. *atava*, SCHUMACHER p. 103 Mitt. zool. Mus. Berlin 8 1915.

*Scaphoideus redundans* p. 64, *nutans*, *hieroglyphicus*, p. 65, *brachycephalus*, *pallifrons*, p. 66, *assamensis*, *stigmaticus*, p. 67, spp. n. India, DISTANT Faun. B.I.R. 7.—*S. umbrinus* sp. n. Formosa p. 105, SCHUMACHER Mitt. zool. Mus. Berlin 8 1915.

*Shaddai* gen. n. *Tettigoniellinae*, *typicus* sp. n. Darjiling fig., p. 15, DISTANT Faun. B.I.R. 7.

*Stenometopiellus* gen. n. p. 250 near *Thamnolettix*, *sigillatus* sp. n. Buchara p. 251, figs., HAUPT Wien. ent. Zeit. 36 1917.

*Tambila graveleyi* Bombay f. 9, *opulenta*, *fletcheri*, p. 23, *conspersa* p. 24, Ceylon, spp. n., DISTANT Faun. B.I.R. 7.

*Tettigoniella insignior* p. 1, *gemina*, *thalia*, p. 2, *sylvanella* p. 3, *kharavela* p. 4, India, *hopinensis* Burma p. 3, spp. n., DISTANT Faun. brit. Ind. Rhynch. 7.

*Texananus* subg. n. vido *Phlepsius*.

*Thagria capitata* India, *difformis* Ceylon, spp. n. p. 44, DISTANT Faun. B.I.R. 7.

*Thamnolettix excisus* Germany, *lapponicus*, p. 252, *schlueteri* p. 253, Lapland, *minutus* Buchara p. 254, spp. n., HAUPT Wien. ent. Zeit. 36 1917.—*T. proprius* sp. n. Tennessee p. 238, figs., DE LONG Ohio Nat. 18.

*Traiguma verticalis* sp. n. India p. 27, DISTANT Faun. B.I.R. 7.

*Trebellius* gen. n. p. 52 near *Phrynomorphus*, *albifrons* f. 26 sp. n. India p. 53, DISTANT T.c.

*Typhlocyba gemmata* p. 99, *ornatula*, *diana*, *atrosignata*, p. 100, *guttulata*, *coerulescens*, *sanguinalis*, *cardinalis*, p. 101, India, *atrifrons* Ceylon, *dubia*, *rubrostriata*, p. 102, *rufuscula*, *spectra*, *opulenta* f. 60, p. 103, *straminea*, *delicatula*, *incerta* f. 61, p. 104, India, spp. n., DISTANT T.c.—*T. cymba* sp. n. Nova Scotia p. 360, McATEE Canad. Ent. 50.

*Viridomarus* gen. n. near *Scaphoideus* p. 69, *capitatus* sp. n. India f. 37 p. 70, DISTANT Faun. B.I.R. 7.

*Volusenus* gen. n. near *Scaphoideus*, *lahorensis* sp. n. f. 40, DISTANT p. 72 T.c.

*Xestocephalus relatus* p. 54, *nilgiriensis*, *transversus*, *dissimilis*, p. 55, spp. n. India, DISTANT T.c.

*Zioninus* subg. n. vido *Phlepsius*.

*Zizyphoides* gen. n., *indicus* f. 41, p. 73, *fraternus* p. 74, spp. n. India, DISTANT Faun. Brit. Ind. Rhynch. 7.

#### PSYLLIDÆ.

*Psyllidæ* of Washington, annotated list, McATEE pp. 220–224 Ent. News 29.

The *Psyllidæ* of Hawaii; CRAWFORD P. hawai. ent. Soc. 3 pp. 430–457.

Ants and *Psyllidæ*, HETSCHKO Wien. ent. Zeit. 37 pp. 212 & 213.

*Aphalara eas* sp. n. U.S. p. 221, McATEE Ent. News 29.

*Auchmerina* gen. n. *Psyllinae*, *limbatipennis* sp. n. Bolivia, ENDERLEIN p. 347 figs. Zool. Anz. 49.

*Cerotrioza* gen. n., *bivittata* sp. n. Oahu, CRAWFORD P. hawai. ent. Soc. 3.

*Heteropsylla crawfordi* sp. n. Costa Rica p. 346, figs., ENDERLEIN Zool. Anz. 49.

*Hevakeva giffardi*, sp. n. p. 452 Hawaii, CRAWFORD P. hawai. ent. Soc. 3.

*Kuwayana nigricapita* p. 446, *minuta*, *gracilis*, p. 447, spp. Hawaii, CRAWFORD T.c.

*Labicria* gen. n. near *Psylla* p. 348, *barbata* sp. n. Brazil p. 349 fig., ENDERLEIN Zool. Anz. 49.

*Megatrioza palmicola* sp. n. Oahu p. 452, CRAWFORD P. hawai. ent. Soc. 3.

*Panisopelma* and *Ciriacremum*, distinguished, ENDERLEIN p. 351 Zool. Anz. 49.

*Psylla erythrinae* sp. n. Argentina p. 307 figs., LIZER An. Soc. Argent. 85.—*P. fuscinodulosus* sp. n. Bolivia p. 350, figs., ENDERLEIN Zool. Anz. 49.—*P. sorbi*, EDWARDS p. 113 Ent. Mo. Mag. 54.

*Syncoptozus* gen. n. *Aphalarinae* p. 344, *maculipennis* sp. n. Brazil p. 345, ENDERLEIN Zool. Anz. 49.

†*Triassopsylla* gen. n. p. 753, *plecioides* sp. n. N.S.W. triassic p. 754 fig., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Trioza ohicola* p. 442, *lanaiensis*, p. 443, *pullata*, *hawaiiensis*, p. 444, spp. n. Hawaiiia. CRAWFORD P. hawaii. ent. Soc. 3.—*T. limbata* sp. n. Bolivia p. 351, figs., ENDERLEIN Zool. Anz. 49.—*T. galii* and *velutina*, distinguished, EDWARDS p. 114 Ent. Mo. Mag. 54.—*T. alacris*, life-history, WEISS & DICKERSON pp. 59–63 Psyche 25.

#### APHIDAE.

Japanese Aphididae; many figures; a certain number of Matsumura's species are referred to other genera; ESSIG and KUWANA P. Calif. Ac. 8.

The aphididae of Lahore, DAS Mem. Ind. Mus. 6 pp. 135–274 18 pls. Annotated by VAN DER GOOT.

Aphidae of Java; VAN DER GOOT Buitenzorg 1917 301 pp.

Texas aphid notes; PADDOCK pp. 29–32 J. econ. Ent. 11

Aphidae of Ross-shire JACKSON Scott. Nat. 1918 pp. 81–91 & 144 pl. figs.

Food-plant catalogue of Aphidae of the world, part 5, PATCH Bull. Maine exp. Stat. 290 pp. 47–100.

Alternation host-plants, DAVIDSON pp. 289–293 J. econ. Ent. 1.

Parasites and hyperparasites of Aphidae, POULTON p. lv P. ent. Soc. London 1917.

Control of wing-development, SHINJI Biol. Bull. 35 pp. 95–116.

*Aleurodaphis* gen. n. p. 239, *blumeae* sp. n. Java p. 240, VAN DER GOOT Contrib. 1 Fasc. 3 1917.

*Aphis durantae* p. 274, *zizyphi* p. 275, *ficus* p. 276, *tamaricis* p. 278, *bauhiniae* p. 279, *budleiae* p. 281, *mathiolae* p. 282, *multiolellae*, p. 284, Egypt, *pruniella* p. 285 E. Africa, *acetosella* Egypt p. 286, spp. n., figs., THEOBALD Bull. ent. Res. 8.—*A. japonica*-p. 70, *siphonella* p. 73, *somei* p. 75, *spinosa* p. 77, *thalictrii* p. 78, spp. n. Japan, ESSIG & KUWANA P. Calif. Ac. 8.—*A. malvoides* p. 215 (altered by VAN DER GOOT to *malvacearum*), *durranti* p. 217, sp. n. India, DAS Mem. Ind. Mus. 6.—*A. eugeniae* p. 91, *malvoides* p. 96, *nigricans* p. 103, *nigricauda* p. 106, *tectonae* p. 111, spp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 3 1917.—*A. ramona* p. 14, *senecio* p. 16, spp. n. California, SWAIN Tr. amer. ent. Soc. 44.—*A. pseudoavenae* sp. n. U.S., PATCH Bull. Maine exp. Stat. 267 p. 293 figs. 1917.—*A. saliceti* and similar forms, characters, figs., *theobaldi* sp. n. New York, GILLETTE & BRAGG Canad. Ent. 50 pp. 89–94.—*A. bakeri*, allies pp. 328–333, *sensoriata* sp. n. Colorado p. 330, GILLETTE & BRAGG J. econ. Ent. 11.—*A. gossypii* = (*circzandis* Fitch.), BAKER p. 130 P. ent. Soc. Washington 20.—*A. malifoliae*, *pomi* and *prunifoliae*, distinctions, SMULYAN pp. 19–23 Psyche 25.

*Aulacorthum dispersum* p. 22, *filicis* p. 24, *scirpi* p. 26, *symplocosis* p. 23, *virida* p. 31, spp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 3 1917.

*Brachyunguis* gen. n. p. 227, *harmalae* p. 228, *letsoniae* p. 235, *B. ? carthumi* p. 237, spp. n. India, DAS Mem. Ind. Mus. 6.

*Brevicoryne* gen. n. including *Aphis brassicae* L., p. 179, *coriandri* sp. n. p. 180, DAS T.C.

*Calaphis magnoliae* sp. n. Japan p. 85, ESSIG & KUWANA P. Calif. Ac. 8.

*Cerataphis freycinetiae* sp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 3 p. 166 1917.

*Ceratoglyphina* gen. n. p. 235, *bambusae* sp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 3 p. 237 1917.

*Cerosipha cupressi* sp. n. California p. 19, SWAIN Tr. Amer. ent. Soc. 44.

*Cervaphis* gen. n. *Cervaphidina* trib. n., *schouteniae* sp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 3 p. 149 1917.—*C. quercus* n. sp., TAKAHASHI Dobuts. Z. Tokyo 30 pp. 458-461.

*Chaitophorus japonica* p. 82, *salijaponica* p. 83, spp. n. Japan, figs., ESSIG and KUWANA P. Calif. Ac. 8.—*C. dimorphic* forms, pp. 85-87, *C. japonicus* sp. n. p. 86, BAKER P. biol. Soc. Washington 31.

*Chermes piceae* and *Mindarus abietinus* attacking silver-firs, BOAS, København. Dansk Skovforenings Tidsskrift 1918 pp. 191-276 51 figs.

*Chromaphis cellicolens* sp. n. Japan p. 95, ESSIG & KUWANA P. Calif. Ac. 8.

*Richochaitophorus himalayensis* sp. n. p. 240, DAS Mem. Ind. Mus. 6.

*Euceraphis japonica* sp. n. Japan p. 87, ESSIG & KUWANA P. Calif. Ac. 8.

*Forda formicaria*, *olivacea*, winged and apterous forms pl. xvi pp. 281-283 Ent. News 29.

*Glyphinaphis* gen. n. *bambusae* sp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 3 p. 232 1917.

*Greenidea flacourtiæ* p. 136, *psidii*, p. 138, spp. n. Java, VAN DER GOOT T.c. 1917.

*Greenideoida* gen. n. p. 140, *elongata* p. 142, *hannæ* p. 145, spp. n. Java, VAN DER GOOT T.c. 1917.

*Hyalopterus insignis* sp. n. Egypt p. 289 figs., THEOBALD Bull. ent. Res. 8.

*Lachnus pini*, *densifloræ*, p. 99 spp. n. Japan, ESSIG & KUWANA P. Calif. Ac. 8.—*L. ferrisi* p. 9, *taxifolia* p. 11, spp. n. California, SWAIN Tr. amer. ent. Soc. 44.

*Longiunguis* gen. n. p. 112, *odinas* sp. n. Java p. 113, VAN DER GOOT Contrib. 1 Fasc. 3 1917.

*Macrosiphoniella citricola*, sp. n. Java, VAN DER GOOT T.c. p. 34 1917.

*Macrosiphum allii* sp. n. Scotland p. 83, figs., JACKSON Scott. Nat. 1918.—*M. dahliasfolii* sp. n. Uganda p. 273 figs., THEOBALD Bull. ent. Res. 8.—*M. hagi* p. 44, *ibotum* p. 46, *nipponicum* p. 48, *nishigaharæ* p. 50,

spp. n. Japan, figs., ESSIG & KUWANA P. Calif. Ac. 8.—*M. roseiformis* sp. n. Lahore p. 158, DAS Mem. Ind. Mus. 6.—*M. rhodolendri* sp. n. Oregon p. 230, WILSON Ent. News 29.—*M. solanifolii*, life-history, characters, PATCH Bull. Maine expt. Stat. 242 pp. 205-223 3 pls.—*M.* genetic relations of forms, SHULL Amer. Nat. 52 pp. 507-520.—*M. sanbornii* to *Macrosiphoniella*, SWAIN p. 362 Ent. News. 29.

*Melanaphis* gen. n. near *Aphis*, VAN DER GOOT Contrib. 1 Fasc. 4 p. 50 1917.

*Micromyzus* gen. n. p. 52, *nigrum* sp. n. Java p. 53, VAN DER GOOT T.c. 1917.

*Monellia*, composition, SWAIN p. 365 Ent. News. 29.

*Myzocallis capitata* p. 89, *macro-tuberculata* p. 90, spp. n. Japan, figs., ESSIG & KUWANA P. Calif. Ac. 8.—*M. davidsoni* p. 1, *maureri* p. 4, spp. n. California, SWAIN Tr. amer. ent. Soc. 44.

*Myzus carthusianus* sp. n. England p. 49 fig., HAVILAND Entom. 51.—*M. pterisoides* sp. n. Uganda p. 292 figs., THEOBALD Bull. ent. Res. 8.—*M. cerasi*. food-plants, GILLETTE p. 241 Canad. Ent. 50.

*Neclarosiphon morrisoni* sp. n. California p. 8, SWAIN Tr. amer. ent. Soc. 44.

*Neomyzus* gen. n. for *Myzus circumflexum*, VAN DER GOOT Contrib. 1 Fasc. 4 p. 50 1917.

*Nipponaphis cuspidatæ* sp. n. Japan p. 110, ESSIG & KUWANA P. Calif. Ac. 8.

*Oodisiphum* gen. n. p. 122, *compositarum* sp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 3 p. 123 1917.

*Oregma mui* p. 117, *singaporensis* p. 120, *sundanica* p. 122, spp. n. Singapore, VAN DER GOOT Tyds. Ent. 61.—*O. batalis* p. 181, *graminum* p. 184, *loranthi* p. 194, *latescens* p. 197, *minuta* p. 201, *montana* p. 205, *nipæ* p. 208, *pallida* p. 212, *panicis* p. 214, *rhapidis* p. 217, *salatigensis* p. 219, *smilis* p. 223, *striata* p. 226, *sundanica* p. 230, spp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 3 1917.

*Pemphigus glebae* sp. n. Scotland p. 88 figs., JACKSON Scott. Nat. 1918.—*P. ? cynodonti* sp. n. Lahore p. 153, DAS Mem. Ind. Mus. 6.

*P. bursarius*, GIBBS p. 16 Tr. Hertford. Soc. 17 p. 16.—*P. populi-transversus*, instars, natural history, JONES & GILLETTE J. Agric. Res. 14 pp. 577–594 5 pls.

*Pentulonia caladii* sp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 4 p. 57 1917.

*Phorodon minutum* p. 43, *polygoni* p. 44, spp. n., Java, VAN DER GOOT T.c.

*Phylloxera vastatrix*, races, GRASSI & TORI Atti. Acc. Lincei Rend. 26 pp. 265–278 1917.

*Prociophilus osmanthae* sp. n. Japan p. 105, ESSIG & KUWANA P. Calif. Ac. 8.—*P.*; North American, PATCH Bull. Maine exp. Stat. 270 pp. 45 & 46 pls. figs. 4 and 5.

*Rhopalosiphum lespedezae* p. 57, *magnoliae* p. 59, spp. n. Japan, ESSIG & KUWANA P. Calif. Ac. 8.—*R. sumbuicicola* n. sp., TAKAHASHI Dobuts. Z. Tokyo 30 pp. 368–376.

*R. oleraceae* sp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 3 p. 40 1917.

*Schizoneuraphis* gen. n. p. 245, *distylii* p. 247, *foliorum* p. 250, *gallorum* p. 252, spp. n. Java, VAN DER GOOT T.c.

*Semiaphis montana* sp. n. Java, VAN DER GOOT T.c. p. 119 1917.

*Serrataphis* gen. n., VAN DER GOOT T.c. p. 263 1917.

*Setaphis* gen. n. *Setaphidina* trib. n. p. 153, *luteus* p. 154, *viridis* p. 158, spp. n. Java, VAN DER GOOT T.c.

*Shivaphis* gen. n. p. 245, *celi* sp. n. India p. 246, DAS Mem. Ind. Mus. 6.

*Sipha paradoxa* sp. n. England p. 26, figs., THEOBALD Entom. 51.

*Siphonatrophia* gen. n. for *Cerosipha cupressi* Sw., SWAIN p. 363 Ent. News 29.

*Siphocoryne bicaudata* p. 64, *japonica* p. 66, spp. n. Japan, ESSIG & KUWANA P. Calif. Ac. 8.—*S. indobrassicae* sp. n. p. 188, DAS Mem. Ind. Mus. 6: according VAN DER GOOT loc. eod. this is probably *Aphis pseudobrassicae* Davis.

*Stephensonia* gen. n., *lahorensis* sp. n., DAS p. 175 Mem. Ind. Mus. 6.

*Stomaphis yanonis* sp. n., TAKAHASHI Dobuts. Z. Tokyo 30 pp. 368–376.

*Symydobius americanus* sp. n. U.S. p. 319, BAKER Canad. Ent. 50.—*S. chrysolepis* sp. n. California p. 6, SWAIN Tr. amer. ent. Soc. 44.

*Tetraneura javensis* sp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 3 p. 259 1917.

*Thoracaphis* gen. n. p. 242, *arboris* sp. n. Java, p. 243, VAN DER GOOT T.c. 1917.—*T. hongkongensis* sp. n. China, VAN DER GOOT Tyds. Ent. 61 p. 124.

*Thripsaphis caricicola* sp. n. California p. 367, SWAIN Ent. News 29.

*Toxoptera punjabipyri* sp. n. India p. 198, DAS Mem. Ind. Mus. 6.—*T. aphoides* p. 73, *cyperi* p. 81, *djarani* p. 84, *minuta* p. 86, spp. n. Java, VAN DER GOOT Contrib. 1 Fasc. 4 1917.—*T. nigra* sp. n. U.S. p. 88, BAKER Psyche 25.—*T. graminum* natural history, LUGINBILL & BEYER J. Agric. Res. 14 pp. 97–110.

*Trichosiphum roepkei* sp. n. Singapore, VAN DER GOOT Tyds. Ent. 61 p. 115.

*Truncaphis* gen. n. near *Tetraneura*, *newsteadii* sp. n. England p. 25, figs., THEOBALD Entom. 51.

*Tuberodryobius* gen. n. for *Luchnus persicae* p. 259, DAS Mem. Ind. Mus. 6.

*Tychea phaseoli*, THEOBALD p. 29 Entom. 51.

#### ALEURODIDAE.

*Aleurodes alboflocosa* sp. n. Australia p. 436, figs., FROGGATT Agric. Gaz. N.S.W. 29.

*Aleurothrixus graneli* sp. n. Argentina p. 344, figs., BLANCHARD Physis 4.

#### COCCIDAE.

List of Coccidae affecting various genera of plants, continuation, GREEN pp. 228–239 Ann. appl. Biol. 4 and 5 pp. 143–156 261–273.

On "mutation" species, degeneration of antennal segments, KANNAN pp. 130–148, GREEN pp. 149–154 Tr. ent. Soc. London 1918.

Supposed dimorphous females, FERRIS pp. 349-352 Ent. News 29.

Prevalence of abdominal spiracles, FERRIS pp. 85-89 Canad. Ent. 50.

The Coccidae of South Africa, part 2, BRAIN Bull. ent. Res. 9 pp. 107-139 pls. iii-vii.

List of San Thomé Coccidae, SEABRA & VAYSSIÈRE Bull. Soc. ent. Franco 1918 pp. 162-164.

The Coccidae of Cuba, HOUSER Ann. Soc. ent. Amer. 11 pp. 157-170 pl. xviii.

*Amorphococcus acaciae* sp. n. Pretoria p. 112, figs. 75 & 79, BRAIN Bull. ent. Res. 9.

*Aspidiotus furcillae* p. 119 f. 85, *regius* p. 121 f. 90, *kellyi* p. 122 f. 86, *A. (Diaspidiotus) ehretiae* p. 127 f. 98, *A. (Solenaspidius) pumilus* f. 107 *grigra* f. 105, p. 133, *pertusus* p. 135 f. 103, spp. n. S. Africa, BRAIN T.c.—*A. subsimilis* var. n. *anonae*, HOUSER p. 163, *fabernii* sp. n. Cuba p. 165 pl. xviii Ann. ent. Soc. Amer. 11.

*Callococcus* gen. n. type *Sphaerococcus pulchellus* M., FERRIS p. 329 Canad. Ent. 50.

*Calycicoccus* gen. n. *Calycicoccinae* subf. n., *merceti* sp. n. Natal, p. 111, figs. 73 & 77, BRAIN Bull. ent. Res. 9.

*Chrysomphalus dictyopermi*, chalcid parasites, MALENOTTI pp. 17-51 Redia 13.

*Cissococcinae* subf. n. for *Cissococcus*, BRAIN p. 109 figs. 74 & 78 Bull. ent. Res. 9.

*Coccus colemani* sp. n. Mysore p. 135 pl. v figs. 2 & 3 KANNAN Tr. ent. Soc. London 1918.—*C. viridis*, a mutant of *Pulvinaria psidii*, KANNAN p. clxxxvi J. Asiat. Soc. Bengal 13 1917.

*Conchaspis euphorbiae* sp. n. Namaqualand p. 113 f. 81, BRAIN Bull. ent. Res. 9.

*Cryptokermes brasiliensis* pp. 221-225 pl. v, FERRIS Canad. Ent. 50.

*Diaspis pentagona* in France, VAYSSIÈRE p. 242 Bull. Soc. ent. France 1918.

*Ehrhornhia* gen. n. p. 325 type *Sphaerococcus cupressi*, *graminis* sp. n. California p. 326 figs., FERRIS Canad. Ent. 50.

*Eriococcus chabohiba* n. sp. Japan, KUWANA & NITOE Konch. Sek. Gifu 27 p. 400.

*Furcaspis charmoyi* Mauritius p. 138 f. 111, *proteae* Transvaal p. 139 f. 113, spp. n., BRAIN Bull. ent. Res. 9.

*Grewiacoccus* gen. n. *Pseudococcinae*, *gregalis* sp. n. Transvaal p. 108 pl. iv f. 76, BRAIN T.c.

*Heterococcus* gen. n., *arenae* sp. n. California p. 65 pl. iii f. 32, FERRIS Leland Stanford Univ. Publ. 1918.

*Icerya brasiliensis* in Argentina, LIZER p. 351 Physis 4.

*Lecanium viride* and *Pulvinaria psidii*, relations, KANNAN pp. 130-148. pls. v-viii, GREEN pp. 149-154 Tr. ent. Soc. London 1918.—*L. capreae*, natural history, chalcid parasites, IMMS pp. 293-374 Q. J. Microsc. Sci. 34 figs.—*L. persicae*, food-plants, VAYSSIÈRE p. 207 Bull. Soc. ent. France 1918; saccharomycetes of, TEODORO pp. 1-5 Redia 13.

*Mycetococcus* gen. n. type *Cerococcus chrhorni* Cock., FERRIS p. 330 Canad. Ent. 50.

*Nidularia\** *japonica* n. sp. Japan, KUWANI Konch. Sek. Gifu 27 p. 312.

*Paludicoccus* gen. n. type *Sphaerococcus distichium* Kuw., FERRIS p. 327 Canad. Ent. 50.

*Phenacoccus spinosus* sp. n. Luzon p. 145, ROBINSON Philipp. J. Sci. D 13.—*P. eriogoni* p. 58 pl. ii f. 14, *solani* p. 60 f. 21, spp. n. California, FERRIS Leland Stanford Univ. Publ. 1918.—*P. stachyos* Ehr. = (*pelliti* H.), HOLLINGER p. 23 Canad. Ent. 50.

*Pseudomidia manilensis* sp. n. p. 146, ROBINSON Philipp. J. Sci. D 13.

*Pseudococcus cupressicolus* p. 43 pl. i f. 11, *longisetosus* p. 46 f. 10, *quercicolus* p. 50 pl. ii f. 18, spp. n. California, FERRIS Leland Stanford Univ. Publ. 1918.

*Sphaerococcus*, divided, FERRIS p. 323 Canad. Ent. 50.

*Trionymus bromi* p. 67, *distichii* p. 69 pl. iii f. 28, *grindeliae* p. 71 pl. iii f. 26, spp. n. California, FERRIS T.c.

\* This name is not to be found in the lists.

**ELLIPTOPTERA or ANOPLURA.**

The mouth-parts of *Pediculus*, PEACOCK pp. 98-117 *Parasitology* 11 pl.

*Pediculus vestimenti*, natural history, HASE (650).—*P. vestimenti*, alimentary tract, SIKORA Arch. Schiffshyg. 20 Beih. 1 76 pp. 3 pls.—*P. corporis*, fertility and duration of life, HUTCHINSON J. econ. ent. 11 p. 404.

*Phthirus pubis*, natural history, NUTTALL *Parasitology* 10 pp. 383-405.

**THYSANOPTERA.**

Synonymic remarks on Swedish spp., AHLBERG Ent. Tidskr. 39 pp. 140-142.

*Thysanoptera* of Cuba, CARDIN pp. 57-58 Mem. Soc. cubana 3.

*Adiaphorothrips giraulti* sp. n. Queensland p. 148, HOOD Mem. Queensland Mus. 6.

*Ceratothripoides* gen. n., *brunneus* sp. n. Gold Coast, BAGNALL p. 201 Ann. Nat. Hist. 1.

*Cryptothrips laticeps* p. 142, *badius* p. 143, *dolichos* p. 144, *dimidiatus* p. 145, spp. n. Australia, HOOD Mem. Queensland Mus. 6.—*C. shavianus* sp. n. Victoria p. 216, BAGNALL Ann. Nat. Hist. 1.

*Eidothrips* gen. n., *alluandi* sp. n. Uganda p. 219, BAGNALL T.c.

*Euoplothrips* gen. n. p. 140 near *Mesothrips bagnalli* sp. n. Queensland p. 141, HOOD Mem. Queensland Mus. 6.

*Eurhynchothrips* gen. n. near *Trichothrips* p. 213, *convergens* sp. n. Gold coast p. 214, BAGNALL Ann. Nat. Hist. 1.

*Euthrips leeuweni* p. 358, *innoxius* p. 359, *involvans* p. 360, *marginentorquens* p. 362, *euryae* p. 363, spp. n. Java, KARNY Zeitschr. wiss. Insbiol. 10 1914.

*Frankliniella nigricornis* and *obscuricornis*, synonymy, KARNY p. 365 T.c. 1914.

*Haplothrips fuliginosus* Schille (as *Cryptothrips*)=(*obscuripennis* Bagn.) p. 207, *victoriensis* p. 208, *robustus* p. 209,

*melanoceratus*, Australia, *temipennis* India p. 210 spp. n., BAGNALL Ann. Nat. Hist. 1.—*H. varius* p. 128, *anceps* p. 129, *froggalti* p. 130, spp. n. Australia, HOOD Mem. Queensland Mus. 6.

*Heliothrips sculptilis* sp. n. Queensland p. 123, HOOD T.c.

*Hindsiana melaleuca* = (*Zygothrips bicolor* H. & W.), BAGNALL p. 211 Ann. Nat. Hist. 1.

*Kleothrips* Schm. = (*Dracothrips* Bagn.), BAGNALL p. 219 T.c.

*Klinothrips* gen. n. p. 217 near *Kleothrips femoralis* sp. n. Gold coast p. 218, BAGNALL T.c.

*Krinothrips* gen. n., *divergens* sp. n. Gold coast, BAGNALL p. 220 T.c.

*Leeuwenia convergens* sp. n. Australia p. 149, HOOD Mem. Queensland Mus. 6.

*Liothrips umbratus* p. 132, *tenuis* p. 133, *disjunctus* p. 134, *connatus* p. 135, *gracilior* p. 136, *brevilens* p. 137, spp. n. Australia, HOOD T.c.

*Mesothrips australiae* sp. n. p. 139, HOOD T.c.

*Odonthrips bispinosus* p. 203, *australis* p. 204 spp. n. W. Australia, BAGNALL Ann. Nat. Hist. 1.

*Phaulothrips* gen. n. p. 146 near *Diceratothrips vuilleti* sp. n. Queensland p. 147, HOOD Mem. Queensland Mus. 6.

*Phibalothrips* gen. n. near *Retithrips exilis* sp. n. Queensland p. 125, HOOD T.c.

*Physothrips ventralis* sp. n. Nigeria p. 116, HOOD Insec. inscit 6.—*P. setiventris* p. 61 sp. n. India fig., *lefroyi* figs. p. 63, BAGNALL Bull. ent. Res. 9.—*P. marshalli* sp. n. Africa p. 66 figs., Id. T.c.—*P. peculiaris* sp. n. Bengal, BAGNALL p. 207 Ann. Nat. Hist. 1.—*P. maculicollis* sp. n. Queensland p. 122, HOOD Mem. Queensland Mus. 6.

*Podothrips duplicatus* p. 211, *propinquus* p. 213, spp. n. Gold coast, BAGNALL Ann. Nat. Hist. 1.

*Pseudothrips archactus*, ♂, BAGNALL p. 205 T.c.

*Pterothrips* gen. n. p. 123 near *Rhipiphorothrips quadratus* sp. n. Queensland p. 124, HOOD Mem. Queensland Mus. 6.



*Rhamphothrips fasciatus* sp. n. Java, KARNY p. 295 Zeitschr. wiss. Insiol. 10 1914.

*Rhipidothrips cinctus* sp. n. Queensland p. 121, HOOD Mem. Queensland Mus. 6.

*Rhynchothrips soror* sp. n. Queensland p. 138, HOOD T.c.

*Scirtothrips citri*, natural history, HORTON Bull. U.S. Dep. Agric. 616 42 pp. 3 pls.

*Taeniothrips inconsequens* in Canada, life-history etc., CAMERON & TREHERNE Bull. Dep. Agric. ent. Canada 15:51 pp. figs.

*Trichothrips longicornis*, BAGNALL p. 215 Ann. Nat. Hist. 1.

### PSOCOPTERA.

*Cerastipsocus cubanus* sp. n. Cuba p. 34, ENDERLEIN Cat. Coll. Selys 3 2.

*Lasiopsocus brevipilosus* sp. n. S. Africa p. 35 pl. iii f. 15, ENDERLEIN T.c.

*Perientomum fortunatum* sp. n. Canaries, NAVÁS Mem. Pont. Acc. Romana 3 p. 20 1917.

*Psocus cubitalis* sp. n. India p. 36, ENDERLEIN Cat. Coll. Selys 3 2.—*P. angulatus* p. 88, *rotundatus* p. 89 spp. n. Argentina, NAVÁS Physis 4.

*Stenopsocus stigmaticus*, egg-protection, enemy, STÄGER Zeitschr. wiss. Insiol. 13 pp. 59-63 figs. 1917.

### LIPOPTERA OR MALLOPHAGA.

Anatomy and embryology, STRINDBERG Zeitschr. wiss. Zool. 115 pp. 382-459 1916.

Sexual structures, STRINDBERG Zeitschr. wiss. Zool. 117 pp. 591-653.

*Lipeurus dovei*, n. n. for *lineatus* McG., McGregor p. 46 Psyche 25.

### ISOPTERA.

The facotted eyes, JÖRSCHKE Zeitschr. wiss. Zool. 111 pp. 215-254 1914.

Holmgren's work, WASMANN pp. 379-385 Biol. Centralb. 35 1915.

Notes on white ants; on the behaviour of true ants towards white ants, FULLER Bull. S. Afric. Biol. Soc. 1 pp. 16-20.

*Acanthotermes grandiceps* sp. n. Africa p. 8, SJÖSTEDT Voyage Alluaud Ins. Pseudoneur. 1 1915.

*Amitermes medius* p. 663, *beaumonti* p. 664, spp. n. Panama, BANKS Bull. Amer. Mus. 38.

*Calotermes jeannelanus* p. 5, *athii* p. 6, spp. n. Africa, SJÖSTEDT Voyage Alluaud Ins. Pseudoneur. 1 1915.

*Cryptotermes dudlzyi* p. 660, *brevicollis*, *longicollis*, p. 661, spp. n. Panama, BANKS Bull. Amer. Mus. 38.

*Nasutitermes octopilis* p. 666, *holmgreni* p. 667 spp. n. Brit. Guiana, BANKS T.c.

*Neotermes holmgreni* sp. n. Panama p. 659, BANKS T.c.

*Reticulotermes lucifugus*, naturalised at Boston U.S., DOBSON p. 99 Psycho 25.

*Termes (Synacanthotermes) zuribaricensis* p. 10, T. (*Microtermes*) *alluaudanus* p. 13, *magnocellus* p. 16, spp. n. Africa, SJÖSTEDT Voyage Alluaud Ind. Pseudoneur. 1 1915.

### EMBIOPTERA.

*Embia fuentei* sp. n. Spain p. 358, NAVÁS Mem. Ac. Barcelona 14.

*Haploembia (Monotyloa) laufferi* sp. n. Spain p. 360, NAVÁS T.c.

### ZORAPTERA.

*Zorotypus hubbardi* sp. n. Florida, CAUDELL p. 375 Canad. Ent. 50.

## PLECOPTERA.

Mouth-parts; KOPONEN Medd. Soc. Fauna Fenn 42 1916 pp. 148-150.

Larvae; KOPONEN Medd. Soc. Fauna Fenn 42 1916 pp. 27 & 28; larvae and nymphs, Id. Acta Soc. Fauna Fenn. 44 1917 No. 4. pp. 1-28 12 figs.

Die Plecopteren-Arten Finlands, KOPONEN Acta Soc. Fauna Fenn. 44 No. 3 1916 pp. 1-18 5 fig.

North-american, Pteronarcinae and Perlodini, with morphological notes on male genitalia etc. SMITH Tr. amer. ent. Soc. 43 pp. 433-489 6 pls. 1917.

*Amphinemura palmeni* Kola sp. n., KOPONEN Acta Soc. Fauna Fenn 44 No. 3 1916 p. 13.

*Arcynopteryx lineata* p. 476, *aurea* p. 477, *vagans* p. 478, *ignota* p. 479, *inornata* p. 480, spp. n. Amer. bor., SMITH Tr. amer. ent. Soc. 43 1917.

*Chloroperla marianu* sp. n. Spain p. 154, NAVÁS Bol. Soc. ent. Españ. 1.—*C. (Isopteryx) breviata* sp. n. Lerida p. 344, NAVÁS Mem. Ac. Barcelona 14.

*Dictyogenus? phaleratus* Needham, sp. n. New Mexico p. 485, SMITH Tr. amer. ent. Soc. 43 1917.

*Dictyopterygella parva* sp. n. Kola, KOPONEN Acta Soc. Fauna Fenn. 44 No. 3 1916 p. 6.

*Isopteryx barnolai* sp. n. Lerida, I. (*Chloroperla*) *truncata* sp. n. Nevada, NAVÁS p. 343 Mem. Ac. Barcelona 14.

*Leuctra beullochi* sp. n. Lerida figs. p. 156, NAVÁS Mem. Ac. Barcelona 13 No. 7 1917.

*Nemura subulata* sp. n. Zaragoza p. 741, figs., NAVÁS Rev. Ac. Madrid 15 1917.—*N. angulosa* sp. n. Spain p. 156, NAVÁS Bol. Soc. ent. Españ. 1.—*N. lobulata* Andorra p. 345, *linguata* p. 346, *N. (Amphineura) clarata* p. 347, *rodriguezii* p. 348, Spain, spp. n. figs., NAVÁS Mem. Ac. Barcelona 14.—*N. lata*, male figs. p. 159, NAVÁS Mem. Ac. Barcelona 13 No. 7 1917.

*Neopteryx lucarina* p. 82, *raquelina* p. 83, *orphana* p. 84, spp. n. Argentina, NAVÁS Physis 4.

*Perla uncinata* sp. n. California p. 341, NAVÁS Mem. Ac. Barcelona 14.—*P. genualis* sp. n. Argentina p. 82, NAVÁS Physis 4.

*Protarcys dolobrata* p. 469, *bradleyi* Canada p. 470, spp. n., SMITH Tr. amer. ent. Soc. 43 1917.

†*Protoperla boltoni* sp. n. Stephieney Commentry, LAMEERE p. 164 Bull. Mus. Paris 23 1917.

*Pteronarcella torosa* New Mexico p. 461, *triloba* Colorado p. 462, spp. n., SMITH Tr. amer. ent. Soc. 43 1917.

*Pteronarcys comstocki* sp. n. New York p. 454, SMITH T.c. 1917.—*P. lobata* sp. n. New Mexico, NAVÁS Mem. Pont. Acc. Romana 3 p. 4 1917.

*Taeniopteryx costaborrasi* spp. n. Lerida p. 157, NAVÁS Mem. Ac. Barcelona 13 No. 7 1917.—*T. pacifica* and allies, habits, injuries, NEWCOMER pp. 37-41 3 pls. J. Agric. Res. 13.

*Nosutura* gen. n. type *Perla carolinensis* Banks, NAVÁS p. 342 Mem. Ac. Barcelona 14.

## EPHEMEROPTERA.

The larvae of Ephemeroptera, LESTAGE pp. 213-457 54 figs. Ann. biol. lacustre 8 1917.

*Baetis longinervis* sp. n. Spain p. 740, NAVÁS Rev. Ac. Madrid 15 1917.

*Callibaetis jaffueli* sp. n. Chile p. 214 fig., NAVÁS Bol. Soc. Aragon 17.—*C. vitreus* sp. n. Argentina p. 81, NAVÁS Physis 4.

*Nousia* gen. n. *Leptophlebini, delicata* sp. n. Chile, NAVÁS p. 213 fig., NAVÁS Bol. Soc. Aragon 17.

*Prosopistoma foliaceum*, ALM Ent. Tidskr. 39 p. 54 fig. 1.

*Rhithrogena diaphana* sp. n. Zaragoza p. 379, NAVÁS Rev. Ac. Madrid 15 1917.—*R. catalanica* sp. n. Lerida p. 160, NAVÁS Mem. Ac. Barcelona 13 No. 7 1917.

## PARANEUROPTERA.

For Protodonata, see extinct orders.

Spermatozoa of *Paraneur.* BALLOWITZ  
Biol. Centralbl. 36 pp. 209-216 1916.

The spermatozoa and spermiozeugmen of Aeschnidae, BALLOWITZ Arch. mikr. Anat. 90 pp. 169-185 2 pls.

List of Odonata of Poland, SCHOLZ pp. 92-96 Zeitschr. wiss. Insbiol. 13 1917.

The dragon-flies of India, parts 1-5, 13 pls., text-figs., FRASER J. Bombay Soc. 25 and 26.

Manual of New England Odonata, parts 1 and 2, HOWE Mem. Thoreau Mus. 2 1917 pp. 1-23. (Not seen by recorder; cf. Psyche 25 p. 106 notc.)

North Carolina species, BRIMLEY pp. 227-229 Ent. News 29.

Odonata of the tropical Andes, RIS Arch. f. Naturges. 82 A. 9 pp. 1-187 2 pls.

Notes on a collecting trip to Columbia, WILLIAMSON Miscell. Publ. Univ. Michigan 3 24 pp.

The gill-chamber, RICH J. Morphol. 31 pp. 317-347.

Rectal tracheation of larvae, CULLEN pp. 75-80, JAMIESON pp. 81-85, CARROLL pp. 86-102, BODINE pp. 103-113, P. Ac. Philad. 70, figs.—*Mesogomphus*, respiration, nymph, RICH S. Afric. Journ. Sc. 14 pp. 426-432 8 figs.

Dragon fly feeding on living snake, FROST p. 335 Ent. News 29.

*Acanthagrion acutum* Bolivia p. 120, *tuna* Columbia p. 122, *yungarum* Peru p. 124, spp. n., RIS Arch. Naturg. 82 A 9.—*A. amazonicum* sp. n. South America p. 16 pl. ii figs. 9-10, *gracile* var. n. *maculae* p. 19 pl. ii fig. 13; *gracile* p. 18, *gracile* var. *quadatum* p. 18 pl. i fig. 6, Sjöstedt Ark. Zool. 11 No. 15.

*Aeschna arida* sp. n. Arizona p. 298 pl. viii figs. 6-12, KENNEDY Canad. Ent. 50.—*A. peralta* p. 160, *vigintipunctata* p. 163 Peru, *rustipes* Colombia p. 167, spp. n., RIS Arch. Naturg. 82 A 9.—*A. coerulesa*, nymphs, etc., RIS Mitt. schweiz. ent. Ges. 12 pp. 348-354 pl. 1916.

†*Aeschnidiopsis* gen. n. for *Aeschna flindersiensis* W., p. 609 pls. xlii and xliii, TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Agrion brisbanense* sp. n. p. 477, figs., TILLYARD T.c. 1917.

*Agrion acquabile* varr., KENNEDY pp. 406-409 pl. xii Canad. Ent. 50

*Archipetalia* gen. n., *auriculata* sp. n. Tasmania, p. 455, figs., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Argia solita* p. 256, *alberta* p. 257, *hinei* p. 258, spp. n., U.S., figs., KENNEDY Canad. Ent. 50.—*A. ampura* Sjöstedt Ark. Zool. 11 No. 15 p. 10.

*Argiolestes chrysooides* pp. 475-477 figs., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Austroaeschna hardyi* sp. n. Tasmania p. 461, figs., TILLYARD T.c. 1917.

*Calopteryx scintillans*, Sjöstedt Ark. Zool. 11 No. 15 p. 35.—*C. splendens* ab. n. *tuempeli* p. 88 fig. p. 85, SCHOLZ Zeitschr. wiss. Insbiol. 13 1917.

*Ceratura indivisa* sp. n. Colombia p. 135, RIS Arch. Naturg. 82 A 9.

*Coeliccia flavostriata* p. 223 figs., *campioni* p. 224 figs., *macrostigma* p. 225 figs., *nigrohamata* p. 228 figs., spp. n. Borneo, LAIDLAW P.Z.S. London 1917.

*Cora xanthostoma* p. 16, *irene* p. 18, Am. mcr. *notoxantha* p. 20, *obscura* p. 21, Panama, *aurea* Colombia p. 24, spp. n., RIS Arch. Naturg. 82 A 9.

*Cordulegaster annulatus*, oviposition, SCHMIDT p. 33 Zeitschr. wiss. Insbiol. 13 1917, GEYR p. 137 T.c.

*Cordulephyta divergens* sp. n. New South Wales p. 467, figs., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Coryphaeschna coronata* sp. n. Bolivia p. 172, RIS Arch. Naturg. 82 A 9.

*Crocotthemis crocea* sp. n. Philippines, NAVÁS Mem. Pont. Acc. Romana 3 p. 1 1917.

*Cyclophylla cubana* sp. n. Cuba, NAVÁS T.c. p. 3 1917.

*Disparocypha* gen. n. near *Rhino-cypha* p. 313, *biedermanni* sp. n. Celebes p. 314, RIS Ent. Mitt. Berlin 5 1916.

*Enallagma occultum* sp. n. Colombia p. 119, RIS Arch. Naturg. 82 A 9.

*Epigomphus armatus* Costa Rica p. 148,  
*hylaicus* Brazil p. 153, spp. n., RIS T.c.

*Erpetogomphus constrictor* sp. n.  
Mexico p. 154, *boa* p. 153, figs., RIS  
T.c. 1917.—*E. lampyropeltis* sp. n. Cali-  
fornia p. 297 pl. viii f. 1, KENNEDY  
Canad. Ent. 50.

*Erythrodiplax amazonica* sp. n. South  
America, p. 46, *unimaculata* p. 48, *con-  
nata fusca* p. 48, *attenuata* p. 49,  
SjÖSTEDT Ark. Zool. 11 No. 15.

*Euthore leroii* sp. n. Colombia p. 28,  
RIS Arch. Naturg. 82 A 9.

*Gomphomacromia paradoxa* varr. n.  
*effusa* and *vinca*, Chile p. 340, NAVÁS  
Mem. Ac. Barcelona 14.

*Gomphus apicatus*, variation in  
nymph, STOUT p. 68 figs. Ent. News  
29.—*G. lividus*, three specimens in  
copulatory position, DAVIS p. 226 J. N.  
York Ent. Soc. 26.

*Heteracina aurora* sp. n. Colombia  
p. 58, RIS Arch. Naturg. 82 A 9.—*H.  
amazonica* sp. n. South America, SjÖs-  
TEDT Ark. Zool. 11 No. 15 p. 36.

*Heteragrion silvarum* p. 4, pl. i fig. 10,  
*speciosum* p. 7, pl. i fig. 13, pl. ii fig. 14,  
*romani* p. 8 pl. i figs. 1-3, spp. n.  
South America, SjÖSTEDT T.c.—*H.  
albifrons* sp. n. Costa Rica p. 89, RIS  
Arch. Naturg. 82 A 9.

*Heteropodagrion superbum* sp. n.  
Colombia p. 89, RIS T.c.

*Hoplonaeschna armata* var. n. *pole-  
miota* New Mexico p. 156 figs., NAVÁS  
Mem. Ac. Barcelona 13 No. 7.

*Hylaeothemis fruhstorferi*, female p.  
384, FRASER J. Bombay Soc. 25.

*Ichnura graellsii* var. n. *oculata* p. 341,  
NAVÁS Mem. Ac. Barcelona 14.

*Lais grisea* Jujuy p. 41, *saltuum* Peru  
p. 44, *regina* Bolivia p. 49, spp. n.,  
RIS Arch. Naturg. 82 A 9.

*Leptagrion antazensis* p. 11 pl. i figs.  
11-12, *foliaceum* p. 13 pl. i figs. 8-9,  
spp. n. South America, *flammeum* p. 13  
pl. i fig. 14, *dorsale* p. 15, pl. i fig. 15,  
SjÖSTEDT Ark. Zool. 11 No. 15.

*Lestes helix* sp. n. Peru p. 63, RIS  
Arch. Naturg. 82 A 9.—*L. falcifer*  
sp. n. South America, SjÖSTEDT Ark.  
Zool. 11 No. 15 p. 2 pl. ii fig. 15.

*Libellago amboniensis* sp. n. E. Africa  
p. 42, MARTIN Voyage Alluaud Ins.  
Pseudoneur. 2 1915.

*Mecistogaster jocaste vincentius* subsp.  
n. Colombia p. 72, RIS Arch. Naturg.  
82 A 9.—*M. amazonicus* p. 29, *pronoti*  
p. 31, spp. n. South America, SjÖSTEDT  
Ark. Zool. 11 No. 15.

*Mesoleptobasis* gen. n. p. 21, *incus*  
sp. n. South America, SjÖSTEDT Ark.  
Zool. 11 No. 15 p. 22 pl. i figs. 4-5.

*Metaleptobasis foreli* sp. n. Colombia  
p. 130, RIS Arch. Naturg. 82 A 9.—  
*M. amazonica* sp. n. South America,  
SjÖSTEDT Ark. Zool. 11 No. 15 1918  
p. 19 pl. ii figs. 1-2.

*Miathyria simplex*=(*Nothifixis lava*  
Nav.), RIS p. 182 Arch. Naturg. 82 A 9.

*Micrathyria romani* sp. n. South  
America, SjÖSTEDT Ark. Zool. 11 No. 15  
p. 42.

*Micromerus*, of Celebes pp. 303-310,  
*asclepiades* sp. n. p. 309, RIS Ent. Mitt.  
Berlin 5 1916.

*Microstigma rotundatum*, SjÖSTEDT  
Ark. Zool. 11 No. 15 p. 33.

*Neonevra pardalina* sp. n. South  
America, SjÖSTEDT Ark. Zool. 11 No. 15  
p. 24 pl. ii fig. 16.—*N. joana* Guiana  
p. 215, *ethela* Brazil p. 222, *mariana*  
Guiana p. 224, *denticulata* Peru p. 227,  
*myrthea* Guiana p. 228, *esthera* Costa  
Rica p. 232, spp. n., figs., WILLIAMSON  
Tr. amer. ent. Soc. 43 1917.

*Nephepeltia flavifrons*, SjÖSTEDT Ark.  
Zool. 11 No. 15 p. 41.

*Notogomphus rueppeli longus* subsp. n.  
E. Africa p. 36 pl. ii f. 6, MARTIN Voyage  
Alluaud Ins. Pseudoneur. 2.

*Onychogomphus alluaudi* p. 37 pl. ii  
figs. 3-5, *angela* p. 38 pl. iii figs. 7-9,  
spp. n. Africa, MARTIN T.c. 1915.

*Palaemnema peruviana* p. 79, *mela-  
nota* Costa Rica p. 99, *carmelita* Colom-  
bia p. 100, spp. n., RIS Arch. Naturg.  
82 A 9.

*Passeria* gen. n. p. 29 near *Archiclops*,  
*jeanneli* sp. n. Africa p. 30 pl. i figs. 1 &  
2, MARTIN Voyage Alluaud Ins. Pseu-  
doneur. 2 1915.

†*Perissophlebia* gen. n. p. 422 inc.  
sed., *multiseriata* sp. n. Queensland  
triassic p. 424, TILLYARD P. Linn. Soc.  
N.S.W. 43.

*Phlogenia umbrosa* Peru p. 78, *schmidtii* Bolivia p. 79, *silvarum* Peru p. 80, spp. n., RIS Arch. Naturg. 82 A 9.

*Phyllomacromia nilgiriensis* sp. n. p. 383, FRASER J. Bombay Soc. 25.

*Phyllopetalia apicalis*, ♀, NAVÁS p. 212, NAVÁS Bol. Soc. Aragon 17.

*Progomphus longistigma* Costarica p. 139, *pygmaeus* Colombia p. 142, *phyllochromus* p. 143, *perpusillus* p. 144, Peru, spp. n., RIS Arch. Naturg. 82 A 9.

*Protonevra bifurcata* sp. n. South America p. 28 pl. ii figs. 5-6, *humeralis* p. 26 pl. i fig. 17, SJÖSTEDT Ark. Zool. 11 No. 15.

*Pseudagrion stellatum* f.n. *major* p. 46 pl. iii figs. 10-12, MARTIN Voyage Alluand Ins. Pseudoneur. 2 1915.

*Pseudomacromia kikuyuensis* sp. n. Africa p. 34, MARTIN T.c. 1915.

*Pseudophaea*; the nature of the fibril tufts of larva, TILLYARD and others P. Linn. Soc. N.S.W. 43 p. 495.

*Rhinocypha* of Celebes, RIS pp. 310-318 Ent. Mitt. Berlin 5 1916.

*Somatochlora incurvata* p. 367, *kennedyi* p. 371, spp. n. Amer. bor., figs., WALKER Canad. Ent. 50.—S., spp. Alberta, WHITEHOUSE Canad. Ent. 50 pp. 96-100.

*Stenagrion dubium*, wings f. 10 p. 231, LAIDLAW P.Z.S. London 1917.

*Synlestes sclysi* N.S.W. p. 473, *tropicus* Queensland p. 475, spp. n., *weyersi nigrescens* subsp. n. p. 472, TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Synthemiopsis* gen. n. p. 463 *Synthemini*, *gomphomacromioides* sp. n. Tasmania p. 464, figs., TILLYARD T.c. 1917.

*Telagrion quadricolor* Peru p. 136, *oreas* Colombia p. 138, spp. n., RIS Arch. Naturg. 82 A 9.

*Telebasis garleppi* sp. n. Costa Rica p. 129, RIS T.c.

*Telephlebia tryoni* sp. n. Queensland p. 459, figs., TILLYARD P. Linn. Soc. N.S.W. 42 1917.

†*Triassolestes* gen. n. p. 418 Triassolestinae subf. n. of Lestidae, *epiophlebioides* sp. n. Queensland triassic p. 419, figs., TILLYARD P. Linn. Soc. N.S.W. 43.

## EXTINCT ORDERS.

Revision of the Commentry fossils, LAMEERE Bull. Mus. Paris 23 pp. 141-200 1917.

†*Aeroplana* gen. n. p. 426, Protodonta, subord. n. *Aeroplanoptera* fam. n. *Aeroplanidae*, *mirabilis* sp. n. Queensland triassic p. 426, pls. xlv & xlv, TILLYARD P. Linn. Soc. N.S.W. 43.

†*Anthracoptilus* gen. n. for *Homalophlebia perrieri* Meun., LAMEERE p. 180 Bull. Mus. Paris 23 1917.

†*Bouleites* gen. n. near *Protodiamphipnoa*, *latipennis* sp. n. Stephanien Commentry, LAMEERE p. 175 T.c. 1917

†*Ctenoptilus* gen. n. for *Homalophlebia trouessarti* Meun., LAMEERE p. 180 T.c. 1917.

†*Commentrya* gen. n. for *Oedischia maxima* Brogn., LAMEERE p. 176 T.c. 1917.

†*Fouquea comstocki*, *needhami*, spp. n. Stephanien Commentry, p. 155, LAMEERE T.c. 1917.

†*Hyaloptilus* gen. n., *minimus* sp. n. Stephanien Commentry (? *Psocoptera*), LAMEERE p. 169 T.c. 1917.

†*Lithoptilus* gen. n. for *Archaeoptilus boulei* Meunier, LAMEERE p. 157 T.c. 1917.

†*Megagnatha odonatiformis* Bolton is not Perlidae, but may be *Embioptera*, TILLYARD pp. 124-128 P. Linn. Soc. N.S.W. 43.

†*Mesoptilus* gen. n. near *Ischnoneura*, *dolloi*, p. 174, *sellardsi* p. 175, spp. n. Stephanien Commentry, LAMEERE Bull. Mus. Paris. 23 1917.

*Palaeocarrina* gen. n. (COCKERELL) was misprinted last year as *Plaeocarrina*.

†*Sthenaparoda agnusi*, *lerichei*, spp. n. Stephanien Commentry, LAMEERE p. 178 Bull. Mus. Paris 23 1917.

## ORTHOPTERA.

Monograph of *Orth.* of Nova Scotia, PIERS Pr. Nova Scotia Inst. 14 pp. 201-351 4 pls.

The faceted eyes; JÖRSCHKE Zeitschr. wiss. Zool. 111 pp. 154-214 pl. 1914.

The thoracic sclerites of *Dissosteria*, CRAMPTON Ann. ent. Soc. Amer. 11 pp. 347-366 pl.

The Orthoptera of Germany; ZACHER 287 pp. Jena 1917.

Notes on Orthoptera of Valsesia, NADIG Atti. Soc. ital. 57 1918 pp. 116-130.

Orthoptera, annotated list, Plummers isld., McATEE & CAUDELL P. ent. Soc. Washington 19 pp. 100-122.

Annotated list of 40 species from Rio de Janeiro, REHN pp. 335-363 pl. xxvii Tr. amer. ent. Soc. 43 1917.

†*Elcanopsis* gen. n. *Elcanidae* p. 262, *sydneyensis* sp. n. Australia p. 263, fig., TILLYARD P. Linn. Soc. N.S.W. 43.

## FORFICULIDAE OR DERMAPTERA.

*Dermaptera* from E. Africa, BORELLI Voyage Alluaud Orthopt. 1 1915.

Annotated list of *Dermaptera* from Panama, HEBARD Tr. amer. ent. Soc. 43 pp. 301-334 pl. xxvi 1917. Similar list of 27 mexican species, Id. Tc. pp. 409-432 pl. xxviii.

Male genitalia, CRAVERO Boll. Mus. Torino 33 No. 730 6 pp. figs.

*Barygerax* gen. n., *esau* sp. n. Panama pl. xxvi f. 8, HEBARD p. 324 Tr. amer. ent. Soc. 43 1917.

*Diaperasticus sansibaricus* var. n. *fuscula* p. 18 pl. ii f. 16, BORELLI Voyage Alluaud Orthopt. 1.

*Eugerax* gen. n. p. 327, *poecilum* sp. n. Panama p. 328 pl. xxvi f. 15, HEBARD Tr. amer. ent. Soc. 43 1917.

*Forficula auricularia*, natural history, BRINDLEY P. Cambridge Phil. Soc. 19 pp. 167-177.—*F. auricularia*, winged but flightless, VERHOEFF Zeitschr. wiss. Insbil. 13 p. 96 1917.

*Ceracodes* gen. n. p. 322, *litus* sp. n. Panama p. 233 pl. xxvi f. 6, HEBARD Tr. amer. ent. Soc. 43 1917.

*Gerax* gen. n. p. 325, *phantasma* sp. n. Panama p. 326 pl. xxvi f. 10, HEBARD T.c. 1917.

*Kosmetor intermedius* sp. n. Philippines, BORELLI Boll. Mus. Torino 33 No. 726 p. 4.

*Labia jeanneli* sp. n. Africa p. 11 pl. i figs. 5-8, BORELLI Voyage Alluaud Orthopt. 1.—*L.*; american discussed pp. 313-321, *micans* sp. n. Panama p. 313 f. 2, HEBARD Tr. amer. ent. Soc. 43 1917.—*L. rotundata* = (*flaviscuta* Rehn), HEBARD p. 416 Tr. amer. ent. Soc. 43 1917.—*L. auricoma* and *breviforceps* to *Barygerax*, characters, HEBARD p. 5 Ent. News 29.

*Microvostox* gen. n. p. 310 type *Spongovostox aller* BURR, HEBARD Tr. amer. ent. Soc. 43 1917.—*M. septentrionalis* sp. n. Mexico p. 414 figs., HEBARD T.c. 1917.

*Praos* = (*Vlax*), HEBARD p. 330 T.c. 1917.

*Prolabia triquetra* sp. n. Mexico p. 417 figs., HEBARD T.c. 1917.

*Prosparatta humilis* sp. n. Panama p. 308, figs., HEBARD T.c. 1917.

*Pterygida jagori*, ♂, BORELLI Boll. Mus. Torino 33 No. 726 p. 2.

*Sarcinatrix*; taxonomy, HEBARD p. 332 Tr. amer. ent. Soc. 43 1917.

*Sparatta diplatyoides*, validity, HEBARD p. 6 Ent. News 29.

*Strongylopsalis iheringi* sp. n. Brazil p. 183, REHN Tr. amer. ent. Soc. 44 fig.

## BLATTIDAE.

The mouth-parts, BUGNION pp. 383-400 pl. xxv Mitt. Schweiz. ent. Ges. 12 1916.

Reduced wings, SHAW p. 151 Mem. Queensland Mus. 6.

Wax glands, DUSHAM J. Morphol. 31 pp. 563-574 2 pls.

*Arenivaga genitalis* Arizona p. 154, *floridensis* p. 156, spp. n., CAUDELL P. ent. Soc. Washington 20.

†*Atimoblatta reducta* sp. n. U.S. p. 301 fig., *A. ? flexuosa* sp. n. p. 306 pl. liv f. 6, COCKERELL P. U.S. nat. Mus. 54.

*Blattella germanica*, female pygidial glands, DUSHAM p. 278 pl. vi Canad. Ent. 50.

†*Brachymylacris bassleri* sp. n. U.S. p. 304 pl. liv f. 3, COCKERELL P. U.S. nat. Mus. 54.

*Cariblatta igarapensis* sp. n. Pará p. 157 pl. i figs. 15–18, REHN P. Ac. Philad. 70.

*Chorisonaura bisignata* sp. n. Brazil p. 339 figs., REHN Tr. amer. ent. Soc. 43 1917.—*C. parishi* sp. n. Pará p. 163 pl. i figs. 19–21, REHN P. Ac. Philad. 70.

†*Coraloblatta* gen. n. *Archimylacridae* p. 303, sp. n. U.S. p. 304 pl. liv figs. 1 and 2, COCKERELL P. U.S. nat. Mus. 54.

*Cutilia nitidella* p. 155, *tepperi* p. 157, *uncinata* p. 158, *nigrofasciata* p. 160, *kellyi* p. 161, spp. n. Australia, figs., SHAW Mem. Queensland Mus. 6.

*Hormetica laevigata* and *scrobiculata*, distinguished, REHN p. 341 Tr. amer. ent. Soc. 43 1917.

*Hypnornoides* gen. n. *Oxyhaloinae* p. 336, *burri* sp. n. Brazil p. 337 pl. xxvii f. 2, REHN T.c. 1917.

*Ischnoptera crispula* p. 140 pl. i figs. 1–4, *imparata* p. 149 figs. 5–8, *clavator* p. 152 figs. 9–12, spp. n. Pará, REHN P. Ac. Philad. 70.

*Melestora minutissima* sp. n. Pará p. 161 pl. i figs. 22 & 23, REHN T.c.

*Musoniella ipiranga* sp. n. Brazil p. 188, REHN Tr. amer. ent. Soc. 44 fig.

†*Notoblattites wianamattensis* p. 743 fig., *mitchelli* p. 745 fig., spp. n. N.S.W. triassic, TILLYARD P. Linn. Soc. N.S.W. 42 1917.

*Panesthia parva* p. 164, *obtusa* p. 165, *sloanei* p. 166, *tryoni* p. 167, spp. n. Queensland, figs., SHAW Mem. Queensland Mus. 6.

*Periplaneta*; mating, ILLINGWORTH p. 374 P. hawai. ent. Soc. 3.

†*Phoberoblatta reticulata* sp. n. U.S. p. 302, COCKERELL P. U.S. nat. Mus. 54.

(N-5464 j)

†*Phthinomylacris?* *pauper* sp. n. U.S. p. 306 pl. liv f. 5, COCKERELL T.c.

*Platyzosteria incurva* p. 153, *subar-mata* p. 154, spp. n. Queensland, SHAW Mem. Queensland Mus. 6.

†*Ptilomylacris* gen. n. *Mylacridae*, *medialis* sp. n. U.S., COCKERELL p. 305 pl. liv f. 7 P. U.S. nat. Mus. 54.

#### PHASMIDAE.

The anatomy of thorax, JEZIORSKI Zeitschr. wiss. Zool. 117 pp. 727–815 3 pls.

Colour experiments, PANTEL & SINFETY Bull. Sci. France Belgique 52 pp. 187–283.

*Acanthoclonia flavicornis* sp. n. Peru p. 11 pl. i figs. 6 & 7, CAUDELL Insec. inscit. 6.

*Anisomorpha buprestoides*, vaporous discharge, McATEE Ent. News 29 p. 388.

*Aruanoidea queenslandica*, *caeca*, p. 52, *gracilipes* p. 53, spp. n. Australia, SJÖSTEDT Ark. Zool. 11 No. 19.

*Athertonia* gen. n. p. 45, *prasina* sp. n. p. 46 pl. vii figs. 7a–b, Australia, SJÖSTEDT T.c.

*Bacillus rossii*, ♂ fig., VAYSSIÈRE and DECROCK p. 188 Bull. Soc. ent. France 1918.

*Carausius*; occurrence of males, ♀ peropercular organ, PANTEL p. 575 Ann. Soc. ent. France 86.

*Caruacia* gen. n. p. 50, *obscura* sp. n. p. 51, pl. vi figs. 4a–c Australia, SJÖSTEDT Ark. Zool. 11 No. 19.

*Cooktownia* gen. n. p. 43, *plana* sp. n. Australia, p. 44, pl. vii figs. 2–3, SJÖSTEDT Ark. Zool. 11 No. 19.

*Diapheromera veliei*, CAUDELL p. 258 Ent. News 29.

*Dyme iconicoffi* sp. n. Peru p. 10 pl. i f. 3. CAUDELL Insec. inscit. 6.

*Hyrtacus striatus* p. 40 textfig. 3, *cylindricus* p. 41 fig. 4, *nigrogranulosus* p. 42 fig. 5, *gracilis* p. 43 pl. vii fig. 5, spp. n. Australia, SJÖSTEDT Ark. Zool. 11 No. 19.

b 21

†*Ishnoneura brongniarti* sp. n. for part of *Stenoneura robusta* Brongn., LAMEERE p. 173 Bull. Mus. Paris 23 1917.

*Kimberleyana* gen. n. p. 46, *gracilifemur* sp. n. p. 47, pl. vii fig. 8 Australia, SJÖSTEDT Ark. Zool. 11 No. 19.

*Libeltra peruana* sp. n. p. 6, CAUDELL Insec. inscit. 6.

*Malandania* gen. n. p. 48, *pulchra* sp. n. p. 49, pl. vii fig. 1 Australia, SJÖSTEDT Ark. Zool. 11 No. 19.

*Malandella* gen. n. p. 54, *Queenslandica* sp. n. Australia, SJÖSTEDT T.c.

*Manomera blatchleyi*, CAUDELL p. 259 Ent. News 29.

*Marcenia* gen. n. *cunctatrix* p. 37, textfig. 1, *carinata* p. 38 fig. 2, *pallida* p. 39, pl. vii figs. 4a-b, spp. n. Australia, SJÖSTEDT Ark. Zool. 11 No. 19.

*Paraphasma paulense* sp. n. Brazil pl. viii f. 4, REHN p. 191 Tr. amer. ent. Soc. 44.

*Podacanthus viridi-roseus*, SJÖSTEDT Ark. Zool. 11 No. 19 p. 50.

*Sermyle* and *Ocnophila*, nomenclature, CAUDELL p. 8 Insec. inscit. 6.

*Sipyloidea queenslandica* sp. n. Australia, SJÖSTEDT Ark. Zool. 11 No. 19 p. 55 pl. vii figs. 9a-b.

#### MANTIDÆ.

*Archimantis staminea* p. 17 pl. v figs. 4a-b and pl. vi figs. 2a-b, 3, *latizonata* p. 21, pl. vi figs. 1a-b, spp. n. Australia, SJÖSTEDT Ark. Zool. 11 No. 19.

*Austromantis* gen. n., *albomarginata* p. 28 pl. iii figs. 1-2, *gracilis* p. 30 pl. iv fig. 1, spp. n. Australia, SJÖSTEDT T.c.

*Austrovaltes* gen. n. p. 35, *variegata* sp. n. p. 36, pl. iv figs. 2 a-b Australia, SJÖSTEDT T.c.

*Bolbepygmoea*, SJÖSTEDT p. 17 T.c.

*Cliomantis cornuta*, SJÖSTEDT p. 14 T.c.

*Empusa egena*, antennal growth, BUGNION Mem. Soc. Zool. France pp. 127-135 2 pls.

*Glabromantis* gen. n. p. 12, *nebulosa* sp. n. p. 13, pl. ii figs. 2 a-e Australia, SJÖSTEDT Ark. Zool. 11 No. 19.

*Gyromantis occidentalis* sp. n. Australia, SJÖSTEDT T.c. p. 8 pl. i figs. 2 a-d 3 a-c.

*Musonia* = (*Promusonia* G.T.), REHN p. 167 P. Ac. Philad. 70.

*Orthoderina* gen. n. p. 15, *straminea* sp. n. p. 16, pl. iv figs 4a-c Australia, SJÖSTEDT Ark. Zool. 11 No. 19.

*Paraoxyptilus flavifemur* p. 3, pl. i figs. 1 a-d, pl. iv fig. 3, *kimberleyensis* p. 5, pl. iii figs. 5-7, pl. v fig. i, spp. n. Australia, SJÖSTEDT T.c.

*Phthersigena minor* sp. n. Australia, SJÖSTEDT p. 10 pl. ii figs. 1 a-e T.c.

*Sphodromantis bioculata*, growth measurements, SZTERN Arch. Entwickmch. 40 pp. 429-495 8 pls. 1914.—S. temperature experiments, PRZIBRAM Arch. Entwickmch. 43 pp. 28-36 1917.

*Sphodropoda mjoebergi* sp. n. Australia, SJÖSTEDT Ark. Zool. 11 No. 19 p. 25 pl. v figs. 2-3.

*Stenomantis novae-guineæ* subsp. *brevis*, SJÖSTEDT p. 34 T.c.

*Tenodera superstitiosa* var. *bokiana*, SJÖSTEDT p. 22 pl. iv figs. 5 a-b T.c.

*Truxomantis* gen. n., *queenslandica* p. 31 pl. iii fig. 3 and pl. v fig. 5, *kimberleyensis* p. 33 pl. iii fig. 4 and pl. v fig. 6, spp. n. Australia, SJÖSTEDT Ark. Zool. 11 No. 19.

#### GRYLLIDÆ.

Proventriculus of *Gryllus*, structure and function, DU PORTE pp 117-121 2 pls. Psyche 25.

*Amblyrhelhus manni* pl. 36, *natalensis* p. 140, spp. n. Brazil figs., REHN Tr. Amer. ent. Soc. 43 1917.

*Anaxipha esau* p. 214 pl. ii figs. 54 & 55, *simulacrum* p. 217 figs. 56-59, *paraensis* p. 222 figs. 60-62, *fistulator* p. 225 figs. 63-66, *stramenticia* p. 227 pl. ii figs. 67-70, spp. n. Para., REHN P. Ac. Philad. 70.

*Aphemogryllus* gen. n. p. 209 near *Miogryllus*, *gracilis* sp. n. Pará p. 210, REHN T.c.



*Aphonomorphus surdus* sp. n. Pará p. 230 figs. 71-74, REHN T.c.—*A. cearensis* p. 143, *novus* p. 147, spp. n., Brazil, figs., REHN Tr. Amer. ent. Soc. 43 1917.

*Apterogryllus gestroi* sp. n. Burma p. 562, figs., CHOPARD Ann. Soc. ent. France 86.

*Arachnocephalus nigrifrons* sp. n. W. Africa p. 535 figs., CHOPARD T.c.

*Cycloptiloides chatanayi* sp. n. W. Africa p. 538 figs., CHOPARD T.c.

*Cylindrachaeta spegazzini*, characters, sexes, CHOPARD pp. 213-216 fig. Bull. Soc. ent. France 1918.

*Cyrtoxipha concolor* p. 549 figs., *maxima* p. 552 figs., spp. n. W. Africa, CHOPARD Ann. Soc. ent. France 86.

*Ectatoderus annulicornis* p. 525 figs., *feai* p. 529 figs., *latus* p. 532 figs., spp. n. W. Africa, CHOPARD T.c.

*Endacusta maculata* sp. n. Peru p. 66, CAUDELL Insec. inscit. 6.

*Endecous italibensis* sp. n. Brazil p. 217, REHN Tr. amer. ent. Soc. 44 figs.

*Gryllotalpa gryllotalpa* in U.S., WEISS & DICKERSON pp. 18-23 pl. ii J. N. York ent. Soc. 26.

*Gryllotalpella* gen. n. for *Gryllotalpa minor* Br., REHN p. 120 Tr. amer. ent. Soc. 43 1917.

*Gryllus domesticus*, in Finland, RÄSÄNEN (Finnisch) pp. 21-23 Helsinki Luonnon Ysätvä 20 1916.

*Nemobiodes* gen. n., *feai* sp. n. W. Africa p. 521 figs., CHOPARD Ann. Soc. ent. France 86.

*Nemobius testaceus* sp. n. W. Africa p. 517 figs., CHOPARD T.c.—*N. birmanus* p. 556 fig., *argentinus* p. 559 figs., spp. n., CHOPARD T.c.—*N. eurynotus* sp. n. California p. 102 figs., REHN & HEBARD Ent. News 29.—*N. hebarði* = (*argentinus* Br.), REHN p. 208 P. Ac. Philad. 70.

*Oecanthus pictipes* sp. n. Brazil p. 131, figs., REHN Tr. amer. ent. Soc. 43 1917.

*Paroecanthus roosevelti* sp. n. Brazil p. 133 figs., REHN T.c.

(N-5464 j)

*Platydactylus fasciatus* Scudd. to *Aphonomorphus*. REHN T.c. p. 143 1917.

*Pronemobius parvus* sp. n. W. Africa p. 510 figs., CHOPARD Ann. Soc. en. France 86.

*Symphylloxiphus pulex* sp. n. Brazil p. 357 pl. xxvii f. 7, REHN Tr. amer. ent. Soc. 43 1917.

*Tafalisca paulista* sp. n. Brazil p. 219, REHN Tr. Amer. ent. Soc. 44 figs.

*Trigonidium fuscum* sp. n. W. Africa p. 542, figs., CHOPARD Ann. Soc. ent. France 86.

LOCUSTIDAE OR PHASGONURIDAE OR  
TETTIGONIIDAE.

*Anaulacomera farcifera, bidentata*, spp. n. Cayenne p. 244, CHOPARD Bull. Soc. ent. France 1918.—*A. rusa* p. 101, *ovibos* p. 103, *bovicula* p. 105, spp. n. Brazil, figs., REHN Tr. amer. ent. Soc. 43 1917.—*A. apicidentata* p. 58 pl. ii f. 21, *cercalis* p. 59 f. 22, *schunkei* p. 60, *longicerca* p. 61, *simplex* p. 63 f. 23, spp. n. Peru, CAUDELL Insec. inscit. 6.

*Arrhenotettix* gen. n. p. 48 *Cocconoti, calcaratus* sp. n. Peru p. 50 pl. ii f 18, CAUDELL T.c.

*Bliastes spinicornis* sp. n. Peru p. 36, CAUDELL T.c.

*Bucrates lanista* sp. n. Brazil p. 212, REHN Tr. amer. ent. Soc. 44 figs.

*Bufotettix* gen. n. p. 25 *Pseudophyllinae, alpha* sp. n. Peru p. 26, CAUDELL Insec. inscit. 6.

*Ceraia nigropunctulata, femorata*, p. 243, *rufovariegata* p. 244, *vicina* p. 245, spp. n. Cayenne, CHOPARD Bull. Soc. ent. France 1918.—*C. capra* sp. n. Pará p. 190 pl. ii figs. 36 and 37, REHN P. Ac. Philad. 70.—*C. grandis* p. 94, *maderensis* p. 96, spp. n. Brazil, figs., REHN Tr. amer. ent. Soc. 43 1917.

*Cocconotus olivaceus* p. 37, *similis* p. 39, *variabilis* p. 40, spp. n. Peru, CAUDELL Insec. inscit. 6.

*Coelophyllum crassum* sp. n. Brazil p. 106, figs., REHN Tr. amer. ent. Soc. 43 1917.

*Dectinomima peruviana* p. 21 pl. ii f. 15, *pallida* p. 22 figs. 13-15, spp. n., Peru, CAUDELL Insec. inscit. 6.

*Diestrammena cryptopygia* sp. n. Cayenne p. 245, CHOPARD Bull. Soc. ent. France 1918.—*D. marmorata* Lebensgewohnheiten, LINNANTEMI pp. 28-29 291 Medd. Soc. Fauna Fenn. 43.

*Ephippigera vitium moguntiacae*, SCHUSTER Zeitschr. wiss. Insbiol. 13 p. 317.

*Gryllacris mocsta* var. n. *laurentii* p. 22, *primigeni* p. 25, *solitaria* p. 30, spp. n. Philippines, *fuscinevis* var. n. *diamantii* p. 29, GRIFFINI Monit. zool. ital. 29.—*G. rubescens* sp. n. Cayenne p. 245, CHOPARD Bull. Soc. ent. France 1918.—*G. harpistylata* sp. n. Pará p. 204 pl. ii figs. 46 & 47, REHN P. Ac. Philad. 70.

*Hoplottetix* gen. n. p. 50 near *Nannottetix*, *iconnicoffi* sp. n. Peru p. 52 pl. ii f. 19, CAUDELL Insec. inscit. 6.

*Hyperbaenus brevipennis* sp. n. Peru p. 13 pl. i f. 8, CAUDELL T.c.

*Hyperophora branneri* p. 89, *abrupta* p. 92, spp. n. Brazil, figs., REHN Tr. amer. ent. Soc. 43 1917.

*Lichenochrus amplipennis* sp. n. Peru p. 28, CAUDELL Insec. inscit. 6.

*Loja subulata* sp. n. Peru p. 19 pl. i f. 10, CAUDELL T.c.

*Meronicidius atricauda* sp. n. Peru p. 33, CAUDELL T.c.

*Paralobaspis personata* sp. n. Pará p. 202 pl. ii figs. 44 & 45, REHN P. Ac. Philad. 70.

*Phlugis chelifera* sp. n. Pará p. 199 pl. ii figs. 41-43, REHN T.c.

*Scaphura sphex* sp. n. Pará p. 192 pl. ii figs. 38-40, REHN T.c.

*Semileptotetix flagellata* sp. n. Peru p. 46 pl. ii f. 17, CAUDELL Insec. inscit. 6.

*Subria viridis* sp. n. Peru p. 17 pl. i f. 9, CAUDELL T.c.

*Teletius tortus* sp. n. Brazil, p. 110 figs., REHN Tr. amer. ent. Soc. 43 1917.

*Typophyllum undulatum* sp. n. Peru p. 53 pl. ii f. 20, CAUDELL Insec. inscit. 6.

## ACRIDIDAE OR LOCUSTIDAE.

Revision of *Oxyae*, BOLÍVAR Trab. Mus. nac. Madrid zool. 34 43 pp.

Oviposition, CRIDDLE Canad. Ent. 50 pp. 145-151.

ARRIBÁLZAGA discusses opinions as to the nomenclature of S. American migratory locusts, *Physis* 4 pp. 49-79.

*Argiacris* gen. n. near *Bradynotes* p. 166, *rehni* sp. n. Montana p. 167 pl. viii f. 18, HEBARD Tr. amer. ent. Soc. 44.

*Atractomorpha obscura* sp. n. India p. 392, BOLÍVAR Rev. ac. Madrid 16 1917.

*Bababuddinia* gen. n. p. 381 near *Julea*, *bizonata* sp. n. Mysore p. 382, BOLÍVAR T.c. 1917.

*Bua* gen. n. p. 31 for *Tauchira buae* B., BOLÍVAR Trab. Mus. nac. Madrid Zool. 34.

*Bucephalacris falcifer* sp. n. Pará p. 180 pl. i figs. 32 and 33, REHN P. Ac. Philad. 70.

*Caloptenus italicus*, variation, KHEIL Int. ent. Zeitschr. 9 p. 89 etc. 1915.

*Capulica* gen. n. *Chrysochraontes* p. 378, *pulla* sp. n. India p. 379, BOLÍVAR Rev. Ac. Madrid 16 1917.

*Caryanda elegans* Tonkin p. 20, *flavomaculata* New Guinea p. 21, spp. n., BOLÍVAR Trab. Mus. Nac. Madrid Zool. 34.

*Carydana* gen. n. for *Carydana agomena* Karsch., BOLÍVAR p. 22 T.c.

*Cantantops henryi* p. 404, *annexus* p. 407, spp. n. India, BOLÍVAR Rev. Ac. Madrid 16 1917.

*Cavolettix* gen. n. p. 343, *nullisinus* p. 344 pl. xx f. 1, *apterus* p. 345, f. 2, spp. n. U.S., HANCOCK Ent. News 29.

*Celebesia* gen. n. near *Traulia*, *acuticerca* sp. n. Celebes p. 640, BOLÍVAR Rev. Ac. Madrid 15 1917.

*Chitaura* gen. n. p. 32, *brachyptera* Celebes p. 33, *huani* N. Guinea p. 34, spp. n., BOLÍVAR Trab. Mus. nac. Madrid zool. 34.

*Chloroplus* gen. n. near *Campylocantha*, *cactocetes* sp. n. Texas, HEBARD p. 146 figs. Tr. amer. ent. Soc. 44,

*Chloropseustes* gen. n. p. 175 near *Tetrataenia*, *leucotylus* sp. n. Pará p. 177 pl. i figs. 28-31, REHN P. Ac. Philad. 70.

*Cledra* gen. n. p. 25, *simoni* sp. n. Ceylon p. 26, BOLÍVAR Trab. Mus. nac. Madrid zool. 34.

*Cornops ignotum* sp. n. Brazil p. 204, REHN Tr. amer. ent. Soc. 44 figs.

*Criotettix fastiditus* sp. n. Malabar p. 283, BOLÍVAR Rev. Ac. Madrid 16 1917.

*Eotettix davisii* p. 153, *quercicola* p. 156, spp. n. Florida, HEBARD Tr. amer. ent. Soc. 44.

*Etesius* gen. n. p. 402 near *Acrideres*, *waterhousei* sp. n. Coimbatour p. 403, BOLÍVAR Rev. Ac. Madrid 16 1917.

*Eumastax bouvieri* sp. n. Ecuador p. 22, BOLÍVAR Bull. Mus. Paris 24.

*Fer* gen. n. p. 17, *coeruleipennis* sp. n. Tonkin p. 19, BOLÍVAR Trab. Mus. nac. Madrid zool. 34.

*Genimen* gen. n. near *Gerania*, *prasinum* sp. n. Mysore, BOLÍVAR p. 401 Rev. Ac. Madrid 16 1917.

*Gerunda* gen. n. p. 23, *elegantula*, *gracilis*, p. 24 spp. n. Philippines, BOLÍVAR Trab. Mus. nac. Madrid zool. 34.

*Gymnoscirtes morsei* sp. n. Florida p. 142 figs., HEBARD Tr. amer. ent. Soc. 44.

*Hesperotettix gemmicula* p. 158, *orceola* p. 161, spp. n. Florida, *nevadensis turmius* n. race p. 163, HEBARD T.c.

*Maga* gen. n. p. 39, *bakeri* p. 40, *dichroa* p. 41, spp. n. Philippines, BOLÍVAR Trab. Mus. nac. Madrid zool. 34.

*Neotettix proavus* macropterous fig. Fox p. 347 Ent. News 29.

*Nomotettix sinufrons* = (*borealis* Walk.), HANCOCK p. 346 Ent. News 29.

*Opharus* gen. n. near *Catantops*? *ballardi* sp. n. India, BOLÍVAR p. 408 Rev. Ac. Madrid 16 1917.

*Orthacris fusiformis*, *ramakrishnai*, spp. n. India p. 394, BOLÍVAR T.c. 1917.

*Paraidemona latifurcula* p. 149, *fratercula* p. 151, spp. n. Texas, HEBARD Tr. amer. ent. Soc. 44 figs

*Parossa ampla* sp. n. Brazil p. 198, REHN Tr. amer. ent. Soc. 44 figs.

*Phaulotettix eurycercus* sp. n. Texas p. 143 figs., HEBARD Tr. amer. ent. Soc. 44.

*Pileolum* gen. n. p. 399 near *Trigoniza*, *kirbyi* sp. n. Nilgiris p. 400, BOLÍVAR Rev. Ac. Madrid 16 1917.

*Pirithous* gen. n. near *Cyphocerastes*, *ramachendrai* sp. n. Palmi p. 403, BOLÍVAR T.c. 1917.

*Proscopia scabra* = (*Taxiarachus parensis* R.), REHN p. 168 P. Ac. Philad. 70.

*Racilidea* gen. n. p. 37, *orthacroides* sp. n. Java p. 38, BOLÍVAR Trab. Mus. nac. Madrid zool. 34.

*Ramakrishnaia* gen. n. p. 391 near *Zarytes*, *notabilis* sp. n. Mysore p. 392, BOLÍVAR Rev. Ac. Madrid 16 1917.

*Schistocerca urichi* sp. n. Amer. mer. p. 63, ARRIBÁLZAGA Physis 4.—*S. tartarica*, at sea, HOWARD p. 77 P. ent. Soc. Washington 19.

*Scirtomastax chopardi* sp. n. Ecuador p. 23, BOLÍVAR Bull. Mus. Paris 24.

*Sitalces jugatus* sp. n. Pará p. 185 pl. i figs. 34 & 35, REHN P. Ac. Philad. 70.

*Spathalium helios* sp. n. Brazil p. 196, HEBARD Tr. amer. ent. Soc. 44 figs.

*Stauroderus exemplaris* sp. n. India p. 380, BOLÍVAR Rev. Ac. Madrid 16 1917.

*Tauchiridea* gen. n. p. 35, *adusta* sp. n. New Guinea p. 36, BOLÍVAR Trab. Mus. nac. Madrid zool. 34.

*Tetrataenia phila* sp. n. Pará p. 172 pl. i figs. 25 & 27, REHN P. Ac. Philad. 70.

*Theomolpus* gen. n. p. 36, *badius* sp. n. Queensland p. 37, BOLÍVAR Trab. Mus. nac. Madrid zool. 34.

*Traulia brunneri* Malay Arch. p. 611, *antennata* Tonkin p. 617, *annadalei* Malay Arch. p. 620, *philippina* Samar p. 626, *stali* Sumatra p. 634 spp. n., *ornata tonkiniensis* p. 622 and o. *fruhstorferi* p. 625, subspp. n., BOLÍVAR Rev. Ac. Madrid 15 1917.

## APTERA.

## THYSANURA s.l.

*Campodea silvestrii*, *gardneri* p. 110, *westwoodi* p. 112, spp. n. Britain, figs., BAGNALL Ent. Mo. Mag. 54.—*C. meinerti* p. 157, *wallacei* p. 158, spp. n. England, BAGNALL T.c.—*C. devoniensis* sp. n. p. 277, BAGNALL Ent. Mo. Mag. 54.—*C. depauperata* sp. n. Africa p. 4, SILVESTRI Voyage Alluaud Ins. apter.

*Ctenolepisma incita* p. 17, *brachyura* p. 19, *conductrix* p. 20, spp. n. Africa, figs., SILVESTRI T.c.

*Gastrotheus jeaneli* sp. n. Africa p. 24 figs., SILVESTRI T.c.

*Hoplocampa minutella* sp. n. Africa p. 5, SILVESTRI T.c.

*Isolepisma exacta* sp. n. Africa p. 15 figs., SILVESTRI T.c.

*Japyx kenyanus* p. 7, *persequens* p. 9, *proditus* p. 10, *angulosus* p. 12, spp. n. Africa, figs., SILVESTRI T.c.

*Lepisma alluaudi* sp. n. Africa p. 13, SILVESTRI T.c.

## COLLEMBOLA.

Anatomy, specially of *Orchesella*, QUIEL Zeitschr. wiss. Zool. 113 p. 113-164 2 pls. 1915.

*Isotoma macnamarai* sp. n. Canada, FOLSOM p. 291 pl. vii Canad. Ent. 50.

*Lipura*; swarm, CHAPMAN p. 15 Victorian Nat. 35.

# XIII. PROCHORDATA

INCLUDING

## ENTEROPNEUSTA AND PTEROBRANCHIA

BY

C. TATE REGAN, F.R.S.

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### CONTENTS

	PAGE
I. TITLES ... ..	2
II. SUBJECT INDEX :—	
Structure ... ..	2
Physiology ... ..	2
Ethology ... ..	2
Distribution ... ..	2
III. SYSTEMATIC INDEX :—	
Tunicata ... ..	2
Cephalochordata ... ..	3
Enteropneusta and Pterobranchia (vacant)	

## I.—TITLES.

Arey, L. B. The orientation of *Amphioxus* during locomotion. J. Exp. Zool. Philadelphia 19 1915 (37-44). 1

Carlsson, J. G. Tunicater ifråu Sveriges västkust. Monascidier. Ark. Zool. Stockholm 11 No. 20 1918 (1-22) pl. 2

Duboscy, O. *Selysina perforans* Dub. Description des stades connus du Sporozoaire de *Stolonica* avec quelques remarques sur le pseudovittellus des statoblastes et sur les cellules géantes. Arch. zool. exper. Paris 58 1918 (1-53) pl. I. 3

Forsyth, R. A. *vide* Ritter, W. E.

Hecht, S. The Physiology of *Ascidia atra* Leseur. J. Exp. Zool. Philadelphia 25 1918 (229-299). 4

Mortensen, Th. Observations on protective adaptations and habits, mainly in marine animals. 3. Tunicates. Kjöbenhavn Nath. Medd. 69 1918 (71-72). 5

Oka, A. Ein neuer Fall von der Ausstossung der Eingeweide bei den Asciden. Annot. Zool. Jap. Tokyo 9 1918 (393-397). 6

Oka, A. *Megalodicopia hians* n. g. n. sp., eine sehr merkwürdige Ascidie aus dem japanischen Meere. Annot. Zool. Jap. Tokyo 9 1918 (399-406). 7

Ritter, W. E. and Forsyth, R. A. Ascidians of the Littoral Zone of Southern California. Berkeley, Univ. Calif. Publ. Zool. 16 1917 (439-512) pls. xxxviii-xlvi. 8

## II.—SUBJECT INDEX.

## STRUCTURE.

Carlsson, 2; Duboscy, 3; Oka, 6, 7; Ritter, 8.

## PHYSIOLOGY.

Arey, 1; Hecht, 4.

## ETHOLOGY.

Mortensen, 5.

## DISTRIBUTION.

Sweden: Carlsson, 5.

Japan: Oka, 6, 7.

California: Ritter and Forsyth, 8.

## III.—SYSTEMATIC INDEX.

## TUNICATA.

Adaptations, habits, MORTENSEN 5.

Synopsis of Swedish *Monascidiae*,

CARLSSON 2.

*Ascidia atra*, physiology, HECHT 4.

*Stolonica*, parasite, DUBOSCY 3.

*Styela clavata*, OKA 6.

*Megalodicopia* gen. n. *hians* sp. n., Japan Sea, OKA Annot. Zool. Jap. 9 p. 399.

*Molgula verrucifera* sp. n. S. California, RITTER and FORSYTH Univ. Calif. Publ. Zool. 16 p. 446 figs.

*Styela barnharti* sp. n. S. California, RITTER and FORSYTH t.c. p. 452 figs.

*Ascidia californica* sp. n. S. California, RITTER and FORSYTH t.c. p. 454 figs.

*Metandrocarpa michaelsoni* sp. n. S. California, RITTER and FORSYTH t.c. p. 458 figs.

*Polyzoa translucida* sp. n. S. California, RITTER and FORSYTH t.c. p. 460 figs.

*Botryllus tuberatus* sp. n. S. California, RITTER and FORSYTH t.c. p. 461 figs.

*Botrylloides diegensis* sp. n. S. California, RITTER and FORSYTH t.c. p. 462 figs.

*Distaplia occidentalis* sp. n. S. California, RITTER and FORSYTH t.c. p. 464 figs.

*Eudistoma psammion* p. 467 figs., *diaphanes* p. 469 figs. spp. n., S. California, RITTER and FORSYTH t.c.

*Didemnum carnulentum* sp. n. S. California p. 470 figs., *lacteolum* var. n. p. 471 figs., RITTER and FORSYTH t.c.

*Trididemnum della-vallei* sp. n. S. California, RITTER and FORSYTH t.c. p. 472 figs.

*Diplosoma pizoni* sp. n. S. California, RITTER and FORSYTH t.c. p. 474 figs.

*Diplosomoides caulleryi* sp. n. S. California, RITTER and FORSYTH t.c. p. 476 figs.

*Glossophorum planum* sp. n. S. California, RITTER and FORSYTH t.c. p. 478 figs.

*Macroclinum parfustis* p. 480 figs., *pellucidum* p. 482 figs., spp. n. S. California, RITTER and FORSYTH t.c.

*Amaroucium californicum* p. 483 figs., *solidum* p. 486 figs., *aequali-siphonis* p. 487 figs., RITTER and FORSYTH t.c.

#### CEPHALOCHORDATA.

*Amphioxus*, orientation, AREY 1.





# XIV. VERTEBRATA

(GENERAL)

*i.e.*, complementary to Mammalia, Aves, Reptilia, and Pisces

BY

D. S H A R P,

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## CONTENTS

	PAGE.
I. TITLES ... ..	2
II. SUBJECT INDEX :—	
Structure = 5207 ... ..	3
Development = 5215 ... ..	3
Ethology = 5219 ... ..	3
Variation and Evolution = 5223 ... ..	3
Geography = 5227 ... ..	3

## I.—TITLES.

- Chaine, J.** Contribution à la phylogénie des muscles. C. R. Ac. Sci. Paris 167 1918 (649-651). 2
- Chaine, J.** Remarques sur la métamérie des Vertébrés. C. R. Ac. Sci. Paris 167 1918 (733-736). 3
- Chaine, J.** Considérations sur la constitution du système musculaire général des Vertébrés. C. R. Ac. Sci. Paris 167 1918 (1006-1009). 4
- Delsman, C.** Short history of the head of Vertebrates. K. Ak. Wet. Amsterdam 20 1 1918 (1005-1020). 5
- Gregory, W. K.** [and others]. Second report of the Committee on the nomenclature of the cranial elements in the Permian Tetrapoda. Bull. Geol. Soc. Amer. 28 1917 (973-986). 6
- Hay, O. P.** Descriptions of some floridian fossil vertebrates, belonging mostly to the Pleistocene. Rep. Florida Geol. Surv. Tallahassee 8 1916 (41 etc.) pls. i-ix. 7
- Hay, O. P.** Vertebrata mostly from stratum No. 3, at Vero Florida, together with descriptions of new species. Rep. Florida Geol. Surv. Tallahassee 9 1917 (43-68) pl. iii. 8
- Huene, F. v.** Eine interessante Wirbeltierfauna im Buntsandstein des Schwarzwaldes. Centrbl. Min. Stuttgart 1917 1917 (89-94). 9
- Ingvar, S.** Zur Phylo- und Ontogenese des Kleinhirns nebst ein Versuch zu einheitlicher Erklärung der Zerebellaren Funktion und Lokalisation. Folia neurobiologica Haarlem 11 1918 (205-475) 84 figs. 10
- Joustra, N.** Over de homologie van het Ganglion Isthmi. [Sur l'homologie du ganglion de l'isthme.] Feestbundel Cornelis Winkler, Psychiatrische Neurologische Bladen Amsterdam 1918 (361-367) 3 figs. 11
- Keibel, F.** Ueber die Entwicklung des Labyrinthanhanges (Recessus labyrinthi oder Ductus endolymphaticus) bei den Schildkröten und über seine Homologisierung bei den Wirbeltieren. Arch. mikr. Anat. Bonn 89 1 1916 (189-244). 12
- Lull, R. S.** On the development of vertebrate paleontology. Amer. J. Sci. New Haven 46 1918 (193-221). 13
- Lundahl, G. S.** Om en förut icke beskifven „commisura septi“ jämte bidrag till kännedomen om septum pellucidum och de telencephala commissurerna hos ryggradsljuren. [On a hitherto undescribed „commisura septi“ with contributions to the knowledge of the septum pellucidum and the telencephaloid commissures in vertebrates.] Stockholm Vet.-Ak. Handl. 59 No. 2 1918 (131) 9 pls. 14
- Matthew, W. D.** Climate and evolution. New York Ann. Acad. Sci. 24 1915 (171-318) ff. 1-33. 15
- Merriam, J. C.** Tertiary vertebrate fauna from the Cedar mountain region of Western Nevada. Bull. Dep. Geol. Univ. California Berkeley 1916 (161-198). 16
- Neal, H. V.** Neuromeres and metameres. J. Morphol. Philadelphia 31 1918 (293-315). 17
- Nishi, S.** Zur vergleichenden Anatomie der eigentlichen (genuinen) Rückenmuskeln. (Spino-dorsale Muskeln der tetrapoden Wirbeltiere. Gegenbauer Morphol. Jahrb. Leipzig 15 1916 (168-318) pls. xi-xiii. 18
- Pelly, S. A.** Glossary and notes on vertebrate palaeontology. London 1918 12° (ix + 113). 19
- Rabl, C.** Ueber die bilaterale oder nasotemporale Symmetrie des Wirbeltieranges. Arch. mikr. Anat. Bonn 90 1 1917 (261-444) pls. x-xiii. 20

Reagan, F. P. Some results and possibilities of early embryonic castration. Princeton Univ. Contr. Biol. Lab. 6 1918 No. 20 (251-258) 4 pls. (Reprint from Anatom. Rec. 11 1917).

21

Schepman, A. M. H. De octavolaterale zintuigen en hun verbindingen in de hersenen der vertebraten. [Die octavolateralen Sinnesorgane und ihre Verbindungen im Gehirn der Vertebraten.] Groningen (J. B. Wolters) 1918 (146) 54 figs. 25 cm.

22

Van Wijhe, J. W. On the nervus terminalis from man to *Amphioxus*. K. Ak. Wet Amsterdam Proc. 21 1 1918 (172-182) pl.

23

Vermeulen, H. A. Die Accessoriusfrage. Feestbundel Cornelis Winkler Psychiatrische Neurologische Bladen Amsterdam 1918 (729-742 8 figs.).

24

Woerdeman, M. W. Vergleichende Ontogenie der Hypophysis. Arch. mikr. Anat. Bonn 86 1914 (198-292).

25

Washburn, Margaret Floy. Recent literature on the behavior of vertebrates. Psych. Bull. Princeton N.J. 9 1912 (300-313).

26

## STRUCTURE.

5207

## General.

Chaine, 3; Neal, 17.

## Skeleton.

Delsman, head, 5; Gregory, cranial elements, 6.

## Nervous System and Sense-organs.

Ingvar, Phylo- und Ontogenese des Kleinhirns, 10; Joustra, Ganglion de l'isthme, 11; Lundahl, 14; Rabl, eye, 20; Schepman, 22; Van Wijhe, nervus terminalis, 23; Vermeulen, Die Accessoriusfrage, 24.

## Myology.

Chaine, 2, 4; Nishi, 18.

## DEVELOPMENT.

5215

Keibel, ear, 12; Neal, 17; Reagan, 21; Woerdeman, hypophysis cerebri, 25.

## ETHOLOGY.

5219

Washburn, Recent literature on the behavior of vertebrates, 26.

## AETIOLOGY.

5223

Matthew, Climate and evolution, 15.

## GEOGRAPHY.

5227

Europe, Schwarzwaldes, †Huene, 9. North America, Florida, †Hay, 7, 8; †Merriam, Nevada, 16.

## H.—SUBJECT INDEX.

## GENERAL.

5203

## General.

Pelly, 19.

## Historical.

Lull, 13.



# XV. PISCES

BY

C. TATE REGAN, F.R.S.

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## CONTENTS

	PAGE
I. TITLES ... ..	3
II. SUBJECT INDEX ... ..	10
Economics ... ..	10
Structure ... ..	10
Development ... ..	10
Physiology ... ..	10
Ethology ... ..	10
Variation and Evolution ... ..	11
Distribution ... ..	11
Marine ... ..	11
Fresh Water ... ..	11
Fossil ... ..	11
III. SYSTEMATIC ... ..	11
Marsipobranchii ... ..	11
Selachii ... ..	11
Euselachii ... ..	11
Pleurotremata ... ..	11
Hypotremata ... ..	12
Holocephali ... ..	12

	PAGE
Pisces ... ..	12
Palaeopterygii ... ..	12
Neopterygii ... ..	12
Protospondyli ... ..	12
Isospondyli ... ..	12
Ostariophysi ... ..	13
Iuioni ... ..	14
Apodes ... ..	14
Micropyrini ... ..	14
Synentognathi ... ..	14
Anacanthiini ... ..	15
Allotriognathi ... ..	15
Solenichthyes ... ..	15
Zeomorphi ... ..	15
Percomorphi ... ..	15
Scleroparei ... ..	18
Discocephali ... ..	19
Heterosomata ... ..	19
Plectognathi ... ..	19
Symbranchii ... ..	19
Xenopterygii ... ..	19
Pediculati ... ..	19
Opisthomi ... ..	19
Rhipidistia ... ..	19
Dipneusti ... ..	19

## I.—TITLES.

**Allis, E. P.** The muscles related to the branchial arches in *Raia clavata*. *J. Anat. London* **52** 1918 (383-411). **1**

**Anile, A.** Contributo alla conoscenza delle appendici piloriche nei teleostei. *Napoli Publ. Staz. Zool.* **2** 1918 (241-246). **2**

**Annandale, N.** Fish and Fisheries of the Inlé Lake. *Calcutta Rec. Ind. Mus.* **14** 1918 (33-64) 7 pls. **3**

**Anthony, R.** Recherches sur le développement de la circulation chez l'Épinoche. *Arch. zool. exper. Paris* **57** 1918 (1-45) pl. I. **3**

**Azzi, A.** Ricerche sulla temperatura del corpo dei pesci marini. *Napoli, Publ. Staz. Zool.* **2** 1917 (77-103). **5**

**Bancroft, T. L.** Some further notes on the Life History of *Ceratodus forsteri*. *Brisbane Proc. R. Soc. Queensland* **30** 1918 (91-94). **6**

**Berry, E. W.** Vertebrata, Pisces. Maryland Geological Survey, Upper Cretaceous. *Baltimore* 1916 (350-361). **7**

**Boulenger, G. A.** On some Fishes from the Shari River, with descriptions of two new species. *Ann. Mag. Nat. Hist. London ser. 9* **2** 1918 (426-427). **8**

**Boulenger, G. A.** Le plus ancien Poisson Characínide, sa signification au point de vue de la distribution actuelle de cette famille. *Paris C. R. Acad. Sci.* **166** 1918 (197-200). **9**

**Boulenger, G. A.** Qu'est-ce que l'*Eleotris gobioides* de M. Legendre *Paris C. R. Acad. Sci.* **167** 1918 (228). **10**

**Boulenger, G. A.** Description of a new Fish of the genus *Mastacembelus* from the Zambesi System. *Capo Town Ann. S. Afric. Mus.* **11** 1918 (578-579). **11**

**Buglia, G.** Osservazioni intorno alla vitalità ed alla pressione osmotica delle giovani anguille ancora trasparenti (cieche). *Pisa Atti Soc. Tosc. Sc. Nat.* **31** 1917 (102-119). **12**

**Buglia, G.** Sull' azione tossica che gli estratti acquosi del corpo delle giovani anguille ancora trasparenti (cieche) esercitano sul sangue. *Pisa Atti Soc. Tosc. Sc. Nat.* **31** 1917 (168-195). **13**

**Buytendyk, F. J. J.** L'instinct d'alimentation et l'expérience chez les poissons. *Haarlem, Arch. Néerl. Physiol.* **3** 1918 (47-59). **14**

**Canavari, M.** Descrizione di un notevole esemplare di *Ptychodus* Agassiz trovato nel calcare bianco della Creta superiore di Gallio nei Sette Comuni (Veneto). *Pisa Atti. Soc. Tosc. Sc. Nat.* 1917 (5-9). **15**

**Carter, J. P.** On the Cytomorphosis of the Enamel Organ in the Hake. *Q. J. Microsc. Sci. London* **63** 1918 (387-400) pls. xxii-xxiv. **16**

**Castellaneta, V.** Ancora sulla questione del timo in *Ammocoetes* *Monitore Zool. Ital. Firenze* **29** 1918 (109-114). **17**

**Chapman, F.** Descriptions and revisions of the Cretaceous and Tertiary Fish-remains of New Zealand. *Wellington. Geol. Surv. Palaeont. Bull.* **7** 1918 (1-46) pls. i-ix. **18**

**Cutler, D. W.** A preliminary account of the production of Annual Rings in the Scales of Plaice and Flounders. *Plymouth J. Mar. Biol. Ass.* **11** No. 4 1918 (470-496). **19**

**Delphy, J.** Deux cas d'atrophie de la nageoire ventrale chez le Chabot buffle (*Cottus bubalis*). *Paris Bul. Soc. Zool.* **42** 1917 (118-121). **20**

- Despott, G.** The Ichthyology of Malta. Malta J. Hist. Sci. Soc. **3** 1918 (144-158 213-222 253-254). 21
- Droogleever Fortuyn, A. B.** Over de veranderingen, die het spierweefsel van visschen by bevrizing ondergaat. 'Ueber die Aenderungen, welchen das Muskelgewebe von Fischen bei Erfrieren unterliegt.' Tydschrift Vergelykende Geneeskunde, Gezondheidsleer, Dierziekten. Leiden **4** 1918 (126-132 11 Abb.) 22
- Eastman, C. R.** Dentition of *Hydrocyon* and its supposed Fossil Allies. New York Bull. Amer. Mus. **37** 1917 (757-760) pls. lxxxiv-lxxxvii. 23
- Ege, V.** On the postlarval stages of the species of *Paralepis* inhabiting the North Eastern part of the Atlantic, including the Mediterranean. Kjöbenhavn Nath. Medd. **69** 1918 (243-246). 24
- Ege, V.** Stomiidae (*Stomsia*). Report on the Danish oceanographical expeditions 1908-1910 to the Mediterranean and adjacent seas **2** Biology A 4 1918 (28 pp.). 25
- Ehrström, K. E.** Embryonala karaktärer i skallens byggnad hos mopsformer av *Gadus morrhua* och *Lumpenus lampetiformis*. [Embryonale Charaktere im Bau des Schädels bei Mopsformen von *Gadus morrhua* und *Lumpenus lampetiformis*]. Helsingfors Medd. Soc. Fauna et Fl. Fenn. **43** 1917 (276-279). 26
- Eigenmann, C. H.** The Pygidiidae a family of South American Catfishes. Pittsburg Mem. Carnegie Mus. **7** 1918 (259-373) pls. xxxvi-lvi. 27
- Eigenmann, C. H.** The American Characidae. Cambridge Mass. Mem. Mus. Comp. Zool. **43** 1918 (103-208) pls. ix-xciii. 28
- Ekman, G.** Beiträge zur Kenntnis des Laichens von *Petromyzon planeri* Bloch. Helsingfors Medd. Soc. Fauna et Fl. Fenn. **44** 1918 (72-76). 29
- Evermann, B. W.** The Fishes of Wisconsin and Tennessee. Washington Bull. Bur. Fish. **35** 1915-16 [1918] (293-368). 30
- Facciola, L.** Specie del famiglia "Maenidae" viventi nel mare di Messina. Monitore Zool. Ital. Firenze **29** 1918 (6-16). 31
- Fage, L.** Sur la métamorphose de deux *Pleuronectes* Méditerranéens rares ou mal connus. Paris Bul. soc. zool. **43** 1918 (69-77). 32
- Fage, L.** Shore-fishes. Macrorhamphosidae, Ammodytidae, Atherinidae, Serranidae, Chilodipteridae, Cepolidae, Sparidae, Mullidae, Pomacentridae, Labridae, Caproidae, Gobiidae, Scorpaenidae, Triglidae, Cyclopteridae, Trachinidae, Uranoscopidae, Callionymidae, Bleimiidae, Ophiidiidae. Copenhagen, Report on the Danish oceanographical expeditions 1908-1910 to the Mediterranean and adjacent seas **2** Biology A 3 1918 (154 pp.). 33
- Fowler, H. W.** Cold-blooded vertebrates from Florida, the West Indies, Costa Rica, and eastern Brazil. Philadelphia Proc. Acad. Nat. Sci. **67** 1915 (244-269). 34
- Fowler, H. W.** A new Characin from Paraguay. Philadelphia Proc. Acad. Nat. Sci. **70** 1918 (141-143). 35
- Fowler, H. W.** New or little-known Fishes from the Philippine Islands. Philadelphia Proc. Acad. Nat. Sci. **70** 1918 (2-71). 36
- Fowler, H. W.** Fishes from the middle Atlantic States and Virginia. Ann Arbor. Mich. Occ. Pap. Mus. Zool. **56** 1918 (1-19) pls. I-II. 37
- Fraser, C. McL.** Rearing Sockeye Salmon in Fresh Water. Contrib. Canad. Biol. Ottawa **1917-18** (105-109). 38
- Gadeau de Kerville, H.** Recherches expérimentales sur la durée de la vie de l'Anguille commune (*Anguilla anguilla*) dans un milieu sec. Paris Bul. Soc. zool. **42** 1917 (115-117). 39
- Garman, S.** La Levisa. Nueva Especie de Selacio, *Dasybatus torres*. Havana Mem. Soc. Hist. Nat. **2** 1916 (178-180). 40
- Garrey, W. E.** The resistance of fresh water fish to changes of osmotic and chemical conditions. Amer. J. Physiol. Baltimore **39** 1916 (313-329). 41
- Gilchrist, J. D. F.** The Eggs and Spawning Habits of the Pilot Fish (*Naucrates ductor*). Ann. Mag. Nat. Hist. London ser. **9** 2 1918 (114-118). 42



- Gilchrist, J. D. F. Note on Eggs and Embryos of the South African Myxinoïd *Idellostoma [Heptatretus] hexactrema* Müll. Q. J. Microsc. Sci. **63** 1918 (141-159) pls. x-xii. **43**
- Goodrich, E. S. On the Development of the Segments of the Head in *Scyllium*. Q. J. Microsc. Sci. London **63** 1918 (1-30) pls. i-ii. **44**
- Goodrich, E. S. On the Development of the Pericardiac-peritoneal canals in Selachians. J. Anat. London **53** 1918 (1-13). **45**
- Gudger, E. W. Oral Gestation in the (Gaff-Topsail Catfish, *Felichthys felis*. Washington Carnegie Inst. Publ. Zool. **252** 1918 (25-52). **46**
- Gudger, E. W. *Sphyracna barracuda*, its morphology, habits and history. Washington, Carnegie Inst. Publ. **252** 1918 (53-108). **47**
- Gudger, E. W. The Myth of the Shipholder: Studies in *Echeneis* or *Remora*. Ann. Mag. Nat. Hist. London ser. 9 **2** 1918 (271-306) pls. xv-xvii. **48**
- Guitel, F. Un détail de structure de l'appareil adhésif des *Lepadogaster*. Rennes Bull. soc. sci. méd. **24** 1915 (102-109) 1 pl. **49**
- Guitel, F. Disposition des plaques épithéliales dans l'appareil adhésif des *Lepadogaster*. Rennes. Bull. soc. sci. méd. **26** 1917 (62-70) 3 pls. **50**
- Guitel, F. Premiers stades du développement de l'appareil adhésif des *Lepadogaster*. Paris C. R. Acad. Sci. **166** 1918 (702-705). **51**
- Herdman, W. A. Report for 1917 of the Lancashire Sea-Fisheries Laboratory. Liverpool 1918 (1-68). **52**
- Hess, W. N. A seasonal Study of the Kidney of the Five-spined Stickleback, *Eucalia inconstans*. Indianapolis Proc. Acad. Sci. **1917** [1918] (295-296). **53**
- Hjortlund, S. Lidt om Hajkød. Experiments on the virulence of the flesh of *Somniosus microcephalus*. København, Grønlandske Selskabs Aarskrift **1917** (47-60). **54**
- Hoffman, W. A. Notes on the Food of the Yellow Perch in Cayuga Lake. Des Moines Proc. Iowa Acad. **25** 1918 (213-217). **55**
- Holmgren, N. Zur Frage der Epiphysen-Innervation bei Teleostiern. Folia neuro-biologica, Haarlem **11** 1918 (1-15). **56**
- Holmgren, N. Zur Kenntniss des Nervus terminalis bei Teleostiern. Folia neuro-biologica, Haarlem, **11**, 1918 (16-36). **57**
- Holmgren, N. Zum Bau des Epiphyse von *Squalus acanthias*. Ark. Zool. Stockholm **11** 1918 No. 23 (1-28) 2 pls. **58**
- Holmgren, N. Ueber die Epiphysennerven von *Clupea sprattus* und *haren-gus*. Ark. Zool. Stockholm **11** 1918 No. 25 (1-5). **59**
- Holmgren, N. Zur Innervation der Parietalorgane von *Petromyzon fluviatilis*. Zool. Anz. Leipzig **50** 1918 (91-100). **60**
- Hornell, J. A Statistical Analysis of the Fishing Industry of Tuticorin (South India). Madras Fisheries Bull. **11** 1917 (67-118). **61**
- Horst, C. J. van der. Die motorischen Kerne und Bahnen in dem Gehirn der Fische, ihr taxonomischer Wert und ihre neurobiologische Bedeutung. Helder, Tydschr. Ned. Dierk. Ver. **16** (Ser. 2) 1918 (168-270). 16 pls. **62**
- Hoskins, E. R. and Hoskins, M.M. The Reaction of Selachii to Injections of various non-toxic Solutions and Suspensions (including vital dyes) and to excretory Toxins. J. Exp. Zool. Philadelphia **27** 1918 (101-142) 6 pls. **63**
- Hoskins, M.M. *vide* Hoskins, E.R.
- Hubbs, C. L. Notes on Fishes from the Athi River in British East Africa. Chicago Field Mus. Publ. Zool. **12** 1918 (9-16) 3 pls. **64**
- Hubbs, C. L. The Fishes of the genus *Atherinops*, their variation, distribution, relationships and history. New York Bull. Amer. Mus. Nat. Hist. **38** 1918 (409-440). **65**
- Hubbs, C. L. A Revision of the Viviparous Perches. Washington Proc. Biol. Soc. **31** 1918 (9-14). **66**
- Huitfeld-Kass, H. Mjøsens Fisker og Fiskerier. Trondhjem kgl. Vid. selsk. Skr. **1916** (1917) 2 (1-257). **67**
- Huntsman, A. G. The Growth of the Scales in Fishes. Toronto Trans. Canad. Inst. **1918** (63-103). **68**

- Huntsman, A. G.** The Canadian Plaice. Toronto Bull. Biol. Board 11918 (1-32). 69
- Huntsman, A. G.** The Scale Method of calculating the Rate of Growth in Fishes. Ottawa Tr. R. Soc. Canada ser. 3 12 1918 (47-52). 70
- Huntsman, A. G.** The Effect of the Tide on the Distribution of the Fishes of the Canadian Atlantic Coast. Ottawa Tr. R. Soc. Canada ser. 3 12 1918 (61-67). 71
- Johansen, A. C. and Löffing, J. C.** Fiskene i Randers Fjord. The Fishes in the firth of Randers. Köbenhavn, Randers Fjords Naturhistorie, 1918 (445-470) with 8 figg. 72
- Johnson, S. E.** Osteology of the Gruntfish *Rhamphocottus richardsoni*. J. Morph. Philadelphia 31 1918 (461-479). 4 pls. 73
- Joubin, L. vide Roule, L.**
- Joubin, L. et Roule, L.** Observations sur la nourriture des Thous de l'Atlantique (*Germo alalonga* Gm.) Monaco Bull. Inst. Océan 348 1918 (1-7). 74
- Kendall, W. C.** The Rangeley Lakes, Maine, with special reference to the Habits of the Fishes, Fish Culture and Angling. Washington Bull. Bur. Fish. 35 1915-16 [1918] (485-594). 75
- Kuiper, K.** The Physiology of the Air-bladder of Fishes. Amsterdam Proc. Sci. K. Akad. Wet. 18 1916 (572-581). 76
- Kuntz, A.** The histological basis of adaptive shades and colors in the Flounder. *Paralichthys albiguttatus*. Washington Bull. Bur. Fish. 35 1915-16 (1-30) [1918]. 77
- Kuntz, A. and Radcliffe, L.** Notes on the embryology and larval development of twelve Teleostean Fishes. Washington Bull. Bur. Fish. 35 1915-16 [1918] (87-134). 78
- Lambe, L. M.** On the remains of a Selachian from the Edmonton Cretaceous of Alberta. Ottawa Nat. 32 1918 (27-28). 79
- Lebour, M. V.** The Food of Post-larval Fish. Plymouth J. Mar. Biol. Ass. 11 No. 4 1918 (434-469). 80
- Leder, H.** Zur Histologie des Rückenmarks von *Ammocoetes*. Wien Arb. Zool. Inst. Univ. 20 1915 (273-296). 81
- Legendre, J.** Biologie de la Perche malgache. Paris C. R. Acad. Sci. 166 1918 (617-619). 82
- Legendre, J.** Biologie de l' *Eleotris gobioides*. Paris C. R. Acad. Sci. 167 1918 (175-177). 83
- Llueca, F. G.** Algunas especies de peces fosiles nuevas y de interés para le Neogeno de la provincia de Alicante. Madrid Bol. Soc. Esp. Hist. Nat. 18 1918 (510-516). 84
- Löffing, J. C. vide Johansen, A. C.**
- Longley, W. H.** Haunts and Habits of Tropical Fishes. New York J. Amer. Mus. 18 1918 (79-88). 85
- Lowe, J. N.** The Action of various pharmacological and other chemical Agents on the Cromatophores of the Brook Trout *Salvelinus fontinalis* Mitchell. J. Exp. Zool. Philadelphia 23 1917 (148-191) pl. I. 86
- Mavor, J. W.** On the age and growth of the Pollock in the Bay of Fundy. Contrib. Canad. Biol. Ottawa 1917-18 (111-125). 87
- Mazzarelli, G.** Contributo alla conoscenza delle metamorfosi dell' *Eretmophorus Kleinenbergi* Gigli. Napoli Publ. Staz. Zool. 2 1917 (15-27) pls. II-III. 88
- McCulloch, A. R.** Four Queensland Fishes. Brisbane Mem. Queensland Mus. 6 1918 (91-96) 4 pls. 89
- McCulloch, A. R. and McNeill, F. A.** Some Australian Bleennioid Fishes. Sydney Rec. Austral. Mus. 12 1918 (9-25) pls. iii-iv. 90
- McCulloch, A. R. and Waite, E. R.** Some new and little-known Fishes from South Australia. Adelaide Rec. S. Austral. Mus. 1 1918 (1-78) pls. II-VII. 91
- McCulloch, A. R. and Waite, E. R.** Descriptions of two new Australian Gobies. Adelaide Rec. S. Austral. Mus. 1 1918 (79-82) pl. viii. 92
- McNeill, F. A. vide McCulloch, A. R.**
- Meek, A.** Dove Marine Laboratory Report 1918 (1-67). 93
- Meek, A.** The Migrations of *Chimaera monstrosa*. Scot. Nat. Edinburgh 1918 (11-16). 94

- Miles, W. R.** Experiments on the Behaviour of some Puget Sound Shore Fishes (Blenniidae). Puget Sd. Biol. Stat. Publ. 2 1918 (79-94). 95
- Moodie, R. L.** A new fish brain from the Coal Measures of Kansas, with a review of other fossil brains. J. Comp. Neurol. Philadelphia 25 1915 (135-181). 96
- Morgulis, S.** The body surface of flounders and its relation to the gaseous metabolism. Amer. J. Physiol. Baltimore 36 1915 (207-216). 97
- Mortensen, Th.** Observations on protective adaptations and habits mainly in marine animals. 1. Fishes. Kjöbenhavn Nath. Medd. 69 1918 (60-68). 98
- Newman, H. H.** Development and heredity in heterogenic teleost hybrids. J. Exp. Zool. Philadelphia 18 1915 (511-576). 99
- Nichols, J. T.** New Chinese Fishes. Washington Proc. Biol. Soc. 31 1918 (15-20). 100
- Nichols, J. T.** On *Vomer dorsalis* with a brief review of the genus. New York Bull. Amer. Mus. 38 1918 (669-676). 101
- Nichols, J. T.** Some marine Fishes from Northwest Greenland. New York Bull. Amer. Mus. 38 1918 (677-683). 102
- Nordgaard, O.** Contributions to the Life History of the Fishes in Trondjhem Fjord. Trondjhem Kgl. Vid. Selsk. Skr. 1915 [1917] No. 9 (1-38). 103
- Norris, E. H.** The morphogenesis of the thyroid gland in *Squalus acanthias*. J. Morph. Philadelphia 31 1918 (187-219) 2 pls. 104
- Ogilby, J. D.** Edible Fishes of Queensland. Brisbane Mem. Queensland Mus. 6 1918 (45-90) pls. xvi-xxvi. 105
- Ogilby, J. D.** Ichthyological Notes. Brisbane Mem. Queensland Mus. 6 1918 (97-105). 106
- Parker, G. H.** A critical Survey of the Sense of Hearing in Fishes. Philadelphia Proc. Amer. Phil. Soc. 57 1918 (69-98). 107
- Pearse, A. S.** The food of the Shore Fishes of certain Wisconsin Lakes. Washington Bull. Bur. Fish. 35 1915-16 [1918] (245-292). 108
- Petersen, C. G. J.** Havbunden og Fiskenes Ernæring. En Oversigt over Arbejderne vedrørende voro Farvandes Bonitering i 1883-1917. An account of the investigations on the food of the fishes in the Danish waters, accomplished in the years 1883-1917. Kjöbenhavn Ber. Biol. Stat. 25 1918 (1-58) 12 pls. 1 map. 109
- Petronievics, B.** Note on the Pectoral Fin of *Eusthenopteron*. Ann. Mag. Nat. Hist. London ser. 9 2 1918 (471-476). 110
- Phillips, W. J.** Edible Fishes of Wellington. N. Zeal. J. Sci. Wellington 1 1918 (268-271). 111
- Pieragnoli, L.** Selaci eocenici di Toscana. Riv. Ital. Palaeont. Parma 22 1916 (41-54) pl. i. 112
- Popta, C. L.** Zweite Fortsetzung der Beschreibung von neuen Fischarten der Sunda-Expedition. Leiden 1918 (8 pp.). 113
- Pruvost, P.** Les Poissons fossiles du terrain houiller du nord de la France. Paris C. R. Acad. Sci. 167 1918 (1041-1043). 114
- Radcliffe, L.** *vide* Kuntz, A.
- Rádl, E.** Zur Morphologie der Schizentron der Knochenfische. Morph. Jahrb. Leipzig 49 1915 (509-535). 115
- Ramalho, A. S. M. M.** Note sur le pancréas intra-hépatique et sur les cellules hépatiques de *Orthogoriscus mola*. Lisbonne Bul. Soc. Port. Sc. Nat. 8 1918 (84-86). 116
- Redeke, H. C.** Aantekeningen over platvisschen. [Bemerkungen über Plattfische.] Meded. Vissch. Helder. 25 1918 (26-30). 117
- Regan, C. T.** A Chaetodont Fish with Markings resembling Arabic Characters. London Proc. Zool. Soc. 1918 (192-3). 118
- Regan, C. P.** Further additions to the Fish Fauna of Natal. Ann. Durban Mus. 2 Pt. 2 1918 (76-77). 119
- Ribeiro, A. de M.** Tres generos e dezeseito especies novas de Peixes Brasilieros. San Paulo 1918 (16 pp.). 120
- Ribeiro, A. de M.** Lista dos Peixes Brasilieros do Museu Paulista 1 (32 pp.) 3 (24 pp.) San Paulo 1918. 121

- Ribeiro, A. de M.** Considerações sobre os generos *Brachyplatystoma* e *Platy-stomatichthys* de Bleeker. San Paulo 1918 (1-39) 9 pls. 122
- Ribeiro, A. de M.** *Ancistrus*. Rev. Soc. Sci. Rio de Janeiro 2 1918 (112-114). 123
- Ribeiro, A. de M.** Nota chave para a determinação das especies do genero *Tachysurus*. Rev. Soc. Sci. Rio de Janeiro 2 1918 (108-111). 124
- Ribeiro, A. de M.** *Hemipsilichthys Eigenm.* e generos aliados. Rev. Soc. Sci. Rio de Janeiro 2 1918 (101-107) pls. i-vii. 125
- Ribeiro, A. de M.** Fauna Brasileira. Peixes. Arch. Mus. Rio de Janeiro 17 1915 21 1918 (1-227). 126
- Ribeiro, A. de M.** Cichlidae. Comm. Linh. Telegraph. Matto Grosso ao Amazonas. 41 1918 (1-18) pls. i-xvi. 127
- Roule, L.** Contributions à la connaissance de la Faune Ichthyologique Abyssale Française. Bull. Mus. Paris 23 1917 (455-460). 128
- Roule, L.** Documents pour servir à l'histoire du Saumon (*Salmo salar L.*) dans les eaux douces de la France. Bull. Mus. Paris 24 1918 (477-484). 129
- Roule, L.** Considérations sur la biologie du Thon commun (*Orcynus thynnus L.*) Monaco Bull. Inst. Océan. 345 1918 (1-24). 130
- Roule, L.** *vide* Joubin, L.
- Roule, L. et Joubin, L.** Note sur l'alimentation du Thon de l'Atlantique (*Germon alalonga Gmelin*). Bull. Mus. Paris 24 1918 (485-486). 131
- Rückert, J.** Über die Glomeruli der Vorniere von *Torpedo* und deren arterielle Gefässe. Arch. Mikr. Anat. Bonn 89 1917 (387-464) pls. xxi-xxiv. 132
- Rückert, J.** Zur Entwicklung der Vena cardinalis posterior von *Torpedo* und deren Beziehungen zur Vorniere. Arch. Mikr. Anat. Bonn. 89 1917 (466-494) pls. xxv-xxvi. 133
- Russo, A.** Il prodotto della pesca a Catania nel biennio 1915-1916, Catania Atti. Accad. Gioenia ser. 5 11 1918 Mem. 4 (1-12). 134
- Sanzo, L.** Stadi larvali di *P. sphyraenoides* Risso. Roma Rend. Acc. Lincei 27 Sem. 1 (450-455). 135
- Sanzo, L.** Nuovo contributo alla conoscenza della sviluppo larvale di *Bathophilus nigerrimus* Gigl. Roma Rend. Acc. Lincei 27 Sem. 2 1918 (379-383). 136
- Sanzo, L.** Nuovo contributo alla conoscenza dello sviluppo larvale di *Stomias boa* Risso. Roma Rend. Acc. Lincei 27 sem. 2 1918 (77-82). 137
- Scammon, R. E.** The histogenesis of the selachian liver. Amer. J. Anat. Philadelphia 17 1915 (245-315) pls. 138
- Schiche, O.** Vorstudien zu biologischen Beobachtungen an *Amiurus nebulosus* Les. Zool. Anz. Leipzig 49 1918 (336-344). 139
- Schmidt, J.** Racial Investigations No. 1: *Zoarces viviparus L.* and local races of same. Copenhagen C.R. Lab. Carlsberg 13 1917 (279-396). 140
- Schmidt, J.** Racial Investigations. II. Constancy Investigations continued. Copenhagen C.R. Lab. Carlsberg 14 1917 No 1 (1-18). 141
- Schmidt, J.** Argentinidae, Microstomidae, Opisthoproctidae, Mediterranean Odontostomidae. Copenhagen Report on the Danish oceanographical expeditions 1908-1910 to the Mediterranean and adjacent seas 2 Biology A 5 1918 (40 pp.) 142
- Schmidt, J. and Strubberg, A.** Mediterranean Bramidae and Trichiuridae. Copenhagen, Report on the Danish oceanographical expeditions 1908-1910 to the Mediterranean and adjacent seas 2 Biology A6 1918 (15 pp.) 143
- Schreiner, K. E.** Zur Kenntnis der Zellgranula. Untersuchungen über den feineren Bau der Haut von *Myxine glutinosa*. Arch. Mikr. Anat. Bonn. 92 1916 Abt. 1 (1-63) pls. i-iii. 144
- Schwartz, L.** Ueber die Entwicklung der Kopfganglien und des Kopfsympathicus bei der Forelle. Folia neurobiologica Haarlem 11 1918 (37-57) 2 pls. 145
- Scott, M. T. H.** Sobre el Desarrollo Intraovarial de *Jenynsia lineata*. Buenos Aires An. Soc. Ci. 86 1918 (349-354). 146

- Senna, A.** Note Ittiologiche. 1. Sull' identità dello *Stomias bonapartei* Fowl. con *St. boa* (Risso) ii. Stadi larvali di *St. Boa* (Risso). *Monitore zool. ital.* Firenze **28** 1917 (189-201) pl. ix. **147**
- Smith, H. M.** Report of the United States Commissioner of Fisheries for 1916. Washington 1917. **148**
- Snyder, J. O.** The Fishes of the Lahontan System of Nevada and north-eastern California. Washington Bull. Bur. Fish. **35** 1915-16 (31-86) [1918.] **149**
- Snyder, J. O.** The Fishes of Mohave River, California. Washington Proc. U.S. Nation. Mus. **54** 1918 (297-299). **150**
- Sprenkel, H. B. Van der.** The central relations of the cranial nerves in *Silurus glanis* and *Mormyrus caschive*. *J. Comp. Neurol.* Philadelphia **25** 1915 (5-63). **151**
- Stefano, G. de** Il valore sistematico e filogenitico del sistema dentario nella determinazione degli Elasmobranchia fossili. Roma Boll. Soc. Geol. Ital. **35** 1916 (1-23). **152**
- Stefano, G. de.** Alcuni nuovi Pesci fossili del Terziario Italiano. Roma Boll. Soc. Geol. Ital. **36** 1918 (189-204) pl. ix. **153**
- Stensiö, E. A.** Notes on a Crossopterygian Fish from the upper Devonian of Spitzbergen. *Upsala Bull. Geol. Inst.* **16** 1918 (115-124) pls. iv-vi. **154**
- Stromer, E.** Die Säge des Pristiden (*Onchopristis numidus*) u. über die Sägen der Sägehaie. München Abhandl. Akad. **28** No. 8 1917 (1-28) 1 pl. **155**
- Strubberg, A. C.** Marking Experiments with Plaice and Lemon Soles at the Faroes in 1910-1912. Kjøbenhavn Medd. Komm. Havunders. Fiskeri **5** No. 6 1918 (1-65). **156**
- Strubberg, A. vide** Schmidt, J.
- Suomalainen, E. W.** Havaintoja turskan (*Gadus callarias* L.) ravinnosta Pohjanlahdessa. [Beobachtungen über die Nahrung des Dorschens in Bottnischen Meerbusen]. Helsingfors Medd. Soc. Fauna et Fl. Fenn. (129-131). **157**
- Tanaka, S.** Figures and Descriptions of the Fishes of Japan. **27-29** (475-538) pls. cxxxi-cxxxix. Tokyo 1918. **158**
- Tåning, A. V.** Mediterranean Scopelidae (Saurus, Anlopus, Chlorophthalmus and Myctophum). Copenhagen, Report on the Danish oceanographical expeditions 1908-1910 to the Mediterranean and adjacent seas. **2** Biology A 7 1918 (154 pp.). **159**
- Thompson, D'A. W.** The Scareer Fishes of the Aberdeen Market. Scot. Nat. Edinburgh **1918** (35-46) (59-68). **160**
- Thomson, G. M.** Unutilized sources of wealth in the New Zealand Seas. *N. Zeal. J. Sci.* Wellington **1** 1918 (135-139). **161**
- Thomson, J. A.** Records of new or rare Fish from New Zealand waters. *N. Zeal. J. Sci.* Wellington **1** 1918 (4-7). **162**
- Thomson, J. A.** Is a Sardine Industry practicable in New Zealand. *N. Zeal. J. Sci.* Wellington **1** 1918 (7-8). **163**
- Vecchio, C. del.** Ricerche sulla Struttura dello Stomaco dei Pesci con speciale riguardo alle parte pilorica. Milano Atti Soc. Ital. Sc. Nat. **56** 1918 (233-260). **164**
- Waite, E. R. vide** McCulloch, A. R.
- Wells, M. M.** The reactions and resistance of fishes in their natural environment to salts. *J. Exp. Zool.* Philadelphia **19** 1915 (243-283). **165**
- Wenig, J.** Über die Cupulac terminales in den Ampullen des hautigen Labyrinthes. *Morph. Jahrb.* Leipzig **50** 1916 (319-340) pl. xiv. **166**
- White, G. M.** Association and Color Discrimination in Mudminnows and Sticklebacks. *J. Exp. Zool.* Philadelphia **27** 1919 (444-498). **167**
- Whitehouse, R. H.** The Evolution of the Caudal Fins of Fishes. *Calcutta Rec. Ind. Mus.* **15** 1918 (135-142). **168**
- Whitehouse, R. H.** The Caudal Fin of the Eel *Chaudhuria*. *Calcutta Rec. Ind. Mus.* **14** 1918 (65-66). **169**
- Williamson, H. C.** A criticism of Reibisch's Otolith-method of estimating the Age of Plaice. *J. Zool. Res.* London **3** 1918 (13-29). **170**
- Wilson, H. C.** The Utility of Fish as Larvicides. *Madras Fisheries Bull.* **11** 1917 (161-172). **171**

**Wintrebert,** Les mouvements et la sensibilité embryonnaires des Scélaciens (*Scyllium canicula*). Paris Bul. soc. zool. 43 1918 (42-44). 172

**Woodward, A. S.** The Fossil Fishes of the Wealden and Purbeck Formations. Pt. II. London Monogr. Palacont. Soc. 1918 (49-104). pls. xi-xx. 173

**Woodward, A. S.** On two new Elasmobranch Fishes (*Crossorhinus jurassicus* sp. nov. and *Protospinax unsectens* gen. et sp. nov.) from the Upper Jurassic Lithographic Stone of Bavaria. London Proc. Zool. Soc. 1918 (231-235) pl. i. 174

**Woodward, A. S.** On a new Species of *Edestus* from the Upper Carboniferous of Yorkshire. London Q.J. Geol. Soc. 72 1916 [1917] No. 285 (1-5) pl. i. 175

## II.—SUBJECT INDEX.

### ECONOMICS.

General; **Herdman, 52**; **Hornell, 6**; **Huitfeld-Klaas, 67**; **Meek, 93**; **Ogilby, 105**; **Phillips, 111**; **Russo, 134**; **Smith, 148**; **Thomson, 161-163.**

Investigations on *Clupea harengus*, **Meek, 93**; *Oncorhynchus*, **Fraser, 38**; *Gadus pollachius*, **Mavor, 87**; Flatfishes, **Cutler, 19**; **Huntsman, 69**; **Redeke, 117**; **Strubberg, 156.**

Scale and otolith-reading; **Cutler, 19**; **Huntsman, 68, 70**; **Meek, 93**; **Williamson, 170.**

Fish as larvicides; **Wilson, 171.**

Freezing; **Droogleever Fortuyn, 22.**

### STRUCTURE.

#### Tegumentary System.

Skin; **Schreiner, 144**: chromatophores; **Kuntz, 77**: pelvic fins; **Guitel, 49, 50**: teeth; **Canavari, 15**; **Eastman, 23**; **Stromer, 155.**

#### Nervous System.

**Holmgren, 56-60**; **Horst, 62**; **Leder, 81**; **Moodie, 96**; **Rädl, 115**; **Sprenkel, 151**; **Wenig, 166.**

#### Alimentary System.

Stomach; **Anile, 2**; **Vecchio, 164**: pancreas and liver; **Ramalho, 116.**

#### Myology.

**Allis, 1.**

#### Osteology.

**Berry, 7**; **Chapman, 18**; **Johnson, 73**; **Lambe, 79**; **Petronievics, 110**; **Stensio, 154**; **Whitehouse, 168-169**; **Woodward, 173-175.**

#### Excretory System.

**Hess, 53.**

### DEVELOPMENT.

Eggs and Larvae; **Ege, 24, 25**; **Fage, 32, 33**; **Gilchrist, 42, 43**; **Kuntz and Radcliffe, 78**; **Mazzarelli, 88**; **Roule, 129**; **Sanzo, 135-137**; **Schmidt, 142**; **Schmidt and Strubberg, 143**; **Senna, 147**; **Taning, 159.**

Embryos; **Ehrstrom, 26**; **Gilchrist, 43**; **Scott, 146.**

Organogeny; head segments; **Goodrich, 44**: pelvic fins; **Guitel, 51**: teeth; **Carter, 16**: thymus; **Castellanata, 17**: thyroid; **Norris, 104**: liver; **Scammon, 138**: nerves; **Schwartz, 145**: pericardium; **Goodrich, 45**: blood-vessels; **Anthony, 4**: kidney; **Rückert, 132, 133.**

### PHYSIOLOGY.

Hearing; **Parker, 107**: air-bladder; **Kuiper, 76**: temperature of body; **Azzi, 5**: reactions of chromatophores; **Lowe, 86**: reaction to injections; **Hoskins and Hoskins, 63**: reaction to changed conditions; **Garrey, 41**: reaction to salts; **Wells, 165**: body surface and gaseous metabolism; **Morgulis, 97**: osmotic pressure; **Buglia, 12**: vitality of cells; **Gadeau, 39**: toxic properties; **Buglia, 13**; **Hjortlund, 54**: embryonic movements; **Wintrebert, 172.**

### ETHOLOGY.

Habits of—Tropical Fishes; **Longley, 85**: Fishes of—Trondjhem Fjord; **Nordgaard, 103**: Rangeley Lakes; **Kendall, 75**: Pholididae; **Miles, 95**: *Amiurus*; **Schiche, 139**: *Thynnus*; **Roule, 130**: *Sphyræna*; **Gudger, 47**: *Paratilapia*; **Legendre, 82**: *Eleotris*; **Legendre, 83**: *Ceratodus*; **Bancroft, 6.**

Protective colour and habits; **Mortensen, 98.**

Colour discrimination; White, 167.  
 Breeding; Ekman, 29; Gilchrist, 42.  
 Oral gostation; Gudger, 46.  
 Tides and distribution; Huntsman, 71.  
 Migration; Meek, 94.  
 Food; Buytendyk, 14; Hoffman, 55; Joubin et Roule, 74; Lebour, 80; Pearse, 108; Petersen, 109; Roule et Joubin, 131; Suomalainen, 157; Wilson, 171.

#### VARIATION AND EVOLUTION.

Variation; Regan, 118; Schmidt, 140, 141; Heredity; Newman, 99; Schmidt, 141; Teratology; Delphy, 20; Ehrstrom, 26; Hybrids; Newman, 99.

#### DISTRIBUTION.

##### (a) MARINE.

##### Arctic Zone.

Greenland; Nichols, 102.

##### Sub-arctic and North Temperate zones.

Europe and Mediterranean; Despott, 21; Ege, 24, 25; Facciola, 31; Fage, 32, 33; Johansen and Lofting, 72; Nordgaard, 103; Roule, 123; Schmidt, 142; Schmidt and Strubberg, 143; Senna, 147; Täning, 159; Thompson, 160; Western Atlantic; Fowler, 37; Huntsman, 71; North Pacific; Hubbs, 65, 66; Tanaka, 158.

##### Tropical Zone.

W. Atlantic; Fowler, 34; Garman, 40; Ribeiro, 126; Natal; Regan, 119; Sunda Is.; Popta, 113; Philippines; Fowler, 36; Queensland; McCulloch, 89; McCulloch and McNeill, 90; McCulloch and Waite, 92; Ogilby, 105, 106.

##### South Temperate Zone.

S. Australia; McCulloch and Waite, 91; New Zealand; Thomson, 162.

##### (b) FRESHWATER.

##### Palaeartic.

Malta; Despott, 21; China; Nichols, 100.

##### Nearctic.

Evermann, 30; Fowler, 37; Nichols, 75; Snyder, 149, 150.

##### Indian.

Annandale, 3.

##### Ethiopian.

Africa; Boulenger, 8, 11; Hubbs, 64.

##### Neotropical.

S. America; Eigenmann, 27, 28; Fowler, 34, 35; Ribeiro, 120-127.

##### Australian.

McCulloch and Waite, 91.

##### (c) FOSSIL.

Devonian; Stensio, 154; Carboniferous; Moodie, 96; Prevost, 114; Woodward, 175; Jurassic; Woodward, 173, 174; Cretaceous; Berry, 7; Canavari, 15; Chapman, 18; Lambe, 79; Stromer, 155; Woodward, 173; Tertiary; Chapman, 18; Lluca, 84; Stefano, 153; Eocene; Pieragnoli, 112.

### III.—SYSTEMATIC.

#### MARSIPOBRANCHII.

##### PETROMYZONIDAE.

*Anmocoetes*, histology of spinal cord, LEDER 81.

##### MYXINIDAE.

*Heptatretus hexatrema* eggs and embryos, GILCHRIST 43.

#### SELACHII.

##### EUSELACHII.

Fossil teeth, STEFANO 152; Tertiary Selachians of Spain, LLUECA 84; of Tuscany, PIERAGNOLI 112.

##### PLEUROTREMATA.

##### LAMNIDAE.

Of Cretaceous and Tertiary of New Zealand, CHAPMAN 18; of Upper Cretaceous, Maryland, BERRY 7.

##### ORECTOLOBIDAE.

*Crossorhinus jurassicus* sp. n. Jurassic Bavaria, WOODWARD Proc. Zool. Soc. 1918 p. 231 pl. i fig. 1.

## †HYBODONTIDAE.

†*Palaeospinax ejundicus* sp. n. Cretaceous Alberta, LAMBE Ottawa Nat. 32 p. 27 fig.

†*Synechodus validus* sp. n. Upper Cretaceous New Zealand, CHAPMAN N.Z. Palaeont. Bull. 7 p. 6 pls. v fig. 12, ix fig. 2.

†*Edestus newtoni* sp. n. Carboniferous of Yorkshire, WOODWARD Q. J. Geol. Soc. 72 No. 285 p. 5 pl. i.

## CESTRACIONTIDAE.

*Cestracion coleridgensis* p. 6 pl. ix figs. 3 a, b, *novo zelandicus* p. 7 pls. vii figs. 8 a-c ix figs. 4 a, b, 5 a, b, spp. n., Miocene New Zealand, CHAPMAN N.Z. Palaeont. Bull. 7.

## SQUALIDAE.

*Squalus wakiyae*, sp. n. Japan, TANAKA, Fish, Japan, 27 p. 475.

## †PROTOSPINACIDAE.

†*Protospinax* gen. n. *amectens* sp. n. Jurassic, Bavaria, WOODWARD Proc. Zool. Soc. 1918 p. 233 pl. i figs. 2, 3.

## PRISTIOPHORIDAE.

*Pristiophorus napiereensis* sp. n. Pliocene New Zealand, CHAPMAN N.Z. Palaeont. Bull. 7 p. 21 pl. ix figs. 9 a, b, 10, 11 a, b, 12, 13.

## HYPOTREMATA.

## PRISTIDAE.

†*Onchoprists* gen. n. type *Gigantichthys numidus* Haug, STROMER Abhandl. Bayerisch., Akad. 28 (8) p. 17 pl. i, †*Onchosaurus*, STROMER l.c.

## RAIIDAE.

*Raia radiata* embryos *nidrosiensis* egg. cases, NORDGAARD 103; *R. clavata* branchial muscles, ALLIS 1.

## TRYGONIDAE.

*Dasybatus torrei* sp. n. Cuba, GARMAN Mem. Soc. Hist. Nat. Cuba 2 p. 178.

## MYLIOBATIDAE.

†*Ptychodus mediterraneus*. CANAVARI 15.

## HOLOCEPHALI.

*Chimaera monstrosa* migrations, MEEK 94.

## PISCES.

## PALAEOPTERYGII.

## ACIPENSERIDAE.

*Acipenser sturio*, THOMPSON 160.

## NEOPTERYGII.

## PROTOSPONDYLI.

## †MACROSEMIIDAE.

Of Wealden and Purbeck, WOODWARD Monogr. Palaeont. Soc. 1918 pp. 70-82.

†*Enchelyolepis* gen. n. type *Macrosemius andrewsi*, WOODWARD t.c. p. 80.

## †EUGNATHIDAE.

†*Caturus latidens* sp. n. Wealden WOODWARD Monogr. Palaeont. Soc. 1918 p. 83 fig. 28.

## AMIIDAE.

†*Amiopsis*, WOODWARD 173.

## †ASPIDORHYNCHIDAE.

†*Aspidorhynchus*, WOODWARD 173.

## †PYCNODONTIDAE.

†*Eomesodon* gen. n. p. 54, *depressus* sp. n. p. 57 pl. xiii f. 2. Purbeck Beds., Dorset, WOODWARD Monogr. Palaeont. Soc. 1918.

†*Coelodus multidentis* p. 67 pl. xv figs. 12, 13, Wealden, *laevidentis* p. 69 pl. xv figs. 19, 20, *arcuatus* p. 70 pl. xiii fig. 5. Purbeck Beds., spp. n., WOODWARD t.c.

## ISOSPONDYLI.

## ELOPIDAE.

†*Ischyrrhiza mira*, BERRY 7.

## ALEPOCEPHALIDAE.

List of French spp., ROULE 128.

## CLUPEIDAE.

*Anchovia*, *Brevoortia*, *Pomolobus*, eggs and larvae, KUNTZ and RADCLIFFE 78.

*Clupea harengus* scale investigations, MEEK 93.



†*Diplomystus coverhamensis* sp. n. Upper Cretaceous New Zealand, CHAPMAN N.Z. Palaeont. Bull. p. 26 pl. viii fig. 4.

## STOMIATIDAE.

Larvae, EGE Rep. Danish Ocean. Exped. 1908-10 2 Biology A 4 pp. 1-28.

*Stomias brevibarbatus* sp. n., EGE t.c. p. 22 fig. 11; *S. bonapartei* = *boa*, larvae, SENNA Monit. Zool. Ital 28 p. 189; *S. boa* larva, SANZO 137.

*Bathophilus nigerrimus* larvae, SANZO 136.

## †ENCHODONTIDAE.

†*Enchodus dirus*, BERRY 7.

## SALMONIDAE.

*Salmo aquilarum* p. 77 fig., *smaragdus* p. 80 fig., spp. n., Nevada, SNYDER Bull. U.S. Bur. Fish. 35; *S. salar* larvae, ROULE 129.

## MICROSTOMIDAE.

*Nansenia*, *Microstoma* larvae, SCHMIDT 142.

## ARGENTINIDAE.

*Argentina leioglossa* larvae, SCHMIDT 142.

## OPISTHOPROCTIDAE.

*Opisthoproctus soleatus*, *grimaldii* SCHMIDT 142.

## OSTARIOPHYSI.

## CYPRINOIDEA.

## CHARACIDAE.

Use of Weberian apparatus, KUIPER 76.

*Hydrocyon* teeth compared with †*Onchosaurus*, EASTMAN 23; BOULENGER 9 [see PRISTIDAE].

*Moenkhausia*, *Hemigrammus*, *Hypohessobrycon*, etc., described, EIGENMANN, Mem. Mus. Comp. Zool. 43 pp. 103-208 pls. ix-xciii.

*Knodus* gen. n. type *Bryconamericus breviceps*, EIGENMANN t.c. p. 114.

*Bertonolus* gen. n. *paraguayensis* sp. n. Paraguay, FOWLER Proc. Acad. Philad. 70 p. 141 fig.

## CYPRINIDAE.

*Barilius auropurpureus* sp. n. Inlé Lake, Shan States, ANNANDALE Rec. Ind. Mus. 14 p. 51 pls. ii fig. 4. iv. figs. 11, 12.

*Siphateles mohavensis* sp. n. Mohave R. California, SNYDER Proc. U.S. Nat. Mus. 54 p. 298 fig.

*Leucidius* gen. n. *pectinifer* sp. n. Nevada, SNYDER Bull. U.S. Bur. Fish. 35 p. 64 fig.

*Georgichthys* gen. n. *scaphignathus* sp. n. China, NICHOLS Proc. Biol. Soc. Washington 31 p. 17.

*Hemiculter andrewsi* sp. n. Yunnan NICHOLS t.c. p. 17.

*Acanthorhodeus grahami* sp. n. Yunnan, NICHOLS t.c. p. 18.

*Microrasbora* gen. n. p. 50 *rubescens* p. 50 pls. ii fig. 3, iv fig. 13, *erythromicron* p. 51 pls. ii fig. 5, iv fig. 14, spp. n., Shan States, ANNANDALE Rec. Ind. Mus. 14.

*Barbus athi* p. 10 pl. i, *helleri* p. 12 pl. ii *akeleyi* p. 13 pl. iii, spp. n., Athi R. E. Africa, HUBBS Field Mus. Publ. Zool. 12; *B. baudoni* sp. n. Shari R., BOULENGER Ann. Mag. Nat. Hist. (9) 2 p. 426.

*Sambwa* gen. n. *resplendens* sp. n. Inlé Lake, Shan States, ANNANDALE Rec. Ind. Mus. 14 p. 48 pls. ii fig. 3, iv fig. 15.

*Cyprinus carpio intha* subsp. n. Shan States, ANNANDALE t.c. p. 47.

## COBITIDAE.

*Cobitis dolichorhynchus* sp. n. China, NICHOLS Proc. Biol. Soc. Washington 31 p. 16.

*Nemachilus brunneanus* sp. n. Inlé Lake S. Shari States, ANNANDALE Rec. Ind. Mus. 14 p. 44 pl. ii fig. 2.

## SILUROIDEA.

## ARIIDAE.

*Felichthys felis* oral gestation, GUDGER 46.

*Tachysurus machadoi* sp. n. Brazil, RIBEIRO Rev. Soc. Sci. Rio de Janeiro 2 p. 110.

## AMIURIDAE.

*Amiurus nebulosus* behaviour, SCHICHE 139.

## AMPHILIIDAE.

*Andersonia pellegrini* sp. n. Shari R.,  
BOULENGER Ann. Mag. Nat. Hist. ser.  
9 2 p. 427.

## PIMELODIDAE.

*Pimelodella rudolphi* p. 9, *megalura*  
p. 10, *garbei* p. 11, spp. n., Brazil,  
RIBEIRO 120.

*Steindachneria scripta* sp. n. Brazil,  
p. 12, RIBEIRO 120.

*Taunayia* gen. n. *marginata* sp. n.  
Brazil p. 14, RIBEIRO 120.

*Glanidium macropterum* sp. n. Brazil  
p. 16, RIBEIRO 120.

*Brachyplatystoma*, *Platystomatichthys*  
review of spp., RIBEIRO 122.

## DORADIDAE.

*Ceratocheilus* gen. n. *osteomystax*  
sp. n. Brazil p. 16, RIBEIRO 120.

## PYGIDIIDAE.

Monograph, EIGENMANN Mem. Car-  
negie Mus. 7 pp. 259-373 pls. xxxvi-  
lvi.

*Pygidium santae-ritae* sp. n. Rio  
Preto, EIGENMANN t.c. p. 341 pl. lii  
fig. 5.

*Pleurophysus* gen. n. *hydrostaticus*  
sp. n. Brazil p. 8, RIBEIRO 120.

## LORICARIIDAE.

*Plecostomus jaguribensis* sp. n. Brazil,  
FOWLER Proc. Acad. Philad. 67 p. 264.  
f. 3; *P. interruptus* sp. n. Brazil p. 4,  
RIBEIRO 120.

*Ancistrus* Brazilian spp., RIBEIRO  
123.

*Pareiorhaphis* gen. n. type *Hemip-  
silichthys calmoni*, RIBEIRO Rev. Soc.  
Sci. Rio de Janeiro 2 p. 106.

*Pseudancistrus luderwalti* sp. n.  
Brazil p. 4, RIBEIRO 120.

*Microlepidogaster depressinotus* p. 5,  
*doccanus*, *guentheri* p. 6, *bahiensis* p.  
7, spp. n., Brazil, RIBEIRO 120.

*Otocinclus depressicauda* sp. n. Brazil  
p. 7, RIBEIRO 120.

*Loricariichthys derbyi* sp. n. Brazil,  
FOWLER Proc. Acad. Philad. 67 p.  
267, f. 4.

*Fartowella henriquei* sp. n. Brazil p.  
8, RIBEIRO 120.

## INIOMI.

## AULOPIDAE.

*Aulopus filamentosus* larva, TÄNING  
159.

## SYNODONTIDAE.

*Saurus griseus* larvae, TÄNING 159,

## SUDIDAE.

*Chlorophthalmus agasizii* larvae  
TÄNING 159.

*Paralepis* synopsis of Mediterranean  
and N.E. Atlantic spp. *pseudosphyrae-  
noides* sp. n., EGE Nath. Medd. 69 p.  
243; *P. coregonoides* larvae, SANZO  
135.

## MYCTOPHIDAE.

Mediterranean spp. larvae, TÄNING  
Rep. Danish Ocean. Exped. 1908-10  
2 Biology A 7 pp. 1-154.

*Diaphus Holti* sp. n. Mediterranean,  
TÄNING t.c. p. 88 fig. 35.

## EVERMANELLIDAE.

*Odontostomus balbo* larvae, SCHMIDT  
142.

## APODES.

## OPHICHTHYIDAE.

*Omochelys* subgen. n. type *Pisodon-  
tophis cruentifer*, FOWLER Proc. Acad.  
Philad. 70 p. 3.

## MICROCYPRINI.

## CYPRINODONTIDAE.

*Lebistes reticulatus* variation, here-  
dity, SCHMIDT 141.

*Jenynsia lineata* embryos, SCOTT  
146.

## SYNENTOGNATHI.

## BELONIDAE.

*Potamorhaphis eigenmanni* nom. n.  
= *P. guianensis* Eigenm. nec Schom-  
burgk, RIBEIRO Arch. Mus. Rio de  
Janeiro 21 p. 39.

## ANACANTHINI.

## GADIDAE.

*Merluccius bilinearis* eggs and larvae,  
KUNTZ & RADCLIFFE 78.

*Eretmophorus kleinenbergi*, MAZZA-  
RELLI 88.

*Gadus pontasson* in Mio-Pliocene of  
Italy STEFANO 153.

## ALLOTRIOGNATHI.

## LAMPRIDAE.

*Lampris luna*, THOMPSON 160.

## TRACHYPTERIDAE.

*Trachypterus arcticus*, THOMPSON 160.

## SOLENICHTHYES.

## MACRORHAMPHOSIDAE.

*Macrorhamphosus scolopax* larvae,  
PAGE 33.

## SYNGNATHIDAE.

*Ichthyocampus cristatus* sp. n. S.  
Australia McCULLOCH and WAITE, Rec.  
S. Austral. Mus. 1 p. 40 fig.

*Syngnathus curtirostris*, McCULLOCH  
& WAITE t.c. p. 39 pl. v fig. 1.

*Corythoichthys matterni* sp. n.  
Philippines, FOWLER Proc. Acad.  
Philad. 70 p. 11 fig.

*Doryichthys philippinus* sp. n. Philip-  
pines, FOWLER t.c. p. 13 fig.

## ZEOMORPHI.

## CAPROIDAE.

*Capros aper* larvae, PAGE 33.

## PERCOMORPHI.

## PERCOIDEA.

## SERRANIDAE.

Larvae of Mediterranean species,  
PAGE 33.

*Epinephelus rahanus* sp. n. Raha,  
PORTA Sunda Exped. p. 1; *E. matterni*  
sp. n. Philippines, FOWLER Proc. Acad.  
Philad. 70 p. 31 fig.

*Rosanthias* gen. n. *amoenus* sp. n.  
Japan, TANAKA Fish. Japan 28 p. 503  
pl. cxxxvi fig. 379.

*Selenanthias* gen. n. *analisis* sp. n.  
Japan, TANAKA ib. 29 p. 516 pl. cxxxviii  
fig. 385.

*Leptanthias* gen. n. *kashiwae* sp. n.  
Japan, TANAKA t.c. p. 525 pl. cxxxviii  
fig. 387.

*Odontanthias duplicidentatus* sp. n.  
Brazil, RIBEIRO Arch. Mus. Rio de  
Janeiro 17 Serranidae p. 36.

## KUHLIIDAE.

*Nannoperca*, *Edelia*, McCULLOCH &  
WAITE 91.

## PLESIOPTIDAE.

*Pharopteryx nakaharae* p. 497 pl.  
cxxxvii fig. 383, *semeion* p. 500 pl.  
cxxxvii fig. 382, spp. n., Japan, TANAKA  
Fish. Japan 28.

*Paraplesiops* synopsis, OGILBY 105.

## CHILODIPTERIDAE.

*Apogon imberbis* larvae, PAGE 33.

*Amia melas* p. 17 fig., *scalei* p. 20  
fig., *wilsoni* p. 22 fig., *radcliffei* p. 25  
fig., spp. n., Philippines, FOWLER Proc.  
Acad. Philad. 70.

*Archamia zosterophora* sp. n. Philip-  
pines, FOWLER t.c. p. 28 fig.

## PERCIDAE.

*Perca food*, HOFFMANN 55.

## CARANGIDAE.

*Naucrates ductor* eggs, GILCHRIST  
42.

*Vomer*, NICHOLS 101.

*Oligoplites rathbuni* sp. n. Brazil,  
RIBEIRO Arch. Mus. Rio de Janeiro 17  
Carangidae p. 8.

## BRAMIDAE.

Of Mediterranean, SCHMIDT & STRUB-  
BERG 143.

## LATILIDAE.

*Lopholatilus vilarii* sp. n. Brazil,  
RIBEIRO Arch. Mus. Rio de Janeiro 17  
Malacanthidae p. 7.

## CEPOLIDAE.

*Cepola rubescens*, larvae, PAGE 33.

## CENTROPOMIDAE.

*Ambassis gruendleri* p. 3, *flores* p. 4, *buton* p. 6, spp. n., Indo-Australian Archipelago, PORTA Sunda. Exped.

## LUTIANIDAE.

*Rhomboplitoides* gen. n. *megalops* sp. n. Philippines, FOWLER Proc. Acad. Philad. 70 p. 33 fig.

## NEMIPTERIDAE.

*Nemipterus*, Queensland spp., OGILBY, Mem. Queensland Mus. 6 pp. 54-59, *N. guentheri* nom. n. = *N. furcosus* Günth. nec. C. & V., OGILBY t.c. p. 58.

*Synagris balinensoides* sp. n. Indo-Australian Archipelago, PORTA Sunda. Exped. p. 7.

## LIOGNATHIDAE.

*Equula* in Tertiary of Italy, STEFANO 153.

*Liognathus philippinus* sp. n. Philippines, FOWLER Proc. Acad. Philad. 70 p. 15 fig.

*Aurigequula* subgen. n. (*Liognathus*) type *L. fasciatus*, FOWLER t.c. p. 17.

## SCIAENIDAE.

Queensland spp., OGILBY 105.

*Sciaena leptolepis* sp. n. Queensland, OGILBY Mem. Queensland Mus. 6 p. 87 pl. xxv.

## MULLIDAE.

*Mulloides macrophthalmus* sp. n. Brazil, RIBEIRO Arch. Mus. Rio de Janeiro 17 Mullidae p. 3.

*Pseudomulloidis carmineus* sp. n. Brazil, RIBEIRO l.c.

*Mullus barbatus*, THOMPSON 160.

*Upeneus phillipsi* sp. n. New Jersey, FOWLER Occ. Pap. Mus. Michigan 56 p. 5 pl. i fig. 1.

*Upeneoides philippinus* p. 37 fig., *belaque* p. 40 fig., spp. n., Philippines, FOWLER Proc. Acad. Philad. 70.

## SPARIDAE.

Larvae of Mediterranean spp., PAGE 33.

*Stenotomus chrysops* eggs and larvae, KUNTZ & RADCLIFFE 78.

## MAENIDAE.

Messina spp., FACCIOLA 31.

## PEMPHERIDAE.

*Pempheris schreineri* sp. n. Brazil, RIBEIRO Arch. Mus. Rio de Janeiro 17 Pempheridae p. 2.

## CHAETODONTIDAE.

*Holacanthus semicirculatus*, colour variation, REGAN 113.

*Pomacanthus rathbani* sp. n. Brazil, RIBEIRO Arch. Mus. Rio de Janeiro 17 Chaetodontidae p. 6 fig.

## CIRRHITIDAE.

*Cyprinocirrhites* gen. n. *ui* sp. n. Japan, TANAKA Fish. Japan 28 p. 507 pl. cxxxvii fig. 334.

## CICHLIDAE.

*Acaropsis rondoni* sp. n. Brazil, RIBEIRO Comm. Linh. Telegr. 41 p. 11 pl. iv fig. 1.

*Aequidens stollei* sp. n. R. Jamary, RIBEIRO t.c. p. 13 pl. v figs. 3-5.

*Nannacara hoenei* sp. n. Brazil, RIBEIRO t.c. p. 14 pl. vii figs. 1-2.

*Heterogramma rondoni* sp. n. Brazil, RIBEIRO t.c. p. 16 pl. xi.

*Cichlosoma insigne, festivum*, RIBEIRO t.c. p. 17 pls. xii xiii.

*Paratilapia polleni* biology, LEGENDRE 82.

## EMBIOTOCIDAE.

Revision, HUBBS Proc. Biol. Soc. Washington 31 pp. 9-14.

*Tocichthys* subgen. n. (*Hyperprosoyon*), HUBBS t.c. p. 12.

*Amphigonopterus* gen. n. type *Abeona aurora*, HUBBS t.c. p. 13.

## POMACENTRIDAE.

*Heliastes chromis* larvae, PAGE 33.

*Pomacentrus grammorhynchus* p. 44 fig., *hebari* p. 46 fig., *burroughi* p. 48 fig., *opisthostigma* p. 51 fig., spp. n., Philippines, FOWLER Proc. Acad. Philad. 70; *P. apicalis*, McCULLOCH 89.

*Glyphidodon victoriae*, McCULLOCH & WAITE 91.

*Abudefduf philippinus* p. 54 fig., *parasema* p. 56 fig., *melanospelion* p. 59 fig., spp. n.; Philippines, FOWLER Proc. Acad. Philad. 70.

*Hoplochromis* subgen. n. (*Chromis*) type *Heliastes caeruleus*, t.c. p. 66.

*Chromis xotochilopterus* p. 61 fig., *philippinus* p. 63 fig., spp. n., FOWLER t.c.

## LABRIDAE.

*Coris imbris* sp. n. Japan, TANAKA Fish. Japan 29 p. 521 pl. cxxxviii fig. 386.

*Julis julis* larvae, FAGE 33.

*Pseudolabrus elegans* = *aurantiacus*, McCULLOCH & WAITE 91.

*Tantoga*, *Tantogolabrus*, eggs and larvae, KUNTZ & RADCLIFFE 78.

## SCARIDAE.

*Sparisoma abbotti* sp. n. West Indies, FOWLER Proc. Acad. Philad. 67 p. 258 f. 2.

*Calliodon philippinus* sp. n. Philippines, FOWLER Proc. Acad. Philad. 70 p. 66 fig.

## AMMODYTIDAE.

*Ammodytes cicerellus* larvae, FAGE 33.

## TRACHINIDAE.

*Trachinus draco* larvae, FAGE 33.

## URANOSCOPIDAE.

*Uranoscopus scaber* larvae, FAGE 33.

## PINGUPEIDAE.

*Neopercis muronis* sp. n. Japan, TANAKA Fish. Japan 29 p. 536 pl. cxxxix fig. 390.

## CALLIONYMIDAE.

*Callionymus* Mediterranean spp. larvae, FAGE 33.

## MUGILLOIDEA.

## SEPHYRAENIDAE.

*Sphyraena branneri* sp. n. Brazil, RIBEIRO Arch. Mus. Rio de Janeiro 17 Sphyraenidae p. 4; *S. barracuda* habits, etc., GUDGER 47.

(N-5464 b)

## MUGILIDAE.

*Querimana brevirostris* sp. n. Brazil, RIBEIRO Arch. Mus. Rio de Janeiro 17 Mugilidae p. 7.

*Mugil ruthveni* p. 3 fig., *ogilbyi* p. 5 fig., *philippinus* p. 7 fig. *lepidopterus* p. 9 fig., spp. n., Philippines, FOWLER Proc. Acad. Philad. 70.

## ATHERINIDAE.

*Craterocephalus eyresii*, McCULLOCH & WAITE 92.

*Taeniomembras tamarensis*, McCULLOCH & WAITE 92.

*Atherinops* variation races, HUBBS Bull. Amer. Mus. 38 pp. 409-440; *A. affinis littoralis* subspn. n. S. California, HUBBS t.c. p. 426; *A. insularum cedrosensis* p. 434, *guadalupae* p. 435, subspp. n., S. California, HUBBS t.c.

*Menidia menidia* eggs and larvae, KUNTZ & RADCLIFFE 78.

*Kronia iguapensis* sp. n. Brazil, RIBEIRO Arch. Mus. Rio de Janeiro 17 Mugilidae p. 9.

*Pseudothyryna iheringi* sp. n. Brazil, RIBEIRO t.c. p. 11.

## ANABANTOIDEA.

## OPHIOCEPHALIDAE.

*Ophiocephalus harcourt-butleri* sp. n. Shan States, ANNANDALE Rec. Ind. Mus. 14 p. 55 pls. ii fig. 7 iv figs. 16 17.

## STROMATEOIDEA.

## STROMATEIDAE.

*Toledia macrophthalmalma* sp. n. Brazil, RIBEIRO Arch. Mus. Rio de Janeiro Stromateidae p. 4.

*Poronotus triacanthus* eggs and larvae, KUNTZ & RADCLIFFE 78.

## TEUTHIDOIDEA.

## TEUTHIDIDAE.

*Teuthis grammoptilus*, McCULLOCH 89.

## TRICHIUROIDEA.

## TRICHIURIDAE.

Of Mediterranean, SCHMIDT & STRUBBERG 143.

## SCOMBROIDEA.

## SCOMBRIDAE.

*Germo alalonga* food, ROULE et JOUBIN 74 131.

*Orcynus thynnus* habits, ROULE 130.

## GOBIOIDEA.

## ELEOTRIDAE.

*Eleotris* sp. Madagascar note, BOULENGER 10; habits, LEGENDRE 83.

## GOBIIDAE.

Synopsis of European spp. larvae, PAGE 33.

*Muylogobius galweyi* sp. n. Adelaide, McCULLOCH & WAITE Rec. S. Austral. Mus. 1 p. 50 pl. iii fig. 1.

*Oxyurichthys cornutus* sp. n. Queensland, McCULLOCH & WAITE t.c. p. 80 pl. viii fig. 2.

*Rhinogobius lateralis*, McCULLOCH & WAITE t.c. p. 48 pl. ii fig. 3.

*Ulcigobius* subgen. n. (*Drombus*) *maculipinnis* sp. n. Philippines, FOWLER Proc. Acad. Philad. 70 p. 69 fig.

*Bolophthalmus caeruleomaculatus* sp. n. N. Australia, McCULLOCH & WAITE Rec. S. Austral. Mus. 1 p. 79 pl. viii fig. 1.

## BLENNIOIDEA.

## BLENNIIDAE.

*Salarias*, Australian spp., McCULLOCH & McNEILL 90.

## NOTOGRAPTIDAE.

*Notograptus guttatus*, McCULLOCH 89.

## CLINIDAE.

*Helcogramma* gen. n. *decurrens* sp. n. S. Australia, McCULLOCH & WAITE Rec. S. Austral. Mus. 1 p. 52 pl. iii fig. 2.

*Trianectes* gen. n. *bucephalus* sp. n. S. Australia, McCULLOCH & WAITE t.c. p. 53 pl. iii fig. 3.

*Ophiclinus aethiops, varius* p. 57 figs., *pardalis* p. 58 pl. iv fig. 2., spp. n., S. Australia, McCULLOCH & WAITE t.c.

*Lepidoblennius marmoratus*, McCULLOCH & McNEILL 90.

## PHOLIDIDAE.

Experiments on behaviour, MILES 95.

## ZOARCIDAE.

*Zoarces viviparus* variation races, SCHMIDT 140, 141.

## BROTULIDAE.

*Dermatopsis multiradiatus* sp. n. S. Australia, McCULLOCH & WAITE Rec. S. Austral. Mus. 1 p. 63 pl. v fig. 4.

## OPHIIDIIDAE.

*Ophidium cassali* larvae, PAGE 33.

## SCLEROPAREI.

## SCORPAENIDAE.

Synopsis of European spp. larvae, PAGE 33.

*Neosebastes pantica* sp. n. S. Australia, McCULLOCH & WAITE Rec. S. Austral. Mus. 1 p. 64 pl. iv fig. 1.

*Kanekonia* gen. n. *florida* sp. n. Japan, TANAKA Fish. Japan 28 p. 510 pl. cxxxvi fig. 380.

*Pterois* Queensland spp., OGILBY 106.

## TRIGLIDAE.

*Trigla, Lepidotrigla* larvae, PAGE 33.

*Prionotus carolinus* eggs and larvae, KUNTZ & RADCLIFFE 78; *P. capella* nom. n. = *Trigla carolina* Bl. nec Linn., RIBEIRO Arch. Mus. Rio de Janeiro 21 p. 155.

## CARACANTHIDAE.

*Trachycephalus bankiensis* De Vis = *Caracanthus unipinna* Gray, OGILBY Mem. Queensland Mus. 6 p. 102.

## COTTIDAE.

*Rhamphocottus richardsoni* skeleton, JOHNSON 73.

## CYCLOPTERIDAE.

*Liparis liparis, montaqui* larvae, PAGE 33.

## GASTROSTEIDAE.

*Pygosteus kaitarae* sp. n. Japan, TANAKA Fish. Japan 27 p. 489 pl. cxxxiv fig. 376.

*Gastrosteus, Apelles* eggs and larvae, KUNTZ & RADCLIFFE 78.

*Eucalia inconstans* kidney, HESS 53.

## DISCOCEPHALI.

## ECHENEIDIDAE.

The myth of the Ship-holder, GUDGER 48.

## HETEROSOMATA.

## BOTHIDAE.

*Paralichthys chromatophores*, KUNTZ 77.

*Arnoglossus rueppeli, grohmanni* larvae metamorphosis, FAGE 33.

## PLEURONECTIDAE.

*Pleuronectes pseudoflesus* notes, REDEKE 117.

*Hippoglossoides platessoides* history, HUNTSMAN 69.

## PLECTOGNATHI.

## BALISTIDAE.

*Cantherines maynardi*, OGILBY 105; *C. brunneus*, McCULLOCH 89.

*Pseudomonacanthus multilineatus* sp. n. Japan, TANAKA Fish. Japan 27 p. 478 pl. cxxxii fig. 373.

*Xanthichthys gotonis* p. 481 pl. cxxxi fig. 372, *purus* p. 484 pl. cxxxiii fig. 374, spp. n., Japan, TANAKA t.c.

## TETRODONTIDAE.

*Lagocephalus guentheri* nom. n. = *Tetrodon lunaris* var. B. Günth, RIBEIRO Arch. Mus. Rio de Janeiro 17 Tetrodontidae.

## MOLIDAE.

*Orthogoriscus mola*, THOMPSON 160.

## SYMBRANCHII.

## SYMBRANCHIDAE.

*Monopterus cinereus, xanthognathus*, NICHOLS 100.

## XENOPTERYGII.

## GOBIESOCIIDAE.

*Lepadogaster adhesive apparatus*, GUITEL 49-51.

## PEDICULATI.

## LOPHIIDAE.

*Lophius gastrophysus* nom. n. = *L. piscatorius*, RIBEIRO nec. Linn., RIBEIRO Arch. Mus. Rio de Janeiro 21 p. 154.

## CERATIIDAE.

*Corynolophus sagamius* 27 p. 491 pl. cxxxiv fig. 377, *globosus* 29 p. 529 pl. cxxxix fig. 388, spp. n., Japan, TANAKA Fish. Japan.

## ANTENNARIIDAE.

*Antennarius lateralis* sp. n. Japan TANAKA Fish. Japan 27 p. 494 pl. cxxxv. fig. 378.

*Echinophryne* gen. n. *crassispina* sp. n. S. Australia, McCULLOCH & WAITE Rec. S. Austral. Mus. 1 p. 67 pl. vi fig. 2.

*Trichophryne* gen. n. type *Antennarius mitchelli*, McCULLOCH & WAITE t.c. p. 68 pl. vi fig. 1.

*Histiophryne scortea* sp. n. *inconspans* var. n. S. Australia, McCULLOCH & WAITE t.c. p. 74 pl. vii fig. 2.

## BRACHIONICHTHYIDAE.

*Sympterichthys verrucosus* sp. n. S. Australia, McCULLOCH & WAITE Rec. S. Austral. Mus. 1 p. 76 pl. vii fig. 3.

## OPISTHOMI.

## MASTACEMBELIDAE.

*Mastacembelus thompsoni* sp. n. Rhodesia, BOULENGER Ann. S. Afric. Mus. 11 p. 578.

*Chaudhuria* gen. n. *caudata* sp. n. Inlé Lake S. Shan States, ANNANDALE Rec. Ind. Mus. 14 p. 40 pls. i fig. 1 iv figs. 1-10; *C. caudata* caudal skeleton, WHITEHOUSE 169.

## †RHIPIIDISTIA.

†*Dictyonosteus* gen. n. *arcticus* sp. n. Devonian of Spitzbergen, STENSIO Bull. Geol. Inst. Upsala 16 p. 116 pls. iv-vi.

†*Eusthenopteron* pectoral fin skeleton, PETRONIEVIC 110.

## DIPNEUSTI.

*Ceratodus forsteri* life history, BAN CROFT 6.





# XVI. REPTILIA AND BATRACHIA

ARRANGED BY

C. TATE REGAN, F.R.S.

## CONTENTS.

	PAGE
I. TITLES ... .. .	2
II. SUBJECT INDEX:—	
Structure ... .. .	8
Physiology ... .. .	8
Development... .. .	8
Ethology ... .. .	8
Aetiology, Teratology ... .. .	8
Faunae ... .. .	8
Actual ... .. .	8
Fossil ... .. .	9
III. SYSTEMATIC:—	
Reptilia ... .. .	9
Lacertilia ... .. .	9
Ophidia ... .. .	10
Ichthyosauria ... .. .	11
Crocodylia ... .. .	11
Dinosauria... .. .	11
Chelonia ... .. .	11
Cotylosauria ... .. .	11
Anomodontia ... .. .	11
Batrachia ... .. .	11
Ecaudata ... .. .	11
Caudata ... .. .	12
Apoda ... .. .	12
Stegocephalia ... .. .	12

## I.—TITLES.

- Alagna, G.** Trapianti di otocisti in larve di *Discoglossus pictus*. *Monitore Zool. Ital. Firenze* 29 1918 (93-99). 1
- Alten, H. von.** Beitrag zur Entwicklung des Kiemendarms einer Schildkröte (*Chrysemys marginata*). *Arch. Mikr. Anat. Bonn* 87 1916 (585-608) pls. xxxi-xxxii. 2
- Andersson, L. G.** New Lizards from South America. Collected by Nils Holmgren and A. Roman. *Ark. Zool. Stockholm* 11 No. 16 1918 (1-9). 3
- Annandale, N.** Chelonia and Batrachia of the Inle Lake. *Calcutta Rec. Ind. Mus.* 14 1918 (67-69) pl. xx. 4
- Annandale, N.** Some undescribed Tadpoles from the hills of Southern India. *Calcutta Rec. Ind. Mus.* 15 1918 (17-24) pl. 1. 5
- Annandale, N.** Further notes on *Rana tigrina* and allied forms. *Rec. Ind. Mus. Calcutta* 15 1918 (59-65). 6
- Annandale, N.** Zoological Results of a tour in the Far East. *Batrachia. Calcutta Mem. As. Soc. Bengal* 6 1917 (121-155) pls. v-vi. 7
- Annandale, N. and Rao, C. R. N.** The Tadpoles of the families Ranidae and Bufonidae found in the plains of India. *Calcutta Rec. Ind. Mus.* 15 1918 (25-40) pl. ii. 8
- Asai, T.** Histologische Studien am häutigen Labyrinth der Kaulquappe der Erdkröte (*Bufo vulgaris*) und des Frosches (*Rana esculenta*), insbesondere zur Frage des Nervenspithals der Pars neglecta. *Tokyo Mitt. med. Fac.* 19 1918 (316-388) 2 pls. 9
- Axt, M. C.** Dio Bougomuskeln der Hinterextremität von *Emys blandingi*. *Morph. Jahrb. Leipzig* 50 1917 (351-372) pls. xv-xxii. 10
- Baldwin, F. M.** Pharyngeal derivatives of *Amblystoma*. *J. Morph. Philadelpia* 30 1918 (605-676) 2 pls. 11
- Banús, M. G.** La estructura del testículo del *Pleurodeles wallli*, Mich. *Madrid Trab. Mus. Ci. Nat. Zool.* 24 1916 (1-139) pls. 12
- Barge, J. A. J.** Het dorsale sluitstuk van den atlas by den krokodil. [Das dorsale Schliesstück des Krokodilen-Atlas.] *Amsterdam Werk. Gen. Nat. Genees. Heelk.* 9 (Ser. 2) 1918 (122-123). 13
- Beigel-Klaften, C.** Plasmastrukturen in Sinnesorganen und Drüsenzellen des Axolotls. *Arch. Mikr. Anat. Bonn* 20 1917 (39-68) pls. ii-iii. 14
- Berry, E. W.** Vertebrata, Reptilia. *Maryland Geological Survey Upper Cretaceous Baltimore* 1916 (347-349). 15
- Bhatra, B. L. and Prashad, B.** Skull of *Rana tigrina*, Daud. *London Proc. Zool. Soc.* 1918 (1-8). 16
- Bigney, A. J.** The Effect of Adrenin on the Pigment Migration in the Melanophores of the Skin and in the Pigment Cells of the Retina of the Frog. *J. Exp. Zool. Philadelphia* 27 1919 (391-396). 17
- Bosca y Casanoves, E.** Una nueva forma de Anfibio urodelo (*Molge bolivari*). *Madrid Bol. Soc. Esp. Hist. Nat.* 18 1918 (58-61). 18
- Boulenger, G. A.** Description of a new Snake of the genus *Oligodon* from Upper Burma. *London Proc. Zool. Soc.* 1918 (9-10). 19
- Boulenger, G. A.** On the Madagascar Frogs of the genus *Mantidactylus*, Blgr. *London Proc. Zool. Soc.* 1918 (257-261). 20
- Boulenger, G. A.** On the Papuan, Melanesian and North Australian Species of the genus *Rana*. *Ann. Mag. Nat. Hist. London ser. 9* 1 1918 (236-242). 21

- Boulenger, G. A.** Remarks on the Batrachian Genera *Cornufer*, Tschudi *Platymantis*, Gthr. *Simomantis* g.n. and *Stauroids*, Cope. Ann. Mag. Nat. Hist. London ser. 9 1 1918 (372-375). 22
- Boulenger, G. A.** On the Varieties of the Lizard *Ophiops elegans*, Mén. Ann. Mag. Nat. Hist. London ser. 9 2 1918 (158-161). 23
- Boulenger, G. A.** Description of a new Lizard of the genus *Acanthosaura* from Yunnan. Ann. Mag. Nat. Hist. Lond ser. 9 2 1918 (162) 24
- Boulenger, G. A.** On the Races and Variation of the Edible Frog, *Rana esculenta*, L. Ann. Mag. Nat. Hist. London ser. 9 2 1918 (241-257). 25
- Boulenger, G. A.** Descriptions of new South-American Batrachians. Ann. Mag. Nat. Hist. London ser. 9 2 1918 (427-433). 26
- Boulenger, G. A.** A Synopsis of the Lizards of the genus *Eremias*. J. Zool. Res. London 3 1918 (1-12). 27
- Boulenger, G. A.** Une Grenouille nouvelle pour la Faune belge. Paris Bull. Soc. Zool. 1918 (45-48). 28
- Boulenger, G. A.** Aperçu des principes qui doivent régir la Classification naturelle des espèces du genre *Rana*. Paris Bull. Soc. Zool. 1918 (111-121). 29
- Boulenger, G. A.** Considérations sur les affinités et la dispersion géographique des Lacertides. Paris C. R. Acad. Sci. 166 1918 (197-200). 30
- Boulenger, G. A.** Les Lézards Héloérmatides de l'Éocène supérieure de la France. Paris C. R. Acad. Sci. 166 1918 (889-893). 31
- Boulenger, G. A.** Sur les rapports de l'Ontogénie à la Taxinomie chez les Batraciens anoures. Paris C. R. Acad. Sci. 167 1918 (60-63). 32
- Boulenger, G. A.** Sur la place des Chéloniens dans la classification. Paris C. R. Acad. Sci. 167 1918 (514-518). 33
- Boulenger, G. A.** On *Rana fuscigula* and *R. angolensis*. Cape Town Trans. R. Soc. S. Africa 7 1918 (131-137). 34
- Boulenger, G. A.** Description of a new Lizard of the genus *Acanthodactylus* from Mesopotamia. Bombay J. Nat. Hist. Soc. 25 1918 (373-374). 35
- Boulenger, G. A.** Remarks on *Rana tigrina* and its Varieties. Rec. Ind. Mus. Calcutta 15 1918 (51-58, 65-67). 36
- Boulenger, G. A.** A Revision of the Lizards of the genus *Tachydromus*. Calcutta Mem. As. Soc. Bengal 5 No. 6 1917 (207-235) pls. xlvii. 37
- Boulenger, G. A.** Description of a new Frog (*Rana miophus*) from Siam. J. Nat. Hist. Soc. Siam 3 1918 (11-12). 38
- Bowen, W. K.** Distribution and Structure of the Epidermal Sense Organs in the Tadpoles of *Rana clamitans*. Lansing Rep. Mich. Acad. Sci. 19 1917 (65-66). 39
- Broom, R.** Observations on the genus *Lysorophus*, Cope. Ann. Mag. Nat. Hist. London ser. 9 2 1918 (232-240). 40
- Brown, B.** A complete Skeleton of the Horned Dinosaur *Monoclonius*, and description of a second skeleton showing skin impressions. New York Bull. Amer. Mus. 37 1917 (281-306) pls. xi-xix. 41
- Brunacci, B.** Influenza della temperatura sulla regolazione osmotica della *Rana esculenta* estiva. Roma Rend. Acc. Lincei 26 sem. 2 1917 (243-245). 42
- Buytendyk, F. J. J.** Instinct de la recherche du nid et expérience chez les crapauds. (*Bufo vulgaris* et *Bufo calamita*). Haarlem Arch. Néerl. de Physiol. 2 1917 (1-50) 20 pls. 43
- Buytendyk, F. J. J.** L'instinct d'alimentation et l'expérience chez les crapauds. Haarlem Arch. Néerl. de Physiol. 2 1917 (217-228). 44
- Caius, R. F. F.** *vide* Phisalix, M.
- Calabresi, E.** Rettili somali raccolta fra Gelib e Margherita (Riva sinistra del Giuba). Monitore Zool. Ital. Firenze 29 1918 (122-124). 45
- Camp, C. L.** An extinct Toad from Rancho La Brea. Berkeley Univ. Calif. Publ. Geol. 10 1917 (287-292). 46
- Camp, C. L.** *vide* Grinnell, J.
- Campana, D. Del.** Supra alcuni resti di *Testudo graeca* Linn. nel quaternario di Monsummano. Riv. Ital. Palaeont. Parma. 23 1917 (26-28). 47

- Campana, D. Del.** Resti di *Testudo* nel Miocene Superiore di Capudjar presso Salonicco. Roma Boll. Soc. Geol. Ital. **36** 1917 (69-78) pls. iv-v. **48**
- Case, E. C.** The Permo-Carboniferous Red beds of North America and their vertebrate fauna. [Appendix.—The Brier Creek bone bed and its fauna, pp. 157-176 pls. 21-24; ff. 32-50.] Washington Carnegie Inst. Pub. **207** 1915 (iii+176) pls. 1-24. **49**
- Chabanaud, P.** Énumération des Reptiles non encore étudiés de l'Afrique occidentale, appartenant aux Collections du Muséum, avec la description des espèces nouvelles. Bull. Mus. Paris **23** 1917 (83-105). **50**
- Chabanaud, P.** Considérations sur la biologie, en captivité, du *Boaodon lineatus* D.B. Bull. Mus. Paris **23** 1917 (139-140). **51**
- Chabanaud, P.** Descriptions de trois espèces nouvelles de Reptiles de l'Afrique. Bull. Mus. Paris **23** 1917 (219-225). **52**
- Chabanaud, P.** Étude complémentaire sur les Lacertiliens de l'Afrique Occidentale. Bull. Mus. Paris **23** 1917 (226-227). **53**
- Chabanaud, P.** Révision des quelques Reptiles d'Afrique et description des trois espèces nouvelles. Bull. Mus. Paris **23** 1917 (442-454). **54**
- Chabanaud, P.** Étude complémentaire de deux *Agama* de l'Afrique Occidentale et description de quatre espèces nouvelles de Reptiles de la même région. Bull. Mus. Paris **24** 1918 (104-112). **55**
- Chabanaud, P.** Étude d'une Collection de Reptiles de l'Afrique Occidentale français. Bull. Mus. Paris **24** 1918 (160-166). **56**
- Cole, W. H. and Dean, C. F.** The Photokinetic Reactions of Frog Tadpoles. J. Exp. Zool. Philadelphia **23** 1917 (361-370). **57**
- Cotronei, G.** Influenza della temperatura sull'azione della tiroide sui girini. Roma Atti Acc. Lincei **25** 1916 (48-55). **58**
- Dean, C. F. vide Cole, W. H.**
- Detwiler, S. R.** Experiments on the Development of the Shoulder Girdle and the Anterior Limb of *Amblystoma punctatum*. J. Exp. Zool. Philadelphia **25** 1918 (499-528) pls. i-iv. **59**
- Dohrer, J.** Die Entwicklung der Paukentasche bei *Chelydra serpentina*. Morph. Jahrb. Leipzig **50** 1916 (103-107) pl. vii. **60**
- Dürken, B.** Über Entwicklungskorrelationen und Lokalrassen bei *Rana fusca*. Biol. Centralbl. Leipzig **37** 1917 (127-138). **61**
- Dunn, E. R.** Reptile and Amphibian Collections from the North Carolina Mountains, with especial reference to Salamanders. New York Bull. Amer. Mus. **37** 1917 (593-634) pls. lviii-lxi. **62**
- Ellis, M. M.** Amphibians and Reptiles of the Douglas Lake (Michigan) Region. Lansing Rep. Mich. Acad. Sci. **19** 1917 (45-63). **63**
- Eyster, J. A. E. vide Mook, W. J.**
- Fejérváry, G. J. v.** Beiträge sur Kenntnis von *Rana méhelyi* By. Budapest Mitt. Jahrb. Geol. R. Aust. 1916 (25 pp.) 2 pls. **64**
- Gaay Fortman, J. P. de.** Die Entwicklung der Wirbelsäule von *Megalobatrachus maximus* und einiger anderen Amphibien. Helder. Tydschr. Ned. Dierk. Ver. **16** (Ser. 2) 1918 (121-167) 2 pls. **65**
- George, W. G.** Experiments on the Determination of the Fate of the Gray Crescent Material in the Frog Egg. Biol. Bull. Woods Hole **35** 1918 (255-259). **66**
- Gillies, C. D. vide Johnston, T. H.**
- Gillies, C. D. and Taylor, B. B.** An Abnormal Vertebral Column in *Hyla caerulea* White. Brisbane Proc. R. Soc. Queensland **30** 1918 (166-169). **67**
- Grinnell, J. and Camp, C. L.** A Distributional List of the Amphibians and Reptiles of California. Berkeley Univ. Calif. Publ. Zool. **17** 1917 (127-208). **68**
- Harrison, R. G.** Experiments on the Development of the Fore Limb of *Amblystoma*, a self-differentiating equipotential system. J. Exp. Zool. Philadelphia **25** 1918 (413-461). **66**

- Haughton, S. H.** A new Dinosaur from the Stormberg Beds of South Africa. *Ann. Mag. Nat. Hist. London* ser. 9 2 1918 (468-469). 70
- Haughton, S. H.** Some New Carnivorous Therapsida with notes upon the Brain-Case in Certain Species. *Cape Town Ann. S. Afr. Mus.* 126 1918 (175-216). 71
- Hay, O. P.** Descriptions of some Floridan Fossil Vertebrates, belonging mostly to the Pleistocene. *Florida Geol. Surv.* 1916 (41-73). 72
- Hertwig, G.** Kreuzungsversuche an Amphibien. I. Wahre und falsche Bastarde. *Arch. Mikr. Anat.* 91 1918 Abt. 2 (203-266) pls. xiii-xv. 73
- Holmgren, N.** Zur Kenntnis der Parietalorgane von *Rana temporaria*. *Ark. Zool. Stockholm* 11 1918 No. 24 (1-13) 1 pl. 74
- Holtzinger-Tenever, H.** Verzeichnis der von Herrn. H. Schoede auf Ceylon und Sumatra gesammelten Reptilien. *Berlin Mitt. Zool. Mus.* 8 1917 (425-444). 75
- Howat, I.** The effect of nicotine upon the reflex action of some cutaneous sense organs in the frog. *Amer. J. Physiol. Baltimore* 39 1916 (447-454). 76
- Hughes, S. P.** *vide* Norris, H. W.
- Johnston, J. B.** The cell masses in the forebrain of the turtle, *Cistudo carolina*. *J. Comp. Neurol. Philadelphia* 25 1915 (393-468). 77
- Johnston, T. H. and Gillies, C. D.** Note on the occurrence of Mullerian Ducts in the Male of *Hyla caerulea* White. *Sydney J. R. Soc. N.S. Wales* 52 1918 (461-462). 78
- Kampmeier, O. F.** On the origin of lymphatics in *Bufo*. *Amer. J. Anat. Philadelphia* 17 1915 (161-209) pls. 79
- Kershaw, J. A.** Two snakes new to Victoria. *Victorian Nat. Melbourne* 35 1918 (30-32). 80
- Křiženecký, J.** Über das Verhalten lebenden Froscheier und Froschlarven in destillierten Wasser. *Arch. Entwickl. mech. Leipzig* 42 1917 (604-621). 81
- Kurek, C.** Tahttagelser från ett friluftsterrarium i Skåne rörande kärrsköldpaddans äggläggning. *Fauna och Flora Uppsala* 13 1918 (123-127). 82
- Lambe, L. M.** The Cretaceous genus *Stegoceras* typifying a new family referred provisionally to the *Stegosauria*. *Ottawa Trans. R. Soc. Canada* ser. 3 12 1918 (23-36) 2 pls. 83
- Lantz, L. A.** Reptiles from the River Tajan (Transcaspiæ). *London Proc. Zool. Soc.* 1918 (11-17) pl. i. 84
- Laurens, H.** The Reactions of the Melanophores of *Amblystoma tigrinum* larvae to Light and Darkness. *J. Exp. Zool. Philadelphia* 23 1917 (195-205). 85
- Laurens, H. and Williams, J. W.** Photomechanical Changes in the Retina of normal and transplanted Eyes of *Amblystoma* larvae. *J. Exp. Zool. Philadelphia* 23 1917 (71-81) 1 pl. 86
- Longman, H. A.** Notes on some Queensland and Papuan Reptiles. *Brisbane Mem. Queensland Mus.* 6 1918 (37-44) pls. xi-xv. 87
- Loveridge, A.** Notes on snakes in East Africa. *J. E. Afr. and Uganda Nat. Hist. Soc.* 1918 (315-338). 88
- Lull, R. S.** Triassic life of the Connecticut Valley. *Connecticut Geol. Nat. Hist. Surv. Bull. Hartford* 24 1915 (1-285) pls. i-xii. 89
- Luther, A.** Jättelik grodlarv. [Eino neötonische Kaulquappe.] *Helsingfors Medd. Soc. Fauna et Fl. Fenn.* 43 1917 (37-39). [Deutsches Res. 286.] 90
- Luther, A.** Über die angebliche „echte“ Entwicklungskorrelation zwischen Auge und Extremitäten bei den Anuren und über einen Fall von Beinmissbildung und Polydactylie beim Frosch. *Helsingfors Öfvers. F. Vet. Soc.* 58 A No. 18, 1916 (1-40) 1 pl. 91
- Luther, A.** Thyreoidea-matningsinflytande på metamorfosen hos axolotlen. [Über den Einfluss von Thyreoidea-Nahrung auf die Metamorphose beim Axolotl.] *Helsingfors Medd. Soc. Fauna et Fl. Fenn.* 43 1917 (270-271). [Deutsches Ref. 286-287.] 92
- Maluquer, J.** *Notas Herpetologicas.* *Madrid Bol. Soc. Esp. Hist. Nat.* 18 1918 (402-406). 93
- Marchetti, L.** Sulla invaginazione attiva del tappo vitellino nelle uova di *Bufo vulgaris*. *Monitore Zool. Ital. Firenze* 28 1917 (89-100). 94

- Meek, W. J., and Eyster, J. A. E.** The origin of the cardiac impulse in the turtle's heart. *Amer. J. Physiol. Baltimore* **39** 1916 (291-296). 95
- Menacho, A.** Contribución al estudio de los órganos rudimentarios. El ojo anópsico del *Blanus cinereus*. Madrid Trab. Mus. Ci. Nat. Zool. **21** 1915 (1-49) pls. i-vi. 96
- Miller, G. S.** Mammals and Reptiles collected by Theodor de Booy in the Virgin Islands. Washington Proc. Nation. Mus. **54** 1918 (507-511) pl. lxxxi. 97
- Moody, R. L.** A further contribution to a knowledge of the lateral line system in extinct Amphibia. *J. Comp. Neurol. Philadelphia* **25** 1915 (317-328). 98
- Mook, C. C.** The Habitat of the Sauropodous Dinosaurs. *J. Geol. Chicago* **26** 1918 (459-470). 99
- Mook, C. C.** Criteria for the Determination of Species in the Sauropoda with description of a new species of *Apatosaurus*. *New York Bull. Amer. Mus.* **37** 1917 (355-360). 100
- Mook, C. C.** The Fore and Hind Limbs of *Diplodocus*. *New York Bull. Amer. Mus.* **37** 1917 (815-819). 101
- Morrill, C. V.** Some Experiments on Regeneration after Exarticulation in *Diemyctylus viridescens*. *J. Exp. Zool. Philadelphia* **25** 1918 (107-126) 3 pls. 102
- Morse, W.** Factors involved in the Atrophy of the Organs of the Larval Frog. *Biol. Bull. Woods Hole* **34** 1918 (149-166). 103
- Nieden, T.** Neucs Verzeichnis der Kriechtiere (auszer den Schlangen) von Deutsch-Ostafrika. II. Amphibia. *Berlin Mitt. Zool. Mus.* **7** 1915 (345-390). 104
- Nishi, S.** Zur vergleichenden Anatomie der eigentlichen (genuinen) Rückenmuskeln. *Morph. Jahrb. Leipzig* **50** 1916 (168-318). pls. xi-xiii. 105
- Noble, G. K.** The Amphibians collected by the American Museum Expedition to Nicaragua in 1916. *New York Bull. Amer. Mus.* **38** 1918 (311-347) pls. xiv-xix. 106
- Noble, G. K.** The systematic Status of some Batrachians from South America. *New York Bull. Amer. Mus.* **37** 1917 (793-814) pls. xciii-xcvi. 107
- Norris, H. W.** The Eyeball and Associated Structures in the Blind-worms. *Des Moines Proc. Iowa Acad.* **24** 1917 (299-300). 108
- Norris, H. W. and Hughes, S. P.** The cranial and anterior spinal nerves of the Caecilian Amphibians. *J. Morph. Philadelphia* **31** 1918 (490-557). 109
- O'Donoghue, C. H.** The Heart of the Leathery Turtle, *Dermochelys coriacea*, with a note on the septum ventriculorum in the Reptilia. *J. Anat. London* **52** 1918 (467-480). 110
- Ortlepp, R. J.** Note on the persistence of the right posterior Cardinal Vein in *Xenopus laevis* and its significance. *S. Afric. J. Sci. Johannesburg* **15** 1918 (413-415). 111
- Osborne, A.** Abnormal Renal Portal Circulation of a Frog. *Melbourne Proc. R. Soc. Victoria* **31** 1918 (9-10) pl. i. 112
- Patterson, T. I.** Comparative studies in the physiology of the gastric hunger contractions in the amphibia and the reptilia. *Amer. J. Physiol. Baltimore* **40** 1916 (140-141). 113
- Petronievics, B.** Comparison between the Lower Jaws of the Cynodont Reptiles *Gomphognathus* and *Cynognathus*. *London Proc. Zool. Soc.* **1918** (197-207). 114
- Phisalix, M.** La glande parotide venimeuse des Colubridés aglyphes. *Bull. Mus Paris* **23** 1917 (331-342). 115
- Phisalix, M.** Les Venins cutanés du *Spelerpes fuscus* Gray. *Bull. Mus. Paris* **24** 1918 (92-96). 116
- Phisalix, M. et Caius, R. F. P.** Propriétés venimeuses de la salive parotidienne chez des Colubridés aglyphes des genres *Tropidonotus*, *Zamenis*, *Helicops*, *Lycodon* et *Dendrophis*. *Bull. Mus. Paris* **23** 1917 (343-350). 117
- Power, J. H.** Some notes on the colouration of reptiles and amphibians found near Kimberley, C.P. *S. Afric. Journ. Sci. Cape Town* **14** 1918 (262-270). 118
- Prashad, B.** The Middle Ear of Indian Frogs. *Calcutta Rec. Ind. Mus.* **15** 1918 (97-103) pl. ix. 119
- Prashad, B. vide Bhatia, L.**

- Procter, J. B. On the Variation of the Pit-Viper *Lachesis atrox*. London Proc. Zool. Soc. 1918 (163-182). 120
- Ranson, S. W. The vagus nerve of the snapping turtle (*Chelydra serpentina*). J. Comp. Neurol. Philadelphia 25 1915 (301-316). 121
- Rao, C. R. N. Notes on the Tadpoles of the Indian Engystomatidae. Calcutta Rec. Ind. Mus. 15 1918 (41-45). 122
- Rao, C. R. N. *vide* Annandale, N.
- Rendahl, H. Zwei neue Arten der Gattung *Typhlops* aus dem Kaplande. Ark. Zool. Stockholm 11 No. 17 1918 (1-6). 123
- Roux, J. Note sur quelques espèces d'Amphibiens de l'Archipel Indo-Australien. Rev. Suisse Zool. Genève 26 1918 (409-415). 124
- Salvatore, C. Fenomeni di rigenerazione e di auto-innesti in larve di Anfibi anuri. Catania Atti. Accad. Gioconia 11 1918 Mem. 15 (1-9). 125
- Schmidt, W. J. Die Chromatophoren der Reptilienhaut. Arch. Mikr. Anat. Bonn 90 1917 (98-259) pls. v-ix. 126
- Seton, E. T. A List of the Turtles, Snakes and Batrachians of Manitoba Ottawa Nat. 32 1918 (79-83). 127
- Slevin, J. R. *vide* Van Denburgh, J.
- Smith, M. A. Description of a new Snake (*Opisthotropis spenceri*) from Siam. J. Nat. Hist. Soc. Siam 3 1918 (13). 128
- Steiniger, L. Description of a new Snapping Turtle and a new Lizard from Florida. Washington Proc. Biol. Soc. 31 1918 (89-92). 129
- Taylor, N. A Case of Hermaphroditism in a Lizard, *Lacerta viridis*. London Proc. Zool. Soc. 1918 (223-230). 130
- Taylor, B. B. *vide* Gillies, C. D.
- Taylor, E. H. Reptiles of Sulu Archipelago. Manila Philippine J. Sci. D. 13 1918 (233-267) 3 pls. 131
- Van Denburgh, J. and Slevin, J. R. The Garter Snakes of Western North America. San Francisco Proc. Calif. Acad. ser. 4 8 1918 (181-270) pls. vii-xvii. 132
- Waite, E. R. Review of the Australian Blind Snakes. Adelaide Rec. S. Austral. Mus. 1 1918 (1-34) pl. 1. 133
- Waite, E. R. Description of a new Blind Snake from the Solomon Islands. Adelaide Rec. S. Austral. Mus. 1 1918 (35-38). 134
- Wall, F. A popular Treatise on the common Indian Snakes. Bombay J. Nat. Hist. Soc. 26 1918 (89-97) pl. xxvi. 135
- Watson, D. M. S. On *Seymouria*, the most primitive known Reptile. London Proc. Zool. Soc. 1918 (267-301). 136
- Weber, A. Relations entre les formations branchiales et les ébauches pulmonaires chez les embryons de *Chelydra serpentina*. Paris C. R. Soc. Biol. 81 1918 (814-815). 137
- Weber, A. Développement du foie et du pancréas chez *Chelydra serpentina*. Paris C. R. Soc. Biol. 81 1918 (815). 138
- Weiss, O. Zur histologie der Anurenhaut. Arch. Mikr. Anat. Bonn 87 1915 (265-286) pl. xix. 139
- Werner, F. Reptilia und Amphibia. Hamburg Ergebn. Hamburger deutsch-südwest-afrikan. Studienreise 1911 3 1915 (325-376) pl. vii. 140
- Willem, V. Over de ademhalingsbewegingen by den kikker. [On the respiratory movements of the frog.] Amsterdam Versl. Wis. Nat. Afd. K. Akad. Wet. 26 1918 (1412-1415) (Dutch); Amsterdam Proc. Sci. K. Acad. Wet. 20 1918 (1234-1237) (English). 141
- Williams, J. W. *vide* Laurens, H.
- Williston, S. W. The Phylogeny and Classification of Reptiles. J. Geol. Chicago 25 1917 (411-421). 142
- Williston, S. W. *Labidosaurus* Cope, a Lower Permian Cotylosaur Reptile from Texas. J. Geol. Chicago 25 1917 (309-321). 143
- Wiman, C. Notes on the marine Triassic Reptile Fauna of Spitzbergen. Berkeley Univ. Calif. Publ. Geol. 10 1916 (63-73). 144
- Witte, G. F. de. Révision du genre *Phrynobatrachus* Günth. Rev. Zool. Africaine Bruxelles 6 1918 (220-228). 145
- Wright, A. H. Notes on *Clemmys*. Washington Proc. Biol. Soc. 31 1918 (51-58). 146

## II.—SUBJECT INDEX.

## STRUCTURE.

## Nervous System.

Brain, nerves; Haughton 71; Holmgren, 74; Johnston, 77; Norris and Hughes, 109; Ranson, 121

Sense Organs; Asai, 9; Beigel-Klaften, 14; Bowen, 39; Menacho, 96; Moodie, 98; Norris, 108; Prashad, 119.

## Tegumentary System.

Skin; Weiss, 139; chromatophores, Schmidt, 126; glands, Beigel-Klaften, 14; sense organs, Beigel-Klaften, 14; Bowen, 39; Moodie, 98

## Osteology.

Barge, 13; Bhatia and Prashad, 16; Brown, 40, 41; Gillies and Taylor, 67; Haughton, 70, 71; Lambe, 83; Mook, 100, 101; Petronievics, 114; Watson, 136; Williston, 143.

## Myology.

Axt, 10; Nishi, 105.

## Circulatory System.

O'Donoghue, 110; Ortlepp, 111; Osborne, 112.

## Reproductive System.

Banus, 12; Johnston and Gillies, 78

## PHYSIOLOGY.

Reactions to light; of larvae, Cole and Dean, 57; of melanophores and retina, Laurens and Williams, 86.

Respiratory movements; Willem, 141.

Gastric contractions, Patterson, 113.

Cardiac impulse, Meek and Eyster, 95.

Effects of—adrenin on pigment migration, Bigney, 17; nicotine on reflex action, Horvat, 76;—temperature on osmosis, Brunacci, 42;—distilled water on eggs and larvae, Křizenecký, 81.

Experiments on growth and regeneration; Detwiler, 59; Durken, 61; Harrison, 69; Luther, 92; Morrill, 102; Morse, 103; Salvatore, 125.

Venom; Phisalix, 115, 116; Phisalix et Caius, 117.

## DEVELOPMENT.

(See also Physiology.)

## Ovum.

Marchetti, 94,

## Larvae and Metamorphosis.

Annandale, 5; Annandale and Rao, 8; Boulenger, 32; Bowen, 39; Luther, 92; Morse, 103; Rao, 122.

## Organogeny.

Nervous system; George, 66; Ear; Alagna, 1; Dohrer, 60; gill region; Alten, 2; Baldwin, 11; lungs; Weber, 137; liver and pancreas, Weber 138; lymphatics; Kampmeier, 79; vertebral column, Gaay Fortman, 65.

## ETHOLOGY.

Butendyk, 43, 44; Chabanaud, 51; Kurck, 82; Loveridge, 88; Lull, 89; Mook, 99; Power, 118.

## AETIOLOGY, TERATOLOGY.

Variation; Annandale, 6; Boulenger, 23, 25, 36; Procter, 120; Van Denburgh and Slevin, 132.

Teratology; Gillies and Taylor, 67; Luther, 90, 91; Osborne, 112.

Hermaphroditism; Tayler, 130;

Hybrids; Hertwig, 73.

## FAUNAE.

## A. Actual.

## Palaeartic.

Boulenger, 23, 25; Europe; Bosca, 18; Boulenger, 28; Fejerváry, 64; Maluquer, 93; Transcaspia; Lantz, 84; Mesopotamia; Boulenger, 35; Yunnan, Boulenger, 24.

## Nearctic.

Dunn, 62; Ellis, 63; Grinnell and Camp, 68; Seton, 127; Steineger, 129; Van Denburgh and Slevin, 132; Wright, 146.



## Neotropical.

S. America; Andersson, 3; Boulenger, 26; Noble, 107.

C. America; Noble, 106.

Virgin Is.; Miller, 97.

## Ethiopian.

Africa; Boulenger, 27, 34; Calabresi, 45; Chabanaud, 50-56; Lovelidge, 88; Nieden, 104; Rendahl, 123; Werner, 140.

Madagascar; Boulenger, 20.

## Indian.

Annandale, 4-7; Annandale and Rao, 8; Boulenger, 19, 22, 36-38; Holtzinger-Tenever, 75; Rao, 118, 122; Roux, 124; Smith, 128; Taylor, 131; Wall, 135.

## Australian.

Boulenger, 21; Kershaw, 80; Longman, 87; Roux, 124; Waite, 133, 134.

## B. Fossil.

Permo-Carboniferous; Case, 49.

Permian; Broom, 40; Haughton, 70, 71; Williston, 143.

Triassic; Lull, 89; Wiman, 144.

Cretaceous; Berry, 15; Brown, 41; Lambe, 83.

Eocene; Boulenger, 31.

Miocene; Campana, 48.

Pleistocene; Camp, 46; Campana, 47; Hay, 72.

## III.—SYSTEMATIC.

## REPTILIA.

Phylogeny, WILLISTON 142.

†*Archeria* gen. n. *robinsoni* sp. n. Texas, Permo-Carboniferous, CASE, Carnegie Inst. Pub. No. 207 p. 170 f. 44

†*Ammopus marshi* sp. n. Massachusetts Triassic, LULL. Connecticut Geol. Nat. Hist. Surv. Bull. No. 24 p. 264 figs. (N-5464 d)

## LACERTILIA.

## GECKONIDÆ.

*Gymnodactylus microlepis* sp. n. Transcaspia, LANTZ Proc. Zool. Soc. 1918 p. 11 pl. i fig. 1.

*Luperosaurus joloensis* sp. n. Jolo, TAYLOR Philipp. J. Sci. D. 13 p. 235 pl. i fig. 8.

*Hemiphyllodactylus insularis* sp. n. Mindoro, TAYLOR t.c. p. 237 pl. i figs. 6-7.

*Lepidodactylus divergens* sp. n. Philippines, TAYLOR t.c. p. 242 pl. i figs. 1-3.

*Spharodactylus amazonicus* sp. n. S. America, ANDERSSON Ark. Zool. 11 No. 16 p. 1.

## AGAMIDÆ.

*Acanthosaura varcoae* sp. n. Yunnan BOULENGER Ann. Mag. Nat. Hist. (9) 2 p. 162.

*Agama boueti* sp. n. Niger, CHABANAUD Bull. Mus. Paris 23 p. 85; *A. sankaranica* p. 105, *gracilimembris* p. 106, *insularis* p. 161, spp. n., W. Africa CHABANAUD Bull. Mus. Paris 24.

## IGUANIDÆ.

*Cyclura mattea* sp. n. Virgin Is., MILLER Proc. U.S. Nat. Mus. 54 p. 509 pl. lxxxii.

*Sceloporus woodi* sp. n. Florida, STEINER Proc. Biol. Soc. Washington 31 p. 90.

*Uraniscodon tuberculatum* sp. n. S. America, ANDERSSON Ark. Zool. 11 No. 16 p. 2 figs. 1-2.

## TEIIDÆ.

*Tretioscincus romani* sp. n. S. America ANDERSSON Ark. Zool. 11 No. 16 p. 5 figs. 3-4.

## HELODERMATIDÆ.

Of Eocene, BOULENGER 31.

## AMPHISBAENIDÆ.

*Monopeltis longicauda* sp. n. S.W. Africa, WERNER Ergebn. Hamburg Südwestafrik. Studienreise 3 p. 340.

## LACERTIDAE.

Distribution, BOULENGER 30.

*Ophiops elegans* races, BOULENGER 23.

*Lacerta viridis* hermaphrodite, TAYLER 130; in Catalonia, MALUQUER 93.

*Eremias* synopsis, BOULENGER J. Zool. Res. 3 pp. 1-12; *E. guttulata latastii, susana* subsp. n., BOULENGER t.c. p. 9; *E. quadrimaculata* sp. n. W. Africa, CHABANAUD Bull. Mus. Paris 24 p. 108.

*Lampreremias Taenieremias* subgen. n. (*Eremias*), BOULENGER J. Zool. Res. 3 p. 2.

*Acanthodactylus (Latastia) boueti* sp. n. Dahomey, CHABANAUD Bull. Mus. Paris 23 p. 87 figs.; *A. senegalensis* sp. n. Senegal, CHABANAUD Bull. Mus. Paris 24 p. 162.

*Tachydromus* synopsis p. 208; *T. khasiensis* p. 221, Khasi Hills sp. n., BOULENGER Mem. As. Soc. Bengal 5 No. 6.

*Apeltonotus* gen. n. type *Tachydromus dorsalis*, BOULENGER t.c. p. 233.

*Platyplacopus* gen. n. type *Tachydromus kuehnei*, BOULENGER t.c. p. 231.

## SCINCIDAE.

*Lygosoma (Hinulia) tryoni* sp. n. Queensland, LONGMAN Mem. Queensland Mus. 6 p. 38; *L. (Lirolepisma) digitatum* p. 97 fig., *auriculatum* p. 98 fig., spp. n., W. Africa, CHABANAUD Bull. Mus. Paris 23; *L. (Riopa) dahomeyense* sp. n. Dahomey, CHABANAUD t.c. p. 101 figs.; *L. (Paralygosoma* subgen. n.) *monneti* sp. n. Guinea, CHABANAUD t.c. p. 103 figs; *L. (Riopa) moquardi* sp. n. Soudan, CHABANAUD t.c. p. 448 figs.

*Brachymeles suluensis* p. 254 fig., *vermis* p. 255 fig., spp. n., Philippines, TAYLOR Philipp. J. Sci. D. 13.

*Sphenomorphus biparietalis* sp. n. Philippines, TAYLOR Philipp. J. Sci. D 13 p. 249 fig.

*Mabuia intermedia* p. 93, *breviparietalis* p. 95 fig., spp. n., W. Africa, CHABANAUD Bull. Mus. Paris 23; *M. ellenbergeri* sp. n. Zambezi, CHABANAUD t.c. p. 219 figs; *M. nigropalmata* sp. n. South America, ANDERSSON Ark. Zool. 11 No. 16 p. 8.

*Chalcides sepoides, boulengeri*, CHABANAUD 54.

## ANELYTROPIDAE.

*Feylinia boulengeri* sp. n. Ogowé, CHABANAUD Bull. Mus. Paris 23 p. 221 figs.

## OPHIDIA.

LOVERIDGE 88; WALL 135.

## TYPHLOPIDAE.

Revision of Australian spp., WAITE Rec. S. Austral. Mus. 1 pp. 1-34.

*Typhlops gryppus* p. 17 figs., *labialis* p. 30 figs, *endoterus* p. 32 figs., Australia *infralabialis* p. 35 figs. Solomon Is., spp. n., WAITE t.c.; *T. capensis* p. 1 figs. 1-3, *albanalis* p. 3 figs. 4-6, spp. n. S. Africa, RENDAHL Ark. Zool. 11 No. 17.

## GLAUCONIIDAE.

*Glauconia debilis* sp. n. W. Africa, CHABANAUD Bull. Mus. Paris 24 p. 111.

## COLUBRIDAE.

*Coluber longissimus*, MALUQUER 93.

*Denisonia nigrostriata* in Australia, KERSHAW 80.

*Dipsadomorphus myops* sp. n. Gaboon, CHABANAUD Bull. Mus. Paris 23 p. 453 figs.

*Disteira elegans* variation, LONGMAN 87.

*Lachesis atrox* variation, PROCTER 120.

*Micaela* gen. n. p. 358, *pernasuta* sp. n. p. 359 pl. vii fig. 2 S.W. Africa, WERNER Ergebn. Hamburg Südwestafrik. Studienreise 3.

*Opisthotropis spenceri* sp. n. Siam, SMITH J. Nat. Hist. Soc. Siam 3 p. 13.

*Rhynchelaps australis* in Victoria, KERSHAW 80.

*Thamnophis* variation, races, VAN DENBURGH & SLEVIN 132.

*Tropidonotus roulei* sp. n. Khartoum, CHABANAUD Bull. Mus. Paris 23 p. 222 figs.

*Zamenis tchadensis* sp. n. Soudan, CHABANAUD t.c. p. 451 figs.

## VIPERIDAE.

*Oligodon hamptoni* sp. n. Burma, BOULENGER Proc. Zool. Soc. 1918 p. 9 fig.

## †ICHTHYOSAURIA.

Of Trias of Spitzbergen, WIMAN 144.

## CROCODILIA.

Of Upper Cretaceous, Maryland, BERRY 15.

## †DINOSAURIA.

†*Apatosaurus minimus* sp. n., MOOK Bull. Amer. Mus. 37 p. 358 figs.

†*Diplodocus*, MOOK 101.

†*Monoclonius*, BROWN 41.

†*Otozoum minus* sp. n. Massachusetts Trias, LULL Connecticut Geol. Surv. Bull. 24 p. 225 f. 76.

†*Otouphepus minor* sp. n. Massachusetts Trias LULL t.c. p. 190 f. 45.

†*Stegoceras*, LAMBE 83.

†*Thecodontosaurus minor* sp. n. Stormberg Beds, S. Africa, HAUGHTON Ann. Mag. Nat. Hist. (9) 2 p. 468.

## CHELONIA.

†*Bystra* gen. n. *nanus* sp. n. Tertiary of Florida, HAY Florida Geol. Surv. 1916 p. 53 pl. i.

*Chelydra laticarinata* p. 72 figs., *sculpta* p. 73 figs., spp. n., Pleistocene of Florida, HAY t.c.; *C. osceola* sp. n. Florida, STEINER Proc. Biol. Soc. Washington 31 p. 89.

*Clemmys*, WRIGHT 146; *C. nuchalis* sp. n. N. Carolina, DUNN Bull. Amer. Mus. 37 p. 624 pl. lxi.

*Cyclemys dhor shanensis* subsp. n. Inlé Lake Burma, ANNANDALE Rec. Ind. Mus. 14 p. 67 pl. xx.

†*Gopherus praecedens* sp. n. Pleistocene of Florida, HAY Florida Geol. Surv. 1916 p. 55 figs.

*Pseudemys floridana persimilis* subsp. n. Pleistocene of Florida, HAY t.c. p. 71 figs.

*Terrapene formosa* p. 57, *antipex* p. 58, *innoxia* p. 61, spp. n., Pleistocene of Florida, HAY t.c. figs.

*Testudo ocalana* p. 45, *incisa* p. 46, *distans* p. 48, *sellardsi* p. 49, *luciae* p. 52, spp. n., Pleistocene of Florida, HAY t.c. figs.; *T. amiatæ* Miocene of Salonica, CAMPANA 48; *T. graeca* in Pleistocene of Italy, CAMPANA 47.

*Trachemys delicata* p. 66, *nuchocarinata* p. 70, spp. n., Pliocene of Florida, HAY t.c. figs.

## †COTYLOSAURIA.

†*Seymouria*, WATSON 136.

†*Labidosaurus*, WILLISTON 143.

## †ANOMODONTIA.

Brain-case, HAUGHTON Ann. S. Afr. Mus. 12 pp. 202-210.

†*Akidnognathus* gen. n. *parvus* sp. n. S. Africa, HAUGHTON t.c. p. 193 figs. 51, 52.

†*Cynosuchus whaitsi* sp. n. S. Africa, HAUGHTON t.c. p. 197 fig. 53.

†*Macroscelousaurus* gen. n. *janseni* sp. n. S. Africa, HAUGHTON t.c. p. 175 fig. 45.

†*Whaitsia* gen. n. *platyceps* sp. n. S. Africa, HAUGHTON t.c. p. 184 figs. 48-50.

†*Gomphognathus*, †*Cynognathus*, PETRONIEVICS 114.

## BATRACHIA.

## ECAUDATA.

ANNANDALE 7; BOULENGER, 32; NIEDEN, 104.

## RANIDAE.

Indo-Australian, ROUX 124; Indian tadpoles, ANNANDALE and RAO 8.

*Aglyptodactylus* gen. n. type *Limnodytes madagascariensis*, BOULENGER Proc. Zool. Soc. 1918 p. 257.

*Cornufer*, *Platymantis*, notes, BOULENGER 22.

*Mantidactylus* synopsis p. 258; *M. ambohitombi* sp. n. Madagascar p. 260, BOULENGER Proc. Zool. Soc. 1918.

*Nyctibatrachus pygmaeus* tadpole, ANNANDALE 5.

*Phrynobatrachus Boulengeri* sp. n. Portuguese E. Africa, WITTM Rev. Zool. Afr. 6 p. 225.

*Rana* classification, BOULENGER, 29; Papuan, N. Australian etc. spp., BOULENGER 21; *R. wasi* sp. n. India and Malaysia, ANNANDALE Mem. As. Soc. Bengal 6 p. 131 pl. v. f. 5; *R. miopus* sp. n. Siam, BOULENGER J. Nat. Hist. Soc. Siam 3 p. 11; *R. fuscigula, angolensis*, BOULENGER 34; *R. esculenta* races, variation, BOULENGER 25; *R. tigrina* races, variation, ANNANDALE 6; BOULENGER 36; *R. arvalis* in Belgium, BOULENGER 28; *R. verrucosa, leptodactyla, semipalmata, beddomei*, tadpoles, ANNANDALE 5; *R. tigrina* skull, BHATIA and PRASHAD 16; *R. temporaria* parietal organ, HOLMGREN 74.

*Discodeles* subgen. n. (*Rana*), BOULENGER Ann. Mag. Nat. Hist. (9) 1 p. 238.

*Simomantis* gen. n. (type *Ixalus latopalmaris*), BOULENGER t.c. p. 373.

*Staurois tuberilinguis* sp. n. Borneo, BOULENGER t.c. p. 374.

#### DENDROBATIDAE.

*Dendrobates ranoides* sp. n. Colombia, BOULENGER Ann. Mag. Nat. Hist. (9) 2 p. 428.

#### ENGYSTOMATIDAE.

Indian spp. tadpoles, RAO 122.

#### CYSTIGNATHIDAE.

*Cerathyla johnsoni* sp. n. Colombia, NOBLE Bull. Amer. Mus. 37 p. 798 pl. xciii.

*Eleutherodactylus lineatus, miliaris*, NOBLE 107.

*Hyloscirtus*, NOBLE 107.

*Hylodes roseus* Colombia *trachylepharis* Ecuador spp. n., BOULENGER Ann. Mag. Nat. Hist. (9) 2 p. 429.

*Leptodactylus hololius* Peru p. 430, *diptychus* Venezuela *laticeps*, Argentina, p. 431, spp. n., BOULENGER t.c.

*Phyllobates kingsburyi* sp. n. Ecuador, BOULENGER t.c. p. 427.

#### BUFONIDAE.

*Bufo*, Indian spp. tadpoles, ANNANDALE and RAO 8; *B. nestor* sp. n. Pleistocene of California, CAMP Univ. Calif. Publ. Geol. 10 p. 287 figs.

#### HYLIDAE.

*Hyla leptoscelis* sp. n. Brazil, BOULENGER Ann. Mag. Nat. Hist. (9) 2 p. 432; *H. chica* sp. n. Nicaragua, NOBLE Bull. Amer. Mus. 38 p. 335 pl. xviii.

*Hylella ocellata* sp. n. Peru, BOULENGER Ann. Mag. Nat. Hist. (9) 2 p. 433.

#### CAUDATA..

*Megalobatrachus maximus* vertebral column, GAAY FORTMAN 65.

*Molge bolivari* sp. n. Spain, BOSCA Bol. Soc. Esp. Hist. Nat. 18 p. 58 fig.

*Oedipus striatulus* sp. n. Nicaragua, NOBLE Bull. Amer. Mus. 38 p. 344 pl. xix.

*Plethodon yonahlossee* sp. n. N. Carolina, DUNN Bull. Amer. Mus. 37 p. 598 pl. lviii figs. 1-3.

#### APODA.

Nervous system, NORRIS and HUGHES 109.

#### †STEGOCEPHALIA.

†*Lysorophus*, BROOM 40.

# XVII. AVES

ARRANGED BY

W. L. SCLATER, M.A.

## CONTENTS

	PAGE
I. TITLES .. .. .	5
II. SUBJECT INDEX :—	
Comprehensive and General = 5803 :—	
History .. .. .	41
Biography—General .. .. .	41
"    Autobiography .. .. .	41
"    Obituary Notices .. .. .	41
General and Popular Treatises .. .. .	41
Bibliography .. .. .	41
Institutions and Collections .. .. .	41
Technique and Methods .. .. .	41
Economics .. .. .	41
Bird-protection .. .. .	41
Acclimatization and Domestication .. .. .	42
Aviculture .. .. .	42
Nomenclature .. .. .	42
Phylogeny and Classification .. .. .	42
Structure = 5807 :—	
Plumage and epithelial structures .. .. .	42
Nervous system and Sense organs .. .. .	42
Osteology .. .. .	42
Digestive System .. .. .	42
Respiratory System .. .. .	42
Urinogenital System .. .. .	42
General Anatomy .. .. .	42
Anatomy of special forms .. .. .	42
Physiology = 5811 .. .. .	42
Embryology = 5815 .. .. .	42

	PAGE
Ethology = 5819 :—	
General and Miscellaneous .. .. .	42
Food habits .. .. .	42
Migration, General Problems .. .. .	43
" Regional Observations .. .. .	43
" Migration of Single Species or Groups .. .. .	43
" Bird-marking experiments and results .. .. .	43
Flight .. .. .	43
Parental relations .. .. .	43
Sexual relations and display .. .. .	43
Nidification, General Problems .. .. .	43
" Regional Observations .. .. .	43
" Observations on single species .. .. .	43
Voice .. .. .	44
Psychology .. .. .	44
Colour and Moults .. .. .	44
Pathology .. .. .	44
Avian Parasitology .. .. .	44
Mortality .. .. .	44
Variation and Aetiology = 5823 :—	
Variation .. .. .	44
Teratology .. .. .	44
Hybrids .. .. .	44
Heredity and Evolution .. .. .	44
Fossil and Extinct birds .. .. .	44
Geography = 5827 :—	
Palaeartic Region .. .. .	44
Ethiopian Region .. .. .	46
Indian Region .. .. .	47
Australian Region .. .. .	47
Neotropical Region .. .. .	48
Nearctic Region .. .. .	48
The Oceans .. .. .	49
III. SYSTEMATIC :—	
Struthioniformes .. .. .	49
Dinornithiformes .. .. .	50
Apterygiformes .. .. .	50
Tinamiformes .. .. .	50
Galliformes .. .. .	50
Pteroclidiformes .. .. .	51
Columbiformes .. .. .	51
Opisthocomiformes .. .. .	52
Ralliformes .. .. .	52
Podicipediformes .. .. .	52
Colymbiformes .. .. .	52
Sphenisciformes .. .. .	52
Procellariiformes .. .. .	52

	PAGE
Alciformes .. .. .	53
Lariformes .. .. .	53
Charadriiformes .. .. .	53
Gruiformes .. .. .	54
Ardeiformes .. .. .	54
Anseriformes .. .. .	54
Pelecaniformes .. .. .	55
Cathartidiformes .. .. .	55
Accipitriformes .. .. .	56
Strigiformes .. .. .	57
Psittaciformes .. .. .	57
Coraciiformes .. .. .	58
Trogones .. .. .	60
Coccyges .. .. .	61
Scansores .. .. .	61
Piciformes .. .. .	61
Eurylaemiformes .. .. .	62
Passeriformes .. .. .	62
Conopophagidae .. .. .	62
Formicariidae .. .. .	62
Dendrocolaptidae .. .. .	63
Tyrannidae .. .. .	63
Cotingidae .. .. .	63
Pittidae .. .. .	63
Hirundinidae .. .. .	63
Muscicapidae .. .. .	64
Campophagidae .. .. .	65
Pycnonotidae .. .. .	65
Timeliidae .. .. .	65
Troglodytidae .. .. .	66
Mimidae .. .. .	66
Turdidae .. .. .	66
Sylviidae .. .. .	67
Vireonidae .. .. .	68
Ampelidae .. .. .	68
Artamidae .. .. .	68
Prionopidae .. .. .	68
Laniidae .. .. .	69
Paridae .. .. .	69
Sittidae .. .. .	70
Certhiidae .. .. .	70
Zosteropidae .. .. .	70
Dicæidae .. .. .	70
Nectariniidae .. .. .	70
Meliphagidae .. .. .	70
Mniotiltidae .. .. .	70
Drepanididae .. .. .	71
Motacillidae .. .. .	71
Alaudidae .. .. .	71

Passeriformes—*continued*

Fringillidæ	..	..	..	..	..	..	71
Tanagridæ	..	..	..	..	..	..	73
Ploceidæ	..	..	..	..	..	..	73
Icteridæ	..	..	..	..	..	..	73
Sturnidæ	..	..	..	..	..	..	74
Eulabetidæ	..	..	..	..	..	..	74
Oriolidæ	..	..	..	..	..	..	74
Dicruridæ	..	..	..	..	..	..	74
Paradiseidæ	..	..	..	..	..	..	74
Corvidæ	..	..	..	..	..	..	74



## I.—TITLES.

- Adlersparre, A.** *Poëphila gouldiae*: *Poëphila mirabilis*. En korsning mellan australiska rafvarfåglar. Fauna och Flora Uppsala 13 1918 (193-208) 2 figs. 1
- Aldaz y Emazabel, J.** Catálogo de las aves observadas en Guipúzcoa y Vizcaya. Madrid Mem. R. Soc. Esp. N.H. 10 1918 (459-508). 2
- A[lexander], H. G.** C. J. Alexander. Brit. Bds. London 11 1918 (204-209). 3
- A[lexander], H. G.** Obituary, C. J. Alexander. Ibis London 1918 (301-302). 4
- Alexander, H. G.** On the breeding of the Garganey (*Anas querquedula*) in Sussex. London Bull. Brit. Orn. Cl. 38 1918 (78-79); also Rothschild p. 79. 5
- Alexander, W. B.** A Greater Frigate-bird obtained in Western Australia. Emu Melbourne 17 1918 (238). 6
- Alexander, W. B.** Notes on birds seen on the Murray river, August, 1918. Emu Melbourne 18 1918 (122-124). 7
- Alexander, W. B. and Nicholls, B.** A study of Australian specimens of the Little Penguin (*Eudyptula minor* Forster). Emu Melbourne 18 1918 (50-57). 8
- Allen, A. A.** Photography and ornithology. Amor. Mus. Journ. New York 18 1918 (101-109) many photos. 9
- Anderson, J. C.** Further notes on New Zealand bird-song: Kapiti Island. Wellington Trans. N. Zeal. Inst. 50 1918 (282-295). 10
- Anon.** Some additions and corrections to the B.O.U. List of British Birds. By the Committee appointed to draw up the List. Ibis London 1918 (234-243). 11
- Anon.** Obituary—Colonel W. V. Legge. Emu Melbourne 18 1918 (77-79) portr. 12
- Anon.** Kurt Lampert. Orn. Monatsb. 28 1918 (56). 13
- Aplin, O. V.** Birds of Texel. Norwich Trans. Nat. Soc. 10 1918 (289-290). 14
- Apstein, C.** Erscheinungsjahre von Gmelin (Linné) Systema Natural ed. 13. Zool. Anz. Leipzig 47 1916 (32). 15
- Arbuckle, H. B.** Report of an investigation as to the cause of death in chicks in shell in artificial incubation. Chapel Hill N.C. Journ. Elisha Mitchell Sci. Soc. 34 1918 (141-145). 16
- Archer, G. F.** *vide* Clarke.
- Arnold, E. C. and others.** Marsh-Warblers breeding in Sussex, Warwickshire and Staffordshire. Brit. Bds. London 11 1918 (259-261). 17
- Arthur, S. C.** The birds of Louisiana. Bull. no. 5 Dept. Conservation, State of Louisiana New Orleans 1918 (1-80) maps and textfigs. 18
- Ashby, E.** Fleurieu Peninsula Rosella (*Platycercus elegans fleurieuensis*). Emu Melbourne 17 1918 (118) pl. xvii. 19
- Ashby, E.** Notes on some birds met with in the neighbourhood of Pungonda, on the border between South Australia and Victoria, 25 miles south of Renmark between 11th and 14th September, 1917. Emu Melbourne 17 1918 (219-220). 20
- Ashby, E.** Birds observed in the neighbourhood of Pungonda, South Australia. S.A. Ornith. Adelaide 3 1918 (141-144). 21
- Ashley, M.** On the breeding habits of the Hobby. Bt. Bds. London 11 1918 (194-196). 22
- Aubry.** La vie embryonnaire de l'Autruche. Observations pratiques, mirage des oeufs, eclosion. Rev. Fr. d'Orn. Paris 10 1918 (217-223) 9 figs. 23

- Aubry.** Quelques données sur le "Yellow liver" on foie jaune des Autruchons. Rev. Fr. d'Orn. Paris 10 1918 (293-296). 24
- Austin, T. P.** The birds of the Cobora district, New South Wales. Austral. Zool. Sydney 1 1918 (109-137). 25
- B—.** Some nesting habits of birds in the Sudan. Sudan Notes Khartoum 1 1918 (161-164). 26
- Bacmeister, W. Dr. D. F. Weinlandt.** Falco Halle 11 1915 (33-36). 27
- Bacmeister, W.** Aufzeichnungen über den Bestand der Argonnenvögel. Falco Halle 12 1916 (21-26) 2 pls. 28
- Bacmeister, W.** Beitrag zur Avifauna von Ostpolen. Falco Halle 12 1916 (38-48). 29
- Bacmeister, W.** In welche Nester legen die württembergischen Kuckucke hauptsächlich ihre Eier? Orn. Jahrb. Hallein 28 1918 (110-115). 30
- Bacmeister, W. u. Kleinschmidt, O.** *Aegithalos caudatus expugnatus* forma nova. Falco Halle 12 1916 (18). 31
- Bacmeister, W. und Kleinschmidt, O.** Zur Ornithologie von Nordost-Frankreich. Journ. Ornith. Leipzig 66 1918 (245-284). 32
- Baddeley, T.** A Manchester resort of water-fowl. Lancs. Nat. 10 1919 (297-300). 33
- Baer, G.** Note sur le Coq bankiva (*Gallus ferrugineus* Gm.). Rouen Bull. Soc. Sci. Nat. 49 1915 (47-49). 34
- Bährmann, V.** Die Weidenmeise als Brutvogel an der Schwarzen Elster bei Ruhland. Orn. Monatsb. Berlin 26 1918 (22-25). 35
- Bailey, B. H.** The Raptorial Birds of Iowa. Des Moines Iowa Geol. Surv. Bull. no. 6 1918 (1-238) 93 figs. 36
- Bailey, F. M.** The Birds and wild animals of Glacier National Park. Washington D.C. (Dept. Interior) 1918 (103-199) 76 textfigs. 8vo. 37
- Bailey, F. M.** A return to the Dakota lake region. Condor Hollywood Cal. 20 1918 (24-37 64-70 110-114 132-137 170-178) 1 photo. 38
- Bailey, P. G. vide Puanett.**
- Bailey, W. S.** The breeding of the Mexican Black-breasted Quail (*Colinus virginianus*). Avicult. Mag. London 9 1918 (114-116) photo. 39
- Bailey, W. S.** Hybrid Wigeon. *Mareca sibiratrix* × *M. penelope*. Avicult. Mag. London 10 1918 (15-16) photo. 40
- Baker, E. C. S.** The Game birds of India, Burma and Ceylon. Pts. xxiii, xxiv, xxv. Bombay J. Nat. Hist. Soc. 25 1918 (325-360 521-546) 2 col. pls.; 26 1918 (1-18) 1 col. pl. 41
- Baker, E. C. S.** Notes on the nidification of some Indian Falconidae. iii. The genera *Ictinaëtus* and *Microhierax*. Ibis London 1919 (51-67) pl. ii. 42
- Baker, E. C. S.** Erythrism in birds' eggs: an address read at the third Oological dinner on 26 September, 1917. Ibis London 1919 (68-75). 43
- Baker, E. C. S.** A reply to Messrs. Robinson and Kloss, with some further critical remarks. Ibis London 1918 (593-597) vide etiam Robinson and Kloss no. 701. 44
- Baker, E. C. S.** Description of a new subspecies of *Prinia*. London Bull. Bt. Orn. Cl. 38 1918 (39-40). 45
- Baker, E. C. S.** Note on the Siamese form of *Garrulax moniliger*. London Bull. Brit. Orn. Cl. 38 1918 (64-65); also C. B. Kloss, *ibid.* (65-66). 46
- Baker, E. C. S.** Description of new forms of *Graculus* and *Æthiopsax*. London Bull. Brit. Orn. Cl. 38 1918 (66-70). 47
- Baker, E. C. S.** *Cyornis magnirostris coerulifrons* subsp. n. described. London Bull. Brit. Orn. Cl. 39 1918 (7-8). 48
- Baker, E. C. S.** Description of new forms of *Bhringia*, *Picus*, *Thereiceryx*, *Cyanops*, *Pitta*. London Bull. Brit. Orn. Cl. 39 1918 (18-20). 49
- Baker, E. C. S.** Some notes on the Dicruridae. Nov. Zool. Tring 25 1918 (291-304). 50
- Banfield, E. J.** "Alike in difference." Migration of Nutmeg Pigeons and Metallic Starlings on Dunk Island, Queensland. Emu Melbourne 17 1918 (212-214). 51

- Bangs, O.** Aves: in Vertebrata from Madagascar. Cambridge Mass Bull. Mus. Comp. Zoöl. **61** 1918 (489-511). **52**
- Bangs, O.** Notes on the species and subspecies of *Puccilonitta* Eyton. Cambridge Mass. Proc. N. Engl. Zool. Club **6** 1918 (87-9). **53**
- Bangs, O.** A new genus of Caprimulgidae. Cambridge Mass. Proc. N. Engl. Zool. Cl. **6** 1918 (91-92). **54**
- Bangs, O.** A new race of the Black-throated Green Wood-Warbler. Proc. N. Engl. Zoöl. Cl. Cambridge Mass. **6** 1918 (93-94). **55**
- Bangs, O.** Types of *Pachycephala littayei* Layard. Ibis London **1918** (740-741). **56**
- Bangs, O. and Noble, G. K.** List of birds collected on the Harvard Peruvian expedition of 1916. Auk Cambridge Mass. **35** 1918 (442-463). **57**
- Bangs, O. and Noble, G. K.** Description of a new Woodpecker from Peru. Proc. N. Engl. Zoöl. Cl. Cambridge Mass. **6** 1918 (85-86). **58**
- Bangs, O. and Penard, T. E.** Notes on a collection of Surinam birds. Cambridge Mass. Bull. Mus. Comp. Zoöl. **62** 1918 (25-93). **59**
- Barros, R.** Acimatacion del Gorrión (*Passer domesticus*) en Chile. Ann. Zool. Aplic. **4** 1917 (8-15) fig. **60**
- Bartelmez, G. W.** The relation of the embryo to the principal axis of symmetry in the bird's egg. Biol. Bull. Woods Hole Mass. **35** 1918 (319-361) 4 figs. **61**
- Batchelder, C. F.** Two undescribed Newfoundland birds. Cambridge Mass. Proc. New Engl. Zoöl. Club **6** 1918 (81-82). **62**
- Bates, G. L.** The reversed under wing-coverts of birds and their modifications, as exemplified in the birds of West Africa. Ibis London **1918** (529-583) 8 text-figs. **63**
- Baxter, E. V. and Rintoul, L. J.** The birds of the Isle of May: a migration study. Ibis London **1918** (247-287). **64**
- Baxter, E. V. and Rintoul, L. J.** Report on Scottish Ornithology in 1917 including migration. Scot. Nat. Edinburgh **1918** (147-196). **65**
- Bayliss, C. K.** A study of the Yellow-billed Cuckoo (*Coccyzus americanus*). Auk Cambridge Mass. **35** 1918 (161-164). **66**
- Beal, F. E. L.** Food habits of the Swallows, a family of valuable native birds. Washington U.S. Dept. Agr. Bull. no. **619** 1918 (1-23). **67**
- Beck, R. H.** Narrative of a bird quest in the vicinity of Cape Horn. Amer. Mus. Journ. New York **18** 1918 (1-16 111-119) many photos. **68**
- Beck, R. H.** Photographs of Falkland Island Bird-life. Bird-Lore Harrisburg Pa. **20** 1918 (1-8) photos. **69**
- Bédé, P.** Note sur le *Rhamphocorys clot-bey* Bonaparte. Rev. Fr. d'Orn. Paris **10** 1918 (224-225). **70**
- Bédé, P.** Recherches sur le groupe des *Saxicola aurita* Temminck et *S. stapanzina* Gmelin. Rev. Fr. d'Orn. Paris **10** 1918 (313-316 330-332). **71**
- Beebe, W.** A monograph of the Pheasants. vol. i (i-xlix + 1-198) 20 col. pls. 15 photogravures 5 maps. London (Witherby) **1918** 4to. **72**
- Beebe, W.** Jungle Peacc, pp. 1-297, many photos. New York (Holt) **1918** 8vo. **73**
- Bennett, Bell's** Vireo studies (*Vireo belli* Aud.) Des Moines Proc. Iowa Acad. Sci. **24** 1918 (285-293) 5 photos. **74**
- Bent, A. C.** *Pterodroma gularis* in North America. Auk Cambridge Mass. **36** 1918 (221-222). **75**
- Berg, B.** Sällsynta Fåglar. Första Samlingen. Långnäbban (*Limosa agrocephala*) (1-32); Dvärgmåsen (*Larus minutus*) (75-145) many photos. Stockholm (Norstedt) **1916** 4to. **76**
- Bergman, S.** Bidrag till kännedomen om Torne lappmarks fågel fauna. Fauna och Flora Uppsala **12** 1917 (193-211) text-figs. **77**
- Bergtold, W. H. and Lincoln, F. C.** The Harpy Eagle [not] in Colorado. Auk Cambridge Mass. **35** 1918 (77-79). **78**

- Berlepsch, H. Freiherr von.** Über Nistweise der Gartenammer (*Emberiza cirulus*) und Misteldrossel (*Turdus viscivorus*) in Nordfrankreich. Orn. Monatsber. Berlin 26 1918 (39-41). 79
- Berry, W.** Gadwall (*A. strepera*) nesting in Eife. Scot. Nat. Edinburgh 1918 (266). 80
- Bertoni, A. de W.** Apuntes sobre aves del Paraguay. El Hornero Buenos Aires 1 1918 (188-191). 81
- Bertoni, A. de W.** Adiciones a los Vertebrados del Paraguay. Aves luminosas en el Paraguay. Sobre nidificación de los Eufonidos. Indice sistematico de las aves nuevas del Paraguay. Puerto Bertoni Paraguay An. Cion. Paraguayos ser. ii no. 3 1918 (233-247). 82
- Bertsch, K.** Das Birkhuhn (*Tetrao tetrix*) in Oberschwaben. Orn. Monatsb. Berlin 26 1918 (142-144). 83
- Beveridge, F. S.** The birds of North Uist. Scot. Nat. Edinburgh 1918 (145-254). 84
- Beveridge, F. S.** The Grey Lag Goose of North Uist. Scot. Nat. Edinburgh 1918 (73-74). 85
- Beveridge, F. S.** The Grey Lag Goose. Scot. Nat. Edinburgh 1918 (213-215). 85a
- Bhattacharya, D. R.** Notes on the anatomy of a double monstrosity in the Chick. Calcutta J. Proc. As. Soc. Bengal 14 1918 (333-337) 2 pls. 86
- Bickerton, W.** Notes on birds observed in Hertfordshire during the year 1916. Watford (St. Albans) Trans. Herts. F. Cl. 17 1918 (35-46). 87
- Bittera, J.** Magenuntersuchungen unserer Tagraubvögel. Aquila Budapest 21 1914 (230-238). 88
- Bittera, J. v.** Über die Nahrung des Habichts und Sperbers. Aquila Budapest 22 1916 (196-216 Magyar 216-218 German) 2 figs. 89
- Blanc, H.** Destruction des oiseaux rapaces diurnes dans le Canton de Vaud et en Suisse pendant l'année 1915. Lausanne Bull. Soc. Vaud. Sc. Nat. 51 1917 (315-319). 90
- Blandy, R.** The breeding habits of Mrs. Hume's Pheasant. Bombay Journ. N. H. Soc. 26 1918 (288-289). 91
- Blathwayt, F. L.** New species of birds observed in Dorset since the publication of Mansel-Pleydell's "Birds of Dorset," 1888. Dorchester Proc. Dorset N. H. Cl. 39 1918 (45-52). 92
- Blanchet, A.** Notes d'ornithologie Tunisienne. Rev. d'Orn. Fr. Paris 10 1918 (266-268). 93
- Boase, H.** The westward flight of the Swallow, House-Martin, and Sand-Martin on the Tay estuary in autumn. Scot. Nat. 1918 (109-112). 94
- Boeke, J.** On the structure and the innervation of the musculus sphincter papillae and the musculus ciliaris of the bird's eye. Amsterdam Proc. Sect. Sci. K. Akad. Wetens. 18 1916 (2-10) 12 figs. 95
- Bolam, G.** On the effect of the winter of 1916-17 on bird life. Vasculum Hexham 4 1918 (9-12); also Walton, J. S. T. (34-35). 96
- Bolam, G.** Unusual nesting sites of Willow Wren and Wood Warbler. Vasculum Hexham 4 1918 (39). 97
- Boring, A. M. and Pearl, R.** Sex studies. xi. Hermaphrodite birds. J. exper. Zool. Philadelphia 25 1918 (1-48) 9 pls. 9 textfigs. 98
- Boubier, M.** Deux indices caractéristiques et différentiels des Passereaux, Echassiers et Gallinacés. Rev. Fr. d'Orn. Paris 10 1918 (321-327). 99
- Bouvier, A.** Une addition à l'avifaune Parisienne. (*Trichodroma muraria*). Rev. Fr. d'Orn. Paris 10 1918 (270-271). 100
- Bowles, J. H.** The Limicolae of the State of Washington. Auk Cambridge Mass. 35 1918 (326-333). 101
- Bradbury, W. C.** Notes on the nesting habits of the White-throated Swift in Colorado. Condor Hollywood Cal. 20 1918 (103-110) 6 photos. 102
- Bradbury, W. C.** Notes on the nesting of the Mountain Plover (*Podasocys montanus*). Condor Hollywood Cal. 20 1918 (157-163) 8 photos. 103
- Bradbury, W. C.** Nesting of the Rocky Mountain Jay (*Perisoreus canadensis capitalis*). Condor Hollywood Cal. 20 1918 (197-208) 11 photos. 104

- Braishin, W. C.** An American edition of Audubon's Ornithological Biography. Auk Cambridge Mass. **35** 1918 (360-362). 105
- Brasil, L.** Notes sur la fauna ornithologique de l'Océanie. Bull. Mus. Paris **1917** (429-441) 2 text-figs. [*Egretta*, *Pterodroma*, *Poliolimnas*.] 106
- Braun, F.** Biologische Folgen der Kriegsnöte in der Vogelstube. J. Ornith. Leipzig **66** 1918 (51-61). 107
- Braun, F.** Über das Verhältnis des Vogels zu seiner Nahrung. Orn. Monatsb. Berlin **26** 1918 (1-4). 108
- Braun, F.** Über den Einfluss der Tagesdauer auf das Vogelleben. Orn. Monatsber. Berlin **26** 1918 (57-63). 109
- Brenner, M.** *Turdus merula* och *Larus ridibundus*. [*Turdus merula* und *Larus ridibundus*.] Helsingfors Medd. Soc. Fauna et Fl. Fenn **43** 1917 (177) Deutsches Ref. (285 286.) 110
- Bretscher, K.** Die Abhängigkeit des Vogelzugs von der Witterung. Biol. Centralb. Leipzig **38** 1918 (296-314). 111
- Brewster, W.** Nesting of the Red Crossbill (*Loxia curvirostra minor*) in Essex County, Massachusetts. Auk Cambridge Mass. **35** 1918 (225). 112
- Brewster, W.** The subspecific name of the Northern Parula Warbler. Auk Cambridge Mass. **35** 1918 (228). 113
- Brooks, A.** Brief notes on the prevalence of certain birds in British Columbia. Ottawa Nat. **31** 1918 (139-141). 114
- Brooks, E. A.** The food of West Virginia birds. Bull. West Va. Dept. Agr. No. **15** 1916 (1-74) 3 pls. 20 text-figs. 115
- Brown, A.** Report on the birds of Epping Forest for the year 1917. London Trans. N. H. Soc. for **1917** 1918 (36-42). 116
- Bruno, G.** La struttura del miocardio dell'embrione di pollo all'inizio della sua funzione contrattile. Firenze Mon. Zool. Ital. **29** 1918 (53-64) 2 pls. 117
- Bryant, H. C.** Evidence of the food of Hawks and Owls in California. Condor Hollywood Cal. **20** 1918 (126-127). 118
- Bryant, H. C.** *vide* Grinnell.
- Buchner.** Einige Fragen bezüglich der einheimischen Vogelfauna, besonders etlicher Wintergäste und Irrgäste, in Zusammenhang mit dem Klima Württembergs. Stuttgart Jahresb. Ver. Württemb. **74** 1918 (194-211). 119
- Budin, E.** El "Keu," *Tinamotis pentlandi* Vigors. El Hornero Buenos Aires **1** 1918 (101-103). 120
- Bunyard, P. F.** On the eggs, nest-down and nest-feathers of the White-eyed Pochard. London Bull. Brit. Orn. Cl. **38** 1918 (52-53). 121
- Bunyard, P. F.** The nest feathers and down of *Histrionicus histrionicus*. London Bull. Brit. Orn. Cl. **39** 1918 (4-5). 122
- Burg, G. de.** Catalogue des Oiseaux de la Suisse de V. Fatio et Th. Studer élaboré par ordre du Département suisse de l'Intérieur. xii.° livr. Emberzinac. (i-viii + 2275-2514). Genève et Berne 1916 8vo. 123
- Burkitt, J. P.** Some notes on birds, especially the Whitethroat. Irish Nat. Dublin **27** 1918 (140-147). 124
- Butler, A. G.** Development of pattern in birds. Avicult. Mag. London **9** 1918 (160-162 182-186) photo. 125
- Butler, A. W.** Further notes on Indiana birds. Fort Wayne Proc. Indiana Acad. Sci. **1916** 1917 (456-459). 126
- Butter, J. K.** Ostriches. Avicult. Mag. London **9** 1918 (173-176 214-216). 127
- Butterfield, E. P.** Romance of the Cuckoo. Naturalist London **1918** (93-96 127-130). 128
- Butterfield, E. P.** Former status of the Common Starling in Britain. Naturalist London **1918** (311-313). 129
- Butterfield, W. R.** Notes on the local Fauna, etc., for the years 1916, 1917. Hastings and East Sussex Nat. **2** 1917 (246-250); **3** 1918 (74-80). 130
- Campbell, A. J.** Grey-throated Thickhead (*Pachycephala peninsulae* Hartert). Emu Melbourne **17** 1918 (165) pl. xxv. 131
- Campbell, A. J.** Notes on some additions to the H. L. White collection. Emu Melbourne **18** 1918 (2-8). 132

- Campbell, A. J.** Striated Grass-wren (*Amytornis striata* Gould). Emu Melbourne 18 1918 (81) pl. xv. 133
- Campbell, A. J.** *vide* Whitlock.
- Čapek, V.** Der sibirische Tannenhäher (*Nucifraga car. macrorhynchos* Brehm) in Mähren 1917. Orn. Jahrb. Hallein 28 1918 (154-155). 134
- Cardoso, A.** La ornitologia fantástica de los conquistadores. El Hornero Buenos Aires 1 1918 (80-89 153-160). 135
- Carlotto, G. A.** Cattura di un *Cursorius gallicus* nel Veronese. Riv. Ital. Orn. Bologna 4 1918 (8-11). 136
- Carpenter, N. K.** An odd nest of the Song Sparrow of Los Coronados Islands. Condor Hollywood Cal. 20 1918 (124) fig. 137
- Carter, J. D.** Summer birds of Pocono. Cassinia Philadelphia 21 1918 (6-25). 138
- Castillón, L.** Habitat de la Avutarda, *Chlorophaga melanoptera* Eyton. El Hornero Buenos Aires 1 1918 (108-111). 139
- Cathelin, F.** Du prétendu retour au nid des oiseaux migrateurs et de l'instabilité de résidence. Rev. Fr. d'Orn. Paris 10 1918 (180-191). 140
- Caziot,** La collection des oiseaux du Musée d'Histoire Naturelle de Nice. Riviera Sci. Nice 1 1914 (61-62). 141
- Chapin, J. P.** *vide* Lang.
- Chapman, A.** Notes and observations on the birds of North Uist in May, 1883. Scot. Nat. Edinburgh 1918 (121-132). 142
- Chapman, F. M.** *vide* Oberholser.
- Chernel, S. v.** Über des Nisten des Seidenschwanzes (*Ampelis garrula* L.) in Ungarn. Aquila Budapest 23 1917 (308-311 Magyar 502-505 Germ.). 143
- Chernel, S. v.** Horstbaum und Stimme des Wespenbussards (*Pernis apivorus*). Aquila Budapest 23 1917 (312-314 Magyar 506-508 German). 144
- Chernel, S. v.** Ornithologische Beiträge aus den Feldbriefen Nikolaus von Chermels. Aquila Budapest 23 1917 (331-332 Magyar 526-527 Germ.). 145
- Chernel, S. v.** Prof. Dr. Otto Finsch, 1839-1917. Aquila Budapest 23 1917 (593-597). 146
- Chernel, S. v.** Daten zur Vogel-fauna Ungarns. Aquila Budapest 24 1918 (7-24) Magyar and German. 147
- Chernel, S. v.** Notizen über den Herbstzug aus der Gegend des Balaton-Sees. Aquila Budapest 24 1918 (24-29) Magyar and German. 148
- Chernel, S. v.** Das vorkommen des Alpenflügelvogels (*Accentor collaris* Scop.) in Komitate Zala. Aquila Budapest 24 1918 (114-121) Magyar and Germ. 149
- Chisholm, A. H.** Two singing species of *Gerygone*. Emu Melbourne 17 1918 (150-153) photo. 150
- Christensen, R.** Fugle i Naturen. Billeder og Tekst. Moseus Fugleliv. [The bird-life in the bog.] Copenhagen, Nyt Nordisk Forlag 1917 (45) 30 figs. 151
- Chubb, C.** Descriptions of new genera and a new subspecies of South American birds. Ann. Mag. N. H. London (9) 2 1918 (122-124). 152
- Chubb, C.** Notes on *Embernagra platensis* and its allies, with a description of a new species. Ibis London 1918 (1-10) pl. i. 153
- Chubb, C.** Description of two new subspecies of *Attagis*. London Bull. Bt. Orn. Club 38 1918 (40-41). 154
- Chubb, C.** Description of new forms of the genera *Grallaria*, *Corythopsis* and *Aramides*. London Bull. Bt. Orn. Club 38 1918 (47-48). 155
- Chubb, C.** Description of new forms of *Planesticus*. London Bull. Brit. Orn. Cl. 38 1918 (53-54). 156
- Chubb, C.** Descriptions of new forms of *Myrmophila*, *Rhopias*, *Cercomacra*, *Rhopoterpe*, *Hyllopezas*, *Grallaricula*, *Furnarius*, *Lochmias*. London Bull. Brit. Orn. Cl. 38 1918 (83-87). 157
- Chubb, C.** On the first occurrence of the Belted Kingfisher (*Ceryle alcyon*) in England. London Bull. Brit. Orn. Cl. 39 1918 (6-7). 158
- Chubb, C.** Descriptions of new forms of *Gamponyx* and *Falco*. London Bull. Brit. Orn. Cl. 39 1918 (21-23). 159

- Clark, H. L. Tail-feathers and their major upper coverts. *Auk* Cambridge Mass. **35** 1918 (113-123). 160
- Clark, H. L. Notes on the anatomy of the Cuban Trogon. *Auk* Cambridge Mass. **35** 1918 (286-289). 161
- Clark, H. L. The pterylosis of the Wild Pigeon. *Auk* Cambridge Mass. **35** 1918 (416-420). 162
- Clark, H. M. [Eggs of an extinct Ostrich in north China.] *Nature* London **101** 1918 (50). 163
- Clarke, J. M. Alleged rediscovery of the Passenger Pigeon. *Science* New York **48** 1918 (445-446); see also Roberts T. S. p. 575. 164
- Clarke, S. Description of a new Pigeon from Somaliland, with further remarks by G. F. Archer. *London Bull. Brit. Orn. Cl.* **38** 1918 (61-62). 165
- Clarke, W. E. Woodcock marked in Ireland and recovered in Shetland. *Irish Nat. Dublin* **27** 1918 (15). 166
- Clarke, W. E. Wild life in a west Highland Deer Forest. *Scot. Nat. Edinburgh* **1918** (1-10). 167
- Cleland, J. B. The stomach contents of Australian birds. *Agr. Gaz. N.S. Wales* **27** 1916 (263-269). 168
- Collinge, W. E. Some recent investigations on the food of certain wild birds. *J. Bd. Agr. London* **25** 1918 (668-691). 169
- Collinge, W. E. and others. The value of insectivorous birds. *Nature* London **101** 1918 (407-409 464). 170
- Collinge, W. E. The preservation of Game-birds and its relation to agriculture. *Sci. Progr. London* **13** 1918 (265-275). 171
- Collinge, W. E. On the value of the different methods of estimating the stomach contents of wild birds. *Scot. Nat. Edinburgh* **1918** (103-108) 2 figs. 172
- Congreve, W. M. Ornithological and oological notes from the river Somme valley at its mouth and near Peronne. *Ibis* London **1918** (348-362 746-748). 173
- Cooke, M. T. Notes from the vicinity of Washington, D.C. *Auk* Cambridge Mass. **35** 1918 (483-484). 174
- Cory, C. B. Catalogue of Birds of the Americas and the adjacent islands etc. Part ii, no. i. Families Bubonidae Tytonidae, Psittacidae, Steatornithidae, Alcedinidae, Todidae, Momotidae, Nyctibiidae, Caprimulgidae, Cypselidae, Trochilidae. Chicago Ill. Field Mus. Pub. Zool. Ser. **13** (1-315) 1 pl. 175
- Coward, T. A. Notes on the vertebrate fauna of Cheshire and south Lancashire. iii. For the year 1917. *Lancs. Nat. Darwen* **11** 1918 (170-173 182-185). 176
- Coward, T. A. Observations on the nesting habits of the Palm Swift, *Tachornis parva* (Lichst.), made by Mr. Arthur Soveridge in German East Africa. *Manchester Mem. Lit. Phil. Soc.* **61** no. 7 1917 (1-3). 177
- Craven-Sykes, J. Young Cuckoo in Blackbird's nest. *Bt. Bds. London* **12** 1918 (46-47). 178
- Cridggle, N. The American Crow in relation to agriculture. *Agr. Gaz. Ottawa* **4** 1917 (446-450) fig. 179
- Criddle, N. Bird notes from Manitoba. *Ottawa Nat.* **31** 1918 (151-152). 180
- Csiki, E. Positive Daten über die Nahrung unserer Vögel. (9. Mittl. *Corvus cornix*.) *Aquila Budapest* **21** 1914 (210-229). 181
- Csörgey, T. Studien über den Vogelschutz aus dem Jahre 1914. *Aquila Budapest* **21** 1915 (239-259) 4 figs. 182
- Csörgey, T. J. Salamon v. Patenyis Briefe an J. Friedrich Naumann 1834-1840. *Aquila Budapest* **22** 1916 (352-369). 183
- Csörgey, T. Studien über den Vogelschutz in der Jahren 1915-1916. *Aquila Budapest* **23** 1917 (56-73 Magyar 449-468 German) 8 figs. 184
- Csörgey, T. Der Paarungsgesang des rotrückigen Würgers (*Lanius collurio*). *Aquila Budapest* **24** 1918 (221-224) Magyar and German. 185
- Csörgey, T. Das Flügelzeichen von *Circus macrurus* (Gm.). *Aquila Budapest* **24** 1918 (224-226) 2 fig. German and Magyar. 186
- Cumming, W. D. Natural History notes from Fao. *Bombay Journ. N.H. Soc.* **26** 1918 (292-294). 187

- Curtis, W. P. Phenological Report on first appearances of birds, etc. in Dorset for 1916. *Dorchester Proc. N.H. and Antiq. F. Cl.* **38** 1918 (136-205). 188
- Cutler, D. W. On the sterility of hybrids between the Pheasant and the Gold Campine Fowl. *Journ. Genetics Cambridge* **7** 1918 (155-165) 1 pl. 189
- Dabbene, R. Lariformes de la Republica Argentina. Pts. i, ii. *El Hornero Buenos Aires* **1** 1918 (49-56 129-139) 9 + 5 figs. 190
- Dabbene, R. Notas sobre una coleccion de Aves de la isla de Martin Garcia. *El Hornero Buenos Aires* **1** 1918 (89-96 160-168). 191
- Dabbene, R. Sobre distribucion geographica de algunas especies de aves. *El Hornero Buenos Aires* **1** 1918 (96-100). 192
- Dabbene, R. Nido y pichones de un gavilan [*Parabuteo unicinctus*]. *El Hornero Buenos Aires* **1** 1918 (100-101) pl. i. 193
- Dabbene, R. Sobre los nidos del Federal, *Amblyramphus holosericeus* (Scop.) y del Pecho Colorado, *Leistes militaris superciliaris* (Bp.). *El Hornero* **1** 1918 (104-105) 2 figs. 194
- Dabbene, R. Sobre una curiosa costumbre de nidificaci6n del Pato Bareino Chico, *Nettion flavirostre* (Vieillot). *El Hornero Buenos Aires* **1** 1918 (111-114). 195
- Dabbene, R. Descripci6n de dos formas de aves aparentemente nuevas procedentes del N.W. de la Republica Argentina. *El Hornero Buenos Aires* **1** 1918 (178-182). [*Penelope spinus*.] 196
- [Dabbene, R.] Nidos y huevos de Vencejos (Micropodidae). *El Hornero Buenos Aires* **1** 1918 (193) photo. 197
- Dabbene, R. Captura de algunas especies raras de aves neotropicales. *El Hornero* **1** 1918 (194-195). 198
- Dabbene, R. Descripci6n de dos formas de aves aparentemente nuevas procedentes del N.W. de la Republica Argentina. *Physis Buenos Aires* **4** 1918 (102-106). 199
- Davidson, A. El Pajaro Leno or the California Woodpecker. *Los Angeles Cal. Bull. S. Cal. Acad. Sci.* **12** 1913 (5-8) 1 pl. 200
- Davies, W. Marsh-Warbler breeding in Staffordshire. *Bt. Bds. London* **12** 1918 (114-115). 201
- Delacour, J. Breeding of the new Pigeon Hollandais (*Alectroenas pulcherrima*). *Avicult. Mag. London* **9** 1918 (157-159) photo. 202
- Delezenne, C. and Fourneau, E. Sur la part que prend la chaux de la coquille de l'ocuf de poule a la formation du squelette du poussin pendant l'incubation. *Ann. Inst. Pasteur Paris* **32** 1918 (413-420). 203
- Dennier. Einige Feststellungen über die Avifauna der Pripjetsümpfe. *Falco Halle* **13** 1917 (2-4) 2 pls. 204
- Deschiens, R. Quelques réactions de défense des colonies d'oiseaux. *Rev. Fr. d'Orn. Paris* **10** 1918 (281-287). 205
- Despott, G. Ornithological notes for the Maltese Islands (January-June, 1917). *Arch. Melitense Valetta* **3** 1918 (83-90). 206
- Dice, L. R. The birds of Walla Walla and Columbia counties, south-eastern Washington. *Auk Cambridge Mass.* **35** 1918 (40-51 148-161). 207
- Dice, L. R. Distribution of the Land Vertebrates of south-eastern Washington. *Berkeley Cal. Univ. Cal. Publ. Zool.* **16** 1916 (293-348) 3 pls. 208
- Dice, L. R. Notes on the nesting of the Redpoll (*Acanthis linaria linaria*). *Condor Hollywood Cal.* **20** 1918 (129-131) 2 photos. 209
- Dinelli, L. Notas biologicas sobre las aves del noroeste de la Rep. Argentina. *El Hornero Buenos Aires* **1** 1918 (57-68 140-147). 210
- Dittus, B. Ueber das Vorkommen von Birkwild (*Tetrao tetrix*) im südlichen Oberschwaben. *Stuttgart Jahresh. Ver. Württemb.* **71** 1915 (268-269). 211
- Dixon, J. The nesting grounds and nesting habits of the Spoon-billed Sandpiper. *Auk Cambridge Mass.* **35** 1918 (388-404) 1 pl. 212



- Domaniewski, J.** Die geographischen Formen von *Catharus dryas* Gould. Cracovic Bull. Acad. Sci. **1918** (134-136). **213**
- Domaniewski, J.** Die Stellung des *Urocynchramus pylzovi* Przew. in der Systematik. Journ. Ornith. Leipzig **66** 1918 (421-424). **214**
- Domaniewski, J.** Contribution à la distribution géographique du genre *Sitta* L. Warszawa C.R. Soc. Sci. **6** 1913 (1037-1044) [Polish with French resumé]. **215**
- Domaniewski, J.** Sur une nouvelle forme de fauvette grise: *Sylvia communis volgensis* subsp. n. Warszawa C.R. Soc. Sci. **8** 1915 (550-555) [Polish with French resumé]. **216**
- Domaniewski, J.** Sur les formes orientales de *Passer montanus* L. Warszawa C.R. Soc. Sci. **8** 1915 (556-567) [Polish with French resumé]. **217**
- Domaniewski, J.** Materiały do ornitofauny ziem polskich. Matériaux à la fauna ornithologique de Pologne. Warszawa C.R. Soc. Sci. **8** 1916 (663-678); **10** 1917 (1003-1043); **11** 1918 (485-499) [Polish with French resumé]. **218**
- Domaniewski, J.** Contribution à la connaissance de quelques faucons paléarctiques. Warszawa C.R. Soc. Sci. **10** 1917 (256-269) [Polish with French resumé]. **219**
- Domaniewski, J.** Serin Polonais—*Serinus canarius polonicus* subsp. n. Warszawa C.R. Soc. Sci. **10** 1917 (991-1002) [Polish with French resumé]. **220**
- Domaniewski, J.** Contribution à la connaissance des formes géographiques de *Cerchneis naumanni* (Fleisch). Warszawa C.R. Soc. Sci. **10** 1917 (1043-1047) [Polish with French resumé]. **221**
- Domaniewski, J.** Formes paléarctiques du genre *Acanthis* Bechstein. Warszawa C.R. Soc. Sci. **10** 1917 (1048-1081) [Polish with French resumé]. **222**
- Domaniewski, J.** Formes géographiques de *Turdus viscivorus* Linn. et de quelques autres Grives paléarctiques peu connes. Warszawa C.R. Soc. Sci. **11** 1918 (443-473) [Polish with French resumé]. **223**
- Domaniewski, J.** Formes nouvelles ou peu connues de *Cynchramus schoenichus* Linn. Warszawa C.R. Soc. Sci. **11** 1918 (741-751) [Polish with French resumé]. **224**
- Domaniewski, J.** Revue critique de l'avifaune de la Galicie. Passeriformes. Warszawa Pam. Fizyogr. **23** 1915 (5-83). **225**
- Domaniewski, J.** Sprawozdanie z wycieczki ornitologicznej odbytej na Polesie w roku 1913. [Compte rendu d'une excursion ornithologique faite à Polesie en 1913.] Warszawa Pam. Fizyogr. **5** 1918 (1-13). **226**
- Domaniewski, J.** Fauna Passeriformes okolic Saratowa, Passeriformes der Umgegend von Saratov. Warszawa Trav. Soc. Sci. **3** no. 18 1916 (1-153) German resumé and photos. **227**
- Domaniewski, J.** vide Sztolcman.
- Domaniewski, J. i Sztolcman, J.** Przyczynek do znajomości form rodzaju *Grallaria* Vieill. [Contribution à la connaissance des formes du genre *Grallaria* Vieill.] Warszawa C.R. Soc. Sci. **11** 1918 (475-484) French resumé. **228**
- D'Ombraïn, A. F.** Bird notes from New South Wales. Emu Melbourne **17** 1918 (153-156). **229**
- Donald, C. H.** The occurrence of the Indian Pitta (*Pitta brachyura*) in the Kangra district, Punjab. Bombay J. Nat. Hist. Soc. **25** 1918 (497-499). **230**
- Donald, C. H.** The Birds of Prey of the Punjab. Bombay Journ. N.H. Soc. **26** 1918 (247-265). **231**
- Dorning, H.** Der wahrscheinliche Ursprung der Benennung Regenschwalbe. Aquila Budapest **23** 1917 (319-321 Magyar 513-515 German). **232**
- Dove, H. S. and Fletcher, J. A.** Tasmanian Notes. Emu Melbourne **17** 1918 (223-228). **233**
- Drevermann, F.** Die Moa. Frankfurt-a-M. Ber. Senck. Nat. Ges. **46** 1916 (1-5) 2 photos. **234**
- Dubois, R.** La vision des couleurs et le chromophrénisme chez les oiseaux. Rev. Fr. d'Orn. Paris **10** 1918 (265-266). **235**

Duerden, J. E. Some results of Ostrich investigations. Cape Town S. Afr. J. Sci. 15 1918 (247-284) 4 pls. 4 text-figs. 236

Dwight, J. A new species of Loon (*Gavia viridigularis*) from north-eastern Siberia. Auk Cambridge Mass. 35 1918 (196-199). 237

Dwight, J. The geographical distribution of colour and of other variable characters in the genus *Junco*: a new aspect of specific and subspecific values. New York Bull. Amer. Mus. 38 1918 (269-309) 3 pls. 5 maps. 238

Ekama, H. Het verblyf van enkele trekvogels in Nederland in 1917. [Das Verbleiben einiger Zugvögel in den Niederlanden im Jahre 1917.] Ardea Leiden 7 1918 (1-11). 239

Engholm, A. V. Ännu några ord om brunandhanarnes dräkter. Fauna och Flora Uppsala 13 1918 (46-48); also E. Lönnberg. 240

English, A. Gamet Colony [off south coast of Newfoundland]. Ottawa Nat. 32 1918 (98). 241

Evans, W. Early references to the bird life of the Isle of May. Scot. Nat. Edinburgh 1918 (49-58). 242

Fatio, V. et Studer, T. *vide* Burg.

Finch-Davies, O. G. On birds collected and observed in the districts of Okanjande and Outjo, S.W. African Protectorate. Pretoria S. Afr. J. Nat. Hist. 1 1918 (49-68). 243

Finnilä, C. Studier öfver fjällvråken (*Archibuteo lagopus*) i finska Lappland. Fauna och Flora Uppsala 11 1916 (167-172) 4 figs. 244

Finnilä, C. Ovanliga boplatser för säfsparfven i finska Lappland. Fauna och Flora Uppsala 12 1917 (212-215) textfigs. 245

Finnilä, C. Ett och varje om svartsnäppan (*Totanus fuscus* L.) i Lappland. [Über *Totanus fuscus* L. in Lappland.] Helsingfors F. Jakttidn. 11 1916 (207-211). 246

Finnilä, C. *Aquila pomarina* i Vasatrakten. [*Aquila pomarina* in der Gegend von Vasä.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (4 Deutsches Ref. 161). 247

Finnilä, C. *Totanus stagnatilis* Behst., en för Fennoskandia ny fågel. [*Totanus stagnatilis* Behst., neu für Fennoskandia.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (271-276 Deutsches Ref. 285). 248

Finnilä, C. Über das Vorkommen des nordischen Laubsängers (*Phylloscopus borealis* Blas.) im finnischen Lappland. Helsingfors Medd. Soc. Fauna et Fl. Fenn. 44 1918 (14-19) map. 249

Finnilä, C. Ornitologiska meddelanden. [Ornithologische Mitteilungen.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 44 1918 (119-120 Deutsches Ref. 250). 250

Finnilä, C. Isommasta lepinkäisestä (*Lanius excubitor* L.) Suomessa. [Lanius excubitor L. in Finland.] Helsinki Luonnon Ystävä 20 1916 (178-185) pl. 251

Finnilä, C. Keräjäkurmitsan (*Charadrius morinellus* L.) elintavoista ja pesimissuhteista. [Über die Lebensgewohnheiten und Nistverhältnisse bei *Charadrius morinellus*.] Helsinki Luonnon Ystävä 22 1918 (21-29) 2 figs. 252

Finnilä, C. Bidrag till kännedom om Tana-dalens fågelfauna. Tromsø Mus. Aarsh. 38 & 39 1918 (41-64) 2 photos. 253

Fisher, M. L. Bird Censuses. Proc. Indiana Acad. Sci. for 1916 1917 (467-469). 254

Fisher, M. L. The time birds get up in the morning. Proc. Indiana Acad. Sci. for 1916 1917 (470-471). 255

Fisher, W. K. In memoriam: Lyman Belding. Condor Hollywood Cal. 20 1918 (51-61) portr. 256

Fletcher, J. A. Bird notes from the Boat Harbour district, Tasmania. Emu Melbourne 18 1918 (96-101) 1 fig. 257

Fletcher, J. A. *vide* Dove.

Flower, S. S. and Nicoll, M. J. The principal species of birds protected by law in Egypt giving their English, French, Arabic and scientific names, their local status, their approximate size, and concise notes on their coloration, for purposes of identification. Cairo (Govt. Press) 1918 (1-8) 8 pls. Svo. 258

- Forbush, E. H.** The Heath Hen of Martha's Vineyard. Amer. Mus. J. New York 18 1918 (279-285) many photos. 259
- Forrest, H. E.** Birds, in Record of Bare Facts for the year 1917. Shrewsbury Rec. Caradoc F. Cl. No. 27 [1918] (14-21). 260
- Fourneau, E.** *vide* Delezenne.
- Fries, C.** Fjällvråk [*Buteo lagopus*] vid Tåkern vintertid. Fauna och Flora Uppsala 12 1917 (44-45). 261
- Fuye, M. de la.** Observations sur la Bondrée Apivore. Rev. Fr. d'Orn. Paris 10 1918 (328-329). 262
- Gabrielson, I. N.** A list of the birds observed in Clay and O'Brien counties, Iowa. Des Moines Proc. Iowa Acad. 24 1918 (259-272). 263
- Gadeau de Kerville, H.** Liste des oiseaux observés à l'état sauvage depuis une trentaine d'années dans son jardin à Rouen. Rouen Bull. Soc. Sci. Nat. 49 1915 (121-131). 264
- Gadeau de Kerville, H.** Observations relative à des mammifères s'accouplant avec des oiseaux. Rouen Bull. Soc. Sci. Nat. 50-51 1917 (215-232). 265
- Galloway, P. F. M.** Diseases of birds and their treatment and cure. Avicult. Mag. London 9 1918 (192-194 217-220). 266
- Gee, N. G. and Moffett, L. I.** A key to the birds of the lower Yangtse valley with popular descriptions of the species commonly seen (1-221 + i-xix). Shanghai (Shanghai Mercury) 1917 8vo. 267
- Gengler, J.** Der serbisch-mazedonische Kolkkrabe. Orn. Monatsber. Berlin 26 1918 (110). 268
- Ghidini, A.** Il *Tetrao medius* di Val di Blenio. Riv. Ital. Orn. Bologna 4 1918 (19-21) 2 pls. 269
- Ghidini, A.** Osservazioni sul Gabbiano reale. Riv. Ital. Orn. 4 1918 (22-24) 1 text-fig. 270
- Ghidini, A.** La Civetta minore (*Glaucidium passerinum*) nel bacino del Ticino. Riv. Ital. Orn. Bologna 4 1918 (24-25) photo. 271
- Gibson, E.** Further ornithological notes from the neighbourhood of Cape San Antonio, Province of Buenos Ayres. Part i. Passeres. Ibis London 1918 (363-415) 2 text-figs. 272
- Giersbergen, L. van** *vide* Kole.
- Giglio-Tos, E.** Elenco delle nuove forme o sottospecie italiane di Uccelli descritte fino al 31 Dicembre 1915. Torino Boll. Mus. Zool. Anat. Comp. 33 No. 727 1918 (1-8). 273
- Gladstone, H. S.** An ornithologist's field note-book (1-8). London (Bickers) 1918 8vo. 274
- Gladstone, J. S.** The photographic analysis of a feather. (1-13) 11 pls. London (Sotheran) 1918 4to. 275
- Gladstone, J. S.** A note on the structure of the feather. Ibis London 1918 (243-247) 3 pls. 276
- Godfrey, R.** The birds of Buffalo basin, Cape Province. Pretoria S. Afr. J. Nat. Hist. 1 1918 (73-82). 277
- Goelitz, W. A.** The destruction of nests by farming operations in Saskatchewan. Auk Cambridge Mass. 35 1918 (238-240). 278
- Goelitz, W. A.** The Shorteared Owl in Saskatchewan. Condor Hollywood Cal. 20 1918 (101-103) 1 photo. 279
- Goodale, H. D.** Internal factors influencing egg production in the Rhode Island Red breed of Domestic Fowl. Amer. Nat. Lancaster Pa. 52 1918 (65-94 209-232 301-321). 280
- Goodale, H. D.** Inheritance of winter egg production. Science New York 47 1918 (542-543). 281
- Goodale, H. D.** Gonadectomy in relation to the secondary sexual characters of some domestic birds. Washington D.C. Carnegie Inst. Publ. no. 243 1916 (1-52) 7 pls. 282
- Goodson, A. T.** *vide* Hartert.
- Gormley, A. L.** The Evening Grosbeak (*Hesperiphona vespertina*) at Arnprior, Ont. Ottawa Nat. Ottawa 32 1918 (19-20). 283
- Görnitz, K.** Beitrag zur Avifauna der Pripjet-Sümpfe. Orn. Monatsber. Berlin 26 1918 (129-134). 284

- Granvik, H. Bergfinkinvasjonen i Skåne [Sweden] vintern 1915-1916. Fauna och Flora Uppsala 11 1916 (49-62) 2 figs. 285
- Granvik, H. Trastlika vörsångaren (*Acrocephalus arundinaceus* L.) häckande i Sverige. Fauna och Flora Uppsala 13 1918 (134-143) 2 photos. 286
- Grassmann, W. Zwei Jahre Feldornithologie in den Rokitnosümpfen. Journ. Ornith. Leipzig 66 1918 (285-316). 287
- Green, F. W. E. *vide* Mottram.
- Greschik, E. Die Entstehung der keratinoiden Schicht in Muskelmagen der Vögel. Aquila Budapest 21 1915 (99-120) 1 pl. 288
- Greschik, E. Histologie des Darmkanals der Saatkrähe (*Corvus frugilegus* L.). Aquila Budapest 21 1915 (121-136) 1 pl 2 text-figs. 289
- Greschik, E. Dr. Otto le Roi, 1878-1915. Aquila Budapest 23 1917 (590-592). 290
- Greschik, E. Der Verdauungskanal der Rotbugamazone (*Androglossa aestiva* Lath.). Ein Beitrag zur Phylogenie der Ösophagealdrüsen der Vögel. Aquila Budapest 24 1918 (121-174) 6 figs. 291
- Grinnell, J. Concerning a certain tendency in systematic ornithology. Auk Cambridge Mass. 35 1918 (505-507). 292
- Grinnell, J. The subspecies of the Mountain Chickadee. Berkeley Cal. Univ. Publ. Zool. 17 1918 (505-515) 3 figs. 293
- Grinnell, J. The status of the White-rumped Petrels of the California Coast. Condor Hollywood Cal. 20 1918 (46). 294
- Grinnell, J. Seven new or noteworthy birds from east-central California. Condor Hollywood Cal. 20 1918 (86-90). [*Sitta*, *Hyllocichla*.] 295
- Grinnell, J. Extension of known distribution of some northern Californian birds. Condor Hollywood Cal. 20 1918 (190). 296
- Grinnell, J. Bird migration in its international bearing. Scientific Monthly 1918 (166-169). 297
- Grinnell, J., Bryant, H. C. and Storer, T. I. The Game Birds of California. Berkeley (Univ. California Press) (x + 642), 16 col. pls., 94 text-figs. 1918 8vo. 298
- Gudger, E. W. An old record of albino Turkey Buzzards. Science New York 47 1918 (315-316); also Oberholser p. 517. 299
- Guérin. Sur la vitescence de vol des oiseaux. Rev. Fr. d'Orn. Paris 10 1918 (304-305). 300
- Gurney, J. H. Articles on ornithology and ornithological reports for the County of Norfolk. [A bibliography.] [London] (Taylor & Francis) (1-8) 1918 8vo. 301
- Gurney, J. H. Ornithological notes from Norfolk for 1917. 24th annual report. Bt. Bds. London 11 1918 (246-258). 302
- Gutierrez, T. T. Informe relativo a la proteccion de las garzas blancas de la Republica Mexicana. Mexico Bol. Est. Biol. 2 1918 (326-328). 303
- Gyldenstolpe, N. Några ord om Siams fauna och naturförhållanden. Fauna och Flora Uppsala 13 1918 (22-36 49-74). 304
- Gylling, O. Blå kärnhök [*Circus cyaneus*] som öfvervintrar i Skåne. Fauna och Flora Uppsala 12 1917 (45). 305
- Gylling, O. Om färgen på bivrakens voxhud. Fauna och Flora Uppsala 12 1917 (235-236). 306
- Gyngell, W. Notes on the nesting, singing and some other habits of the common wild birds of the Scarborough district. Naturalist London 1918 (258-261 355-357). 307
- Hagen, W. Krabbentaucher (*Alle alle*) in der Ostsee. Orn. Monatsber. Berlin 26 1918 (71-72). 308
- Hagen, W. *Fringilla coelebs* L. als Herbstsänger. Orn. Monatsber. Berlin 26 1918 (89-92); also Hesse (117). 309
- Hagen, W. Es gibt nur ein deutsches Blässhuhn (*Fulica*). Orn. Monatsber. Berlin 26 1918 (134-135). 310
- Hall, Eleanor F. Notes on the nidification of the common Grey Hornbill (*Lophoceros birostris*). Bombay J. Nat. Hist. Soc. 25 1918 (503-505). 311

- Hammling, J.** Neuer Beitrag zur Kenntnis der Vogelwelt der Provinz Posen. Journ. Ornith. Leipzig **66** 1918 (1-42 191-219). **312**
- Hammling, J.** Ostern 1917 in Tütz in Westpreussen. Orn. Monatsber. Berlin **26** 1918 (77-79). **313**
- Hannerz, D. E.** Missbildad kråka. Fauna och Flora Uppsala **13** 1918 (190-191). **314**
- Hanson, H. E.** *vide* Squires.
- Hardy, W. B.** Flights of Rooks and Starlings. Nature London **100** 1918 (464). **315**
- Harlow, R. C.** Notes on the breeding birds of Pennsylvania and New Jersey. Auk Cambridge Mass. **35** 1918 (18-29 136-147). **316**
- Harper, F.** White-winged Dove (*Melopelia a. asiatica*) in Georgia. Auk Cambridge Mass. **35** 1918 (76-77). **317**
- Harris, H.** Uncoloured prints from Havell's engravings of Audubon's "Birds of America." Auk Cambridge Mass. **35** 1918 (29-32) 2 pls. **318**
- Harrison, J. M.** Bird notes from Macedonia. Bt. Bds. London **12** 1918 (14-18). **319**
- Hartert, E.** Notes on various species of *Rhipidura*. London Bull. Brit. Orn. Cl. **38** 1918 (58-60). **320**
- Hartert, E.** Description of a new subspecies of *Oriolus*. London Bull. Brit. Orn. Cl. **38** 1918 (63-64). **321**
- Hartert, E.** Review of the subspecies of *Dicaeum trigonostigma*. London Bull. Brit. Orn. Cl. **38** 1918 (73-75). **322**
- Hartert, E.** *Oriolus luteolus*, the oldest name for the Indian Black-headed Oriole. London Bull. Brit. Orn. Cl. **38** 1918 (75). **323**
- Hartert, E.** Description of *Phoenicurus frontalis sinæ*. London Bull. Brit. Orn. Cl. **38** 1918 (78). **324**
- Hartert, E.** *Corvus rhipidurus* nom. n. proposed for *C. affinis* Rüpp. preoccupied. London Bull., Brit. Orn. Cl. **39** 1918 (21). **325**
- Hartert, E.** Types of birds in the Tring Museum. A. Types in the Brehm collection. Nov. Zool. Tring **25** 1918 (4-63). **326**
- Hartert, E.** On the genus *Calandrella*. Nov. Zool. Tring **25** 1918 (90-92). **327**
- Hartert, E.** Notes on Penduline Tits. Nov. Zool. Tring **25** 1918 (305-309). **328**
- Hartert, E.** Notes on Starlings. Nov. Zool. Tring **25** 1918 (327-337). **329**
- Hartert, E.** Some nomenclatorial notes. An overlooked publication. Nov. Zool. Tring **25** 1918 (359-365). **330**
- Hartert, E.** A new race of Long-tailed Titmouse. Nov. Zool. Tring **25** 1918 (429). **331**
- Hartert, E.** *Garrulus bispecularis* and its allies, with list of all forms of *Garrulus*. Nov. Zool. Tring **25** 1918 (430-433). **332**
- Hartert, E.** Further notes on Pigeons. Nov. Zool. Tring **25** 1918 (434-436). **333**
- Hartert, E.,** *vide* Rothschild.
- Hartert, E.,** *vide* Sclater.
- Hartert, E. and Goodson, A. T.** Notes on Pigeons. Nov. Zool. Tring **25** 1918 (346-358). **334**
- Harting, J. E.** Modern methods in nomenclature. Ibis London **1918** (334-338 524-525) also Jourdain *ibid* (526-528). **335**
- Haviland, M. D.** Notes on the autumn migration at Odessa in 1917. Bt. Bds. London **12** 1918 (83-86). **336**
- Haviland, M. D.** Notes on some birds of the Bessarabian Steppe. Ibis London **1918** (288-291). **337**
- Hawkins, C. J.** Sexual selection and bird song. Auk Cambridge Mass. **35** 1918 (421-437). **338**
- Heaman, M. T.** Abnormalities in the Chick embryo. Science New York **48** 1918 (476). **339**
- Heeckeren, L. van.** Iets over de Javaansche boomgierzwaluw (*Cypselus klecho* or *longipennis*). Jaarber. Nederl. Vogelk. Devontor **8** 1918 (57-59). 1 fig. **340**
- Hedeby, A.** Sydlig häckningsplats för rüdvingoträtsen. Fauna och Flora Uppsala **13** 1918 (92). **341**
- Hedeby, A.** Gransåugarens utbredning under häckningstiden. Fauna och Flora Uppsala **13** 1918 (169-174). **342**

- Hegyfoky, J.** Vogelzug und Wetter im Frühling des Jahres 1913. *Aquila* Budapest 21 1915 (188-191). 343
- Hegyfoky, J.** Der Frühlingsvogelzug in den Landes-gegenen in Zeitraume 1899-1916. *Aquila* Budapest 24 1918 (107-113) Magyar and German. 344
- Heikertinger, F.** Der Geschmackssin der Vögel und die Wirksamkeit der ehemischen Schutzmittel. *Biol. Centralb.* Leipzig 35 1915 (267-281). 345
- Heinroth.** Über des Genus *Dendrocycna*. *Journ. Ornith.* Leipzig 66 1918 (241-244). 346
- Heintze, A.** Om bipolära växter och deras vandrings. *Fauna och Flora Uppsala* 13 1918 (145-161). 347
- Heifer, H.** Vogelbeobachtungen im Frühling. *Zool. Anz.* Leipzig 49 1917 (214-220). 348
- Hellmayr, C. E.** *Miscellanea Ornithologica* iii. München Verhandl. Orn. Ges. 13 1918 (302-317). [*Rhodinocichla*, *Leptopogon*, *Pitta*, *Chloronerpes*, *Ventilornis*.] 349
- Helms, O.** Fuglene ved Nakkebjøllefjord. The bird-fauna in the environs of the firth of Nakkebjølle, Funen. *Kjøbenhavn Ornith. Tids.* 12 1918 (77-156). 31 figg. 350
- H[elms], O.** Carl Finnilä. *Kjøbenhavn Dansk Orn. Tids.* 12 1918 (157). 351
- Hens, P. A.** Aanteekeningen omtrent de avifauna van het Geuldal. *Jaarb. Nederl. Vogelk. Deventer* 8 1918 (76-85). 352
- Heringa, G. C.** Le développement des corpuscules de Grandry et de Herbst. *Haarlem. Arch. Neerl. Sci. Soc. Holl. Ser. IIIB.* 3 1917 (235-315) 6 pls. 352a
- Herrera, A. L.** Las riquozos naturales de Mexico. *Mexico Bol. dir. Est. Biol.* 2 1917 (241-244). 353
- Herrick, F. H.** Audubon the naturalist: A history of his life and times. 2 vols. illustr. (xi + 451 and xiii + 494). *New York (Appleton)* 1917 8vo. 354
- Heumen, J. J. L. van.** Verslag van krop- en maagonderzoekingen bij de Wondduif (*Columba palumbus* L.), de Torteldouif (*Turtur turtur* L.), den Fazant (*Phasianus colchicus*). *Ardea Leiden* 7 1918 (19-59, 143-171). 355
- Hess, A.** Der Rosenstar (*Pastor roseus*) in der Schweiz. *Orn. Monatsb.* Berlin 26 1918 (27-29). 356
- Hess, C.** Der Farbensinn der Vögel und die Lehre von den Schmuckfarben. *Arch. ges. Physiol.* Bonn. 166 1917 (381-426). 3 figs. 357
- Hesse, E.** Ueber den Namen *Columba pallida* Latham. *Berlin Mitt. Zool. Mus.* Berlin 8 1916 (311-312). 358
- Hesse, E.** Wieder ein trommelnder Grünspecht. *Orn. Monatsb.* Berlin 26 1918 (113-115). 359
- Hesse, E.** *vide* Hagen.
- Hesse, E.** *vide* Schlegel.
- Hildebrandt, H.** Beitrag zur Ornithologie Ostthüringens. *Altenburg Mitt. Osterrlande* 16 1919 (1-83). 360
- Hildén, T.** Räsälän seudun linnusto. [Die Vogelfauna im Kirchspiel Räsälä, Finland] *Helsingfors Medd. Soc. Fauna et Fl. Fenn.* 44 1918 (82-96, Deutsches Ref. 250). 361
- Hildén, T.** Erään lehtometsän linnusto. [Die Vögel eines laubwaldes in Finland.] *Helsinki Luonnon Ystävä* 20 1916 (167-173). 362
- Hoffmann, B.** Einige Bemerkungen und Ergänzungen zu Heyder's "Ornis Saxonica." *Journ. Ornith.* Leipzig 66 1918 (317-324). 363
- Holleman, R.** *vide* Quillin.
- Hollister, N.** The Yellow Rail [*Coturnicops novaeboracensis*] in the District of Columbia. *Proc. Biol. Soc. Washington* 31 1918 (93). 364
- Holt, E. G.** Birds and Mulberries. *Auk Cambridge Mass.* 35 1918 (359-360). 365
- Hopkinson, E.** Sunbirds in captivity: past, present and future. *Avicult. Mag.* London 9 1918 (153-156). 366
- Hopkinson, E.** The Pigeons of the Gambia. *Avicult. Mag.* London 10 1918 (24-38). 367
- Hopkinson, E.** Index-list of the coloured plates in the *Ibis* 1859 to 1917. *Ibis London* 1918 (10-51). 368
- Hopkinson, J.** Report on the phenological observations in Hertfordshire in the year 1916. *Watford (St. Albans) Trans. Herts. Nat. Hist. F. Cl.* 17 1918 (47-52). 369

- Hørring, R.** Fuglene ved de danske Fyr i 1916. 34te Aarsberetning om danske Fugle. The birds at the Danish lighthouses in the year 1916. 34th annual report. København Nath. Medd. 69 1918 (97-152). 370
- Horsbrugh, C. B.** Further notes on birds observed at Alix, Buffalo Lake and Red Deer in the Province of Alberta Canada, in 1915 and 1916. Ibis London 1918 (477-496). 371
- Hortling, T.** Spridda anteckningar om några vinterfåglar. [Notizen über einige Wintervögel.] Helsingfors F. Jakttidn 11 1916 (124-129). 372
- Houten, P. W. van.** Ornithologische waarnemingen op het eiland Rozenburg, loopende van 17 October 1916—12 April, 1917. [Ornithologische Beobachtungen auf der Insel Rozenburg laufend vom 17 October 1916 bis zum 12 April, 1917.] Ardea, Leiden, 7 1918 (115-120). 373
- Howe, F. E.** Description of a new subspecies of *Hylacola pyrrhopygia* (Vig. and Hors.). Emu Melbourne 18 1918 (59). 374
- Howell, A. H.** A Crested Flycatcher (*Myiarchus crinitus*) injured by swallowing a grasshopper. Auk Cambridge Mass. 35 1918 (354-355). 375
- Høyer, J.** Hvorledes bliver Gøgeungen ene i Reden I How does the young Cuckoo become alone in the nest? København, Naturens Verden 2 1918 (160-169) 4 figs. 376
- Hnbbs, C. L.** The distribution of Nuttall's Sparrow in California. Auk Cambridge Mass. 35 1918 (321-326). 377
- Hull, A. F. B.** On the occurrence of the Crested Penguin (*Eudyptes chrysolome*) in Australia, with notes on its range and on the history of its original discovery. Sydney Rec. Austral. Mus. 12 1918 (71-80) 2 pls. 378
- Ibath, Alle alle** an der pommersehen Küste erlegt. Orn. Monatsber. Berlin 26 1918 (29-30). 379
- Ibath, A.** Aus der Danziger Umgegend, Wintergäste und Vogelzug. Orn. Monatsber. 26 1918 (92-93). 380  
(N-5464 g)
- Inglis, C. M.** Some notes on the Burmese Peafowl (*Pavo muticus*) in confinement. Bombay J. Nat. Hist. Soc. 25 1918 (500-502). 381
- Inglis, C. M.** Note on Kalij Pheasant, especially on a specimen from the Goalpara district, Assam. Bombay J. Nat. Hist. Soc. 25 1918 (505-507). 382
- Inglis, C. M.** An addition to the Game Birds of Burma. The Long-billed Hill Partridge (*Rhizothera longirostris* Temm.) in Tenasserim. Bombay Jour. N.H. Soc. 26 1918 (291-292). 383
- Iredale, T.** *vide* Mathews.
- Ireland, S. G. de C.** Nidification of the Lesser or Common Whistling Teal (*Dendrocygna javanica*) and Bonelli's Eagle (*Hieraëtus fasciatus*). Bombay J. Nat. Hist. Soc. 25 1918 (499-500). 384
- Jablons, B.** Recherches sur le sarcome du poulet. Paris C.R. Soc. Biol. 81 1918 (327-328). 385
- Jackson, A. C.** The moults and sequence of plumages of the British Waders. Brit. Bds. London 11 1918 (177-182 228-230) 12 1918 (4-13 39-41 104-113 146-151). 386
- Jackson, A. C.** Notes on the relation between moult and migration as observed in some Waders. Brit. Bds. London 11 1918 (197-203). 387
- Jackson, A. C.** The nest-down of some British Ducks. A correction. Brit. Bds. London 12 1918 (98-100). 388
- Jensen, J. K.** Notes on the nesting birds of Wahpeton, North Dakota. Auk Cambridge Mass. 35 1918 (344-349). 389
- Johnson, C. E.** The branchial derivatives of the Pied-billed Grebe, with special consideration of the origin of the post branchial body. Journ. Morph. Philadelphia 31 1918 (25-37) 13 figs. 390
- Johnson, C. E.** The origin of the ultimobranchial body and its relation to the fifth pouch in birds. Journ. Morph. Philadelphia 31 1918 (583-597) 2 pls, 2 figs. 391
- Jones, K. H.** The Fulmar Petrel Avicult. Mag. London 10 1918 (2-4). 392

- Jordans, A. v. vide Kleinschmidt.**
- Jourdain, F. C. R.** Absence of Fieldfares in winter, 1917-1918. *Bt. Bds. London* 11 1918 (231-232 261-262 280-281). 393
- Jourdain, F. C. R.** The first nesting record of the Great Skua in the Orkneys. *Bt. Bds. London* 12 1918 (50-52). 394
- J[ourdain], F. C. R. L. Beresford Mouritz.** *Bt. Bds. London* 12 1918 (144). 395
- Jourdain, F. C. R.** Belted Kingfisher in Cornwall. *Bt. Bds. London* 12 1918 (160-161). 396
- Jourdain, F. C. R.** On the breeding of the Honey Buzzard in Essex. *Essex Nat. xviii* 1918 (238-240). 1 fig. 397
- Jourdain, F. C. R.** Ornithology of Malta. *Ibis London* 1918 (173-174). 398
- Jourdain, F. R. C.** Ornithological Report, 1915-17 (Oxfordshire). *Oxford Rep. Ashmolean Nat. Hist. Soc. for* 1917 1918 (13-15). 399
- Jourdain, F. C. R.** Critical notes on Staffordshire ornithology. *Stafford Trans. N. Staffs. F. Cl.* 52 1918 (97-101). 400
- Jourdain, F. R. C. vide Harting.**
- Jourdain, F. C. R. and Witherby, H. F.** The effect of the winter of 1916-1917 on our resident birds. *Bt. Bds. London* 11 1918 (266-271) 12 1918 (26-35). 401
- K. Ung. Orn. Centr.** Vogelzugdaten aus Ungarn. *Aquila Budapest* 24 1918 (241-261) Magyar and German. 402
- Kalmbach, E. R.** The Crow and its relation to man. *Washington U.S. Dept. Agr. Bull. No.* 621 1918 (1-92) 1 pl. 403
- Kawaguchi, M.** Tsubame hanshoku no keika. [Breeding process of *Hirundo rustica gutturalis*.] *Dobuts. Z., Tokyo* 30 1918 (385-387). 404
- Kayser, C.** Über die Formen des Baumläufers, *Certhia familiaris* L. *Orn. Monatsber. Berlin* 26 1918 (81-85) also **Laubmann, A.** (136-139). 405
- Kennard, F. H.** Ferruginous stains on Waterfowl. *Auk Cambridge Mass.* 35 1918 (123-132). 406
- Kerr, H. M. R.** Field notes on the Kingfisher. *Bt. Bds. London* 12 1918 (36-38). 407
- Kershaw, J. A.** Australian Green-backed Finch (*Erythrura trichroa macgillivrayi*). *Emu Melbourne* 18 1918 (1) pl. 1. 408
- Kihlén, G.** Fynd ar sällsynta fåglar (*Pastor roseus*) [Sweden] *Fauna och Flora Uppsala* 11 1916 (238). 409
- Kihlén, G.** Till frågan om alfågeln ruggningar och hafstrutens häkning vid sölvattnen. *Fauna och Flora Uppsala* 12 1917 (229-230); also *Lönningberg* (230-231). 410
- Kleinschmidt, O.** Realgaltung *Falco Peregrinus*. Eine Monographie des Wanderfalken, und zugleich eine Studie über das Wesen der Rasse in freier Natur (Ports.) *Berajah Halle* 1914 (15-22), 1915 (23-30) 1916 (31-46) 1917 (47-54) 1918 (55-62) pls. xix-xxxv. 411
- Kleinschmidt, O.** Die wissenschaftliche Minderwertigkeit von Darwins Werk über die Entstehung der Arten. *Falco Halle* 11 1915 (1-6 11-18); 12 1916 (5-9); 13 1917 (11-20 21-32 36-42); 14 1918 (2-3). 412
- Kleinschmidt, O.** *Strix hostilis* form. nov. *Falco Halle* 11 1915 (18-19). 413
- Kleinschmidt, O.** *Passer hostilis* form. nov. *Falco Halle* 11 1915 (19). 414
- Kleinschmidt, O.** Erinnerungen an Graf Hans von Berlepsch. † am 27 Februar 1915. *Falco Halle* 11 1915 (22-33) portr. 415
- Kleinschmidt, O.** Sprachreinigung. Ein Auszug aus Blumenbachs Vorrede. *Falco Halle* 12 1916 (2-4). 416
- Kleinschmidt, O.** Einiges über Vögel der von uns besetzten feindlichen Gebiete. *Falco Halle* 12 1916 (9-16). [*Picus, Motacilla, Eritacus*]. 417
- Kleinschmidt, O.** Über die Kriegssammlung der Herren Baumeister, Schlüter, Rüdiger, Dennler u.a. *Falco Halle* 13 1917 (20-24). [*Pica, Lanius Accipiter*.] 418
- [**Kleinschmidt, O.**] Nomenklatorisches. Was ist *Falco rusticolus* L.? *Falco Halle* 12 1916 (48) 1 pl. 419



- Kleinschmidt, O.** Nomenclatorisches und Systematisches. Falco Halle 13 1917 (6-10). [*Falco.*] 420
- Kleinschmidt, O.** Beweis das Linnés "*Corvus corone*" tatsächlich eine junge Saatkrähe und nicht eine Rabenkrähe war. Falco Halle 13 1917 (17-21). 421
- Kleinschmidt, O.** Gilt *Corvus corone* für alle europäischen Rabenkrähen? Falco Halle 13 1917 (33-36) 14 1918 (6). 422
- Kleinschmidt, O.** Orn. Germanica. Beilage zu Falco (1-10). Halle Mai 1917 8vo 2d. ed. (1-10) Marz 1918 8vo. 423
- Kleinschmidt, O.,** *vide* Baemeister.
- Kleinschmidt, O. u. Jordans, A. v.** *Parus Salicarius subrhenanus* forma nova. Falco Halle 12 1916 (17). 424
- Klinge, M.** Fuglelivet i Randers Fjorddal. The birdlife in the environs of the firth of Randers. København, Randers Fjords Naturhistorie 1918 (475-520) 8 figs. 425
- Kloss, C. B.** On birds recently collected in Siam. Part i. Phasianidae. Eurylaemidae. Part ii. Passeres. Ibis London 1919 (76-114 189-233 518-519). 426
- Kloss, C. B.** *vide* Baker.
- Kloss, C. B.** *vide* Robinson.
- Kole, C. J.** on Giersbergen, L. van. Over ballen van kraaivogels. (Corvidae.) [Ueber Bälle von Krähenvögeln.] Ardea Leiden 7 1918 (93-98). 427
- Kooiman, H. N.** Over de beteekenis van het kruisen van individuen, behoorend tot verschillende Linné'sche soorten, voor het ontstaan onzer huisdieren. [Ueber die Bedeutung der Kreuzung von zu verschiedenen Linné'schen Arten gehörigen Individuen, für das Entstehen unserer Haustiere. Ardea Leiden 7 1918 (108-114). 428
- Koske, F.** Wanderdrossel (*Turdus migratorius*) in Pommern erlegt. Orn. Monatsb. Berlin 26 1918 (15). 429
- Kostka, L.** Der Einfluss des hohen Wasserstandes auf die Vogelfauna der ungarischen Tiefebene. Aquila Budapest 23 1917 (317-318 Magyar 511-512 German). 430
- Kristensen, K.** Ornithologiske Optegnelser fra Uldum-Egnen og nærmest tilstødende Egne tilligemed lidt Fuglebiologi. Notes on the birds in the environs of Uldum (Jutland). København Flora og Fauna 1918 (27-32 52-63 94-96 125-128 to be continued). 431
- Krüß, P.** Berichte über die Vogelberingungsversuche in den Jahren 1913 bis 1916 und über den vogelzug auf Helgoland in den Jahren 1914 bis 1917. Aus der Vogelwarte der Kgl. biologischen Anstalt auf Helgoland. Journ. Ornith. Leipzig. Sonderheft 1918 1918. (1-84). 432
- Küenzi, W.** Versuch einer systematischen Morphologie des Gehirns der Vögel. Rev. Suisse de Zool. 26 1918 (17-111). 7. pls. 433
- Kuroda, N.** Notes on Corcan and Manchurian Birds. Annot. Zool. Jap. Tokyo 9 1918 (495-573). 434
- Kuroda, N.** Chōsen san chorui tsuika. [Additions to the avifauna of Corea.] Dobuts. Z. Tokyo 30 1918 (289-292). 435
- Kuroda, N.** Izu schichito san chorui ni tsuite. [On the birds of the Seven Islands of Izu.] Dobuts. Z. Tokyo 30 1918 (313-321). 436
- Kuroda, N.** Description of a new subspecies of *Parus varius* from Nijijima, one of the Seven Islands of Idzu. Dobuts. Z. Zool. Tokio 30 1918 (322-323). 437
- Kuroda, N.** Nippon san kiji-yamadori rui no ehiloteki shurui ni tsuite. [On the local forms of Japanese pheasants.] Dobuts. Z. Tokyo 30 1918 (364-368). 438
- Lakjer, T.** Fredning af Fugle. The protection of the birds. General remarks. København Naturens Verden 2 1918 (385-408) 6 figs. 439
- Lambert, G. C.** Note on an unusual plumage in the Continental Jay (*Garrulus glandarius*). London Bull. Brit. Orn. Cl. 38 1918 (61). 440
- Lambrecht, K.** Morphologie des Mittelhandknochens. Os metacarp. der Vögel. Aquila Budapest 21 1914 (53-84). 1 pl. 5 text figs. 441

- Lambrecht, K.** Fossiler Bartgeier, *Gypaëtus barbatus* und gemeiner Seeadler *Haliaëtus albicilla* L. im Borsoder Bükk-Gebirge. *Aquila* Budapest **21** 1915 (85-88). 442
- Lambrecht, K.** Pleistocene Vogel-fauna des Felsnische Remetehegy. *Aquila* Budapest **21** 1915 (89-98). 443
- Lambrecht, K.** Geschichte und Bibliographie der Palaeo-ornithologie. *Aquila* Budapest **23** 1917 (196-307 Magyar; 483-501 German). 444
- Lambrecht, K.** Die Ausbildung und Geschichte der europäischen Vögelwelt. *Aquila* Budapest **24** 1918 (191-221) Magyar and German. 445
- Lang, H. and Chapin, J. P.** Nesting habits of the African Hornbill (*Ceratogymna atrata*). *Amer. Mus. Jour. New York* **18** 1918 (271-277). Many photos. 446
- Latacq.** Note sur un Aigle Pygargue (*Aquila albicilla* Briss.) tué dans les bois de Cisai-Saint-Aubin (Orne). *Rouen Bull. Soc. Sci. Nat.* **49** 1915 (9-12). 447
- Latacq.** Note sur un nid d'Aigle Botté (*Aquila pennata* Cuv.) trouvé dans les bois de Sassy (Orne). *Rouen Bull. Soc. Sci. Nat.* **49** 1915 (18-20). 448
- Latacq.** Le Jaseur de Bohême (*Bombicilla garrulus* L.) dans les bois du Pin-au-Haras (Orne). *Rouen Bull. Soc. Sci. Nat.* **50-1** 1917 (17-18). 449
- Laubmann, A.** Die geographische Variation des Formenkreises *Corvus cornix*. *München Verhandl. Orn. Ges.* **13** 1918 (211-220). 450
- Laubmann, A.** Zum Vorkommen der Felsenschwalbe (*Riparia rupestris rupestris* (Scop.)) am Falkenstein bei Pfronten. *München Verhandl. Orn. Ges.* **13** 1918 (221-224). 451
- Laubmann, A.** Christian Daniel Erdt. Ein Nachruf, *München Verhandl. Orn. Ges.* **13** 1918 (363-366). 452
- Laubmann, A.** *vide* Kayser.
- Lavauden, L. and Mourgue, M.** Contribution a l'étude du Thalassidrome Tempête dans la Méditerranée. *Rev. Tr. d'Orn. Paris* **10** 1918 (305-309) map. 453
- Lawrence, S. A.,** *vide* Littlejohns.
- Lebedinsky, N. G.** Untersuchungen sur Morphologie und Entwicklungsgeschichte des Unterkiefers der Vögel. Zugleich ein Beitrag zur Kenntnis der Einflusses der Aussenwelt auf den Organismus. *Rev. Suisse de Zool.* **26** 1918 (129-146) 6 figs. 454
- Lebedinsky, N. G.** Über den einfluss der Ernährungsweise auf die allgemeine Form des Unterkiefers der Vögel. *Zool. Anz. Leipzig* **50** 1918 (36-41). 455
- Leigh, A. G.** The Hooded Crow (*Corvus c. cornix*) in Warwickshire. *Bt. Bds. London* **11** 1918 (183-184). 456
- Leigh, A. G.** The Redshank in Warwickshire. *Bt. Bds. London* **12** 1918 (101-103). 457
- Le Souëf, D.** Queensland notes. *Emu Melbourne* **18** 1918 (43-49) 2 photos. 458
- Le Souëf, D.** Food of Diurnal Birds of Prey. *Emu Melbourne* **18** 1918 (88-95) photos. 459
- Levander, K. M.** Till revidering af gällande jaktförordning. I. Om roffåglarnas ställning i gällande jaktförordning och om deras fredande. [Zur Revision der geltenden Jagdverordnung. I. Über die Stellung der Raubvögel in der Verordnung und deren Bedarf von Schutz]. *Helsingfors Medd. Soc. Fauna et Fl. Fenn.* **42** 1916 (62-83 Deutsches Ref. 160-161). 460
- Levander, K. M.,** *vide* Palmgren, R.
- Lincoln, F. C.** Notes on some species new to the Colorado list of birds. *Auk Cambridge Mass.* **35** 1918 (236-237). 461
- Lincoln, F. C.** The Woodpeckers of Colorado. *Denver Colorado Mt. Club Publ. No. 5* 1917 (1-22). 462
- Lincoln, F. C.** *vide* Bergtold.
- Lindfors, A.** Ornitologiska notiser från Korsnäs [Ornithologische Notizen aus Korsnäs, Finland]. *Helsingfors Medd. Soc. Fauna et Fl. Fenn.* **44** 1918 (76-82 Deutsches Ref. 249-250). 463
- Lindquist, A.** Trädilärkor [*Alauda arborea*] öfvervintrande på Öland. *Fauna och Flora Uppsala* **12** 1917 (44). 464

- Lindquist, A. Beskrifning öfver en egendomligt färgad fas-antupp. Fauna och Flora Uppsala 12 1917 (87-88). 465
- Lintia, D. Materialien zur Avifauna Serbiens. Aquila Budapest 22 1916 (330-332 Magyar; 332-351 German); 23 1917 (74-162 Magyar and German). 466
- Lippincott, W. A. The case of the Blue Andalusian. Amer. Nat. Lancaster Pa. 52 1918 (95-115). 467
- Littlejohns, R. T. and Lawrence, S. A. Notes on the White-browed Wood Swallow (*Artamus superciliosus*). Avicult. Mag. London 9 1918 (79-83) photo. 468
- Littlejohns, R. T. and Lawrence, S. A. Notes on the Coachwhip-bird (*Psophodes crepitans*). Emu Melbourne 17 1918 (232-234) photos. 469
- Lletget, A. G. La *Gallinula chloropus* de Filipinas. Madrid Bol. Soc. Esp. Hist. Nat. 18 1918 (75-77) 2 text-figs. 470
- Lletget, A. G. Dos Passeres nuevos de la colección de la expedición al Pacifico. Madrid Boll. Soc. Esp. Hist. Nat. 18 1918 (340-341). 471
- Lloyd, H. The extraction of fat from bird-skins. Auk Cambridge Mass. 35 1918 (164-169) 1 text-fig. 472
- Lomont. Histoire naturelle des oiseaux de Lorraine. Rev. Fr. d'Orn. Paris 10 1918 (196-197 206-207). 473
- Long, S. H. and others. The food of the Rook. Nature London 101 1918 (304 325-326). 474
- Lönnberg, E. *Loxia hordacea* Linné 1758 is identical with *Euplectes flammiceps* Swainson 1837. Ark. Zool. Stockholm 12 No. 3 1918 (1-5). 475
- Lönnberg, E. Tiu frågan om dufhöks-traserna. Fauna och Flora Uppsala 11 1916 (209-212) 3 figs. 476
- L[önnberg], E. Ännu några ord om storckrakens drakter. Fauna och Flora Uppsala 11 1916 (265-268). 477
- Lönnberg, E. Några intressanta torfmossfynd från Skåne. Fauna och Flora Uppsala 12 1917 (14-20) figs. 478
- Lönnberg, E. Kråkornas vanor att uppsöka gemensamma soflatser. Fauna och Flora Uppsala 12 1917 (85-86). 479
- Lönnberg, E. Pilfinkens (*Passer montanus*) utbredning. Fauna och Flora Uppsala 12 1917 (262-264). 480
- Lönnberg, E. En bastard mellan hämpling, ♂, och grösiska, ♀. Fauna och Flora Uppsala 13 1918 (87-88). 481
- L[önnberg], E. En egendomlig honstbastard. Fauna och Flora Uppsala 13 1918 (128-133) fig. 482
- L[önnberg], E. Ringdufva märkt på Gottland återfunnen i Portugal. Fauna och Flora Uppsala 13 1918 (281-283). 483
- Lönnberg, E. Notes sur quelques oiseaux intéressants de l'Afrique orientale anglaise. Rev. Zool. Afr. Bruxelles 5 1917 (97-102) [*Astur*, *Zosterops*]. 484
- Lönnfors, F. Bruna kärnhöken, *Circus aeruginosus* (L.). [*Circus aeruginosus* (L.)]. Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (36-37 Deutsches Ref. 283). 485
- Loomis, L. M. A review of the Albatrosses, Petrels, and Diving Petrels. San Francisco Proc. Cal. Acad. Sci. (4) 2 pt. ii No. 12 1918 (1-187) 17 pls. 486
- Loos, K. Ornithologische Erscheinungen im Herbste 1913 in Böhmen. Aquila Budapest 23 1917 (541-543). 487
- Lopez-Neyra, C. M. R. Sur un nouveau *Cyrnea* de la Perdrix. Paris C.R. Acad. Sci. 166 1918 (79-82). 488
- Lord, C. E. A descriptive list of the birds of Tasmania and adjacent islands. (1-48) 1 photo.. Holbart (Walch) 1917 12 mo. 489
- Lord, C. E. On the occurrence of the Australian Roller (*Eurystomus pacificus*) in Tasmania. Emu Melbourne 18 1918 (136). 490
- Low, G. E. Puffins on the Saltee Islands. Avicult. Mag. London 9 1918 (241-243) photo. 491
- Lucanus. Waldhühnerbastarde und ihre Abänderungen. Journ. Ornith. Leipzig 66 1918 (338-340). 492

- McAtee, W. L.** Cause of the "fishy" flavour of the flesh of Wild Ducks. Auk Cambridge Mass. 35 1918 (474-476). 493
- McAtee, W. L.** A sketch of the Natural History of the District of Columbia, etc., etc. Washington Bull. Biol. Soc. No. 1 1918 (1-142) map. 494
- McAtee, W. L.** Attracting birds to public and semi-public reservations. Washington U.S. Dept. Agr. Bull. No. 175 1918 (1-12). 495
- McAtee, W. L.** Food habits of the Mallard Ducks of the United States. Washington D.C. U.S. Dept. Agr. Bull. No. 720 1918 (1-35) 1 pl. 496
- Macdonald, D.** Swans on Possil Marsh. Scot. Nat. Edinburgh 1918 (102). 497
- Macgillivray, W.** Ornithologists in North Queensland. Pt. II. Emu Melbourne 17 1918 (145-148 212). 498
- McGregor, R. C.** New or noteworthy Philippine birds ii. Philippine J. Sci. Manila P. 1. 13D 1918 (1-18) 3 pls. 10 text-figs. 499
- Macintyre, D.** Some new facts about grit. Brit. Bds. London 12 1918 (2-3). 500
- Macintyre, D.** Heather and grouse disease. Bt. Bds. London 12 1918 (53-60). 501
- Mackenzie, J. M. D.** Some further notes on Cuckoos in Maymyo. Bombay J. Nat. Hist. Soc. 25 1918 (742-745). 502
- Mackenzie, J. D. M.** A few notes on the nests and eggs of some of the Burmese Scimitar Babblers. Bombay J. Nat. Hist. Soc. 25 1918 (748-750). 503
- Mackenzie, O. H.** Vanishing birds and birds that have already vanished, on the west coast of Ross-shire. Scot. Nat. Edinburgh 1918 (31-34). 504
- Mackworth-Præd, C.** *vide* Selater.
- Macnamara, C.** The Chimney Swift. Ottawa Nat. 32 1918 (39-42). 3 photos. 505
- M'William, J. M.** Notes on some of the birds of Buto, including records of their passage to the mainland. Scot. Nat. Edinburgh 1918 (25 29). 506
- Madarasz, J. v.** A contribution to the ornithology of the eastern Sudan. Budapest Ann. Mus. Nat. Hung. 12 1914 (558-604) 1 pl. 507
- Madarasz, J. v.** A contribution to the ornithology of the Danakil-land. Budapest Ann. Mus. Nat. Hung. 13 1915 (277-300) 1 pl. 508
- Madarasz, J. v.** Neue Vogelarten aus Afrika. Budapest Ann. Mus. Nat. 13 1915 (393-395). [*Vinago, Francolinus, Cursorius, Caprimulgus, Sporopipes. Lagonosticta, Emberiza, Campephaga.*] 509
- Magrath, H. A. F.** Crows in Busrah. Bombay J. Nat. Hist. Soc. 25 1918 (741). 510
- Mahood, A. E.** Banffshire Birds. Scot. Nat. Edinburgh 1918 (239-242). 511
- Mailliard, J.** Early autumn birds in Yosemite valley. Condor Hollywood Cal. 20 1918 (11-19). 512
- Mailliard, J.** The Yolla Bolly Fox Sparrow. Condor Hollywood Cal. 20 1918 (138-139). 513
- Mailliard, J.** New records for some of the islands off the coast of southern California. Condor Hollywood Cal. 20 1918 (189-190). 514
- Mannsberg, H. B.** Ornithologische Beobachtungen aus Dalmation im April-September 1916. Aquila Budapest 23 1917 (333-340 Magyar 528-536 German). 515
- Marelli, C. A.** Aves de Curuzu Cuatia (Corrientes). El Hornero Buenos Aires 1 1918 (74-80). 516
- Masefield, J. R. B.** Reports of sections. Aves. Stafford Trans. N. Staffs. F. Cl. 52 1918 (112-115). 517
- Mathews, G. M.** The Birds of Australia 7 pts. i-iv (1-384) pls. 325-362 London (Witherby) 1918 4to. 518
- Mathews, G. M.** Alfred John North, ornithologist: an appreciation. Austr. Av. Rec. 3 1918 (129-133) portr. 519
- Mathews, G. M.** On *Pachycephala melanura* Gould. Austr. Av. Rec. 3 1918 (134-138). 520
- Mathews, G. M.** On *Turdus maxillaris* Latham. Austr. Av. Rec. 3 1918 (139-141) pl. 521

- Mathews, G. M.** Additions and corrections to my 1913 list [of Australian birds]. *Austr. Av. Rec.* London 3 1918 (159-160). 522
- Mathews, G. M.** What are Australian Petrels. *Emu Melbourne* 18 1918 (82-88). 523
- Mathews, G. M.** The Platycercine Parrots of Australia: a study in colour-change. *Ibis London* 1918 (115-127) pl. iii 2 text-figs. 524
- Mathews, G. M.** Australian Parrots [a reply to the Marquis of Tavistock.] *Ibis London* 1918 (175-178) see also *Tavistock* *ibid* (519-522). 525
- Mathews, G.** Description of a new subspecies of *Pomatostomus*. *London Bull. Brit. Orn. Cl.* 38 1918 (48-49). 526
- Mathews, G. M.** Descriptions of new forms of *Diomedea*, *Acanthiza*, *Leggeornis*, *Urodynamicis*. *London Bull. Brit. Orn. Cl.* 39 1918 (23-24). 527
- Mathews, G. M.** Birds of north and north-west Australia. From skins and notes made by the late Capt. T. H. Bowyer-Bower. *S. A. Ornith. Adelaide* 3 1918 (137-141 174-180 205-208 225-229). 528
- Mathews, G. M. and Iredale, T.** A forgotten ornithologist [a discussion of Jarocki's generic names published in 1821]. *Austr. Av. Rec.* 3 1918 (142-150). 529
- Mathews, G. M. and Iredale, T.** The validity of some generic terms. *Austr. Av. Rec.* London 3 1918 (151-158). 530
- Mathews, W. H.** Bird's nesting in the Bhilling valley, Tehri Garwhal. *Bombay J. Nat. Hist. Soc.* 25 1918 (495-497). 531
- Mathews, W. H.** Note on the Indian Long-billed Vulture (*Gyps indicus*). *Bombay Journ. N. H. Soc.* 26 1918 (287). 532
- Mattingley, A. H. E.** The Ground-Parrot (*Pezoporus formosus*). *Emu Melbourne* 17 1918 (216-218). 533
- Mauks, K.** Vogelschutz u. Vogelberingung in Algyogy 1917. *Aquila Budapest* 24 1918 (227-232) Magyar and German. 534
- Maule, J.** Rörhönan—*Gallinula chloropus* — funnen i Hälsingland [Sweden] samt omständigheterna vid hennes infångande. *Fauna och Flora Uppsala* 1916 (73-78). 535
- Mayhoff, H.** Zum Schwingengeräusch der Schellente (*Glaucionetta c. clangula* (L.)). *München Verhandl. Orn. Ges.* 13 1918 (351-359). 536
- Mazza, F.** Sulla cattura di due uccelli rari presi nella Provincia di Roma durante l'anno 1916. *Roma Boll. Soc. Zool. Ital.* (3) 3 1917 (191-197). 537
- Meade-Waldo, E. G. B.** The conservation of the Kite in Wales. *London Bull. Brit. Orn. Cl.* 29 1918 (3-4, 24). 538
- Meares, D. H.** Field-notes on the Marsh-Warbler. *Brit. Bds. London* 11 1918 (242-245) col. pl. 539
- Menegaux, A.** L'ami des oiseaux. Petit manuel de protection (1-35). Paris (55 Rue de Bufon) 1918 8vo. 540
- Menegaux, A.** Sur une petite collection d'oiseaux de l'Afrique Occidentale Française. *Rev. Fr. d'Orn.* Paris 10 1918 (185-189). 541
- Menegaux, A.** Etudo d'une collection d'oiseaux faite par M. E. Wagner dans la Province des "Misiones" (Républic Argentine). *Rev. Fr. d'Orn.* 10 1918 (288-283 316-319 332-335). 542
- Menegaux, A.** Préparation du savon de bécoeur. *Rev. Fr. d'Orn.* Paris 10 1918 (337-338). 543
- Menegaux, A. et Sacqhem van.** Sur une petite collection d'oiseaux du Congo Belge. *Rev. Fr. d'Orn.* Paris 10 1918 (251-254 257-259). 544
- Menzel, F.** Vogelwelt des Amtsgerichtsbezirkes Harzburg. *Orn. Jahrb. Hallein* 28 1918 (61-80). 545
- Merikallio, E.** Om alfågeln (*Harelda hiemalis* [L.]) och andra arktiska fåglars häckning i Bottniska och Finska viken samt i Ladoga och Onega. *Fauna och Flora Uppsala* 12 1917 (72-82); additional remarks by E. Lönnberg (82-84) fig. 546

- Merikallio, E.** En fågel, Rödhämplingen (*Carpodacus erythrinus*), hvars Yttersta förelöpare stå redan nava Sveriges gräns. Fauna och Flora Uppsala 13 1918 (37-40). 547
- Merikallio, E.** Lintutietoja Pohjois-Suomesta I. [Vogelnotizen aus Nord-Finland I]. Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (13-20 Deutsches Ref. 162). 548
- Merikallio, E.** Joutsenen nykyisestä pesimisestä maassamme. [Über das Nisten von *Cygnus musicus* in Finland]. Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (6-7 Deutsches Ref. 283). 549
- Merikallio, E.** Lintutietoja Pohjois-Suomesta III [Ornithologische Notizen aus Nord-Finland III]. Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (75-84 Deutsches Ref. 285). 550
- Merikallio, E. F.** Kottaraisen levenemisestä Pohjois-Suomeen. [Über die Verbreitung von *Sturnus vulgaris* in Nord-Finland]. Helsinki Luonnou Ystävä 20 1916 (6-12). 551
- Mervin, M. M.** Common Tern nesting at Thousand Islands [St. Lawrence]. Auk Cambridge Mass. 34 1918 (74). 552
- Meyere, J. L. F. de.** Een en ander paar aanleiding van myn roek. [Einige Bemerkungen ansässlich meiner Saatkrähe.] Ardea Leiden 7 1918 (78-93). 553
- Meyere, J. F. L. de.** Karakteristiek voor het nest van *Turdus viscivorus* (L.). [Charakteristik des Nestes von *Turdus viscivorus* (L.).] Ardea Leiden 7 1918 (121-122). 554
- Michel, J.** Ornithologische Reiseskizzen. Orn. Jahrb. Hallein 28 1918 (136-153). 555
- Millar, C. E.** Birds of Lewiston-Auburn [Maine] and vicinity. (1-80) 2 figs Lewiston Maine 12mo. 556
- Miller, E.** A list of summer birds observed on the Outer Farne Islands. Bt. Bds. London 12 1918 (132-136). 557
- Miller, L. E.** In the Wilds of South America. Six years of exploration in Colombia, Venezuela, British Guiana, Peru, Bolivia Paraguay and Brazil (1-424) 70 illustr. map. New York (Scribner) 1918 8vo. 558
- Miller, L. E.** Field notes on *Molothrus bonariensis* and *M. badius*. New York Bull. Amer. Mus. N. H. 27 1917 (579-592). 559
- Miller, W. de W.** *Megaceryle* vs. *Streptoceryle*. Auk Cambridge Mass. 35 1918 (352-353). 560
- Miller, W. de W.** The systematic position of *Calyptrophilus*. Auk Cambridge Mass. 35 1918 (356-357). 561
- Miller, W. de W.** Relative length of the intestinal caeca in Trogons. Auk Cambridge Mass. 35 1918 (480). 562
- Millet-Horsin.** Liste de quelques oiseaux observés de janvier a fin avril 1917 dans la région de Fréjus. Rev. Fr. d'Orn. Paris 10 1918 (211-214 227-231). 563
- Moffett, L. I.** *vide* Gee.
- Momiyama, T.** Hokkaido san yamagara no ichi shin shu. [On a new subspecies of *Parus varius* from Hokkaido.] Dobuts. Z. Tokyo 30 1918 (345-346). 564
- Montell, J.** Bidrag till Kännedomen on fågelfaunan i gränstrakterna mellan Sverige och Finland. Fauna och Flora Uppsala 11 1916 (1-20). 565
- Montell, J.** Fågelfaunan i Muonio socken och angränsande delar of Enontekis och Kittilä socknar. [Die Vogelfauna in Muonio und in den angrenzenden Teilen von Enontekis und Kittilä.] Helsingfors Acta Soc. Fauna et Fl. Fenn. 44 No. 7 1917 (1-252 Deutsches Ref. 253-260) map. 566
- Montell, J.** Om salskrakens förekomst i Muonio och Enontekis. [Über *Mergus albellus* in Muonio und Enontekis.] Helsingfors F. Jakittidn. 11 1916 (99-103). 567
- Morgan, A. M.** Birds of Port Broughton. S. Austral. Ornith. Adelaide 3 1918 (132-136). 568
- Morgan, A. M.** Some observations on the nesting and the young of Cormorants. S. Austral. Ornith. Adelaide 3 1918 (201-205) photo. 569

- Morgan, T. H.** Inheritance of number of feathers of the Fantail Pigeon. *Amer. Nat. Lancaster Pa.* 52 1918 (5-27) 16 text-figs. 570
- Morgan, T. H.** Demonstration of the effects of castration on Seabright cockerels. *New York Proc. Soc. Exper. Biol. Med.* 15 1918 (3-4). 571
- Mosley, C.** Variation in the colour of Sparrow's eggs. *Naturalist London* 1918 (202) photo. 572
- Mottram, J. C.** Some observations on the feeding-habits of fish and birds, with special reference to varying colouration and mimicry. *London J. Linn. Soc.* 34 1918 (47-60) 1 pl. 573
- Mottram, J. C. and Green, F. W. E.** Some aspects of animal colouration from the point of view of colour vision. *Sci. Progr. London* 13 1918 (65-78 253-264) figs. 574
- Mourgue, M.** *vide* Lavauden.
- Mousley, H.** The breeding of the Migrant Shrike at Hatley, Stanstead county. Quebec, 1916. *Auk Cambridge Mass.* 35 1918 (33-36). 575
- Mousley, H.** Further notes and observations on the birds of Hatley, Stanstead county, Quebec, 1916-1917. *Auk Cambridge Mass.* 35 1918 (289-310). 576
- Mullens, W. H.** Some Museums of old London. II William Bullock's London Museum. *Museums' Journ. London* 17 1917 (51-56) 1918 (132-137 180-187) 2 pls. 577
- Munro, J. A.** The Barrow Golden-eye in the Okanagan valley, British Columbia. *Condor Hollywood Cal.* 20 1918 (3-5). 578
- Munro, J. A.** Notes on the winter birds of the Okanagan valley. *Ottawa Nat.* 31 1917 (81-89). 579
- Munro, J. A.** Notes on the birds in an Okanagan orchard. *Ottawa Nat.* 31 1918 (118-120). 580
- Munsterhielm, L.** Langs viska vägar ankomma Lapplands [Sweden] vadare och simfåglar tui sina hackingsarter. *Fauna och Flora Uppsala* 11 1916 (193-208). 581
- Munsterhielm, L.** Arden i Nord-Skandinavien häckande hussvalan idintisk med den i övriga Europa häckande *Chelidon urbica urbica* (L.)? *Fauna och Flora Uppsala* 11 1916 (269-271). 582
- Munthe, H.** Om några fågelfynd från sen-glaciälager i Sverige. *Stockholm Geol. Undersök Årsbok* 8 1914 No. 4 (1-26) with summary in English 10 figs. 583
- Murphy, R. C.** Bird life in South Georgia. *Amer. Mus. J. New York* 18 1918 (463-472) many photos. 584
- Murphy, R. C.** A study of the Atlantic *Oceanites*. *New York Bull. Mus. Nat. Hist.* 38 1918 (117-146) 3 pls. 7 text-figs. 585
- Murray, J. A.** Report on deaths of animals in the Gardens in 1917. *London Proc. Zool. Soc.* 1918 (183-186). 586
- Nagy, E.** Vorkommen von *Gavia arcticus* in Ungarn während der Sommerzeit. Das neuere Vorkommen von *Gavia glacialis* (L.) und das erste Vorkommen von *Gavia adamsi* (Gray) in Ungarn. *Aquila Budapest* 23 1917 (350-352 Magyar 550-552 German) 587
- Nagy, E.** Kranich-Studien und Beobachtungen aus dem Komitate Csanad. *Aquila Budapest* 24 1918 (174-190) map Magyar and German. 588
- Neumann, [O.]** Überblick über die Vogelwelt der Kapverden. *Journ. Ornith. Leipzig* 66 1918 (235-236) also *Reichenow p.* 239. 589
- Neuville, H.** *vide* Retterer.
- Newton, E. T.** Bird remains in The exploration of Castlepook Cave, County Cork. *Dublin Proc. R. I. Acad.* 34 sec. B 1918 (67-68). 590
- Nibe, T.** Koehidori no hanshoku ni tsuite. [On the breeding habits of *Charadrius minor*.] *Dobuts. Z. Tokyo* 30 1918 (387-390). 591
- Nicholls, B.** An introduction to the study of the Penguins on the Nobbies, Philip Island, Western Port, Victoria. With some remarks on the validity of *Eudyptila undina* (the Fairy Penguin). *Emu Melbourne* 17 (118-144) photos. 592

- Nicholls, B. *vide* Alexander.
- Nichols, J. B. White-winged Larks in Sussex. Brown-backed Warbler in Sussex. *Bt. Bds.* London 12 1918 (159-160). 593
- Nichols, J. T. An aspect of the relation between abundance, migration and range in birds. *Science* New York 48 1918 (168-170). 594
- Nicoll, M. J. The Crested Larks of the Nile valley. *Ibis* London 1918 (741-743). 595
- Nicholl, M. J. *vide* Flower.
- Nicolin, R. Om *Tetraogallus caspius*. Fauna och Flora Uppsala 13 1918 (262-263). 596
- Noble, G. K. *vide* Bangs.
- Noll-Tobler, H. Beobachtungen an unsern einheimischen Rallen. *St. Gallen Jahrb. Nat. Ges.* 54 1917 (209-245) photos. 597
- Norton, A. H. The Evening Grosbeak (*Hesperiphona vespertina*) in Maine, with remarks on its distribution. *Auk* Cambridge Mass. 35 1918 (170-181). 598
- Nuttall, J. S. W. A note on the inheritance of colour in one breed of pigeons. An attempt to demonstrate a Mendelian type of transmission. *Journ. Genetics* Cambridge 7 1918 (119-124). 599
- Nyberg, E. Muistünpanoja linnuista Korkasaarella talvella 1915-16. [Notizen über Vögel auf Högholmen in der Nähe von Helsingfors im Winter 1915-16.] Helsinki Luonnon Ystävä 20 1916 (104-106). 600
- Nyqvist, H. Fåglar läggande tvänne kullar. Fauna och Flora Uppsala 11 1916 (21-24). 601
- Nyqvist, H. Om färgen på bivråkens vaxhud. Fauna och Flora 11 1916 (24-26). 602
- Nyqvist, H. Ytterligare något om and fåglarnes dräkter. Fauna och Flora 11 1916 (261-265). 603
- Nyqvist, H. Några ord om sädgåsens dräkt. Fauna och Flora Uppsala 11 1916 (272-273). 604
- Oberholser, H. C. A revision of the races of *Toxostoma redivivum* (Gambel). *Auk* Cambridge Mass. 35 1918 (52-61). 605
- Oberholser, H. Notes on North American birds iv, v, vi. *Auk* Cambridge Mass. 35 1918 (62-65 185-187, 463-467). 606
- Oberholser, H. C. Notes on the subspecies of *Numenius americanus* Bchstein. *Auk* Cambridge Mass. 35 1918 (188-195 350-351). 607
- Oberholser, H. C. Third annual list of proposed changes in the A.O.U. Check-list of North American birds. *Auk* Cambridge Mass. 35 1918 (200-217). 608
- Oberholser, H. *Larus nelsoni*, in juvenal plumage from the Hawaiian Islands. *Anas r. rubripes* in North Dakota. *Auk* Cambridge Mass 35 1918 (349-350). 609
- Oberholser, H. *Junco aikenii* in New Mexico. *Auk* Cambridge Mass. 35 1918 (357). 610
- Oberholser, H. C. The subspecies of *Larus hyperboreus* Gunnerus. *Auk* Cambridge Mass. 35 1918 (467-474). 611
- Oberholser, H. Cinnamon Teal (*Querquedula cyanoptera*) in North Dakota. *Auk* Cambridge Mass. 35 1918 (476). 612
- Oberholser, H. The specific name of the Glossy Ibis. *Auk* Cambridge Mass. 35 1918 (476). 613
- Oberholser, H. The status of *Buteo platypterus iowensis*. *Auk* Cambridge Mass. 35 1918 (478). 614
- Oberholser, H. C. *Picoides arcticus* in Florida. *Auk* Cambridge Mass. 35 1918 (479). 615
- Oberholser, H. C. The range and status of *Aphelocoma californica hypoleuca* Ridgway. *Auk* Cambridge Mass. 35 1918 (480-481). 616
- Oberholser, H. C. Description of a new subspecies of *Cyanolaemus clemenciae*. *Condor Hollywood Cal.* 20 1918 (181-182). 617
- Oberholser, H. C. Description of a new *Lanius* from Lower California. *Condor Hollywood Cal.* 20 1918 (209-210). 618
- Oberholser, H. C. New light on the status of *Empidonax traillii* (Audubon). *Ohio J. Sci.* Columbus 18 1918 (85-98). 619



- Oberholser, H. C.** The Common Ravens of North America. Ohio J. Sci. Columbus 18 1918 (213-225). 620
- Oberholser, H. C.** The criterion of subspecific intergradation in vertebrate zoology. Science New York 48 1918 (165-167). 621
- Oberholser, H. C.** The scientific name of the Passenger Pigeon. Science New York 48 1918 (445). 622
- Oberholser, H. C.** Mutanda ornithologica iii, iv. Washington Proc. Biol. Soc. 31 1918 (47-50 125-126). 623
- Oberholser, H. C.** *Olor columbianus* in the Potomac river. *Squatarola squatarola cynosurae* near Washington, D.C. *Hierofalco rusticolus canadensis* in North Dakota. *Aristonetta*, a good genus. *Spizella monticola* (Gmelin), the correct name for the North American Tree Sparrow. Washington Proc. Biol. Soc. 31 1918 (97-98). 624
- Oberholser, H. C.** Description of a new *Iole* from the Anamba Islands Washington Proc. Biol. Soc. 31 1918 (197-198). 625
- Oberholser, H. C.** The status of the genus *Orchilus* Cabanis. Washington Proc. Biol. Soc. 31 1918 (204-205). 626
- Oberholser, H. C.** The Great Plains waterfowl breeding grounds and their protection. Washington D.C. Yearbook Dept. Agr. for 1917 1918 No. 723 (1-10). 627
- Oberholser, H. C.** *vide* Gudger.
- Oberholser, H. C. and Chapman, F. M.** The migration and plumage of North American birds. Bird-Lore Harrisburg Pa. 20 1918 (16-20 145-153 219-223 286-290 345-350 416) many plates. 628
- Oort, E. D. van.** Ornithologia Neerlandica. De Vogels van Nederland. Pts 1-4 (1-120) 40 col. pls. 's Gravenhage (Nijhoff) 1918 4to. 629
- Oort, E. D. van.** Ornithologische waarnemingen in Nederland. Ardea Leiden 7 1918 (129-138). 630
- Oort, E. D. van.** Resultaten van het ringonderzoek van het Rijks Museum te Leiden. Ardea Leiden 7 1918 (139-143). 631
- Osmaston, B. B.** Further notes on birds breeding in the Tons valley. Bombay J. Nat. Hist. Soc. 25 1918 (493-495). 632
- Owen, J. H.** Remarkable set of Tawny Owl's eggs. Bt. Bds. London 12 1918 (20-21). 633
- Owen, J. H.** Some breeding habits of the Sparrow-Hawk. Bt. Bds. London 12 1918 (61-65 74-82) 5 photos. 634
- O[wen], J. H.** A list of the birds of Felstead school. Notes by bird-watchers 1916-1917. Felstead Rep. Sch. Sci. Soc. No. 25 1918. 635
- Palmén, J. A.** Salskraken och dess utbredning. [*Mergus albellus* and seine Verbreitung.] Helsingfors F. Jakttidn. 11 1916 (15-27) pl. 637
- Palmén, J. A.** Sånglärkan. [*Aulauda arvensis*.] Helsingfors F. Jakttidn. 11 1916 (294-307) 2 figs. 637
- Palmén, J. A.** Salskrakens flyttningssvågar. [Zugstrassen von *Mergus albellus*.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (33 Deutsches Ref. 162). 638
- Palmén, J. A.** Beringte Vögel in Finland im J. 1915. Helsingfors Med. Soc. Fauna et Fl. Fenn. 42 1916 (111-120). 639
- Palmén, J. A.** Engelska ornitologen John Wolley, jun. [The English ornithologist John Wolley, jun.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (136-137). 640
- Palmer, T. S.** The American Ornithologists' Union. Amer. Mus. J. New York 18 1918 (473-483). 641
- Palmer, T. S.** Goudot's explorations in Columbia. Auk Cambridge Mass. 35 1918 (240-241). 642
- P[almer], T. S.** Obituary: Henry Reed Taylor. Auk Cambridge Mass. 35 1918 (382). 643
- Palmer, T. S.** Costa's Hummingbird, its type locality, early history and name. Condor Hollywood Cal. 20 1918 (114-116). 644
- Palmer, T. S.** Pacific coast records of the European Wigcon. Condor Hollywood Cal. 20 1918 (187-188). 645

**Palmgren, R.** Till kännedomen om sparfugglans, *Glaucidium passerinum* L., näringsekologi och fortplantningshistoria, [Zur Kenntnis der Nahrungsökologie und Fortpflanzung von *Glaucidium passerinum*.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (101-108 Deutsches Ref. 162) fig. 646

**Palmgren, R.** Sångsvanens, *Cygnus musicus* Bchst., häckande i Ostrobothnia media. [Das Nisten von *Cygnus musicus* in Ostrobothnia media] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 42 1916 (145-147 Deutsches Ref. 162). 647

**Palmgren, R.** Storskarfven, *Phalacrocorax carbo* (L.), häckande i Finland. [*Phalacrocorax carbo* (L.), in Finland nistend.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (9-13 Deutsches Ref. 285) taf. 648

**Palmgren, R.** Faunistiska notiser [Faunistische Notizen.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (119-122 Deutsches Ref. 283 285). 649

**Palmgren, R.** *Larus argentatus* Brinn. ♂ × *marinus* (L.) ♀. Helsingfors Medd. Soc. Fauna et Fl. Fenn. 44 1918 (125-127, Deutsches Ref. 250-251). 650

**Palmgren, R. und Levander, K. M.** Tervapaäkysen muutto syksyllä 1918 [Der Herbstzug von *Cypselus apus*] Helsinki Luonnon Ystävä 22 (154-161). 651

**Parsons, F. E.** Cuckoo eggs in Blue Wren's nest. S. A. Ornith. Adelaide 3 1918 (145). 652

**Patten, C. J.** Wood-chat Shrike on migration, obtained at Tuskar Rock. Irish Nat. Dublin 27 1918 (79-80). 653

**Pearl, R.** The sex ratio in the Domestic Fowl. Philadelphia Proc. Amer. Phil. Soc. 56 1917 (416-436). 654

**Pearl, R. vide** Boring.

**Pearson, G. and others.** Birds of America, 3 vols, illustrated. New York 1917, 4to. 655

**Pelt-Lechner, H. H. van.** Het voor-malige Zevenhuizonsche Bosch, een vogeloornd uit vroeger eeuwen. Ardea Leiden 7 1918 (99-108). 1 pl. 656

**Perry, E. M. and W. A.** Home life of the Vesper Sparrow and the Hermit Thrush. Auk Cambridge Mass. 35 1918 (310-321). 657

**Petit, L. ainé.** Le départ des hirondelles en 1917. Sur l'arrivée des hirondelles et des martinets en 1918. Paris Bull. Soc. Zool. Fr. 42 1918 (145-146), 43 1918 (109-110). 658

**Pezard, A.** Le conditionnement physiologique des caractères sexuels secondaires chez les oiseaux. Du rôle endocrine des glandes génetales. Bull. Biol. Fr. et Belg. 52 1918 (1-76) 1 pl. 659

**Philpott, A.** Notes on certain introduced birds in Southland. New Zealand J. Sci. Tech. 1 1918 (328-330). 660

**Pitt, F.** Notes and observations on the nesting of the Bullfinch. Bt. Bds. London 12 1918 (122-131) 3 photos. 661

**Pitt, F.** Notes and observations on the Moorhen. Brit. Bds. London 11 1918 (170-176). 662

**Pitt, F.** The colour changes of the beak and shield of the young Moorhen (*Gallinula c. chloropus*). Nov. Zool. Tring 25 1918 (1-3). 663

**Poppelwell, D. L.** On a partially white form of *Puffinus griseus* Gmelin. Wellington Trans. N. Zeal. Inst. 50 1918 (144-145). 664

**Porat, C. O. von.** Fågelfaunan i Jönköpings omnejd och län [Sweden], Fauna och Flora, Uppsala, 11 1916 (230-231). 665

**Porsild, M. P.** Om nogle vestgrønlandske Pattedyr og Fugle I-II. Notes on some mammals and birds of West-Greenland. København Medd. Grøn. 56 1918 (29-54) 5 figs. 666

**Poulton, E. B.** The supposed fascination of birds by snakes. Nature London 100 1918 (385), 101 1918 (223-225). 667

**Pozzi, H.** Del modo cómo un Lehuzon (*Asio flammeus*) caza los Tucú-tucus. El Hornero Buenos Aires 1 1918 (191-192). 668

**Praed, C. W. M. vide** Selater.

**Punnett, R. C. and Bailey, P. G.** Genetic studies in Poultry. i. The inheritance of leg-feathering. Journ. Genetics 7 1918 (203-213). 669

- Quillin, R. W. and Holleman, R.** The breeding birds of Bexar Country, Texas. *Condor Hollywood Cal.* **20** 1918 (37-44). **670**
- Rabl, C.** Das Problem der Gastrulation: Vögel in Edouard van Beneden und der gegenwärtige Stand der wichtigsten von ihm behandelten Probleme. *Arch. Mikr. Anat. Bonn* **88** 1915 (350-353). **671**
- Ralfe, P. G.** Manx ornithological notes, 1916-17. *Bt. Bds. London* **11** 1918 (277-279). **672**
- Ramsden, C. T.** El Aura Tifosa, *Cathartes aura* (Linn.). Resultado de experimentos hechos para probar si propaga enfermedades por la vía digestiva. *Habana Mm. Soc. Cubana H.N.* **2** 1916 (174-178). **673**
- Ramsden, C. T.** Vita y exploraciones zoológicas del Dr. Juan Grundlach en Cuba (1839-1896). *Habana Mm. Soc. Cubana H. N.* **3** 1918 (146-168) 2 portr. **674**
- Ratz, B.** Über die Saatkrähe. i. Mäuseverteilung durch Saatkrähen. *Aquila Budapest* **21** 1914 (260-268). **675**
- Ray, M. S.** Six weeks in the high sierras in nesting time. *Condor Hollywood Cal.* **20** 1918 (70-78) 4 photos. **676**
- Reichenow, A.** Vogelarten des afrikanischen Faunengebiets, die von 1905-1914 neu beschrieben worden sind. *Journ. Ornith. Leipzig* **66** 1918 (61-110). **677**
- Reichenow, [A.]** *Psittacella bürgersi* u. *Astrapia alboundata* spp. n. *Journ. Ornith. Leipzig* **66** 1918 (244). **678**
- Reichenow, [A.]** Nachtrag über einige Vögel von Kurland. *Journ. Ornith. Leipzig* **66** 1918 (407-408). **679**
- Reichenow, [A.]** Neue Arten [*Dendropicos, Sylvieta, Serinus, Polioptila, Phonygammus, Trichoglossus.*] *Journ. Ornith. Leipzig* **66** 1918 (437-438). **680**
- Rendahl, H.** Onormalt uppträdande af flyttfåglar och några fall af öfvervintring fråu senare år. *Fauna och Flora* **11** 1916 (27-41) fig. **681**
- Rendahl, H.** Flyttfågelsobservationer vid svenska fyrar. *Fauna och Flora Uppsala* **12** 1917 (97-115) figs. **682**
- Rendahl, H.** Nogle ord om Silkehalen (*Ampelis garrula*) i Sverige vintern 1913-1914. *Kjøbenhavn Dansk Orn. Tids.* **12** 1918 (62-68) map. **683**
- Rendahl, H.** Rapido Besiedlung des Trauerfliegenschnäppers (*Muscicapa atricapilla*) in Schweden. *Orn. Monatsber. Berlin* **26** 1918 (43-46). **684**
- Rendle, M.** Die Vögel in der Umgebung des Walddorfs Affaltem (Schwabben). *Gefied. Welt Magdeburg* **46** 1917 (316-317 325-327, et ct.) **685**
- Renshaw, G.** Notes on the egg of Mantell's Apteryx. *Avicult. Mag. London* **9** 1918 (78-79). **686**
- Renshaw, G.** The true Pigeon Hollandais (*Alectroenas nitidissima*). *Avicult. Mag. London* **9** 1918 (159-160) photo. **687**
- Retterer, E. and Neuville, H.** Du tarse des paupières des oiseaux. *Paris C. R. Soc. Biol.* **81** 1918 (791-794). **688**
- Rhoads, S. N.** Georgia's rarities further discovered in a second American portfolio of John Abbot's bird plates. *Auk Cambridge Mass* **35** 1918 (271-286) 1 pl. **689**
- Ribeiro, A. de M.** Contribuição para a oecologia o morphologia da *Ornis brasilica*. *Revista Soc. Brasileira Sci. Rio de Janeiro* **2** 1918 (99-100). **690**
- Richmond, C. W.** In memoriam: Edgar Alexander Mearns. *Auk Cambridge Mass.* **35** 1918 (1-18). **691**
- Riddle, O.** Further observations on the relative size and form of the right and left testes of pigeons in health and disease and as influenced by hybridity. *Anat. Rec. Philadelphia* **14** 1918 (283-334). **692**
- Riddle, O.** A case of hereditary ataxia (?) in pigeons. *New York, Proc. Soc. Exper. Biol. Med.* **15** 1918 (56-58). **693**
- Riley, J. H.** A new Bullfinch from China. *Washington Proc. Biol. Soc.* **31** 1918 (33-34). **694**
- Riley, J. H.** Two new genera and eight new birds from Celebes. *Washington Proc. Biol. Soc.* **31** 1918 (155-160). **695**

- Riley, J. H. Annotated catalogue of a collection of birds made by Mr. Copley Amory, Jr., in north-eastern Siberia. Washington D.C. Proc. U.S. Nat. Mus. 54 1918 (607-626). 696
- Rintoul, L. J. *vide* Baxter.
- Riviere, B. B. Continental Jays in Norfolk. Bt. Bds. London 11 1918 (259). 697
- Riviere, B. B. Notes on European birds met with during a short visit to South Africa. Ibis London 1919 (598-602). 698
- Roberts, T. S. *vide* Clarke.
- Robinson, H. C. On two abnormal specimens of Ducks in the collection of the Zoological Survey of India. Calcutta Rec. Ind. Mus. 15 1918 (47-48). 1 pl. 699
- Robinson, H. C. Four new birds from Java. J. Fed. Malay States Mus. Singapore 7 1918 (235-237) [*Dendrobiastes*, *Pomatorhinus*, *Stachyris*, *Stachyridopsis*]. 700
- Robinson, H. C. and Kloss, C. B. Notes on recently described races of Siamese and Malayan birds, with a description of a new race [*Stachyris*]. Ibis London 1918 (583-592) *vide etiam* Baker, No. 44. 701
- Robinson, H. C. and Kloss, C. B. On two new species of Flower-Peckers (Dicaeidae) from the Malay region. J. Fed. Malay States Mus. Singapore 7 1918 (239-240). 702
- Robinson, H. C. and Kloss, C. B. Results of an expedition to Korinehi Peak, Sumatra. Part ii. Birds. J. Fed. Malay States Mus. Singapore 8 1918 (81-284) pls. iv-vii. 703
- Robinson, H. W. Movements of Blackheaded Gulls from Finland. Bt. Bds. London 12 1918 (118-119). 704
- Robinson, H. W. Bird notes for 1917. Lancs. Nat. 10 1918 (333-334). 705
- Rodriguez, D. Costumbres de un Dendrocolapto, *Pseudoseiura lophotes* (Reichenb.). El Hornero Buenos Aires 1 1918 (105-108). 706
- Rodriguez, D. Costumbres del "Pato Picazo" (*Metopiana peposaca*). El Hornero Buenos Aires 1 1918 (185-187). 707
- Rodríguez y Torralbas, V. J. Nueva especie de Pato para la fauna ornithologica de Cuba. *Querquedula cyanoptera* (Vieillot). Habana Mem. Soc. Cubana H. N. 2 1917 (223-224). 708
- Rogers, C. H. Horned Grebe rising from the ground. Auk Cambridge Mass 35 1918 (218). 709
- Roháček, F. Übersicht über die Brutvögel der Bocche di Cattaro. Orn. Jahrb. Hallein 23 1918 (116-129). 710
- Roháček, F. Beiträge zur Biologie der *Sitta neumayer* Mich. Orn. Jahrb. Hallein 28 1918 (130-136). 711
- Rössler, E. Der Vogelzug in Kroatien und Slavonien im Jahre 1917. Hrvat. Orn. Centr. Zagreb 7 1918 (6-74). 712
- Rothschild, Lord. A correction of the description of *Turtur afer sclateri*. London Bull. Bt. Orn. Cl. 38 1918 (37-38). 713
- Rothschild, Lord. Notes on the form of Great Eagle Owl found in Algeria and a recently described Albatross, *Rhonthonia sanfordi*. London Bull. Bt. Orn. Cl. 38 1918 (38-39). 714
- Rothschild, Lord. Remarks on a *Rhipidura* from western New Guinea. London Bull. Brit. Orn. Cl. 38 1918 (57-58). 715
- Rothschild, Lord. Description of *Lioptilus abyssinicus ansorgei*. London Bull. Brit. Orn. Cl. 38 1918 (78). 716
- Rothschild, Lord. Remarks on an old picture of the White Dodo—*Didus solitarius* (Sclys). London Bull. Brit. Orn. Cl. 39 1918 (16-17). 717
- Rothschild, Lord and Hartert, E. A few additional notes on the birds of Rossel Island, Louisiade Group. Nov. Zool. Tring 25 1918 (311-312). 718
- Rothschild, Lord and Hartert, E. Further notes on the birds of Sudest Island, or Tagula, in the Louisiade Group. Nov. Zool. Tring 25 1918 (313-326). 719
- Rothrock, B. P. Willow Thrush (*Hylocichla fuscescens salicicola*) in Pennsylvania. Auk Cambridge Mass 35 1918 (83). 720
- Rowan, W. Annotated list of birds of Blakenny Point. Blakenny Point Hand Lists No. 1 1917 (1-36). 721

- Rowan, W.** Notes on the Kingfisher (*Alcedo i. ispida*). Bt. Bds. London 11 1918 (218-225) 2 figs. 722
- Rowan, W.** Power of control over deposition of eggs. Bt. Bds. London 12 1918 (42-43). 723
- Rowan, W.** Annotated list of the birds of Blakeney Point, Norfolk. Norwich Trans. Nat. Soc. 10 1918 (256-279). 724
- Rowswell, B. T.** Report of the Ornithological Section, 1916, 1917. Guernsey Rep. Trans. Soc. Nat. Sci. or 1916 1917 (278-279) and for 1917 1918 (16-20). 725
- Rüdiger, W.** Einige Notizen über Raubvögel in den Pripjet-Sümpfen. Orn. Jahrb. Hallein 28 1918 (153-154). 726
- Rüdiger, W.** Das Nisten von Hänflingen und Grünlingen in Gebäuden. Orn. Monastb. Berlin 26 1918 (5-6). 727
- Rüdiger, W.** Ornithologische Beobachtungen aus den Pripjet-Sümpfen. Orn. Monatsb. Berlin 26 1918 (139-141). 728
- Ruttledge, R. F.** Sandwich Terns breeding in Co. Galway. Irish Nat. Dublin 27 1918 (15). 729
- Ruxton, J. E.** The Grasshopper Warbler [in Co. Durham]. Vasculum Hexham 4 1918 (36-39) 2 photos. 730
- Sabatini, G.** Elenco di uccelli catturati et osservati nelle isole Eolie. Pisa Atti Soc. Tosc. Sc. Nat. Mem. 30 1915 (3-21). 731
- Saceghem, van vide Menegaux.**
- Sachtleben, H.** Ein älterer Name für *Carduelis caniceps orientalis* (Evers.). München Verhandl. Orn. Ges. 13 1918 (349-350). 732
- Salvadori, T.** Alcune specie di Rallidi del genere *Creciscus*. Riv. Ital. Orn. Bologna 4 1918 (1-7). 733
- San Martin, J.** Sobre si el Aura Tiñosa (*Cathartes aura*) es util o nociva. Habana Mem. Soc. Cubana H. Nat. 2 1916 (29-38). 734
- Sanzin, R.** Lista de aves Mendocinas. El Hornero 1 1918 (147-152). 735
- Sassi, M.** Wissenschaftliche Ergebnisse der Expedition R. Grauer nach (N-5464 g)
- Zentral-Afrika, December, 1909—February, 1911. Beitrag zur Ornis Zentralafrikas. ii. Teil. Wien. Ann. k.k. Nat. Hofmus 30 1916 (239-306) 2 pls. 736
- Saunders, A. A.** Some recent Connecticut bird notes. Auk Cambridge Mass. 35 1918 (340-344). 737
- Saunders, W. E.** A protected nest of the Bald Eagle. Ottawa Nat. Ottawa 32 1918 (20). 738
- Saxtorph, S. M.** Studier over Fuglefald ved danske Fyr og Fyrskibe. I. Larken (*Alauda arvensis*). Investigations on the specimens of *Alauda arvensis*, picked up at the Danish lighthouses and light-vessels. København Ornith. Tids 12 1918 (1-61) with 1 map and 12 figs. 739
- Schalow, H.** Über das Brüten von *Larus melanocephalus* Natt. in Ungarn. Journ. Ornith. Leipzig 66 1918 (325-330). 740
- Schalow, H.** *Lanius excubitor rapax* Brehm und dessen Vorkommen in Brandenburg. Journ. Ornith. Leipzig 66 1918 (331-335). 741
- Schalow, H.** Eugen von Homeyers "Vögel Norddeutschlands." Ein verschönlertes Werk. Orn. Monatsb. Berlin 26 1918 (94-96); also Tschusi zu Schmidhoffen (146-147). 742
- Schenk, J.** Der Vogelzug in Ungarn im Frühjahre 1913. XX. Jahresbericht der Königlich Ungarischen Ornithologischen Centralc. Aquila Budapest 21 1915 (137-187). 743
- Schenk, H.** Ornithologische Beobachtungen in dem besetzten Serbien und Montenegro. Aquila Budapest 23 1917 (322-330 Magyar, 516-525 German). 744
- Schenk, J.** Das einstige Nisten der Schwarzkopfmöve in Ungarn. Aquila Budapest 23 1917 (358-360 Magyar, 559-561 German). 745
- Schenk, J.** Ornithologische Fragmente vom Fertö-See. Aquila Budapest 24 1918 (30-106) 2 pls, 3 text figs, map. Magyar and German. 746
- Schiebel, G.** Die Vögel von Ober-tauern (Salzburg). Orn. Jahrb. Hallein 28 1918 (101-110). 747

- Schlegel, R. Aufzeichnungen über das Vorkommen der Sylvien im Leipziger Flachland-gebiete. *Journ. Ornith. Leipzig* 66 1918 (43-51). 748
- Schlegel, R. Beiträge zur Ornith. Mazedoniens. *Journ. Ornith. Leipzig* 66 1918 (176-190). 749
- Schlegel, R. Ein Beitrag zur Ornith. des westlichen Russland. München Verhandl. Orn. Ges. 13 1918 (325-336). 750
- Schlegel, R. Wie vollziehen die Spechte den Begettungsakt. Orn. Monatsber. Berlin 26 1918 (42-43). 751
- Schlegel, R. Einige bemerkenswerte Winterbeobachtungen aus dem mittelsächsischen Berg und Hügellande. Orn. Monatsber. 26 1918 (67-71), also Hesse (115-117). 752
- Schlüter, C. Tagebuchaufzeichnungen (W. Russia) *Falco* Halle 12 1916 (26-38). 753
- Schlüter, W. *Phæotornis fuliginosus* Schlüt. (nec Simon) muss *Phæotornis fumosus* Schlüter heißen. *Falco* Halle 11 1915 (21). 754
- Schmitt, C. and Stadler, H. Fragen und Aufgaben der Vogelsprachkunde. iii, Nachtigall, Kuckuck, Tannenmeise. *Journ. Ornith. Leipzig* 66 1918 (220-234). 755
- Schmitt, C. *vide* Stadler.
- Schnurre, O. Ein Beitrag zur Ornith. des Habichtswaldes und Wilhelmshöher Parks. Orn. Monatsb. Berlin 26 1918 (105-110). 756
- Schouteden, H. Note sur un Pic du Congo (*Dendromus kasaiicus*). *Rev. Zool. Afr. Bruxelles* 4 1915 (143). 757
- Schouteden, H. Contribution a la faune ornithologique de la région des lacs de l'Afrique Central. *Rev. Zool. Afr. Bruxelles* 5 1918 (209-297) [*Crypsospiza, Geocichla*]. 758
- Schulman, H. Sidensvansens betecnde vid fångandet av insekter. [Der Seidenschwanz beim Insektenfang]. *Helsingfors Medd. Soc. Fauna et Fl. Fenn* 43 1917 (45-50 Deutsches Ref. 283). 759
- Schussler, G. W. The Salt-Marsh Yellowthroats of San Francisco. *Condor Hollywood Cal.* 20 1918 (62-64). 760
- Schuster, L. Der Vogelzug in den Argonnen im Herbst 1916. Orn. Monatsb. Berlin 26 1918 (96-98, 119-124). 761
- Schuster, W. Wiederbevölkerung des Odenwalds und Neckarberglands mit Nachtigallen. *Wiesbaden Jahrb. Nassau Ver. Naturk.* 69 1916 (69-73). 762
- Schuster, W. Ornithologe P. Schuster-gefallen. *Wiesbaden Jahrb. Nassau Ver. Naturk.* 69 1916 (77-78). 763
- Schuster, W. Nachträge zu der Ornith. des Mainzer Beckens und der angrenzenden Gebiete. *Wiesbaden Jahrb. Nassau Vereins Naturk.* 70 1918 (172-181). 764
- Schuster, W. Die Storchnester in Hessen-Nassau. *Wiesbaden Jahrb. Nassau Ver. Naturk.* 70 1918 (182-184). 765
- Schuster, W. Vergangenheit und Zukunft der Sperlingsvögel. *Zool. Anz. Leipzig* 49 1917 (251-254). 766
- Schuster, W. Die Haubenlerche [*Alauda cristata*] als Strassen-Charaktervogel des ost deutschen Städte. *Zool. Anz. Leipzig* 50 (54-56). 767
- Schweppenburg, H. *Frhr. G. von.* Ins Land der Tuareg. ii. Die beobachteten Vogelarten. *J. Ornith. Leipzig* 66 1918 (121-176). 768
- Schweppenburg, H. *Freih. G. von.* Winterkälte und Vögelwelt. Orn. Monatsb. Berlin 26 1918 (6-11). 769
- [Slater, W. L.] Obituary A. J. North; Brig.-General C. G. Rawling; Commander The Hon. R. O. B. Bridgeman, R.N. *Ibis London* 1918 (154-158). 770
- [Slater, W. L.] Obituary F. M. Ogilvie; Dr. Otto Finsch. *Ibis London* 1918 (303-306). 771
- Slater, W. L. Remarks on the Hawks of the genus *Micrastur*. *Ibis London* 1918 (343-347) pl. viii. 772
- [Slater, W. L.] Obituary—Professor G. Martorelli. *Ibis London* 1918 (496-498). 773
- Slater, W. L.] Obituary—William Vincent Legge; Robert Oliver Cunningham; L. Beresford Mouritz. *Ibis London* 1918 (721-724). 774

- Sclater, W. L. Description of new Hawks of the genera *Milvago*, *Micrastur* and *Geranospiza*. London Bull. Brit. Orn. Cl. **38** 1918 (43-45). 775
- Sclater, W. L. *Buteo jakal archeri* subsp. n. described. London Bull. Brit. Orn. Cl. **39** 1918 (17-18). 776
- Sclater, W. L. and Mackworth-Praed, C. W. A note on the British Puffin. Bt. Bds. London **11** 1918 (214); also Hartert, pp. 235-237. 777
- Sclater, W. L. and Mackworth-Praed, C. W. A list of the birds of the Anglo-Egyptian Sudan, based on the collections of Mr. A. L. Butler, Mr. H. Chapman and Captain H. Lynes, R.N., and Major Cuthbert Christy, R.A.M.C. (T.F.) Part I. Corvidae-Fringillidae. Part II. Alaudidae-Hirundinidae. Ibis London, **1918** (416-476, 602-721) pls. ix, x. 778
- Seoville, S., Junr. The Evening Grosbeak. Cassinia Philadelphia **21** 1918 (26-37). 779
- Seilkopf, H. Ornithologische Beobachtungen aus der Umgebung von Frankfurt (Oder). Orn. Monatsb. Berlin **26** 1918 (11-15, 17-22). 780
- Sell, R. A. The Scarlet Ibis in Texas. Condor Hollywood Cal. **20** 1918 (78-82) 1 photo. 781
- Sellards, E. H. Human remains and associated fossils from the Pleistocene of Florida. Tallahassee Rep. Florida State Geol. Surv. **8** 1916 (123-160, birds, 146-147) 16 pls, 15 textfigs [*Jabiru*]. 782
- Selous, E. Ornithological observations and reflections in Shetland. Naturalist London **1918** (131-135, 158-160, 294-296, 347-350, 381-383) 783
- Sergent, Ed. et Sergent, Ét. Sur le paludisme des oiseaux du au *Plasmodium relictum* (vel *Protozoma*). Ann. Inst. Pasteur Paris **32** 1918 (382-388). 784
- Serié, P. Nombres vulgares y científicos de aves de Buenos Aires. El Hornero Buenos Aires **1** 1918 (68-73). 785
- Seytre, A. B. Fauna Valenciana. Aves (96-120). Barcelona (Martin) 1916, 8vo. 786
- (N-5464 g)
- Shannon, C. W. (edited by) Animal and Plant Life in Oklahoma. Norman, Okla. Geol. Surv. Circ. no. **6** 1917 (1-68 birds 26-34). 787
- Shimek, B. Early Iowa locality records. Des Moines Proc. Iowa Acad. Sci. **22** 1916 (105-119). 788
- Shipton, S. Sobre una nueva subespecie de *Batara cinerea* (Vieill) del N. W. de la Argentina. Physis Buenos Aires **4** 1918 (106-107). 789
- Shipton, S. Nueva subespecie de *Batara cinerea* (Vieill) del noroeste de la Republica Argentina. El Hornero Buenos Aires **1** 1918 (114-115). 790
- Shufeldt, R. W. On the skeleton of the Ocellated Turkey (*Agriocharis ocellata*) with notes on the osteology of the other Meleagridae. Aquila Budapest **21** 1915 (1-52) 13 pls. 791
- Shufeldt, R. W. Notes on some bird fossils from Florida. Auk Cambridge Mass **35** 1918 (357-358). 792
- Shufeldt, R. W. The skeleton of the Kea Parrot of New Zealand (*Nestor notabilis*). Emu Melbourne **18** 1918 (25-43) 7 pls. 793
- Shufeldt, R. W. Notes on the osteology of the young of the Hoatzin (*Opisthocomus cristatus*) and other points in its morphology. J. Morph. Philadelphia Pa. **31** 1918 (599-606) 3 pls. 794
- Silver, A. Two interesting hybrids [*Acanthis l. cabaret* × *A. flavirostris* and *Carduelis carduelis* × *A. flavirostris*]. Avicult. Mag. London **10** 1918 (12-14). 795
- Sladen, A. G. L. Further notes on the birds of Macedonia. Ibis, London **1918** (292-300). 796
- Sladen, A. G. L. Remarks on birds and eggs taken in Palestine. London Bull. Brit. Orn. Cl. **39** 1918 (5-6). 797
- Slonaker, J. R. A physiological study of the anatomy of the eye and its accessory parts of the English Sparrow (*Passer domesticus*). Journ. Morph. Philadelphia **31** 1918 (351-458) 75 figs. 798
- Smith, B. G. Peculiar nesting behaviour of a Robin (*Planesticus migratorius*). Rep. Michigan Acad. Sci. **17** 1916 (71-72). 799

- Snouckaert van Schauburg, R.** Erfahrungen bei Meisen. *Aquila Budapest* 21 1915 (199-200). 800
- Snouckaert van Schauburg, Baron, R.** Ornithologie van Nederland. Waarmeningen van 1 October 1917 tot en met 30 September, 1918. Jaarber. Nederl. Vogelk. Deventer 8 1918 (13-25). 801
- Snouckaert van Schauburg, Baron R. De Hoop** [*Fringilla montifringilla*]. Jaarber. Nederl. Vogelk. Deventer 8 1918 (51-56). 802
- Snouckaert van Schauburg, Baron R.** Het blauwe fazantje (*Uraeginthus bengalus*). Jaarber. Nederl. Vogelk. Deventer 8 1918 (60-63). 803
- Snouckaert van Schauburg, Baron R.** Wyzigingen in de namen van eenige vogelsoorten (Aenderungen in den Namen einiger Vogelarten.) Jaarber. Nederl. Vogelk. Daventer 8 1918 (64). 804
- Snouckaert van Schauburg, Baron R.** Trekpatryzen en Drentsche patryzen. (Zugfeldhühner und Drentsche Feldhühner.) Jaarber. Nederl. Vogelk. Deventer 8 1918 (65-75). 805
- Söderberg, R.** Flyttfågelstudier. Fauna och Flora Uppsala 12 1917 (49-62, 140-133) figs. 806
- Söderberg, R.** Nagra anmärkningsvärda fågel observationer från Hornborgasjön och trakten däromkring. Fauna och Flora Uppsala 13 1918 (83-86). 807
- Söderberg, R.** Results of Dr. E. Mjöberg's Swedish scientific expeditions to Australia, 1910-1913. xviii. Studies of the Birds in North-West Australia. Stockholm k. Svenska Vet. Ak. Handl. 52 No. 17 1918 (3-116) 5 pls. map, 25 figs. 808
- Someren, V. G. L. van.** Another rare forest Francolin, *Francolinus nahani* Dubois. J. E. Afr. and Uganda N. H. Soc. 6 1918 (199-200), col. pl. 809
- Someren, V. G. L. van.** Migration of birds [in East Africa]. J. E. Afr. and Uganda N. H. Soc. 6 1918 (218-240). 810
- Someren, V. G. L. van.** Notes on a collection of birds from Lamu and district, made by Mr. H. J. Allen Turner in April, 1916. J. E. Afr. Uganda N. H. Soc. 6 1918 (249-261). 811
- Someren, V. G. L. van.** *Pitta angolensis longipennis* (Reichenow). J. E. Afr. and Uganda N. H. Soc. 6 1918 (279-280). 812
- Someren, V. G. L. van.** A further contribution to the ornithology of Uganda (West Elgon and district). Nov. Zool. Tring 25 1918 (263-290) 5 pls. 813
- Soper, J. D.** The birds of Edmonton. Ottawa Nat. 31 1918 (129-134, 145-149). 814
- Spegazzini, C.** Melanismo temporario de la palomita (*Columbina picui*). El Hornero Buenos Aires 1 1918 (182-185). 815
- Squires, W. A. and Hanson, H. E.** The destruction of birds at the light-houses on the coast of California. Condor Hollywood Cal. 20 1918 (6-10) 2 photos 1 map. 816
- Stadler, H. u. Schmitt, C.** Analyse der Baumläufergesänge. A. *Certhia brachydactyla brachydactyla* Brehm. München Verhandl. Orn. Ges. 13 1918 (289-301); also Hoffman *ibid.* (340-348). 817
- Stadler, H. vide Schmitt.**
- Stefansson, S.** Adarvargi á Islandi [The eider-duck in Iceland]. Reykjavík. Bimadarnit 31 (1-61). 818
- Stephens, F.** An autobiography. Condor Hollywood Cal. 20 1918 (164-166) portr. 819
- Stephens, T. C.** Bird records during the past winter 1916-1917, in north-western Iowa. Des Moines Proc. Iowa Acad. Sci. 24 [1918] (245-258). 820
- S[tone], W.** Review of Chapman's Distribution of Bird Life in Columbia. Auk Cambridge Mass. 35 1918 (242-246). [*Troglodytes*]. 821
- Stone, W. Samuel Wright.** Cassinia Philadelphia 21 1918 (1-5) portr. 822
- Stone, W.** Report of the spring migration of 1917. Cassinia Philadelphia 21 1918 (38-58). 823
- Stone, W.** Birds of the Panama Canal zone, with special reference to a collection made by Mr. Lindsey L. Jewel. Philadelphia Pa. Proc. Acad. Nat. Sci. 70 1918 (239-280). 824



- Storer, T. I.** *vide* Grinnell.
- Stresemann, E.** Drei Jahre Ornithologie zwischen Verdun und Belfort. München Verhandl. Orn. Ges. 13 1918 (245-288). 825
- Stresemann, E.** Ein Beitrag zur Kenntnis der Brutvögel der Voralpen. München Verhandl. Orn. Ges. 13 1918 (337-345). 826
- Stresemann, E.** Hugo Mayhoppf. Ein Nachruf. München Verhandl. Orn. Ges. 13 1918 (360-362). 827
- Stubbs, F. J.** The Cornerake in Essex. Essex Nat. Stratford 18 1918 (189-192). 828
- Studer, T.** Welches sind die richtigen Speziesnamen für die rotschnäblige Alpenkrähe und die gelbschnäblige Alpendohle. Borne Mitt. Nat. Ges. 1917 1918 (45-52). 829
- Studer, T.** Aves in: "Die steinzeitlichen Stationen des Birstales zwischen Basel und Delsberg" von Fritz Sarasin. Zurich N. Denkschr. Schweiz Nat. Ges. 54 No. 2 1918 (170-173, 180-181, 201-260, 228-231, 272-278). 830
- Sunkel, W.** Ornithologische Beobachtungen aus Flandern 1915-16. München Verhandl. Orn. Ges. 13 1918 (225-244). 831
- Sunkel, W.** Ornithologische Beobachtungen aus Nordfrankreich. Orn. Monatsb. Berlin 26 1918 (72-76). 832
- Suomalainen, E. W.** Muutamia huomattavia lintuja Porin-Luvian saaris-tossa. [Einige bemerkenswerte Vögel in den Schären von Pori und Luvia.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (127-129) (Deutsches Ref. 284-286). 833
- Swarth, H. S.** The Pacific coast Jays of the genus *Aphelocoma*. Berkeley Univ. Cal. Publ. Zool. 17 1918 (405-422) 1 text fig. 834
- Swarth, H. S.** Notes on some birds from central Arizona. Condor Hollywood Cal. 20 1918 (20-24). 835
- Swarth, H. S.** The subspecies of the Oregon Jay. Condor Hollywood Cal. 20 1918 (83-84). 836
- Swarth, H. S.** The distribution of the subspecies of the Brown Towhee (*Pipilo crissalis*). Condor Hollywood Cal. 20 1918 (117-121) map and 1 text-fig. 837
- Swarth, H. S.** Three new subspecies of *Passerella iliaca*. Washington Proc. Biol. Soc. 31 1918 (161-164). 838
- Swynnerton, C. F. M.** Rejections by birds of eggs unlike their own: with remarks on some of the Cuckoo problems. Ibis London 1918 (127-154). 839
- Swynnerton, C. F. M.** Stray notes on birds. Pretoria S. Afr. J. Nat. Hist. 1 1918 (69-73). 840
- Symons, C. T.** Note on the breeding habits of the Did-he-do-it (*Sarcogrammus indicus*) [in Ceylon]. Spol. Zeylan. Colombo 10 1917 (397-398). 841
- Szemere, L. v.** Vom Ziegenmilker. (*Caprimulgus europaeus*). Aquila Budapest 23 1917 (315-316 Magyar 509-510 German). 842
- Szeots, B.** Meino Erfahrungen die ich beim Beringen der Rauchschnalben und anderer Vögel gesammelt habe. Aquila Budapest 21 1915 (192-198). 843
- Szeots, B. v. sen.** Aus meinen Beobachtungen über Beringung und Vogelschutz. Aquila Budapest 23 1917 (341-344 Magyar 537-540 German). 844
- Szeöts, B. v.** Meine Vogelmarkierungsergebnisse im Jahre 1917. Aquila Budapest 24 1918 (233-237) Magyar and German. 845
- Sztolcman, J. i Domaniewski, J.** Przyczynek do znajomości form rodzaju *Pyriglena* Cab. Notes sur les formes du genre *Pyriglena* Cab. Warszawa C.R. Soc. Sci. 11 1918 (176-186) French resumé. 846
- Sztolcman, J. vide** Domaniewski.
- Takatsukasa, N.** Kagoshima-konka no chorui. [Birds of Kagoshima Prefecture.] Dobuts Z. Tokyo 30 1918 (438-444). 847
- Taverner, P. A.** Addenda to the birds of Jasper Park, Alberta. Canad. Alpine J. Banff 9 1918 (62-69) 1 pl. 848
- Taverner, P. A.** Some summer birds of Alert Bay, British Columbia. Condor Hollywood Cal. 20 1918 (183-186). 849
- Taverner, P. A.** The Hawks of the Canadian Prairie Provinces in their relation to agriculture. Ottawa Mus. Bull. No. 28 1918 (1-14) 4 pls. 7 text-figs. 850

- Taverner, P. A.** The Gannets of Bonaventure Island. Ottawa Nat. 32 1918 (21-26) photos. 851
- Tavistock, Marquis of** *vide* Mathews.
- Thienemann, J.** XVII Jahresbericht (1917) der Vogelwarte Rossitten der Deutschen Ornithologischen Gesellschaft. Journ. Ornith. Leipzig 66 1918 (343-406) 1 Taf. 852
- Thienemann, J.** Vogelwarte Rossitten (Tannenhäherzüge). Orn. Monatsber. Berlin 26 1918 (25-26). 853
- Thienemann, J.** Vogelwarte Rossitten Ein Massensterben von Vögeln. Orn. Monatsb. Berlin 26 1918 (110-113). 854
- Thornhill, C. M.** Some notes on Game-birds in Mesopotamia. Bombay J. Nat. Hist. Soc. 25 1918 (486-490). 855
- Thorburn, A.** British Birds written and illustrated by. Supplementary part with two plates in colour (1-11) London 1918 4to. 856
- Ticehurst, C. B.** The Mesopotamian Bulbul (*Pycnonotus leucotis mesopotamia* subsp. n.). Bombay Journ. N.H. Soc. 26 1918 (279-280). 857
- Ticehurst, C. B.** The plumage of the Purple Honeyeater (*Arachnethra asiatica*). Bombay Journ. N.H. Soc. 26 1918 (286-287). 858
- Ticehurst, C. B.** The progress of ornithology. President's Address. Norwich Trans. Nat. Soc. 10 1918 (183-206). 859
- Tischler, F.** Das männliche Jugendkleid der Schellente (*Nyroca clangula*). Falco Halle 11 1915 (6-8). 860
- Tischler, F.** Über den Zug der nordischen Schaafstelze (*Motacilla flava thumbergi* Billb.) in Ostpreussen. Falco Halle 13 1917 (4-6). 861
- Tischler, F.** Inwieweit hat der Graumammer (*Emberiza calandra*) als Zugvogel zu gelten. Journ. Ornith. Leipzig 66 1918 (425-430). 862
- Tischler, F.** Die Geschlechtunterschiede beim Seidenschwanz (*Bombycilla garrula*). Orn. Monatsber. Berlin 26 1918 (85-89). 863
- Tischler, F.** *Recurvirostra avosetta* im Binnenlande von Ostpreussen. Orn. Monatsb. Berlin 26 1918 (99). 864
- Tischler, F.** Vom Frühjahrszuge und Paarungsruf des dunklen Wasserläufers (*Totanus erythropus*). Orn. Monatsber. Berlin 26 1918 (117-119). 865
- Townsend, C. W.** In Audubon's Labrador. Boston and New York (Mifflin) 1918 (i-xii + 1-354) 8vo. 866
- Townsend, C. W.** Ipswich (U.S.A.) Bird notes. Auk Cambridge Mass. 35 1918 (182-185). 867
- Townsend, C. W.** A winter Crow roost. Auk Cambridge Mass. 35 1918 (405-416). 868
- Tratz, E. P.** Die Vogelwelt des östlichen Arlberggebietes. Orn. Jahrb. Hallein 28 1918 (80-100). 869
- Trischitta, A.** La *Pratercula arctica* (Linn.) nel Messinese. Riv. Ital. Orn. Bologna 4 1918 (12-15). 870
- Tschusi zu Schmidhoffen, V. Ritter v.** Bemerkungen zu H. Schalows *Lanius excubitor rapax* Br. Orn. Monatsb. Berlin 26 1918 (145-146). 871
- Tschusi zu Schmidhoffen V. Ritter v.** *vide* Schalow.
- Tufts, R. W.** Notes on the birds of the Grand Pré region, Kings County, Nova Scotia. Halifax Proc. Trans. Nova Scotian Inst. Sc. 14 1918 (155-200). 872
- Tuttle, H. E.** Notes on the nesting of the Nashville Warbler. Bird-lore Harrisburg Pa. 20 1918 (269-272) photos. 873
- Vallon, G.** Giacinto Martorelli. Riv. Ital. Orn. Bologna 4 1918 (vii-xii) portr. 874
- Vallon, G.** Uccelli rari comparsi nella Provincia del Friuli durante l'anno 1914. Riv. Ital. Orn. Bologna 4 1918 (16-18). 875
- Van Someren** *vide* Someren.
- Wahlgren, E.** Det öländska alvarets djurvärd ii. Stockholm Ark. Zool. 11 No. 1 1917 (1-130). 876
- Wait, W. E.** Notes on Ceylon Waterbirds, Ceylon Pigeons and Game birds. Spolia Zeyland. Columbo 10 1917 (287-379) 1 pl. 877
- Wait, W. E.** Notes on Ceylon Rails. Waders, Gulls, and Terns. Spol. Zeyl. Columbo 10 1916 (179-260) 2 pls. 878

- Walton, J. S. T. *vide* Bolam.
- Warburton, S. jr. Some oceanic birds from off the coast of Washington and Vancouver Island. Condor Hollywood Cal. 20 1918 (178-180) 1 photo. 879
- Wastenson, A. Mindre sångsvan och purpurhäger skjutna mitt inne i Småland [Sweden]. Fauna och Flora Uppsala 1916 (139). 880
- Watkin, H. R. Why the Nightingale is seldom heard in Devon. Torquay J. Nat. Hist. Soc. 2 1918 (236-237). 881
- Wayne, A. T. Some additions and other records new to the ornithology of South Carolina. Auk Cambridge Mass. 35 1918 (437-442). 882
- Wayne, A. T. Notes on six birds from Georgia. Auk Cambridge Mass. 35 1918 (485-486). 883
- Weber, A. Déplacement de la première ébauche pulmonaire chez l'embryon de poulet sous l'influence de l'élévation de la température d'incubation. Paris C.R. Soc. Biol. 81 1918 (812-813). 884
- Webster, G. V. The flight of birds. Hastings and East Sussex Nat. 3 1918 (47-63). 885
- Weigold, H. Wie unterscheiden sich die Pulli von Toralk und Trollumme. Falco Halle 11 1915 (20-21) 2 pls. 886
- Welander, E. Fagelnotiser från Nerike [Sweden]. Fauna och Flora Uppsala 1916 (232). 887
- Werth, E. Kurzer Überblick über die Gesamtfrage der Ornithophilie. Botan. Jahrb. Leipzig 53 1915 Beiblatt (314-378) 14 figs. 888
- Wetmore, A. The birds of Desecheo Island, Porto Rico. Auk Cambridge Mass. 35 1918 (333-340). 889
- Wetmore, A. A note on the tracheal airsac in the Ruddy Duck. Condor Hollywood Cal. 20 1918 (19-20). 890
- Wetmore, A. Description of a new subspecies of the Little Yellow Bittern from the Philippine Islands. Proc. Biol. Soc. Washington 31 1918 (83-84). 891
- Wetmore, A. Bones of birds collected by Theodoor de Booy from Kitchen Midden deposits in the islands of St. Thomas and St. Croix. Washington D.C. Proc. U.S. Nat. Mus. 54 1918 (513-522) 1 pl. 892
- Wetmore, A. On the anatomy of *Nyctibius* with notes on allied birds. Washington D.C. Proc. U.S. Nat. Mus. 54 1918 (577-586) 7 text-figs. 893
- Wetmore, A. The Duck sickness in Utah. Washington D.C. U.S. Dept. Agr. Bull. No. 672 1918 (1-26). 894
- Wetmore, A. Birds observed near Minco, Central Oklahoma. Wilson Bull. Chicago Ill. No. 102 1918 (1-16). 895
- Wettstein, O. v. Wissenschaftliche Ergebnisse der von F. Werner unternommenen zool. Exp. nach dem Anglo-Ägyptischen Sudan (Kordofan) 1914. II. Bearbeitung der Vögel und Säugethiere. Wien Denkschr. K. Ak. Wiss. 94 1917 (553-693) 1 pl. 896
- Whistler, H. Notes on the birds of Ambala distr., Punjab. Bombay J. Nat. Hist. Soc. 25 1918 (665-681); 26 1918 (172-191). 897
- Whistler, H. An addition (*Emberiza miliaria*) to the Indian list of birds. Bombay J. Nat. Hist. Mus. 25 1918 (742) 898
- Whistler, H. The White-necked Stork in the Punjab. Bombay J. Nat. Hist. Soc. 25 1918 (746-747). 899
- Whistler, H. Abnormal varieties of the Indian Redstart (*R. rufiventris*) and the common House Crow (*C. splendens*). Bombay Journ. N.H. Soc. 26 1918 (289-290). 900
- Whistler, H. Colonel Tytler's collection of birds. Ibis London 1918 (737-739). 901
- White, H. L. Birds in my garden. [New South Wales.] Australian Zool. Sydney 1 1918 (103-107) photo. 902
- White, H. L. Descriptions of two new nests and eggs. Emu Melbourne 18 1918 (127-128) [*Malurus*, *Eremiornis*]. 903
- White, H. L. Description of new subspecies of *Malurus cyanotus* and *Acanthiza nana*. Emu Melbourne 18 1918 (121-122). 904
- White, H. L. Notes upon eggs of the Wedge-tailed Eagle (*Uroaëtus adatax*). Emu Melbourne 17 1918 (149-150). 905

- White, S. A. Ooldea on the East-West Railway. On the flooded Murray river and other sketches (1-88) many photos. [Adelaide S.A. 1918] sm. 8vo. 906
- White, S. A. Further notes upon Cormorants, their food, temperatures, etc. Emu Melbourne 17 1918 (214-215). 907
- White, S. A. Birds of Lake Victoria and the Murray River for 100 miles down stream. Emu Melbourne 18 1918 (8-25) 4 photos. 908
- White, S. A. A sketch of the life of Samuel White, ornithologist, soldier, sailor and explorer. S.A. Ornith. Adelaide 3 1918 (145-151 181-188 212-218 236-243). 909
- White, S. A. A trip on the Coorong and amongst the Bristle-birds on Younghusband Peninsula. S.A. Ornith. Adelaide 3 1918 (164-173). 910
- White, S. A. A visit to the breeding grounds of Swan and Pelican on the Coorong. S.A. Ornith. Adelaide 3 1918 (198-200) photo. 911
- White, S. A. Notes upon the Black-breasted Plover (*Zonifer tricolor* Vieillot) S.A. Ornith. Adelaide 3 1918 (229-231) 3 photos. 912
- Whitlock, F. L. Notes on North-Western Birds. Emu Melbourne 17 1918 (166-179), with notes by A. J. Campbell. 913
- Whitting, R. H. Zoological Report. Rugby Rep. Sch. Nat. Hist. Soc. 51 1918 (65-73). 914
- Wibom, C. O. G. Abnormiteter i tjädertuppens beteende. Fauna och Flora Uppsala 13 1918 (75-82). 915
- Wickham, P. F. Miscellaneous notes on some birds in the Chin hills, Burma. Bombay J. Nat. Hist. Soc. 25 1918 (750-751). 916
- Wiglesworth, J. The Little Owl (*Athene noctua*) in Somerset with map. Taunton Proc. Somerset Nat. Hist. Soc. 63 1918 (152-161) map. 917
- Willard, F. C. Evidence that many birds remain mated for life. Condor Hollywood Cal. 20 1918 (167-170). 918
- Willett, G. Bird notes from Forrester Island, Alaska. Condor Hollywood Cal. 20 1918 (85). 919
- Willett, G. A peculiarity of plumage in some specimens of the Heermann Gull. Condor Hollywood Cal. 20 1918 (122) 1 fig. 920
- Williams, M. Y. Brief notes on the fauna of Lambton county, Ont. Ottawa Nat. Ottawa 32 1918 (37-38). 921
- Williamson, W. J. F. The birds of Bangkok. Bangkok J. Nat. Hist. Soc. Siam 2 1917 (319-339). 922
- Williamson, W. J. F. New or noteworthy bird-records from Siam. Bangkok J. Nat. Hist. Soc. Siam. 3 1918 (15-42). 923
- Wilson, F. E. An ornithological trip to the Nhill district. Victorian Nat. Melbourne 35 1918 (93-100 111-112). 924
- [Witherby, H. C.] Recovery of marked Birds. Bt. Bds. London 11 1918 (185-187); 12 1918 (154-158). 925
- Witherby, H. F. The "British Birds" marking scheme. Progress for 1917. Bt. Bds. London 11 1918 (272-276). 926
- Witherby, H. F. *vide* Jourdain.
- Witt-Strömer, B. Ornitologiska iaknagelser i Vilhelminas socken af Åsele Lappmark [Lappland, Sweden]. Fauna och Flora Uppsala 1916 (216-226). 927
- Wolda G. De staartmees (*Aegithalus caudatus*). [Die Schwanzmeise. (*Aegithalus caudatus*.)] Ardea Leiden 7 1918 (63-77) map. 928
- Wood, N. A. Notes on the birds of Alger county, Michigan. Ann Arbor Mich. Occ. Papers Mus. Zool. Univ. No. 50 1918 (1-15) map. 929
- Wright, A. A. & A. H. Sap-drinking by Sapsuckers and Hummingbirds. Auk Cambridge Mass. 35 1918 (79-80). 930
- Wright, H. W. Labrador Chickadee (*Penthestes hudsonicus nigricans*) in its return flight from the fall migration of 1916. Auk Cambridge Mass 35 1918 (37-40). 931
- Zedlitz, O. Graf. Der Einfluss des russischen Winters auf die Vogelwelt. Biologische Beobachtungen aus dem Schara Gebiet. J. Ornith. Leipzig 66 1918 (409-420). 932

Zedlitz, O. *Graf.* Beobachtungen an Rabenvögeln im westlichen Russland. Orn. Monatsber. Berlin 26 1918 (33-39 63-67). 933

Zeitz, F. R. Another new record for South Australia, *Eurystomus o. pacificus*. S.A. Ornith. Adelaide 3 1918 (180). 934

Zimmer, J. T. A few rare birds from Luzon and Mindoro. Philippine J. Sci. Manilla P.I. 13D 1918 (223-232) [*Hyoloterpe*]. 935

Zimmer, J. T. Some notes on the birds of southern Palawan and adjacent islands. Philippine J. Sci. Manilla sec. 13 D 1918 (327-357). 936

Zimmer, J. T. Instinctive feeding habits of young Herons. Washington Proc. Biol. Soc. 31 1918 (94). 937

FINSCH, Chernel, 146; Sclater, 771; K. LAMPERT, Anon, 13; W. V. LEGGE, Anon., 12, Sclater, 774; O. LE ROY, Greschik, 290; G. MARTORELLI, Sclater, 773; Vallon, 874; H. MAYHOFF, Stresemann, 827; E. A. MEARNS, Richmond, 691; L. B. MOURITZ, Jourdain, 395; Sclater, 774; A. J. NORTH, Mathews, 519; Sclater, 770; F. M. OGILVIE, Sclater, 771; BRIG-GENL. C. G. RAWLING, Sclater, 770; P. SCHUSTER, Schuster, 763; H. R. TAYLOR, Palmer, 643; D. F. WEINLAND, Bacmeister, 27; S. WRIGHT, Stone, 822.

### General and Popular Treatises.

Beebe, 73; Oort, 629.

### Bibliography.

Apstein, 15; Braislis, 105; Gurney, 301; Harris, 318; Hartert, 330; Hopkinson, 368; Lambrecht, 444, 445; Mathews and Iredale, 529; Rhoads, 689; Schalow, 742.

### Institutions and Collections.

NICE MUSEUM, Caziot, 141; FIELD MUSEUM, CHICAGO, Cory, 175; TRING MUSEUM, Hartert, 326; BIOLOGICAL INSTITUTE OF HELIGOLAND, Krüss, 432; BULLOCK'S LONDON MUSEUM, Mullens, 577; AMERICAN ORNITHOLOGISTS' UNION, Palmer, 641; ROSITEN BIRD-STATION, Thienemann, 852; COL. TYTLER'S BIRD-COLLECTION, Whistler, 901.

### Technique and Methods.

Allen, 9; Collinge, 172; Lloyd, 472; Menegaux, 543.

### Economics (see also under Food-habits, p. 42).

Arbuckle, 16; Beal, 67; Butler, 127; Cleland, 168; Collinge, 170, 171; Criddle, 179; Duerden, 236; Goodale, 280; Grinnell, Bryant & Storer, 298; Kalmbach, 403; Long, 474; Ramsden, 673; San Martin, 734; Taverner, 850.

### Bird-Protection.

Csorgey, 182, 184; Flower & Nicoll, 258; Gutierrez, 303; Lakjer, 439; Levander, 460; McAtee, 495; Mauks, 534; Meade-Waldo, 538; Menegaux, 540; Oberholser, 627.

## II.—SUBJECT INDEX.

*N.B.—For full Reference vide Titles.*

### COMPREHENSIVE AND GENERAL. 5803

#### History.

Aptein, 15; Cardoso, 135; Evans, 242; Harris, 318; Mullens, 577; Pelt-Lechner, 656; Rothschild, 717; Shimek, 788; Ticehurst, 859.

#### Biography.

JOHN ABBOT, Rhoads, 689; J. J. AUDUBON, Herrick, 354; J. GOUDOT, Palmer, 642; J. GRUNDLACH (1810-1896), Ramsden, 674; S. v. PETENYIS, Csorgey, 183; SAMUEL WHITE, White, 909; JOHN WOLLEY, JUN., Palmen, 640.

#### Biography—Autobiography—

F. STEPHENS, 819.

#### Biography—Obituary Notices.

C. J. ALEXANDER, Alexander, 3, 4; L. BELDING, Fisher, 256; GRAF HANS VON BERLEFSCH, Kleinschmidt, 415; COMDR. HON. R. O. B. BRIDGEMAN, Sclater, 770; R. O. CUNNINGHAM, Sclater, 774; C. D. ERDT, Laubmann, 452; C. FINNILÄ, Helms, 351; O.

**Acclimatization and Domestication.**

Barros, 60; Duerden, 236; McAtee, 495; Philpott, 660.

**Aviculture.**

Baily, 39; Braun, 107; Delacour, 202; Galloway, 266; Hopkinson, 366.

**Nomenclature.**

GENERAL PRINCIPLES:—Harting, 335; Mathews & Iredale, 530.

CHANGES AND EMENDATIONS:—Anon., 11; Brewster, 113; Hartert, 323, 325, 330; Hesse, 358; Kleinschmidt, 419, 420; Lönnberg, 475; Mathews, 521; Mathews & Iredale, 529, 530; Oberholser, 608, 622, 623, 626; Sachtleben, 732; Snouckaert, 804; Studer, 829.

VERNAacular NAMES:—Dorning, 232; Serié, 785.

**Phylogeny & Classification.**

Boubier, 99; Grinnell, 292; Kleinschmidt, 416; Oberholser, 621.

**STRUCTURE. 5807****Plumage and epithelial structures.**

Bates, 63; Clark, 160, 162; Engholm, 240; Gladstone, 275, 276.

**Nervous System and Sense Organs.**

Boeke, 95; Heringa, 352a; Küenzi, 433; Retterer & Neuville, 688; Slonaker, 798.

**Osteology.**

Lambrecht, 441; Lebedinsky, 455; Shufeldt, 791, 793, 794.

**Digestive System.**

Greschik, 288, 289, 291; Miller, 562.

**Respiratory System.**

Wetmore, 890.

**Urino-genital System.**

Riddle, 692.

**General Anatomy.**

Bhattacharya, 86; Boring & Pearl, 98.

**Anatomy of Special Forms.**

PIROTELLUS, Clark, 161; COLUMBA, Clark, 162; STRUTHIO, Duerden, 236; ANDROGLOSSA, Greschik, 291; NESTOR, Shufeldt, 793; OPISTHOCOMUS, Shufeldt, 794; NYCTIBIUS, Wetmore, 893.

**PHYSIOLOGY. 5811****Nervous System and Sense Organs.**

Dubois, 235; Heikertinger, 345; Hess, 357; Mottram & Green, 574; Penard, 659; Slonaker, 798.

**Respiration.**

Weber, 884.

**EMBRYOLOGY. 5815****Epithelial, Muscular and Skeletal Systems.**

Bruno, 117; Delezenne et Fourneau, 203; Johnson, 391; Lebedinsky, 454.

**Respiratory and Vascular Systems.**

Johnson, 390; Weber, 884.

**Early Stages.**

Bartelmez, 61; Heaman, 339; Rabl, 671.

**Embryology of special forms.**

STRUTHIO, Aubrey, 23.

**ETHOLOGY. 5819****General and Miscellaneous.**

Braun, 109; Deschiens, 205; Dinelli, 210; Fisher, 255; Kostka, 430; Lönnberg, 479; Miller, 558, 559; Poulton, 667; Schweppenburg, 769; Söderberg, 808; Werth, 888; Zedlitz, 932.

**Food-habits.**

GENERAL: Brown, 108; Brooks, 115; Bryant, 118; Cleland, 168; Collinge, 169, 172; Holt, 365; Macintyre, 500; Mottram, 573.

The food habits of:—PHASIANIDAE, Beebe, 72; COLUMBA, TURTUR, PHASIANUS, Heumen, 355; ANATIDAE, McAtee, 493, 496; FALCONIDAE, Bittera, 88, 89, Le Souef, 459; GLAUCIDIUM, Palmgren, 646; HINUN-DINIDAE, Beal, 67; CORVUS, Csiki, 181, Kalmbach, 403; Kole & Giers-bergen, 427, Long, 474.

### Migration.

GENERAL PROBLEMS, Boase, 94; Bretscher, 111; Deschiens, 205; Grinnell, 297; Heintze, 347; Jackson, 387; Nichols, 594.

British Islands—Regional observa-tions:—Baxter & Rintoul, 64, 65; Bickerton, 87; Hopkinson, 369.

FRANCE, Schuster, 761.

GERMANY, Helfer, 348; Krüss, 432.

AUSTRO-HUNGARY, Chernel, 147, 148; Hegypoky, 343, 344; K. Ung. Orn. Centr. 402, Mauks, 534; Rossler, 712; Schenk, 743; Szeots, 843-5; Tratz, 869.

HOLLAND, Ekama, 239.

DENMARK, Hørring, 370.

SWEDEN, Munsterhjelm, 581; Ren-dahl, 682; Söderberg, 806.

S. RUSSIA, Haviland, 336.

AFRICA, Riviere, 698; Someren, 810.

AUSTRALIA, Banfield, 51.

SOUTH AMERICA, Gibson, 272.

NORTH AMERICA, Mailliard, 512; Oberholser, 628; Stone, 823.

### Migration of single species or groups.

*Oceanites*, Murphy, 585; *Larus*, Robinson, 704; *Mergus*, Palmén, 638; *Cypselus*, Palmgren & Levander, 651; *Hirundo*, Petit, 658; *Muscicapa*, Rendahl, 684; *Penthestes*, Wright, 931; *Motacilla*, Tischler, 861; *Alauda*, Saxtorph, 739; *Montifringilla*, Gran-vik, 285; *Nucifraga*, Thienemann, 853.

### Bird-marking experiments and results.

Clarke, 166; Krüss, 432; Lönnberg, 483; Oort, 631; Palmén, 639; Szeots, 843; Thienemann, 852; Witherby, 925, 926.

### Flight.

Beebe, 72; Hardy, 315; Guérin, 300; Webster, 885.

### Sexual Relations and Display.

Gadeau de Kerville, 265; Schlegel, 751; Willard, 918.

### Nidification (General Problems).

Baker, 43; Cathelin, 140; Rowan, 723; Swynnerton, 839; Thienemann, 852.

### Nidification (Regional obser-vations).

British Islands, Baxter & Rintoul, 65.

FRANCE, Congreve, 173.

DENMARK, Berg, 76.

SIBERIA, Riley, 696.

INDIA, Baker, 42.

SUMATRA, Robinson & Kloss, 703.

AFRICA, B.—, 26; Schweppenburg, 768.

AUSTRALIA, Macgillivray, 498; Söder-berg, 808.

SOUTH AMERICA, Bertoni, 81; Gib-son, 272.

NORTH AMERICA, Horsbrugh, 371.

### Nidification (observations on single species, *vide* Pt. III. Systematic).

Ashley, 22; Bayliss, 66; Beebe, 72; Berlepech, 79; Blandy, 91; Bolam, 97; Bradbury, 102; Bradbury, 103, 104; Bunyard, 121; Carpenter, 137; Chernel, 143, 144; Coward, 177; Dabbene, 193, 194, 195, 197; Dice, 209; Dixon, 212; Donald, 230; Finnila, 244, 245; Hall, 311; Heeckeren, 340; Ireland, 384; Kawaguchi, 404; Kihlen, 410; Lang & Chapin, 446; Lavauden et Mourgue, 453; Littlejohns & Lawrence, 468, 469; Mackenzie, 502, 503; Matthews, 531; Merikallio, 546; Meyere, 554; Miller, 559; Morgan, 569; Mosley, 572; Mousley, 575; Munro, 580; Murphy, 585; Nibe, 591; Osmaston, 632; Owen, 633, 634; Palmgren, 647; Perry, 657; Pitt, 661; Renshaw, 686; Rüdiger, 727; Schalow, 740; Symons, 841; Tuttle, 873; White, 903, 905.

**Voice.**

GENERAL: Andersen, 10; Hawkins, 338; Schmitt & Stadler, 755.

On the song or call-note of:—*Phasianidae*, Beebe, 72; *Totanus*, Tischler, 865; *Glaucionetta*, Mayhoff, 536; *Lanius*, Csorgey, 185; *Certhia*, Stadler & Schmitt, 817; *Fringilla*, Hagen, 309.

**Psychology.**

Mottram, 573; Poulton, 667; Swynnerton, 839; Zimmer, 937.

**Colour and Molt.**

Butler, 125; Jackson, 386, 387, 388; Kennard, 406; Kihlén, 410; Lindquist, 465; Lönnberg, 477; Mottram & Green, 574; Nyquist, 603, 604; Ratz, 675; Söderberg, 808; Spegazzini, 815.

**Pathology.**

Arbuckle, 16; Aubry, 24; Gallo-way, 266; Jablous, 385; Macintyre, 501; Murray, 586; Sergent et Sergent, 784; Wetmore, 894.

**Avian Parasitology.**

Lopez-Neyra, 488; Sergent et Sergent, 784.

**Mortality.**

Bolam, 96; Goelitz, 278; Jourdain & Witherby, 401; Mackenzie, 504; Squires & Hanson, 816; Theinemann, 854.

**VARIATION AND AETIOLOGY.**

5823

**Variation.**

Baker, 43; Dwight, 238; Lucanus, 492; Munsterhjelm, 582; Whistler, 900.

**Teratology.**

Bhattacharya, 86; Boring & Pearl, 89; Hannerz, 314.

**Hybrids.**

Adlersparre, 1; Baily, 40; Baxter & Rintoul, 65, p. 151; Ghidini, 269; Kooiman, 428; Lönnberg, 482; Palmgren, 650; Robinson, 699; Silver, 795.

**Heredity and Evolution.**

EVOLUTION: Kleinschmidt, 412; Matthews, 524.

GENETICS: Adlersparre, 1; Cutler, 189; Goodale, 280, 281, 282, Lebedinsky, 455; Lippincott, 467; Morgan, 570, 571; Nuttall, 599; Pearl, 654; Punnett & Bailey, 669; Riddle, 693.

SECONDARY SEXUAL CHARACTERS: Goodale, 282; Pezard, 659.

SEXUAL SELECTION: Hawkins, 338.

INFLUENCE OF EXTERNAL CONDITIONS: Lebedinsky, 455.

**Fossil and Extinct Birds.**

GENERAL: Lambrecht, 442, 443, 444, 445; Munthe, 583; Newton, 590; Shufeldt, 792; Studer, 830; Wetmore, 892.

SPECIAL FORMS DESCRIBED: *Struthio*, Clark, 163; *Didus*, Rothschild, 717; *Jabiru*, Sellards, 782; *Haliaeetus*, Lönnberg, 478.

**GEOGRAPHY. 5827****General.**

Heintze, 347.

**PALEARCTIC REGION.****British Islands.**

BRITISH ISLANDS: Anon., 11; Butterfield, 129; Gladstone, 274; Kleinschmidt, 413, 414; Thorburn, 856.

HERTFORDSHIRE: Bickerton, 87; Hopkinson, 369.

SUSSEX: Alexander, 5; Arnold, 17; Butterfield, 130; Nichols, 593.

OXFORDSHIRE: Jourdain, 399.

SOMERSETSHIRE: Wiglesworth, 917.

DORSETSHIRE: Blathwayt, 92; Curtis, 188.

DEVONSHIRE: Watkin, 881.

CORNWALL: Chubb, 158.

ESSEX: Brown, 116; Jourdain, 397; Owen, 635; Stubbs, 828.

NORFOLK: Gurney, 302; Riviere, 697; Rowan, 721, 724.



WARWICKSHIRE: Leigh, 456, 457; Whitting, 914.

STAFFORDSHIRE: Davies, 201; Jourdain, 400; Masefield, 517.

SHROPSHIRE: Forrest, 260.

CHESHIRE: Coward, 176.

LANCASHIRE: Baddeley, 33; Coward, 176; Robinson, 705.

YORKSHIRE: Gyngell, 307.

Co. DURHAM: Ruxton, 370.

NORTHUMBERLAND: Bolam, 96; Miller, 557.

SCOTLAND: Baxter & Rintoul, 65.

LANARKSHIRE: Macdonald, 497.

BUTE: McWilliam, 506.

FIFE: Berry, 80.

ISLE OF MAY: Baxter & Rintoul, 64; Evans, 242.

BANFFSHIRE: Mahood, 511.

INVERNESS-SHIRE: Clarke, 167.

ROSS-SHIRE: Mackenzie, 504.

OUTER HEBRIDES: Beveridge, 84, 85, 85A; Chapman, 142.

ORKNEY and SHETLAND: Hartert, 329; Jourdain, 394; Selous, 783.

IRELAND: Burkitt, 124.

Co. WEXFORD: Low, 491; Patten, 653.

Co. CORK: Newton, 590.

Co. GALWAY: Rutledge, 729.

ISLE OF MAN: Ralfe, 672.

CHANNEL ISLES: Rowswell, 725.

## France.

GENERAL: Bouvier, 100; Petit, 658.

EASTERN FRANCE (War Districts) Bacmeister, 28; Bacmeister & Kleinschmidt, 31, 32; Berlepsch, 79; Kleinschmidt, 417, 418; Lomont, 473; Schuster, 761; Gunkel, 832; Stresemann, 825.

ORNE: Latacq, 447, 448, 449.

SEINE INF.: Gadeau de Kerville, 264.

SOMME: Congreve, 173.

VAR: Millet-Horsin, 563.

## Germany.

GENERAL: Kleinschmidt, 423.

RHEINLAND: Kleinschmidt & Jordans, 424.

HESSEN: Schnurre, 756; Schuster, 764, 765.

THURINGISCHE STAATEN: Hildebrandt, 360.

PROV. SACHSEN: Menzel, 545; Schlegel, 748.

KONGR. SACHSEN: Hoffmann, 363; Schlegel, 752.

BRANDENBURG:—Helfer, 348; Schalow, 741; Seilkopf, 780.

SCHLESSEN: Bährmann, 35.

POSEN: Hammling, 312.

POMMERN: Hagen, 308; Ibach, 379; Koske, 429.

WESTPREUSSEN: Hammling, 313; Ibach, 380.

OSTPREUSSEN: Rüdiger, 726; Theinmann, 852, 854; Tischler, 864.

BADEN: Schuster, 762.

WÜRTTEMBERG: Bacmeister, 30; Buchner, 119; Dittus, 211.

BAYERN: Bertsch, 83; Laubmann, 451; Rendle, 685; Stresemann, 826.

HELGOLAND: Krüss, 432.

## Austria-Hungary.

TIROL: Michel, 555; Tratz, 869.

SABZBURG: Schiebel, 747.

DALMATIA: Mannsberg, 515; Roháček, 710.

BOHEMIA: Loos, 487.

MORAVIA: Čapek, 184.

GALICIA: Chernel, 145; Domaniowski, 225.

HUNGARY: Chernel, 143, 144, 148, 149; Csiki, 181; Hegypoky, 343, 344; K. Ung Orn. Centr., 402; Lambrecht, 442, 443; Nagy, 587, 588; Schalow, 740; Schenk, 743, 745, 746.

## Switzerland.

Blanc, 90; Burg, 123; Hess, 356; Noll-Tobler, 597; Studer, 830.

## Belgium.

Sunkel, 831.

**Holland.**

Aplin, 14; Ekama, 239; Hens, 352; Houten, 373; Meyere, 553, 554; Oort, 629, 630, 631; Pelt-Lechner, 656; Snouckaert, 801; Wolda, 928.

**Scandinavia.**

DENMARK: Christensen, 151; Helms, 350; Hørring, 370; Klinge, 425; Kristensen, 431; Saxtorph, 739.

NORWAY: Finnliä, 253.

SWEDEN: Berg, 76; Bergman, 77; Fries, 261; Gravik, 285, 286; Gylling, 305; Hedeby, 341, 342; Kihlén, 409; Lindquist, 464; Lönnberg, 480; Maule, 535; Montell, 565; Munsterhjelm, 581, 582; Munthe, 583; Nyqvist, 601, 602, 603, 604; Porat, 665; Rendahl, 681, 682, 683, 684; Söderberg, 806, 807; Wahlgren, 876; Wastenson, 880; Welander, 887; Witt-Strömer, 927.

ICELAND: Kleinschmidt, 420; Stefansson, 818.

**Russia.**

GENERAL: Domaniewski, 215.

WESTERN RUSSIA (War Zone): Denier, 204; Görnitz, 284; Rüdiger, 726, 727, 728; Schlegel, 750; Schlüter, 753; Zedlitz, 933.

FINLAND: Brenner, 110; Finnliä, 244, 246, 247, 248, 249, 250, 251, 252, 253; Hilden, 361, 362; Hortling, 372; Lindfors, 463; Lönnfors, 485; Merikallio, 546, 547, 548, 549, 550, 551; Montell, 565, 566, 567; Nyberg, 600; Palmen, 636, 637, 638; Palmgren, 646, 647, 648, 649; Suomalainen, 833.

COURLAND: Reichenow, 679.

POLAND: Bacmeister, 29; Domaniewski, 218, 220, 221, 224, 226; Zedlitz, 932.

GOV. MINSK: Grassmann, 287.

CHERSON: Haviland, 336.

GOV. SARATOW: Domaniewski, 216, 224, 227.

CAUCASUS REGIONS: Kleinschmidt, 420.

**Iberian Peninsula.**

SPAIN: Aldaz y Emazabel, 2; Seytre, 786.

**Italy.**

Carlotto, 136; Ghidini, 269, 271; Giglia-Tos, 273; Mazza, 537; Sabatini, 731; Trischitta, 870; Vallon, 875.

**Balkan States.**

SERBIA: Lintia, 466; Schenk, 744.

ROUMANIA: Haviland, 337.

MACEDONIA: Gengler, 268; Harison, 319; Schlegel, 749; Sladen, 796.

**Mediterranean Islands.**

MALTA: Despott, 206; Jourdain, 398.

**North Africa.**

ALGERIA: Rothschild, 714; Schweppenburg, 768.

TUNISIA: Blanchet, 93.

EGYPT: Flower & Nicoll, 258; Nicoll, 595.

**Western Asia.**

ASIA MINOR: Hartert, 328.

PALESTINE: Sladen, 797.

MESOPOTAMIA: Cumming, 187; Magrath, 510; Thornhill, 855; Ticehurst, 857.

**Russian Asia.**

NORTH-EAST SIBERIA: Dixon, 212; Dwight, 237; Riley, 696.

COAST PROV. (or Ussuriland): Domaniewski, 223.

**Eastern Palaeartic Asia.**

MANCHURIA: Domaniewski, 219; Kuroda, 434.

COREA: Domaniewski, 217; Kuroda, 434, 435.

JAPAN: Kuroda, 436, 437, 438; Momiyama, 564; Takasukasa, 847.

NORTHERN CHINA: Hartert, 324; Riley, 694.

**ETHIOPIAN REGION.**

GENERAL: Reichenow, 677.

**West Africa.**

SENEGAL: Menegaux, 541.

GAMBIA: Hopkinson, 367.

PORTUGUESE GUINEA: Hartert & Goodson, 334.

CAMEROON: Reichenow, 680.

BELGIAN CONGO: Menegaux et Saccghem, 544; Sassi, 736; Schouteden, 758.

ANGOLA: Rothschild, 716; Sclater & Mackworth-Praed, 778.

CAPE VERDE ISLES; Neumann, 589.

FERNANDO PO: Hartert & Goodson, 334.

### South Africa.

S.W. AFRICAN PROTECTORATE: Finch-Davies, 243; Reichenow, 680.

CAPE PROVINCE: Godfrey, 277.

TRANSVAAL: Riviere, 698; Sclater & M.-Praed, 778.

SOUTHERN RHODESIA: Swynnerton, 840.

### Central and East Africa.

TANGANYIKA TERRITORY (German East Africa): Hartert & Goodson, 334; Madarasz, 509; Reichenow, 680;

KENYA COLONY (British East Africa): Lönnberg, 484; Reichenow, 680; Someren, 810, 811.

UGANDA: Madarasz, 509; Someren, 809, 813.

### North-East Africa and Arabia.

SOMALILAND: Clarke, 165; Sclater, 776; Sclater & M.-Praed, 778.

ERITREA: Madarasz, 508.

ABYSSINIA: Sclater & M.-Praed, 778.

ANGLO-EGYPTIAN SUDAN: B., 26; Madarasz, 507; Reichenow, 680; Sclater & M.-Praed, 778; Wettstein, 896.

### Madagascar.

Bangs, 052.

### INDIAN REGION.

#### Indian Empire and Ceylon.

INDIA: Baker, 41, 42, 50.

PUNJAB: Donald, 230, 231; Hall, 311; Whistler, 897, 898, 899.

UNITED PROVINCES: Ireland, 384; Mathews, 531, 532; Osmaston, 632.

CEYLON: Baker, 50; Symons, 841 Wait, 877, 878.

BENGAL: Hartert, 332.

ASSAM: Baker, 49; Hartert, 332; Inglis, 382.

BURMA: Baker, 47, 49; Inglis, 383; Mackenzie, 502, 503; Wickham, 916.

### Malaya.

MALAY PENINSULA: Baker, 44, 49; Kloss, 426; Robinson & Kloss, 702, 703.

SUMATRA: Robinson & Kloss, 702, 703.

JAVA: Hartert, 322; Robinson, 700.

BORNEO: Baker, 49.

CELEBES: Riley, 695.

PHILIPPINE ISLANDS: Baer, 34; Hartert, 333; Lietget, 470; McGregor, 499; Wetmore, 891; Zimmer, 935, 936.

ANAMBA ISLANDS (S. China Sea): Oberholser, 625.

NATUNA ISLANDS: Hartert, 322.

### Indo-China and Southern China.

SIAM: Baker, 45, 46, 47; Gyldenstolpe, 304; Hartert, 321; Kloss, 426; Robinson & Kloss, 701; Williamson, 922, 923.

SOUTH CHINA: Gee & Moffett, 267; Hartert, 324; Kloss, 426.

FORMOSA: Baker, 50.

HAINAN: Hartert & Goodson, 334.

### AUSTRALIAN REGION.

#### New Guinea and dependent Islands.

NEW GUINEA: Mathews, 518; Reichenow, 678, 680; Rothschild, 715; Rothschild & Hartert, 719.

WAIGOU and ARU Is.: Mathews, 518.

BURU and TENIMBER Is.: Hartert & Goodson, 334.

KEY Is.: Hartert, 320; Rothschild & Hartert, 719.

LOMBOK: Rothschild & Hartert, 719.

LOUISIADÉ IS. : Rothschild & Hartert, 718, 719.

NEW BRITAIN : Rothschild & Hartert, 719.

SOLOMON IS. : Mathews, 518; Hartert, 320.

### Australian Commonwealth.

AUSTRALIA, GENERAL : Campell, 132; Mathews, 518, 520, 522, 523, 524.

WESTERN AUSTRALIA : Alexander, 6; Mathews, 527, 528; Söderberg, 808; Whitlock, 913.

SOUTH AUSTRALIA : Alexander, 7; Ashby, 19, 20, 21; Mathews, 526; Morgan, 568; White, 906, 908, 910, 911; Zeitz, 934.

NORTHERN TERRITORY : Mathews, 528.

TASMANIA : Dove & Fletcher, 233; Fletcher, 257; Lord, 489.

VICTORIA : Alexander, 7; Nicholls, 592; Wilson, 924.

NEW SOUTH WALES : Austin, 25; D'Ombraïn, 229; Howe, 374; Hall, 378; White, 902.

QUEENSLAND : Banfield, 51; Le Souéf, 458; Macgillivray, 498; White, 904.

### New Zealand and Pacific Islands.

NEW ZEALAND : Andersen, 10; Philpott, 660.

NORFOLK I. : Mathews, 527.

NEW CALEDONIA : Brasil, 106.

FIJI IS. : Mathews, 518.

HAWAIIAN IS. : Oberholser, 609.

### NEOTROPICAL REGION.

#### South America.

GENERAL : Cory, 175; Miller, 558; Selater, 772.

SOUTH GEORGIA : Murphy, 584.

FALKLAND IS. : Beck, 69.

ARGENTINA : Beck, 68; Castillon, 139; Chubb, 153, 154; Dabbene, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199; Dinelli, 210; Gibson, 272; Marelli, 516; Menegaux, 542; Sanzin, 735; Serié, 785; Shipton, 789, 790.

PARAGUAY : Bertoni, 81, 82; Chubb, 153.

CHILE : Barros, 60; Beck, 68; Selater, 775.

BOLIVIA : Chubb, 159; Hellmayr, 349; Sztolcman & Domaniewski, 846.

PERU : Bangs & Noble, 57, 58; Bangs & Penard, 59; Chubb, 154, 155, 157, 159; Domaniewski, 213.

ECUADOR : Chubb, 155, 157; Domaniewski & Sztolcman, 228; Lietget, 471; Selater, 775.

GALAPAGOS IS. : Loomis, 486.

BRAZIL : Bangs & Penard, 59; Ribeiro, 690.

SURINAM : Bangs & Penard, 59.

BRITISH GUIANA : Beebe, 73; Chubb, 156, 157; Hellmayr, 349.

VENEZUELA : Chubb, 156.

TRINIDAD : Bangs & Penard, 59.

COLOMBIA : Bangs & Noble, 57; Bangs & Penard, 59; Chubb, 152, 155; Hellmayr, 349.

### Central America.

PANAMA : Bangs & Penard, 59; Stone, 824.

NICARAGUA : Chubb, 159.

### West Indies.

ST. VINCENT : Bangs & Penard, 59.

ST. THOMAS and ST. CROIX : Wetmore, 892.

PORTO RICO : Wetmore, 889.

CUBA : Rodriguez, 708.

### NEARCTIC REGION

(including Mexico).

GENERAL : Cory, 175; Dwight, 238; Oberholser, 619; Pearson, 655.

MEXICO : Bangs & Penard, 59; Chubb, 159; Herrera, 353; Oberholser 618.

### Western United States.

CALIFORNIA : Bryant, 118; Davidson, 200; Dice, 208; Grinnell, 293, 294, 295, 296; Grinnell, Bryant & Storer, 298; Hubbs, 377; Mailliard, 512, 513, 514; Oberholser, 605, 616; Palmer, 645; Ray, 676; Schussler, 760; Squires & Hanson, 816; Swarth, 834, 838.

ARIZONA : Oberholser, 617; Swarth, 835.

NEW MEXICO : Oberholser, 610.

COLORADO : Bergtold & Lincoln, 78; Bradbury, 102, 104; Lincoln, 461, 462.

WASHINGTON : Bowles, 101; Dice, 207; Palmer, 640; Warburton, 879.

MONTANA : Bailey, 37.

#### Middle United States.

TEXAS : Quillin & Holleman, 670; Sell, 781.

LOUISIANA : Arthur, 18.

OKLAHOMA : Shannon, 787; Wetmore, 895.

INDIANA : Butler, 126; Fisher, 254, 255.

MICHIGAN : Perry, 657; Wood, 929.

IOWA : Bailey, 36; Bennett, 74; Gabrielson, 263; Shimek, 788; Stephens, 820.

NORTH DAKOTA : Bailey, 38; Jensen, 389; Oberholser, 609, 612, 624.

#### Eastern United States.

FLORIDA : Oberholser, 615; Sellards, 782; Shufeldt, 792.

GEORGIA : Harper, 317; Rhoads, 689; Wayne, 883.

SOUTH CAROLINA : Bangs, 55; Wayne, 882.

WEST VIRGINIA : Brooks, 115.

VIRGINIA : Oberholser, 624.

DISTRICT OF COLUMBIA : Cooke, 174; Hollister, 364; McAtee, 494; Oberholser, 624.

PENNSYLVANIA : Carter, 138; Harlow, 316; Rothrock, 720; Stone, 823.

NEW JERSEY : Harlow, 316; Stone, 823.

NEW YORK : Mervin, 552.

CONNECTICUT : Saunders, 737.

MASSACHUSETTS : Brewster, 112; Forbush, 259; Townsend, 867, 868.

MAINE : Miller, 556; Norton, 598.

#### Canada.

NOVA SCOTIA : Tufts, 872.

LABRADOR : Townsend, 866.

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QUEBEC : Mousley, 575, 576; Taverner, 851.

ONTARIO : Gormley, 283; Saunders, 738; Williams, 921.

MANITOBA : Criddle, 180.

SASKATCHEWAN : Goelitz, 278, 279.

ALBERTA : Horsburgh; 371; Soper, 814; Taverner, 848.

BRITISH COLUMBIA : Brooks, 114; Munro, 578, 579, 580; Taverner, 849; Warburton, 879.

#### Newfoundland.

NEWFOUNDLAND : Batchelder, 62; English, 241.

#### Greenland.

Porsild, 666.

#### Alaska.

Bent, 75; Dice, 209; Willett, 919.

#### THE OCEANS.

ATLANTIC : Jones, 392.

### III.—SYSTEMATIC.

The arrangement of Sharpe's "Hand-list of Birds" is here used; where generic names differ, the name in the Hand-list is prefixed in square brackets.

*Full references are given only in the case of new genera and species. In other cases the numeral in Clarendon refers to the List of Titles, where the full reference will be found.*

#### ORDER STRUTHIONIFORMES.

*Struthio*, general account of domestication and economics in S. Africa. DUERDEN 236; eggs of an extinct form in North China, CLARK 163; economics, BUTLER 127; embryological studies, AUBRY 23; diseases, AUBRY 24.—*S. camelus*, occurrence in the Sahara, SCHWEPFENBURG 768 p. 169.

## ORDER DINORNITHIFORMES.

*Dinornis maximus*, skeleton figured, DREVERMANN 234.

## ORDER APTERYGIFORMES.

*Apteryx mantelli* on the egg, RENSHAW 686.

## ORDER TINAMIFORMES.

[*Crypturus*] *Crypturellus tataupa inops* subsp. n. N.E. Peru, BANGS & NOBLE Auk 35 p. 445.

*Tinamolis penlandi*, field notes, etc., in Argentina, BUDIN 120.

## ORDER GALLIFORMES.

The Pheasants monographed, the species of the genera *Ithagenes*, *Tragopan*, *Lophophorus*, *Crossoptilon*, described and figured in colour, BEEBE 72.

The game birds of India, Burma and Ceylon, pts. 23, 24, with descriptions of the forms of *Gennaenus*, *Phasianus*, *Pucrasia Chrysolophus*, *Catreu* and *Lophura*; *Phasianus humiae*, *Pucrasia macrolopha*, *Catreu swallichii*, figured in colour, BAKER 41.

Game birds of California monographed, GRINNELL and others 298.

Note on Mexican game birds, HERRERA 353.

Variation among game birds, LUCANUS 492.

*Penelope nigrifrons* sp. n. Jujuy Prov. Argentina, DABBENE Physis 4 p. 102, also El Hornero 1 p. 178.

*Lagopus scoticus* on grouse disease, MACINTYRE 501.

[*Lyrurus*] *Tetrao tetrix* × *T. urogallus* on the skull and other characters, GHIDINI 269; *L. tetrix* × *Gallus dom.* hybrid, LÖNNBERG 482; *T. tetrix* in Upper Swabia, DITTUS 211; distribution in Bavaria, BERTSCH 83.

*Tetrao urogallus* note on, WIBOM 915.

*Tympanuchus cupido* in Martha's Vineyard I. field notes, FORBUSH 259.

*Trastres bonasia kolymensis* taxonomic and descriptive note from Kolyma river, RILEY 696 p. 609.

*Tetraogallus caspius* field notes in Persia, NICOLIN 596.

[*Caccabis*] *Alectoris rufa intercedens* Brehm, on the Spanish races, HARTERT 326 p. 63.

*Francolinus nahani* in Uganda, critical remarks with col. pl., SOMEREN 809.—*F. mulemae* probably = *F. adolfi-frederici*, LÖNNBERG 484 p. 90.—*F. dowashanus* sp. n. Ngare-Dowash German E. Africa, MADARASZ Ann. Mus. Hung. 13 p. 394.—*F. königseggi* sp. n. Dinder river, Sudan, MADARASZ Ann. Mus. Hung. 12 p. 560.

*Rhizothera longirostris* in Tenasserim, new record for Indian Empire, INGLIS 383.

*Perdix perdix* races and variations discussed, SNOUCKAERT 805.—*Perdix* subsp. nov. (?) in N.E. France, BACMEISTER & KLEINSCHMIDT 32.

*Melanoperdix nigra borneensis* critical remarks, ROBINSON & KLOSS 701 p. 592.

*Acomus inornatus* female described and figured, ROBINSON & KLOSS 703 p. 101 pl. iv.

*Lophura diardi* immature plumage, KLOSS 426 p. 80.

*Gennaenus hoursfieldi* note on an Assamese example, INGLIS 382.

*Phasianus* local Japanese forms, KURODA 438.—*Phasianus colchicus* × *P. torquatus* colour and moult in Sweden, LINDQUIST 465.—*P. colchicus* stomach contents, HEUMEN 355; economics and preservation, COLLINGE 171.

[*Calophasis*] *Phasianus humiae* nesting habits, BLANDY 91.

*Gallus gallus* note on nomenclature and subspecies, KLOSS 426 p. 81.—*G. ferrugineus* field notes in Philippines, BAER 34.

*Chalcurus inopinatus* generic affinities discussed, ROBINSON & KLOSS 703 p. 103.

*Pavo muticus* note on habits and breeding in captivity, also description of chick, INGLIS 381.

*Numida ptilorhyncha* Kordofan race discussed, probably new, WETTSTEIN 896 p. 115.

*Agriocharis ocellata* osteology, SHUFELDT 791.

*Colinus pectoralis* breeding in captivity, BAILY 39.

## ORDER PTEROCLIDIFORMES.

*Pterocles lichtensteini targius*, further description and list of other races, SCHWEPFENBURG 768 p. 127.

## ORDER COLUMBIFORMES.

Pigeons of the Gambia habits, etc., HOPKINSON 367.

*Sphenocercus korthalsi*, distribution and affinities discussed, ROBINSON & KLOSS 703 p. 103.

*Vinago gibberifrons* sp. n. Uganda, MADARASZ Ann. Mus. Hung. 13 p. 393.—*Treron calva*, subspecies reviewed p. 348, *T. c. poensis* Fernando Po p. 350, *T. c. ansorgei* Angola p. 352, *T. c. brevicera* East Africa p. 353, *T. c. sejuncta* Portuguese Guinea subspp. n., p. 353, *T. vernans* subspecies reviewed p. 354, *T. curvirostra hainana* Hainan subspp. n., HARTERT & GOODSON Nov. Zool. 25.

[*Phabotreron*] *Phapitreron leucotis* on the allied forms, HARTERT & GOODSON 334 p. 348.

*Leucotreron epia* nom. n. pro *L. gularis* (Q. & G.) invalidated, OBERHOLSER 623 p. 48.

*Neoleucotreron* gen. n. for type *Leucotreron merrilli* McGreg., with further notes and col. plate, MCGREGOR 499 p. 1.

[*Thoracotreron*] *Ptilinopus rivolii* and *P. regina*, on the allied forms, *P. r. buruanus* subsp. n. Buru, HARTERT & GOODSON Nov. Zool. 25 p. 347.

*Electroenas pulcherrima*, breeding habits in captivity, DELACOUR 202, †*A. nitidissima*, photo. of Edinburgh specimen, RENSCHAW 687.

[*Carpophaga*] *Muscadivora* Schlegel is the correct generic name for the birds usually known as *Carpophaga*, HARTERT 330 p. 363.—*M. aenea*, subspecies reviewed, HARTERT & GOODSON 334 p. 346.

*Myristicivora bicolor*, migrations on Dunk I. Queensland, BANFIELD 51.

*Columba pallida* Latham, note on the name, HESSE 358.—*C. livia targia* additional description from Tuareg country, SCHWEPFENBURG 768 p. 129.—*C. guinea* subspecies reviewed, HARTERT & GOODSON 334 p. 356.—*C.*

(N-5464 g)

*pallidus* ringed in Sweden, taken in Portugal, LÖNNBERG 483; stomach contents, HEUMAN 355.—*C. oliviae* sp. n. Somaliland, CLARKE Bull. B.O.C. 38 p. 61.

*Turturoena delegorguei sharpei* in Uganda, discussion of local races, SOMEREN 813 p. 264; female described from B. E. Afr., LÖNNBERG 484 p. 98.

*Macropygia leptogrammica*, plumage changes, ROBINSON & KLOSS 703 p. 108.

*Ectopistes migratorius*, alleged re-discovery in New York State, CLARKE 164; pterylosis, CLARK 162; *E. canadensis* (Linn.) has precedence over *E. migratorius* (Linn.) as the name of the Passenger Pigeon, OBERHOLSER 622.

*Zenaida auriculata pallens* subsp. n. N.W. Peru, BANGS & NOBLE Auk 35 p. 446.

*Turtur turtur*, stomach contents, HEUMAN 355.—*T. t. hoggara*, additional description from the Tuareg country, SCHWEPFENBURG 768 p. 131.—*Streptopelia orientalis*, critical note, HARTERT 333 p. 435.

*Enopopelia tranquebarica humilis*, note on the Siamese form, KLOSS 426 p. 84.

[*Spilopelia*] *Streptopelia suratensis tigrina*, taxonomic note, ROBINSON & KLOSS 703 p. 1

*Geopelia maugaei*, type-locality and distribution, *G. m. audacis* subsp. n. Tenimber I., HARTERT & GOODSON Nov. Zool. 25 p. 358.

*Gymnopelia erythrothorax* (Meyen) is an invalid name and the bird must be called *G. cecilioe* (Lesson), OBERHOLSER 623 p. 48.

[*Columbula*] *Columbina picui*, temporary melanism, SPEGAZZINI 815.

*Chaemepelia arthuri* sp. n. Surinam, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 45.

*Oena capensis aliena* subsp. n. Madagascar, BANGS Bull. Mus. Comp. Zool. 61 p. 491.

*Tympanistria tympanistria fraseri* Bp. is a distinct subspecies from western and north-eastern Africa, HARTERT 333 p. 435.

[*Chalcopelia*] *Turtur afer sclateri*, a correction of the description previously published in Bull. B.O.C. 38 p. 26, ROTHSCHILD 713.

*Phlegonas crinigera* forms reviewed, *P. c. basilunica* Basilan, *P. c. leylenis* Leyte, Philippine Is., *s. subsp. n.* HARTERT Nov. Zool. 25 p. 434.

[*Pezophaps*] *Didus solitarius* on a contemporary picture, ROTHSCHILD 717.

#### ORDER OPISTHOCOMIFORMES.

*Opisthocomus cristatus*, osteology and morphology, SHUFELDT 794.

#### ORDER RALLIFORMES.

Rails and Coots of California monographed, GRINNELL and others 298.

Field notes on Swiss Rails, NOLL-TOBLER 597.

*Aramides cajanea latens* subsp. n. Panama, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 41.—*A. c. salmoni* subsp. n. Colombia and Panama, CHUBB Bull. B.O.C. 38 p. 48.

†*Nesotrochis* gen. n. for type *N. debooyi* sp. n. from kitchen midden deposits of St. Thomas W. I., WETMORE Proc. U.S. Nat. Mus. 54 p. 516 pl. lxxxii.

*Orex pratensis*, habits in Essex, STUBBS 828.

*Porzana tabuensis caledonica* subsp. n. New Caledonia, BRASIL Bull. Mus. Paris 1917 p. 440.

*Poliolimnas cinereus ingrami* subsp. n. New Caledonia, BRASIL Bull. Mus. Paris 1917 p. 437 textfig.

*Creciscus*, a review of the species, SALVADORI 733.

*Amaurornis phoenicura* races discussed, ROBINSON & KLOSS 703 p. 115.

*Gallinula chloropus*, colour development of the beak and shield, PITT 663; field notes, PITT 662.—*G. c. orientalis*, eastern race recognised, ROBINSON & KLOSS 703 p. 116.—*G. c. lozanoi* subsp. n. Philippine Is., LLETGET Bol. Soc. Esp. N. H. 18 p. 77.

*Fulica stenenla*, status discussed, HAGEN 810.

#### ORDER PODICIPEDIFORMES.

[*Dytes*] *Colymbus auritus* rising from the ground, ROGERS 709.

*Aechmophorus occidentalis clarkii* in Alberta, HORSBRUGH 371 p. 477.

#### ORDER COLYMBIFORMES.

[*Colymbus*] *Gavia arcticus*, *G. glacialis* and *G. adamsi*, occurrences in Hungary, NAGY 587.—*G. viridigularis* sp. n. N.E. Siberia, DWIGHT Auk 35 p. 198.

#### ORDER SPHENISCIFORMES.

[*Catarrhactes*] *Eudyptes chrysocome*, first record for N.S. Wales, its range and history, HULL 378.

*Eudyptula undina* and *E. minor*, on the validity of the first-named, with field notes and description and measurements, etc., NICHOLLS 592.—*E. minor*, plumage change, measurements, etc. ALEXANDER & NICHOLLS 8.

#### ORDER PROCELLARIIFORMES.

A review of the Tubinares, with special reference to those of the Galapagos Islands, LOOMIS 486.

A discussion of the Petrels, whose recorded occurrence in Australian waters is of doubtful authenticity, MATTHEWS 523.

[*Procellaria*] *Thalassidroma pelagica*, breeding notes on the Island of Riou, near Marseilles, LAVAUDEN & MOURGUE 453.

*Oceanodroma leucorhoa*, status of the Californian races, GRINNELL 294.

*Oceanites o. oceanicus*, plumages and moults, taxonomy, migration, breeding, food, etc., MURPHY 585.

*Puffinus puffinus yelkouan*, recorded from Dutch coasts, OORT 630.—*P. griseus* on a partial albino in New Zealand, POPPELWELL 664.

[*Oestrelata*] *Pterodroma rostrata trouessarti* subsp. n. New Caledonia, BRASIL Bull. Mus. Paris 23 p. 432 2 figs.—*P. gularis* in Alaska, a new bird for North America, BENT 75.

*Fulmarus glacialis*, notes in the N. Atlantic, JONES 392.—*F. rogersi* in N.E. Siberia, description and taxonomic notes, RILEY 696 p. 611.



[*Prion*] *Heteroprion desolatus banksi* recorded from coast of Argentina, DABBENE 192 p. 98.

*Pelecanoides unanatrix coppingeri* on Argentina coast, DABBENE 192 p. 98.

*Diomedea exulans westralis* subsp. n. W. Australia, MATTHEWS Bull. B.O.C. 39 p. 23.—*D. (Rhothonia) sanfordi* Murphy = *D. chionopectera* Salv., ROTHSCHILD 714.

#### ORDER ALCIFORMES.

*Alle alle* in the Baltic, HAGEN 308; and IBATH 379.

*Uria lomvia* and *Alca torda*, distinction of the nestlings, WEIGOLD 836.

*Fratercula arctica*, taxonomic note, SOLATER & PRAED 777; nesting habits on the Saltee Islands, Co. Wexford, LOW 491; taken near Messina, Sicily, TRISCHITTA 870.

#### ORDER LARIFORMES.

Laridae of Argentina, DABBENE 190.

*Hydrochelidon leucoptera* on Palawan I., MCGREGOR 499 p. 2.

*Sterna* on species recorded in the Philippine Is., MCGREGOR 499 p. 3.—*S. sandvicensis* breeding in Galway, RUTLEDGE 729.—*S. fuscata* Linn. antedates *S. fuliginosa* for the Sooty Tern, ANON 11 p. 241.

*Anous stolidus antelius* subsp. n. N. Queensl., MATHEWS Austr. Av. Rec. 3 p. 159.

*Larus minutus* photographs in Sweden, BERG 76.—*L. melanocephalus* nesting in Hungary, SCHALOW 740; and SCHENK 745.—*L. ridibundus*, migrations and movements in Finland, ROBINSON 704.—*L. heermanni* on an abnormal white patch on the wing, WILLETT 920.—*L. marinus*, nidification, KIHLEN 410.—*L. dominicanus* subspecies discussed, BANGS 52 p. 492.—*L. argentatus* × *L. marinus* hybrid, PALMGREN 650.—*L. cachinnans* on Lake of Geneva, GHIDINI 270.—*L. nelsoni* in the Hawaiian Is., juvenal plumage described, OBERHOLSER 609.—*L. barrovianus* is a subspecies of *L. hyperboreus*, relations and ranges discussed, OBERHOLSER 611.

[*Megalestris*] *Stercorarius s. skua* nesting in the Orkneys, JOURDAIN 394.

#### ORDER CHARADRIIFORMES.

Shore-Birds and Waders of California monographed, GRINNELL & others 298; of Washington State U.S.A., BOWLES 101.

Moult and plumage change in British Waders, JACKSON 386.

*Attagis gayi fitzgeraldi* Argentine Andes p. 40, *A. g. simonsi* Peru p. 41 subsp. n., CHUBB Bull. B.O.C. 38.

*Haematopus quoyi* Brab. & Chubb is antedated by *H. townsendi* Aud., OBERHOLSER 623.

*Sarcogrammus indicus* breeding notes in Ceylon, SYMONS 841.

*Zonifer tricolor* breeding and other habits, WHITE 912.

*Squatarola squatarola cynosurae* occurrence nr. Washington D.C., OBERHOLSER 624.

[*Ochthodromus*] *Hiaticula inornata* Gould = *Cirripidesmus mongolus* (Pall.) MATHEWS 522 p. 160.—*O. veredus* occurrence in Philippine Is., MCGREGOR 499 p. 4.

[*Eudromias*] *Charadrius morinellus* field notes in Finland, FINNLA 252.

*Podasocys montanus* nesting notes in Colorado, BRADBURY 103.

[*Aegialitis*] *Charadrius alexandrinus dealbatus* note on this recently recognised race in Siam, KLOSS 426 p. 85.—*Charadrius minor*, breeding habits (Japanese), NIBE 591.

*Recurvirostra avosetta* inland in Prussia, TISCHLER 864.

*Numenius arquatus madagascariensis* (Linn.) is the name for the Siberian Curlew if distinct which winters in Madagascar, BANGS 52 p. 494.—*N. americanus* subspecies reviewed, OBERHOLSER 607.

*Mesoscolopax minutus* in Philippines with structural characters figured, MCGREGOR 499 p. 5.

*Limosa agrocephala* photos in Sweden, BERG 76.

*Macrorhamphus semipalmatus* in Philippines with fig. of structural characters and discussion of name, MCGREGOR 499 p. 6.

*Totanus fuscus* (Linn.) must become *T. maculatus* (Tunst.), OBERHOLSER 623 p. 47.—*T. fuscus* in Lapland, FINNILÄ 246.—*Tringa totanus* breeding in Warwickshire, LEIGH 457.—*Totanus stagnatilis* in the Philippines with generic details figured, MCGREGOR 499 p. 8; field notes in Sweden Finnilä, 248.—*T. erythropus* (i.e., *fuscus* auct.) migrations and voice, TISCHLER 865.

*Terekia c. cinerea* recorded from Tunisia, BLANCHET 93.

*Eurynorhynchus pygmaeus* nesting and other habits in N.E. Siberia, DIXON 212.

[*Tringa*] *Canutus rogersi* in N.E. Siberia, distinctive characters, RILEY 696 p. 613.

*Pelidna schinzii* Brehm status discussed, HARTERT 326 p. 53.

*Gallinago stenura* and *G. mekala* in the Philippines, generic details and tails figured, MCGREGOR 499 p. 8.

*Scolopax saturata* on Korinchi peak, Sumatra, ROBINSON & KLOSS 703 p. 112.

[*Crymophilus*] *Phalaropus fulicarius* in N.E. Siberia, plumage change, RILEY 690 p. 612.

*Cursorius gallicus* taken near Verona, Italy, CARLOTTO 136.—*C. gallicus kordofanicus* addt. description, WETTSTEIN 896.—*C. ruwanensis* sp. n. Ruwana river German E. Afr., MADARASZ Ann. Mus. Hung. 13 p. 393.

[*Eupodotis*] *Olis arabs* in Kordofan ? WETTSTEIN 896.

#### ORDER GRUIFORMES.

Cranes of California monographed, GRINNELL & others 298.

*Aramus scolopaceus carau* Vieillot, a distinct subspecies from Paraguay, BANGS & PENARD 59 p. 42.

#### ORDER ARDEIFORMES.

Ibis and Spoonbills of California monographed, GRINNELL & others 298.

*Plegadis falcinellus* (Linn.) is the correct name of the Glossy Ibis, OBERHOLSER 613.—*P. autumnalis* in the Philippines, generic details figured, MCGREGOR 499 p. 10.

[*Eudocimus*] *Guara rubra* status in Texas, SELL 781.

*Dissura episcopus* occurrence in Punjab, WHISTLER 899.

*Ciconia ciconia* nesting in Hesse Nassau, SOHUSTER 765; field studies in Hungary, NAGY 588.

[*Mycteria*] †*Jabiru weillsi* sp. n. pleistocene of Florida, SELLARDS 8th Rep. Fla. Geol. Surv. p. 146 pl. xxvi figs. 1-4.

*Pyrrherodias manillensis* feeding habits and correction for diffraction of submerged objects, ZIMMER 937.

*Ardea cinerea johannae* Gmel. is the name for the Madagascar Grey Heron, BANGS 52 p. 496.

*Notophox novae-hollandiae* the S-shape of neck when flying, p. 48 fig. 20, *N. aruensis* in W. Australia p. 49, SÖDERBERG 808.

[*Leucophoyx*] *Ardea candidissima*, *A. egretta* protection in Mexico, GUTIERREZ 303.

*Nyctanassa violacea cayennensis* (Gmel.) and *N. v. jamaicensis* (Gmel.) distinct subspecies, BANGS & PENARD 59 p. 31.

[*Demi egretta*] *Egretta brevipes* identification of this New Caledonian bird described by Verreaux and Des Murs, BRASIL 106 p. 429.

[*Ardetta*] *Ixobrychus sinensis astrolagus* subsp. n. Philippine Is., WETMORE Proc. Biol. Soc. Washington 31 p. 83.

#### ORDER ANSERIFORMES.

Ducks, Geese and Swans of California monographed, GRINNELL & others 298.

Nest-down of ducks, JACKSON 388.

The "fishy" flavour of some wild ducks, McATEE 493.—Food of Mallard ducks in the U.S.A., McATEE 496.—Ferruginous stains on waterfowl, KENNARD 406.—Duck sickness in Utah, WETMORE 894.

*Cygnus musicus* nesting in Finland, PALMGREN 647; and MERIKALLO 549.—*Olor columbianus* on the Potomac river Va., OBERHOLSER 624.

*Anser anser* colour of soft parts, BEVERIDGE 84; *A. cinereus* habits in N. Uist, BEVERIDGE 85, 85a.

*Chlöephaga melanoptera* field notes in Argentina, CASTILLÓN 139.

*Dendrocycna* review of the species, HEINROTH 346.

*Anas* "dom." effect of castration, GOODALE 282.—*A. platyrhyncha sub-boschas* Brehm from Iceland, status discussed, HARTERT 326 p. 47.—*A. boschas* × *Querquedula crecca* note on a hybrid, ROBINSON 699.—*A. boschas* × *Dasila acuta* wild-killed hybrid recorded from Alberta, HORSBRUGH 371.—*A. superciliosa* in Sumatra, ROBINSON & KLOSS 703 p. 118.

*Eunetta falcata* × *Chaulelasmus streperus* wild-killed hybrid, ROBINSON 699.

*Mareca penelope* records on the Pacific coast of U.S.A., PALMER 645.—*M. sibilatrix* × *M. penelope* hybrid, BAILY 40.

*Nettion formosum* eggs from N.E. Siberia described, RILEY 696 p. 615.—*N. flavirostre* nesting habits, DABBENE 195.

*Paecilonitta bahamensis* a southern race discriminated under name of *P. b. rubrirostris* (Vicill.), BANGS 53.

[*Querquedula*] *Anas querquedula* breeding in Sussex, ALEXANDER 5.—*Q. cyanoptera* recorded from Cuba, RODRIGUEZ 708.

*Metopiana peposaca* field notes in Argentina, RODRIGUEZ 707.

[*Aythya*] *Fuligula ferina* note on plumage, ENGHOLM 240.—*Nyroca nyroca* on the eggs, nest-down and nest-feathers, BUNYARD 121.

*Aristonetta* should be used for the Canvas-back Duck which is generically distinct from *Marila*, OBERHOLSER 624.

[*Clangula*] *Glancionetta* is the correct generic name for the Golden-eye vice *Glaucon* Kaup preoccupied, ANON 11 p. 240.—*G. clangula* noise made by wings (drumming), MAYHOFF 536: *Nyroca clangula* plumage of young male, TISCHLER 860.—*C. islandica* field notes in Okanagan valley Bt. Columbia, MUNRO 578.

*Harelda hiemalis*, moulting, KIHLEN 410; nidification, MERIKALLO 546.

*Histrionicus histrionicus* nest-feathers and down, BUNYARD 122.

*Somateria mollissima* in Iceland, field-notes, STEFANSSON 818.

*Erismatura jamaicensis* on the tracheal air-sac, WETMORE 890.

*Mergus albellus* distribution and migrations in Finland, MONTELL 567; and PALMER 636, 638.

#### ORDER PELECANIFORMES.

*Phalacrocorax carbo* nesting in Finland, PALMGREN 648.—*P. carbo subcor-moranus* in Poland, DOMANIEWSKI 218 p. 1024.—*P. carbo novaehollandiae* nesting habits and young described, MORGAN 569.—*Hypoleucis v. hypoleucis* temperature food and measurements, WHITE 907.—*P. africanus pictulis* subsp. n. Madagascar, BANGS Bull. Mus. Comp. Zool. 61 p. 500.

[*Plotus*] *Anhinga melanogaster* habits of a Philippine example in captivity, MCGREGOR 499 p. 12 3 photos.—*Anhinga vulsini* sp. n. Madagascar, BANGS Bull. Mus. Comp. Zool. 61 p. 501.

*Sula bassana* nesting in Gulf of St. Lawrence, TAVERNER 851; another colony off south coast of Newfoundland, ENGLISH 241.—*S. leucogastra* breeding habits on Desecheo I., Porto Rico, WETMORE 889.

*Fregata minor listeri* in Western Australia, ALEXANDER 6.

*Pelecanus roseus* in S. Rhodesia, coloration and pouch-capacity, SWYN-NERTON 840.—*P. californicus* a subspecies of *P. occidentalis*, OBERHOLSER 606 p. 62.

#### ORDER CATHARTIDIFORMES.

*Gypagus papa* an old record of Capt. Dampier's commented on, GUDGER & OBERHOLSER, 299; caruncles of both sexes figured, RIBEIRO 690.

*Cathartes aura* in Cuba, economics SAN MARTIN 734; transmission of disease, RAMSDEN 673.—*C. a. pernigra* taxonomic and other descriptive notes, BANGS & PENARD 59 p. 33.

## ORDER ACCIPITRIFORMES.

Birds of Prey of Iowa monographed, BAILEY 36.

The Birds of Prey of the Punjab, DONALD 231.

Destruction of Hawks in Switzerland, BLANO 90.

The economics of Hungarian Hawks, BITTERA 88; Canadian Hawks, TAVERNER 850; Australian Hawks, LE SOUËF 459.

*Gyps indicus* nesting in trees in Lucknow distr., MATTHEWS 532.

*Polyborus cheriway* two subspecies recognised, BANGS & NOBLE 57 p. 433.

*Milvago chimachima cordata* subsp. n. Panama, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 35.—*M. chimango temucoensis* subsp. n. southern Chile, SOLATER Bull. B.O.C. 38 p. 43.

*Circus macrurus* and *C. cyaneus* distinguishing marks in the field, CSORGEY 186.—*C. cyaneus*, wintering in Scania, GYLLING 305.

*Micrastur* review of the genus, SOLATER 772 *M. plumbeus* sp. n. N.W. Ecuador id. Bull. B.O.C. 38 p. 414, figured in 772 pl. viii.

*Geranospiza niger balzarensis* subsp. n. western Ecuador, SOLATER Bull. B.O.C. 38 p. 45.

*Parabuteo unicinctus* photo of nest and eggs, DABBENE 193 p. 100.

*Astur palumbarius* food habits in Hungary, BITTERA 89; plumage variation LÖNNBERG 476.—*A. tachiro tenebrosus* subsp. n. B. E. Afr., LÖNNBERG Rev. Zool. Afr. 5 p. 99.—*Dinospizias pectoralis* in Paraguay, DABBENE 192 p. 99.

*Accipiter nisus* breeding habits, OWEN 634; food habits in Hungary, BITTERA 89.—*A. nisus galliae* subsp. n. France, KLEINSCHMIDT Falco 13 p. 24, also BACMEISTER & KLEINSCHMIDT 32 p. 259.—*A. virgatus* races discussed, ROBINSON & KLOSS 703 p. 120.—*A. bicolor fidens* subsp. n. Vera Cruz Mexico, BANGS & NOBLE Auk 35 p. 444.

*Buteo buteo* and *B. anceps ruficaudus* Polish races discussed, DOMANIEWSKI

218 p. 1028.—*B. b. ruficaudus* in Holland, SNOUCKAERT 801 p. 18.—*B. jakal archeri* subsp. n. Somaliland, SOLATER Bull. B.O.C. 39 p. 17.—*B. platypterus iowensis* Bailey founded on a melanistic variation of *B. platypterus*, OBERHOLSER 614.

*Praedo* gen. n. for type "Mäusebussard"; KLEINSCHMIDT Falco 13 p. 10.

*Rupornis magnirostris insidiatrix* subsp. n. eastern Colombia, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 36.

*Thrasaetus harpyia* has not occurred in Colorado, BERGTOLD & LINCOLN 78.

*Uroaëtus andax* on the eggs, WHITE 905.

*Aquila clanga* not *A. fusca* is the correct name for the Greater Spotted Eagle, ANON 11 p. 239.—*A. pomarina* in Finland, FINNILÄ 247.

*Archibuteo lagopus* field notes in Lapland, FINNILÄ 244; wintering in southern Sweden, FRIES, 261.

[*Entolmæëtus*] *Aquila pennata* in Dept. Orne, LATAOQ 448.

*Ictinaetus malayensis* nesting habits described and eggs figured, BAKER 42 pl. ii figs. 1-4.

*Herpetotheres cachinnans chapmani* subsp. n. Mexico, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 37.—*H. c. maestus* subsp. n. Peru, BANGS & NOBLE Auk 35 p. 444.

*Circæetus gallicus* in the Sahara, SCHWEFFENBURG 768 p. 132.

*Pithecopha jefferyi*, note on a recently captured individual, with photos. of head and sketches of structural details, MCGREGOR 499 p. 14.

[*Haliaeetus*] *Aquila albicilla* in Dept. Orne, LATAOQ 447; fossil fragments, LÖNNBERG 478.

*Milvus m. milvus* conservation in Wales, MEADE-WALDO 538.

*Helicolestes* gen. n. for type *Rost-rhamus hamatus* (Illiger) occurring in Surinam, with taxonomic note, BANGS & PENARD Bull. Mus. Comp. Zool. 54 p. 38.

*Gampsonyx swainsonii magnus* W. Peru p. 21, *G. s. leonae* Nicaragua p. 22 subsp. n., CHUBB Bull. B.O.C. 39.

*Pernis apivorus* breeding in Essex, JOURNALIN 397; field notes in France, FUYE 262; in Hungary, CHERNEL 144; plumage and moult, GYLLING 306.

*Baza emini* plumage changes, SOMEREN 813 p. 265.

*Microhierax* nesting habits of Indian species, *M. melanoleucus* egg figured pl. ii fig. 5, BAKER 42 p. 61.

*Falco peregrinus* Polish races discussed, DOMANIEWSKI 218 p. 1024.—*F. p. rhenanus* subsp. n. Rhine valley, p. 42 pls. ix, x, *F. p. scandinavica* subsp. n. Sweden p. 46 pls. xxxii, xxxiv, KLEINSCHMIDT Berejah.—*F. lanarius* taken near Rome, MAZZA 537.—*F. biarmicus erlangeri* in the Sahara, SCHWEPPEBURG 76 p. 133.—*F. subbuteo* breeding habits, ASHLEY 22.—*F. s. ussuriensis* subsp. n. Manchuria pp. 260, 267, with notes on other palaeartic forms p. 256, DOMANIEWSKI C.R. Soc. Sci. Varsovie 10.—*F. lunulatus* discoloration due to dryness of atmosphere, SÖDERBERG 808 p. 56 pl. i figs. 1-3.—*F. [aesalon] alfredmundi* Iceland p. 9, *F. [ae.] christiani-ludovici* Caucasus p. 10, subsp. n., KLEINSCHMIDT Falco 13.—*F. rufigularis petoensis* Yucatan, *F. r. paz* Bolivia, subsp. n., CHUBB Bull. B.O.C. 39 p. 22.

[*Hierofalco*] *Falco rusticolus*, identification of Linne's original description, KLEINSCHMIDT 419.—*H. rusticolus candicans* first record for N. Dakota, OBERHOLSER 624.

*Hieracidea orientalis*, description of various plumage variants, SÖDERBERG 808 p. 56 pl. iii.

*Cerchneis naumanni sarmaticus* subsp. n. Poland, DOMANIEWSKI C.R. Soc. Sci. Varsovie 10 pp. 1044 1046.

#### ORDER STRIGIFORMES.

Owls of Iowa monographed, BAILEY 36.

*Asio flammeus*, nesting habits in Saskatchewan, GOELITZ 279; method of securing *Ctenomys* in Argentina, POZZI 668.

*Bubo bubo hispanus*, occurrence in Algeria, ROTHSCHILD 714.

*Pulsatrix perspicillata trinitatis* subsp. n. Trinidad, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 51.

[*Scops*] *Otus roboratus* sp. n. N.W. Peru, BANGS & NOBLE Auk 35 p. 448.—*Pisorhina vandewateri* addt. description, ROBINSON & KLOSS 703 p. 127.

*Ninox scutellata*, note on Siamese and Malayan races, KLOSS 426 p. 88.—*N. goldii*, correction as to type locality, ROTHSCHILD & HARTERT 719 p. 325.

[*Syrnium*] *Strix a. aluco*, unusual clutch of eggs, OWEN 633.

*Surnia ulula pallasi*, descriptive note from N.E. Siberia, RILEY 696 p. 617.

*Athene noctua* in Somerseshire, WIGLESWORTH 917.

*Speotyto cunicularia minor* subsp. n. N. Brazil, CORY Field Mus. Publ. Zool. 13 p. 40.

*Glaucidium passerinum* in the Ticino valley, GHIDINI 271; field-notes and feeding habits, PALMGREN 646.—*G. gnoma pinicola*, first record for California, GRINNELL 295 p. 86.—*G. perlatum*, a curious mimicry effect, SWYNNERTON 840.

*Strix hostilis* sp. n. England, KLEINSCHMIDT Falco 11 p. 18.—*S. flammea rhenana* in north-east France, BACMEISTER & KLEINSCHMIDT 32 p. 267.—*Tyto pratincola*, the American Barn Owl a subspecies of the British, OBERHOLSER 606 p. 464.

#### ORDER PSITTACIFORMES.

Australian Parrots, a reply to the Marquess of Tavistock, MATHEWS 525.

*Nestor notabilis* osteology, SHUFELDT 793.

*Eos ricinata* (Bechst.); for this name *E. quenbyensis* (Scopoli) must be substituted, OBERHOLSER 623 p. 48.

*Lorius hypoenochrous rosselianus* subsp. n. Rossel I. Louisiade Group, ROTHSCHILD & HARTERT Nov. Zool. 25 p. 312.

*Trichoglossus aberrans* sp. n. German New Guinea, REICHENOW J. Ornith. 1918 p. 489.

*Calyptorhynchus macrorhynchus*, moult plumage variation and field notes, SÖDERBERG 808 p. 60.

*Cacatua leadbeateri aberrans* from N.W. Australia, note and addt. description, SÖDERBERG K. Svenska Vet.-Ak. Handl. 52 no. 17 p. 64.

*Ara m. militaris* recorded in Argentina, DABBENE 192 p. 98.—*A. severa castaneifrons* Lafresn. a district subspecies from Bolivia, BANGS & PENARD 59 p. 47.

[*Conurus*] *Aratinga cactorum pallida* subsp. n. Ceara, Brazil, CORY Field Mus. Publ. Zool. 13 p. 59.—*Eupsittula pertinax margaritensis* subsp. n. Margarita I. (off Venezuela), CORY Field Mus. Publ. Zool. 13 p. 63.

*Amazona amazona*, note on the races, BANGS & PENARD 59 p. 48.—*A. amazonica tobagensis* subsp. n. Tobago W.I., CORY Field Mus. Publ. Zool. 13 p. 83.—*Androglossa aestiva*, anatomy and histology of alimentary canal, GRESCHIK 291.

*Derophtus accipitrinus*, taxonomic note, BANGS & PENARD 59 p. 48.

*Palaeornis parvirostris* Souancé in the Sudan, nomenclatural note, MADARASZ 507 p. 576.

*Psittacella bürgersi* sp. n. [German] New Guinea, REICHENOW J. Ornith. 1918 p. 244.

*Agapornis madagascariensis ablectanea* subsp. n. S.W. Madagascar, BANGS Bull. Mus. Comp. Zool. 61 p. 503.

*Platycercus, Purpureicephalus* and *Bernardius*, the evolution and distribution of the Australian species and subspecies, with coloured figures of each, MATHEWS 524.—*Platycercus elegans fleurieuensis* figured with addt. notes, ASHBY 19.

[*Psephotus*] *Psephotellus chrysopterygius nova* subsp. n. N. Queensl., MATHEWS Austr. Av. Rec. 3 p. 159.

*Pezoporus formosus*, field notes, MATTINGLEY 533.

## ORDER CORACIIFORMES.

### Sub-Order Podargi.

The following species figured and described: *Podargus strigoides* pls. cccxxv-cccxxvi, *Micropodargus ocel-*

*latus* pl. cccxxvii, *M. plumiferus* pl. cccxxviii, *Megapodargus papuensis* pl. cccxxix, *Ægotheles cristatus*. pl. cccxxx, MATHEWS 518.

*Podargus strigoides centralia* Central Australia p. 34, *P. s. capensis* Cape York p. 35, subsp. n., MATHEWS Bds. Austral. 7.

*Ægotheles cristata tasmanica* Tasmania p. 65, *Æ. c. olivei* N. Queensl. p. 65, *Æ. c. centralia* C. Austral. p. 67, *Æ. c. melwillensis* Melville I. p. 67, MATHEWS Bds. Austral. 7.

*Euaegotheles* gen. n. for *Ægotheles psilopterus* Gray, MATHEWS Bds. Austral. 7 p. 52.

### Sub-Order Coraciæ.

*Eurystomus orientalis* described and figured pl. cccxxxi, MATHEWS 518.—*E. pacificus* recorded from S. Australia, ZETZ 934; from Tasmania, LORD 490.

### Sub-Order Halcyones.

The following species described and figured: *Alcyone azurea* pl. cccxxxii, *Micralcyone pusilla* pl. cccxxxiii, *Syma torotoro* pl. cccxxxiv, *Dacelo gigas* p. cccxxxv, *D. leachii* pl. cccxxxvi, *Lazulena macleayii* pl. cccxxxvii, *Cyanalcyon pyrrophygius* pl. cccxxxviii, *Sauropatis sancta* pl. cccxxxix, *S. sordida* pl. cccxl, *Uralcyon sylvia* pl. cccxli, MATHEWS 518.

*Ceryle*, discussion of generic and subgeneric divisions, MILLER 560.—*C. alcyon* taken in Cornwall, first record for England, CHUBB 158; & JOURDAIN 396.—*Streptoceryle alcyon caurina*, validity established, OBERHOLSER 606 p. 463.—*S. torquata cyanea* (Vieill.), a distinct subspecies from Paraguay, BANGS & PENARD 59 p. 53.

*Alcedo i. ispida*, field notes, KERR 407; and ROWAN 722.—*A. althis pelagica*, critical note, ROTHSCHILD & HARTERT 719 p. 320.

*Alcyone azurea wallaceana* Aru Is., *A. a. distincta* N. New Guinea, subsp. n., MATHEWS Bds. Austral. 7 p. 94.—*Micralcyone pusilla yorki* subsp. n. Cape York, MATHEWS Bds. Austral. 7 p. 103.

*Cyanoceyx* gen. n. for type *Ceyx lepida* Temm., MATHEWS Bds. Austral. 7 p. 96.

*Ceycalcyon* gen. n. for type *Ceyx cyanopectus* Lafres., MATHEWS Bds. Austral. 7 p. 97.

*Argyroceyx* gen. n. for type *Ceyx argentata* Tweed., MATHEWS Bds. Austral. 7 p. 97.

*Ispidella* gen. n. for type *Ispidina leucogaster* (Fraser), MATHEWS Bds. Austral. 7 p. 97.

*Ceycoides* gen. n. for type *Ispidina madagascariensis* (Linn.), MATHEWS Bds. Austral. 7 p. 98.

*Syma torotoro pneustes*, *S. t. wellsi*, S.W. New Guinea p. 113, *S. t. connectens* N. New Guinea p. 114 subsp. n., MATHEWS Bds. Austral. 7.

*Dacelo leachii macarthuri* N. Terr., *D. l. superfluous* S.W. New Guinea, MATHEWS Bds. Austral. 7 p. 140.

*Halcyon coromandus*, taxonomy and nomenclature, ZIMMER 936.—*H. sanctus*, variations and taxonomy, SÖDERBERG 808 p. 72.

*Lazulena* gen. n. for type *Halcyon macleayii* J. and S., MATHEWS Bds. Austral. 7 p. 141.

*Dacelalcyon* gen. n. for type *Dacelalcyon confusus* nom. n. pro *Monachalcyon cyanocephalus* Sharpe, MATHEWS Bds. Austral. 7 p. 117.

*Edquista* gen. n. for type *Tanyiptera carolinae* Schleg, MATHEWS Bds. Austral. 7 p. 198.

### Sub-Order Bucerotes.

*Ceratogymna atrata*, nesting habits, with photos., LANG & CHAPIN 446.

[*Ocyrceros*] *Lophoceros birostris*, nesting observations, HALL 311.

### Sub-Order Upupae.

*Upupa epops longirostris*, note on Siamese and Malayan subspecies, KLOSS 426 p. 92.

*Phoeniculus Jarochi*, 1821, replaces *Irrisor* Lesson for *Upupa erythrorhynchus* Lath, MATHEWS & IREDALE 529 p. 146.

### Sub-Order Meropes.

[*Merops*] *Cosmaerops ornatus* described and figured, MATHEWS 518 pl. cccxlii; *M. ornatus*, a migrant, CAMPBELL 132.

### Sub-Order Momoti.

*Urospatka martii olivacea* subsp. n. Peru, CORY Field Mus. Publ. Zool. 13 p. 108.

### Sub-Order Caprimulgi.

The following species described and figured: *Eurostopodus mystacalis* pl. cccxliii, *E. guttatus* pl. cccxliv, *Rossornis macrurus* pl. cccxlv, MATHEWS 518.

*Nyctibius* on the anatomy and systematic position, WETMORE 893.

*Eurostopus argus*, variation in spotting of primaries figured, SÖDERBERG 808 p. 77 pl. ii figs. 1-8.

*Caprimulgus*, habits of south African species, SWYNNERTON 840.—*Nyctipolus hirundinaceus*, outer primaries of three races figured, CORY 175 p. 137.—*C. affinis propinquus* subsp. n. Celebes, RILEY Proc. Biol. Soc. Washington 31 p. 155.—*C. macrurus ambiguus*, note on nomenclature and on the Siamese and Malayan races, KLOSS 426 p. 95.—*C. macrurus meeki* Sudest I. p. 321, *C. m. oberholseri* Lombok p. 322, *C. m. kuehni* Tual, Key Is., p. 322, *C. m. albolaxatus* Vulcan Is. New Britain p. 323, subsp. n., ROTHSCHILD & HARTERT Nov. Zool. 25.—*Rossornis macrurus coincidens* Cairns Queensl. p. 241, *R. m. rogersi* Melville I. p. 242, *R. m. aruensis* Aru Is., subsp. n., MATHEWS Bds. Austral. 7.—*C. europaeus*, field notes in Hungary, SZEMERÉ 842.—*C. ugandae* sp. n. Uganda, MADARASZ Ann. Mus. Hung. 13 p. 394.

*Veles* gen. n. for type *Caprimulgus binotatus* Bp., BANGS Proc. N. Engl. Zool. Cl. 6 p. 92.

*Eximiornis* gen. n. for type *Caprimulgus eximius* Temm., MATHEWS Bds. Austral. 7 p. 235.

*Rossornis* gen. n. for type *Caprimulgus macrurus* HOEFL., MATHEWS Bds. Austral. 7 p. 234.

### Sub-Order Cypseli.

The following species described and figured: *Zoonava francisca* pl. cccxlvii, *Z. fuciphaga* pl. cccxlviii, *Hirundinapus caudacutus* pl. cccxlviii, *Micropus pacificus* pl. cccxlviii, MATHEWS 518.

[*Macropteryx*] *Cypselus klecho*, nesting habits in Java, HEEOKEREN 340.—*Hemiprocne major* on the species in the Philippines, ZIMMER 935 p. 224.

[*Collocalia*] *Zoonava francica oberholseri* Fiji and Solomon Is., MATHEWS Bds. Austral. 7 p. 253.—*C. vestita enigma* subsp. n. Celebes, RILEY Proc. Biol. Soc. Washington 31 p. 156.

*Chaetura dubia* and *C. gigantea* in the Philippines, structural details discussed and figured, MCGREGOR 499 p. 18.—*Streptoprocne zonaris*, nests and eggs, DABBENE 197.—*Chaetura pelagica*, nesting and other habits, MACNAMARA 505.—*C. brachyura praevelox* subsp. n. St. Vincent W.I., BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 60.—*C. chapmani*, extension of range to\* Panama STONE 824 p. 253.

*Papuanapus* gen. n. for type *Chaetura novaeguineae* D'Alb. and Salvad., MATHEWS Bds. Austral. 7 p. 266.

*Alterapus* gen. n. for type *Chaetura sabinii* Gray, MATHEWS Bds. Austral. 7 p. 264.

*Telacanthura* gen. n. for type *Chaetura ussheri* Sharpe, MATHEWS Bds. Austral. 7 p. 264.

*Neafrapus* gen. n. for type *Chaetura cassini* Sel., MATHEWS Bds. Austral. 7 p. 264.

*Zoonavena* gen. n. for type *Chaetura grandidieri* Schleg., MATHEWS Bds. Austral. 7 p. 265.

*Indicapus* gen. n. for type *Chaetura sylvatica* (Tick.), MATHEWS Bds. Austral. 7 p. 265.

*Cypseloides fumigatus*, nests and eggs, DABBENE 197.—*Nephoecetes niger guadeloupensis* subsp. n. Guadeloupe W.I., CORY Field Mus. Publ. Zool. 13 p. 143.

*Chaeturellus* gen. n. for type *Cypseloides rutula* (Vicill.), MATHEWS Bds. Austral. 7 p. 267.

*Tachornis parva*, nesting habits in East Africa, COWARD 177.—*T. myochrous* in Kordofan? WETTSTEIN 896 p. 61.

*Aeronautes melanoleucus*, nesting habits in Colorado, BRADBURY 102.

*Cypselus apus*, migration in Finland, PALMGREN & LEVANDER 651.—*Micropus apus*, vernacular name in Hungary, DORNING 232.

## Sub-Order Trochili.

*Phaetornis fumosus* nom. n. pro *P. fuliginosus* Schlüt. (nec Simon), SCHLÜTER Falco 11 p. 21.

[*Talaphorus*] *Thaumasius taczanowskii fractus* subsp. n. N.W. Peru, BANGS & NOBLE Auk 35 p. 451.

[*Agyrtria*] *Agyrtrina brevirostris* nomenclature of subspecies, *A. versicolor brabantii* nom. n. pro *A. v. brevirostris* Lesson, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 63.

*Lepidogyra goudoti zuliae* subsp. n. N.W. Venezuela, CORY Field Mus. Publ. Zool. 13 p. 182.

*Amazilia* Lesson, type designated *Ornismia cinnamomea* Less., with note on validity of genus, STONE 824 p. 255.

[*Petasophora*] *Colibri isolatus brevipennis* subsp. n. Venezuela, CORY Field Mus. Publ. Zool. 13 p. 182.

[*Coeligena*] *Cyanolaemus clemenciae bessophilus* subsp. n. S. Arizona and N. Mexico, OBERHOLSER Condor 20 p. 181.

*Cyanolesbia*, key of the species and races, CORY 175 p. 277.

*Heliotryx*, key of the species and races, CORY 175 p. 186.

*Trochilus colubris*, sap-drinking habits, WRIGHT 930.—*Calypte costae* type locality and history of discovery, PALMER 644.

*Selasphorus platycercus* recorded definitely from California, GRINNELL 295 p. 87.

## Sub-Order Colii.

*Colius leucotis affinis* photographed on nest, with note on taxonomy, SOMEREN 813 p. 272.

## ORDER TROGONES.

The length of the caeca in Trogons, MILLER 562.

*Priotelus temnurus*, anatomy, CLARK 161.

*Harpalarpactes mackloti*, sexual distinctions, ROBINSON & KLOSS 703 p. 133.



## ORDER COCCYGES.

## Sub-Order Musophagi.

*Crinifer* Jarochi, 1821, anticipates *Chizaerhis* Wagl. 1822 for *Schizorhis africana* of the Cat. Bds. B.M., which should stand as *Crinifer piscator* (Bodd.), MATHEWS & IREDALE 529 p. 146.

## Sub-Order Cuculi.

The following species described and figured—*Cuculus optatus* pl. cccxlix *Heteroscenes pallidus* pl. cccli, *Cacomantis rubricatus* pl. ccclii, *C. pyrrhophanus* pl. ccclii, *Vidgenia castaneiventris* pl. cccliii, *Owenavis osculans* pl. cccliv, *Chalcites basalis* pl. ccclv, *Lamprococcyx lucidus* pl. cccxvi, *L. plagosus* pl. cccxvii, *L. minutillus* pl. cccxviii, *L. russatus* pl. cccxviii, *Eudynamis orientalis* pl. cccxix, *Scythrops novaehollandiae* pl. cccxxi, *Polophilus phasianinus* pl. cccxxii, MATHEWS 518.

*Surniculus lugubris dicruroides*, note on Indo-Malayan races, KLOSS 426 p. 97.

*Hirococcyx sparveroides*, nesting habits and fosterers in Burma MACKENZIE 502.

*Cuculus canorus*, general observations, BUTTERFIELD 128; fostered by *Turdus merula*, CRAVEN-SYKES 178; host-birds in Württemberg, BACMEISTER 30; observations on how the young cuckoo ejects its foster brothers, HØYER 376; voice, SCHMIDT & STADLER 755; nesting habits and fosterers in Burma, MACKENZIE 502.—*C. intermedius insulinde*, distribution, description and nomenclature, ROBINSON & KLOSS 703 p. 136.—*C. waigoui* sp. n. Waigou I., N. Guinea, MATHEWS Bds. Austral. 7 p. 291.

*Cacomantis merulinus* on the Siamese and Malayan races, KLOSS 426 p. 98.—*C. rubricatus eyrei* S. Australia p. 320, *C. pyrrhophanus vidgeni* Cape York p. 326, subsp. n., MATHEWS Bds. Austral. 7.

*Vidgenia* gen. n. for type *Cacomantis castaneiventris*, MATHEWS Bds. Austral. 7 pp. 311 327.

*Chrysococcyx cupreus intermedius*, note on taxonomy and distribution, SOMEREN 813 p. 269.

*Coccyzus americanus*, nesting and other field notes, BAYLISS 66.

*Urodynamis taitensis belli* subsp. n. Norfolk I., MATHEWS Bull. B.O.C. 39 p. 24.

*Centropus rectunguis*, a distinct species, ROBINSON & KLOSS 703 p. 138.—*C. meridionalis* sp. n. South and East Africa, MADARASZ Ann. Mus. Hung. 12 p. 584.

*Rhamphococcyx centralis* sp. n. Celebes, RILEY Proc. Biol. Soc. Washington 31 p. 156.

[*Diplopterus*] *Tapera naevia chocki* Vieill., a distinct subspecies from Paraguay, BANGS & PENARD 59 p. 50.

## ORDER SCANSORES.

## Sub-Order Capitones.

*Barbatula chrysocoma pallida* addt. description and figure, WETTSTEIN 896 p. 55.

*Cholorhea chrysopogon lactus* subsp. n. Malay Pen., ROBINSON & KLOSS J. Fed. Malay States Mus. 8 p. 141.

*Thereiceryx flavostrictus praetermissus* subsp. n. S. China, KLOSS Ibis 1918 p. 101.—*T. lineatus intermedius* subsp. n. Burma, BAKER Bull. B.O.C. 39 p. 19.

[*Mesobucco*] *Cyanops duvauceli robinsoni* subsp. n. Malay Pen., BAKER Bull. B.O.C. 39 p. 20.

*Xantholaema haemacephala* on the Sumatran race, ROBINSON & KLOSS 703 p. 142.

*Psilopogon pyrolophus*, sexual distinction, ROBINSON & KLOSS 703 p. 143.

## Sub-Order Rhamphastides.

*Pteroglossus aracari atricollis* (P. L. S. Müller), taxonomic note, BANGS & PENARD 59 p. 55.

## ORDER PICIFORMES.

## Sub-Order Pici.

[*Gecinus*] *Picus viridis* drumming, HESSE 359.—*G. canus hessei*, note on this race p. 101, *G. erythropygus* dimensions p. 102, KLOSS 426.—*Picus canus gyldestolpei* subsp. n. Assam, BAKER Bull. B.O.C. 39 p. 19.—*G. dedemi* figured from W. Sumatra, ROBINSON

& KLOSS 703 p. 144 pl. v fig. 1.—*Brachylophus chlorolophus chlorolophoides*, note on this Siamese race, KLOSS 426 p. 105.

*Chloronerpes rubiginosus guianae* subsp. n. Bt. Guiana, HELLMAYR Verh. Orn. Ges. Bayern 13 p. 314.

[*Campothera*] *Dendromus kasaicus* Dubois = *D. caroli* (Malh.) SCHOUTEDEN 757.

*Chrysoptilus atricollis lymani* subsp. n. N.W. Peru, BANGS & NOBLE Proc. N. Engl. Zool. Cl. 6 p. 85.

*Chrysoplegma flavinucha lylei* subsp. n. Siam, KLOSS Ibis 1918 p. 110.—*Callolophus mineatus perlutus* subsp. n. Siam, KLOSS Ibis 1918 p. 110.

*Gecinulus viridis robinsoni* subsp. n. Malay Peninsula, KLOSS Ibis 1919 p. 105.

*Melanerpes formicivora*, acorn-storing habits, DAVIDSON 200.

[*Dendrocopus*] *Picus major arduenus* p. 12, *P. minor bacmeisteri* p. 14 subsp. n. Eastern France, KLEINSCHMIDT Falco 12; addt. notice, BACMEISTER & KLEINSCHMIDT 32 p. 271.—*Dryobates villosus leucothorectis* recorded from California, GRINNELL 295 p. 86.

*Picoides arcticus* wandering to Florida, OBERHOLSER 615.

[*Iyngipicus*] *Dendropicos obsoletus camerunensis* Cameroon, *D. o. kirensis* Redjaf, White Nile, subspp. n., REICHENOW J. Ornith. 1918 p. 437.

*Veniliornis kirkii monticola* subsp. n. Bt. Guiana, HELLMAYR Verhandl. Orn. Ges. Bayern 13 p. 315.

*Micropternus brachyurus williamsoni* Siam p. 107, *M. b. lanka* Ceylon p. 108, *M. b. mesos* Bengal p. 108, *M. b. humei* United Prov. p. 109, KLOSS Ibis 1918.

*Chrysocolaptes strictus*, note on the Siamese race p. 111, *C. s. chersonesus* subsp. n. Singapore p. 113, KLOSS Ibis 1918.—*C. validus xanthopygius* is the Sumatran race, ROBINSON & KLOSS 703 p. 148.

*Ceophloeus lineatus improcerus* subsp. n. Bahia, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 58.

*Picumnus penardi* Sel. apparently never described, BANGS & PENARD 59 p. 59.

## ORDER EURYLÆMIFORMES.

*Serilophus lunatus intensus* addt. description, ROBINSON & KLOSS 703 p. 150.

*Cymborhynchus macrorhynchus* on the Siamese and other races, KLOSS 426 p. 114; also ROBINSON & KLOSS 703 p. 151.

## ORDER PASSERIFORMES.

### FAM. CONOPHAGIDÆ.

*Pseudoconopophaga* gen. n., type *Conopophaga melanogaster* Menetr., CHUBB Ann. Mag. N.H. (9) 2 p. 122.

*Corythopsis torquata sarayacuensis* subsp. n. E. Ecuador, CHUBB Bull. B.O.C. 38 p. 48.

### FAM. FORMICARIDÆ.

*Batara cinerea argentina* subsp. n. N.W. Argentina, SHIPTON El Hornero 1 p. 114, and Physis 4 p. 106.

*Mackenziaena* gen. n. for type *Thamnophilus leachi* Such. CHUBB Ann. Mag. N.H. (9) 2 p. 123.

*Picrites* nom. n. pro *Lochites* Cab. & Hein. 1859 nec Gistel 1848, for type *Lochites severus* (Licht.), CHUBB Ann. Mag. N.H. (9) 2 p. 123.

*Frederickena* gen. n. for type *Thamnophilus viridis* Vieill., CHUBB Ann. Mag. N.H. (9) 2 p. 123

*Lakesphorus* nom. n. pro *Hypolophus* Cab. & Hein. 1859 nec Müller & Henle 1837, for type *Hypolophus canadensis* (Linn.), CHUBB Ann. Mag. N.H. (9) 2 p. 123.

[*Myrmotherula*] *Rhopias fulviventris salmoni* subsp. n. Colombia, CHUBB Ann. Mag. N.H. (9) 2 p. 124.—*R. spodiota juninensis* subsp. n. C. Peru, CHUBB Bull. B.O.C. 38 p. 84.—*Myrmophila varasouri* sp. n. Bt. Guiana, CHUBB Bull. B.O.C. 38 p. 83.

*Poliolaema* gen. n. for type *Myrmotherula cinereiventris* Sel. & Salv., CHUBB Ann. Mag. N.H. (9) 2 p. 124.

*Cercomacra cinerascens immaculata* Bt. Guiana p. 84, *C. tyrannina saturator* Bt. Guiana p. 85, *C. t. pallescens* W. Ecuador p. 85, subspp. n., CHUBB Bull. B.O.C. 38.—*C. tyrannina atrogularis*, subsp. n. Rio Napo, Ecuador, LLETGET Bol. Soc. Esp. N.H. 18 p. 341.

*Pyriglena leuconota hellmayri* Bolivia p. 179, *P. l. marcapatensis* Rio Madro di Dios, S.E. Peru p. 180, **subsp. n.**, SZTOLCMAN & DOMANIEWKI C.R. Soc. Sci. Varsovie 11.

*Rhopoterpe torquata equatorialis* **subsp. n.**, E. Ecuador, CHUBB Bull. B.O.C. 38 p. 85.

*Dichropogon* **gen. n.** for type *Hypocnemis pocilonota* Cab., CHUBB Ann. Mag. N.H. (9) 2 p. 124.

*Hypocnemoides* **gen. n.** for type *Hypocnemis melanopogon* ScL., BANGS & PENARD, Bull. Mus. Comp. Zoöl 52 p. 69.

*Grallaria rufula saturata* Ecuador p. 474, *G. r. taczanowskii* Ecuador p. 476, **subsp. n.** with notes on other species, DOMANIEWSKI & SZTOLCMAN C.R. Soc. Sci. Varsovie 11.—*G. punensis* **sp. n.** S. Peru, CHUBB Bull. B.O.C. 38 p. 47.—*Hylopezas macularia macconelli* **subsp. n.** Bt. Guiana, CHUBB Bull. B.O.C. 38 p. 86.

*Grallaria nana kukenamensis* **subsp. n.** Bt. Guiana, CHUBB Bull. B.O.C. 38 p. 86.

#### FAM. DENDROCOLAPTIDÆ.

*Furnarius leucopus hauzwelli*, **subsp. n.**, E. Peru, CHUBB Bull. B.O.C. 38 p. 87.

*Lochmias nematura castanonota* **subsp. n.** Bt. Guiana, CHUBB Bull. B.O.C. 38 p. 87.

*Siptornis steinbachi* noted again in N.W. Argentina, DABBENE 198.

*Pseudoseisura lophotes*, field-notes, RODRIGUEZ 706.

#### FAM. TYRANNIDÆ.

[*Copurus*] *Colonia leuconota pocilonota* (Cab.) from Bt. Guiana, a distinct race, BANGS & PENARD 59 p. 74.

[*Platyrhynchus*] *Placostomus coronatus gumia* **subsp. n.** Surinam, BANGS & PENARD Bull. Mus. Comp. Zoöl. 52 p. 74.

*Notorchilus* **gen. n.** for type *Platyrhynchus auricularis* Vieill. with discussion of validity of the generic name *Orchilus*, OBERHOLSER Proc. Biol. Soc. 31 p. 203.

*Rhynchocyclus megagephalus* recorded from Argentina, DABBENE 198.

*Leptopogon superciliaris albidiventer* **subsp. n.** N. Bolivia, HELLMAYR Verhandl. Orn. Ges. Bayern 13 p. 305.

*Phyllomyias brevirostris* recorded from Argentina, DABBENE 192 p. 97.

*Tyranniscus uropygialis* (Lawr.), taxonomic notes on a Peruvian example, BANGS & NOBLE 57 p. 454.

*Pitangus lictor panamensis* **subsp. n.** Panama, BANGS & PENARD Bull. Mus. Comp. Zoöl. 52 p. 78.

*Empidonax surinamensis* Penard = *E. fuscatus fumosus* Berl., BANGS & PENARD 59 p. 79.

*Empidonax traillii brewsteri* **subsp. n.** Nevada p. 93 new name for the western race while *E. t. traillii* must be reserved for the eastern race, OBERHOLSER Ohio J. Sci. 18 p. 85.

*Myiarchus crinitus* injured by eating a grasshopper, HOWELL 375.

#### FAM. COTINGIDÆ.

*Lathria cinerea plumbea* Licht. from Bahia is a distinct race, BANGS & PENARD 59 p. 71.

*Lipaugus simplex frederici* **subsp. n.** Surinam, BANGS & PENARD Bull. Mus. Comp. Zoöl. 52 p. 71.

#### FAM. PITTIDÆ.

*Pitta coerulea hosei* **subsp. n.** Borneo, BAKER Bull. B.O.C. 39 p. 20.—*P. angolensis* on the type with remarks on the other African species, HELLMAYR 349 p. 307.—*P. angolensis longipennis* in East Africa, SOMEREN 812.—*P. brachyura* nesting in the Punjab and description of nestling, DONALD 230.—*P. schneideri* ♀ described and both sexes figured, ROBINSON & KLOSS 703 p. 152 pl. vi.—*P. reichenowi* figured in colour with addt. description, SASSI 736 p. 240 pl. vii.

#### FAM. HIRUNDINIDÆ.

Food habits of Swallows, BEAL 67.

[*Clivicola*] *Riparia paludicola* races reviewed, SCLATER & M.-PRAED 778 p. 714.

[*Ptyonoprogne*] *Cotyle rupestris spatzi* in the Sahara, SCHWEFFENBURG 768 p. 139.

*Hirundo rustica* ringing results in Hungary, SZEOTS 843.—*H. rustica gutturalis* breeding habits (Japanese), KAWAGUCHI 404.—*H. puella* races reviewed *H. p. unitatis* subsp. n. South Africa to the Nile valley, SCLATER & M.-PRAED 778 p. 718.

[*Atlicora*] *Pygochelidon cyanoleuca* taxonomic notes, BANGS & NOBLE 57 p. 458.

*Stelgidopteryx ruficollis cacabatus* subsp. n. Surinam, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 83.

#### FAM. MUSCICAPIDAE.

*Alseonax* taxonomic notes on the Central African species, SASSI 736 pp. 243-245.

*Bradornis pallidus* seasonal and other plumage change, SCLATER & M.-PRAED 778 p. 702.

*Muscicapa striata* (Pall.) discussion of name, HARTERT 830 p. 361.

*Pedilorhynchus tessmanni* and *P. brevis* doubtfully distinct, SASSI 736 p. 247.

[*Hedymela*] *Muscicapa atricapilla* migration movements in Sweden, RENDAHL 684.—*M. albicollis* Temm. must replace *M. collaris* as the name of the White-collared Flycatcher, ANON 11 p. 239.

*Cyornis unicolor infuscata* taxonomic note, ROBINSON & KLOSS 703 p. 155.—*C. magnirostris caeruleifrons* subsp. n. Siam, BAKER Bull. B.O.C. 39 p. 8.

[*Muscicapula*] *Dendrobiastes hyperythra vulcani* subsp. n. Java, ROBINSON J. Fed. Malay States Mus. 7 p. 235.

*Gerygone* field notes, CHISHOLM 150.—*G. modiglianii* on the supposed races, ROBINSON & KLOSS 703 p. 161.—*G. griseus* critical taxonomic note, ROBINSON & KLOSS 701 p. 591.

[*Pseudogerygone*] *Gerygone magnirostris tagulana* Sudest I. p. 318, *G. m. proxima* Fergusson I. p. 319, subspp. n., ROTHSCHILD & HARTERT Nov. Zool. 25.

*Hyltiota slatini* figured with addt. description, SASSI 736 p. 248.

[*Pogonocichla*] *Tarsiger elgonensis* note on plumage characters, SOMEREN 813 p. 290.

*Lioptilus abyssinicus ansorgei* subsp. n. Benguella, ROTHSCHILD Bull. B.O.C. 38 p. 78.

*Parisoma blanfordi* on the races, *P. b. somaliensis* subsp. n. Somaliland, SCLATER & M.-PRAED Ibis 1918 p. 707.

*Batis bella* review of the races, SCLATER & M.-PRAED 778 p. 708.

*Diaphorophya graueri* and other African species taxonomy, SASSI 736 p. 252.

*Hypothymis azurea* on the Siamese race, KLOSS 426 pl. 190.

*Rhipidura leucothorax*, *R. threnothorax* and *R. fumosa* remarks on these species, ROTHSCHILD 715 p. 57.—*R. rufiventris finitima* Watubela Is., *R. r. perneglecta* Tiandu Is. *R. squamata henrici* outliers of Key Is. subspp. n. p. 59, *R. rufifrons granti* nom. n. Rendora, *R. r. commoda* Bougainville, Solomon Is. p. 60, HARTERT Bull. B.O.C. 38.—*R. flabellifera preissi* and *R. f. subphasiana* taxonomy, SÖDERBERG 808 p. 84.

[*Terpsiphone*] *Tchitrea*, taxonomic notes on the Central African species, SASSI 736 p. 257.—*T. paradisi*, critical remarks on Malayan and Bornean races, ROBINSON & KLOSS 701 p. 590.—*T. viridis* on the plumage changes and races, SCLATER & M.-PRAED 778 p. 714.

*Elminia longicauda* races reviewed, *E. l. loandae* subsp. n. Angola SCLATER & M.-PRAED Ibis 1918 p. 712.

*Rhinomyias olivacea*, its affinities, ROBINSON & KLOSS 703 p. 164.

*Myiagra rubecula sciurorum*, Sudest Is. p. 316, *M. r. papuana* Bt. New Guinea p. 317 subspp. n. and other races listed, ROTHSCHILD & HARTERT Nov. Zool. 25.

*Cryptolopha sumatrensis*, *C. muelleri*, figured with addt. description, ROBINSON & KLOSS 703 p. 165 pl. vii figs, 2, 3.—*C. nesophila* sp. n. Celebes, RILEY Proc. Biol. Soc. Washington 31 p. 159.

*Abrornis superciliaris* races discussed, ROBINSON & KLOSS 703 p. 168.

*Monacha cinerascens rosselianus*, on the Louisiade Is. and other races p. 314, *M. alecto lucidus*, taxonomic note p. 315, ROTHSCHILD & HARTERT 719.

## FAM. CAMPOPHAGIDÆ.

*Graucalus macei*, review of subspecies p. 66, *G. m. siamensis* subsp. n. Burma and Siam p. 69, BAKER Bull. B.O.C. 38.

*Campephaga martini*, correction of orig. description, LÖNNBERG 484 p. 100.—*C. confusa* sp. n. Nagarc-Dowash, German E. Afr., MADARASZ Ann. Mus. Hung. 13.

*Volocivora koratensis* sp. n. Siam p. 193, *V. polioptera* a new description p. 194, KLOSS Ibis 1918; critical note on these two forms, BAKER 44 p. 596.

*Lalage tricolor indistincta*, moult and feather-change, SÖDERBERG 808 p. 88 pl. i fig. 4.

*Celebesia* gen. n. [nr. *Malindangia* Mearns] for *C. abbotti* sp. n. Celebes, RILEY Proc. Biol. Soc. Washington 31 p. 158.

## FAM. PYCNONOTIDÆ.

*Chloropsis aurifrons inornatus* subsp. n. Siam, KLOSS Ibis 1918 p. 198.

*Irena puella*, Malayan races discussed, ROBINSON & KLOSS 703 p. 175.

*Iole olivacea crypta* subsp. n. Anamba Is. S. China seas, OBERHOLSER Proc. Biol. Soc. Wash. 31 p. 197.—*I. virescens* critical review of subspecies, ROBINSON & KLOSS 701 p. 688.

[*Criniger*] *Phyllastrephus sethsmithi* = *P. icterinus* p. 264, *P. lorentzi* figured p. 269 pl. vii with notes on other C. African forms, SASSI 739.

[*Bleda*] *Phyllastrephus flavicollis*, races listed, SCLATER & M.-PRAED 778 p. 699.

*Andropadus*, remarks on C. African species, SASSI 736 p. 270.

*Pycnonotus*, review of African species and subspecies, SCLATER & M.-PRAED 778 p. 697.

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*Otocompsa flaviventris minor* subsp. n. Siam, *O. f. johnstoni*, addt. remarks and shift from genus *Rubigula*, KLOSS Ibis 1918 p. 200; critical note on *O. f. minor*, BAKER 44 p. 597.—*Pycnonotus leucotis mesopotamia* subsp. n. L. Mesopotamia, TICEHURST Bombay Journal 26 p. 279.

## FAM. TIMELIIDÆ.

*Eupetes macrocerus griseiventris*, not a distinct race, ROBINSON & KLOSS 701 p. 584, a reply, BAKER 44 p. 593.

*Hylacola pyrrhopygia magna* subsp. n. Cobborra, N.S.W., HOWE Emu 18 p. 59.

*Psophodes crepitans*, nest and field notes, LITTLEJOHNS & LAWRENCE 469.

*Argya rubiginosa*, on the races and their synonymic history, SCLATER & M.-PRAED 778 p. 692.

*Pomatorhinus montanus otolanderi* subsp. n. W. Java, ROBINSON J. Fed. Malay States Mus. 7 p. 235.—*P. borneensis*, occurring in Sumatra, ROBINSON & KLOSS 703 p. 183.—*P. olivaceus siamensis*, not a distinguishable race, ROBINSON & KLOSS 701 p. 589; a reply, BAKER 44 p. 594.—*P. temporalis nigrescens*, nesting habits, SÖDERBERG 808 p. 92.—*Pomatostomus ruficeps parsoni* subsp. n. S. Australia, MATHEWS Bull. B.O.C. 38 p. 48.

*Garrulax moniliger leucotis* Baker = *G. m. mouhoti* Sharpe, *G. m. fuscata* subsp. n. Burma and Siam. BAKER Bull. B.O.C. 38 p. 64, also KLOSS ibid p. 65, also 426 p. 232.

*Cataponera abditiva* sp. n. Celebes, RILEY Proc. Biol. Soc. Wash. 31 p. 158.

*Turdinus*, remarks on C. African forms, SASSI 736 p. 276.—*Malaccincla sepiaria*, taxonomic note, ROBINSON & KLOSS 703 p. 187.

*Ptyrticus turdinus*, in the Bahr el Ghazal, SCLATER & M.-PRAED 778 p. 695.

*Setaria lepidoccephala*, critical taxonomic note and description, KLOSS 426 p. 203; = *S. rufifrons* (Cab.), BAKER 44 p. 594.

*Turdimulus epilepidota dilutus*, addt. description, ROBINSON & KLOSS 703 p. 189.

*Corythocichla brevicaudata herberti*, not admissible as a distinct race, ROBINSON & KLOSS 701 p. 585.

*Rimator albostrigatus*, rediscovered, ROBINSON & KLOSS 703 p. 191.

*Stachyris poliocephala diluta* subsp. n. n. Malay Peninsula, *S. maculatus maculatus*, Temm. Borneo and *S. m. pectoralis* Blyth, are distinct races. ROBINSON & KLOSS Ibis 1918 p. 587.—*S. orientalis* sp. n. E. Java, ROBINSON J. Fed. Malay States Mus. 7 p. 236.—*Stachyridopsis melanothorax intermedia* subsp. n. E. Java, ROBINSON J. Fed. Malay States Mus. 7 p. 236.—*Stachyridopsis chrysaea bogayii*, races discussed, ROBINSON & KLOSS 703 p. 193.

*Stachyridopsis rufifrons obscura*, is doubtfully distinguishable, ROBINSON & KLOSS 701 p. 586; a reply, BAKER 44 p. 593.

*Zosterornis whiteheadi* and *Z. affinis*, distribution in the Philippines, ZIMMER 935.—*Z. plateni*, a second example obtained in Mindanao described, MCGREGOR 499 p. 18.

*Cyanoderma erythropterum sordida*, cannot be maintained as distinct, ROBINSON & KLOSS 701 p. 590; a reply, BAKER 44 p. 594.

*Mixornis rubricapilla sulphurea*, taxonomic and nomenclatural note, KLOSS 426 p. 204, see also BAKER 44 p. 595; *M. r. connectens* subsp. n. N. Malay Peninsula KLOSS Ibis 1918 p. 207.

*Myiophonus eugenii*, note on the Siamese form, KLOSS 426 p. 207.

*Arrenga castaneus* and *A. melanura*, sexual distinctions and addt. description, ROBINSON & KLOSS 703 p. 197.

#### FAM. TROGLODYTIDAE.

*Troglodytes musculus chapmani*, nom. n. pro *T. m. neglectus* Chapman preoccupied, STONE Auk 35 p. 244.—*T. m. paramaribensis* subsp. n. Surinam, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 81.

*Pnoepyga pusilla harterti* subsp. n. Malay Peninsula, ROBINSON & KLOSS J. Fed. Malay S. Mus. 8 p. 205.

#### FAM. MIMIDAE.

*Toxostoma redivivum*, races reviewed, OBERHOLSER 605.

*Rhodinocichla rosca*, races discussed p. 302, *R. r. harterti* subsp. n. Bogota p. 304, HELLMAYR Verhandl. Orn. Ges. Bayern 13.

#### FAM. TURDIDAE.

*Cochoa beccarii*, figured with addt. description, ROBINSON & KLOSS 703 p. 233 pl. v fig. 3.

[*Merula*] *Turdus fumigatus aquilonalis*, from Trinidad is a distinct form, BANGS & PENARD 59 p. 80.—*Planesticus fredericki* sp. n. *P. fumigatus abariensis* subsp. n. Bt. Guiana p. 53, *P. f. ochro-fulvescens* subsp. n. Trinidad and Venezuela p. 54, CHUBB Bull. B.O.C. 38.—*Turdus indrapurae*, addt. description and affinities, ROBINSON & KLOSS 703 p. 210.

*Geocichla princei graueri* and *G. gurneyi oberländeri*, figured with addt. descriptions, SASSI 736 p. 279–80 pl. viii.—*G. gurneyi pileletti* subsp. n. Belgian Congo, SCHOUTEDEN Rev. Zool. Afr. 5 p. 294.

*Oreocinclla aureus horsfieldi*, Malayan races discussed, ROBINSON & KLOSS 703 p. 208.

*Turdus viscivorus*, nesting habits in N. France, BERLEPSCH 79; in Holland, MEYERE 554.—*T. pilaris*, scarcity in winter 1917–18, JOURDAIN 393.—*T. obscurus buturlini* subsp. n. Ascold I. nr. Vladivostock pp. 444, 459 and notes on other Palearctic species p. 443, DOMANIEWSKI C.R. Soc. Sci. Varsovie 11.—*T. torquatus alpestris*, wintering in the Sudan, SOLATER & M.-PRAED 778 p. 678.—*T. migratorius*, taken in Pomerania, KOSKE 429.—*Planesticus migratorius*, curious nesting behaviour in Michigan, SMITH 799.

*Hylocichla guttata polionota* subsp. n. Inyo Co., California, GRINNELL Condor 20 p. 89.—*H. g. pallasi*, field notes and observations on home life, PERRY 657.—*Turdus iliacus*, field notes in Sweden, HENRY 341.—*Turdus p. philomelos*, wintering in the Sudan, SOLATER & M.-PRAED 778 p. 678.

[*Petrophila*] *Monticola solitarius* (Linn.) 1758 antedates *M. cyanus* (Linn.) 1766, ANON. 11 p. 243.

*Accentor collaris*, occur. in Hungary, CHERNEL 149; *Prunella c. collaris*, recorded from Tunisia, BLANCHET 93.

*Phaenicurus phaenicurus*, migrations in Sweden, RENDAHL 682 p. 113.—*P. frontalis sinæ* subsp. n. Mts. of China. HARTERT Bull. B.O.C. 38 p. 78.

[*Aedon*] *Luscinia megarhyncha*, song SCHMIDT & STADLER 755; distribution in the Neckar valley, SCHUSTER 762; scarcity in Devon, WATKIN 881.

*Erethacus rubecula monnardi* subsp. n. E. France, KLEINSCHMIDT Falco 12 p. 14.

*Notodula diana sumatrana* subsp. n. W. Sumatra, ROBINSON & KLOSS J. Fed. Malay S. Mus. 8 p. 215.

*Cossypha bocagei albimentalis*, figured with remarks on this and other species, SASSI 736 p. 284.

*Erythropygia leucoptera ruficauda* in the Sudan with taxonomic note, SCLATER & M.-PRAED 778 p. 683.

*Alethe*, discussion of C. African forms, SASSI 736 p. 189.

*Thamnodica coronata kordofanensis*, add. description, WETTSTEIN 896 p. 82.—*T. albiscapulata subrufipennis* and *T. nigra*, first occurrence in the Sudan, SCLATER & M.-PRAED 778 p. 683.

*Pratincola torquata salax*, variability and relationships, LÖNNBERG 484 p. 101.—*Saxicola torquata maura*, wintering in the Sudan, SCLATER & M.-PRAED 778 p. 685.

*Cercomela melanura lypura* and *C. s. scotocerca* in the Sudan with critical note, SCLATER & M.-PRAED 778 pp. 685-6.

[*Saxicola*] *Oenanthe heuglini*, young plumage p. 687, *O. xanthopyrmyna* and *O. x. cummingsi*, taxonomic note p. 688, *O. lugens*, list of races p. 689, and remarks on other Sudanese species, SCLATER & M.-PRAED 778.—*Saxicola leucopygia aegra*, field and nesting notes in the Sahara, SCHWEPPEBURG 768 p. 166.—*S. stapazina*, *S. aurita*, taxonomy and history of the group, BÉDÉ 71.

*Catharus dryas stotemani* subsp. n. N.E. Peru, DOMANIEWSKI Bull. Ac. Sci. Cracovic 1918 p. 136.

#### FAM. SYLVIIDAE.

*Agrobates galactotes minor*, taxonomic note, SCLATER & M.-PRAED 778 p. 642.—*A. g. syriacus*, in SUSSEX, NICHOLS 593.—*A. familiaris*, taken near Rome, MAZZA 537.

*Locustella l. luscinioides*, reaches the Sudan, SCLATER & M.-PRAED 778 p. 643.—*L. ochotensis*, recorded from Palawan, ZIMMER 936.—*L. naevia*, in co. Durham, RUXTON 730.

*Acrocephalus arundinaceus*, breeding in Sweden, GRANVIK 286.—*A. palustris*, field notes and coloured plate, MEARES 539; breeding in Staffordshire, DAVIES 201; in Sussex, Warwickshire and Staffordshire, ARNOLD and OTHERS 17.—*A. a. agricola*, extension of range to Africa and taxonomic notes, SCLATER & M.-PRAED 778 p. 644.

[*Tribura*] *Bradypterus abyssinicus*, in the Nile Valley, with taxonomic note, SCLATER & M.-PRAED 778 p. 658.

*Melocichla mentalis*, races reviewed SCLATER & M.-PRAED 778 p. 645.

*Cisticola*, notes on the C. African species, SASSI 736 p. 295.—*C. natalensis mulzacii*, *C. lugubris marginata*, *C. ruficeps scotoptera*, *C. terrestris eximia*, *C. e. erythropters* and *C. e. roseires*, figured on pl. x and other species found in the Sudan commented on pp. 646-657, *C. erythropters zwaiensis* Abyssinia p. 656, *C. e. roseires* Sennar, Sudan p. 657, subsp. n., SCLATER & M.-PRAED Ibis 1918.—*C. deserticolor* and *C. slatini*, further description with figures, WETTSTEIN 896 p. 78 pl. ii figs. 2, 3.—*C. nitotica* sp. n. Blue Nile. *C. sudanica*, figured, MADARASZ Ann. Mus. Hung. 12 p. 591 pl. ii figs. 1, 2.

*Eremiornis carteri*, nest and eggs described, WHITE 903; field and taxonomic notes, WHITLOCK & CAMPBELL 913.

*Bradypterus centralis* and *B. cinamomeus salvadorii*, in Uganda, SOMEREN 813 p. 288.

[*Iduna*] *Hippolais languida*, at Khartoum in Aug., SOLATER & M.-PRAED 778 p. 660.

*Sylvia*, habits of the 5 species occurring at Leipzig, SCHLEGEL 748.—*S. communis*, returning to same nesting place, BURKITT 124.—*S. c. volgensis* subsp. n. Saratow S.E. Russia, DOMANIEWSKI C.R. Soc. Sci. Varsovie 8 pp. 550, 553.—*S. borin*, discussion of correct name, HARTERT 330 p. 363.

*Phylloscopus trochilus* and *P. sibilatrix*, unusual nesting sites, BOLAM 97.—*P. l. evermanni*, breeding birds described from N.E. Siberia also nest eggs, RILEY 696 p. 619.—*P. l. evermanni* and *P. bonelli orientalis*, wintering in the Sudan, SCLATER & M.-PRAED 778 p. 663-4.—*Phyllopinus collybita*, habits in Sweden, HEDEBY 342.

[*Acanthopneuste*] *Phylloscopus borealis*, habits in Lapland, FINNILÄ 249.

*Acanthiza nana dawsoniana* subsp. n. C. Queensland, H. L. WHITE Emu 18 p. 122.—*A. pusilla peroni* subsp. n. West Australia, MATHEWS Bull. B.O.C. 39 p. 23.

*Apalis porphyrolaema* description of young plumage, LÖNNBERG 484 p. 101.

[*Dryodromas*] *Apalis rufifrons rufifrons* and *A. r. smithi* distinct, SCLATER & M.-PRAED 778 p. 664.—*Spiloptila rufifrons danakilensis* subsp. n. Danakil-land, MADARASZ Ann. Mus. Hung. 13 p. 300.

*Sylvietta* review of the species with rufous underparts pp. 666-672.—*S. rufescens transvaalensis* subsp. n. Transvaal, SCLATER & M.-PRAED Ibis 1918 p. 667.—*S. zedlitzii* Kavirondo Bt. East Africa p. 437, *S. ladoensis* Lado p. 438, spp. n., REICHENOW J. Ornith. 1918.

*Eremomela elegans* races reviewed p. 672 *E. caniceps* new to the Sudan p. 673, *E. flaviventris* races reviewed p. 674, *E. f. alexanderi* subsp. n. Sudan p. 673, SCLATER & M.-PRAED Ibis 1918.

*Camaroptera griseoviridis* taxonomic note, SCLATER & M.-PRAED 778 p. 675.

*Phyllergates cucullatus sumatranus* taxonomic note, ROBINSON & KLOSS 703 p. 219.

*Celtia sumatrana* figured, ROBINSON & KLOSS 703 p. 216 pl. vii fig. 4.

*Prinia mistacea* review of the races, SOLATER & M.-PRAED 778 p. 676.—*P. inornata blanfordi* in Siam KLOSS 426 p. 211.—*P. i. herberti* subsp. n. Siam, BAKER Bull. B.O.C. 38 p. 39 = *P. i. blanfordi*, BAKER 44 p. 595.—*P. pallescens* sp. n. Blue Nile, MADARASZ Ann. Mus. Hung. 12 p. 593 pl. ii fig. 3.

*Malurus cyaneus leggei* host of the Bronze Cuckoo, PARSONS 652.—*M. leucopterus edouardi* nest and eggs described, WHITE 903.—*M. cyanotus*, *M. leucotus* and *M. edouardi* field and taxonomic notes, WHITLOCK & CAMPBELL 913.—*M. cyanotus diamantina* subsp. n. W. Queensland, H. L. WHITE Emu 18 p. 121.—*M. melanocephalus cruentatus*, young bird in moult figured, SÖDERBERG 808 p. 95 pl. i fig. 5.—*Leggeornis lamberti hartogi* subsp. n. Western Australia, MATHEWS Bull. B.O.C. 39 p. 24.

*Amytornis striata* figured in colour with short notice, CAMPBELL 133.

#### FAM. VIREONIDAE.

*Vireo belli* field-notes and photos, BENNETT 74.

#### FAM. AMPELIDAE.

*Ampelis garrula* catching insects SCHULMAN 759; field-notes and nesting in Hungary, CHERNEL 143; in Sweden in winter, RENDAHL 683; *Bombycilla garrulus* in Dept. Orne, LATACQ 449; sexual distinctions, TISCHLER 863.

#### FAM. ARTAMIDAE.

*Artamus superciliosus* nest and eggs and other field notes, LITTLEJOHNS & LAWRENCE 468.

#### FAM. PRIONOPIDAE.

*Tephrodornis gularis* taxonomic note p. 221 and *T. pelvica annectens* subsp. n. Malay Peninsula, ROBINSON & KLOSS J. Fed. Malay States Mus. 8 p. 222.

*Eurocephalus rüppelli* note on the subspecies, SCLATER & M.-PRAED 778 p. 640.



## FAM. LANIIDÆ.

*Lanius minor* at Khartoum in August, SCLATER & M.-PRAED 778 p. 627.—*L. excubitor* field-notes in Finland, FINNILÄ 251.—*L. excubitor galliæ* subsp. n. E. France KLEINSCHMIDT Falco 13 p. 24; addt. notice, BACMEISTER & KLEINSCHMIDT 32 p. 279.—*L. e. rapax* status discussed, TSCHUSI 871; in Brandenburg, SCHALOW 741.—*L. excubitor* and *L. borealis rapax* Polish races discussed, DOMANIEWSKI 218 p. 1037.—*L. ludovicianus migrans* breeding in Stansfield Co., Quebec, MOUSLEY 575.—*L. l. nelsoni* subsp. n. Lower California, OBERHOLSER Condor, 20 p. 209.

[*Phoncus*] *Lanius senator* at Tuskar Rock second Irish record, PATTEN 653.

[*Ennœctonus*] *Lanius collurio* pairing song, CSÓRGEY 185.—*L. colluriooides* descriptive and taxonomic note, KLOSS 426 p. 214.

*Otomela cristata phoenicuroides* wintering in the Sudan, SCLATER & M.-PRAED 778 p. 631.—*Lanius luctonensis* in Sumatra, ROBINSON & KLOSS 703 p. 225.

*Rhodophoneus cruentus kordofanicus* subsp. n. Kordofan, SCLATER & M.-PRAED 778 p. 633.

*Laniarius aethiopicus* review of the subspecies, SCLATER & M.-PRAED 778 p. 633.

*Dryoscopus gambensis* review of the races, SCLATER & M.-PRAED 778 p. 635.

[*Pomatorhynchus*] *Tschagra senegala* review of the races p. 636, *T. s. sudanensis* subsp. n. Upper Nile, SCLATER & M.-PRAED Ibis 1919 p. 638.

*Nilaus afer erythrae* note on subspecies in Uganda, SOMEREN 813 p. 276.

*Pachycephala melanura* and allied forms rearranged and listed, MATHEWS 520.—*P. littayei* note on the type specimen, BANGS 56.—*Lewinornis rufiventris didimus* subsp. n. S.W. Australia, MATHEWS Austr. Av. Rec. 3 p. 159.—*Pachycephala peninsulæ* figured with short notice, CAMPBELL 131.—

*P. pectoralis misimæ* subsp. n. Misima I. Louisiade Group, ROTHSCHILD & HARTERT Nov. Zool. 25 p. 311.

*Coracornis* gen. n. allied to *Pachycephala* for *C. raveni* sp. n. Celebes, RILEY Proc. Biol. Soc. Washington 31 p. 157.

*Hyloterpe crissalis* sp. n. Luzon, ZIMMER Philippine J. Sci 13 p. 230.

## FAM. PARIDÆ.

[*Pocile*] *Parus salicarius* in Silesia, BAHRMANN, 35.—*Parus salicarius subrhœnanus* subsp. n. nr Bonn, KLEINSCHMIDT & JORDANS Falco 12 p. 17.—*Penthestes hudsonicus nigricans* migrations into New England, WRIGHT 931.—*Penthestes carolinensis* a distinct species, OBERHOLSER 606 p. 465.—*Pocile atricapillus* on the subspecies in Poland, DOMANIEWSKI 218.—*Parus atricapillus submontanus* in the Bavarian Alps discussed, STRESEMANN 826 p. 339.

[*Pociloides*] *Penthestes gambeli* races reviewed p. 505, *P. g. inyoensis* Inyo co Cal. p. 509, *P. g. abbreviatus* Siskiyou co Cal. p. 510 subsp. n. GRINNELL Univ. Cal. Publ. Zool. 17.

[*Sittiparus*] *Parus varius namiyai* subsp. n. Niijima island, Japan, KURODA Tokio Zool. Journ. 30 p. 322.—*P. hakodatensis* subsp. n. Hokkaido Japan (Japanesc), MOMIYAMA Tokyo Zool. Journ. 30 p. 345.

[*Periparus*] *Parus ater* voice, SCHMIDT & STADLER 755.

*Parus major malayorum* subsp. n. W. Sumatra, ROBINSON & KLOSS J. Fed. Malay S. Mus. 8 p. 220.

*Aegithalos caudatus* on the Pyrenean race, HARTERT 331 p. 429; field-notes in Holland, WOLDA 928.—*A. caudatus expugnatus* subsp. n. in E. France, BACMEISTER & KLEINSCHMIDT Falco 12 p. 18.

[*Remiza*] *Anthoscopus* list of recognised species and races, *A. pendulinus persimilis* subsp. n. Asia Minor, HARTERT Nov. Zool. 25 p. 308.

*Remiz Jarochoi* 1821 anticipates *Anthoscopus* Cab. for *Motacilla pendulinus* Linn., MATHEWS & IREDALE 529 p. 147.

## FAM. SITTIDAE.

*Sitta europaea sztolcmani* subsp. n. W. Russia pp. 1038 1042 and other races discussed p. 1037, DOMANIEWSKI C.R. Soc. Sci. Varsovie 6 also 226 p. 3.—*S. neumayer* field-notes, ROHÁČEK 711.—*S. carolinensis tenuissima* subsp. n. Inyo Co. California, GRINNELL Condor 20 p. 88.

## FAM. CERTHIIDAE.

*Certhia familiaris* races, KAYSER 405.—*Certhia brachydactyla* in northern France, CONGREVE 173 p. 354; song, STADLER & SCHMIDT 817.—*C. familiaris macrodactyla* and *C. b. brachydactyla* distr. in eastern France, STRESE-MANN 825 p. 262.

*Trichodroma muraria* occurrence in Paris and in Dept. Ain., BOUVIER 100.

## FAM. ZOSTEROPIDAE.

*Zosterops bayeri* sp. n. Londiani B. E. Afr., LÖNNBERG Rev. Zool. Afr. 5 p. 100.—*Z. difficilis* sp. n. Sumatra and on other Sumatran species, ROBINSON & KLOSS J. Fed. Malay S. Mus. 8 p. 250.

*Lophozosterops striaticeps* sp. n. Celebes, RILEY Proc. Biol. Soc. Washington 31 p. 157.

## FAM. DICAETIDAE.

*Dicaeum cruentatum siamensis* subsp. n. Siam, KLOSS Ibis 1918 p. 216.—*D. trigonostigma* review of subspecies, *D. t. megastoma* Natuna Is. p. 74, *D. t. flaviclunis* Java p. 75 subsp. n. HARTERT Bull. B.O.C. 38.—*D. beccarii* figured with addt. description, ROBINSON & KLOSS 703 p. 247 pl. vii fig. 1.—*D. van-heysti* sp. n. N.E. Sumatra, ROBINSON & KLOSS J. Fed. Malay States Mus. 7 p. 239.

*Amonorhynchus affinis* sp. n. Palawan P. I. ZIMMER Philippine J. S. 13D p. 348.

*Piprisoma sordidum* sp. n. Selangor Malay Pen., ROBINSON & KLOSS J. Fed. Malay States Mus. 7 p. 239.

## FAM. NECTARINIIDAE.

Sunbirds in captivity, HOPKINSON 366.

*Hedydipna danakilensis* subsp. n. Danakil-land, MADARASZ Ann. Mus. Hung. 13 1915 p. 296.

*Nectarinia pulchella* seasonal plumage change, SCLATER & M.-PRAED 778 p. 616.—*N. kilimensis* photographed in life, SOMEREN 813 p. 287 pls. iv, v.

*Arachnechthra asiatica* winter plumage change, TICEHURST 858.

*Cinnyris splendidus* ranges to the Sudan p. 617, *C. chloropygius* review of races p. 618. *C. osea bulleri* subsp. n. Lado Enclave p. 619, SCLATER & M.-PRAED Ibis 1918.

*Cyanomitra verticalis*, review of the subspecies, SCLATER & M.-PRAED 778 p. 621.

*Anthreptes longmari*, review of subspecies, SCLATER & M.-PRAED 778 p. 622.

*Chalcopteryx singalensis koratensis* subsp. n. Siam, KLOSS Ibis 1918 p. 218; critical note, BAKER 44 p. 596.

## FAM. MELIPHAGIDAE.

*Myzomela pectoralis* pollinating Eucalyptus flowers, SÖDERBERG 808 p. 102 fig. 24.

[*Melilestes*] *Philemon novaeguineae tagulanus* subsp. n. Sudest I., ROTHSCHILD & HARTERT Nov. Zool. 25 p. 319.

*Ptilotis analoga vicina* corrections and additions to description, ROTHSCHILD & HARTERT 719 p. 319.

## FAM. MNIOTILTIDAE.

*Vernivora rubricapilla* nesting notes and photos, TUTTLE 873.

[*Parula*] *Compsothlypis americana pusilla* Wilson must replace *C. a. usneae*, BREWSTER 113.

*Dendroica aestiva amnicola* subsp. n. Newfoundland BATCHELDER Proc. N. Engl. Zool. Cl. 6 p. 82.—*D. coronata hooveri* from California is a distinguishable subspecies, OBERHOLSER 606 p. 465.—*D. virens waynei* subsp. n. S. Carolina, BANGS Proc. N. Engl. Zool. Cl. 6 p. 94.

*Seiurus aurocapillus furvior* subsp. n. Newfoundland, BATCHELDER Proc. N. Engl. Zool. Cl. 6 p. 81.

*Geothlypis trichis sinuosa* field-notes in San Francisco, SCHUSSLER 760.

## FAM. DREPANIDIDAE.

*Vestiaria* should be quoted as of Jarochi 1821 not Fleming 1822, MATHEWS & IREDALE 529 p. 147.

## FAM. MOTACILLIDAE.

*Motacilla alba arduenus* subsp. n. E. France, KLEINSCHMIDT Falco 12 p. 14.—*M. a. intermedia* subsp. n. S. Russia, DOMANIEWSKI Trav. Soc. Sci. Warsaw 3 No. 18 p. 55.—*M. cinerea* Tuns. antedictis *M. boarula* for the Grey Wagtail, ANON 11 p. 235.—*M. flava* races passing through the Sudan, SCLATER & M.-PRAED 778 p. 611.—*M. f. thunbergi* migration in East Prussia, TISCHLER 861.—*Budytes flavus plexus* N.E. Siberia addt. description, RILEY 696 p. 621.

## FAM. ALAUDIDAE.

*Rhamphocorys clot-bey* distribution and field-notes, BÉDÉ 70.

*Melanocorypha sibirica* in Sussex, NICHOLS 593.

*Alda arvensis* migrations in Denmark, SAXTORPH 739; in Sweden, RENDAHL 682; field-notes in Finland, PALMEN 637.

*Calandrella* additional notes on taxonomy, *C. brachyactyla rubiginosa* and *C. acutirostris tibetana* described, HARTERT 327.

*Mirafra fischeri* seasonal forms, SCLATER & M.-PRAED 778 p. 604.—*M. cheniana chadensis* and *M. albicauda* taxonomic notes in the Sudan, SCLATER & M.-PRAED 778 p. 605.

*Galerida cristata*, a discussion of the forms in the Nile Valley, NICOLL 595; on the Sudanese races, SCLATER & M.-PRAED 778 p. 606; *Alauda cristata*, a town-bird in Prussia, SCHUSTER 767.

[*Lullula*] *Alauda arborea*, hibernation, LINDQUIST 464.

*Ammomanes cinctura* and *A. deserti*, note on the Sudanese subspecies, SCLATER & M.-PRAED 778 pp. 608-9.

[*Eremopteryx*] *Pyrrhulanda* on the Sudanese species and races, SCLATER & M.-PRAED 778 p. 609.—*P. frontalis*, variation in plumage in Danakil-land MADARASZ 508 p. 294 pl. vii.

## FAM. FRINGILLIDAE.

Emberizinae of Switzerland monographed, BURG 123.

[*Ligurinus*] *Chloris chloris*, nesting in western Russia, RÜDIGER 727.

*Hesperiphona v. vespertina* habits and occurrences in Pennsylvania and New Jersey, SCOVILLE 779; in Maine, also range elsewhere, NORTON 598; in Ontario, GORMLEY 283.

*Sporophila minuta centralis* subsp. n. Panama, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 90.

*Amaurospiza moesta* recorded from Argentine, DABBENE 192 p. 97.

*Richmondena* gen. n. for *Loxia cardinalis* Linn. instead of *Cardinalis* Bp. now in use, MATHEWS & IREDALE 529 p. 145.

[*Pitylus*] *Myospiza humeralis tucumanensis* subsp. n. Tucuman, Argentina, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 92.

*Saltator olivascens brewsteri* subsp. n. Trinidad *S. o. plumbeus* Bp. from Santa Marta, Columbia, a distinct race, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 91.

*Fringilla coelebs* singing in autumn, HAGEN 309.—*F. montifringilla* migrations in Sweden, GRANVIK 285; field and other notes, SNOUCKAERT, 802.

*Carduelis carduelis* × *A. flavirostris* hybrid, SILVER 795.—*C. caniceps orientalis* (EVCER.) must be called *C. c. subulata* (Gloger), SACHTLEBEN 732.

*Spinus ictericus peruanus* on examples from N.W. Peru, BANGS & NOBLE 57 p. 461.—*S. i. maguirostris* subsp. n. N.W. Argentina, DABBENE El Hornero 1 1918, p. 181, also Physis 4 p. 105.

[*Linaria*] *Cannabina cannabina* × *Acanthis spinus* hybrid, LÖNNBERG 481.—*A. linaria* palaearctic subspecies reviewed p. 1048, *A. l. asiaticus* subsp. n. p. 1054 1071 E. Siberia, DOMANIEWSKI C.R. Soc. Sci. Varsovie 10.—*A. l. linaria*, nesting notes in Alaska, DIGE 209.—*A. l. cabaret* × *A. flavirostris* hybrid, SILVER 795.—*A. exilipes*, its relations to *A. hornemanni* and *A. linaria* discussed, OBERHOLSER 606 p. 466.—*A. hornemanni exilipes*, nest and eggs in N.E. Siberia, RILEY 696 p. 623.

*Passer montanus*, distribution, LÖNNBERG 480.—*P. m. dybouskii* subsp. n. Corea and other races discussed, DOMANIEWSKI C.R. Soc. Varsovie 3 pp. 562 566.—*P. hostilis* sp. n. England, KLEINSCHMIDT Falco 11 p. 19.—*P. domesticus*, variation in the eggs, MOSLEY 572; introduction into Chile, BARROS 60; variation in nesting habits, SCHUSTER 766.—*P. griseus* and *P. swainsoni*, races reviewed, SCLATER & M.-PRAED 778 p. 471.—*P. griseus eritreae* in Kordofan, WETTSTEIN 896 p. 73.

*Poliopsis angolensis deserti* subsp. n. Damaraland, REICHENOW J. Ornith. 1918 p. 438.—*P. striolata affinis*, photographed on nest, SOMEREN 813 p. 282, pl. iii.—*P. gularis* races reviewed, SCLATER & M.-PRAED 778 p. 468.

*Serinus dorsostrigatus intensesinctus* Massailand, *S. icterus songcae* Songea German East Africa, subspp. n., REICHENOW J. Ornith. 1918, p. 438.—*S. mozambicus* (Müll.) 1776 antedates *S. icterus* (Bonn. & Vieill.) 1823, ANON 11 p. 242.—*S. mozambicus* review of the subspecies p. 465; *S. m. tando* subsp. n. Angola p. 465; *S. m. aurifrons* subsp. n. ex Heuglin's nom. nud. Sennar p. 466, SCLATER & M.-PRAED Ibis 1918.—*S. canarius polonicus* subsp. n. Poland, DOMANIEWSKI C.R. Soc. Sci. Varsovie 10 pp. 995 1001.

*Anomatospiza imberbis* description and habits of in Uganda, SOMEREN 813 p. 282.—*A. butleri* sp. n. Lado Enclave, SCLATER & M.-PRAED Ibis 1918 p. 460.

*Linurgus elgonensis* sp. n. Mt. Elgon, SOMEREN Nov. Zool. 25 p. 283.

*Carpodacus erythrinus* distrib. in Finland, MERIKALLIO 547.

*Loxia curvirostra minor* nesting in Essex county Mass., BREWSTER 112.

*Pyrrhula p. pileata*, nesting habits, PITT 661.—*P. erythaca wilderi* subsp. n. Chili Pr. N. China, RILEY Proc. Biol. Soc. Washington 31 p. 33.

*Urocynchramus* must form a distinct family (Urocynchramidae) on account of the wing formula, DOMANIEWSKI 214.

*Emberiza schoeniclus*, nidification in Finland, FINNILÄ 245.—*Cynchramus*

*schoeniclus curvirostris* Volga valley pp. 745 750, *C. s. goplanae* Poland pp. 746 751 subsp. n., DOMANIEWSKI C.R. Soc. Sci. Varsovie 11.—*E. cirulus* nesting habits in N. France, BERLEFSCH 79.—*E. agnata* sp. n. Lettena Mts. German E. Afr., MADARASZ Ann. Mus. Hung. 13 p. 395.

[*Miliaria*] *Emberiza miliaria* in the Punjab an addition to the Indian fauna, WHISTLER 898; *E. calandra*, migrations in Germany, TISCHLER 862.

*Fringillaria septemstriata gostingi* occurs in the Bahr el Ghazal, SCLATER & M.-PRAED 778 p. 463.—*F. reichenowi*, further comparative description, WETTSTEIN 896 p. 75.

*Calcarius ornatus*, recorded from California, GRINNELL 295 p. 87.

*Poocetes g. gramineus* field-notes on home life, PERRY 657.

*Junco*, review of the species and races, rango and relationship, etc., with maps and plates, DWIGHT 238.

*Spizella monticola* (Gmel.) v. *S. canadensis* (Bodd.) discussed, OBERHOLSER 624.

*Zonotrichia leucophrys nuttalli*, distribution in California, HUBBS 377.

*Melospiza melodia*, an abnormal nest, CARPENTER 137.—*M. melodia inexpectata* is a distinguishable subspecies, OBERHOLSER 606 p. 187.

*Passerella iliaca mariposae* Yosemite p. 161, *P. i. fulva* Warner Mts. Cal. p. 162, *P. i. canescens* Inyo county p. 163 subspp. n., SWARTH Proc. Biol. Soc. Wash. 31.—*P. i. altivagans* Riley is a distinguishable subspecies, OBERHOLSER 606 p. 186.—*P. i. brevicauda* subsp. n. Trinity Co., California, MAILLIARD Condor 20 p. 139.

*Pipilo maculatus montanus* recorded from California, GRINNELL 295 p. 87.—*P. crissalis* subspecies reviewed, SWARTH 837.

*Embernagra platensis*, review of the subspecies and allied species p. 1, *E. p. paraguayensis* Paraguay subsp. n. p. 5, *E. gossei* sp. n. Mendoza Argentina p. 9 pl. i fig. 2, *E. longicauda* figured pl. i fig. 1, CHUBB Ibis. 1919

## FAM. TANAGRIDAE.

[*Euphonia*] *Tanagra olivacea mellea* subsp. n. Peruvian Amazons, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 87.—*T. catasticta* nom. n. pro. *T. vittata* (Scl.) invalidated p. 125, *T. aurea cynophora* nom. n. pro. *T. a. pileata* (Berl.), *T. violacea pampolla* nom. n. pro. *T. v. magna* (Berl.), *T. lamirostris zopholega* nom. n. pro. *T. l. peruviana*, all invalid, *T. olivacea* (Desm.) invalid, must become *T. minuta* (Cab.) p. 126, OBERHOLSER 623.

[*Calyptospiza*] *Tangara parudakii florentes* subsp. n. N.W. Peru, BANGS & NOBLE Auk 35 p. 459.

[*Tanagra*] *Thraupis cana guaesita* subsp. n. N.W. Peru, BANGS & NOBLE Auk 35 p. 460.

*Piranga testacea desidiosa* subsp. n. W. Columbia, BANGS & NOBLE Auk 35 p. 461.

*Nemosia pileata coerulea* (Wied.), from Bahia a distinct subspecies, BANGS & PENARD 59 p. 89.

*Calyptophilus*, its systematic position discussed, MILLER 561.

## FAM. PLOCEIDAE.

*Vidua serena*, colour of bill and parasitic habit, SOMEREN 813 p. 281.

*Pyromelana flammiceps craspedopterus* taxonomic note, SCLATER & M.-PRAED 778 p. 456.—*Euplectes hordacea* (Linn.) is the correct name for *E. flammiceps* Swains. et auct., LÖNNBERG 475.

*Cryptospiza jacksoni piletei* subsp. n. Belgian Congo, SCHOUTEDEN Rev. Zool. Afr. 5 p. 276.

*Nesocharis capistrata* occurs in Bah. el-Ghazal, SCLATER & M.-PRAED 778 p. 446.

*Lagonosticta senegala*, note on the Sudanese races, SCLATER & M.-PRAED 778 p. 447.—*L. kilimensis* sp. n. Moschi, Germ. E. Afr., MADARASZ Ann. Mus. Hung. 13 p. 395.

*Pytelia melba*, review of the subspecies p. 450; *P. hypogrammica* and *P. lopezi* probably merely phases *P. phoenicoptera* and *P. p. emini* p. 453, SCLATER & M.-PRAED 778.—*P. slatini* sp. n. Blue Nile, MADARASZ Ann. Mus. Hung. 12 p. 601.

(N-5464 g)

*Hypocheira*, review of species and races, SCLATER & M.-PRAED 778 p. 448.

*Aidemosyne cantans*, review of the subspecies, SCLATER & M.-PRAED 778 p. 439.—*A. cantans baraensis* addt. description and comparisons, WETTSTEIN 896 p. 70.

*Poëphila gouldiae* = *Poëphila mirabilis*, ADLERSPARRE 1.—*Alisteranus cinctus maclemmani* subsp. n. N. Queensland, MATHEWS Austr. Av. Rec. 3 p. 159.

*Erythrura trichroa macgillivrayi* figured in col. with short notice, KERSHAW 408.

*Estrilda astrild* review of the subspecies p. 441; *E. a. gaboonensis* nom. n. pro *E. rubriventris* Sharpe (nec Vieill.), p. 443; *E. butleri* (O.-Grant) = *E. n. nigricollis*, SCLATER & M.-PRAED Ibis 1918.

*Uraeginthus bengalus* races and other notes, SNOUCKAERT 803.

*Sporopipes cinerascens* sp. n. Ruwana Steppes, Germ. E. Afr., MADARASZ Ann. Mus. Hung. 13 p. 395.

*Ploceus (Hyphantornis) cucullatus*, review of the subspecies, SCLATER & M.-PRAED 778 p. 434.

*Ploceus (Sitagra) badius* taxonomy of the two Sudanese races, SCLATER & M.-PRAED 778 p. 436.

## FAM. ICTERIDAE.

*Ostinops viridis flavescens* subsp. n. Peruvian Amazons, BANGS & PENARD Bull. Mus. Comp. Zool. 52 p. 85.

*Molothrus bonariensis* and *M. badius* field-notes and parasitic breeding habits in S. America, MILLER 559.

*Agelaius phoeniceus arctolegus* and *A. p. fortis*, ranges and distinctive characters, OBERHOLSER 606 p. 64.

*Leistes militaris superciliaris* nest and eggs, DABBENE 194.

*Amblyramphus holocericeus*, nest, DABBENE 194.

*Icterus xantholemus* sp. n. Ecuador, LLETGET Bol. Soc. Esp. N.H. 18 p. 340.

## FAM. STURNIDAE.

*Sturnus vulgaris*, former status in Britain, BUTTERFIELD 129; migrations in Sweden, RENDAHL, 682; in northern Finland, MERIKALLIO 551; *S. vulgaris* races reviewed p. 327, *S. v. zeelandicus* Shetland Is. p. 329, HARTERT, Nov. Zool. 25.

*Pastor roseus*, occurrences in Switzerland, HESS 356.

*Aethiopsar fuscus infuscatus* subsp. n. Burma, BAKER Bull. B.O.C. 38 p. 70.

## FAM. EULABETIDAE.

[*Lamprocorax*] *Metallopsar m. purpurascens*, migrations on Dunk I., Queensland, BAMFIELD 51.

[*Lamprocolius*] *Lamprotornis s. splendidus* ranges to the Sudan, SCLATER & M.-PRAED 778 p. 431.—*L. chalybaeus* and *L. cyaniventris*, taxonomy of Sudanese forms, SCLATER & M.-PRAED 778 p. 429.

*Spreo pulcher* on the supposed races, SCLATER & M.-PRAED 778 p. 429.

## FAM. ORIOLIDAE.

*Oriolus chryseus* Heuglin apparently identical with *O. auratus*, SCLATER & M.-PRAED 778 p. 427.—*Oriolus luteolus* (Linn.) is the correct name of the Indian Black-headed Oriole, HARTERT 323 and 330 p. 361.—*O. l. thaiacous* subsp. n. Siam, HARTERT Bull. B.O.C. 38 p. 63.

*Sphocolheres maxillaris* auct. must become *S. vicilloti* as Latham's figure and description is indeterminable, MATHEWS 521.

## FAM. DICRURIDAE.

*Dicrurus leucophaeus* subspecies reviewed p. 291, *D. l. disturbans* S. Burma p. 293, *D. l. hopwoodi* Assam p. 294, *D. l. stevensi* Sikkim p. 295, *D. l. minimus* Ceylon p. 296, subspp. n. *D. ater* subspecies reviewed p. 296, *D. ater harterti* Formosa subsp. n., BAKER Nov. Zool. 25.—*D. annectens siamensis* subsp. n. Siam, KLOSS Ibis 1918 p. 226.

*Chaptia aenea* subspecies reviewed, BAKER 50 p. 303.

*Bhringa remifer attenuata* subsp. n. Malay Peninsula, ROBINSON & KLOSS J. Fed. Malay S. Mus. 8 p. 235.—*B. r. peracensis* subsp. n. Malay Peninsula, BAKER Bull. B.O.C. 39 p. 18.

*Dissemurus paradiseus* subspecies reviewed p. 229, *D. p. nicobariensis* subsp. n. Nicobars p. 302, BAKER Nov. Zool. 25.—*D. p. paradiseus* and *D. p. malayensis* critical taxonomic remarks, KLOSS 426-p. 228.

## FAM. PARADISEIDAE.

*Astrapia alboundata* sp. n. [German] New Guinea, REICHENOW J. Ornith. 1918 p. 244.

*Phonygamnus neumanni* sp. n. "Sepikgebiet" New Guinea, REICHENOW J. Ornith. 1918 p. 438.

## FAM. CORVIDAE.

The Crows of western Russia, ZEDLITZ 933; of Mesopotamia, MAGRATH 510; food habits of Dutch Crows, KOLE & GIERBERGEN 427.

[*Trypanocorax*] *Corvus frugilegus* histology of alimentary canal, GRESCHIK 289; curious flight habits, HARDY 315; field-notes in Holland, MEYERE 553; food habits, LONG 474; moult, RATZ 675.

*Heterocorax capensis minor* in the Sudan taxonomic notes, SCLATER & M.-PRAED 778 p. 424; *Corvus capensis minor* on the White Nile, taxonomy and status, WETTSTEIN 896 p. 66.

*Corvus corax* American races defined and described p. 213, *C. c. europhilus* subsp. n. Alabama p. 215, OBERHOLSER Ohio J. Sci. 18.—*C. c. dardaniensis* subsp. n. Macedonia, GENGLER Orn. Monatsb. 26 p. 110.—*C. c. ruficollis* (= *umbrinus*) field and nesting notes in the Sahara, SCHWEPPEBURG 768 p. 142.—*C. cornix* subspecies, reviewed, LAUBMANN 450; stomach contents, CSIKI 181; in Warwickshire, LEIGH 456; roosting places in Sweden, LÖNNBERG 479.—*C. corone* taxonomy and subspecific forms, KLEINSCHMIDT 422; on the identification of Linne's original description, KLEINSCHMIDT 421.—*C. splendens* abnormal plumage variation, WHISTLER 900.—*C. brachy-*

*rhynchus* economics food habits, etc., KALMBACH 403; Canadian economics, CRIDDLE 179; a winter roost in Massachusetts, TOWNSEND 868.—†*C. leucognathus* bones found in St. Croix W.I., WETMORE 892.

[*Rhinocorax*] *Corvus rhipidurus* nom. n. pro *C. affinis* Rüpp. preoccupied, HARTERT Bull. B.O.C. 39 p. 21; *Corvus brachyrhynchus* Brehm is the correct name for the Fantail Raven of N.E. Africa, HARTERT 330 p. 361.

*Nucifraga caryocatactes* migration movements at Rositten, THIENEMANN, 853.—*N. c. macrorhynchus* in Moravia, ČAPEK 134.

*Pica [pica] galliae* subsp. n. E. France, KLEINSCHMIDT Falco, 13 p. 24.

*Urocissa occipitalis magnirostris* taxonomic note, KLOSS 426 p. 230.

*Garrulus glandarius glandarius* in Norfolk in winter, RIVIERE 697; an unusual plumage, LAMBERT 440.—

*G. g. fasciatus* Brehm is the correct name for the Spanish Jay, HARTERT 326 p. 9.—*G. bispecularis interstinctus*. Sikkim and *G. b. persaturatus* Assam subsp. n. and other subspecies; also list of other Jays, HARTERT Nov. Zool. 25 p. 430.

[*Crates*] *Perisoreus infaustus yakutensis*, note on plumage characters, RILEY 696. p. 625.—*P. canadensis capitalis*, nesting habits in Colorado, BRADBURY 104.—*P. obscurus* critical notes on the races, SWARTH 836.

*Aphelocoma* Californian species and races reviewed p. 405, *A. c. ooclepta* subsp. n. Marin Co. Cal. subsp. n. p. 413, SWARTH Univ. Cal. Publ. Zool. 17.—*A. californica hypoleuca*, range and status, OBERHOLSER 616.

*Pyrrhonorax pyrrhonorax* (Linn.) and *P. graculus* (Linn.) are the correct names for Yellow-billed Alpine and the Red-billed Cornish Choughs, STUDER 829.





# XVIII. MAMMALIA

ARRANGED BY

MARTIN A. C. HINTON.

## CONTENTS

	PAGE
I. TITLES ... ..	4
II. SUBJECT INDEX :—	
Comprehensive and General = 6003 :—	
Bibliography ... ..	18
Institutions, Collections ... ..	18
Economics ... ..	18
Miscellaneous ... ..	18
Structure = 6007 :—	
General and Comparative ... ..	18
Histology ... ..	18
Tegument ... ..	18
Nervous system and sense-organs ... ..	18
Myology ... ..	18
Osteology and Dentition... ..	18
Alimentary system ... ..	18
Circulatory and Respiratory Systems ... ..	18
Blood, Lymph, etc. ... ..	18
Excretory organs. Special glands ... ..	19
Organs of reproduction ... ..	19
Physiology = 6011 :—	
General and miscellaneous ... ..	19
Development = 6015 :—	
Ovum, oogenesis ... ..	19
Spermatozoon, spermatogenesis... ..	19
Embryology ... ..	19
Placenta and Parturition... ..	19
Post-embryonal ... ..	19

	PAGE
Ethology = 6019 :—	
Sexual and Parental ... ..	19
Habits ... ..	19
Hibernation and Pathology ... ..	19
Variation and Aetiology = 6023 :—	
Variation ... ..	19
Hybrids ... ..	19
Heredity ... ..	19
Evolution ... ..	19
Geography = 6027 :—	
Europe = <i>d</i> and <i>da</i> to <i>dk</i> ... ..	19
Scandinavia, etc. <i>da</i> ... ..	19
Russia Europea <i>db</i> ... ..	19
Holland and Belgium <i>dc</i> ... ..	20
British Islands <i>de</i> ... ..	20
France <i>df</i> ... ..	20
Spain <i>dg</i> ... ..	20
Italy <i>dh</i> ... ..	20
Switzerland <i>di</i> ... ..	20
Austria-Hungary <i>dk</i> ... ..	20
Mediterranean Islands <i>dm</i> ... ..	20
Asia = <i>e</i> ... ..	20
Asiatic Russia <i>ea</i> ... ..	20
China and Tibet <i>eb</i> ... ..	20
Japan and Korea <i>ec</i> ... ..	20
Cochin China, etc. <i>ed</i> ... ..	20
British India <i>ef</i> .. ..	20
Malaya, etc. <i>eg</i> ... ..	20
Persia and Syria <i>eh</i> and <i>ei</i> ... ..	20
Africa and Madagascar = <i>f</i> ... ..	20
North America = <i>g</i> ... ..	20
Central and South America, Antilles = <i>h</i> ... ..	21
Australasia and Southern Ocean = <i>i</i> ... ..	21
 III. SYSTEMATIC = 6031 :—	
Primates ... ..	21
A. Anthropoidea .. ..	21
Hominidae and Simiidae ... ..	21
Cercopithecidae ... ..	22
Cebidae and Hapalidae ... ..	22
B. Lemuroidea ... ..	22
Chiroptera ... ..	22
Pteropodidae ... ..	23
Rhinolophidae and Hipposideridae ... ..	23
Nycteridae and Vespertilionidae ... ..	23
Noctilionidae, Molossidae and Phyllostomatidae ... ..	23

	PAGE
Insectivora ... ..	24
Tupaïidae and Macroscelididae ... ..	24
Soricidae and Talpidae ... ..	24
Erinaceidae ... ..	24
Nesophontidae ... ..	24
Tenrecidae ... ..	25
Carnivora ... ..	25
A. Carnassidentia ... ..	25
Felidae... ..	25
Viverridae ... ..	25
Hyænidae and Proteleidae ... ..	25
Canidae ... ..	25
Ursidae ... ..	26
Procyonidae ... ..	26
Mustelidae ... ..	26
B. Pinnipedia ... ..	26
Rodentia ... ..	26
Aplodontidae, Sciuridae and Anomaluridae ... ..	26
Castoridae and Gliridae ... ..	27
Dipodidae and Geomyidae ... ..	27
Muridae ... ..	28
Bathyergidae ... ..	29
Hystricidae, Caviidae, etc. ... ..	29
Leporidae and Ochotonidae ... ..	30
Ungulata ... ..	30
A. Artiodactyla ... ..	30
Bovidae ... ..	30
Giraffidae ... ..	31
Cervidae ... ..	31
Suidae ... ..	31
B. Perissodactyla ... ..	32
Equidae ... ..	32
Rhinocerotidae ... ..	32
c and d. Hyracoidea and Proboscidea ... ..	32
Sirenia and Cetacea... ..	33
Edentata ... ..	33
Marsupialia ... ..	33
Monotremata ... ..	34

## I.—TITLES.

- Abe, Y.** Nihon san usagino gakumei ni tsuite. [On the scientific appellation of Japanese hares.] Dobuts. Z. Tokyo 30 1918 (244-253 293-296 329-330). 1
- Ahlander, F. E.** Förteckning öfver svensk litteratur rörande däggdjuren. För åren 1913-1914. Fauna och Flora Uppsala 12 1917 (179-187). 2
- Alexander, W. B.** A new species of marsupial of the sub-family *Phalangerinae*. Perth J. R. Soc. West Austral. 4 1918 (31-36) pl. i 2 text-figs. 3
- Andersen, K.** Diagnoses of new bats of the families *Rhinolophidae* and *Megadermatidae*. Ann. Mag. Nat. Hist. London (9) 2 1918 (374-384). 4
- Anderson, J. F. and Neill, H.** The blood-picture of healthy Rhesus monkeys. J. Med. Res. Boston 33 (N. Ser. 28) 1915 (141-145 with table). 5
- Anderson, R. M.** Preliminary list of specimens of Mammals collected by the Canadian Arctic Expedition, 1914 to 1916. Identified by R.M.A. Canada Geol. Surv. Summary report 1916 Ottawa 1917 (381-384). 6
- Anderson, R. M.** Some notes on the mammals of Jasper Park, Alberta. Canad. Alpine J. Banff 9 1918 (70-75). 7
- Anon.** The destruction of rats. London Board of Agric. and Fisheries Leaflet No. 244 Revised 1918 (1-7). 8
- Anthony, H. E.** The indigenous Land Mammals of Porto Rico, living and extinct. New York N.Y. Mem. Amer. Mus. Nat. Hist. New Ser. 2 1918 (333-435) pls. 55-74 text-figs. 1-55. 9
- Anthony, R.** Liste des travaux scientifiques de M. R. Anthony. Paris (E. Pigelet) 1918 (1-16). 10
- Badertscher, J. A.** The development of the thymus in the pig. 1. Morphogenesis. Amer. J. Anat. Philadelphia 17 1915 (317-337 with pls. ff.). 11
- Badertscher, J. A.** The development of the thymus in the pig. 2. Histogenesis. Amer. J. Anat. Philadelphia 17 1915 (437-493 with pls.). 12
- Bailey, B. H.** Notes on the distribution of the prairie spotted skunk in Iowa. Des Moines Proc. Iowa Acad. Sci. 22 1915 (355-357). 13
- Bailey, V.** A new subspecies of Chipmunk from the Yellowstone National Park. Washington D.C. Proc. Biol. Soc. 31 1918 (31-32). 14
- Bancroft, M. J.** *vide* Johnston, S. H.
- Barker, F. D.** Parasites of the American muskrat (*Fiber zibethicus*). The Journal of Parasitology, Urbana Ill. 1 1915 (184-197) pl. i 2 ff. A.-D. 15
- Barrows, W. M. and Phillips, J. McI.** Color in cocker spaniels. J. Hered. Washington 6 1915 (387-397) ff. 1-6. 16
- Bate, Miss D. M. A.** On a new genus of extinct Muscardine Rodent from the Balearic Islands. London Proc. Zool. Soc. 1918 1919 (209-222) pl. i text-figs. 2. 17
- Beaux, O. de.** I Mammiferi del Museo Zoologico della R. Università di Genova. Parte Prima. Genoa Atti. Soc. ligustica sc. nat. geogr. 28 No. 4 1918 (1-23). 17a
- Beaux, O. de.** Osservazioni morfologiche e sistematiche sul penis del *Macacus arctoides* Qs. Geoffr. e di cinque altre specie di Macaehi. Pavia Giorn. Morfol. Uomo e Primati. 1 1917 fase 1. (1-12) Tav. 17b
- Beaux, O. de.** Osservazioni e considerazioni sulle vibrissae carpaliae facciali degli Aretopiteci. Pavia Giorn. Morfol. Uomo e Primati. 1 Fasc. 2 1917 (1-20). 17c

- Beaux, O. de.** Sul pene degli Antropomorfi. Pavia Giorn. Morfol. Uomo. e Primati 1 Fasc. 3 1917 (1-6). 17d
- Beaux, O. de.** Studi sui neonati dei mammiferi (Forma esterna). Parte Prima. Primati e Carnivori Fissipedi. Cap. 1-4 Arch. Ital. anat. embriol. Firenze 15 1917 (467-541). Cap. 5-9 *ibidem* 17 1918 Fasc. 2. 17e
- Boas, J. E. V.** Zur Kenntniss des Hintorfusses der Marsupialier. Kopenhagen Vid. Selsk. Biologisk Meddelelse 1 8 1918 (1-23) with 2 plates. 18
- Bolam, G.** The Whiskered Bat, *Myotis mystacinus* (Kuhl), an addition to the local fauna. The Vasculum Hexham 4 1918 (59-63). 19
- Bolk, L.** On the relation between the dentition of Marsupials and that of Reptiles and Monodelphians. Amsterdam Proc. Sci. K. Akad. Wet. 18 1916 (715-737). 20
- Bolk, L.** De „Bulla maxillaris“ van Gorilla. [Die „Bulla maxillaris“ vom Gorilla.] Amsterdam Werk. Gen. Nat. Genees. Heelk. 9 (Ser. 2) 1918 (132-133); Nederlandsch Tydschrift geneeskunde Amsterdam 62 1 1918 (203-204). 21
- Brauer, A.** Neue Procaviden. Berlin Sitzungsber. Ges. natf. Fr. 1917 1917 (294-303). 22
- Bremer, J. L.** The origin of the renal artery in mammals and its anomalies. Amer. J. Anat. Philadelphia 18 1915 (179-200 with ff.). 23
- Broman, Ivar.** Om gnagarnes Glandula nasalis infraseptalis och dess utveckling. [Über die Glandula infraseptalis der Nagetiere und die Entwicklung derselben.] Stockholm Sv. Läkars. Handl. 42 1916 (717-736) 4 text figs. 24
- Brunner, H. und Spiecel, E. A.** Vergleichend anatomische Studien am Hapalidengehirn. Folia neurobiologica Haarlem 11 1918 (171-203 12 Text fig.). 25
- Burlet, M. de.** Oergeschlachtszellen by Bradypus. [Urgeschlechtszellen bei Bradypus.] Amsterdam Werk. Gen. Nat. Genees Heelk. (Ser. 2) 9 1918 (123-125). 26
- Cabrera, A.** Dos nuevos antilopes de la subfamilia *Tragelaphinae*. Madrid Bol. Soc. Esp. Hist. Nat. 18 1918 (274-277). 27
- Cabrera, A.** Sobre los *Odocoileus* de Colombia. Madrid Bol. Soc. Esp. Hist. Nat. 18 1918 (300-307). 28
- Camp, C. L.** Excavations of burrows of the rodent *Aplodontia*, with observations on the habits of the animal. Berkeley Univ. Cal. Pub. Zool. 17 1918 (517-536) 6 text-figs. 29
- Camp, C. L.** *vide* Gregory, W. K.
- Castle, W. E. and Hadley, P. B.** The English rabbit and the question of Mendelian unit-character constancy. Washington Proc. Nation. Acad. Sci. 1 1915 (39-43 with table ff.). 30
- Chapman, F.** On an apparently new type of Cetacean tooth from the Tertiary of Tasmania. Melbourne Proc. R. Soc. Vict. 30 1918 (149-152). 31
- Chubb, E. C.** Some observations upon whales captured at Durban. Durban Ann. Durban Museum 2 1918 (89-93 pls. xiii-xvi). 32
- Cleland, J. B.** Presidential address. Sydney N.S.W. R. Soc. 1918 1918 (1-165). 33
- Cleveland, W. J.** Lactation in a foal. J. Amer. Vet. Med. Ass. Ithaca N.Y. (N. Ser.) 1 1915 (324). 34
- Comes, S.** Considerazioni sulla natura mitocondriale di alcune membrane cellulari e sul loro significato. Catania Bol. Acc. Gioenia 1918 fasc. 43 (27-35). 35
- Cuni, L. A.** Contribucion al estudio de Mamíferos acuáticos observados en las costas de Cuba. Mem. Soc. Cubana Hist. Nat. 3 1918 (83-123). 36
- Dammerman, K. W.** Gegevens over de veldratten plaag op Java. [Angaben über die Feldrattenplage auf Java.] Buitenzorg Meded. Afd. Plantenziekten 31 1918 (1-17). 37
- Davidson, Miss W. M.** *vide* Wroughton, R.C.
- Deinse, A. B. van.** Over de pottvissen in Nederland gestrand tusschen de jaren 1531-1788. [Über die Pottfische, in Holland gestrandet in den Jahren 1531-1788.] Leiden Zool. Med. 4 1918 (22-50 3 Taf. 5 Textabb.). 38

Deinse, A. B. van. Over de vin-  
visschen in de landen om de Noordzee  
gestrand tusschen de Jaren 1306-  
1918. [Ueber die Finnische, welche  
in den Jahren 1306-1918 in den Län-  
dern um die Noordzee strandeten.]  
Leiden Zool. Med. 4 1918 (179-245  
6 Text fig.) 39

Dolley, D. H. On a law of species  
identity of the nucleus-plasma norm  
for nerve cell bodies of corresponding  
type. The numerical constancy of the  
nucleus-plasma coefficient of the func-  
tionally resting Purkinje cell of the  
dog species. J. Comp. Neur. Phila-  
delphia 24 1914 (445-501) pl. 1 f. A. 40

Donker, P. Het aandeel van den  
n. vagus aan de innervatie van den  
darm. [Der Anteil des nervus vagus in  
die Innervierung des Darmes.] Amster-  
dam Werk. Gen. Nat. Genees. Heelk.  
9 (Ser. 2) 1918 (114-116). 41

Dos Reis, J. M. The cattle of Brazil.  
[Transl.] J. Hered. Washington 6 1915  
(203-211) ff. 5-8. 42

Dreyer, T. F. Discontinuous distri-  
bution in a few mammalian groups.  
Cape Town S. Afr. Q. Sci. 15 1918  
(680-689). 43

Drongleever Fortuyn, A. B. De  
involutie der placenta by de muis in  
vruchtkamers, waarin het embryo  
gestorven is. [The involution of the  
placenta in the mouse after the death  
of the embryo.] Amsterdam Versl.  
Wis. Nat. Afd. Kon. Akad. Wet. 27  
[1918] (133-136) (Dutch); Amsterdam  
Proc. Sci. K. Akad. Wet. 21 [1918]  
(231-234) (English). 44

Dubois, E. De betrekking der hoeveel-  
heden van de hersenen, het neuron en  
zyn deel en tot de lichaamsgrootte.  
[On the relation between the quantities  
of the brain, the neurone and its parts,  
and the size of the body.] Amsterdam  
Versl. Wis. Afd. K. Akad. Wet. 26  
1918 (1416-1425) (Dutch); Amster-  
dam Proc. Sci. K. Akad. Wet. 20  
1918 (1328-1337). 45

Éhik, J. Die Präglaziale Fauna von  
Brassó (Vorläufiger Bericht). Földt  
Közl. Budapest 43 1913 (136-150). 46

Éhik, J. A pozsony-megyei Pálffy-  
barlang pleistocæen faunája (Die plei-  
stozäne Fauna der Pálffyhöhle im  
Pozsonyer Komitat). Budapest Barlang-  
kutató 1 1913 (3-14 15-22) pl. 2 text-  
figs. 47

Éhik, J. A borsodmegyei Peskö-  
barlang pleistocæen faunája (Die Plei-  
stozäne Fauna der Pesköhöhle im  
Komitat Borsod). Budapest Barlang-  
kutató 2 1914 (191-199 224-229) 5 text-  
figs. 48

Éhik, J. Ujabb adatok a keleti  
pézsmacickány hazai előfordulásához  
(Neuere Daten zum Vorkommen der  
Bismaspitzmaus in Ungarn). Budapest,  
Barlangkutató 3 1915 (79-84 113-116)  
4 text-figs, 49

Éhik, J. A Herman Ottó-barlang  
ásatásának faunisztikai eredményei  
(Die faunistischen Resultate der Grab-  
ungen in der Herman Ottó-Höhle).  
Budapest Barlangkutató 4 1916 (24-29  
46-48) 3 text-figs. 50

Ehrström, K. E. Däggdjuren i  
Societas pro Fauna et Flora Fennica  
samlingar. [Die Säugetiere in den  
Sammlungen der Societas pro Fauna  
et Flora Fennica.] Helsingfors Medd.  
Soc. Fauna et Fl. Fenn. 43 1917  
(240-264). 51

Etheridge, R. The unguis phalanges  
termed *Mylodon australis* by Krefft,  
Spelean Animal vel *Thylacoleo* by  
Owen, and *Thylacoleo* by Lydekker.  
Ann. Mag. Nat. Hist. London (9) 2  
1918 (307-318) pls. xviii-xx. 52

Evvard, J. M. Is the appetite of  
swine a reliable indication of physio-  
logical needs? Des Moines Proc. Iowa  
Acad. Sci. 22 1915 (375-403 with table  
pls.). 53

Fawcett, E. The primordial cranium  
of *Erinaceus europæus*. J. Anat.  
London 52 1918 (211-250) pls. i-xxii  
15 text-figs. 54

Fink, J. W. Lactation in a seven-  
days old calf. Journal of the American  
Veterinary Medical Association Ithaca  
N.Y. (N. Ser.) 1 1915 (61 with fig.). 55

Fiore, O. de. Avanzi di difesi fossili  
di *Elephas*, nel territorio di noto antico.  
Catania Boll. Acc. Gioenia 1918 Fasc. 44  
1918 (44-49). 56

- Frets, G. P. Gecomplieerde Medelistiche splitsingsverschynselen by de erfelykheid van den hoofdvorm. [Complicated Mendelian segregation in the heredity of headform in man.] Amsterdam Versl. Wis. Nat. Afd. K. Akad. Wet. 26 [1917] (367-380); 1918 (946-955) (Dutch); Amsterdam Proc. Sci. K. Akad. Wet. 20 1918 (435-488 865-874) (English). 57
- Garrett, C. Most unusual Deer head with eye teeth. Ottawa Nat. 32 1918 (18). 58
- Gaziot, Le Commandant. Les Loups dans les Iles Britanniques. Paris Bul. soc. zool. 43 1918 (67-68). 59
- Gidley, J. W. *vide* Miller, G. S.
- Gillies, C. D. and Tiegs, O. W. On the occurrence of Pacinian corpuscles in the pancreas of the domestic cat. Brisbane Proc. R. Soc. Queensland 30 1918 (159-161). 60
- Girardin, P. Comment disparaît une espèce. Le castor commun (*Castor fiber* L.). Fribourg Bul. Soc. Sci. Nat. 24 1918 (50-61). 61
- Goldman, E. A. The rice rats of North America (genus *Oryzomys*). Washington D.C. U.S. Dept. Agric. Bur. Biol. Surv. N. Amer. Fauna 43 1918 (1-100) pls. i-vi 11 text-figs. 62
- Goldman, E. A. Five new mammals from Arizona and Colorado. Washington D.C. Proc. Biol. Soc. 31 1918 (21-26). 63
- Gregory, W. K. and Camp, C. L. Studies in comparative myology and Osteology. No. III. New York N.Y. Bull. Amer. Mus. Nat. Hist. 38 1918 (447-563) pls. xxxix-1. 64
- Grinnell, Miss H. W. Notes on some bats from Alaska and British Columbia. Berkeley Univ. Cal. Pub. Zool. 17 1918 (431-433). 65
- Grinnell, J. Geographic variation in *Citellus tereticaudus*. Washington D.C. Proc. Biol. Soc. 31 1918 (105-106). 66
- Grinnell, J. Six new mammals from the Mohave Desert and Inyo regions of California. Berkeley Univ. Cal. Pub. Zool. 17 1918 (423-430). 66a
- Gyldenstolpe, Count N. Några ord om Siams fauna och naturförhållanden. Fauna och Flora Uppsala 1918 1918 12-36 49-74). 67
- Gyldenstolpe, Nils. On Birds and Mammals from the Malay Peninsula Ark. Zool. Stockholm 10 No. 26 1917 (31). 68
- Haagner, A. K. Description of a new baboon from Rhodesia. Pretoria S. Afric. J. Nat. Hist. 11 1918 (83-84) pl. 69
- Hadley, B. *vide* Castle, W. E.
- Hahn, W. L., *the late*. The hibernation of certain animals. Pop. Sci. Mon. New York 84 1914 (147-167 with 6 photos. of 13-lined ground-squirrel awakening). 70
- Hamilton, R. E. A. The Beatrix or Arabian Oryx (*Oryx leucoryx*) in Central Arabia. Bombay J. Nat. Hist. Soc. 26 1918 (283-284) pl. 71
- Hanitsch, R. On a serow from Annam. J. Straits Asiat. Soc. Singapore No. 78 1918 (59-65) pls. vii and viii. 72
- Hardesty, I. On the proportions, development and attachment of the tectorial membrane. Amer. J. Anat. Philadelphia 18 1915 (1-73 with pls. tables). 73
- Harmer, S. F. Report on *Cetacea* stranded on the British Coasts during 1917 (with three text-figures and one map). London British Museum (Nat. Hist.) 1918 No. 5 (1-21). 74
- Harmer, S. F. Notes on *Cetacea* stranded on the British Coasts during 1913-1917. London Proc. Zool. Soc. 1918 1918 (147-161). 75
- Haskin, J. R. Butterflies as food for squirrels. Ent. News Philadelphia 27 1916 (370). 76
- Hatai, S. On the brain weights of rats descended from the cross between the wild Norway (*Mus norvegicus*) and the domesticated albino (*Mus norvegicus albinus*). J. Comp. Neurol. Philadelphia 25 1915 (555-566 with tables, charts). 77
- Heath, R. H. Porcupine's mode of attack. Bombay J. Nat. Hist. Soc. 26 1918 (282-283). 78

- Helms, O.** Vaaghval (*Balaenoptera rostrata* O. Fabr.) strandet ved Nakkebølle Fjord, Sydfyn. Note on a specimen of *Balaenoptera rostrata* being wrecked in the firth of Nakkebølle, Southern Funen. København Naturens Verden 2 1918 (323-327) with 2 figs. 79
- Heringa, G. C.** Het sensibele periphære zenuwstelsel [On the peripheral sensitive nervous system]. Amsterdam Versl. Wis. Nat. Afd. K. Akad. Wet. 26 1918 (1282-1292) (Dutch). Amsterdam Proc. Sci. K. Akad. Wet. 21 [1918] (26-36) (English). 80
- Hildén, K.** Om svarta råttans (*Mus rattus* L.) förekomst i Tavastehus-trakten [Das Auftreten von *Mus rattus* L. in der Gegend von Tavastehus] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (172-173). 81
- Hildén, T.** Tietoja Räisälässä esintyvistä imettäväisistä. [Notizen über Mammalier in Räisälä, Finland] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 44 1918 (96-100). 82
- Hill, J. P.** Parturition in Marsupials and external characters of new-born young. London Proc. Zool. Soc. 1918 1919 (337-338). 83
- Hinton, M. A. C.** Note on the Pig skeleton from Lydstep Haven, Pembroke-shire. London Proc. Geol. Assoc. 29 1918 (65-67). 84
- Hinton, M. A. C.** Exploration of La Cotte de St. Brelade. Report on the rodent remains. St. Helier Bul. Ann. Soc. Jersiaise 43 1918 (355-357). 85
- Hinton, M. A. C.** Scientific results from the Mammal Survey. No. XVIII. Report on the House Rats of India, Burma and Ceylon. Bombay J. Nat. Hist. Soc. 26 1918 (Part I) (59-58). 86
- Hinton, M. A. C.** Rats and mice as enemies of mankind. London (Brit. Mus. Economic Series) No. 8 1918 (i-x 1-63) 2 pls. and 16 text-figs. 87
- Hollister, N.** New rodents from British East Africa. Washington D.C. Smithsonian Inst. Misc. Collect. 68 No. 10 1918 (1-3). 88
- Hollister, N.** East African Mammals in the United States, Part I. *Insecti-*
- vora, Chiroptera and Carnivora.* National Museum. Washington D.C. Smithsonian Inst. Nat. Mus. Bul. 99 1918 (1-194) pls. i-iv. 89
- Hollister, N.** A new Hare from British East Africa. Washington D.C. Proc. Biol. Soc. 31 1918 (35-36). 90
- Hollister, N.** Report of the superintendent of the National Zoological Park for the fiscal year ending June 30, 1917. Washington D.C. Smithsonian Inst. Ann. Rep. 1917 1918 (71-87). 91
- Hoog, E. G. van 't.** Über Tiefenlokalisation in der Grosshirnrinde. Feestbundel Cornelis Winkle, Psychiatrische Neurologische Bladen Amsterdam 1918 (281-297) fig. 92
- Horst, M. D. en Raadt, O. L. E. de.** De juiste namen voor de Javaansche groote huisrat en de sawahrat. [Die richtigen Namen der javanischen grossen Hausratte und der Sawah-Ratte.] Tydschrift vergelykende geneeskunde, gezondheidsleer, dieziekten, Leiden 3 1918 (253-255, 1 Abb.). 93
- Howell, A. H.** Revision of the American Flying Squirrels. Washington D.C. U.S. Dept. Agric. Bur. Biol. Surv. N. Amer. Fauna. No. 44 1918 (1-64) pls. i-vii 4 text-figs. 94
- Hrdlicka, A.** The peopling of America. J. Hered. Washington 6 1915 (79-91) ff. 14-21. 95
- Hueber, A. A.** Musculus transversus orbitae. Amsterdam Werk. Gen. Nat. Gen. Heelk. 9 (Ser. 2) 1918 (127). 96
- Hulshoff Pol, D. J.** The development of the fossa sylvii in embryos of *Semnopithecus*. Amsterdam Proc. Sci. K. Akad. Wet. 19 1917 (938-943). 97
- Hunnicut, B. H.** Zebu cattle in Brazil. J. Hered. Washington 6 1915 (195-201) ff. 1-4. 98
- Jackson, C. M.** Effects of acute and chronic inanition upon the relative weights of the various organs and systems of adult albino rats. Amer. J. Anat. Philadelphia 18 1915 (75-116 with ff. tables). 99



- Jackson, C. M.** Changes in the relative weights of the various parts, systems and organs of young albino rats held at constant body-weight by underfeeding for various periods. *J. Exp. Zool. Philadelphia* **19** 1915 (99-156 with ff. tables). **100**
- Jackson, H. H. T.** Two new shrews from Oregon. *Washington D.C. Proc. Biol. Soc.* **31** 1918 (127-130). **101**
- Jackson, V. A.** Notes on a young Hog Badger *Arctonyx* sp. in the Garo Hills. *Bombay J. Nat. Hist. Soc.* **26** 1918 (281-282). **102**
- Jenks, A. E.** Spotted asses. *J. Hered. Washington* **7** 1916 (165-168) ff. 7 8. **103**
- Job, T. T.** On the lymphatic system of the common rat. [Abstract.] *Des Moines Proc. Iowa Acad. Sci.* **22** 1915 (18-19) **104**
- Johansen, A. C.** Saeler og Hvaler i Randers Fjord. *Phoca vitulina* and *Phocaena communis* occurring in the firth of Randers. *København Randers Fjords Naturhistorie* 1918 (471-472). **105**
- Johnston, T. H.** Notes on certain entozoa of Rats and Mice. Together with a catalogue of the internal parasites recorded as occurring in rodents in Australia. *Brisbane Proc. R. Soc. Queensland* **30** 1918 (53-78). **106**
- Johnston, T. H. and Bancroft, M. J.** A tick-resistant condition in cattle. *Brisbane Proc. R. Soc. Queensland* **30** 1918 (219-317). **107**
- Joleaud, L.** Études de Géographie Zoologique sur la Berberie. Les Rongeurs—I. Les Sciurides. *Paris Bul. Soc. zool.* **43** 1918 (83-102). **108**
- Joleaud, L.** Études de Géographie Zoologique sur la Berberie. II. Les Bovines. *Alger. Rev. Africaine* No. **295** 1918 (33-86). **109**
- Jordan, H. E.** The spermatogenesis of the mongoose; and a further comparative study of mammalian spermatogenesis, with special reference to sex chromosomes. *Washington Carnegie Inst. Pub. No.* **182** (Papers Tortugas Lab. **5**) 1914 (163-180) pl. i; ff. 1-9. **111**
- Kajava, Yrjo.** Die kurzen Muskeln und die langen Beugemuskeln der Säugetierhand. II. Insectivora und Edentata. Vergleichend-anatomische Untersuchungen. *Helsinki Annal. Acad. Sc. Fenn.* **9** A No. 1 1916 (1-177 mit 14 fig.). **112**
- Kärki, E.** Oravan (*Sciurus vulgaris* L.) perhe-elämästä. [Über das Familienleben des *Sciurus vulgaris*.] *Helsingfors Medd. Soc. Fauna et Fl. Fenn.* **42** 1916 (97-98). **113**
- Kellogg, R.** A revision of the *Microtus californicus* group of meadow mice. *Berkeley Univ. Cal. Pub. Zool.* **21** 1918 (1-42) text-fig. **114**
- Kemp, P. R.** Some notes on *Cervus (Rucervus) schomburgki*. *J. Nat. Hist. Soc. Siam Bangkok* **3** 1918 (1-9) pl. 1. **115**
- Kernan, J. D.** The skull of *Ziphius cavirostris*. *New York N.Y. Bull. Amer. Nat. Hist.* **38** 1918 (349-394) pls. xx-xxxii. **116**
- Keuchenius, P. E.** Tooth-anomalies on an orang-utan. *Buitenzorg Contrib. faune des Indes Néerl.* **1** fasc. 3 1917 (302-304) 2 text-fig. **117**
- Kloss, C. B.** Notes on some hares in the Indian Museum with descriptions of two new forms. *Rec. Ind. Mus. Calcutta* **15** 1918 (89-96) 13 text-figs. **118**
- Kloss, C. B. vide** Robinson, H. C.
- Klugh, A. B.** The behaviour of the Red Squirrel. *Ottawa Nat.* **32** 1918 (9-12). **119**
- Kollmann, M.** Note sur les mammifères rapportés d'Asie Mineure par M. Gadeau de Kerville. *Bul. Muséum Paris* **1918** 1918 (201-204). **120**
- Koster, J. J. J.** Over den stand van de maculae acusticae en half-cirkelvormige kanalen in den konynen schedel. [Ueber die Lage der Maculae acusticae und der halbkreisförmigen Kanäle im Kaninchenschädel.] *Amsterdam Werk. Gen. Nat. Genoccs. Heelk.* **9** (Ser. 2) 1918 (118-119). **121**
- Kraglievich, L.** La perforacion astragaliana en *Conepatus*, *Lutra* y *Sarcophilus*. *Buenos Aires Physis. Rev. Soc. Arg. Ci. Nat.* **3** 1917 (413-417). **122**

- Krediet, G.** Een geval van hermaphroditismus verus by de geit. [Ein Fall von Hermaphroditismus verus bei einer Ziege.] Tyds. Diergen. Utrecht 45 1918 (223-235). 123
- Krom, H. M. en Moulin, F. W. K. de.** De verbinding van hoornwand en wandlederhuid en de groei van primaire en secundaire hoornplaatjes. [Die Verbindung von Hornwand und Wandlederhaut und das Wachstum der primären und sekundären Hornplättchen.] Tydschr. Diergen. Utrecht 45 1918 (647-659 8 fig.). 124
- Kuhlman, A. H.** Jersey-Angus cattle. J. Hered. Washington 6 1915 (68-72) ff. 6-11. 125
- Kuhlman, A. H.** Black and white Ayshires. J. Hered. Washington 6 1915 (314-322) ff. 12-15. 126
- Kuroda, N.** Yamane no bunpu to shushi. [Distribution and habits of *Glirolulus japonicus* (Schinz).] Dobuts Z. Tokyo 30 1918 (86-90). 127
- Kuroda, N.** Kamtschatka san shoyju-rui no hyohon ni tsuite. [On some small mammals from Kamtschatka. Dobuts Z. Tokyo 30 1918 (481-484). 128
- Lange, S. J. de.** Le cervelet de l'Echidna. Feestbundel Cornelis Winkler Psychiatrische Neurologische Bladen Amsterdam 1918 (466-472 3 fig.). 129
- Lebedinsky, N. G.** Eine Vierlingsgeburt beim Hausrind. Nebst einigen Bemerkungen über den „Kampf der Teiles“ um die Nahrung im Ovarium. Basel Verh. Nat. Ges. 29 1918 (60-68). 130
- Lloyd-Jones, O.** What is a breed? J. Hered. Washington 6 1915 (531-537) ff. 1-4. 131
- Lloyd-Jones, O.** Mules that breed J. Hered. Washington 7 1916 (494-502) ff. 5-9. 132
- Loder, E. G.** Notes on the Beavers at Leonardslee 1916-1918. London Proc. Zool. Soc. 1918 1918 (255-256). 133
- Lönnerberg, E., Vicenterna och Scriget.** Fauna och Flora. Uppsala 11 1916 (82-86) 2 text-figs. 134
- Lönnerberg, E.** Mammals collected in Central Africa by Captain E. Arrhenius. Stockholm Vet.-Ak. Handl. 58 No. 2 1917 (110) text-figs. pls. 135
- Lönnerberg, E.** Några intressanta torfmossfynd från Skåne. Fauna och Flora Uppsala 12 1917 (14-20) text-figs. 136
- Lönnerberg, E.** En ny gorilla från Central-Africa. Fauna och Flora Uppsala 12 1917 (145-155) text-figs. 137
- Lönnerberg, E.** Tydning av några däggdjurs-diagnosen i Systema Naturae ed X. Sv. Linné-Sällskap. Årsskr. Uppsala 1 1918 (86-89). 138
- Lönnerberg, E. and Aljaberg, E.** Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia 1910-1913. 2. Mammals from Queensland. Stockholm Vet. Ak. Handl. 52 No. 2 1916 (20) 1 pl. 6 text-figs. 139
- Loredan, L.** Intorno al processo dell' atresia follicolare dell' ovaia nei mammiferi. Torino Mem. Acc. sc. 56 No. 7 1915 (1-15) tav. 140
- Lorenz, L. R. (von Liburnau).** Beitrag zur Kenntnis der Affen und Halbaffen von Zentralafrika. Wien Ann. Nat. Hist. Hofmus. 31 1917 (169-241) taf. vii-xv. (Published May, 1918.) 141
- Lundahl, G. S.** Om en förut icke beskrifven „*Commisura septi*“ jämte bidrag till kännedomen om *septum pellucidum* och de telencephala commissurerna hos ryggradsdjuren. Stockholm Vet.-Ak. Handl. 59 No. 2 1918 (1-131) tafl. i-ix. 142
- Mackenzie, W. C.** The action of muscles including muscle rest and muscle re-education. London (H. K. Lewis & Co., Ltd.) 1918 (i-xvi gm. 1-267) 99 text-figs. 143
- Mackie, D. B.** Philippine horses. J. Herod. Washington 7 1916 (373-382) ff. 11-14. 144
- Magnusson, H.** Om könlösa tvillingar. En vaulig form av hermaphroditism hos våra nötkreatur. Sv. Veterin.-Tidskr. Stockholm 22 1917 (393-405; 437-501) text-figs. 145
- Mann, F. C.** The ductless glands and hibernation. Amer. J. Physiol. Baltimore 41 1916 (173-188 with tables). 146
- Marelli, C. A.** Espesor de la piel de un elefante. Buenos Aires Physis. Rev. Soc. Arg. Ci. Nat. 4 1918 (112-113). 147

- Marrelli, C. A.** Un ballenato hallado en la costa del rio de la Plata. Buenos Aires Physis. Rev. Soc. Arg. Ci. Nat. 4 1918 (326-328). 148
- Marshall, F. R.** Corriedale sheep. J. Hered. Washington 7 1916 (88-95) ff. 9-13. 149
- Matschie, P.** Die von O. Finsch bei Port Moresby in Südostneuguinea gesammelten Kängurus. Berlin SitzBer. Ges. natf. Freunde 1916 1916 (43-61). 150
- Matschie, P.** Das Baumkänguru des Tami-Beckens in Neuguinea. Berlin SitzBer. Ges. natf. Freunde 1916 1916 No. 4. 151
- Matschie, P.** Die richtige Benennung der Kuhantilopen von Baunza. Berlin SitzBer. Ges. natf. Freunde 1916 1916 (245). 152
- Matschie, P.** Bemerkungen über die Gattung *Didelphis* L. Berlin SitzBer. Ges. natf. Freunde 1916 1916 (259-272) taf. x-xii. 153
- Matschie, P.** *Capreolus zedlitzi* spec. nov. und andere europäische Arten des Rehes. Berlin SitzBer. Ges. natf. Freunde 1916 1916 (272-294) 19 text-figs. 154
- Matschie, P.** *Ursus schmitzi*, eine anscheinend neue Form der *syriacus*-Gruppe vom Westabhange des Hermon in Palastina. Berlin SitzBer. Ges. natf. Freunde 1917 1917 (33-35). 155
- Matschie, P.** Die Untergattung: *Stachycolobus* Rochebr. Berlin SitzBer. Ges. natf. Freunde 1917 1917 (152-163). 156
- Matschie, P.** Einige neue Formen der *Didelphis lanigera*-Gruppe. Berlin SitzBer. Ges. natf. Freunde 1917 1917 (280-294). 157
- Matschie, P.** Bemerkungen über die kurzschwänzigen westafrikanischen Affen. Berlin SitzBer. Ges. natf. Freunde 1917 1917 (337-354). 158
- Matschie, P.** Einige Formen des Mandrills aus Kamerun und angrenzenden Gebieten. Berlin SitzBer. Ges. natf. Freunde 1917 1917 (409-496) taf. v-xviii. 159
- Matschie, P.** Eine neue Form des Zwerghamsters, *Cricetus falzfeini*. Berlin SitzBer. Ges. natf. Freunde 1918 1918 (1-2). 160
- Matschie, P.** Die Büffel des Ituri. Urwaldes. Berlin SitzBer. Ges. natf. Freunde 1918 1918 No. 8 (1-5 of reprint). 161
- Matschie, P.** Eine merkwürdige Bildung an dem unteren Eckzahn eines Wildebers. Berlin SitzBer. Ges. natf. Freunde 1918 1918 No. 8 (1-2). 162
- Matschie, P.** Das Wildschwein von Kaliboki in Weissrusland. Berlin SitzBer. Ges. natf. Freunde 1918 1918 No. 8 (1-5). 163
- Matschie, P.** Bemerkungen über F. A. A. Meyers Systematisch-Summarische Übersicht der im fünften Bande von Bruces Reisen beschriebenen Tiere. Berlin SitzBer. Ges. natf. Freunde 1918 1918 (98-103). 164
- Matschie, P.** Ein Schwarzbüffel des Kafue-Gebietes. Berlin SitzBer. Ges. natf. Freunde 1918 1918 (133-140) 2 text-figs. 165
- Matschie, P.** Sechs neue Arten der Gattung *Gulo*. Berlin SitzBer. Ges. natf. Freunde 1918 1918 (142-155) taf. i-v. 166
- Matschie, P. und Zukowsky, L.** Die als *Sigmoceros* bezeichnete Gruppe der Kuhantilopen. I. Die südlichen Formen. Berlin SitzBer. Ges. natf. Freunde 1916 1916 (188-207) taf. v-viii. 167
- Matschie, P. und Zukowsky, L.** Die als *Sigmoceros* bezeichnete Gruppe der Kuhantilopen. II. Die von Herrn Hauptmann Fromm in Ufipa und den angrenzenden Gebieten gesammelten Kuhantilopen. Berlin SitzBer. Ges. natf. Freunde 1917 1917 (527-550) taf. xix-xx. 168
- Matsumoto, H.** Karafuto no kyū yacho. [The extinct wild boar of Sakhalin.] Dobuts Z. Tokyo 30 1918 (34-35). 169
- Matsumoto, H.** Hokkaido no kokon no inoshishi. [Wild-boar in Hokkaido.] Dobuts Z. Tokyo 30 1918 (385). 170
- Matsumoto, H.** Hokkaido no kokon no shika. [Shika deer in Hokkaido.] Dobuts Z. Tokyo 30 1918 (423-424). 171
- McCann, L. P.** Sorrel color in horses. J. Hered. Washington 7 1916 (370-372). 172

- Meek, A.** The reproductive organs of *Cetacea*. *J. Anat.* London **52** 1918 (186-210). 173
- Merriam, C. H.** Review of the grizzly and big brown bears of North America (genus *Ursus*) with description of a new genus, *Vetularctos*. Washington D.C. U.S. Dept. Agric. Bur. Biol. Surv. N. Amer. Fauna **41** 1918 (1-136) pls. i-xvi. 174
- Mijsberg, W. A.** On the structure of the muscular abdominal wall of Primates. *Amsterdam Proc. Sci. K. Akad. Wet.* **18** 1916 (19-33). 175
- Miller, G. S.** A new flying-squirrel from Eastern Asia. Washington D.C. *Proc. Biol. Soc.* **31** 1918 (3-4). 176
- Miller, G. S.** Three new Bats from Haiti and Santo Domingo. Washington D.C. *Proc. Biol. Soc.* **31** 1918 (39-40). 177
- Miller, G. S.** A new river-dolphin from China. Washington D.C. *Smithsonian Misc. Collect.* **68** No. 9 1918 (1-12) pls. i-xiii. 178
- Miller, G. S.** Mammals and reptiles collected by Theodor de Booy in the Virgin Islands. Washington D.C. *Smithsonian Inst. Nation. Mus. Proc.* **54** 1918 (507-511). 179
- Miller, G. S.** The Piltdown Jaw. *Amer. J. Phys. Anthrop.* **1** 1918 (25-52) pls. i-iv. 180
- Miller, G. S. and Gidley, J. W.** Synopsis of the supergeneric groups of rodents. Washington D.C. *J. Acad. Sci.* **8** 1918 (431-448). 181
- Mjöberg, E.** *vide* Lönnberg, E.
- Monterosso, B.** Ulteriori ricerche sull' intima struttura dell' ovaia dei Mammiferi. Nota I. Epitelio germinativo, Teca follicolare e Cellule tccali nell' ovario della Coniglia. *Catania Atti Acc. Gioenia* **11** Mem. 16 1918 (1-34). tav. 182
- Monterosso, B.** Ulteriori ricerche sull' intima struttura dell' ovaia dei Mammiferi. Nota II. Sui fenomeni di spostamento di alcune formazioni del parenchima in mezzo ai fasci connettivali della stroma ovarico nella Coniglia. *Catania Atti Acc. Gioenia* **11** Mem. 17 1918 (1-12) tav. 183
- Moulin, F. W. K. de.** Over de ontwikkeling, den bouw, en de beteekenis der menisci by de huisdieren. [Ueber die Entwicklung, den Bau, und die Bedeutung der Menisci bei den Haustieren.] *Zeist (Vonk & Co.)* **1918** (134 7 fig.) 23 cm. 184
- Moulin, F. W. K. de** *vide* Krom, H. M.
- Muller, H. R. and Weed, L. H.** Notes on the falling reflex of cats. *Amer. J. Physiol.* Baltimore **40** 1916 (373-379). 185
- Murray, J. A.** Report on deaths of animals in the gardens in 1917. *London Proc. Zool. Soc.* **1918** 1918 (183-186). 186
- Musy, M.** Les bois et les noms divers du Cerf elaphe (*Cervus elaphus* L.). *Fribourg Bul. Soc. Sci. Nat.* **23** 1916 p. 60. 187
- Musy, M.** La destruction de la loutre en Suisse et dans le canton de Fribourg. *Fribourg Bul. Soc. Sci. Nat.* **24** 1918 (163-171). 188
- Mysberg, W. A.** Over de homologie van de sacrale arcade der monotremen met het foramen sacrale superius by den mensch. [Ueber die Homologie der sacralen Arcade der Monotremen mit dem Foramen sacrale superius beim Menschen.] *Amsterdam Werk. Gen. Nat. Genees. Heelk.* **9** (Ser. 2) 1918 (128-130); *Nederlandsch Tydschrift geneeskunde Amsterdam* **62** 1 1918 (199-201). 189
- Neill, M. H.** *vide* Anderson, J. F.
- Nelson, E. W.** Smaller mammals of North America, *Nation. Geog. Mag.* Washington 1918 **33** (371-493) illustrated. 190
- Neve, J. J. L. de.** Het gedrag der megakaryocyten in de milt van de jonge kat. [On the behaviour of Megakaryocytes in the spleen of the young kitten.] *Amsterdam Versl. Wis. Nat. Afd. K. Akad. Wet.* **26** 1918 (1034-1046 5 text-fig.) (Dutch); *Amsterdam Proc. Sci. K. Akad. Wet.* **20** 1918 (971-982 5 text-fig.) (English). 191
- Neve, J. J. L. de.** Het gedrag van de megakaryocyten in de milt van de jonge kat. [Das Benehmen der Megakaryocyten in der Milz der jungen Katze.] *Amsterdam Werk. Gen. Nat. Genees. Heelk.* **9** (Ser. 2) 1918 (120-122). 192

- Newton, E. T.** *vide* Scharff, R. F.
- Olofsson, Viktor.** Om gräsiskor och ekorrar under en granfröar. Fauna och Flora Uppsala 1916 (137-138). 193
- Oort, E. D. van.** Over een te Noordwyk aan zee aangespoelden *Lagenorhynchus albirostris*, benevens een lyst van de Cetaceen-soorten, die tot heden aan de Nederlandsche kust zyn waargenomen. [Ueber einen zu Noordwyk aan Zee angespülten *Lagenorhynchus albirostris*, nebst einer Liste der Cetaceen-Arten, welche bis jetzt an der holländischen Küste beobachtet sind.] Leiden Zool. Medd. 4 1918 (54-62 2 taf.). 194
- Osborn, H. F.** *Equidae* of the Oligocene, Miocene and Pliocene of North America, Iconographic Type Revision. New York N.Y. Mem. Amer. Mus. Nat. Hist. New Ser. 2 1918 (1-217) pls. i-liv text-figs. 1-173. 195
- Osgood, W. H.** A new flying-squirrel from the Philippine Islands. Washington D.C. Proc. Biol. Soc. 31 1918 (1-2). 196
- Osgood, W. H.** The status of *Perognathus longimembris* (Coues). Washington D.C. Proc. Biol. Soc. 31 1918 (95-96). 197
- Otten, L.** De rol van de veldrat in de epidemiologie der pest. [The role of the fieldrat in the epidemiology of plague.] Buitenzorg Meded. Burgerlyken Geneeskundigen Dienst Nederlandsch-Indië 6 1917 (1-81) (Dutch and English) with pl. 198
- Otten, L.** Over de biologie van *Mus concolor*. [About the biology of *Mus concolor*.] Buitenzorg Mededeelingen burgerlyke geneeskundige dienst Nederlandsch Indië 1917 6 (82-119 with fig.) (Dutch and English); Batavia Geneeskundig Tydschrift Nederlandsch Indië 57 1917 (534-568 with fig.) (Dutch). 199
- Otten, L.** Over de biologie van huisrat en concolor. [Ueber die Biologie von Hausratte und *Mus concolor*.] Batavia Geneesk Tydschr. Ned. Indië 58 1918 (539-562). 200
- Palmgren, R.** Lisiä ojamyyrän elämäntapojen tuntemiseen. [Beiträge zur Kenntnis der Lebensgewohnheiten von *Paludicola amphibius*]. Helsinki Luonnon Ystävä 20 1916 (1-5 mit 4 fig.). 201
- Palmgren, R.** Bidrag tiu kännedommen om vattensorkens näringsökalagi. Fauna och Flora Uppsala 1916 (129-133) 4 text-figs. 202
- Palmgren, R.** Faunistiska notiser. [Faunistische Notizen.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (121-122). 203
- Palmgren, R.** Svarta råttan, *Mus (Epimys) rattus* L. [Die schwarze Ratte in Helsingfors.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 1917 (140-144 mit taf.). 204
- Palmgren, R.** Till kännedommen om abnormiteters nedärfning hos en del husdjur. [Zur Kenntnis der Vererbung von Abnormitäten bei einigen Haustieren.] Helsingfors Acta Soc. Fauna et Fl. Fenn. 44 No. 8 1918 (1-18 mit 3 taf.). 205
- Palmgren, R.** Ivenne bastarder mellan getbock och färtacka, födda i Högholmens zoologiska trädgård. [Zwei Bastarde zwischen Ziegenbock und Schafmutter, geboren im Zoologischen Garten Högholmen, Finland.] Helsingfors Medd. Soc. Fauna et Fl. Fenn. 44 1918 (123-125). 206
- Parker, K. M.** The hypophysis cerebri; its structure and development. Sci. Progr. London 12 1918 (450-464). 207
- Petronievics, B.** Note on the lower jaw of *Stereognathus ooliticus*. Charlesworth Ann. Mag. Nat. Hist. London (9) 1 (67-70) pl. 208
- Phillips, J. McI.** *vide* Barrows, W. M.
- Pocock, R. I.** The Baculum or os penis of some genera of *Mustelidae*. Ann. Mag. Nat. Hist. London (9) 1 1918 (307-312). 209
- Pocock, R. I.** Further notes on some external characters of the Bears (*Ursidae*). Ann. Mag. Nat. Hist. London (9) 1 1918 (375-384). 210
- Pocock, R. I.** On some external characters of Ruminant Artiodactyla. Part I. The *Cephalophinae*, *Neotraginae*, *Oreotraginae* and *Madoquinae*. Ann. Mag. Nat. Hist. London (9) 1 1918 (426-435). 211

- Pocock, R. I. On some external characters of Ruminant Artiodactyla. Part II. The *Antilopinae*, *Rupicaprinae* and *Caprinae*, with a note on the penis of the *Cephalophinae* and *Neotraginae*. Ann. Mag. Nat. Hist. London (9) 2 1918 (125-144). 212
- Pocock, R. I. On some external characters of Ruminant Artiodactyla. Part III. The *Bubalinae* and *Oryginae*. Ann. Mag. Nat. Hist. London (9) 2 1918 (214-225). 213
- Pocock, R. I. On some external characters of Ruminant Artiodactyla. Part IV. The *Reduncinae* (*Cervicaprinae*) and *Apyccrinae*. Ann. Mag. Nat. Hist. London (9) 2 1918 (367-374). 214
- Pocock, R. I. On some external characters of Ruminant Artiodactyla. Part V. The *Tragelaphinae*. Ann. Mag. Nat. Hist. London (9) 2 1918 (440-448). 215
- Pocock, R. I. On some external characters of Ruminant Artiodactyla. Part VI. The *Bovinae*. Ann. Mag. Nat. Hist. London (9) 2 1918 (449-459). 216
- Pocock, R. I. On the external characters of the Lemurs and *Tarsius*. London Proc. Zool. Soc. 1918 1918 (19-53). 217
- Pocock, R. I. The horns of a castrated Bushbuck and the antler growth in Père David's Deer. London Proc. Zool. Soc. 1918 1919 (337). 218
- Pohle, H. Weitere Fälle von Gebissunregelmässigkeiten. Berlin SitzBer. Ges. natf. Freunde 1917 1917 (244-248). 219
- Pohle, H. Ueber Gebissunregelmässigkeiten. III. Berlin SitzBer. Ges. natf. Freunde 1918 1918 (346-352) taf. xi. 220
- Porat, C. O. von. Något om däggdjursfaunan i Småland [Sweden] vid början ar 1800 talet, jämförd med den nutida. Fauna och Flora Uppsala 1916 (63-72). 221
- Porsild, M. P. Notes on some mammals and birds of West Greenland (Danish). København Medd. Grøn. 56 1918 (29-54) with 5 figs. 222
- Raadt, O. L. E. de. De rol van de huisrat in de epidemiologie der pest. [Die Rolle der Hausratte in der Epidemiologie der Pest.] Batavia, Geneesk. Tydschr. Ned. Ind. 57 1917 (520-533). 223
- Raadt, O. L. E. de. Tabel voor determineering van Indische ratten. [Tabelle zur Bestimmung indischer Ratten.] Tydschrift Vergelykende Geneeskunde Gezondheidsleer Dierziekten Leiden 4 1918 (82-85 mit fig.). 224
- Raadt, O. L. E. de. De biologie der huisrat in Nederlandsch-Indie. [Die Biologie der Hausratte in Niederländisch Indien.] Batavia Geneesk. Tydschr. Ned. Indie 58 1918 (527-538). 225
- Raadt, O. L. E. de *vide* Horst, M. D.
- Rasmussen, A. T. The oxygen and carbon dioxide content of the blood during hibernation in the woodchuck (*Marmota monax*). Amer. J. Physiol. Baltimore 39 1915 (20-30 with tables). 226
- Rasmussen, A. T. A further study of the blood gases during hibernation in the woodchuck (*Marmota monax*). The respiratory capacity of the blood. Amer. J. Physiol. Baltimore 41 1916 (162-172 with tables). 227
- Rasmussen, A. T. The corpuscles, hemoglobin content and specific gravity of the blood during hibernation in the woodchuck (*Marmota monax*). Amer. J. Physiol. Baltimore 41 1916 (464-482 with tables). 228
- Ray, L. A. A hinny mule and her twin colts. Journal of the American Veterinary Medical Association Ithaca N. Y. (N. Ser.) 1 1915 (62-63 with fig.). 229
- Reimers, J. H. W. Th. De studie der afstammingen, der bloedlynen, en de karakteristiek van onze rundveerassen. [Das Studium der Abstammungen, der Blutlinien und die Charakteristiek unserer Rindviehrassen.] Cultura Orgaan Ned. Landbouwkundigen Tiel 30 1918 (328-353). 230
- Repelin, J. Sur de nouvelles especes du genre *Entelodon* Aymard (*Elothierium* Pomel, *Archaeotherium* Leidy, *Oltinotherium* Delfortrie, *Pelonax* Cope). Paris C. R. Acad. sci. 166 1918 (397-400). 231

- Rio, A. del.** El Mamut o *Elephas primigenius*. Mexico Bol. Div. Est. Biol. 2 1918 (366-369). 232
- Ritzema Bos, J.** De eekhoren (*Sciurus vulgaris* L.) en zyne oeconomische betekenis. [Das Eichhorn und seine ekonomische Bedeutung.] Tyds. Plantenziekten Wageningen 24 1918 (29-76 2 pls.). 233
- Ritzema Bos, J.** De egel en zyne oeconomische betekenis. [Der Igel und seine ökonomische Bedeutung.] Tydschr. Plantenziekten Wageningen 24 1918 (161-198). 234
- Roberts, A.** Descriptions of two new species of a new subgenus of Bats and a new species of Molerats. Ann. Trsv. Mus. 6 1917 Pretoria. 235
- Robinson, H. C.** A new race of hare from the Persian frontier of Mesopotamia. Rec. Ind. Mus. Calcutta 15 1918 (49-50) 3 text-figs. 236
- Robinson, H. C. and Kloss, C. B.** Results of an expedition to Korinchi Peak, Sumatra. I. Mammals. J. Fed. Malay Mus. Kuala Lumpur 8 1918 (1-80) pl. 237
- Robinson, H. C. and Kloss, C. B.** A nominal list of the *Sciuridae* of the Oriental Region with a list of specimens in the collection of the Zoological Survey of India. Rec. Ind. Mus. Calcutta 15 1918 (171-254). 238
- Rockwell, R. H.** Hunting Caribou for a Museum Exhibit. Brooklyn Mus. Quarterly 5 1918. (82-95). 239
- Russo, A.** La funzione di assorbimento e di secrezione internancelle cellule della granulosa del Follicolo di Graaf della Coniglia, la degenerazione grassa ed il ciclo vitale dell'ovo. Catania Atti Acc. Gioenia 11 Mem. 3 1918 (1-21) tav. ii. 240
- Rynberk, G. A. van.** Le réflexe du secouement de la peau chez le chat. Un exemple de réflexe profond. Haarlem. Arch. Néerl. de Physiol. Sér. III des Arch. Néerl. 2 1918 (505-510 1 fig.). 241
- Saceghem, R. van.** Cause étiologique et traitement de la dermite granuleuse. Paris Bull. Soc. Path. exot. 11 1918 (575). 242
- Sand, K.** Experimentelle Studier over Kønskarakterer hos Pattedyr. [Experimental studies on the sexual characters of Mammals.] (Dr. Disp.) Copenhagen Steen Hasselbalch 1918 (256) with 30 plates. 243
- Sandström, A.** Über gegenwärtige Renntierzucht im Finnischen Lappland. Helsingfors F. Forstfören. Medd. 29 1912 (52-53). 244
- Scharff, R. F.** The Irish Red Deer. Irish Nat. Dublin 27 1918 (133-139). 245
- Scharff, R. F., Seymour, H. J. and Newton, E. T.** The exploration of Castlepook Cave, County Cork. Dublin Proc. R. Irish Acad. 34 Sect. B 1918 (33-72). 246
- Schulte, H. von W. and Smith M. de F.** The external characters, skeletal muscles and peripheral nerves of *Kogia breviceps* (Blainville). New York N.Y. Bull. Amer. Mus. Nat. Hist. 38 1918 (7-72) text-figs. 1-21. 247
- Schwarz, E.** Säugetiere von Timor. Zoologie von Timor. Ergebnisse der unter Leitung von Joh. Wanner im Jahre 1911 ausgeführten Timor-Expedition. Herausgegeben von C. B. Haniel. II. Lief. Stuttgart 1914 (113-135) taf. ii-ix. 248
- Schwarz, E.** Aus der Schausammlung. Das Riesengürteltier. Frankfurt a.M. Ber. Senckenb. Ges. 45 1914 (16-18) pl. 249
- Seymour, H. J. vide Scharff, R. F.**
- Sharpe, R.** Rats: How to exterminate them, and the taking of wild rabbits. J. Board Agric. London 24 No. 12 (25 Nos. 1, 3 and 4 1918 reprinted and issued as Miscell. Publ. No. 22 1918 (1-47). 250
- Sheak, W. H.** Disposition and intelligence of the Chimpanzee. Brookville Ind. Proc. Acad. Sci. 1917 1918 (301-310). 251
- Smith, M. de F. vide Schulte, H. von W.**
- Sowerby, A. de C.** Notes upon the Sika-Deer of North China. Ann. Mag. Nat. Hist. London (9) 2 1918 (119-122). 252

- Spiegel, E. A. *vide* Brunner, H. Budin. Ann. Mag. Nat. Hist. London (9) 1 1918 (186-193). 265
- Stefani, C. de. Grotta preistorica di Equi in Lunigiana. Roma Rend. Acc. Lincei 25 2 1916 (89-95). 253
- Stefanescu, S. Sur une nouvelle voie à suivre pour étudier la phylogénie des mastodontes, stegodontes, et éléphants. Paris C. R. Acad. sci. 166 1918 (739-741). 254
- Stehlin, H. G. Die steinzeitlichen Stationen des Birstales zwischen Basel und Delsberg. N. Denkschr. Schweiz. naturf. Ges. Zürich 54 1918 (Mammals 156-170 178-180 186 197-201 208-209 215-227 241-243 245-251 255 266-271). 255
- Stingelin, Th. Mammut, Moschusochse und andere diluviale Säugetiere aus der Umgebung von Olten. Zürich Verh. Schweiz. Nat. Ges. 1917 1918 (268-269). 256
- Stoner, D. The rodents of Iowa. Des Moines Iowa Geol. Surv. Bull. No. 5 1918 (1-172) 36 text-figs. 257
- Sumner, F. B. Some studies of environmental influence, heredity, correlation and growth. I. The white mouse. J. Exp. Zool. Philadelphia 18 1915 (325-432 with ff. tables). 258
- Sutton, A. C. On the development of the neuro-muscular spindle in the extrinsic eye muscles of the pig. Amer. J. Anat. Philadelphia 18 1915 (117-144 with ff.). 259
- Sutton, J. E., jun. *vide* Wells, J. J.
- Swenk, M. H. The prairie dog and its control. Agric. Exp. Sta. Nebraska Lincoln Bull. 23 (Art. 2) 1915 (1-38 ff. 1-3). 260
- Taverner, P. A. The song of the Poreupine. Ottawa Nat. 32 1918 (6). 261
- Taylor, W. P. Revision of the rodent genus *Aplodontia*. Berkeley Univ. Cal. Pub. Zool. 17 1918 (435-504) pls. xxv-xxix text-figs. 16. 262
- Thomas, O. On the Striped Squirrels hitherto referred to the genus *Paraxerus*. Ann. Mag. Nat. Hist. (9) 1 1918 (33-38). 263
- Thomas, O. Two new tuco-tucos from Argentina. Ann. Mag. Nat. Hist. London (9) 1 1918 (38-40). 264
- Thomas, O. On small mammals from Salta and Jujuy collected by Mr. E. Budin. Ann. Mag. Nat. Hist. London (9) 1 1918 (186-193). 265
- Thomas, O. The generic division of the hedgehogs. Ann. Mag. Nat. Hist. London (9) 1 193-196. 266
- Thomas, O. Four new species of hedgehog. Ann. Mag. Nat. Hist. London (9) 1 (230-233). 267
- Thomas, O. Some notes on the small Sand-Foxes of North Africa. Ann. Mag. Nat. Hist. London (9) 1 1918 (242-245). 268
- Thomas, O. On the arrangement of the small *Tenrecidae* hitherto referred to *Oryzorictes* and *Microgale*. Ann. Mag. Nat. Hist. London (9) 1 1918 (302-307). 269
- Thomas, O. Notes on *Petrodromus* and *Rhynchocyon*. Ann. Mag. Nat. Hist. London (9) 1 1918 (364-370). 270
- Thomas, O. A new wild dog from the Bogota Cordillera. Ann. Mag. Nat. Hist. London (9) 1 1918 (370-371). 271
- Thomas, O. New forms of *Dendromus*, *Dipodillus* and *Gerbillus*. Ann. Mag. Nat. Hist. London (9) 2 1918 (59-64). 272
- Thomas, O. New species of *Gerbillus* and *Taterillus*. Ann. Mag. Nat. Hist. London (9) 2 1918 (146-151). 273
- Thomas, O. A new duiker from Zanzibar. Ann. Mag. Nat. Hist. London. (9) 2 1918 (151-152). 274
- Thomas, O. A revised classification of the *Otomysinae*, with descriptions of new genera and species. Ann. Mag. Nat. Hist. London (9) 2 1918 (203-211). 275
- Thomas, O. The hedgehog of Palestine and Asia Minor. Ann. Mag. Nat. Hist. London (9) 2 1918 (211-213). 276
- Thomas, O. A new species of *Eligmodontia* from Catamarca. Ann. Mag. Nat. Hist. London (9) 2 1918 (482-484). 277
- Thomas, O. Two new forms of *Leggada*. Ann. Mag. Nat. Hist. London. (9) 2 1918 (484-486). 278
- Thomas, O. Description of the new Monkey (in "Natural History collections made by the late Major H. S. Toppin"). Report Peru-Bolivia Boundary Commission Cambridge 1918 (9-10) pl. 279



- Thomas, O.** The nomenclature of the geographical forms of the Panolia Deer (*Rucervus eldi* and its relatives). *Bombay J. Nat. Hist. Soc.* 25 1918 (363-367). 280
- Thomas, O.** A selection of lectotypes of Indian mammals from the co-types described by Hodgson, Gray, Elliot and others. *Bombay J. Nat. Hist. Soc.* 25 1918 (368-372). 281
- Thompson, D'A. W.** On whales landed at the Scottish whaling stations, especially during the years 1908-1914. Part I The Nordcap. *Scot. Nat. Edinburgh* 1918 1918 (197-208). 282
- Thompson, D'A. W.** On whales landed at the Scottish whaling stations, especially during the years 1908-1914. Parts II and III. The Sperm-whale and the Blue-whale. *Scot. Nat. Edinburgh* 1918 1918 (221-237). 283
- Tiegs, O. W.** *vide* Gillies, C. D.
- Vermeulen, H. A.** The vagus-arch in *Camelopardalis Giraffe*. *Amsterdam Sci. Proc. K. Akad. Wet.* 18 1916 (647-670). 284
- Vermeulen, H. A.** On the conus medullaris of the domestic animals. *Amsterdam Proc. Sci. K. Akad. Wet.* 18 1916 (780-792). 285
- Vermeulen, H. A.** Over de motorische vaskernen van zoogdieren. [Ueber die motorischen Vaguskerne von Säugetieren.] *Amsterdam Werk. Gen. Nat. Genes. Heelk.* 9 (Ser. 2) 1918 (125-127); *Nederlandsch Tydschrift Geneeskunde Amsterdam* 62 1 1918 (196-198). 286
- Wahl, H. M.** Development of the blood-vessels of the mammary gland in the rabbit. *Amer. J. Anat. Philadelphia* 18 1915 (515-524 with ff.). 287
- Wallengren, Hans.** En egendomligt fynd. En horntagg med infäud kota av kronhjort. [Une singulière découverte: Une pointe de corne de grand cerf laquelle est encastrée une vertèbre.] *Ymer Stockholm* 36 1916 (67-75) 6 figs. 288
- Wang, Chung-Ching.** The earliest stages of development of the blood vessels and of the heart in ferret embryos. *J. Anat. London* 52 1918 (137-185). 289  
(N-5464 f)
- Weed, L. H.** *vide* Muller, H. R.
- Weekenstroo, H. J.** Onderzoekingen betreffende de veranderingen in de tanden van het paard op verschillende leeftyden en hun waarde voor de leeftydsbepaling. [Untersuchungen über die Aenderungen des Pferdezahne in verschiedenem Alter und ihr Wert für die Altersbestimmung.] s'Hertogenbosch (P. Stokvis & Zoon) 1918 (127 14 text-fig.). 290
- Welander, E.** Barbastellen—*Barbastella barbastellus*—funnen i sydliga Ostergätland [Sweden]. *Fauna och Flora Uppsala* 1916 (147). 291
- Wells, J. J. and Sutton, J. E., jun.** Blood counts in the frog, the turtle and twelve different species of mammals. *Amer. J. Physiol. Baltimore* 39 1915 (31-36 with table). 292
- Westerlund, A.** Om hästens ileo-cæko-koliska tarmområde. [Sur la région intestinale iléo-céco-colique du cheval.] *Lund Univ. Årsskr. N.F. Avd. 2* 15 No. 5 [=Fysiogr. Sällsk. Handl. N.F. 30 No. 5] 1918 (95; rés. franç 86-90) 10 pls. 32 text-figs. 293
- Wettstein, O. von.** Einiges über Niedersterröeis Säugetiere. *Wien Bl. Naturk. Natursch. Niederösterreichs* 3 1916 (53-58). 294
- Wettstein, O. von.** Wissenschaftliche Ergebnisse der mit Unterstützung der kaiserlichen Akademie der Wissenschaften in Wien aus der Erbschaft Treitl von F. Werner unternommenen zoologischen Expedition nach dem Anglo-Agyptischen Sudan (Kordofan) 1914. II. Bearbeitung der auf der Expedition gesammelten Vögel und Säugetiere. *Wien Denkschr. k. Akad. Wiss. math. nat. Kl.* 94 1917 (1-139) taf. i-iv karte. 295
- Winkler, C.** Sur l'innervation des canaux semi-circulaires dans le labyrinthe du rat nouveau-né. *Haarlem. Arch. Néerl. de Physiol. Sér. IIIe des Arch. Néerl.* 2 1918 (556-561) 5 fig. 296
- Wroughton, R. C.** Summary of the results from the Indian Mammal Survey of the Bombay Natural History Society. *Bombay J. Nat. Hist. Soc.* 25 1918 (547-598); 26 1918 (19-58). 297  
c 14

Wroughton, R. C. and Davidson, Miss W. M. Bombay Natural History Society's Mammal Survey of India, Burma and Ceylon. Report No. 29 Pegu. Bombay J. Nat. Hist. Soc. 25 1918 (472-481). 298

Wynstone-Waters, E. Some notes on the early *Hominidae*. J. E. Africa and Uganda Nat. Hist. Soc. 6 1918 (200-218). 299

Zammit, T. Rats and parasites in plague epidemics. Archivum Melitense Valetta 3 1918 (141-143). 300

Zukowsky, I. *vide* Matschie, P.

### Tegument.

Beaux, 17c; Krom und Moulin, 124; Marelli, 147; Pocock, 210-217.

### Nervous System and Sense-Organs.

Brunner und Spiegel, 25; Donker, 41; Dubois, 45; Hardesty, 73; Heringa, 80; Hoog, 92; Hulshoff Pol, 97; Koster, 121; Lange, 129; Lundahl, 142; Parker, 207; Schulte & Smith, 247; Sutton, 259; Vermeulen, 284, 285, 286; Winkler, 296.

### Myology.

Gregory & Camp, 64; Hueber, 96; Kajava, 112; Mackenzie, 143; Mijsberg, 175; Miller & Gidley, 181; Schulte & Smith, 247.

### Osteology.

#### GENERAL.

Bolk, 21; Éhik, 49; Etheridge, 52; Gregory & Camp, 64; Fawcett, 54; Hinton, 84; Kernan, 116; Kraglievich, 122; Mjåberg, 139; Lorenz, 141; Miller, 178, 180; Moulin, 184; Mysberg, 189; Schwarz, 248.

*Os penis*, Beaux, 17b, d; Pocock, 209.

#### OSTEOLOGY AND DENTITION.

Anthony, 9; Bate, 17; Merriam, 174; Miller & Gidley, 181; Osborn, 195; Repelin, 231; Rio, 232; Wynstone-Waters, 299.

### Dentition (*vide etiam* Osteology).

Bolk, 20; Chapman, 31; Garrett, 58; Goldman, 62; Keuchenius, 117; Mjåberg, 139; Miller & Gidley, 181; Matschie, 162; Pohle, 219, 220; Stefanescu, 254; Weekenstroo, 290.

### Alimentary System.

Mjåberg, 139; Westerlund, 293.

### Circulatory and Respiratory Systems.

Job, 104; Wang, 289.

### Blood, Lymph, etc.

Wells & Sutton, 292.

## II.—SUBJECT INDEX.

6003 to 6027

*N.B.*—For full References go to Titles.

COMPREHENSIVE AND GENERAL.  
6003

### Bibliography.

Åhlander, 2; Anthony, 10.

### Institutions, Collections.

Beaux, 17a; Hollister, 89, 91; Robinson & Kloss, 238.

### Economics.

Anon., 8; Cleland, 33; Dammerman, 37; Hinton, 87; Johnston & Bancroft, 107; Kuhlman, 126; Otten, 198, 200; Raadt, 223, 224, 225; Rit-zema Bos, 233, 234; Thompson, 282, 283; Sharpe, 250; Stoner, 257.

### Extinction of species.

Girardin, 61; Musy, 188.

### Miscellaneous.

Lönnberg, 134; 138.

## STRUCTURE. 6007

### General and Comparative.

Boas, 18; Broman, 24.

### Histology.

Comes, 35; Gillies & Tiegs, 60.

Excretory Organs; Special  
Glands.*Thymus.*

Badertscher, 11, 12.

*Spleen.*

Neve, 191, 192.

Pocock, 210-218.

## Organs of Reproduction.

Beaux, 17b, d; Burlet, 26; Lebedinsky, 130; Magnusson, 145; Meek, 173; Pocock, 209-218.

## PHYSIOLOGY. 6011

Anderson &amp; Neill, 5; Cleveland, 34; Dolley, 40; Evvard, 53; Fink, 55; Lloyd-Jones, 132; Mackenzie, 143; Mann, 146; Muller &amp; Weed, 185; Rasmussen, 226, 227, 228; Ray, 229; Rynberk, 241; Sand, 243; Sumner, 258.

## DEVELOPMENT. 6015

Ovum; Oogenesis; Spermatozoon;  
Spermatogenesis.

Jordan, 111; Loredan, 140; Montessoro, 182, 183; Russo, 240.

## Embryology.

Badertscher, 11, 12; Bremer, 23; Fawcett, 54; Hardesty, 73; Hulshoff Pol, 97; Parker, 207; Sutton, 259; Wahl, 287; Wang, 289.

## Placenta and Parturition.

Droogleever Fortuyn, 44; Hill, 83.

## Post-Embryonal.

Beaux, 17e; Jackson, 99, 100.

## ETHOLOGY. 6019

## Sexual and Parental.

Sandström, 244.

## Habits.

*General and of particular creatures.*

Camp, 29; Haskin, 76; Heath, 78; Hilden, 81; Jackson, 102; Kärki, 113; Klugh, 119; Kuroda, 127; Loder, 133; Nelson, 190; Olofsson, 193; Palmgren, 201, 202, 204; Sheak, 251; Stoner, 257; Swenk, 260.

(N-5164 f)

## Voice.

Taverner, 261.

## Hibernation.

Hahn, 70; Mann, 146; Rasmussen, 226, 228.

*Parasites.*

Barker, 15; Johnston, 106; Saceghem, 242; Zammit, 300.

## Pathology.

Murray, 186.

## VARIATION AND ÆTIOLOGY.

6023

## Abnormalities.

Hinton, 84; Krediet, 123; Magnusson, 145; Pohle, 219, 220.

## Hybrids.

Palmgren, 206.

## Heredity.

Barrows &amp; Phillips, 16; Castle &amp; Hadley, 30; Dos Reis, 42; Frets, 57; Hatai, 77; Hunnicutt, 93; Jenks, 103; Kuhlman, 125; Lloyd-Jones, 131; Mackie, 144; Marshall, 149; McCann, 172; Palmgren, 205; Reimers, 230.

## Evolution, Phylogeny.

Gregory &amp; Camp, 64; Osborn, 195.

## GEOGRAPHY. 6027

## Discontinuous distribution.

Dreyer, 43.

Europe. *d*

Andersen, 4; Matschie, 154, 163; Thomas, 266;

Scandinavia. *da*

Helms, 79; Johansen, 105; Lönnberg, 136; Porat, 221; Welander, 291.

Russia in Europe. *db*

Matschie, 160.

Finland. *dba*

Ehrström, 51; Hildén, 82; Palmgren, 203.

c 14-2

- Holland and Belgium.** *dc* **Malaysia.** *eg*  
 Deinse, 38, 39; Oort, 194.  
 Malay Peninsula, Gyldenstolpe, 68.  
 Timor, Schwarz, 248.
- British Islands.** *de*  
 Bolam, 19; Gaziot, 59; Harmer, 74, 75; Scharff, 245; Thompson, 282, 283.  
 Sumatra, Robinson & Kloss, 237.  
 Philippine Islands, Mackie, 144; Osgood, 196.
- Holocene, Hinton, 84; Pleistocene, Scharff, 246; Tertiary, Miller, 180; Jurassic, Petronievics, 208.
- France.** *df*  
 Jersey, Pleistocene, Hinton, 85.  
 Palestine, Matschie, 155; Thomas, 273.
- Italy.** *dh*  
 Prehistoric, Stefani, 253.  
 Arabia, Hamilton, 71; Thomas, 272.  
 Mesopotamia, Robinson, 236.
- Switzerland.** *di*  
 Stone Age, Stehlin, 255; Pleistocene, Stingelin, 256.
- Austria-Hungary.** *dk*  
 Austria, Wettstein, 294.  
 Hungary, Pleistocene, Éhik, 46-50.
- Mediterranean Islands.** *dm*  
 Balearic Islands, Pleistocene, Bate, 17.  
 Sicily, Pleistocene, Fiore, 56.
- Asia.** *e*  
 Andersen, 4; Kloss, 118; Robinson & Kloss, 238; Thomas, 266, 267.
- Asiatic Russia.** *ea*  
 Matschie, 166; Miller, 176.
- China and Tibet.** *eb*  
 China, Miller, 178; Sowerby, 252.
- Japan and Korea.** *ec*  
 Abe, 1; Kuroda, 128; Matsumoto 170, 171.
- Siam and Yunnan.** *ed*  
 Siam, Gyldenstolpe, 67; Kemp, 115.  
 Annam, Hanitsch, 72.
- British India.** *ef*  
 India, Burma and Ceylon, Hinton, 86; Thomas, 280, 281; Wroughton, 297.  
 Pegu, Wroughton & Davidson, 298.  
 Afghanistan, Thomas, 267.
- Persia, Syria, and Arabia.** *eh*  
 Asia Minor, Kollmann, 120; Thomas, 276.  
 Palestine, Matschie, 155; Thomas, 273.  
 Arabia, Hamilton, 71; Thomas, 272.  
 Mesopotamia, Robinson, 236.
- Africa.** *f*  
 Andersen, 4; Brauer, 22; Cabrera, 27; Matschie, 152, 156, 158, 159, 161, 164, 165; Thomas, 263, 275.  
 North Africa, Joleaud, 108, 109, 110; Thomas, 268.  
 Sudan, Thomas, 273; Wettstein, 295.  
 Nigeria, Thomas, 267, 272.  
 Kamerun, Matschie, 159; Thomas, 278.  
 Angola, Thomas, 267.  
 Central Africa, Lönnberg, 135, 137; Lorenz, 141.  
 Somaliland, Thomas, 273.  
 East Africa, Hollister, 88, 89, 90; Matschie & Zukowsky, 167, 168; Thomas, 267, 270.  
 Rhodesia, Haagner, 69.  
 Bechuanaland, Thomas, 272.  
 Bushman-land, Thomas, 273.  
 Namaqualand, Thomas, 272.  
 South Africa, Clubb, 32; Roberts, 235.  
 Zanzibar, Thomas, 274.  
 Madagascar, Thomas, 269.
- North America.** *g*  
 Goldman, 62, 63; Howell, 94; Hrdlicka, 95; Matschie, 166; Merriam, 174; Nelson, 190.  
 Tertiary, Osborn, 195.  
 Alaska, Grinnell, 65.  
 British Columbia, Grinnell, 65.

- Canada, Anderson, 6, 7  
 Western N. America, Taylor, 262.  
 Yellowstone National Park, Bailey,  
 14.  
 Oregon, Jackson, 101.  
 California, Grinnell, 66a; Kellogg,  
 114.  
 Arizona, Grinnell, 66.  
 Iowa, Bailey, 13; Stoner, 257.

Central and South America: West  
 Indies. *h*

- Cuba, Cunf, 36.  
 Haiti and Santo Domingo, Miller,  
 177.

- Porto Rico, Anthony, 9.  
 Virgin Islands, Miller, 179.  
 South America, Maralli, 148; Mat-  
 schie, 153, 157; Thomas, 279.  
 Colombia, Cabrera, 28.  
 Argentina, Thomas, 264, 265, 271,  
 277.

Australasia. *i*

- New Guinea, Matschie, 150, 151.  
 Australia, Alexander, 3; Australia  
 Pleistocene, Etheridge, 52; Lonnberg  
 & Mjöberg, 139.  
 Tasmania Tertiary, Chapman, 31.  
 Arctic Region, etc., Porsild, 222.

III.—SYSTEMATIC. 6031

*N.B.*—Numerals in Clarendon type, when  
 not indicating a Volume, refer to Tiles.

GENERAL.

Comparison of muscles of shoulder  
 girdle and pelvis in mammals and  
 reptiles p. 450, adaptations for forward  
 locomotion p. 515, femoral trochanters  
 p. 528, evolution of coracoid elements  
 p. 545, GREGORY & CAMP Bull. Amer.  
 Mus. Nat. Hist. 38.

List of species known from Sumatra  
 and the islands off its east coast,  
 ROBINSON & KLOSS J. Fed. Malay Mus,  
 8 p. 73; Indian, selection of lectotypes,  
 THOMAS J. Bombay Nat. H.S. 25 p.  
 368; of Kordofan, WETTSTEIN Wien,

Denkschr. Ak. Wiss. 94 p. 84; Origin  
 of Mammals of Porto Rico, ANTHONY  
 Mem. Amer. Mus. N.H. (N.S.) 2 p.  
 428; lists from Hungarian Pleistocene,  
 EHIK Barlangkutatas Budapest 12  
 Heft 2 p. 4; 2 pp. 194, 226; 4 p. 25;  
 Pleistocene from Castlepool Cave, Co.  
 Cork, SCHARFF Proc. R. Irish Acad. 34  
 B p. 49; from Stone Age stations of  
 Birstal, STEHLIN N. Denkschr. Schweiz.  
 naturf. Ges. 54 p. 156 *et seq*; from  
 Grotta di Equi in Lunigiana (pre-  
 historic) DE STEFANI Roma Rend. Acc.  
 Lincei 25 2 p. 89.

I.—PRIMATES.

Classification, POCOCK P. Z.S. 1918  
 p. 51; myology, MACKENZIE, 143;  
 structure muscular abdominal wall,  
 MJSBERG Amsterdam Proc. Sci. K.  
 Akad. Wet. 18 p. 19; list of and key  
 to Indo-Burmese forms, WROUGHTON  
 J. Bombay Nat. H.S. 25 p. 551; from  
 Mt. Korinchi, Sumatra, ROBINSON &  
 KLOSS J. Fed. Malay Mus. 8 p. 3; of  
 Central Africa, LORENZ Wien, Ann. Nat.  
 Hist. Hofmus. 31 p. 169.

A.—Anthropoidea.

HOMINIDAE AND SIMIIDAE.

*Hominidae* notes on early species,  
 WYNSTONE-WATERS J.E. Africa Uganda  
 N.H.S. 6 p. 200; penis of Anthropo-  
 morpha, de BEAUX Giorn. Morfol. Uomo  
 e Primati 1 Fasc. 3 p. 1.

*Anthropopithecus cf. coltoni*, LÖNN-  
 BERG Stockholm Vet.-Ak. Handl. 58  
 No. 2 1917 p. 18; *troglodytes* habits,  
 SHEAR Proc. Indiana Acad. Sci. 1917  
 p. 301.

†*Eoanthropus dawsoni* characters of  
 lower jaw and dentition, reply to  
 Pyeraft, MILLER Amer. J. Phys.  
 Anthropol. 1 p. 25.

*Gorilla beringeri mikenensis* subsp. n.  
 Congo, Stockholm Vet.-Ak. Handl. 58  
 No. 2 1917 p. 7; Fauna och Flora 1917  
 p. 145 figs. LÖNNBERG; *Bulla maxil-  
 laris* des Gorilla, BOLK Amsterdam,  
 Werk. Gen. 9 p. 132.

†*Pan vetus* maintained for lower jaw  
 originally referred to *Eoanthropus daw-  
 soni*, MILLER Amer. J. Phys. Anthropol.  
 1 p. 25.

## CERCOPITHECIDAE.

*Cercocebus (Lophocebus) albigena ituricus*, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 37.

*Cercopithecus schmidti enkamer*, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 32; *schmidti rutschuricus* Rutschuru-Ebene p. 228, *oberländeri* Mawambi p. 230, Central Africa subsp. et sp. n., LORENZ Wien Ann. Nat. Hist. Hofmus 31; (*Chlorocebus*) *cailliaudi* p. 89, (*Ch.*) *tolddi* p. 91, spp. n., Kordofan, WETTSTEIN Wien Denkschr. Ak. Wiss. 94.

*Choiropithecus rhodesiae* sp. n., Central Rhodesia, HAAGNER S. Afric. J. Nat. Hist. 1 p. 83.

*Colobus satanas* Waterhouse and *anthracinus* Le Conte possibly distinct (see further under *Stachycolobus*), MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1917 p. 152; *elliotti*, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 28.

*Macacus rhesus*, *fuscatus*, *sinicus*, *cynomolgus*, and *arctoides*, description of penis, de BEAUX Giorn. Morfol. Uomo e Primati 1 fasc. 1 p. 1.

*Maimon*, see *Mandrillus*.

*Mandrillus* Rütgen (1824) the tenable name for Mandrills (*Mormon* Elliot and *Maimon* Trouess. both preoccupied) p. 338, "*Simia sphinx*" L. restricted to species figured by Pennant p. 339, *schrebersi* nom. nov. for *maimon* Schreb. p. 344, other forms recognized provisionally *mormon* Alstr. (syn. *maimon* L.) *swillus* Kerr (syn. *latidens* Bechst. and *pennantii* Griff.), *madarogaster* Zimm. p. 354; key to species p. 469, *tessmanni* Okaklande, Spanish Guinea p. 470, *escherichi* Sud-Grenzo von Spanish Guinea p. 478, *zenkeri* Kamerun p. 479, *hagenbecki* Coast near Lagos p. 488, spp. n., keys to skin and skull characters of all forms recognized p. 491, skull measurements p. 495, and figures of skulls, MATSCHIE SitzBer. Ges. natf. Fr., Berlin 1917.

*Mormon*, see *Mandrillus*.

*Papio tessellatus*, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 1917 p. 40; *graueri* sp. n. Rutschuru-Ebene, Central Africa, LORENZ Wien Ann. Nat.

Hist. Hofmus 31 p. 236; *werneri* sp. n., Kordofan, WETTSTEIN Wien Ak. Wiss. Denkschr. 94 p. 93.

*Pithecus fascicularis limitis* skull measurements, SCHWARZ Zool. von Timor Lief. 11 p. 117.

*Semnopithecus* development of fossa Sylvii, HULSHOFF POL Amsterdam Proc. Sci. K. Akad. Wet. 19 p. 938.

*Stachycolobus* (subgen. of *Colobus*) *municus* p. 155 Spanish Guinea, *limbarenicus* p. 156 Limbareni, Ogowe, *zenkeri* p. 157 Kamerun, species from the Upper Sanaga p. 160, list and measurements of skulls in the Berlin Museum, MATSCHIE SitzBer. Ges. natf. Fr., Berlin 1917.

## HALALIDAE &amp; CEBIDAE.

Carpal and facial vibrissae, de BEAUX Giorn. Morfol. Uomo e Primati 1 Fasc. 2 p. 1.

*Callicebus toppini* coloured plate, THOMAS Report Peru-Bolivia Boundary Commission, Cambridge 1918.

## B.—Lemuroidea.

External characters, genital organs, and relation to *Tarsius*, Pocock P.Z.S. 1918 p. 19.

*Galago matschiei* sp. n. Moera, Central Africa, LORENZ Wien Ann. Nat. Hist. Hofmus. 31 p. 237.

*Perodicticus nebulosus* sp. n. Ukaika, Central Africa, LORENZ Wien Ann. Nat. Hist. Hofmus. 31 p. 239 (published May 1918); *arrhenii* sp. n. Central Africa, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 45 (published Sept. 1, 1917).

*Tarsius* external characters and genital organs, removed from *Lemuridae* and placed with the higher primates in a suborder *Haplorhini*, Pocock P.Z.S. 1918 p. 19.

## II.—CHIROPTERA.

List of and key to Indo-Burmese forms, WROUGHTON J. Bombay Nat. H.S. 25 p. 564 26 p. 19; from Mt. Korinchi, Sumatra, ROBINSON and KLOSS J. Fed. Malay Mus. 8 p. 26; of East Africa account of U.S. Nat. Mus.

collection, figures of skulls of types, measurements, HOLLISTER U.S. Nat. Mus. Bul. 99 p. 70; of Porto Rico, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 340.

## PTEROPODIDAE.

*Dobsonia peroni* specimen from Timor, SCHWARZ Zool. von Timor Lief. 11 p. 120.

*Pteropus griseus*, specimens from Timor, SCHWARZ Zool. von Timor Lief. 11 p. 118.

## RHINOLOPHIDAE &amp; HIPPOSIDERIDAE.

*Asellia tridens diluta* subsp. n. El Golea, Algerian Sahara, ANDERSEN Ann. Mag. N.H. (9) 2 p. 379.

*Hipposideros bicolor* group p. 379 *albanensis saevus* Key Is., *pomona* Coorg, *gentilis* Burma, *g. sinensis* Foo-chow, *g. atrox* Selangor, *g. major* Enagno Id., p. 380, *fulvus pallidus* Kathiawar, *nequam* Selangor p. 381 spp. et subsp. n. *diadema* group, *d. custos* Key Is. *d. speculator* Celebes p. 381; *indus* Kanara, *i. mixtus* E. Mysore, *i. unitus* Central Provinces, *schistaceus* Bellary p. 382 subsp. et spp. n., *speoris* group, *s. pulchellus*, Bellary subsp. n. p. 383, *calcaratus* group, *cupidus* sp. n. Brit. New Guinea, p. 383, keys to members of groups and diagnoses of new forms, ANDERSEN Ann. Mag. N.H. (9) 2.

*Rhinolophidae* from Timor, SCHWARZ Zool. von Timor, Lief. 11 p. 122.

*Rhinolophus megaphyllus* group p. 374, *javanicus* S. Java, *madurensis* Madura, *robinsoni* Lower Siam, *klossi* Tioman & Pemangil spp. n., p. 375, *pusillus* group, *lepidus shortridgei* Upper Burma, *refulgens cuneatus* Sumatra, *blythi*, Kumaon, *b. szechwanus* Szechwan, *perditus* S. Liu-Kiu p. 376 *famulus* Andamans p. 377 spp. et subsp. n., *hipposideros* group, *majori* Corsica p. 377, *escalerae* Morocco subsp. n. p. 378, *luctus* group, *edax*, Singapore, *beddomei sobrinus*, Ceylon, *morio fatidus* Borneo sp. et subsp. n. p. 378, *euryotis* group, *pilosus* Madura sp. n. p. 379, keys to members of groups and diagnoses of new forms, ANDERSEN Ann. Mag. N.H. (9) 2.

## NYCTERIDAE.

*Megaderma spasma* synopsis of subsp., *s. medium* Singapore, *s. majus* Lower Chindwin, *s. minus* Camboja, Siam p. 383, *s. ceylonense* Trincomalee, Ceylon p. 384 subsp. n., ANDERSEN Ann. Mag. N.H. (9) 2.

## VESPERTILIONIDAE.

*Eptesicus fuscus wetmorei* characters, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 359; *hispaniolae* sp. n., Santo Domingo, MILLER Proc. Biol. Soc. Washington 31 p. 39; *rectitragus* sp. n. Kordofan, WETTSTEIN Wien Denkschr. Ak. Wiss. 94 p. 97.

*Myotis mystacinus* in Northumberland and Durham, BOLAM Vasculum, Hexham 4 p. 59; *bechsteini* and *nattereri* (?) in Hungarian Pleistocene, ENIK Földt. Közl. Budapest 43 p. 138; *longicus* from Alaska and British Columbia p. 431, *lucifugus alascensis* from British Columbia, *californicus caurinus* from Alaska p. 432, notes on specimens, GRINNELL Univ. Cal. Pub. Zool. 17.

*Scotaeus cinnamomeus* sp. n. Kordofan, WETTSTEIN Wien Denkschr. Ak. Wiss. 94 p. 98.

## NOCTILIONIDAE.

*Noctilio leporinus mastivus* from Porto Rico, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 340.

## MOLOSSIDAE.

*Molossus fortis* characters, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 363.

*Nyctinomus murinus* from Porto Rico, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 361; (*Nyctinomus*) *longaensis* sp. n. W. Nile, WETTSTEIN Wien Denkschr. Ak. Wiss. 94 p. 102.

*Platymops haagneri* p. 5, *petrophilus* p. 4, spp. n. ROBERTS Ann. Transv. Mus. 6.

## PHYLLOSTOMATIDAE.

*Artibeus jamaicensis* in Porto Rico, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 354.

*Brachyphylla pumila* sp. n., Haiti, MILLER Proc. Biol. Soc. Washington, 31 p. 39; *cavernarum* from Porto Rico, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 350.

*Chilonycteris* species in Porto Rico, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 343.

*Erophylla bombifrons* characters, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 358.

*Monophyllus cubanus ferreus* subsp. n., S.W. Haiti, MILLER Proc. Biol. Soc. Washington 31 p. 40; species in Porto Rico, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 348.

*Mormoops blainvillii* from Porto Rico, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 346.

*Phyllonycteris major* skull and teeth, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 356.

*Stenoderma rufum* from Porto Rico, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 352.

### III.—INSECTIVORA.

List of and key to Indo-Burmese forms, WROUGHTON J. Bombay Nat. H.S. 26 p. 28; from Mt. Korinchi, Sumatra, ROBINSON & KLOSS J. Fed. Malay Mus. 8 p. 15; East African account of collection in U.S. Nat. Mus., figures of skulls of types, measurements, HOLLISTER U.S. Nat. Mus. Bul. 99 p. 25.

#### MACROSCOLIDIDAE & TUPAIIDAE.

*Cercotenus* Hollister treated as subgenus of *Petrodromus*, THOMAS Ann. Mag. N.H. (9) 1 p. 365.

*Mesotenus* subgen. n. see *Petrodromus*

*Petrodromus tetradactylus warreni* p. 364 N. Zululand, *t. swynnertoni* p. 368, Chirinda Forest, S. Rhodesia, *robustus* p. 367 Katanga, S. Congo subsp. et spp. n., *Cercotenus* Hollister treated as a subgenus p. 365; *Mesotenus* subgen. n. for *P. rovineae* p. 366, *P. (M.) mossambicus* p. 369 Cabaceira, Mozambique sp. n., THOMAS Ann. Mag. N.H. (9) 1.

*Rhinonax* subgen. n. see *Rhynchocyon*.

*Rhynchocyon* genotype *R. cirnei* Peters; *Rhinonax* subgen. n. with *Rhynchocyon chrysopygus* Gunth., as genotype (B.M. No. 80. 11. 30. 7 selected as lectotype of species), *petersi* and allies included in *Rhinonax*, THOMAS Ann. Mag. N.H. (9) 1 p. 370.

*Tupaia glis jacki* p. 15, *javanica occidentalis* p. 16 Korinchi, Sumatra, subsp. n., ROBINSON & KLOSS J. Fed. Malay Mus. 8.

#### SORICIDAE & TALPIDAE.

*Soricidae* & *Talpidae* in Hungarian Pleistocene, ÉNIK Földt. Közl. Budapest 43 p. 139; *Soricidae* from Timor, SCHWARZ Zool. von Timor, Lief. 11 p. 123.

*Crocidura villosa* p. 21, *aequicauda* p. 22, Korinchi, Sumatra spp. n., ROBINSON & KLOSS J. Fed. Malay Mus. 8.

*Desmana moschata* remains from Hungarian Pleistocene, ÉNIK Barlangkutatas, Budapest 3 pp. 79, 113.

*Scapanus latimanus monoensis* subsp. n., Mono County, California, GRINNELL Univ. Cal. Pub. Zool. 17 p. 423.

*Sorex yaquinae* p. 127 Yaquina Bay, *obscurus permiliensis* p. 128 Cascade Mts. Oregon, sp. et subsp. n., JACKSON P. Biol. Soc. Washington 31.

#### †NESOPHONTIDAE.

†*Nesophontes* osteology and dentition, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 365.

#### ERINACEIDAE.

Generic division of hedgehogs, THOMAS Ann. Mag. N.H. (9) 1 p. 193.

*Aethechinus* gen. n. for *Erinaceus algirus*, Dub. & Lereb. & allies, Africa, Spain & Balearics p. 194, *angolae* p. 230, Benguela, Angola, sp. n., THOMAS Ann. Mag. N.H. (9) 1.

*Atelerix* Pomel, *Erinaceus albiventris* Wagner definitely designated as genotype, 1 p. 195, *spinifex* p. 231, Illela 95 miles N. of Sokoto, Nigeria; *kilimanus* p. 232 Rombo, Kilimanjaro spp. n., THOMAS Ann. Mag. N.H. (9) 1.

*Erinaceus europaeus* primordial cranium, FAWCETT J. Anat., London 52 p. 211; in Hungarian Pleistocene, ÉNIK Földt. Közl. Budapest 43 p. 139; *europaeus transcaucasicus* from Asia Minor, KOLLMANN Bul. Museum Paris 1918 p. 201; *roumanicus sacer* subsp. n. Palestine and Asia Minor (type from Jerusalem), THOMAS Ann. Mag. N.H. (9) 2 p. 212.



*Hemicchinus* Fitz., *Erinaceus platyotis* Sund., selected and designated as genotype, THOMAS Ann. Mag. N.H. (9) 1 p. 195.

*Paracchinus* Trouess. genotype *P. micropus* Bly. p. 195; *amir* p. 232 Kandahar, Afghanistan sp. n., THOMAS Ann. Mag. N.H. (9) 1.

## TENRECIDAE.

Generic arrangement of smaller members of the family, THOMAS Ann. Mag. N.H. (9) 1 p. 302.

*Leptogale* gen. n. for *Oryzoryctes gracilis* Major, THOMAS Ann. Mag. N.H. (9) 1 p. 306.

*Microgale* genotype *M. longicaudata* Thos (other species: *cowani*, *crassipes*, *longirostris*, *pusilla*, *taiva* & *thomasi*) p. 304, *major* p. 305 sp. n. Eastern Bet-silco, Madagascar, THOMAS Ann. Mag. N.H. (9) 1.

*Nesogale* gen. n. for *Microgale dobsoni* Thos (other species *talazaci* Major), THOMAS Ann. Mag. N.H. (9) 1 p. 303.

*Nesoryctes* gen. n. for *Oryzoryctes tetradactylus* M.-Edw. & Grand., THOMAS Ann. Mag. N.H. (9) 1 p. 307.

*Oryzoryctes* (genotype *O. hova* M.-Edw.) in place of *Oryzoryctes* Trouess. (emend), THOMAS Ann. Mag. N.H. (9) 1 p. 307.

## IV.—CARNIVORA.

Carnivora of East Africa, account of U.S. Nat. Mus. collection, figures of skulls of types, measurements, HOLLISTER U.S. Nat. Mus. Bul. 99 p. 101; list of and key to Indo-Burmese forms, WROUGHTON J. Bombay Nat. H.S. 26 p. 39; from Mt. Korineli, Sumatra, ROBINSON & KLOSS J. Fed. Malay Mus. 8 p. 8; in Hungarian Pleistocene, ÉHRICH Földt. Közl. Budapest 43 p. 141; preservation essential as safeguard against rat and mouse plagues, HINTON Brit. Mus. Econ. Ser. No. 8 pp. 33, 43.

## A.—Carnassidentia.

## FELIDAE.

*Felis lybica* name dates from Forster and not from Meyer, who used it for the "Booted Lynx" of Bruce, notes on names *ocreata*, *constantina*, *constantinensis*, *margaritae*, *caligata*, MATSCHIE

(N-5464 f)

Sitz. Ber. Ges. natf. Fr. Berlin 1918 p. 101; *leo* variation among wild and captive specimens, HOLLISTER U.S. Nat. Mus. Bul. 99 p. 155; *leo bleyenberghi*, p. 47 text fig. 2, *pardus centralis* p. 49 subsp. n. Central Africa, LÖNNBERG Stockholm Vet. Ak. Handl. 58 No. 2; *catus* from Timor, SCHWARZ Zool. von Timor Lief. 11 p. 124.

## VIVERRIDAE.

*Calogale* abnormal dentition, POHLE SitzBer. Ges. natf. Fr. Berlin 1918 p. 347.

*Genetta* abnormal occurrence of m.3 in a specimen of the *sevalina* group p. 244, and in *dongolana* p. 245, duplication of pm. 1 in a specimen of the *felina* group p. 246, POHLE SitzBer. Ges. natf. Fr. Berlin 1917.

*Mungos ichneumon centralis* subsp. n. Central Africa, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 61.

*Paradoxurus hermaphroditus hanieli* skull measurements and figs., SCHWARZ Zool. von Timor, Lief. 11 p. 125.

*Viverra aurita* Blum. a synonym of *Canis zerda* Zimm., MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1918 p. 100.

## HYAENIDAE.

*Hyaena dubbah* Meyer (1793) antedates *H. hyenomelas* Latr. 1801, and is tenable name for species of Atbara, MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1918 p. 100.

## CANIDAE.

*Canis alopec* Linn. Syst. Nat. ed. X a synonym of *vulpes* = the "brandröv" of Skåne, LÖNNBERG Sv. Linné-Sällskap. Årsskr. 1 p. 87; *lupus* date of extinction in British Isles, GAZIOT Paris Bul. soc. zool. 43 p. 67.

*Cerdocyon apollinaris* sp. n. (Choachi, E. slope of Cordillera, Bogotá), THOMAS Ann. Mag. N.H. (9) 1 p. 37.

*Fennecus zerda* Zimm. the tenable name for the Fennec ("Vulpes minimus saarensis" Skjöldebrand not a valid name), THOMAS Ann. Mag. N.H. (9) 1 p. 243.

*Vulpes rüppelli* Schinz in place of *V. famelica* Rüpp. ; *dorsalis* Gray probably related to *nilotica* and *atlantica* ; *pallida* tenable name of smaller species from Kordofan and of which *edwardsi* Rochebr. is probably a western subspecies ; *rüppelli somaliae* subsp. n. N. Somaliland, THOMAS Ann. Mag. N.H. (9) 1 p. 244 ; *alpherakyi* note on specimen from Anatolia, KOLLMANN Bul. Museum Paris 1918 p. 202.

#### URSIDÆ.

External characters, POOCK Ann. Mag. N.H. (9) 1 p. 375 ; revision of N. American Grizzly and Big Brown bears, MERRIAM N. Amer. Fauna 41.

*Ursus schmitzi* sp. n. (*syriacus* group) Mt. Hermon, Palestine, MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1917 p. 33 ; *chelidoniae* p. 21, *atnarko* p. 22 British Columbia, *durorgus* p. 33 Alberta *planiceps* p. 37, *macrodon* p. 38 Colorado, *nirus* p. 40 Yellowstone Park, *orgiloides* p. 46 Alaska, *rungiusi rungiusi* p. 49, *r. sagittalis* p. 50, *macfarlani* p. 51 Alasak and N.W. Territories, *idahoensis* p. 54 E. Idaho, *pulchellus pulchellus* p. 55 Yukon, *p. ereunetes*, *oribasus* p. 56 British Columbia, *perturbans* p. 64 New Mexico, *rogersi rogersi* p. 65, *r. bisonophagus* p. 68 Wyoming, *kluane impiger* p. 81 British Columbia, *peltyensis* p. 82 Yukon, *andersoni* p. 83 Mackenzie, *crassodon crassus* p. 90 Yukon, spp. et subsp. n., MERRIAM M. Amer. Fauna 41.

*Vetularctos* p. 131, *inopinatus* p. 132, Rendezvous Lake, Fort Anderson, Mackenzie, gen. et sp. n., MERRIAM N. Amer. Fauna 41.

#### MUSTELIDÆ.

Baculum, POOCK Ann. Mag. N.H. (9) 1 p. 307.

*Arctonyx* notes on young specimen, habits, JACKSON J. Bombay Nat. H. Soc. 26 p. 281.

*Conepatus* abnormal dentition, POHLE SitzBer. Ges. natf. Fr. Berlin 1918 p. 348 ; *humboldtii* astragalus, KRAGLIEVICH Physis 3 p. 415.

*Gulo* nomenclature p. 141, *biedermanni* West Siberia p. 145, *wachei* N. vom Belucha-Gletscher im Geb. des oberen Katun p. 147, *niediecki* Dease

See, Brit. Columbia p. 148, *katschekensis* Kenai-Halbinsel, Alaska p. 151, *auduboni* Newfoundland, *bairdi* Fort Union p. 153, spp. n., key to species p. 154, skull measurements and figures of skulls p. 155, MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1918.

*Lutra* destruction in Fribourg, MUSY Fribourg-Bul. Soc. Sci. Nat. 24 p. 163 ; *paranensis* astragalus, KRAGLIEVICH Physis 3 p. 416.

*Putorius* abnormal dentition, POHLE SitzBer. Ges. natf. Fr. Berlin 1918 p. 346.

*Spilogale interrupta* distribution in Iowa, BAILEY Proc. Iowa Acad. Sci. 22 p. 355.

#### B.—Pinnipedia.

Pinnipedia of Cuba, CUNI Mem. Soc. Cubana Hist. Nat. 3 p. 116.

#### V.—RODENTIA.

Classification of *Simplicidentata* based upon correlated changes in masseter muscle and the bones to which it is attached, MILLER & GIDLEY J. Washington Acad. Sci. 8 p. 431 ; incisors, terms orthodont, proodont, and opisthodont used in connection with, THOMAS Ann. Mag. N.H. (9) 1 p. 35 (footnote) ; *Glandula nasalis infraseptalis*, Broman Stockholm Sv. Lätars Handl. 42 p. 717.

Rodentia from Mt. Korinchi, Sumatra, ROBINSON & KLOSS J. Fed. Malay Mus. 3 p. 28 ; of Iowa descriptions (key p. 141), distribution, habits, economics, natural enemies and control of noxious species, STONER Iowa Geol. Surv. Bull. No. 5 ; of Porto Rico, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 380 ; in Hungarian Pleistocene, ÉRK Földt. Közl. Budapest 43 p. 142.

#### APLodontidæ, Sciuridæ and Anomaluridæ.

*Sciuridæ* nominal list of Oriental forms and list of specimen in collection of Indian Zoological Survey, ROBINSON & KLOSS Rec. Ind. Mus. 15 p. 171.

†*Allomys liolophus* and *cavatus* figs. of skulls, TAYLOR Univ. Cal. Pub. Zool. 17 p. 451.

*Anomalurus jacksoni fortior* subsp. n. Africa, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 66.

*Aplodontia* revision p. 435, variation p. 439, history p. 447, habits p. 450, status p. 450, species and subspecies p. 453, TAYLOR Univ. Cal. Pub. Zool. 17; burrows, habits, economic importance and trapping, CAMP Univ. Cal. Pub. Zool. 17 p. 517.

*Callosciurus* misprint for *Callosciurus*, ROBINSON & KLOSS Rec. Ind. Mus. 15 p. 205.

*Callospermophilus chrysodeirus pallidus* subsp. n., Mono County, California, GRINNELL Univ. Cal. Pub. Zoc. 17 p. 429.

*Citellus tereticaudus arizonae* subsp. n. Navajo County, Arizona, GRINNELL P. Biol. Soc. Washington 31 p. 105.

*Cynomys ludovicianus* habits, SWENK Agric. Exp. Sta. Nebraska Lincoln Bull. 28 (Art. 2) p. 1.

*Eutamias consobrinus clarus* subsp. n., Yellowstone National Park, BAILEY P. Biol. Soc. Washington 31 p. 31.

*Glaucomyys* revision of genus, HOWELL N. Amer. Fauna No. 44.

†*Haplomys* gen. n., for *Menicomys liolophus* Cope, MILLER & GIDLEY J. Washington Acad. Sci. 8 p. 440.

*Heliosciurus rufobrachiatus arrhenii* subsp. n. Central Africa, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 68.

*Idiurus zenkeri kivuensis* subsp. n. Central Africa, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 67.

*Lariscus* key to forms of large land areas of Malaysia, ROBINSON & KLOSS J. Fed. Malay Mus. 8 p. 37.

†*Liodontia* gen. n., for *Aplodontia alexandrae* Furlong (Miocene, North America), MILLER & GIDLEY J. Washington Acad. Sci. 8 p. 440.

*Paraxerus* genus restricted to *P. cepapi* and species of similar coat-pattern, THOMAS Ann. Mag. N. H. (9) 1 p. 33.

*Pteromys volans incanus* subsp. n., Verkhe Kolymssk, E. Siberia, MILLER P. Biol. Soc. Washington 31 p. 3.

*Sciuropterus nigripes elassodontus* subsp. n., Bancalan Id. N. Balabac Strait, Philippino Ids., OSGOOD P. Biol. Soc. Washington 31 p. 1.

*Sciurus hudsonicus loquax* habits, KLUGH Ottawa Nat. 32 p. 9.

*Tamiscus* p. 33 gen. n. (genotype *Sciurus emini* Stuhl.), *emini gazellae* p. 34 Meridi, Bahr-el-Ghazal, *vulcanorum* p. 35 Lake Kivu, *v. lunaris* p. 36 Ruwenzori East, *v. tanganyikae* p. 36 Lake Tanganyika sp. et subspp. n. (other spp. of *Tamiscus bohmi, antoniae*, and *alexandri*), THOMAS Ann. Mag. N.H. (9) 1.

*Xerus getulus* distribution in Barbary, JOLEAUD Paris Bul. soc. zool. 43 p. 83.

#### CASTORIDAE AND GLIRIDAE.

*Castor canadensis* breeding at Leonardslee, LODER P.Z.S. 1918 p. 255; *fiber* extinction, history, GIRARDIN Fribourg Bul. Soc. Sci. Nat. 24 p. 50.

†*Hypnomys* gen. n. p. 210, *mahonensis* p. 218 Menorca, *morpheus* p. 219 Mallorca, Pleistocene? spp. n., BATE P.Z.S. 1918.

#### DIPODIDAE & GEOMYIDAE.

*Dipus abyssinicus* Meyer probably distinct from *Jaculus orientalis* Erxl., MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1918 p. 99.

*Pedetes surdaster larvalis* p. 2, Athi Plains, *s. currax* p. 3 Sotik. Brit. E. Africa subspp. n., HOLLISTER Smithsonian Misc. Collect 68 No. 10.

*Perodipus mohavensis* sp. n., Kern County, California, GRINNELL Univ. Cal. Pub. Zool. 17 p. 428.

*Perognathus; longimembris* (Coues) stands for small species of Tejon region (*elibatus* and perhaps *brevinasus* synonyms); *inornatus* revived for the larger species of San Joaquin region, OSGOOD P. Biol. Soc. Washington 31 p. 95; *intermedius phasma* p. 22 Yuma County, *apache cleomophila* p. 23 Coconino County, Arizona, *a. caryi* p. 24 Galfield County, Colorado, subspp. n., GOLDMAN Proc. Biol. Soc. Washington 31.

*Thomomys melanotis* p. 425 Mono County, *perpallidus mohavensis* p. 427 San Bernardino County, California sp. et subsp. n., GRINNELL Univ. Cal. Pub. Zool. 17.

## MURIDAE.

Key to British mainland species, history and classification of family, HINTON Brit. Mus. Econ. Ser. No. 8 p. 48: economic importance, relation to disease, Australian rat and mouse plague p. 32, species concerned and their habits p. 36, diseases of rats, p. 54, protozoal parasites p. 110, helminth parasites p. 116, early plagues p. 123, plague of 1917 p. 135, CLELAND Presidential Address R. Soc. N.S.W. 1918; Entozoa infesting Australian rodents, JOHNSTON Proc. R. Soc. Queensland 30 p. 53.

*Acomys intermedius* sp. n. Kordofan, WETTSTEIN Wien, Denkschr. Ak. Wiss. 94 p. 124.

*Akodon lactens* p. 188 Leon, Jujuy, *puer caenosus* p. 189 Leon, Jujuy sp. et subsp. n., THOMAS Ann. Mag. N. H. (9) 1.

*Anchotomys* subgen. n., see *Otomys*.

*Apodemus agrarius* in Finland, HILDEN Helsingfors Medd. Soc. Fauna et Fl. Fenn 44 p. 96.

*Arvicanthus testicularis kordofanensis* subsp. n. Kordofan, WETTSTEIN Wien, Denkschr. Ak. Wiss. (9) 94 p. 127.

*Cricetomys microtis* sp. n. Central Africa, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 77.

*Cricetulus falzfeini* sp. n., Ascania Nova, Taurien, Südrussland, MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1918 p. 1.

*Dendromys (Poemys) exoneratus* sp. n. Panayam, Bauchi Province, N. Nigeria, THOMAS Ann. Mag. N.H. (9) 2 p. 59.

*Desmodilliscus* p. 115, *braueri* p. 116, gen. et sp. n. Kordofan, WETTSTEIN Wien Denkschr. Ak. Wiss. 94.

*Dipodillus jordani* p. 60 Central Plateau of Algeria, *arabium* p. 61 Tebuk Arabia, *hilda* p. 62 N. Morocco spp. n., THOMAS Ann. Mag. N. H. (9) 2.

*Elignodontia marica* sp. n. Chumbicha, Catamarca, THOMAS Ann. Mag. N.H. (9) 2 p. 483.

*Epimys chionogaster* sp. n. Queensland, LÖNNBERG Stockholm Vet.-Ak. Handl. 52 No. 2 p. 6.

*Fiber zibethicus* parasites, BARKER Journ. of Parasitology Urbana Ill. 1 p. 184.

*Gerbillus validus* p. 63 Bechuanaland, *paeba broomi* p. 64 Namaqualand sp. rt subsp. n., THOMAS Ann. Mag. N.H. (9) 2; *allenbyi* p. 146 Rehobot, Jaffa, Palestine, *aticola* p. 147 N. Somali, *vallinus* p. 148 Bushman-land spp. n., THOMAS Ann. Mag. N.H. (9) 2.

*Graomys lockwoodi* sp. n., Manuel Elordi, Vermejo, Salta, THOMAS Ann. Mag. N.H. (9) 10 p. 187.

*Hypsimys budini* gen. et sp. n. Leon, Jujuy, THOMAS Ann. Mag. N.H. (9) 1 p. 190.

*Lamotomys* subgen. n., see *Otomys*.

*Leggada bella sybilla* p. 484 Benguela, Angola, *paulina* p. 485 Ja River, S.E. Cameroons subsp. et sp. n., THOMAS Ann. Mag. N.H. (9) 2.

*Liotomys* subgen. n., see *Parotomys*.

*Microtinae* of La Cotte de St. Brelade, Jersey (late Pleistocene), HINTON Bul. Ann. Soc. Jersiaise 43 p. 355; from Late Pleistocene Hungary, ERIK Barlangkutatas Budapest 1 Heft. 2 p. 6.

*Microtus* key to Californian subgenera and species p. 4, *californicus* group revision p. 1, *c. eximius* p. 12 Mt. Sanhedrin, *aestuarinus* p. 15 Grizzly Island, *mariposae* p. 19 Mariposa County, *kernensis* p. 26 Kern County, *mohavensis* p. 29 San Bernardino County, *neglectus* p. 31 San Diego County, California, subspp. n., KELLOGG Univ. Cal. Pub. Zool. 21.

*Mus musculus* characters economic importance and control, HINTON Brit. Mus. Econ. Ser. No. 8 p. 37.

*Mus (Leggada) matschiei* sp. n. Kordofan, WETTSTEIN Wien Denkschr. Ak. Wiss 94 p. 122.

*Mus [Rattus] rattus* at Tavastehus, HILDEN Helsingfors Medd. Soc. Fauna et Fl. Fenn. 43 p. 172; *rattus* synonymie javanischer subspecies, HORST und DE RAADT Tyds. Verg. Gen. 3 p. 253; *rattus brevicaudatus* subsp. nov. Java, HORST und DE RAADT Leiden Zool.

Med. 4 p. 69; *diardii* synonymic, HORST und DE RAAFT Leiden Zool. Med. 4 p. 67; *concolor*, biology, OTTEN Med. burg. gen. dienst. 1917 6 p. 82, Gen. Tyds. Ned. Ind. 57 p. 534.

*Mycteromys* nom. nov. for *Oromys* (preoccupied) *crociduroides*, ROBINSON & KLOSS J. Fed. Malay Mus. 8 p. 57.

*Myotomys* gen. n. for *Otomys unisulcatus* Bts., other spp. included in genus *broomi*, *granti*, *sloggetti*, and *turneri* THOMAS Ann. Mag. N.H. (9) 2 p. 206.

*Oligoryzomys* see *Oryzomys*.

*Oryzomys* review of North American species, tooth-cusps p. 10, generic characters and relationships p. 12, subgenera and minor groups p. 14, *melanotis colimensis* p. 51 Colima, Mexico *fulvescens mayensis* (subgenus *Oligoryzomys*) p. 92 Campeche, Mexico, subssp. n., GOLDMAN N. Amer. Fauna 43.

*Otomyinae* classification, THOMAS Ann. Mag. N. H. (9) 2 p. 203.

*Otomys* genotype *O. irroratus* Bts p. 207, *Anchotomys* for *O. anchietae* Boo, and *Lamolomys* for *O. laminatus* Thos. and Schw. p. 208 subgen. n., *irroratus cacnosus* p. 208 Bechuanaland, *rowleyi* p. 209 Portuguese S.E. Africa, *mashona* p. 210 Mashonaland, S. Rhodesia, *burtoni* p. 210 Cameroons Mts spp. et subsp. n. (of *Otomys s.s.*), THOMAS Ann. Mag. N.H. (9) 2.

*Parotomys* p. 205 gen. n., genotype *Otomys brantsii* Smith, *Liotomys* subgenus n. for *P. (L.) littledalei* sp. n. Bushman-land, THOMAS Ann. Mag. N.H. (9) 2.

*Poemys* see *Dendromus*.

*Rattus coucha tinctus*, subsp. n. Kavirondo, Brit. E. Africa, HOLLISTER Smithsonian Misc. Collect. 68 No. 10 p. 1; *helleri* nom. nov. for *centralis* Heller nec. Schwann, HOLLISTER P. Biol. Soc. Washington 31 p. 97; *virtus* Lyon almost certainly a synonym of *muelleri campus*, ROBINSON & KLOSS J. Fed. Malay Mus. 8 p. 77; *rattus* group, key to Indo-Burmese forms p. 60, *r. tistæ* Sikkim p. 68, *r. bhotia*, Bhutan Douars p. 72, *r. narbadæ* Central Provinces p. 77, *r. girensis*, S. Kathiawar

p. 83, *r. sataræ* Koyna Valley p. 87, subssp. n., HINTON J. Bombay Nat. H.S. 26; *rattus* and subspecies, *norvegicus* characters, history, habits, economic importance and control, HINTON Brit. Mus. Econ. Ser. No. 8; Rat extermination, SHARPE Board Agric. Miscell. Publ. 22; parasites and plague in Malta, ZAMMIT Arch. Melitense 3 p. 141.

*Sigmodon hispidus confinis* p. 21 Safford, *h. jacksoni* p. 22 Fort Whipple, Arizona, subssp. n., GOLDMAN Proc. Biol. Ser. Washington 31.

*Tatera rufa* sp. n. Kordofan, WETTSTEIN Wien Denkschr. Ak. Wiss. 94 p. 111.

*Taterillus kadugliensis* sp. n. Kordofan, WETTSTEIN Wien Denkschr. Ak. Wiss. 94 p. 112; *gyas* sp. n. Dinder River, Sudan, THOMAS Ann. Mag. N.H. (9) 2 p. 150.

*Taterina* subgen. n. (of *Taterillus*) p. 113 *lorenzi* sp. n. p. 114 Kordofan, WETTSTEIN Wien Denkschr. Ak. Wiss. 94.

*Uromys littoralis* sp. n. Queensland LÖNNBERG Stockholm Vet.-Ak. Handl. 52 No. 2 p. 5.

#### BATHYERGIDAE.

*Georychus palki* sp. n. Vaal River, ROBERTS Ann. Trsv. Mus. 6 p. 5.

#### HYSTRICIDAE, CAVIIDAE, &C.

*Ctenomys latro* p. 38 Tapia, Tucuman, *pontifex* p. 39 E. side of Andes, Prov. of Mendoza, THOMAS Ann. Mag. N.H. (9) 1.

*Dasyprocta aguti* from the island of St. Thomas, MILLER Proc. U.S. Nat. Mus. 54 p. 508.

†*Elasmodontomys obliquus* osteology and dentition, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 380.

†*Heptaxodon bidens* dentition, ANTHONY Mem. Amer. Mus. N. H. (N.S.) 2 p. 397.

†*Heteropsomys insulans* skull and dentition, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 407.

† *Homopsomys antillensis* osteology and dentition, ANTHONY Mem. Amer. Mus. Nat. Hist. (N.S.) 2 p. 408.

† *Isolobodon portoricensis* osteology and dentition, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 400; prehistoric remains from the Virgin Islands, MILLER Proc. U.S. Nat. Mus. 54 p. 507.

*Thryonomys rutshuricus* sp. n. Central Africa, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 78.

#### LEPORIDÆ & OCHOTONIDÆ.

*Lepus* notes on specimens in Indian Museum, *cutchensis* p. 91 Bhuj, Cutch, *sadiya* p. 95 Sadiya, N.E. Assam spp. n., KLOSS Rec. Ind. Mus. Calcutta 15 p. 89; *brachyurus etigo* subsp. n., ABE, Y. Dobuts. Z. 30 pp. 244 293 329; *cyrensis* note on specimen from Anatolia. KOLLMANN Bul. Museum Paris 1918 p. 203; *capensis abbotti* subsp. n., Mt. Kilimanjaro B.E.A., HOLLISTER Pror. Biol. Soc. Washington 31 p. 35; *dayanus connorii* subsp. n. Karun River, Persia, ROBINSON Rec. Ind. Mus. Calcutta 15 p. 49.

*Ochotona schisticeps sheltoni* subsp. n., Mono County, California, GRINNELL Univ. Cal. Pub. Zool. 17 p. 429.

*Sylvilagus brasiliensis gibsoni* subsp. n. Manuel Elordi, Vermejo, Salta, THOMAS Ann. Mag. N.H. (9) 1 p. 192.

#### UNGULATA.

Ungulates in Musco Civico G. Doria, Genova, BEAUX Atti. Soc. ligustica ec., nat. geogr. 28 No. 4; from Mt. Korinchi, Sumatra, ROBINSON & KLOSS J. Fed. Malay Mus. 8 p. 66.

#### A.—Artiodactyla.

Ruminantia external characters, Pocock Ann. Mag. N.H. (9) 1 p. 426 2 pp. 125 214 367 440 449.

#### BOVIDÆ.

*Ægoryx* gen. n. for *Oryx algazel*, Oken, Pocock Ann. Mag. N.H. (9) 2 p. 221.

*Anoa* supersedes *Bubalus* for the Asiatic buffaloes by virtue of page priority, Pocock Ann. Mag. N.H. (9) 2 p. 458.

*Bos* Vierlingsgebur, LEBEDINSKY Basel Verh. Nat. Ges. 29 p. 60; *taurus* hermaphroditism, MAGNUSSON Sv. Veterin.-Tidskr. Stockholm 22 pp. 393 437.

*Bovinae* of Barbary, Pleistocene representatives, history and distribution, JOLEAUD Alger Rev. Africaine No. 295 p. 33.

*Bubalis* see *Sigmoceros*.

*Bubalus* list of species p. 134, *gaza* Lebombo-Berge, Süd-Gaza-Land, *pungwensis* Beira p. 136, *niediecki* N. of Victoria Falls p. 138 spp. n., MATSCHIE SitzBer. Ges. natf. Fr. Berlin 9181; (*Synceros*) *adolphi-friederici* sp. n. Irumu, Upper Ituri, MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1918 No. 8 p. 2 (of reprint); *caffer radcliffei*, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 83.

*Capra depressa* and *reversa* Linn. Syst. Nat. ed. x based on domestic goats, LÖNNBERG Sv. Linné-Sällskap. Årsskr. 1 p. 87; *lusitanica* Schlegel (1872) the earliest technical name for the Portuguese Ibex (type locality Serra do Gerez, N. Portugal), HOLLISTER P. Biol. Soc. Washington 31 p. 93.

*Capricornis* description of specimen from Annam with photographs of living animal and the skull, HAMILTON Journ. Straits Asiat. Soc. 1918 78 p. 59.

*Cephalophus adersi* sp. n., Zanzibar, THOMAS Ann. Mag. N.H. (9) 2 p. 151; *weynsi rutshuricus* p. 86, *claudi mixtus* p. 89, *castaneus arrhenii* p. 92, subspp. n. Central Africa, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2.

*Damaliscus korrigum ugandae*, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 84.

*Limnotragus spekei inornatus* subsp. n., N.E. Rhodesia, CABRERA Bol. Soc. Esp. Hist. Nat. 18 p. 276.

*Oryx leucoryx* in Central Arabia, HAMILTON J. Bombay Nat. Hist. Soc. 26 p. 283.

*Prodocarcas* gen. n. for *Gazella gutturosa* Pall., Pocock Ann. Mag. N.H. (9) 2 p. 130.

*Sigmoceros* group p. 188, lectotype of *Bubalis lichtensteinii* Peters chosen, type locality Tette, p. 191; *leucopyrnus* type selected p. 192, *shirensis* nom. nov. for form from Inhaucuxa near Sena referred by Peters to *lichtensteinii* p. 194, *gorongoza* N. Gorongoza p. 196, *godonga* Cheringoma District, *inkulanondo* S.E. Mashonaland p. 197, *wiesei* Chifumbazi am Luia, Zambesi p. 199, *senganus* Mussenda Luz, Zambezi p. 200, *basengæ* Gegend zwischen Sena und Tette p. 201, *konzi* S. of Broken Hill p. 203, *niediecki* N. of Victoria Falls p. 205, *bangæ* Banga, S.E. of Baunza p. 206, spp. n., figures of skulls, MATSCHIE and ZUKOWSKY 1916; *niedieckianus* corrected name for *S. niediecki* M. & Z., MATSCHIE 1916 p. 295; variation in horns with age, sex and individuals p. 528; *S. petersi* nom. nov. for *S. shirensis* Matschie & Zukow. nec. *shirensis* Zukowsky p. 530; *kangosa* Makjusa's Land, *frommi* Malinga-Berge, Deutsch-Ostafrika p. 532, *münzneri* Mbuga Mpimba p. 542; *wuwendensis* Tanganyika p. 545, spp. n., key to species of the region between the Limpopo and S.W. Deutsch-Ostafrika p. 547, figures of skulls and horns, MATSCHIE & ZUKOWSKY 1917 SitzBer. Ges. natf. Fr. Berlin.

*Synceros* sec *Bubalus*.

*Tragelaphus* horns of castrated buck, Pocock P.Z.S. 1918 p. 337; *scriptus heterochrous* subsp. n., Mt. Elgon, CABRERA Bol. Soc. Esp. Hist. Nat. 18 p. 275.

#### GIRAFFIDAE.

*Camelopardalis vagnus-arcæ*, VERMEULEN Amsterdam Proc. Sci. K. Akad. Wet. 18 p. 647.

#### CERVIDAE.

*Capreolus* European species, figures of skulls and antlers, *zedlitzii* sp. n. W. Russia, MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1916 p. 272; *capreolus* in Hungarian Pleistocene, ÉTIK Földt. Közl. Budapest 43 p. 145.

*Cervus elaphus* antlers and names, Musy Fribourg Bul. Soc. Sci. Nat. 23 p. 60; *elaphus* in Ireland history and skull characters, SCHARFF Irish Nat. 27 p. 133; *elaphus* subfossil in Sweden, WALLENGREN Ymer Stockholm 36 p. 67;

*grassianus* Heude p. 119, *mandarinus* Milne-Edw. p. 121 notes on, SOWERBY Ann. Mag. N.H. (9) 2; (*Rucervus schomburgki* history and measurements of horns, KEMP J. Nat. Hist. Soc. Siam 3 p. 1.

*Elaphurus* antler growth, Pocock P.Z.S. 1918 p. 337.

*Muntiacus muntjak montanus* subsp. n., Korinchi Peak, Sumatra, ROBINSON & KLOSS J. Fed. Malay Mus. 8 p. 69.

*Odocoileus virginianus* occurrence of eye-teeth, GARRETT Ottawa Nat. 32 p. 18; *gymnotis tropicalis* subsp. n. Western Columbia p. 306, key to subsp. of *gymnotis* p. 307, CABRERA Bol. Soc. Esp. Hist. Nat. 18.

*Rangifer* Caribou hunting in New foundland, ROCKWELL Brooklyn Mus. Quarterly 5 p. 82.

*Rucervus eldi* nomenclature of geographical races p. 363, *platyceros hainanus* p. 364 Hainan, *thamin brucei* p. 366 Ruby Mines District, Upper Burma, subsp. n., THOMAS J. Bombay Nat. H.S. 25 (see also *Cervus*).

*Rusa timorensis* measurements skulls and antlers, SCHWARZ Zool. von Timor Lief. II p. 126.

#### SUIDAE.

*Phacochoerus africanus centralis* subsp. n. Central Africa, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 102.

*Potamochoerus intermedius arrheni* subsp. n. Central Africa, LÖNNBERG Stockholm Vet.-Ak. Handl. 58 No. 2 p. 107.

*Sus scrofa* abnormal canine of wild boar, MATSCHIE SitzBer. Ges. natf. Berlin 1918 No. 8; skeleton from Holocene of Pembrokehire, HINTON Proc. Geol. Assoc. 29 p. 65; Wild boar, extinct, in Sakhalin, MATSUMOTO Dobuts. Z. Tokyo 30 p. 34; *salzfeini* sp. n. Naliboki, Weissrussland, MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1918 No. 8 p. 1; *verrucosus* and *vittatus* figs. and descriptions of skulls from Timor, SCHWARZ Zool. von Timor Lief. 11 p. 128.

†*Batelodon deguilhemi* p. 399, Villebramar, *depereti* p. 400 Quercy, Tertiary, spp. n., REPELIN C.R. Acad. sci. 166.

†*Pliohippus nobilis* p. 160 Kansas, *leidyani* p. 162 W. Nebraska, Lower Pliocene, spp. n., OSBORN Mem. Amer. Mus. N.H. N.S. 2.

## B.—Perissodactyla.

### EQUIDÆ.

*Equide* Tertiary of North America—proportional character evolution p. 3, genesis and evolution of single dental characters p. 5, geological distribution p. 8, systematic revision and type figures of species p. 35, OSBORN Mem. Amer. Mus. N.H. New Ser. 2.

*Caballus* fossil Skåne, LÖNNBERG Fauna och. Fl. 12 p. 14.

*Equus* Region intestinale iléo-cécolique, WESTERLUND Lund Univ. Årsskr. N.F. Avd. 2 15 No. 5.

†*Hipparion coloradense* sp. n. Lower Pliocene Colorado, OSBORN Mem. Amer. Mus. Nat. H., N.S. 2 p. 183.

†*Kalobatippus agatensis* sp. n. Harrison Formation, W. Nebraska, OSBORN Mem. Amer. Mus. N.H. New Ser. 2 p. 71.

†*Merychippus isonesus primus* p. 102, *i. secundus*, *i. tertius* p. 105, *i. quartus*, *i. quintus* p. 107 mut. nov. Middle Miocene Nebraska, *coplacidus* p. 114, *proparvulus*, *cohipparion* p. 117, Middle Miocene Colorado, *republicanus* p. 125, *patrus* p. 126, Lower Pliocene Nebraska, spp. n. OSBORN Mem. Amer. Mus. N.H. N.S. 2.

†*Mesohippus trigonostylus* sp. n. Middle Oreadon Beds, S. Dakota, OSBORN Mem. Amer. Mus. N.H. New Ser. 2 p. 47.

†*Miohippus primus* p. 61, *quartus* p. 62 Middle John Day, Oregon, *equinanus* p. 65, *gemmarosæ* p. 66, Lower Rosebud Form, S. Dakota, spp. n., OSBORN Mem. Amer. Mus. N.H. New Ser. 2.

†*Parahippus pristinus* p. 76 Lower Rosebud Form, S. Dakota, *pawniensis atavus* p. 79, *nebrascensis primus* p. 80 Harrison Form. W. Nebraska, *coloradensis præcurrens* p. 83 Upper Rosebud Form, S. Dakota sp. et subspp. n., OSBORN Mem. Amer. Mus. N.H. N.S. 2.

### RHINOCEROTIDÆ.

*Rhinoceros bicornis* Meyer note on, MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1918 p. 103; *coronensis* in Hungarian Pleistocene, ÉNIK Földt. Közl. Budapest 43 p. 145.

## D. and W.—Proboscidea and Hycacoidea.

*Proboscidea* dentition and phylogeny, STEFANESCU C.R. Acad. sci. 66 p. 739; fossil in Mexico, RIO Mexico Bol. Div. Est. Biol. 25 p. 366.

*Dendrohyrax congoensis* Beni (CARTHoushi), *beniensis* Beni-Zambo, *rubriveniter* Kalumenda-Beni, p. 295, *brevimaculatus* Lesse. E. Congo, *terricola schusteri* Uluguru-Berge G.E.A., *i. vosseleri* Amani p. 296 spp. et subspp. n., BRAUER Sitzungs b. Ges. natf. Fr. 1917.

*Elephas* fossil tusks from Sicily, FIORE Catania Boll. Acc. Gioenia 1918 fasc. 44 p. 44; *africanus coltoni*, LÖNNBERG Stockholm Vet.-Ak. Handl. 53 No. 2. p. 80.

*Heterohyrax brucei hararensis* Harar, *pumila webensis* Web Fluss, *arboricola* Dembea See, p. 297, *lademanni* Livingstone Gebirge, *brucei dieseneri* Ushaschi p. 298, *b. victorianjansae* Nyangesi, *b. prittwitzi* Kilimatinde, *münzneri rukwaensis* Rukwa See, p. 299, *b. ssongeae* Ssongea p. 300 spp. et subspp. n., BRAUER Sitzungs b. Ges. natf. Fr. 1917.

*Hyrax capensis* Meyer nec Pall., the basis of *H. syriacus* Schreb. *alpini* and *brucei* may refer to same form, MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1918 p. 99.

*Procavia elberti* Jade, *naumanni* Neu Kamerun p. 300, *sinaitica chrenbergi* El Tor bei Wadi Timar p. 301, *s. schmitzi* Mts. N. of L. Genezareth, *erlangeri*



*comata* Harar, *e. capillosa* Arussi-lande p. 302, *ituriensis* Ituri, *flavimaculata* N.W. German S.W. Africa p. 303 spp. et subsp. n., BRAUER Sitzungsber. Ges. natf. Fr. 1917; (*Procavia*) *ebneri* sp. n. Kordofan, WETTSTEIN Wien Denkschr. Ak. Wiss 94 p. 131.

## CETACEA &amp; SIRENIA.

*Cetacea* and *Sirenia* of Cuba, CUNI Mem. Soc. Cubana Hist. Nat. 3 p. 83; *Cetacea*: List from Sumatra, ROBINSON & KLOSS J. Fed. Malay Mus. 8 p. 79; stranded on British Coasts 1913-1917, notes on specimens and characters, HARMER P.Z.S. 1918 p. 147; stranded on British coasts during 1917, HARMER Brit. Mus. Report No. 5; reproductive organs, MEEK J. Anat. London 52 p. 186.

*Balaena biscayensis* at Scottish stations, migration, THOMPSON Scot. Nat. 1918 p. 198.

*Balaenoptera acutorostrata* stranded on coast of Rio de la Plata, MARELLI Physis 4 p. 623; *rostrata* specimen wrecked in the firth of Nakkebølle, Southern Funen, HELMS Kjøbenhavn Naturens Verden 2 p. 323; *physalus*, Finnfische in den Ländern um die Nordsee gestrandet (1806-1918), DEINSE Leiden Zool. Meded. 4 p. 179; *sibbaldii* at Scottish stations, migration, THOMPSON Scot. Nat. 1918 p. 230.

*Berardius* in estuary of La Plata, MARELLI Physis 4 p. 339.

*Kogia breviceps* external characters of focus, skeletal muscles and peripheral nerves, SCHULTZ & SMITH Bull. Amer. Mus. N.H. 38 p. 7.

*Lagenorhynchus albirostris*, in Holland angespült, VAN OORT Leiden Zool. Med. 4 p. 54.

*Lipotes vexillifer* gen. et sp. n. (*Iniidae*) Tung-Ting Lake, Yangtze River, China, MILLER Smithsonian Misc. Collect. 68 No. 9 p. 2.

*Mystacoceli* captured at Durban, measurements and photographs, CHUBB Ann. Durban Mus. 2 p. 89.

*Phaocana* misprint for *Phocæna*, ROBINSON & KLOSS J. Fed. Malay Mus. 8 p. 79.

*Physeter macrocephalus*, in Holland gestrandet Exemplare, VAN DEINSE Leiden Zool. Med. 4 p. 22; in Scottish waters, THOMPSON Scot. Nat. 1918 p. 221; captured at Durban with 10 feet shark in stomach, CHUBB Ann. Durban Mus. 2 p. 93.

†*Scaiptodon* p. 149, *lodderi* p. 150 gen. et sp. n. Tertiary Tasmania, CHAPMAN Proc. R. Soc. Vict. 30.

*Trichechus manatus* bones from midden on St. Croix, MILLER Proc. U.S. Nat. Mus. 54 p. 509.

*Ziphius cavirostris* study of foetal and adult skulls, KERMAN Bull. Amer. Mus. N.H. 38 p. 349.

## EDENTATA.

*Edentata* of Porto Rico, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 412.

†*Acratocnus major* sp. n. Porto Rico, osteology and dentition of genus, ANTHONY Mem. Amer. Mus. N.H. (N.S.) 2 p. 412.

†“*Mytodon australis*” Kreffit the supposed Edentate ungual phalanges probably referable to *Thylacoleo*, ETHERIDGE Ann. Mag. N.H. (9) 2 p. 307.

*Priodontes giganteus* fig. of specimen and skeleton in Frankfurt Museum, SCHWARZ Ber. Senckenb. Ges. 45 p. 16.

## MARSUPIALIA.

Parturition and characters of newborn young, HILL P.Z.S. 1918 p. 337; dentition, relation to that of Reptiles and Monodelphia, BOLK Amsterdam Proc. Sci. K. Akad. Wet. 18 p. 715; Hinterfusses der Marsupialier, BOAS Kjøbenhavn Vid. Selsk. Biologiske Meddelelser I 8 p. 1; myology, MACKENZIE 143.

*Dendrolagus finschi* sp. n. Tami-Becken, Neuguinea, MATSCHIE Sitzber. Ges. natf. Fr. Berlin 1916 No. 4.

*Didelphis* nomenclature p. 259; *Monodelphiops* subgen. n. for *Microdelphys sorex* Hensel p. 261; *Marmosops* subgen. n. for *D. incana* Lund; *Metachirops* subgen. n. for *D. quica* Temm. p. 262, Übersicht der Untergattungen p. 266, MATSCHIE Sitzber. Ges. natf. Fr. Berlin 1916.

*Dorcopsis* see *Dorcopsulus*.

*Dorcopsulus* subgen. n. for *Dorcopsis macleayi*, MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1916 p. 57.

*Eudromicia macrura* gen. n. et sp. n. Queensland, MjöBERG Stockholm Vet.-Ak. Handl. 52 No. 2 p. 14.

*Macropodidae* of New Guinea, MATSCHIE SitzBer. Ges. natf. Fr. Berlin 1916 p. 43.

*Micoureus* Lesson generic name for *Didelphis lanigera* p. 259 1916; subgen. of *Didelphis*, the subgenotype being by elimination *D. lanigera*; *pulcher* locality unknown (described from menagerie specimen) p. 281, *juninensis* Prov. Jumin, Peru p. 283, *canus* Nicaragua p. 264, *meridensis* Merida, Venezuela p. 285, *antioquiae* Prov. Antioquia, Columbia p. 286, *bartletti* Chamicuros R., *cahyensis* Rio Cahy p. 288, key to species p. 289, 1917, MATSCHIE SitzBer. Ges. natf. Fr. Berlin.

*Phalanger orientalis* specimens from Timor, SCHWARZ Zool. von Timor Lief. 11 p. 133.

*Sarcophilus satanicus* astragalus, KRAGLIEVICH Physis 3 p. 416.

†*Stereognathus ooliticus* notes on lower jaw, PETRONIEVICI Ann. Mag. N. H. 19 1 p. 67.

†*Thylacoleo* unguis phalanges referred by Kreffit to his *Mytilodon australis* probably belong to this genus p. 307, unguis phalanges provisionally referred by Lydekker to *Thylacoleo* perhaps those of a gigantic Koala. p. 314, ETHERIDGE Ann. Mag. N.H. (9) 2.

*Trichosurus vulpecula eburacensis* n. subsp. Queensland, LÖNNBERG Stockholm Vet.-Ak. Handl. 52 No. 2 p. 9.

*Wyulda squamicaudata* gen. et sp. n. Western Australia, ALEXANDER J. R. Soc. West Austral. 4 p. 31.

#### MONOTREMATA.

Homologie der Sacralen Arcade, MYSBERG Amsterdam Werk. Gen. 9 (Ser. 2) p. 128.

INDEX TO NAMES  
OF  
NEW GENERA AND SUBGENERA

RECORDED IN THIS VOLUME

(INCLUDING NEW NAMES FOR GENERA PREVIOUSLY ESTABLISHED).\*

- |  |   |
|--|---|
| <i>Acaenica Hampson</i> Ins. 164                   | <i>Alesua Dyar</i> Ins. 165                       |
| <i>Acanthinella Cooke</i> Moll. 28                 | <i>Alcurodaphis Van der Goot</i> Ins. 230         |
| <i>Acanthinoides Matsumura</i> Ins. 202            | <i>Alfredia Bezzi</i> Ins. 200                    |
| <i>Acanthocatops Bruch</i> Ins. 108                | <i>Allectus Distant</i> Ins. 226                  |
| <i>Acanthodiscus MacCallum</i> Verm. 14            | <i>Allomyia Felt</i> Ins. 195                     |
| <i>Acanthodoryctes Turner</i> Ins. 143             | <i>Alniphagus Swaine</i> Ins. 128                 |
| <i>Acanthonia Wasmann</i> Ins. 103                 | <i>Alophytophilus Brian</i> Crust. 23             |
| <i>Acanthoplectron Esben-Petersen</i> Ins. 193     | <i>Alphamonas Alexeieff</i> Prot. 21              |
| <i>Acanthopotamon Kemp</i> Crust. 14               | <i>Alterapus Mathews</i> Aves 60                  |
| <i>Achaetina Malloch</i> Ins. 209                  | <i>Amalorrhynchus Reitter</i> Ins. 124            |
| <i>Acihoa Houlbert</i> Ins. 157                    | <i>Amauta Houlbert</i> Ins. 157                   |
| <i>Acronaristopsis Townsend</i> Ins. 209           | <i>Amesospilus Enderlein</i> Ins. 142             |
| <i>Actinopora Vinassa de Regny</i> Coel. 13        | <i>Amphigonopterus Hubbs</i> Pisces 16            |
| <i>Acyttara Turner</i> Ins. 159                    | <i>Amphithyrus Thomson</i> Brach. 4               |
| <i>Adelidium Tillyard</i> Ins. 119                 | <i>Amyclina Iredale</i> Moll. 28                  |
| <i>Aegoryx Pocock</i> Mam. 30                      | <i>Anaemosia Hampson</i> Ins. 159                 |
| <i>Acroplana Tillyard</i> Ins. 239                 | <i>Anaferonia Casey</i> Ins. 97                   |
| <i>Aeschnidiopsis Tillyard</i> Ins. 237            | <i>Anapolemon Wasmann</i> Ins. 103                |
| <i>Aeternus Distant</i> Ins. 226                   | <i>Anarchorinus Jaekel</i> Echin. 19              |
| <i>Aethechinus Thomas</i> Mam. 24                  | <i>Anarnatula Dyar</i> Ins. 178                   |
| <i>Aethodes Hampson</i> Ins. 159                   | <i>Anatrochus Casey</i> Ins. 97                   |
| <i>Afrocominella Iredale</i> Moll. 28              | <i>Anaxyrina Meyrick</i> Ins. 185                 |
| <i>Afromysis Zimmer</i> Crust. 20                  | <i>Anchimongoma Brunetti</i> Ins. 200             |
| <i>Afrowohlfartia Townsend</i> Ins. 209            | <i>Anchotomys Thomas</i> Mam. 28                  |
| <i>Aglyptodactylus Boulenger</i> Rept. 11          | <i>Anepia Hampson</i> Ins. 165                    |
| <i>Agrolimna Cresson</i> Ins. 213                  | <i>Anepiada Rainbow &amp; Pulleine</i> Arachn. 12 |
| <i>Aguriahana Distant</i> Ins. 226                 | <i>Angelinoerinus Jaekel</i> Echin. 19            |
| <i>Ahenobarhus Distant</i> Ins. 226                | <i>Anilaspis Casey</i> Ins. 97                    |
| <i>Aiptasioides Stephenson</i> Coel. 13            | <i>Anillinus Casey</i> Ins. 97                    |
| <i>Akidnognathus Haughton</i> Rept. 11             | <i>Anisolobocoras Trueman</i> Moll. 52            |
| <i>Albaniana Rainbow &amp; Pulleine</i> Arachn. 12 | <i>Anisopheidole Forel</i> Ins. 139               |
| <i>Albanyaria Distant</i> Ins. 219                 | <i>Anisosoma Bergroth</i> Ins. 219                |
|  | <i>Anocoela Moser</i> Ins. 112                    |

\* The total number of names in this index is 1,297; distributed as follows, viz.:—Protozoa 16; Coelenterata 24; Echinoderma 66; Vermidea 30; Bryozoa 12; Brachiopoda 9; Mollusca 88; Crustacea 27; Arachnida 27; Myriopoda 11; Insecta 879; Prochordata 1; Pisces 32; Reptilia 10; Aves 36; Mammalia 29. The total last year was 1,131.

- Anomaloplectron *Esben-Petersen* Ins. 193  
 Anomeoceros *Lamb* Ins. 213  
 Anomiana *Distant* Ins. 226  
 Anomoctena *Turner* Ins. 174  
 Anomocystis *Jaekel* Echin. 23  
 Anthodes *Hampson* Ins. 165  
 Anthracoptilus *Lameere* Ins. 239  
 Anticoreura *Prout* Ins. 173  
 Antropiestus *Bernhauer* Ins. 103  
 Anurapteryx *Hampson* Ins. 174  
 Apeltonotus *Boulenger* Rept. 10  
 Aphanodactylus *Tesch* Crust. 15  
 Aphemogryllus *Rehn* Ins. 242  
 Apotactis *Meyrick* Ins. 185  
 Apothosia *Hampson* Ins. 159  
 Apphia *Distant* Ins. 226  
 Aprositia *Turner* Ins. 174  
 Arachnidopsis *Penard* Prot. 22  
 Arachnomyia *White* Ins. 206  
 Arachnoscaphula *Heller* Ins. 108  
 Archaemacrocera *Meunier* Ins. 196  
 Archeria *Case* Rept. 9  
 Archihymen *Enderlein* Ins. 143  
 Archipanorpa *Tillyard* Ins. 193  
 Archipetalia *Tillyard* Ins. 237  
 Archipsoha *Meyrick* Ins. 185  
 Argentocarpus *Townsend* Ins. 209  
 Argiacris *Hebard* Ins. 244  
 Argyrobrithes *Grünberg* Ins. 202  
 Argyroceyx *Matheus* Aves 59  
 Argyrochaetona *Townsend* Ins. 209  
 Ariciella *Malloch* Ins. 209  
 Armadalia *Rainbow & Pulleine* Arachn. 12  
 Arrhenotettix *Caudell* Ins. 243  
 Arrianoides *Distant* Ins. 219  
 Artemidactis *Stephenson* Coel. 13  
 Arthrochordcumium *Stephensen* Crust. 23  
 Ascocrinus *Jaekel* Echin. 19  
 Ascosocia *Canu* Bry., Brach. 10  
 Ascathia *Annandale* Coel. 12  
 Astrocynodus *Clark* Echin. 18  
 Astrocystella *Cognetti de Martini* Prot. 19  
 Asylana *Distant* Ins. 217  
 Athertonia *Sjöstedt* Ins. 241  
 Atissiella *Cresson* Ins. 213  
 Atlanta *Hedley* Moll. 39  
 Atopetholus *Chamberlin* Myr., Arachn. 20  
 Atopomelus *Trouessart* Arachn. 17  
 Atrimitra *Dall* Moll. 27  
 Attalusinus *Leng* Ins. 118  
 Attenuata *Hedley* Moll. 32  
 Auchmerina *Enderlein* Ins. 229  
 Auchmeromyiella *Townsend* Ins. 209  
 Augomonocenus *Rohwer* Ins. 148  
 Augulus *Distant* Ins. 227  
 Aulacocephalopsis *Townsend* Ins. 209  
 Aulacophyto *Townsend* Ins. 209  
 Aulonodera *Champion* Ins. 131  
 Aulotropa *Meyrick* Ins. 185  
 Aurigcquula *Fowler* Pisces 16  
 Austrodrillia *Hedley* Moll. 26  
 Austrogynocnemis *Esben-Petersen* Ins. 193  
 Austrohelcon *Turner* Ins. 144  
 Austromantis *Sjöstedt* Ins. 242  
 Austropamora *Distant* Ins. 219  
 Austrovates *Sjöstedt* Ins. 242  
 Axiocerylon *Grouvelle* Ins. 109  
 Azoranchus *Alluaud* Ins. 97  
 Bababuddinia *Bolívar* Ins. 244  
 Bacchiopsis *Matsumura* Ins. 207  
 Bainbriggianus *Distant* Ins. 217  
 Bancroftiana *Rainbow & Pulleine* Arachn. 12  
 Baptotropa *Hampson* Ins. 178  
 Bapuia *Godwin-Austen* Moll. 39  
 Barygerax *Hebard* Ins. 240  
 Baryglossa *Bezzi* Ins. 213  
 Basiliochiton *Berry* Moll. 25  
 Bastilla *Swinhoe* Ins. 165  
 Bathericrinus *Jaekel* Echin. 19  
 Becheiceras *Trueman* Moll. 53  
 Bembidiomorphum *Casey* Ins. 97  
 Bertoniolus *Fowler* Pisces 13  
 Beyrichocrinus *Jaekel* Echin. 19  
 Bharata *Distant* Ins. 227  
 Bichirocinus *Jaekel* Echin. 19  
 Binghamimyia *Townsend* Ins. 209  
 Bituitus *Distant* Ins. 227  
 Blastocystis *Jaekel* Echin. 24  
 Boetica *Dall* Moll. 38  
 Boisduvalia *Houlbert* Ins. 158  
 Bolanus *Distant* Ins. 227  
 Bolanusoides *Distant* Ins. 227  
 Bombobrachycoma *Townsend* Ins. 209  
 Boncllinymia *Townsend* Ins. 210  
 Boreomelon *Dall* Moll. 27  
 Bouda *Dyar* Ins. 166  
 Bouleites *Lameere* Ins. 239  
 Brachypterodrilus *Pic* Ins. 118  
 Brachyunguis *Das* Ins. 230  
 Brevicoryne *Das* Ins. 230  
 Brognartiella *Reed* Arachn. 5  
 Bua *Bolívar* Ins. 244  
 Bufotettix *Caudell* Ins. 243  
 Bullanga *Navás* Ins. 193  
 Bumizana *Distant* Ins. 227  
 Burdigalocrinus *Jaekel* Echin. 19  
 Burmeisterella *Reed* Arachn. 5  
 Burnupina *Iredale* Moll. 28  
 Byomyioides *Matsumura* Ins. 210  
 Bystra *Hay* Rept. 11

- Caborius Navás* Ins. 192  
*Cacoculex Dyar* Ins. 199  
*Cadogenius Heller* Ins. 123  
*Caduceia França* Prot. 21  
*Caenopamera Barber* Ins. 219  
*Calamotis Meyrick* Ins. 186  
*Calamotropa Hampson* Ins. 178  
*Calappella Rathbun* Crust. 17  
*Calceolata Iredale* Moll. 35  
*Calliopedia Binder* Ins. 129  
*Callipharixenus Pierce* Ins. 133  
*Calliphlycta Hampson* Ins. 178  
*Callistolixus Reitter* Ins. 125  
*Callocoecus Ferris* Ins. 233  
*Calloruga Hampson* Ins. 166  
*Caloholeon Turner* Ins. 144  
*Calvarium Pic* Ins. 116  
*Calycicoccus Brain* Ins. 233  
*Campbellinella Distant* Ins. 227  
*Camptochironomus Kieffer* Ins. 197  
*Camulus Distant* Ins. 227  
*Capulica Bolívar* Ins. 244  
*Cariona Swinhoe* Ins. 166  
*Carlgrenia Stephenson* Coel. 13  
*Caruacia Sjöstedt* Ins. 241  
*Carvaka Distant* Ins. 227  
*Carydana Bolívar* Ins. 244  
*Cassolenis Fleutiaux* Ins. 114  
*Castellanella Chalmers* Prot. 21  
*Castniomera Houlbert* Ins. 157  
*Cathormiocerinus Escalera* Ins. 125  
*Catobleps Blair* Ins. 119  
*Catopherus Carter* Ins. 119  
*Cavotettix Hancock* Ins. 244  
*Celcbesia Bolívar* Ins. 244  
*Celebesia Riley* Aves 65  
*Cephalogyna Casey* Ins. 99  
*Cerantes Meyrick* Ins. 186  
*Ceratocheilus Ribeiro* Pisces 14  
*Ceratoglyphina Van der Goot* Ins. 230  
*Ceratoleon Esben-Petersen* Ins. 193  
*Ceratotheripoides Bagnall* Ins. 234  
*Cerotrionza Crawford* Ins. 229  
*Cerraphis Van der Goot* Ins. 231  
*Cestoplectus Lamb* Ins. 213  
*Ceycalcyon Mathews* Aves 59  
*Ceycoides Mathews* Aves 59  
*Chaerodrosus Reitter* Ins. 125  
*Chaetadoretus Ohaus* Ins. 111  
*Chaetopisthides Wasmann* Ins. 110  
*Chaetovalgus Moser* Ins. 112  
*Chaeturellus Mathews* Aves 60  
*Chaudhuri Annandale* Pisces 19  
*Charitopodinus Bridwell* Ins. 146  
*Chesomela Weise* Ins. 131  
*Chikkaballapura Distant* Ins. 227  
*Chilostigma Melvill* Moll. 33  
*Chilonorrhinus Reitter* Ins. 125  
*Chiricahuia Townsend* Ins. 210  
*Chirolanguria Heller* Ins. 132  
*Chitaura Bolívar* Ins. 244  
*Chlenomorpha Lower* Ins. 124  
*Chlorobrachycoma Townsend* Ins. 210  
*Chloroceratina Cockerell* Ins. 135  
*Chlorometaphyto Townsend* Ins. 210  
*Chloroplus Hebard* Ins. 244  
*Chloropeustes Rehn* Ins. 245  
*Choanocystis Cognetti de Martiis* Prot. 19  
*Choeroporpa Dyar* Ins. 199  
*Chordeumium Stephensen* Crust. 23  
*Choristella Tillyard* Ins. 193  
*Chortonocca Hampson* Ins. 178  
*Chrysocorixenus Pierce* Ins. 133  
*Chytrocinus Jaekel* Echin. 19  
*Cingalobolus Carl* Myr., Arachn. 20  
*Cladidus Fleutiaux* Ins. 114  
*Cladobradus Pic* Ins. 116  
*Cladophantis Meyrick* Ins. 186  
*Cledra Bolívar* Ins. 245  
*Cleptophasia Prout* Ins. 173  
*Cnaphostola Meyrick* Ins. 186  
*Cnemidaetis Spencer* Echin. 17  
*Cnidocnema Gilchrist* Coel. 9  
*Coeloseris Vaughan* Coel. 13  
*Coenotropa Hampson* Ins. 178  
*Colicryptus Iredale* Moll. 28  
*Collonista Iredale* Moll. 35  
*Colobicones Grouvelle* Ins. 109  
*Commentrya Lameere* Ins. 239  
*Compsolechia Meyrick* Ins. 186  
*Compsolixus Reitter* Ins. 125  
*Compsomyiops Townsend* Ins. 210  
*Compsothyris Jackson* Brach. 5  
*Comstockia Van Dyke* Ins. 99  
*Comyopsis Townsend* Ins. 210  
*Conaspidia Hedicke* Ins. 147  
*Conchoecheres Sars* Crust. 23  
*Conicochyta Hampson* Ins. 167  
*Conithorax Brunetti* Ins. 200  
*Cooktownia Sjöstedt* Ins. 241  
*Coptothyris Jackson* Brach. 5  
*Coracornis Riley* Aves 69  
*Coraloblatia Cockerell* Ins. 241  
*Coroticus Distant* Ins. 227  
*Costalocrinus Jaekel* Echin. 20  
*Craterocystis Cognetti de Martiis* Prot. 19  
*Crawfordia Dall* Moll. 26  
*Cremacrinus Jaekel* Echin. 20  
*Creoleon Tillyard* Ins. 194  
*Crepidohamma Enderlein* Ins. 213  
*Crinophora Kaye* Ins. 160  
*Crispina Distant* Ins. 227  
*Crocogma Meyrick* Ins. 186  
*Cryptochironomus Kieffer* Ins. 197  
*Cryptopogon White* Ins. 204  
*Ctenocoryneura Schrottky* Ins. 135  
*Ctenoptilus Lameere* Ins. 239  
*Culmicrinus Jaekel* Echin. 20

- Cunecda Distant* Ins. 227  
*Curtisapis Robertson* Ins. 135  
*Cyanoceyx Mathews* Aves 58  
*Cyanostola Houlbert* Ins. 157  
*Cyanotricha Prout* Ins. 173  
*Cybopiestes Reitter* Ins. 120  
*Cyclocanna Bigelow* Coel. 9  
*Cyclolopha Casey* Ins. 99  
*Cyclotrogus Wasmann* Ins. 111  
*Cylindrobaris Marshall* Ins. 125  
*Cylindroeharis Casey* Ins. 99  
*Cynisca Fawcett* Ins. 167  
*Cyparissias Houlbert* Ins. 157  
*Cyprinocirrhites Tanaka* Pisces 16  
*Cyrtocaraxenos Pierce* Ins. 133  
*Cyrtomorpha White* Ins. 205
- Dacelalcyon Mathews* Aves 59  
*Daeyrtocara Pierce* Ins. 133  
*Daemonarcha Meyrick* Ins. 186  
*Daimiotipula Matsumura* Ins. 200  
*Damoniella Iredale* Moll. 38  
*Decaphellia Bourne* Coel. 13  
*Deimnestra Meyrick* Ins. 186  
*Deiradognathus Marshall* Ins. 125  
*Delogenes Meyrick* Ins. 179  
*Delphacixenos Pierce* Ins. 133  
*Demopraetis Meyrick* Ins. 186  
*Dendroeystoides Jaekel* Echin. 23  
*Dendropaedium Dyar & Knab* Ins. 199  
*Dermestocypthon Pic* Ins. 117  
*Desmaueha Meyrick* Ins. 187  
*Desmoericus Carl Myr., Arachn.* 20  
*Desmodilliseus Wettstein* Mam. 28  
*Diamantopora Weisfermel* Coel. 9  
*Diaperaecia Canu Bry., Brach.* 10  
*Diceromyia Felt* Ins. 196  
*Diehirocrinus Jaekel* Echin. 20  
*Dichropogon Chubb* Aves 63  
*Dicorymbus Bergroth* Ins. 218  
*Dicranoctetes Braun* Ins. 187  
*Dietenocrinus Jaekel* Echin. 20  
*Dietyochrysa Esben-Petersen* Ins. 194  
*Dictyonostous Whitehouse* Pisces 19  
*Didius Distant* Ins. 227  
*Dieletus Reitter* Ins. 125  
*Dientamoeba Jepps & Dobell* Prot. 16  
*Dilixellus Reitter* Ins. 125  
*Dilophura Hampson* Ins. 160  
*Dimeroeis Peyerimhoff* Ins. 119  
*Dimorphocosmisoma Pic* Ins. 129  
*Dio Distant* Ins. 227  
*Dionoreus Reitter* Ins. 125  
*Diplapion Reitter* Ins. 125  
*Diphlostera Onorato de Cillis* Verm.  
 19  
*Dischalis Hampson* Ins. 167  
*Disertasia Neppi* Coel. 10  
*Disparocypha Ris* Ins. 237
- Dissotrema Goto & Matsudaira* Verm.  
 15  
*Divieta Reitter* Ins. 120  
*Divitiacus Distant* Ins. 227  
*Dixianus Ball* Ins. 227  
*Docemina Champion* Ins. 131  
*Decidomyia White* Ins. 205  
*Dolerothera Meyrick* Ins. 187  
*Dolichopelma Kieffer* Ins. 198  
*Dolichosternum Rainbow & Palleine*  
*Arachn.* 12  
*Dolona Iredale* Moll. 38  
*Dolophrosyne Prout* Ins. 173  
*Domiduca Distant* Ins. 219  
*Dorarchon Rothschild* Ins. 151  
*Dorecopstulus Matschie* Mam. 34  
*Dorylobactrus Wasmann* Ins. 104  
*Doryloeratus Wasmann* Ins. 104  
*Dorylonannus Wasmann* Ins. 104  
*Drepanocrinus Jaekel* Echin. 20  
*Drilocephalus Pic* Ins. 118  
*Drilothilmanus Pic* Ins. 118  
*Dromanomma Wasmann* Ins. 104  
*Drusenatus Reitter* Ins. 125  
*Dudia Bergroth* Ins. 219  
*Dunstaniopsis Tillyard* Ins. 217  
*Duttonella Chalmers* Prot. 21
- Ebaliopsis Ihle* Crust. 17  
*Eboraciceas Buckman* Moll. 53  
*Echinophryne McCulloch & Waite*  
*Pisces* 19  
*Edmundiella Becker* Ins. 205  
*Edquista Mathews* Aves 59  
*Ehrhornia Ferris* Ins. 233  
*Eidolcon Esben-Petersen* Ins. 194  
*Eidothrips Bagnall* Ins. 234  
*Eiffliarges Richter* Arachn. 5  
*Elachisma Dall* Moll. 38  
*Elateridium Tillyard* Ins. 115  
*Elenchinus Pierce* Ins. 133  
*Eleodiphaga Walton* Ins. 210  
*Elina Houlbert* Ins. 157  
*Empedaula Meyrick* Ins. 187  
*Empoanara Distant* Ins. 227  
*Empoascanara Distant* Ins. 227  
*Enchelyolepis Woodward* Pisces 12  
*Enicospila Houlbert* Ins. 158  
*Enigmonia Iredale* Moll. 45  
*Enneaglena Haupt* Ins. 224  
*Eocrinus Jaekel* Echin. 20  
*Eohomalonotus Reed* Arachn. 5  
*Eomesodon Woodward* Pisces 12  
*Eophyto Townsend* Ins. 210  
*Ephippias Rathbun* Crust. 14  
*Epideira Hedley* Moll. 26  
*Epidiopatra Augener* Verm. 23  
*Episcius Hull* Arachn. 16  
*Eremomyicides Malloch* Ins. 210

- Eretmobela Turner* Ins. 187  
*Erma Navás* Ins. 194  
*Ernobiotherius Pic* Ins. 117  
*Eruilopothydemus Pic* Ins. 120  
*Erythrocastania Houlbert* Ins. 157  
*Erythromelana Townsend* Ins. 210  
*Esthonorinus Jaekel* Echin. 20  
*Estoca Navás* Ins. 194  
*Estonocystis Jaekel* Echin. 23  
*Etesius Bolívar* Ins. 245  
*Ethelcus Reitter* Ins. 126  
*Ethionodes Hampson* Ins. 168  
*Ethiotropa Hampson* Ins. 179  
*Ethojulus Chamberlín* Myr., Arachn. 20  
*Etrema Hedley* Moll. 26  
*Euaegothales Mathews* Aves 58  
*Eublemmodes Gaede* Ins. 179  
*Eubrachymera Townsend* Ins. 210  
*Eucardinia Dyar* Ins. 179  
*Euconosoma Cameron* Ins. 104  
*Eucrema Santschi* Ins. 140  
*Eudiotis Prout* Ins. 173  
*Eudociminus Leng* Ins. 126  
*Eudrapetis Melander* Ins. 206  
*Eudromicia Mjöberg* Mam. 34  
*Euferonia Casey* Ins. 99  
*Eugerax Hebard* Ins. 240  
*Eugonaspis Hedicke* Ins. 147  
*Eugraphosia Hampson* Ins. 161  
*Euidotea Collinge* Crust. 22  
*Eulixus Reitter* Ins. 126  
*Eumolops Casey* Ins. 99  
*Eumuelleria Dyar* Ins. 168  
*Eunemorilla Townsend* Ins. 210  
*Euolamus Reitter* Ins. 126  
*Euoplothrips Hood* Ins. 234  
*Eupelecotheca Townsend* Ins. 210  
*Eupolemon Wasmann* Ins. 104  
*Euptilopsis Townsend* Ins. 210  
*Eupygestenus Wasmann* Ins. 104  
*Eurema MacCallum* Verm. 15  
*Eurhynchothrips Bagnall* Ins. 234  
*Eurycoerthoderus Wasmann* Ins. 111  
*Eurypimelia Reitter* Ins. 120  
*Euryzonus Trouessart* Arachn. 17  
*Eusigalion Augener* Verm. 23  
*Euthrema Iredale* Moll. 28  
*Eutiara Bigelow* Coel. 10  
*Eutrichapion Reitter* Ins. 126  
*Eutrixopsis Townsend* Ins. 210  
*Euvolvulus Reitter* Ins. 126  
*Evarthrinus Casey* Ins. 99  
*Execgetia Braun* Ins. 187  
*Eximionis Mathews* Aves 59  
*Exomilus Hedley* Moll. 26  
*Exopamera Distant* Ins. 219  
  
*Fabulinus Distant* Ins. 220  
*Faenius Distant* Ins. 227  
  
*Falsocuphotes Pic* Ins. 120  
*Falsodebilia Pic* Ins. 129  
*Falsopupa Germain* Moll. 43  
*Fer Bolívar* Ins. 245  
*Feronalius Casey* Ins. 99  
*Feronina Casey* Ins. 99  
*Fimbrilytoceras Buckman* Moll. 53  
*Flabellicola Gravier* Crust. 24  
*Forficulotarpa Pic* Ins. 148  
*Formotipula Matsumura* Ins. 200  
*Forskalea Iredale* Moll. 36  
*Foveostatira Pic* Ins. 122  
*Francoecaris Broili* Crust. 21  
*Frederickena Chubb* Aves 62  
*Freyellaster Fisher* Echin. 17  
*Frontiniella Townsend* Ins. 210  
  
*Gagamba Matsumura* Ins. 200  
*Galbites Fleutiaux* Ins. 114  
*Galorius Distant* Ins. 227  
*Galonchus Railliet* Verm. 19  
*Ganluria Heller* Ins. 132  
*Gastrellarius Casey* Ins. 99  
*Gastrosticta Casey* Ins. 99  
*Gatunia Rathbun* Crust. 15  
*Genimen Bolívar* Ins. 245  
*Geocoroides Distant* Ins. 220  
*Georgia Hull* Arachn. 16  
*Georgichthys Nichols* Pisces 13  
*Gephyrocera Wedekind* Moll. 53  
*Geracodes Hebard* Ins. 240  
*Gerax Hebard* Ins. 240  
*Gerithoides Schumacher* Ins. 224  
*Geroldicrinus Jaekel* Echin. 20  
*Gertytes Wedekind* Moll. 53  
*Gortyceras Wedekind* Moll. 53  
*Gorunda Bolívar* Ins. 245  
*Gigarthrus Bernhauer* Ins. 104  
*Girschneria Townsend* Ins. 210  
*Glabromantis Sjöstedt* Ins. 242  
*Glaucolepis Braun* Ins. 187  
*Gleviceras Buckman* Moll. 53  
*Gliactis Gravier* Coel. 13  
*Globericera Matsumura* Ins. 200  
*Glocianus Reitter* Ins. 126  
*Glyphinaphis Van der Goot* Ins. 231  
*Glyphocassis Spaeth* Ins. 132  
*Glyptichneumon Habermehl* Ins. 142  
*Godetella Delachaux* Crust. 24  
*Gohia de Dalmas* Arachn. 14  
*Gonandrena Viereck* Ins. 135  
*Goniaceroides Raffray* Ins. 107  
*Graphomuscina Townsend* Ins. 210  
*Greenideoida Van der Goot* Ins. 231  
*Grewiacoccus Brain* Ins. 233  
*Grotiusomyia Girault* Ins. 146  
*Gryllotalpella Rehn* Ins. 243  
*Guibaliceras Buckman* Moll. 53  
*Gunhilda Distant* Ins. 227

- Guraleus Hedley* Moll. 27  
*Gurilana Heller* Ins. 132  
*Gymnaporina Townsend* Ins. 210  
*Gymnopalpus Townsend* Ins. 211  
*Gymnopsoa Townsend* Ins. 211  
*Gymnorhynchus Horst* Verm. 23  
*Gyrocystis Jaekel* Echin. 23  
*Gyrothyris Thomson* Brach. 5
- Hadrophyes Reitter* Ins. 126  
*Hapaliscus Reitter* Ins. 126  
*Haplomyia Miller & Gidley* Mam. 27  
*Haplovoluta Wade* Moll. 51  
*Harmogenanina Germain* Moll. 39  
*Harmostica Bergroth* Ins. 220  
*Harpagandra Meyrick* Ins. 188  
*Haversia Champion* Ins. 126  
*Hebdomecosta Spaeth* Ins. 132  
*Hectoria Trechman* Brach. 5  
*Helalaimus Onorato de Cillis* Verm. 19  
*Helcogramma McCulloch & Waite* Pisces 18  
*Helcoporpa Dyar* Ins. 199  
*Helembius Chamberlin* Myr., Arachn. 20  
*Helicolestes Bangs & Penard* Aves 56  
*Heliodiplosis Felt* Ins. 196  
*Hemidaphne Hedley* Moll. 27  
*Hemigrotella Barnes & McDunnough* Ins. 169  
*Hemipolemon Wasmann* Ins. 104  
*Hemipyrellia Townsend* Ins. 211  
*Hendecacentrus Bergroth* Ins. 222  
*Hepatotaenia Nybelin* Verm. 16  
*Hermetiomima Grünberg* Ins. 202  
*Hesperarcha Meyrick* Ins. 188  
*Hesperolus Chamberlin* Myr., Arachn. 20  
*Heterococcus Ferris* Ins. 233  
*Heterocoma Barnes & McDunnough* Ins. 161  
*Heteroleon Esben-Petersen* Ins. 194  
*Heteroptila Turner* Ins. 175  
*Heterosarus Robertson* Ins. 136  
*Heteroscinius Lamb* Ins. 214  
*Heterosteginoides Cushman* Prot. 17  
*Hilaropus White* Ins. 206  
*Hiltonius Chamberlin* Myr., Arachn. 20  
*Hineksella Billard* Coel. 10  
*Hippoporella Canu* Bry., Brach. 10  
*Hokouia Trechmann* Moll. 46  
*Holmbergiapis Cocherell* Ins. 136  
*Homococoris Fuente* Ins. 223  
*Hoplochromis Fowler* Pisces 17  
*Hoplotettix Caudell* Ins. 244  
*Hormosoma Stephenson* Coel. 14  
*Huascarodexia Townsend* Ins. 211  
*Huascaromusca Townsend* Ins. 211  
*Hussa Distant* Ins. 228  
*Hyalochna Meyrick* Ins. 188
- Hyaloptilus Lamcère* Ins. 239  
*Hydriomicrus Casey* Ins. 100  
*Hylurgopinus Swaine* Ins. 128  
*Hypangitia Hampson* Ins. 169  
*Hyperlasion Schnitz* Ins. 197  
*Hypermilichia Hampson* Ins. 169  
*Hypnomys Bate* Mam. 27  
*Hypnornoides Rehn* Ins. 241  
*Hypocarea Hampson* Ins. 169  
*Hypocnemoides Bangs & Penard* Aves 63  
*Hypophyes Reitter* Ins. 126  
*Hypselogastrina Enderlein* Ins. 143  
*Hypsimeys Thomas* Mam. 28  
*Hystricocnema Townsend* Ins. 211
- Hisha Southwell & Prashad* Verm. 16  
*Imara Houlbert* Ins. 157  
*Imitomyia Bezzi* Ins. 211  
*Indicapus Mathews* Aves 60  
*Indiocyphon Pic* Ins. 117  
*Indonesia Prashad* Moll. 48  
*Inquisitor Hedley* Moll. 27  
*Iowanus Ball* Ins. 228  
*Ircila Houlbert* Ins. 157  
*Ironomyia White* Ins. 206  
*Isactinerius Carlgren* Coel. 14  
*Iselica Dall* Moll. 31  
*Isocentropus Navás* Ins. 192  
*Isotachys Casey* Ins. 100  
*Isostyla Prout* Ins. 173  
*Ispidella Mathews* Aves 59  
*Isshikia Shiraki* Ins. 203  
*Istrianis Meyrick* Ins. 188  
*Iterduca Distant* Ins. 222  
*Ithyption Dean* Moll. 43  
*Iulactis Meyrick* Ins. 188  
*Ixeuticus de Dalmas* Arachn. 13
- Jaffuelia Navás* Ins. 194  
*Jahnocrinus Jaekel* Echin. 21  
*Japeuthria Iredale* Moll. 29  
*Jonaicrinus Jaekel* Echin. 21  
*Jorina Nierstrasz* Crust. 21
- Kamptodiplosis Felt* Ins. 196  
*Kanekonia Tanaka* Pisces 18  
*Katastylops Pierce* Ins. 133  
*Kawamuraia Stephenson* Verm. 25  
*Keriahana Distant* Ins. 217  
*Kervillea Bergevin* Ins. 224  
*Khondana Distant* Ins. 217  
*Kimberleyana Sjöstedt* Ins. 242  
*Klinothrips Bagnall* Ins. 234  
*Knodus Eigemann* Pisces 13  
*Kolenetrus Barber* Ins. 220  
*Korovina Iredale* Moll. 34



- Krinothrips *Bagnall* Ins. 234  
 Kronodiplosis *Felt* Ins. 196  
 Kurtziella *Dall* Moll. 27
- Labicria *Enderlein* Ins. 229  
 Lachnostola *Meyrick* Ins. 188  
 Lagynocystis *Jaekel* Echin. 23  
 Lakesphorus *Chubb* Aves 62  
 Lambertiella *Checchia-Rispoli* Echin. 15  
 Lamotomys *Thomas* Mam. 28  
 Lampridius *Distant* Ins. 228  
 Lamprochrysa *Hampson* Ins. 162  
 Lampropodus *Rainbow & Pulleine*  
   Arachn. 12  
 Landouria *Godwin-Austen* Moll. 41  
 Laocarabus *Lapouge* Ins. 100  
 Laperousea *de Dalmas* Arachn. 14  
 Larophylla *Turner* Ins. 176  
 Laskeya *Iredale* Moll. 31  
 Latrologa *Meyrick* Ins. 188  
 Lazulona *Mathews* Aves 59  
 Lobiomorpha *Sloane* Ins. 100  
 Ledoscus *Navás* Ins. 194  
 Lenneocrinus *Jaekel* Echin. 21  
 Loofa *Distant* Ins. 228  
 Liotropa *Hampson* Ins. 180  
 Lepadoretus *Ohau* Ins. 111  
 Lepidactis *Spencer* Echin. 17  
 Lepivalgus *Moser* Ins. 112  
 Lepractea *Prout* Ins. 173  
 Leptaleoceras *Buckman* Moll. 53  
 Leptanthias *Tanaka* Pisces 15  
 Leptocopa *Meyrick* Ins. 188  
 Leptoferonia *Casey* Ins. 100  
 Leptogala *Thomas* Mam. 25  
 Leptoleon *Esben-Petersen* Ins. 194  
 Leptoteichus *Stephenson* Coel. 14  
 Leuchydrium *Casey* Ins. 100  
 Leucidius *Snyder* Pisces 13  
 Leucotaeniella *Bezzi* Ins. 214  
 Leuronoma *Meyrick* Ins. 188  
 Lewisonella *Chalmers* Prot. 21  
 Liburnelocnus *Pierce* Ins. 133  
 Libyphaonis *Hampson* Ins. 169  
 Lichomolgolla *Sars* Crust. 24  
 Licura *Navás* Ins. 194  
 Lilliella *Stephenson* Coel. 14  
 Lindstroemiocrinus *Jaekel* Echin. 21  
 Liodosmius *Casey* Ins. 100  
 Liodontia *Miller & Gidley* Mam. 27  
 Lionepha *Casey* Ins. 100  
 Liotomys *Thomas* Mam. 28  
 Liparomyia *White* Ins. 206  
 Lipotaxia *Prout* Ins. 176  
 Lipotes *Miller* Mam. 33  
 Lissonotopsis *Habermehl* Ins. 143  
 Lissorhis *Magalh* Verm. 15  
 Lithoptilus *Lameere* Ins. 239  
 Lixestus *Reitter* Ins. 126
- Lixocholus *Reitter* Ins. 126  
 Lixoglyptus *Reitter* Ins. 126  
 Lixopachys *Reitter* Ins. 126  
 Locutius *Distant* Ins. 220  
 Loewioæstrus *Townsend* Ins. 209  
 Lonchonotus *Lamb* Ins. 215  
 Lonchotura *Hampson* Ins. 176  
 Longæviceras *Buckman* Moll. 53  
 Longiunguis *Van der Goot* Ins. 231  
 Lophocorynea *Hampson* Ins. 169  
 Lophoplax *Tesch* Crust. 16  
 Lophosema *Turner* Ins. 176  
 Loriolierinus *Jaekel* Echin. 21  
 Lovoniocrinus *Jaekel* Echin. 21  
 Luzonomyia *Felt* Ins. 196  
 Lychnographa *Turner* Ins. 176  
 Lymneops *Casey* Ins. 100  
 Lysitona *Meyrick* Ins. 189
- Mackenziaona *Chubb* Aves 62  
 Macrocyphon *Pic* Ins. 117  
 Macrocyttara *Turner* Ins. 162  
 Macroecia *Canu* Bry., Brach. 10  
 Macronomia *Cockerell* Ins. 136  
 Macrorotalis *Matsumura* Ins. 215  
 Macroscelosaurus *Houghton* Rept. 11  
 Macteola *Hedley* Moll. 27  
 Maga *Bolívar* Ins. 245  
 Mahalana *Distant* Ins. 228  
 Malagasalus *Gravely* Ins. 110  
 Malandania *Sjöstedt* Ins. 242  
 Malandella *Sjöstedt* Ins. 242  
 Malezonotus *Barber* Ins. 220  
 Malichus *Distant* Ins. 228  
 Mantidophaga *Townsend* Ins. 211  
 Marcenia *Sjöstedt* Ins. 242  
 Marklissus *Reitter* Ins. 126  
 Marmasoma *White* Ins. 205  
 Marmosops *Matschie* Mam. 33  
 Marsipometra *Cooper* Verm. 13  
 Marwitzia *Gaede* Ins. 180  
 Marzigetta *Dyar* Ins. 170  
 Matachia *de Dalmas* Arachn. 13  
 Maxaphanus *Distant* Ins. 220  
 Maximianus *Distant* Ins. 228  
 Mecynoecia *Canu* Bry., Brach. 10  
 Megalodicopia *Oka* Prochord. 4  
 Megalohelcon *Turner* Ins. 144  
 Megalophota *Hampson* Ins. 180  
 Megalopsidia *Leng* Ins. 105  
 Megasteropus *Casey* Ins. 100  
 Megastopolia *Hampson* Ins. 170  
 Melanaphis *Van der Goot* Ins. 231  
 Melanchrotopsis *Dyar* Ins. 162  
 Melanosoma *Houbert* Ins. 157  
 Melanoxus *Fleutiaux* Ins. 116  
 Melomalus *Casey* Ins. 100  
 Memorocyphon *Pic* Ins. 117  
 Mentzelopsis *Trechmann* Brach. 5

- Mesoctenus Thomas* Mam. 24  
*Mesoleptobasis Sjöstedt* Ins. 238  
*Mesopanorpa Tillyard* Ins. 194  
*Mesopanorpodes Tillyard* Ins. 194  
*Mesopsyche Tillyard* Ins. 192  
*Mesoptilus Lameere* Ins. 239  
*Metachirops Matschie* Mam. 33  
*Metacrateria Hampson* Ins. 180  
*Metadieuchus Distant* Ins. 220  
*Metapiocrinus Jaekel* Echin. 21  
*Metasterocystis Jaekel* Echin. 23  
*Methabocrinus Jaekel* Echin. 21  
*Micaela Werner* Rept. 10  
*Micragyrtes Champion* Ins. 108  
*Microcephalopsis Townsend* Ins. 209  
*Microccia Canu* Bry., Brach. 10  
*Microlysias Stebbing* Crust. 22  
*Micromaseus Casey* Ins. 100  
*Micromelomalus Casey* Ins. 100  
*Micromyzus Van der Goot* Ins. 231  
*Micropolemon Wasmann* Ins. 105  
*Microrasbora Annandale* Pisces 13  
*Microtachys Casey* Ins. 100  
*Microtocerus Pic* Ins. 121  
*Microvostox Hebard* Ins. 240  
*Mikiria Godwin-Austen* Moll. 41  
*Mimoplectus Raffray* Ins. 107  
*Mjoebergia Esben-Petersen* Ins. 194  
*Mnesiotega Meyrick* Ins. 189  
*Modius Fleutiaux* Ins. 114  
*Mogulones Reitter* Ins. 127  
*Monachus Leng* Ins. 132  
*Monodelphiops Matschie* Mam. 33  
*Monoferonia Casey* Ins. 100  
*Moscovicrinus Jaekel* Echin. 21  
*Multicyclina Cushman* Prot. 17  
*Muirixenus Pierce* Ins. 133  
*Muricodrupa Iredale* Moll. 29  
*Mursilia Rathbun* Crust. 17  
*Mycetococcus Ferris* Ins. 233  
*Mycteromys Robinson & Kloss* Mam. 29  
*Myotomys Thomas* Mam 29  
*Myrmeleonellus Esben-Petersen* Ins. 194  
*Myrmosula Bradley* Ins. 138  
*Mysticoerinus Jaekel* Echin. 21  
*Myxobdella Oka* Verm. 25
- Nakula Distant* Ins. 228  
*Nanarhyncha Hampson* Ins. 170  
*Nandidrug Distant* Ins. 228  
*Nannochorista Tillyard* Ins. 194  
*Nannocrix Chamberlin* Myr., Arachn. 20  
*Nannostenus Wasmann* Ins. 105  
*Nanoschetus Reitter* Ins. 127  
*Nasca Houlbert* Ins. 158  
*Nassoviocrinus Jaekel* Echin. 21  
*Neafrapus Mathews* Aves 60  
*Nectactis Gravier* Coel. 14
- Nematocarpus Broch* Coel. 10  
*Nematocrema Santschi* Ins. 141  
*Nemobiodes Chopard* Ins. 243  
*Neocaliturus Distant* Ins. 228  
*Neocaribula Distant* Ins. 217  
*Neocorynea Hampson* Ins. 170  
*Neochaetopisthes Wasmann* Ins. 111  
*Neochirosia Malloch* Ins. 211  
*Neoceroma Santschi* Ins. 141  
*Neodioctria Ricardo* Ins. 205  
*Neodiestrombus Muir* Ins. 225  
*Neodiprion Rohwer* Ins. 148  
*Neoduma Hampson* Ins. 162  
*Neohylemyia Malloch* Ins. 211  
*Neokirkia Townsend* Ins. 209  
*Nooloucotroron McGregor* Aves 51  
*Neomalaxa Muir* Ins. 225  
*Neomyzus Van der Goot* Ins. 231  
*Neonevisanus Distant* Ins. 217  
*Neonyctia Townsend* Ins. 211  
*Neopanus Reitter* Ins. 127  
*Neophaeus Dyar* Ins. 170  
*Neoplanocera Yeri & Kaburaki* Verm. 14  
*Ncorapana Cooke* Moll. 28  
*Neosciara Pettey* Ins. 197  
*Neostylops Pierce* Ins. 133  
*Neotiphia Malloch* Ins. 138  
*Neotrypetes Robertson* Ins. 136  
*Nephochaetona Townsend* Ins. 211  
*Nephomyia Matsumura* Ins. 208  
*Nephoplagia Townsend* Ins. 211  
*Nepotilla Hedley* Moll. 27  
*Neripletenus Reitter* Ins. 127  
*Nesogale Thomas* Mam. 25  
*Nesoryetes Thomas* Mam. 25  
*Nesotrochis Wetmore* Aves 52  
*Neurobathra Ely* Ins. 189  
*Neurochyta Turner* Ins. 162  
*Neurolipa Ely* Ins. 189  
*Neurostrata Ely* Ins. 189  
*Nilgircicola Hampson* Ins. 162  
*Nippotipula Matsumura* Ins. 201  
*Nosatura Navás* Ins. 236  
*Nostrafilla Navás* Ins. 192  
*Notorchilus Oberholser* Aves 63  
*Nousia Navás* Ins. 236  
*Nysiodes Distant* Ins. 220
- Obolocera Townsend* Ins. 211  
*Odontalictus Robertson* Ins. 157  
*Oediblemma Hampson* Ins. 170  
*Odeibrya Hampson* Ins. 170  
*Oestrobillarella Townsend* Ins. 211  
*Oilcooides Gravelly* Ins. 110  
*Olamus Reitter* Ins. 127  
*Omuranus Distant* Ins. 228  
*Omochelys Fowler* Pisces 14  
*Onchopristis Stromer* Pisces 12

- Oncousoecia *Canu* Bry., Brach. 10  
 Ontariocrinus *Jaekel* Echin. 21  
 Oodisiphum *Van der Goot* Ins. 231  
 Ootacamundus *Distant* Ins. 228  
 Operculinella *Yabe* Prot. 17  
 Opharus *Boltvar* Ins. 245  
 Ophiucus *Distant* Ins. 228  
 Ophiurocrinus *Jaekel* Echin. 21  
 Oprohinus *Reitter* Ins. 127  
 Opsigenes *Meyrick* Ins. 189  
 Oreotilos *Ihle* Crust. 18  
 Orethelcus *Reitter* Ins. 127  
 Ormiophasia *Townsend* Ins. 211  
 Ornataporta *Gardner* Verm. 24  
 Orosius *Distant* Ins. 228  
 Orthaporia *Townsend* Ins. 211  
 Orthocrema *Santschi* Ins. 141  
 Orthoderina *Sjöstedt* Ins. 242  
 Ortholixus *Reitter* Ins. 127  
 Oscinoides *Malloch* Ins. 215  
 Osmichanes *Reitter* Ins. 127  
 Ospyhoplesius *Winkler* Ins. 121  
 Ossidingia *Townsend* Ins. 211  
 Ossipaga *Distant* Ins. 221  
 Ovaticeras *Buckman* Moll. 54  
 Ovocystis *Reed* Echin. 23  
 Oxyaporia *Townsend* Ins. 211
- Pachygnathesis *Hampson* Ins. 171  
 Pagurotanais *Bouvier* Crust. 21  
 Paivanana *Distant* Ins. 228  
 \*Palaeocarrina *Cockerell* Ins. 239  
 Palacotanypeza *Meunier* Ins. 215  
 Palaeotype *Hampson* Ins. 163  
 Palermocrinus *Jaekel* Echin. 21  
 Palimnecomyia *Taylor* Ins. 203  
 Palpocrinia *Kennel* Ins. 184  
 Paludicoccus *Ferris* Ins. 223  
 Pamora *Dyar* Ins. 171  
 Panaceynia *Townsend* Ins. 211  
 Pandoracrinus *Jaekel* Echin. 21  
 Pandurista *Meyrick* Ins. 184  
 Pantheon *Pic* Ins. 117  
 Papuanapus *Mathews* Aves 60  
 Parabertiella *Nybelin* Verm. 16  
 Paracharactis *Meyrick* Ins. 189  
 Paracorythoderus *Wasmann* Ins. 111  
 Paracrema *Santschi* Ins. 141  
 Paractocrinus *Jaekel* Echin. 21  
 Paracubaris *Collinge* Crust. 22  
 Paradoxosia *Hampson* Ins. 163  
 Paradunstania *Tillyard* Ins. 217  
 Paraferonia *Casey* Ins. 100  
 Parafusus *Wade* Moll. 38  
 Paragopsis *Matsumura* Ins. 208  
 Parahomalonotus *Reed* Arachn. 5  
 Parahyphenodes *Barnes & McDunnough*  
 Ins. 171
- Paraleucoptera *Heinrich* Ins. 189  
 Paralopha *Casey* Ins. 101  
 Paralyreus *Grouvelle* Ins. 109  
 Paramacrophya *Forsius* Ins. 148  
 Paramatachia *de Dalmas* Arachn. 13  
 Parapheropsophus *Hübenthal* Ins. 101  
 Paraptecticus *Grünberg* Ins. 202  
 Paragutor *Casey* Ins. 101  
 Parascopacus *Cameron* Ins. 105  
 Parascosocia *Canu* Bry., Brach. 10  
 Paraselwynia *Tesch* Crust. 16  
 Paratachys *Casey* Ins. 101  
 Parathous *Fleutiaux* Ins. 116  
 Paratrichocladius *Santos* Ins. 198  
 Pardalaspis *Bezzi* Ins. 215  
 Pareiorhaphis *Ribeiro* Pisces 14  
 Paroxogone *Mesnil & Caullery* Verm.  
 23  
 Parinodiceras *Trueman* Moll. 54  
 Parorthocrinus *Jaekel* Echin. 22  
 Parotomys *Thomas* Mam. 29  
 Partetrocycloecia *Canu* Bry., Brach. 10  
 Passeria *Martin* Ins. 238  
 Paternus *Distant* Ins. 228  
 Patinocrinus *Jaekel* Echin. 22  
 Paysandisia *Houlbert* Ins. 157  
 Pectinodiplosis *Fell* Ins. 196  
 Pelecotheca *Townsend* Ins. 212  
 Pentamerocrinus *Jaekel* Echin. 22  
 Peridiplosis *Fell* Ins. 196  
 Perierpon *Bernhauer* Ins. 105  
 Perissophlebia *Tillyard* Ins. 238  
 Peritryssus *Reitter* Ins. 111  
 Permochorista *Tillyard* Ins. 195  
 Permofulgor *Tillyard* Ins. 225  
 Permoscarta *Tillyard* Ins. 225  
 Peryphodes *Casey* Ins. 101  
 Petaloclymene *Augener* Verm. 24  
 Phacosema *Houlbert* Ins. 157  
 Phacosina *Gaede* Ins. 163  
 Phanoptis *Prout* Ins. 173  
 Phaulothrips *Hood* Ins. 234  
 Phenacoptygma *Dall* Moll. 28  
 Phibalothrips *Hood* Ins. 234  
 Philarga *Meyrick* Ins. 190  
 Philoptila *Meyrick* Ins. 190  
 Phyciodyta *Meyrick* Ins. 190  
 Phyllamphictes *Augener* Verm. 24  
 Phyllodinarda *Wasmann* Ins. 105  
 Phyllogonostreptus *Carl* Myr., Arachn.  
 20  
 Phyllolabella *Townsend* Ins. 212  
 Picrotes *Chubb* Aves 62  
 Pilcolum *Boltvar* Ins. 245  
 Pirapion *Reitter* Ins. 127  
 Pirithous *Boltvar* Ins. 245  
 Pityocis *Peyerimhoff* Ins. 119  
 Pityocona *Meyrick* Ins. 190  
 Plagioecia *Canu* Bry., Brach. 10

\*Placocarrina, in last year's Index, was an error.

- Plagiops Cresson* Ins. 215  
*Platygathis Turner* Ins. 145  
*Platygraphis Dyar* Ins. 181  
*Platymycterus Marshall* Ins. 127  
*Platynomorpha Grünberg* Ins. 202  
*Platyplacopus Boulenger* Rept. 10  
*Platytipula Matsumura* Ins. 201  
*Plectothripa Hampson* Ins. 171  
*Plectothyris Rollier* Brach. 5  
*Plesiomongoma Brunetti* Ins. 201  
*Pleurodontoplax Enderlein* Ins. 143  
*Pleurophysus Ribeiro* Pisces 14  
*Pleuropterinus Wasmann* Ins. 102  
*Plicatocerus Pic* Ins. 121  
*Pliomelaena Bezzi* Ins. 215  
*Pocillosthostrongylium Pic* Ins. 121  
*Poliolaema Chubb* Aves 62  
*Pollenoides Matsumura* Ins. 212  
*Polycosmites Jaekel* Echin. 23  
*Polycrinus Jaekel* Echin. 22  
*Polygastropsis Townsend* Ins. 212  
*Polynemertesia Broch* Coel. 11  
*Polyptychia Prout* Ins. 173  
*Polysphinctopsis Habermehl* Ins. 143  
*Porocara Sloane* Ins. 101  
*Postanita Dyar* Ins. 163  
*Postumus Distant* Ins. 229  
*Potopsis Dyar* Ins. 171  
*Praedo Kleinschmidt* Aves 56  
*Prasutagus Distant* Ins. 229  
*Prenesdus Reitter* Ins. 127  
*Prestwichianella Woodward* Arachn. 5  
*Prianerastria Hampson* Ins. 181  
*Prionadoretus Ohaus* Ins. 112  
*Prisistus Reitter* Ins. 127  
*Proapocyrtus Schultze* Ins. 127  
*Procupressocrinus Jaekel* Echin. 22  
*Prodorcas Pocock* Mam. 30  
*Progabbia Dall* Moll. 27  
*Progamotaenia Nybelin* Verm. 17  
*Proichthyidium Cordero* Verm. 21  
*Propobela Iredale* Moll. 29  
*Propilula Germain* Moll. 40  
*Prosiceras Buckman* Moll. 54  
*Prosthenoccia Canu* Bry., Brach. 11  
*Prostylops Pierce* Ins. 133  
*Protaporia Townsend* Ins. 212  
*Protarthraster Spencer* Echin. 18  
*Protenerinus Jaekel* Echin. 22  
*Proterochyta Meyrick* Ins. 190  
*Protetramitus Chalmers & Pekkola*  
 Prot. 21  
*Protocryphiae Barnes & McDunnough*  
 Ins. 171  
*Protopsyehopsis Tillyard* Ins. 195  
*Protospinax Woodward* Pisces 12  
*Protostigmus Turner* Ins. 138  
*Provexillum Hedley* Moll. 29  
*Psapharomys Grünberg* Ins. 202  
*Pseudargutor Casey* Ins. 101  
*Pseudocadoceras Buckman* Moll. 54  
*Pseudoaldwellia Germain* Moll. 40  
*Pseudoceerastus Germain* Moll. 43  
*Pseudocladotoma Pic* Ins. 117  
*Pseudocnemodus Barber* Ins. 221  
*Pseudoconopoplaga Chubb* Aves 62  
*Pseudocrates Meyrick* Ins. 190  
*Pseudodiptera Kaye* Ins. 163  
*Pseudogymnostoma Townsend* Ins. 212  
*Pseudohelcita Muir* Ins. 225  
*Pseudomecia Hampson* Ins. 171  
*Pseudophaonia Malloch* Ins. 212  
*Pseudophasis Germain* Moll. 40  
*Pseudophortica Sturtevant* Ins. 215  
*Pseudopimpla Habermehl* Ins. 143  
*Pseudopityophthorus Swaine* Ins. 129  
*Pseudoplastophora Schmitz* Ins. 207  
*Pseudopteroptrix Fullaway* Ins. 147  
*Pseudoriccia Prout* Ins. 173  
*Pseudostylochus Yeri & Kaburaki* Verm.  
 14  
*Pseudotaxonus Costa* Ins. 148  
*Pseudothaumaglossa Pic* Ins. 110  
*Pseudothelopus Augener* Verm. 24  
*Pseudothilmanus Pic* Ins. 118  
*Pseudovivipara Annandale* Moll. 33  
*Psilodiamesa Kieffer* Ins. 198  
*Pterampharete Augener* Verm. 24  
*Pterandrus Bezzi* Ins. 215  
*Pterisopodus Boone* Crust. 21  
*Pterolysippe Augener* Verm. 24  
*Pterothrips Hood* Ins. 234  
*Ptilomyiacris Cockerell* Ins. 241  
*Ptychoderis Bergroth* Ins. 221  
*Puriella Strand* Ins. 182  
*Pycnodytis Meyrick* Ins. 190  
*Pyralocymatophora Strand* Ins. 182  
*Pyreneola Iredale* Moll. 29  
  
*Racilidia Bolívar* Ins. 245  
*Radstockiceras Buckman* Moll. 54  
*Ramakrishnaia Bolívar* Ins. 245  
*Raphimetopus Hampson* Ins. 182  
*Ravelocrinus Jaekel* Echin. 22  
*Refonia Casey* Ins. 101  
*Rhabdotoitamus White* Ins. 205  
*Rhabdomorphus Bergroth* Ins. 221  
*Rhaphitropis Reitter* Ins. 129  
*Rhenocrinus Jaekel* Echin. 22  
*Rhinogastrophilus Townsend* Ins. 209  
*Rhinomolgus Sars* Crust. 24  
*Rhinonax Thomas* Mam. 24  
*Rhiobia Bergroth* Ins. 221  
*Rhiophila Bergroth* Ins. 221  
*Rhipidiomorphus Pic* Ins. 118  
*Rhomboplitoides Fowler* Pisces 16  
*Rhopalocerophanus Heller* Ins. 109  
*Rhynchococnopa Bezzi* Ins. 212  
*Richmondona Mathews & Iredale* Aves 71

- Roptrophalacna *Hampson* Ins. 163  
 Rosanthias *Tanaka* Pisces 15  
 Rossornis *Mathews* Aves 59  
 Rostricephalus *Fleutiaux* Ins. 116  
 Rotungia *Godwin-Austen* Moll. 40
- Sabathous *Fleutiaux* Ins. 116  
 Saccoma *Jaekel* Echin. 22  
 Sagaricera *Grünberg* Ins. 203  
 Sagittoceras *Hind* Moll. 54  
 Sambwa *Annandale* Pisces 13  
 Sameodesma *Hampson* Ins. 182  
 Santschia *Townsend* Ins. 212  
 Saontarana *Distant* Ins. 217  
 Sarconesiopsis *Townsend* Ins. 212  
 Sarogaster *Robertson* Ins. 137  
 Sarothrias *Grouvelle* Ins. 109  
 Scabrella *Hedley* Moll. 27  
 Scammatonotum *Enderlein* Ins. 143  
 Scenopathus *Enderlein* Ins. 143  
 Schacfferia *Houlbert* Ins. 157  
 Schemataspis *Meyrick* Ins. 191  
 Schizoneuraphis *Van der Goot* Ins. 232  
 Sciadocera *White* Ins. 206  
 Sclerophricta *Meyrick* Ins. 191  
 Scotocerur *Bernhauer* Ins. 106  
 Seladonia *Robertson* Ins. 137  
 Selenanthias *Tanaka* Pisces 15  
 Semnostoma *Meyrick* Ins. 191  
 Serrataphis *Van der Goot* Ins. 232  
 Setaphis *Van der Goot* Ins. 232  
 Shaddai *Distant* Ins. 229  
 Shivaphis *Das* Ins. 232  
 Sicyopus *Gravier* Coel. 14  
 Sigmopera *Nicoll* Verm. 16  
 Silana *Spaeth* Ins. 132  
 Simomantis *Boulenger* Rept. 12  
 Sinocystis *Reed* Echin. 24  
 Sinuslinea *Davis* Prot. 20  
 Siphonatrophia *Swain* Ins. 232  
 Sisyromyia *White* Ins. 205  
 Sortosa *Navás* Ins. 192  
 Sphaerocrema *Santschi* Ins. 141  
 Sphaerotaxus *Bernhauer* Ins. 106  
 Spilochaetosoma *Smith* Ins. 212  
 Spilopastes *Houlbert* Ins. 157  
 Spinostatira *Pic* Ins. 122  
 Spirochis *MacCallum* Verm. 16  
 Springericerinus *Jaekel* Echin. 22  
 Stanwellia *Rainbow & Pulleine* Arachn. 13  
 Steleoceromys *Grünberg* Ins. 203  
 Stenaulacotheca *Townsend* Ins. 212  
 Stenobolus *Carl Myr.*, Arachn. 21  
 Stenocheilosia *Matsumura* Ins. 208  
 Stenocorythoderus *Wasmann* Ins. 111  
 Stenocyttara *Turner* Ins. 164  
 Stenodema *Schaeffer* Ins. 109  
 Stenomtopiellus *Haupt* Ins. 229  
 Stenommatius *Matsumura* Ins. 205  
 Stephanoblastus *Jaekel* Echin. 24  
 Stephensonia *Das* Ins. 232  
 Stethothyris *Thomson* Brach. 6  
 Stibadocorella *Brunetti* Ins. 201  
 Stigmatobracon *Turner* Ins. 145  
 Stiphidiellum *de Dalmas* Arachn. 13  
 Streptothyris *Meyrick* Ins. 191  
 Subhedylepta *Strand* Ins. 182  
 Sungenia *Rainbow & Pulleine* Arachn. 13  
 Supernola *Hampson* Ins. 164  
 Symidia *Muir* Ins. 225  
 Symphoristia *Meyrick* Ins. 191  
 Symphyppya *Haupt* Ins. 226  
 Synactinurus *Carlgren* Coel. 15  
 Synchirocirus *Jaekel* Echin. 22  
 Syncoptozus *Enderlein* Ins. 230  
 Syndiamesa *Kieffer* Ins. 198  
 Syneora *Turner* Ins. 177  
 Synsolenopsis *Forel* Ins. 141  
 Syntagona *Iredale* Moll. 30  
 Synthemiopsis *Tillyard* Ins. 230  
 Syrmaudaula *Meyrick* Ins. 191
- Tachyphasis *Germain* Moll. 41  
 Tachysalia *Casey* Ins. 101  
 Tachysops *Casey* Ins. 101  
 Tachytatus *Bergroth* Ins. 221  
 Tadunia *Godwin-Austen* Moll. 40  
 Taia *Annandale* Moll. 33  
 Taihorina *Schumacher* Ins. 226  
 Talopena *Iredale* Moll. 36  
 Tambouriniana *Rainbow & Pulleine* Arachn. 13  
 Tamiscus *Thomas* Mam. 27  
 Tanaoctenota *Meyrick* Ins. 191  
 Tanyzancla *Meyrick* Ins. 191  
 Taphrotopium *Reitter* Ins. 128  
 Tapinolopha *Dyar* Ins. 183  
 Taterina *Wettstein* Mam. 29  
 Tauchiridea *Bolívar* Ins. 245  
 Taunayia *Ribeiro* Pisces 14  
 Tegoribates *Ewing* Arachn. 16  
 Telacanthura *Mathews* Aves 60  
 Telonaca *Ball* Ins. 226  
 Tenontomyia *White* Ins. 206  
 Tephrostola *Houlbert* Ins. 157  
 Teretianax *Iredale* Moll. 35  
 Termitopisthes *Wasmann* Ins. 111  
 Termitotrox *Wasmann* Ins. 111  
 Terthroustis *Meyrick* Ins. 184  
 Tetrachela *Hampson* Ins. 172  
 Tetractocirus *Jaekel* Echin. 22  
 Tetragrapsus *Rathbun* Crust. 17  
 Tetrocycloecia *Camu Bry.*, Brach II  
 Tetrozocera *Pierce* Ins. 134  
 Texananus *Ball* Ins. 229  
 Thalassotrechus *Van Dyke* Ins. 102

- Tharopsides Fleutiaux* Ins. 116  
*Theleirophasia Townsend* Ins. 212  
*Theomolpus Bolivar* Ins. 245  
*Therobiopsis Townsend* Ins. 212  
*Thlaspidomorpha Spaeth* Ins. 132  
*Thomsonia Jackson* Brach. 6  
*Thoracactis Gravier* Coel. 15  
*Thoracaphis Van der Goot* Ins. 232  
*Thuringocrinus Jaekel* Echin. 22  
*Thydomorphus Pic* Ins. 122  
*Tigridania Kaye* Ins. 164  
*Tingitana Pallary* Moll. 42  
*Tocichthys Hubbs* Pisces 16  
*Togodolentus Barber* Ins. 221  
*Togotipula Matsumura* Ins. 202  
*Tolimicola Prout* Ins. 173  
*Trachelonepha Casey* Ins. 102  
*Trachylixus Reitter* Ins. 128  
*Trebellius Distant* Ins. 229  
*Trechonepha Casey* Ins. 102  
*Tragiicola Brèthes* Ins. 147  
*Trianectes McCulloch & Waite* Pisces  
 18  
*Triassolestes Tillyard* Ins. 239  
*Triassopsyche Tillyard* Ins. 192  
*Triassopsylla Tillyard* Ins. 230  
*Trichembola Meyrick* Ins. 191  
*Trichiohelcon Turner* Ins. 145  
*Trichodonia Wasmann* Ins. 106  
*Trichoduropis Townsend* Ins. 212  
*Trichogonostreptus Carl* Myr., Arachn.  
 21  
*Trichoitamus White* Ins. 205  
*Trichophyrne McCulloch & Waite* Pisces  
 19  
*Trichosilia Hampson* Ins. 173  
*Trigonogya Schaeffer* Ins. 114  
*Tripectenopus Lea* Ins. 106  
*Trirhithrum Bezzi* Ins. 216  
*Trisyntopa Lower* Ins. 191  
*Trochocystoides Jaekel* Echin. 24  
*Trogasteropsis Doderò* Ins. 107  
*Troglorites Jeannel* Ins. 102  
*Trogocraspis Hampson* Ins. 173  
*Tromina Dall* Moll. 30  
*Tropiderinus Reitter* Ins. 129  
*Truncaphis Theobald* Ins. 232  
*Truxomantis Sjåstedt* Ins. 242  
*Tuberodryobius Das* Ins. 232  
*Tylodrusinus Reitter* Ins. 128  
*Typhloscaris Kuntzen* Ins. 102  
*Tyriomorpha Meyrick* Ins. 192  
*Tyromantis Meyrick* Ins. 192
- Udanellus Reitter* Ins. 128  
*Ulcigobius Fowler* Pisces 18
- Uraporia Townsend* Ins. 212  
*Urojana Gaede* Ins. 164  
*Usakosia Kieffer* Ins. 147  
*Ustavenus Reitter* Ins. 128
- Vagitanus Distant* Ins. 224  
*Valonetus Barber* Ins. 221  
*Valtissius Barber* Ins. 221  
*Vanderwulpella Townsend* Ins. 212  
*Veles Bangs* Aves 59  
*Verger Navás* Ins. 192  
*Verodunia Lahille & Joan* Verm. 16  
*Vertumnicerus Buckman* Moll. 55  
*Vespiomyia Matsumura* Ins. 208  
*Vetularctos Merriam* Mam. 26  
*Victoriceras Buckman* Moll. 55  
*Vidgenia Mathews* Aves 61  
*Villalus Cole* Ins. 205  
*Viridomarus Distant* Ins. 229  
*Volenusus Distant* Ins. 229  
*Vorticellopsis Dons* Prot. 22  
*Vosekocrinus Jaekel* Echin. 23
- Westwoodia Houlbert* Ins. 158  
*Whaitsia Haughton* Rept. 11  
*Whiteocrinus Jaekel* Echin. 23  
*Wilkara Swinhoe* Ins. 173  
*Wocklumeria Wedekind* Moll. 55  
*Wyulda Alexander* Mam. 34
- Xanthocastnia Houlbert* Ins. 157  
*Xanthospila Houlbert* Ins. 157  
*Xenoceraea Bergroth* Ins. 218  
*Xenorma Prout* Ins. 173  
*Xylophilostenus Lea* Ins. 123  
*Xyloterinus Swaine* Ins. 129  
*Xylotrypa Turner* Ins. 164
- Yamatotipula Matsumura* Ins. 202  
*Ypanema Houlbert* Ins. 157  
*Yunnaniana Mansuy* Moll. 36
- Zacladus Reitter* Ins. 128  
*Zadiprion Rohwer* Ins. 149  
*Zaperdita Robertson* Ins. 177  
*Zenargo Rohwer* Ins. 149  
*Zerconopsis Hull* Arachn. 16  
*Zeridoneus Barber* Ins. 221  
*Zesticodes Meyrick* Ins. 192  
*Zioninus Ball* Ins. 229  
*Zizyphoides Distant* Ins. 229  
*Zoonavena Mathews* Aves 60

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