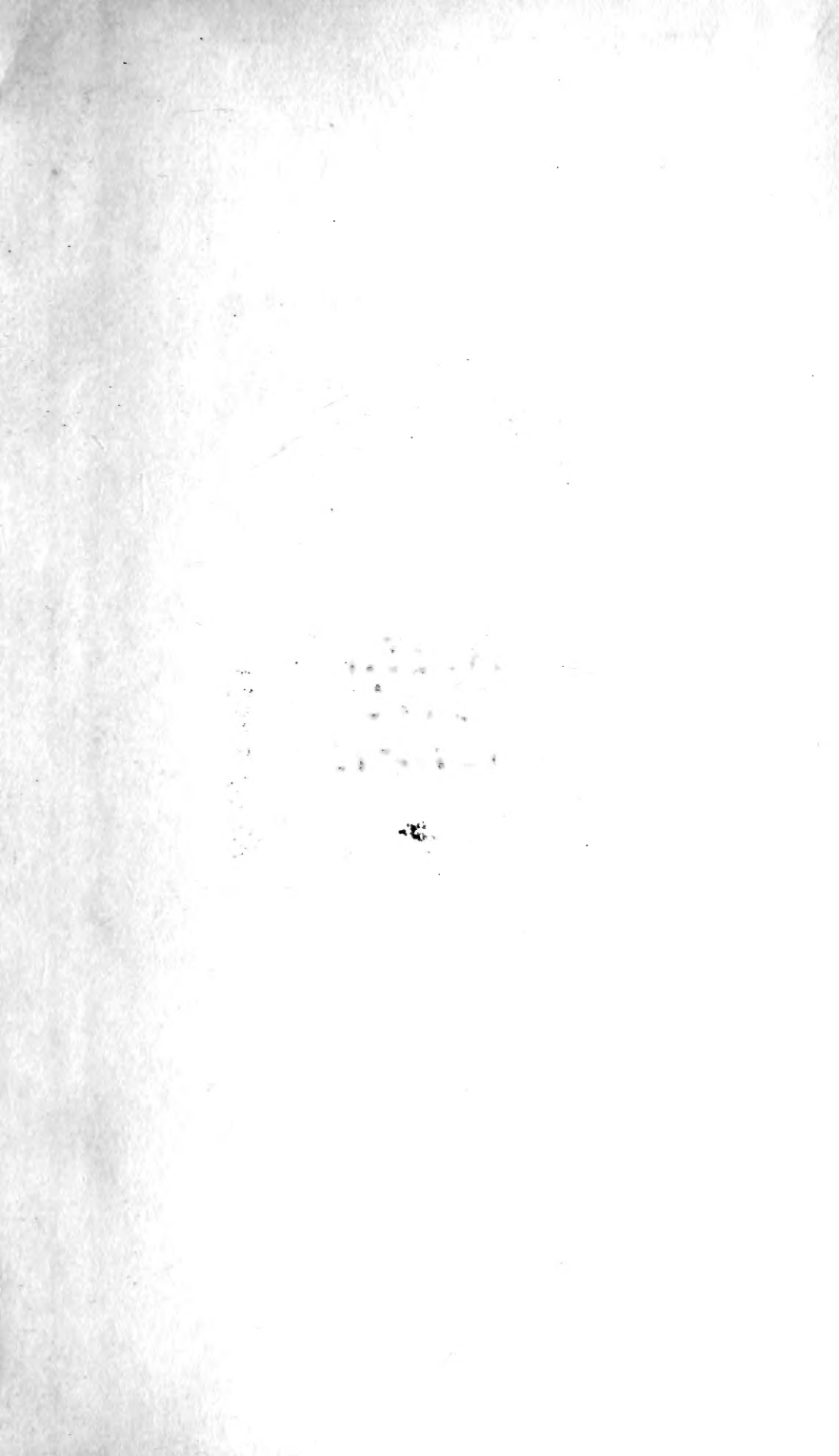




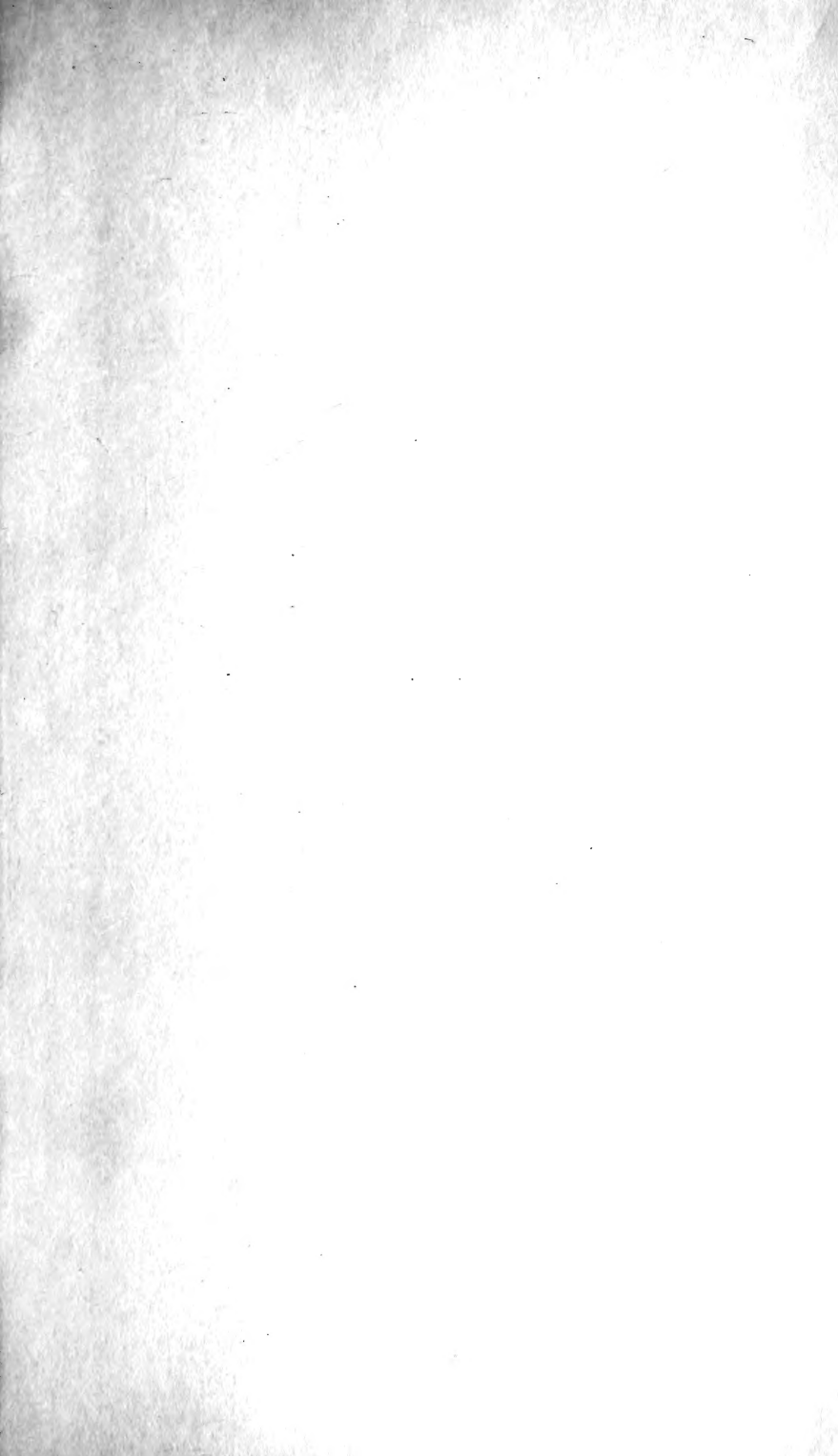
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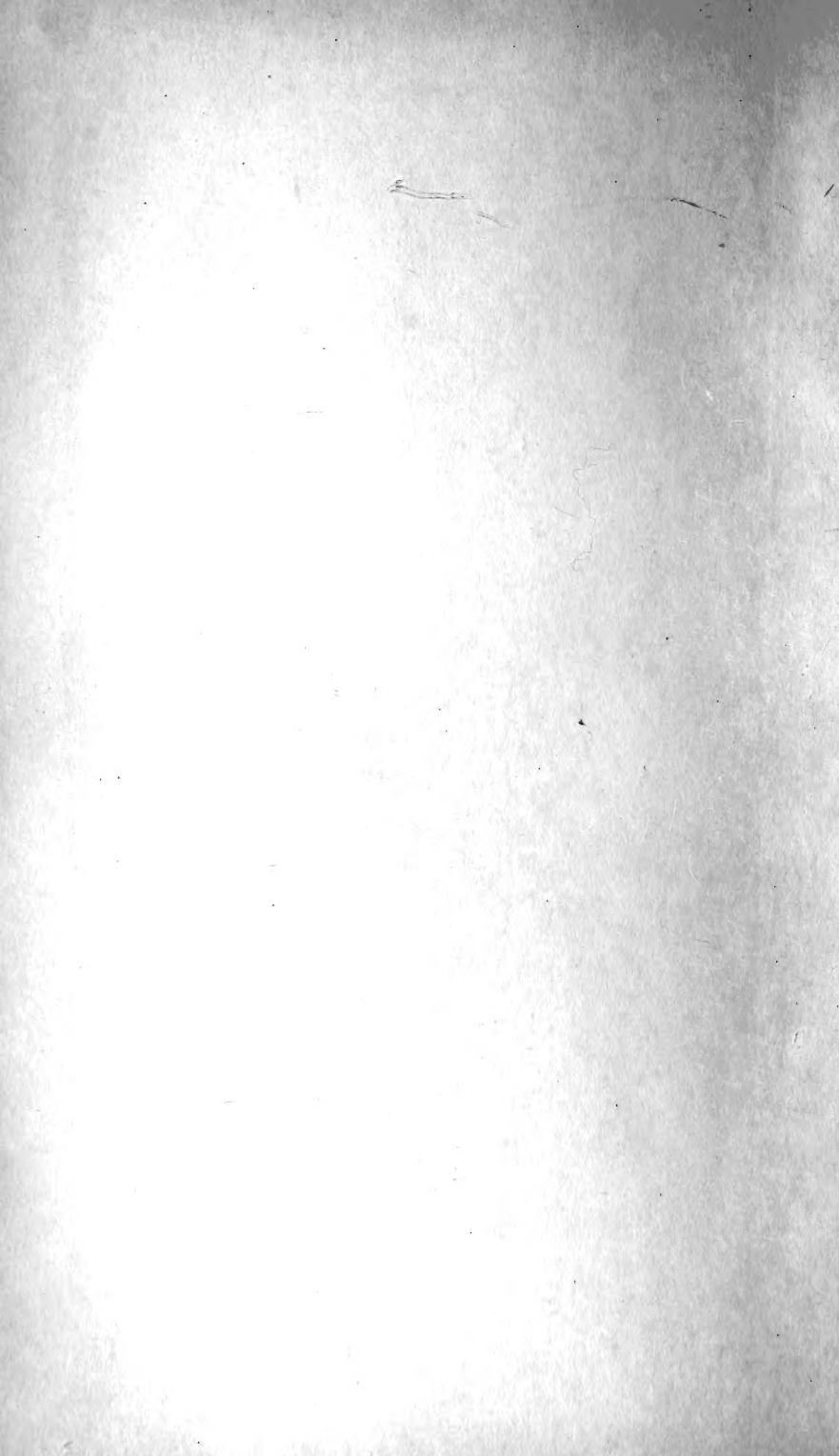
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THE
ZOOLOGICAL RECORD
FOR 1872;
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OF THE
RECORD OF ZOOLOGICAL LITERATURE.

EDITED BY

ALFRED NEWTON, M.A., F.R.S.,

PROFESSOR OF ZOOLOGY AND COMPARATIVE ANATOMY IN THE UNIVERSITY
OF CAMBRIDGE, F.L.S., V.P.Z.S., ETC.

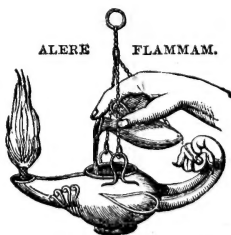
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P R E F A C E.

AGAIN I have to introduce to the zoological public another volume of this work, and the last with which I shall have the honour of being connected. When, in 1870, I accepted the Editorship of the present Annual, I did so simply in the hope that I might be enabled to continue what all who had knowledge of it agreed in regarding as a great help to working zoologists; though circumstances, sufficiently explained in the preface to Volume VII., rendered it not unlikely that the undertaking might come to a sudden stop. That hope, through the generous support I received, was abundantly fulfilled; but I never intended to retain the office of Editor, which I knew would be onerous enough, after I had secured the services of a willing and competent successor.

Such a successor I happily found in Mr. RYE, who has most admirably discharged the duties of Subeditor of this and the preceding volume. Being fully assured of his fitness for the task which he expressed his readiness to perform, I, more than a year ago, tendered my resignation of the Editorship to the Council of the ZOOLOGICAL RECORD ASSOCIATION; and this resignation being accepted in a manner very gratifying to me, I had the further satisfaction of seeing Mr. RYE appointed in my room.

That under his management the ZOOLOGICAL RECORD will maintain the distinguished position it has from the first assumed I have no doubt: but I feel it to be my duty to entreat all who are interested in its welfare to continue their support to the undertaking; for the time is approaching (if not already arrived) when it must stand unaided by the liberal subsidies by which it has hitherto been encouraged.

Once more I have the pleasure of acknowledging a grant of £100 towards the expenses of the volume from the British Association for the Advancement of Science, and of a contribution of £58 11s. 10d. (the interest of the Davis Bequest) from the Council of the Zoological Society of London. I have again to return my thanks to the Subeditor and the various Recorders—among whom I have been so fortunate as to enlist Dr. LÜTKEN—for their kind and invaluable cooperation. It will always be a satisfaction to me that I have had the honour of conducting, now for the space of three years, a publication so useful and (thanks entirely to my fellow-labourers) so ably executed as the ZOOLOGICAL RECORD.

ALFRED NEWTON.

Magdalene College, Cambridge,
April, 1874.

. Communications, papers, and memoirs intended for this work should be addressed *solely* to "THE EDITOR of the Zoological Record, care of Mr. Van Voorst, 1 Paternoster Row, London." It is earnestly requested that in the case of separately-printed copies of papers so forwarded the *original pagination* be indicated.

LIST OF THE

PRINCIPAL ABBREVIATED TITLES OF JOURNALS

QUOTED IN THIS VOLUME.

- Abh. Ak. Berl.*—Abhandlungen der k. Akademie der Wissenschaften zu Berlin.
- Abh. Ges. Nürnberg.*—Abhandlungen der naturhistorischen Gesellschaft zu Nürnberg.
- Abh. schles. Ges.*—Abhandlungen der schlesischen Gesellschaft für vaterländische Cultur.
- Abh. Ver. Brem.*—Abhandlungen herausgegeben vom naturwissenschaftlichen Vereine zu Bremen.
- Abh. Ver. Hamb.*—Abhandlungen herausgegeben von dem naturwissenschaftlichen Verein zu Hamburg.
- Act. Lund.*—Acta Universitatis Lundensis.
- Act. Soc. Esp.*—Actas de la Sociedad Española de Historia Natural.
- Act. Soc. L. Bord.*—Actes de la Société Linnéenne de Bordeaux.
- Alb. Nat.*—Album der Natuur.
- Am. J. Conch.*—American Journal of Conchology.
- Am. J. Sc. (3).*—American Journal of Science and Art. Third series.
- Am. Nat.*—American Naturalist.
- An. Mus. B. Aires.*—Anales del Museo publico de Buenos Aires.
- Ann. Ent. Belg.*—Annales de la Société entomologique de Belgique.
- Ann. Lyc. N. York.*—Annals of the Lyceum of Natural History of New York.
- Ann. Mus. Genov.*—Annali del Museo civico di Storia naturale di Genova.
- Ann. Mus. Nap.*—Annuario del Museo zoologico della R. Università di Napoli.
- Ann. N. H. (4).*—Annals and Magazine of Natural History. Fourth Series.
- Ann. Sci. Géol.*—Annales des Sciences Géologiques.
- Ann. Sc. Nat. (5).*—Annales des Sciences Naturelles. 5me Série.
- Ann. Soc. Ent. Fr. (5).*—Annales de la Société entomologique de France. 5me Série.
- Ann. Soc. Esp.*—Anales de la Sociedad Española de Historia Natural.
- Ann. Soc. L. Lyon.*—Annales de la Société Linnéenne de Lyon.
- Ann. Soc. Mod.*—Annuario della Società dei Naturalisti in Modena.

- Arch. Anat. Phys.*—Archiv für pathologische Anatomie und Physiologie.
Arch. Antr. Etn.—Archivio dell' Antropologia e la Etnologia.
Arch. f. Nat.—Archiv für Naturgeschichte.
Arch. Landesdurchf. Böhm.—Archiv für die naturwissenschaftliche Landesdurchforschung von Böhmen.
Arch. mikr. Anat.—Archiv für mikroskopische Anatomie.
Arch. Néerl. (and Arch. sci. nat.)—Archives Néerlandaises des Sciences exactes et naturelles.
Arch. path. Anat.—Archiv für pathologische Anatomie und Physiologie.
Arch. Tr. Orl. Co. Soc.—Archives of Science and Transactions of the Orleans County Society of Natural Sciences.
Arch. Ver. Mecklenb.—Archiv des Vereins der Freunde der Naturgeschichte in Mecklenburg.
Arch. Z. Par. (and Arch. Z. expér.)—Archives de Zoologie expérimentale et générale.
Atti Acc. Nap.—Atti dell' Accademia di scienze fisiche e matematiche di Napoli.
Atti Acc. Tor.—Atti della R. Accademia delle scienze di Torino.
Atti Soc. Ital.—Atti della Società Italiana di scienze naturali.
Atti Soc. Pad.—Atti della Società Veneto-Trentina di scienze naturali.

Berl. klin. Woch.—Berliner klinische Wochenschrift.
Ber. senck. Ges.—Bericht der senckenbergischen naturforschenden Gesellschaft.
Ber. St. Gal. Ges.—Bericht über die Thätigkeit der St. Gallischen naturwissenschaftlichen Gesellschaft.
B. E. Z.—Berliner entomologische Zeitschrift.
Bull. Ac. Belg. (2)—Bulletin de l'Académie Royale des Sciences de Belgique. 2me Série.
Bull. Congr. Arch.—Bulletin du Congrès International d'Archéologie pré-historique (Copenhagen).
Bull. Ent. Ital.—Buletino della Società Entomologica Italiana.
Bull. Mal. Belg.—Bulletin des séances de la Société malacologique de Belgique.
Bull. Mosc.—Bulletin de la Société impériale des Naturalistes de Moscou.
Bull. Mus. C. Z.—Bulletin of the Museum of Comparative Zoölogy (Cambridge, U.S.A.).
Bull. Pétersb.—Bulletin de la classe physico-mathématique de l'Académie impériale des Sciences de St. Pétersbourg.
Bull. Soc. Ent. Fr.—Bulletin des séances de la Société entomologique de France.
Bull. Soc. L. Norm.—Bulletins de la Société Linnéenne de Normandie.
Bull. Soc. Vaud.—Bulletin de la Société Vaudoise des Sciences Naturelles.
Bull. Soc. Vétér.—Bulletin de la Société centrale de Médecine Vétérinaire.

Canad. Ent.—Canadian Entomologist.
Cat. Mus. C. Z.—Illustrated Catalogue of the Museum of Comparative Zoölogy (Cambridge, U. S. A.).
CB. Ver. Regensb.—Correspondenz-Blatt des zoologisch-mineralogischen Vereins in Regensburg.
CB. Ver. Riga.—Correspondenz-Blatt des Naturforscher-Vereins in Riga.
C. H.—Coleopterologische Hefte.

Cist. Ent.—Cistula Entomologica.

C. R. (and *CR. Ac. Sci.*).—Comptes Rendus de l'Académie des Sciences.

CR. Ent. Belg.—Comptes-rendus des séances de la Société entomologique de Belgique.

CR. Soc. Rouen.—Comptes rendus de la Société des Amis des Sciences naturelles de Rouen.

Dan. Selskr. Skr.—K. Danske Videnskabernes Selskabs Skrifter.

Denk. Ak. Wien.—Denkschriften der k. Akademie der Wissenschaften zu Wien.

Ent.—The Entomologist.

Ent. Ann.—The Entomologist's Annual.

Ent. M. M.—Entomologist's Monthly Magazine.

Forh. Selsk. Chr.—Forhandling i Videnskabs-Selskabet i Christiania.

Geogr. MT.—Mittheilungen aus Justus Perthes' geographischer Anstalt &c.

Geol. Mag.—Geological Magazine.

Hor. Ent. Ross.—Horæ Societatis Entomologicæ Rossicæ.

Ibis.—The Ibis.

Izvest. Obsh. Iest. Mosk.—Izvestia Imperatorskeio Obshtshestra Ljubiteloi Iestestvasnaniya (Trans. Imp. Soc. Nat. Sci. Moscow).

J. Anat. Phys.—Journal of Anatomy and Physiology.

J. A. S. B.—Journal of the Asiatic Society of Bengal.

JB. Ges. Hannov.—Jahresbericht der naturforschenden Gesellschaft in Hannover.

JB. schles. Ges.—Jahresbericht der schlesischen Gesellschaft für vaterländische Cultur.

J. de Conch.—Journal de Conchyliologie.

J. de l'Anat. Phys.—Journal de l'anatomie et de la physiologie.

Jen. Z. Nat.—Jenaische Zeitschrift für Medicin und Naturwissenschaft.

J. f. O.—Journal für Ornithologie.

J. G. Soc.—Quarterly Journal of the Geological Society.

JH. Ver. Württ.—Jahreshefte des Vereins für vaterländische Naturkunde in Württemberg.

J. L. S.—Journal of the Linnean Society.

J. Mus. Goddefr.—Journal des Museum Goddefroy: Geographische, ethnographische und naturwissenschaftliche Mittheilungen.

Jorn. Sc. Lisb.—Jornal de Sciencias da Academia de Lisboa.

J. R. Dubl. Soc.—Journal of the Royal Dublin Society.

J. Zool.—Journal de Zoologie.

L'Ab.—L'Abeille.

Madras M. M. J.—Madras Monthly Journal of Medical Science.

Mal. Bl.—Malakozoologische Blätter.

- MB. Ak. Berl.*—Monatsberichte der k. Akademie der Wissenschaften zu Berlin.
- Med. Chir. Rev.*—Medico-Chirurgical Journal and Review.
- Med. Times.*—Medical Times and Gazette.
- Mél. Biol.*—Mélanges biologiques tirés du Bulletin de la classe physico-mathématique de l'Académie Impériale des Sciences de St. Pétersbourg.
- Mém. Ac. Belg.*—Mémoires de l'Académie Royale des Sciences de Belgique.
- Mém. Ac. Montp.*—Mémoires de l'Académie des sciences et lettres de Montpellier.
- Mem. Bost. Soc.*—Memoirs of the Boston Society of Natural History.
- Mem. Ist. Lomb.*—Memorie del R. Istituto Lombardo di scienze.
- Mém. Liége.*—Mémoires de la Société R. des Sciences de Liége.
- Mem. Peab. Ac.*—Memoirs of the Peabody Academy of Arts and Sciences.
- Mém. Pétersb.*—Mémoires de l'Académie impériale des Sciences de St.-Pétersbourg.
- Mém. Soc. Cherb. (2).*—Mémoires de la Société des sciences naturelles de Cherbourg. 2me Série.
- Mém. Soc. Lille.*—Mémoires de la Société des sciences &c. de Lille.
- Mém. Soc. L. Norm.*—Mémoires de la Société Linnéenne de Normandie.
- Mém. Soc. Oise.*—Mémoires de la Société académique du département de l'Oise.
- Mém. Soc. Phys. Genève.*—Mémoires de la Société de physique et d'histoire naturelle de Genève.
- M. Micr. J.*—Monthly Microscopical Journal.
- MT. anthr. Ges. Wien.*—Mittheilungen der anthropologische Gesellschaft zu Wien.
- MT. Ges. Bern.*—Mittheilungen der naturforschenden Gesellschaft in Bern.
- MT. schw. ent. Ges.*—Mittheilungen der schweizerischen entomologischen Gesellschaft.
- Nachr. Ges. Götting.*—Nachrichten von der k. Gesellschaft der Wissenschaften zu Göttingen.
- Nachr. Ges. Mosc.*—Nachrichten der k. Gesellschaft der Liebhaber der Naturkunde zu Moscau.
- Nachr. mal. Ges.*—Nachrichtsblatt der deutschen malako-zoologischen Gesellschaft.
- N. Arch. Mus.*—Nouvelles Archives du Muséum d'Histoire Naturelle.
- Nat. Mex.*—La Naturaleza.
- Nat. Tids.*—Naturhistorisk Tidsskrift.
- Nature.*—Nature.
- N. Denk. schw. Ges.*—Neue Denkschriften der allgemeinen schweizerischen Gesellschaft für die gesammten Naturwissenschaften.
- N. Mag. Naturv.*—Nyt Magazin for Naturvidenskaberne.
- N. Mém. Mosc.*—Nouveaux Mémoires de la Société impériale des Naturalistes de Moscou.
- Nouv. et Faits.*—Nouvelles et Faits divers.
- Nouv. Mém. Soc. Helvét.*—Neue Denkschriften der allgemeinen schweizerischen Gesellschaft für die gesammten Naturwissenschaften.
- Œfv. Ak. Förh. (and Œfv. Vet. Ak.).*—Œfversigt af K. Vetenskaps Akademiens Förhandlingar.
- Overs. Dan. Selsk.*—Oversigt over det K. Danske Videnskabernes Selskabs Forhandlingar.

- P. Ac. Philad.*—Proceedings of the Academy of Natural Sciences of Philadelphia.
- P. A. S. B.*—Proceedings of the Asiatic Society of Bengal.
- P. Bost. Soc.*—Proceedings of the Boston Society of Natural History.
- P. Cal. Ac.*—Proceedings of the California Academy of Sciences.
- P. E. Soc.*—Proceedings of the Entomological Society of London.
- Pet. Nouv.*—Petites Nouvelles Entomologiques.
- Phil. Tr.*—Philosophical Transactions of the Royal Society.
- P. N.-Scot. Inst.*—Proceedings and Transactions of the Nova-Scotian Institute of Natural Sciences.
- Pollich.*—Jahresbericht der Pollichia.
- Pop. Sc. Rev.*—The Popular Science Review.
- P. R. Soc.*—Proceedings of the Royal Society.
- P. R. Soc. Edinb.*—Proceedings of the Royal Society of Edinburgh.
- P. R. Soc. Maur.*—Proceedings of the Royal Society of Arts and Sciences of Mauritius.
- P. Soc. Dubl.*—Proceedings of the Natural-History Society of Dublin.
- P. Z. S.*—Proceedings of the Zoological Society.
- P. Zool. Soc. Vict.*—Proceedings of the Zoological and Acclimatization Society of Victoria.
- Q. J. Micr. Sc.*—Quarterly Journal of Microscopical Science.
- Rec. Am. Ent.*—Record of American Entomology.
- Rendic. Acc. Nap.*—Rendiconti dell' Accademia di scienze fisiche e matematiche di Napoli.
- Rend. Ist. Lomb.*—Rendiconti del R. Istituto Lombardo di scienze &c.
- Rep. Am. Ass.*—Proceedings of the American Association for the Advancement of Science.
- Rep. Br. Ass.*—Report of the British Association for the Advancement of Science.
- Rep. Ins. Mass.*—Annual Report on the Injurious and Beneficial Insects of Massachusetts.
- Rep. Ins. Mo.*—Annual Report on the noxious, beneficial, and other Insects of the State of Missouri.
- Rep. N.-York Cab.*—Annual Report of the New-York State Cabinet of Natural History.
- Rep. Peab. Ac.*—Annual Report of the Trustees of the Peabody Academy of Arts and Sciences.
- Rev. Montp.*—Revue des Sciences Naturelles (Montpellier).
- R. Z.*—Revue et Magasin de Zoologie pure et appliquée.
- SB. Ak. Wien.*—Sitzungsberichte der mathemat.-naturwiss. Classe der Akademie der Wissenschaften zu Wien.
- SB. bayer. Ak.*—Sitzungsberichte der k. bayerischen Akademie der Wissenschaften.
- SB. Ges. Marb.*—Sitzungsberichte der Gesellschaft zur Beförderung der gesammten Naturwissenschaften zu Marburg.
- SB. nat. Fr.*—Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin.
- SB. Soc. Erlang.*—Sitzungsberichte der physicalish-medicinischen Societät zu Erlangen.

- SB. Ver. Rhein.*—Sitzungsberichte des naturhistorischen Vereins der preussischen Rheinlande und Westphalens.
- SB. z.-b. Wien.*—Sitzungsberichte der zoologisch-botanischen Gesellschaft in Wien.
- Schr. Ges. Danz.*—Neueste Schriften der naturforschenden Gesellschaft zu Danzig.
- Schr. Ges. Marb.*—Schriften der Gesellschaft zur Beförderung der gesammten Naturwissenschaften zu Marburg.
- Sci. Goss.*—Science Gossip.
- Scot. Nat.*—The Scottish Naturalist.
- S. E. Z.*—Stettiner entomologische Zeitung.
- Str. F.*—Stray Feathers.
- Sv. Ak. Handl.*—K. Svenska Vetenskaps-Akademiens Handlingar.
- TB. Vers. Natur.*—Tageblatt der Versammlung deutscher Naturforscher und Aerzte.
- Term. Közl.*—Természettudományi Közlemének.
- Tijdschr. Ent.*—Tijdschrift voor Entomologie.
- Tr. Am. Ent. Soc.*—Transactions of the American Entomological Society.
- Tr. Am. Phil. Soc.*—Transactions of the American Philosophical Society.
- Tr. Ent. Soc. N. S. W.*—Transactions of the Entomological Society of New South Wales.
- Tr. E. Soc.*—Transactions of the Entomological Society of London.
- Tr. L. S.*—Transactions of the Linnean Society.
- Tr. North. Durh.*—Natural-History Transactions of Northumberland and Durham.
- Tr. Norw. Soc.*—Transactions of the Norfolk and Norwich Naturalists' Society.
- Tr. N. Z. Inst.*—Transactions and Proceedings of the New-Zealand Institute.
- T. R. Soc. Vict.*—Transactions of the Royal Society of Victoria.
- Tr. Z. S.*—Transactions of the Zoological Society.
- VB. westph. rheinl. Ver. Bien. Seidenz.*—Vereinsblatt des westphalischen rheinländischen Vereins für Bienen und Seidenzucht.
- Ver. Berl. Ges. Anthropol.*—Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte.
- Verh. Ges. Bas.*—Verhandlungen der naturforschenden Gesellschaft in Basel.
- Verh. Ges. Würz.*—Verhandlungen der physikalisch-medicinischen Gesellschaft in Würzburg.
- Verh. schw. Ges.*—Verhandlungen der schweizerischen naturforschenden Gesellschaft.
- Verh. Utr. Gen.*—Natuurkundige Verhandelingen uitgeven door het provinciaal Utrechtsch Genootschap van Kunsten en Wetenschappen.
- Verh. Ver. Brünn.*—Verhandlungen des naturforschenden Vereins in Brünn.
- Verh. z.-b. Wien.*—Verhandlungen der zoologisch-botanischen Gesellschaft in Wien.
- Versl. Akad. Amst.*—Verslagen en Mededeelingen der k. Akademie van Wetenschappen.
- Vid. Medd.*—Videnskabelige Meddelelser fra den Naturhistoriske Forening

Württ. nat. JH.—Württembergische naturwissenschaftliche Jahreshefte.

Würzb. nat. Z.—Würzburger naturwissenschaftliche Zeitschrift.

Z. Ethnol.—Zeitschrift für Ethnologie.

Z. Ferd.—Zeitschrift des Ferdinandeums.

Z. ges. Naturw. (2).—Zeitschrift für die gesammten Naturwissenschaften.
Neue Folge.

Zool. Gart.—Der zoologische Garten.

Zool. Rec.—Record of Zoological Literature (and Zoological Record).

Zool. s. s.—The Zoologist. Second Series.

Z. wiss. Zool.—Zeitschrift für wissenschaftliche Zoologie.

CONTENTS.

MAMMALIA. By ALBERT GÜNTHER, M.A., F.R.S., &c.

	Page		Page
General Subject	1	Edentata	13
Quadrumana	6	Pachydermata	14
Chiroptera	8	Ruminantia	15
Insectivora	10	Sirenia	16
Carnivora	11	Cetacea	16
Pinnipedia	11	Marsupialia	18
Rodentia	12		

AVES. By R. B. SHARPE, F.L.S., F.Z.S., &c.

Bibliography and Criticism..	19	Accipitres	38
General Subject	20	Psittaci	40
Palæarctic Region	23	Picariæ	41
Ethiopian Region	26	Passeres	43
Indian Region	28	Columbæ	53
Australian Region	30	Gallinæ	54
Nearctic Region	32	Grallæ	55
Neotropical Region	34	Anseres	57
Anatomy and Physiology ..	35	Struthiones	59
Oology	37	Saururæ?	60

REPTILIA. By ALBERT GÜNTHER, M.A., F.R.S., &c.

General Subject	61	Ophidia	71
Chelonia	64	Pseudophidia	78
Crocodylia	66	Batrachia salientia	78
Lacertilia	66	,, gradientia	81

PISCES. By ALBERT GÜNTHER, M.A., F.R.S., &c.

General Subject	82	Teleostei Anacanthini	94
Palæichthyes, Ganoidei	87	,, Pleuronectoidei ..	95
,, Plagiostomata ..	88	,, Physostomi	95
Teleostei, Acanthopterygii ..	88	,, Lophobranchii	100
,, Acanth. Pharyngo-		,, Plectognathi	101
gnathi	93	Cyclostomata	101

MOLLUSCA. By EDUARD VON MARTENS, M.D., C.M.Z.S.

	Page		Page
List of Publications	103	Gastropoda, Tectibranchia	140
General Subject	111	" Nudibranchia	141
Geographical Distribution	114	" Pulmonata	143
Cephalopoda	126	" " Operculata	162
Pteropoda	126	Lamellibranchia Includa	165
Heteropoda	127	" Cardiacea	166
Gastropoda, Pectinibranchia	127	" Mytilacea	170
" Scutibranchia	137	" Ostreacea	172
" Cyclobranchia	139		

MOLLUSCOIDA. By EDUARD VON MARTENS, M.D., C.M.Z.S.

List of Publications	175	Tunicata	178
Contributions to Faunas	176	Polyzoa	183
Brachiopoda	176		

CRUSTACEA. By EDUARD VON MARTENS, M.D., C.M.Z.S.

List of Publications	185	Isopoda	199
Physiology	187	Phyllopoda	199
Contributions to Faunas	187	Cladocera	200
Decapoda, Brachyura	189	Ostracoda	200
" Anomura	192	Copepoda	200
" Macrura	192	Siphonostoma	203
Cumacea	195	Xiphosura	203
Stomapoda	195	Cirripedia	204
Amphipoda	196		

ARACHNIDA. By O. P. CAMBRIDGE, M.A., C.M.Z.S.

General Subject	205	Solpugidea	219
Araneidea	206	Phalangidea	219
Thelyphonidea	217	Acaridea	219
Scorpionidea	217		

MYRIOPODA. By O. P. CAMBRIDGE, M.A., C.M.Z.S.

Chilognatha	221	Chilopoda	222
-------------	-----	-----------	-----

INSECTA. The General Subject. By

E. C. RYE, F.Z.S., Librn. R.G.S. 223

COLEOPTERA. By E. C. RYE, F.Z.S., Librn. R.G.S.

	Page		Page		Page
Publications	230	Dytiscidæ	249	Staphylinidæ	251
General Notes	234	Gyrinidæ	250	Pselaphidæ	257
Cicindelidæ	236	Hydrophilidæ	250	Scydmanidæ	257
Carabidæ	237	Paussidæ	251	Silphidæ	257

	Page		Page		Page
Clambidæ	258	Buprestidæ	268	Lagriidæ	282
Trichopterygidæ.	258	Eucnemidæ	269	Pedilidæ	282
Histeridæ	260	Elateridæ	272	Anthicidæ	282
Phalacridæ	261	Cebionidæ	273	Pyrochroidæ . . .	283
Nitidulidæ	261	Rhipidoceridæ..	273	Mordellidæ	283
Trogositidæ	262	Dascillidæ	273	Rhipidophoridæ.	283
Colydiidæ	263	Telephoridæ . . .	273	Stylopidæ	283
Cucujidæ	263	Cleridæ	275	Cantharidæ	284
Cryptophagidæ..	263	Lymexylidæ . . .	275	Œdemeridæ	285
Lathridiidæ	263	Cupesidæ	275	Curculionidæ . . .	285
Mycetophagidæ .	264	Ptinidæ	275	Scolytidæ	299
Thorictidæ	264	Bostrychidæ . . .	276	Brenthidæ	299
Dermestidæ	264	Cioidæ	276	Anthribidæ	299
Byrrhidæ	264	Tenebrionidæ . . .	276	Cerambycidæ	299
Parnidæ	264	Cistelidæ	281	Chrysomelidæ . . .	309
Heteroceridæ . . .	264	Monommatidæ . . .	282	Erotylidæ	313
Lucanidæ	265	Melandryidæ . . .	282	Coccinellidæ	313
Scarabæidæ	265				

HYMENOPTERA. By E. C. RYE, F.Z.S., Librn. R.G.S.

Publications . . .	314	Formicidæ	322	Proctotrypida . . .	329
Apidæ	315	Ichneumonidæ..	324	Cynipidæ	329
Vespidæ	321	Braconidæ	326	Uroceridæ	330
Crabronidæ	321	Chalcididæ	327	Tenthredinidæ..	330
Dorylidæ	322				

LÉPIDOPTERA. By W. F. KIRBY, M.E.S. &c.

General Notes . . .	332	Rhopalocera	336	Heterocera	353
---------------------	-----	---------------------	-----	----------------------	-----

DIPTERA. By E. C. RYE, F.Z.S., Librn. R.G.S. 382—390

NEUROPTERA. By R. M'LACHLAN, F.L.S., Sec. Ent. Soc.

Trichoptera	391	Planipennia	392	Pseudo-Neuroptera	392
---------------------	-----	---------------------	-----	-------------------	-----

ORTHOPTERA. By R. M'LACHLAN, F.L.S., Sec. Ent. Soc.

Publications . . .	394	Phasmidæ	398	Locustidæ	398
Blattidæ	396	Gryllidæ	398	Acridiidæ	398
Mantidæ	396				

RHYNCHOTA. By E. C. RYE, F.Z.S., Librn. R.G.S.

Hemiptera-Heteroptera	399	Hemiptera-Homoptera	414
-------------------------------	-----	-----------------------------	-----

VERMES. By C. F. LÜTKEN, Ph.D., F.R.Dan.Ac.

Rotatoria	Page 419	Turbellaria	Page 427	Nematoda	Page 432
Chaetopoda	420	Trematoda	428	Acanthocephala	435
Discophora	426	Cestoida	431	Gephyrea	435

ECHINODERMATA. By C. F. LÜTKEN, Ph.D., F.R.Dan.Ac.

Publications	436	Echinidæ	441	Ophiuridæ	447
Anatomy &c.	438	Asteriidæ	447	Crinoidæ	450
Holothuriidæ	440				

CŒLEENTERATA. By C. F. LÜTKEN, Ph.D., F.R.Dan.Ac.

Anthozoa	Page 451	Hydrozoa	Page 460
--------------------	-------------	--------------------	-------------

PROTOZOA. By C. F. LÜTKEN, Ph.D., F.R.Dan.Ac.

Spongozoa	471	Gregarinæ	484	Infusoria	485
Rhizopoda	482				

INDEX TO GENERA AND SUBGENERA DESCRIBED AS NEW	489
--	-----

INSECTA.

THE GENERAL SUBJECT

By E. C. RYE.

HAGEN, H. Mimicry in the Colours of Insects. Am. Nat. vi. pp. 388-393; Ent. M. M. ix. pp. 78-83.

A preliminary sketch of the origin and nature of markings, under the heads colour and pattern. Colours are either produced by interference of light, or are epidermal or hypodermal. The latter only are capable of being influenced (voluntarily or otherwise) by the insect, and it may be possible to prove that the so-called mimetic colours are all hypodermal. Patterns or markings on the body mostly represent underlying muscles, and may be caused by the development of the latter creating a greater oxidation of the neighbouring parts; those on the wings are probably caused by the sudden rush of fluids in the act of transformation [but they appear in miniature long before that act in the *Lepidoptera*, and do not appear until some time after it in the *Coleoptera* and some other orders].

HEYDEN, L. VON. Bericht über die von Herren Dr. Noll und Dr. Grenacher auf Tenerife gesammelten Insekten. Ber. senck. Ges. 1872, pp. 74-90.

A few species of all orders are enumerated, with particulars as to their geographical distribution &c.

KALTENBACH, J. H. Die Pflanzenfeinde aus der Klasse der Insekten.—I. Stuttgart: 1872, 8vo, pp. 288, woodcuts.

This work (reviewed in Ent. M. M. ix. p. 22; B. E. Z. xvi. p. 396) commences a revised edition, under an entirely different arrangement, of the author's work on the same subject in Verh. Ver. Rheinl. The insects are discussed under the headings of the plants which they respectively attack; and the present portion includes from the *Ranunculaceæ* to *Daucus*.

LICHTENSTEIN, J. Manuel d'Entomologie, à l'usage des horticulteurs du midi de la France. Montpellier: 1872, 8vo, 83 pp.

Reviewed in Pet. Nouv. no. 57, p. 229.

LOHDE, GEORG. Insectenepidemien, welche durch Pilze hervorgerufen werden. B. E. Z. xvi. pp. 17-44, pls. i.-iii.

Discusses the development of the fungi *Botrytis bassiana*, *Isaria farinosa*, *Cordyceps militaris*, *Empusa muscæ*, and *E. radicans*.

OUSTALET, E. Recherches sur les Insectes fossiles des terrains tertiaires de la France.—Part I. Insectes fossiles de l'Auvergne. Ann. Sci. Géol. ii. No. 2 (1872), pp. 1-176, pls. i.-vi.

After a review of the literature on the entire subject (pp. 1-26), and a geological description of the tertiary strata of Auvergne and the principal deposits of fossil insects there, the author discusses in detail the species discovered, as follows:—COLEOPTERA (scheme of classification founded on sculpture &c. of elytra, modified from that of Heer, pp. 51-54, pl. i. figs. 13 & 14). *Eunectes antiquus*, p. 56, pl. i. figs. 1 & 2, *Laccobius priscus*, p. 59, fig. 3, *Brachycerus lecoquii*, p. 65, fig. 4, *Cleonus arvernensis*, p. 67, figs. 5 & 6, *C. fouilhouxi*, p. 68, fig. 7, *Hylobius deletus*, p. 70, fig. 8, *Anisorhynchus effossus*, p. 72, fig. 9, *Plinthus redivivus*, p. 74, fig. 10, *Bagous atavus*, p. 76, fig. 11, *Curculionites ovatus*, p. 77, fig. 12. ORTHOPTERA, *sp.* p. 78, pl. ii. fig. 1. NEUROPTERA: *Libellula minuscula*, p. 88, pl. ii. fig. 6, *Ascalaphus edwardsi*, p. 93, figs. 8 & 9. HYMENOPTERA: *Anthophorites gaudrii*, p. 104, pl. ii. figs. 12 & 13. DIPTERA: *Penthetria vaillanti*, p. 112, pl. iii. figs. 1 & 2, *Plecia major*, p. 114, pl. ii. fig. 19, pl. iii. figs. 3 & 4, *P. nigrescens*, p. 115, pl. iii. figs. 5-10, *P. pallida*, p. 118, pl. iii. figs. 11-13, *Bibio gigas*, p. 122, pl. iv. figs. 1-4, *B. ungeri*, Heer (p. 123, pl. i. fig. 16, a-c), var. *marginatus*, p. 125, pl. iii. fig. 14, pl. iv. fig. 5, *B. macer*, p. 126, pl. iv. fig. 6, *B. alacris*, p. 127, pl. iii. fig. 15, *B. robustus*, p. 128, pl. iv. figs. 7-9, *B. edwardsi*, p. 130, pl. v. figs. 1-5, *B. cylindratus*, p. 133, pl. iv. fig. 12, *B. gracilis*, Unger, var. *minor*, p. 134, pl. iii. fig. 16, *B. obsoletus*, Heer?, p. 136, pl. iv. fig. 13, *B. larteti*, p. 137, pl. iv. figs. 10 & 14, *Protomyia longa*, Heer, p. 139, pl. v. fig. 16, *P. longipennis*, p. 141, pl. vi. fig. 1, *P. inflata*, pl. v. fig. 17, *P. lugens*, pl. vi. figs. 2 & 3, p. 142, *P. joannisi*, p. 143, pl. vi. figs. 4 & 14, *P. fusca*, pl. iv. fig. 15, *P. adusta*, pl. v. fig. 18, p. 145, *P. sawvagii*, p. 146, pl. vi. fig. 6, *P. globularis*, p. 147, pl. vi. fig. 7, *P. blanchardi*, p. 148, pl. vi. fig. 5, *P. rubescens*, p. 149, pl. iv. figs. 16 & 17, *P. formicoides*, p. 150, pl. iv. fig. 18, pl. v. fig. 19, *P. incerta*, p. 151, pl. v. figs. 20 & 21, pl. i. fig. 16, *Stratiomys heberti*, p. 156, pl. vi. figs. 11-14. LEPIDOPTERA: *Noctuites incertissima*, p. 158, pl. i. fig. 18. These are all described as new, with the exception of those referred to Heer and Unger; and in all cases the characters of the genera and higher groups are detailed, with observations on the specific analogies to existing forms. The author gives an abstract of the results furnished by the study of fossils, and sketches the climate and vegetation of Auvergne during the tertiary period.

PACKARD, JUN., ALPHEUS S. Embryological Studies on Hexapodous Insects. Mem. Peab. Ac. i. (No. 3), pp. 18, pls. 3.

Consists of the following articles:—i. Development of *Nematus ventricosus*, pl. 1; ii. of *Pulex canis*, pl. 2; iii. of *Attelabus rhois*, pl. 3. figs. 1-5; iv. of *Telephorus frazini*, pl. 3. figs. 6-8; v. of *Gastrophysa polygoni*, pl. 3. fig. 9, and of *Mysia 13-punctata*; vi. of *Chrysopa oculata*, pl. 3. figs. 10-13.

The development of the *Nematus*, and probably of all the *Tenthredinidæ*, accords in the main features with that of the honey-bee; that of *Pulex* with *Chironomus* and *Simulium*, and of the *Attelabus*, *Gastrophysa*, and *Mysia* with *Donacia*. The *Telephorus* differs from all other *Coleoptera* the early stages of which are known, in the primitive band floating in the centre of the yelk, instead of surrounding it. As a whole, the mode of development (except in the *Telephorus*, which resembles the *Hemiptera* and *Libellulidæ*) is nearly identical in the *Coleoptera* with that of the *Diptera* and *Hymenoptera*. The *Chrysopa* does not differ essentially from the *Libellulidæ*. There is remarkable uniformity in the mode of development in the *Hexapoda*, as much as in the decapodous *Crustacea*; but embryological characters can scarcely be defined, even for suborders. If found, they will probably be in the advanced embryo.

PACKARD, JUN., ALPHEUS S. Record of American Entomology for the year 1871. IV. Rep. Peab. Ac. pp. 99-147.

RILEY, CHARLES V. Fourth Annual Report on the noxious, beneficial, and other Insects of the State of Missouri. Jefferson City, Mo.: 1872, pp. 145, 66 woodcuts.

RONDANI, CAMILLO. Degli Insetti parassiti e delle loro Vittime. Bull. Ent. Ital. iv. pp. 41-78, 229-258, 321-342.

Completes the alphabetical list mentioned in Zool. Rec. viii., discussing the remainder of the parasitic *Hymenoptera*, the *Diptera*, *Coleoptera*, &c. Indications of new species are given in it.

— Degli Insetti nocivi e dei loro Parassiti. *Ibid.* pp. 137-165.

Commences an inversion of the above-mentioned notes, the insect attacked being the text, and the parasites forming the notes to it. The *Lepidoptera* (alphabetically, to *Leuconea*) are discussed.

SEIDLITZ, GEORG. Die Parthenogenesis und ihr Verhältniss zu den übrigen Zeugungsarten im Thierreich. Leipzig: 1872.

THOMSON, CARL GUSTAV. Opuscula Entomologica. Fasciculus quartus. Lund: 1871, pp. 361-452.

Additions to the Swedish fauna in *Coleoptera* and *Hemiptera*, with descriptions of new species.

TURTAUDIÈRE, P. A. MILLET DE LA. Faune des Invertébrés de Maine-et-Loire. Angers: 1870, i., 1872, ii., 8vo.

VERRILL, A. E. The External and Internal Parasites of Man and Domestic Animals. Hartford, U.S.A.: 1870, 8vo, pp. 140, woodcuts.

Of the *Insecta* the well-known parasites belonging to the *Rhynchota*, *Diptera*, and *Mallophaga* are discussed.

WOOD, J. G. *Insects at Home: being a Popular Account of British Insects, their Structures, Habits, and Transformations.* London: 1872, pp. 670, plates and many woodcuts.

On the study of entomology: J. A. HARKER, Scot. Nat. i. pp. 249-254.

On the danger of generalizing from too limited an area, as exemplified in entomology. H. T. STAINTON, Ent. Ann. 1873, p. 83 *et seq.*

Fossil insects. S. H. SCUDDER, Am. Nat. vi. pp. 665-668, records 39 certain species from shale near the junction of the Green and White Rivers, Colorado (Wyoming), chiefly *Diptera* and *Coleoptera*. Exact particulars of the discovery of these insects are given by F. C. A. Richardson, *ibid.* p. 666, note. The species of *Mycetophilidæ* and *Tipulidæ* agree best with other fossils from the tertiary beds of the same region.

Insect-origin. B. T. LOWNE, Nature, v. p. 183; A. R. WALLACE, Presid. Address, E. Soc. Lond., Anniv. 1872, *ibid.* p. 350; J. J. MURPHY, Nature, vi. p. 373; F. B. WHITE, *ibid.* p. 393; DELPINO, Bull. Ent. Ital. iv. p. 342 *et seq.*; (and Geology) G. SCHOCH, MT. schw. ent. Ges. iv. pp. 25-29.

PHYSIOLOGY. The primitive element of muscle is a cell, which, by elongation, forms a fibre. KUNCKEL, CR. Ac. Sc. 5 Aug. 1872, R. Z. (2) xxiii. p. 454.

In Bull. Ent. Ital. iv. pp. 175-186, pl. 2. figs. 2-10, are some notes by A. TARGIONI-TOZZETTI on the internal anatomy of insects, chiefly concerning a form of epithelial cell found in the intestinal tube of the larva of *Apis ligustica*, which is compared with a corresponding form in *Oniscus*.

Theory as to the origin of wings: CR. Ent. Belg. xv. p. lxxv.

The tracheæ have no respiratory function in aquatic larvæ, which breathe like other aquatic animals. They merely keep a uniform layer of air under the skin of the pupa, so as to prevent friction. The respiratory organs of the pupa accumulate a quantity of air in the œsophagus, which, emitted suddenly from the anus, assists mechanically in the exclusion of the perfect insect. MONNIER, CR. Ac. Sc. 22 Jan. 1872; R. Z. (2) xxiii. p. 231.

Terrestrial *Coleoptera* resist asphyxia from submersion for periods varying up to nearly 100 hours. Aquatic species (and aquatic *Hemiptera*) perish sooner, possibly on account of their greater activity in the water, accompanied by a greater loss of oxygen. Aquatic insects resist cold, at zero, for an indefinite time, but rapidly die in ice, on account of their being entirely deprived of movement. The higher temperatures supported in safety by insects are very limited in extent, corresponding with those of certain known thermal springs in which *Articulata* are found. These observations apply to temperate Europe. F. PLATEAU, Bull. Ac. Belg. xxxiv. nos. 9 & 10.

Life in salt and fresh water. In R. Z. (2) xxiii. p. 73, reporting CR. Ac. Sc. July 1871, is an analysis, by the same author, of his "Recherches physico-chimiques sur les Articulés aquatiques," as follows:—Freshwater *Articulata*, with thick integument and no branchiæ, live with impunity in salt water, in which those with thin skin and branchial respiration die quickly, the combinations of sodium and magnesium acting as poison; saltwater *Crustacea* die in fresh water, as the salts necessary for their existence are taken up in it from their tissues. Difference of density is immaterial.

Specific gravity of insects. The same author communicates (Ann. N. H. 4, x. pp. 55-57) an abstract of his researches in Arch. Sci. Nat. xliii. (1872) upon this subject. His conclusions are so varied, and of so little practical use to entomologists, that it seems unnecessary to do more than indicate the existence of the work. As an instance of the apparent impossibility of defining any standard as to the centre of gravity in insects, it may be observed that in Dragonflies, of nearly the same external aspect, the relative positions of the centre in the same sex vary from the posterior margin of the metathorax to the first third of the 3rd abdominal segment. G. VIMERCATI, Bull. Ent. Ital. iv. pp. 188-200, gives a general notice on this subject, recapitulating Plateau's experiments and their result (Table, p. 196).

M. GIRARD'S 'Études sur la chaleur libre dégagée par les animaux invertébrés et spécialement des Insectes' (Paris: 1869, 4to, reviewed in R. Z., 2, xxii. p. 35 *et seq.*: cf. Gerstäcker, Ber. Ent. in Arch. f. Nat. xxxix. Bd. iii. p. 2) has not been seen by the Recorder.

The male element in insects indirectly connected with defective vitality. C. V. RILEY, Am. Nat. vi. p. 692.

Parthenogenesis. A notice in Bull. Ent. Ital. iv. p. 384 *et seq.*, by SIEBOLD, under the head "Intorno alla partenogenesi riconosciuta nelle Farfalle di antichi Italiani," although relating to *Lepidoptera* more particularly, may be noted here. The observations of Castellet, Réaumur, Rossi, and Ochsenheimer are quoted.

Insects and birds. The conclusions of ÉDOUARD PERRIS (Mém. Liège; reviewed in Nouv. et Faits, p. cxlv) are:—1, that birds only congregate at the epochs of migration, when most insects are comparatively rare; and when insects are in masses, birds are isolated; 2, that although birds destroy large quantities of insects, the really noxious species of these are in comparatively very small numbers, and in destroying them much vegetable produce and useful insects are also destroyed; 3, that the most destructive insects are in various ways protected from attacks by birds; and, 4, that larvæ, which are especially noxious, are especially protected.

Injury to agriculture: cf. observations by Ghiliani, Bull. Ent. Ital. iv. p. 32; Piccioli, *ibid.* p. 226; Tozzetti, *ibid.* p. 228; cf. also pp. 316-319.

Plant-fertilization. T. H. FARRER, "On the fertilization of a few common Papilionaceous flowers," Nature, vi. pp. 478-480, figs. 1-8, pp. 498-501, figs. 9-17. C. J. HAYDEN, *ibid.* p. 60 (*Dictamnus*). W. C. MARSHALL, *ibid.* p. 393 (*Lepidoptera*). THOS. MEEHAN, "On the agency of Insects in obstructing evolution," P. Ac. Philad. 1872, pp. 235-237, chiefly from an examination of variations in *Linaria vulgaris*, comes to the conclusion that insects are "not always abettors, but rather at times conservators, of advancing evolution."

Insects shaped by the needs of flowers: C. V. RILEY, Rep. Amer. Soc. Adv. Sci.; Nature, vi. p. 444.

Insects as food: 3 species of Grasshoppers, larvæ of *Euphaga florifera*, H.-S. (*Lep.*), and of a Melolonthid beetle, and pupæ of *Borocera cajani*, Vinson (*Lep.*), are eaten by natives of Madagascar. Aug. Vinson, 'Voyage à Madagascar au couronnement de Radama II.' Paris: 1865, roy. 8vo, p. 309.

For correspondence &c. relative to proposed school of insect-economy, cf. SB. z.-b. Wien, xxii. p. 60 *et seq.*

Galls made by insects. J. W. H. TRAILL, Scot. Nat. i. pp. 123-125, 156-159, 192-197, 234 & 235, describes galls found in Scotland. His observations are directed chiefly to the excrescences themselves, but in some instances refer to the insects producing them.

GEOGRAPHICAL DISTRIBUTION. Scilly Islands: insects (chiefly *Diptera*) observed during a short stay, recorded by F. WALKER, Ent. vi. p. 3.

Braemar: species recorded by W. D. ROBINSON, Ent. M. M. viii. p. 185.

Texel: short account of insects taken in this and neighbouring islands by ROELOFS & RITSEMA in CR. Ent. Belg. xv. p. lxxvii.

Hastière: species recorded by WEYERS from this locality, *ibid.* p. ci.

Breda: list of insects of all orders, Tijdschr. Ent. (2) vii. p. xxxiii *et seq.*

Görs: species of *Neuroptera*, *Coleoptera*, and *Lepidoptera* new to the Austrian and German lists are recorded by ROGENHOFER, SB. z.-b. Wien, xxii. p. 45.

Baskuntschatskoje and Elton Salt Lakes, Schilling, Anton, and Astracan: BECKER, Bull. Mosc. xlv. 2, pp. 116-124, mentions species of *Lepidoptera*, *Coleoptera*, and *Diptera* (named by Loew) found during expeditions to these localities.

Amurland: general observations on distribution &c. of insects: F. WALKER, Ent. vi. pp. 209 & 255.

Canada: vague observations on geographical distribution of genera: *id.* Canad. Ent. iv. p. 184.

Wyandotte Cave, Indiana: G. D. COPE, Am. Nat. vi., in describing the general fauna, notices 18 species of insects at pp. 409, 413 & 414 (descriptions of 3 new spp. of *Coleoptera* by Horn, *ibid.* pp. 420 & 421).

Valley of Quito: J. ORTON, Am. Nat. vi. pp. 651 & 652, in the 3rd of a series of contributions to the natural history of this district, notes that its insects are few and dull in colour, compared with those of the Pacific and Napo slopes. The fauna is stated to be thoroughly Columbian, lacking tropical forms. A list of *Hymenoptera*, *Lepidoptera*, *Diptera*, *Coleoptera*, *Hemiptera*, and *Orthoptera* is given, comprising less than 100 species, of which a few are indicated as new.

COLLECTING &c. An instrument for driving insects out of concealment by smoke described by GROUVELLE, Bull. Soc. Ent. Fr. (5) ii. p. xxvii.

Mounting small specimens. Meyer-Dür's observations analyzed and supplemented by LEPRIEUR, Nouv. et Faits, pp. cxxi & cxxix. Pinning is strongly condemned. M'Lachlan, Ent. M. M. ix. p. 103, note, strongly condemns carding; but *cf.* Rye, *ibid.* p. 136.

To preserve entomological collections from the larvæ of *Anthrenus*, EMERY suggests the use of disks of card on the pins, beneath the specimens, by which the *Anthrenus* is prevented from climbing. Bull. Ent. Ital. iv. p. 357 *et seq.*

BECKER proposes fresh oil of peppermint as a preventative against *Atropos pulsatoria* in collections. Hor. Ent. Ross. viii. Bull. p. xv.

Phenic acid cures and prevents mould in specimens: LEPRIEUR, Bull. Soc. Ent. Fr. (5) ii. pp. xxxi & xciv [the acid has long been in use in England for that purpose].

Laurel-leaves recommended for relaxing specimens by Ragonot, Ann. Soc. Ent. Fr. (5) ii. p. 212, *ibid.* Bull. pp. xxxi, lxiv, xc [for many years in use by English collectors]. Missol, *ibid.* p. xci, thinks laurel develops grease. Laboulbène, *ibid.* p. xciv, states peach-leaves to be objectionable.

NOMENCLATURE. KIESENWETTER, C. H. x. pp. 197-203, continues the discussion on nomenclature (*ibid.* vi. p. 37); and in the same work, pp. 234-240, is an analysis by v. HAROLD of Harting's "Skizze" &c., referred to in Zool. Rec. viii. p. 221, by which (somewhat after the system employed in artificial mnemonics) a series of symbolic syllables is to be used, irrespective of the now recognized meanings of words: *e. g.* any word ending in *ares* represents a vertebrate animal; the prefix of *p* indicates a mammal; of *l*, one of the *Placentalia*; of *ar*, one of the *Rodentia*; and of *r*, one of the *Murina*, which word thus becomes "*Rarplares*"! The *reductio ad absurdum* by v. Harold of *Geotrupes* to "*Gescalerderes*," using the author's own formula, sufficiently shows that the word "*rationellen*" used by Harting in his title is scarcely justified.

The Recorder has not seen the pamphlet by OLPHE-GAILLARD, entitled 'Quelques remarques sur les règles de la nomenclature zoologique,' and referred to by E. Deyrolle in Pet. Nouv. no. 55, p. 221.

On zoological nomenclature: D. SHARP, Nature, v. p. 3401. See also G. R. CROTCH, Cist. Ent. pt. iv. pp. 59-71, pt. v. pp. 91 & 92 (genera of *Lepidoptera*); and C. V. RILEY, iv. Rep. Ins. Mo. p. 55, note, especially on the peculiar American habit of quoting as the name of its author that of any one who locates a species in a fresh genus.

W. A. LEWIS has published a pamphlet (London: 1872, pp. 86, 8vo) entitled 'A Discussion on the law of priority in Entomological Nomenclature, and a proposal for the rejection of all disused names.' He proposes (p. 79) that where there is (Aug. 1871) universal agreement on a specific name, the same shall not be displaced on account of any prior name being discovered. The same author has published a circular with the names of English entomologists who object to priority being preferred to common use. P. E. Soc. 1872, p. xxviii. J. W. DUNNING, *ibid.* p. xxxiv *et seq.*, refutes certain charges made in this pamphlet against Dr. Hagen; and W. A. Lewis replies, *ibid.* p. xl *et seq.* Attacks upon the Recorder in the same pamphlet are refuted in Ent. Ann. 1873, p. 17 *et seq.*

On priority, *cf.* KRAATZ, B. E. Z. xvii. p. 217 (*Gynandrophthalma*). PREUDHOMME DE BORRE, Pet. Nouv. no. 45, p. 181, would defer the action of the law of priority until existing authorities (such as monographs) require revision.

On relations of generic and specific names, *cf.* J. W. DUNNING, Ent. M. M. viii. pp. 224, 274, 291, and D. SHARP, *ibid.* pp. 254 & 290.

On anagrams &c. in nomenclature, *cf.* J. W. DUNNING, *l. c.* p. 253.

BIBLIOGRAPHY. The Minute Book of Meetings of London Ent. Soc. (1806-1822) recorded, P. E. Soc. 1872, p. xxxi.

Verhandlungen der Schweizerischen Naturforschenden Gesellschaft; 1823-1864. A MÜLLER, P. E. Soc. 1872, p. xxxviii *et seq.*, publishes a list of all entomological notices contained in this work for the period indicated.

The first "Report of the Entomological Society of Ontario" for the year 1871 (Toronto: 1872) will apparently supersede the Report noticed in Zool. Rec. viii. p. 211. It consists of the Act of Incorporation, Regulations, &c., of the new society, with an appendix relating to insects affecting the apple, pp. 12-16, wheat crops, pp. 45-64, and the cabbage, pp. 82-88, by Bethune; the grape, pp. 17-21, and the currant and gooseberry, pp. 27-44,

by Saunders; and the plum, pp. 22-26, the potato, pp. 65-81, and the cucumber &c., pp. 89-92, by Reed. The species usually attacking these plants in America are discussed in a practical manner; but no original observations worth recording appear to be contained in the work, which is copiously illustrated by the usual (borrowed) woodcuts.

"Troudy [= Travaux: = 'Les Annales russes de la Société': vols. v. & vi. and livr. i. of vol. vii. had been published in 1872] de la Société entomologique de Russie, à St. Pétersbourg, vol. iv. 1867-69." In Hor. Ent. Ross. viii. Rev. Bibliogr. p. vii, is a notice of the above publication, originally printed in Russian. It contains the following articles:—A general description of the larvæ of *Coleoptera*, by C. de Gernet. A paper on the geographical distribution of species of *Coleoptera* peculiar to the north of Russia, by T. Köppen. Description and figs. of *Cecidomyia brachyptera*, with notes on its ravages in pine forests, by Gernet. General considerations on the relations of insects and man, by the same author. Descriptions and figs. of new varieties of *Melitæa maturna*, *Argynnis arsilache*, *Hadena amica*, and *Cidaria dilutata*, from St. Petersburg. Instructions for "sugaring," by A. Hüber. Notes on *Lepidoptera* found at a locality north of St. Petersburg, by Feild. A complete catalogue of Russian *Lepidoptera*, by N. Erschoff & Feild, of geographical importance. Instructions for collecting, by Solsky. A catalogue of Eversmann's *Lepidoptera*. The 'Bulletin' for 1866 and 1867 contains short communications on the larvæ of *Telephorus*, which appear in winter on the snow.

LINNÆUS. C. A. Dohrn, S. E. Z. xxxiii. pp. 446-462, continues his biographical notes: 1738-1763.

RAMBUR: Bibliographical notice by Mabilie, Ann. Soc. Ent. Fr. (5) ii. pp. 307-312.

BRULLÉ: a list of his entomological works by Desmarest, *ibid.* p. 513.

WESMAEL. Sauveur (Ann. Ent. Belg. xv. pp. 213-233) publishes some posthumous reports of this author of interest for the Belgian fauna.

COLEOPTERA

By E. C. RYE.

ABEILLE DE PERRIN, ELZÉAR. *Études sur les Coléoptères cavernicoles, suivies de la Description de 27 Coléoptères nouveaux français.* Marseille: April, 1872, 8vo, pp. 41.

The new species are described by Abeille, Saulcy, and Pandellé. Pp. 5-12 contain notes on the cave insects of Ariège, being an account of expeditions to the caverns, with observations on the species; pp. 13-17, descriptions of new species; pp. 17-23, a synopsis of Pyrenean *Adelops*, including spp. nn.; pp. 24-26, a table of French spp. of *Anophthalmus*; pp. 27-41, descriptions of new French *Coleoptera*. The contents of pp. 1-26 are analyzed and the diagnoses of the new species reproduced in Bull. (2, reporting sitting of 13 March) Soc. Ent. Fr. (5) ii, pp. xviii-xxii, where that portion is

referred to as "aujourd'hui publié;" and the whole work is similarly treated *ibid.* pp. xli-xliv (Bull. reporting sitting of 8 May), as from "une épreuve d'une notice" that the author "vient de publier."

BARGAGLI, P. Materiali per la Fauna Entomologica dell' Isola di Sardegna. Coleotteri. Bull. Ent. Ital. iv. pp. 97-104, 279-290.

Nitidulidæ to *Elateridæ*.

BERTOLINI, STEFANO DE. Catalogo sinonimico e topografico dei Coleotteri d'Italia. Firenze: 1872, pp. 44.

Published with Bull. Ent. Ital. iv. The present portion reaches to the end of the *Philhydrida*.

FAUVEL, ALBERT. Catalogue des Coléoptères de la Nouvelle Calédonie et dépendances, avec descriptions, notes, et synonymies nouvelles. Bull. Soc. L. Norm. (2) i. pp. 172-209, pl. 1.

This paper, an extension of one on the same subject by the author, *l. c.* vii., has hitherto escaped record in the present work, apparently from the confusion of dates attending its medium of publication. 434 species are enumerated.

——. Faune Gallo-Rhénane, ou Species des Insectes qui habitent La France, La Belgique, La Hollande, Le Luxembourg, La Prusse Rhénane, Le Nassau et Le Valais. Coléoptères, iii. (3^e livraison). Caen: "Mai, 1872," pp. 214, 2 pls.

This portion (reviewed *Nouv. et faits*, p. cxli, and, as regards British species, by the Recorder in *Ent. Ann.* 1873, p. 14 *et seq.*) exclusively refers to the *Staphylinidæ*, commencing with the groups usually placed at the end of that family, and reaching only to *Oxyporus*. Some new species are described in it. The livraison, the third of the whole work, is stated to commence an irregularly issued third volume (which apparently will be bulky); the 2 livraisons before published form the 1st vol.; and the families of the omitted 2nd vol. (*Cicindelidæ* to *Hydrophilidæ*) "paraîtront ensuite." Both the above parts were originally issued in Bull. Soc. L. Norm. (2), as follows:—Introductory portion, including terminology, forming chapters i.-iii. in vol. ii. 'Année, 1867,' bearing 1868 at bottom of title, pp. 175-379, pls. i-iv.; completion of the introduction, chapters iv.-vi. in vol. iii., 'Année, 1868,' bearing 1869 at bottom of title, pp. 26-113; *Staphylinidæ*, reaching to *Oxytelus insecatus*, in vol. v., 'Année, 1869-70,' 1870 at bottom of title, 1871 on outer wrapper [but, as the Recorder believes, not actually published until 1872], pp. 27-192. In this last-mentioned vol., in the account of the proceedings at the meeting of the Society of 8 Nov., 1869, are (pp. 17-21) descriptions of a new genus and some new species, for which, in the livraison now under notice (itself a part of the identical volume), priority is claimed as from the last-mentioned date, and not from the actual date of publication, the author apparently considering that the act of reading a paper privately to the members of his society is a publication to the world. The

Bulletin should be published *annually**, according to Art. 20 of the Society's Rules: cf. Bull. Soc. L. Norm. (2) iv. p. 12.

GEMMINGER, MAX, & HAROLD, E. VON. *Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus*. ix. pt. i. Munich: 1872, 8vo, pp. 2669-2750.

Comprises the *Scolytidæ*, *Brenthidæ*, and *Anthribidæ*. For alterations and additions to vol. ii. by G. R. Crotch and v. Harold, cf. C. H. x. pp. 204-207; and for remarks on *Carabidæ* by Chaudoir, cf. Bull. Mosc. xlv. 2, p. 279 *et seq.*

HOCHHUTH, JOHANN HEINRICH. *Enumeration der in den russischen Gouvernements Kiew und Volhynien bisher aufgefundenen Käfer*. Art. ii. Bull. Mosc. xlv. 2, pp. 85-117; iii. (posthumous) *ibid.* xlv. 2, pp. 195-234, 283-322.

Continues the list mentioned in Zool. Rec. viii. p. 223, discussing from the *Staphylinidæ* to the *Lucanidæ* inclusively. Some new species are described. In the report of the meeting of 19 Oct., 1872 (p. 34), is a notice of the existence of the deceased author's MS. of the *Scarabæidæ* and *Buprestidæ*, prepared for the continuation of this work, and which are proposed to be completed and published by J. K. Maschel.

LETZNER, K. *Verzeichniss der Käfer Schlesiens*. Breslau: 1871, pp. 328.

MACLEAY, WILLIAM. *Notes on a Collection of Insects from Gayndah*: 2nd paper. Tr. Ent. Soc. N. S. W. ii. pt. iv. (1872) pp. 239-318.

Includes from the *Buprestidæ* to the *Ædemeridæ* inclusively. The whole work discusses 702 species. The author gives a list of his new genera and species [70 named "*mastersii*"!], pp. 314-318, and states his intention of not continuing the work for the present.

MARSEUL, S. A. DE. *Répertoire des Coléoptères d'Europe décrits isolément depuis 1864*. L'Ab. viii. (ii. 2nd sér.) pp. 165-412.

Completes the 1st part, to the end of the *Staphylinidæ*, of which family the synonymy and observations are attributed to Fauvel.

MASTERS, GEORGE. *Catalogue of the described Coleoptera of Australia*. Sydney: 1872, pt. ii. pp. 65-128 (*Pselaphidæ*—*Buprestidæ*); pt. iii. pp. 129-192 (*Buprestidæ*—*Tenebrionidæ*); pt. iv. pp. iv, 193-246 (*Tenebrionidæ*—*Curculionidæ*).

MOTSCHOULSKY, VICTOR. *Énumération des nouvelles espèces de Coléoptères rapportés de ses voyages* (11ième article). Bull. Mosc. xlv. 2, pp. 22-55.

"Tenebrionides" to "Sténelytres." The deceased author's accustomed ambiguity predominates in this paper, which contradicts its title by discussing

* "Simple question à M. Fauvel:—La Société Linnéenne de Caen ne publie-t-elle pas de *Bulletin* depuis deux ans?" S. A. de Marseul, *Nouv. et Faits* (3), ii. p. 6.

other than new species. The accustomed indications of novelty are but seldom given, though, from the unusual length and detail of some descriptions, there can be no doubt that certain species not absolutely referred to as new are really intended to be published as such. Several others, and some genera mentioned, may also be intended to be published as new.

PICCIOLI, FERDINANDO. Catalogo sinonimico e topografico dei Coleotteri della Toscana. Bull. Ent. Ital. iv. pp. 259-272.

In this fourth year of its continuation, this list (compiled with the help of Bargagli) reaches to the end of the *Carabidæ*.

REICHE, L. Catalogue des Coléoptères de L'Algérie et contrées voisines, avec description d'espèces nouvelles: pp. 44. Extracted from Mém. Soc. L. Norm. (2) xv. (bearing date 1869): published in 1872.

This part comprises from the *Cicindelidæ* to the *Staphylinidæ* inclusively. Several species, which must of course be considered as dating from 1872, are described (by Reiche, Pandellé, and Fauvel) in the notes; and some changes of nomenclature are proposed; for comments on which, and a general review of the work, see C. H. x. p. 230, and Nouv. et Faits, p. cxxxiii (July, 1872). The author acknowledges the assistance of MM. Lallemand and Fauvel; the portion relating to the *Brachelytra* being apparently entirely attributable to the latter.

SEIDLITZ, GEORG. Fauna Baltica. Die Käfer (Coleoptera) der Ostseeprovinzen Russlands. Dorpat: 1872, 8vo: Lieferung I, table of families, pp. 1-24 (table of genera), pp. 1-128; Lief. ii. p. i-xx (introductory chapter on external anatomy, collecting, &c.), pp. 25-48 (table of genera), pp. 129-208, one plate.

Reviewed by v. Harold in C. H. x., by Kiesenwetter & Kraatz, B. E. Z. xvi. pp. 239 & 240, and by J. Faust, Hor. Ent. Ross. viii., Rev. Bibl. p. x.

The work is on the same dichotomous scheme as Redtenbacher's well-known 'Fauna Austriaca,' rendered more difficult to follow by the copious use of abbreviations and symbols. Species likely to occur in the district are described, in different type. The following is the list (in order) of families employed and now discussed by the author:—(Leif. i.) Carabidæ [*sic*], Dytiscidæ, Gyrinidæ, Palpicornia, Heteroceridæ, Parnidæ, Georyssidæ, Lucanidæ, Scarabæidæ, Buprestidæ, Eucnemidæ, Elateridæ, Dermestidæ, Byrrhidæ, (Lief. ii.) Histeridæ, Micropeplidæ, Nitidulidæ, Peltidæ, Byturidæ, Mycetophagidæ, Phalacridæ, Rhysodidæ, Cucujidæ (including *Hypocoprus* and *Lyctus*), Colydiidæ (including *Monotoma*, *Lathridius*, *Corticaria*, *Symbiotes*, *Mycetæa*, *Alexia*, *Leiestes*, *Myrmecoxenus*, and *Murmidius*, from which *Ceuthorcerus advena* is supposed to be distinct, &c.), Cryptophagidæ (including *Aspidophorus*, *Engis*, and *Sphindus*), Cissidæ, Telmatophilidæ (consisting of *Diphylus*, *Diplocælus*, *Psammæchus*, and *Telmatophilus*), Erotylidæ, Endomychidæ, Coccinellidæ, Corylophidæ, Trichopterygidæ, Scaphidiidæ, Sphæriidæ, Clambidæ, Anisotomidæ. From the table, it is evident that the work will be continued thus:—Silphidæ, Scydmenidæ, Paussidæ, Pselaphidæ, Staphylinidæ, Malacodermata, and Tere-

dilia (with 7 families). It is not within the province of the present Record to discuss the various heresies above promulgated.

In the introductory chapter, the strong bilateral symmetry of the Arthropoda, noticed as their chief characteristic, and named "Eudipleuren-Form," is stated to be possessed by them in common with locomotives, boats, and other machines. The free prothorax of beetles is emphasized in the definition of the order; and the whole scutellum is said to be only visible in the apterous females of a few species. The plate consists of outlines of various parts of the external anatomy of *Dytiscus*, *Cicindela*, and *Hister*.

SHARP, D. The Coleoptera of Scotland. Scot. Nat. i. pp. 202-208, 242-248, 277-280.

A list, with localities. The present portion reaches to *Pogonus*.

SOLSKY, S. Matériaux pour l'Entomologie de la Russie. Hor. Ent. Ross. viii. pp. 177-186.

Localities, descriptions of new species, synonymic notes, &c.: *Cicindelidæ* to *Ptinidæ*.

— Coléoptères de la Sibérie Orientale. L. c. pp. 232-277.

Completes the paper noticed in Zool. Rec. vii. p. 250; some additional species from Lake Baikal are incorporated.

THOMSON, CARL GUSTAF. Entomologiska Anteckningar under en resa i Skåne, 1866. Öfv. Ak. Förh. xxiv. (1867), no. 2, pp. 39-52.

The species and genus originally here described as new (*Microsaurus fageti*, p. 43, *M. puncticollis*, p. 43, *Autalia puncticollis*, *Gyrophæna bihamata*, *Ityocara*, p. 46, *Pycnaræa nigripes*, *Liogluta aquatilis*, p. 47, *Hister arenicola*, p. 50, *Bagous muticus*, p. 51) were quoted in Zool. Rec. iv. as from the 'Skandinaviens Coleoptera,' vol. ix., of the same author, and this paper appears to have escaped observation. It consists of an account of the known species captured during the expedition, as well as those above mentioned.

GEOGRAPHICAL DISTRIBUTION. Great Britain: The Recorder has given his annual summary of new British species &c., in Ent. Ann. 1873, pp. 1-33.

Northumberland: T. J. Bold, Tr. North. Durh. iv. pp. 371-380, gives localities &c. for species new to the local fauna.

Belgium: additions &c. to catalogue of species in CR. Ent. Belg. xv. pp. vi, vii, xxv, xxx, liii (supplement by Lethierry), lix, ciii.

Jumièges: Levoiturier & Mocquerys (CR. Soc. Rouen, vi. & vii.; also sep., Rouen, 8vo) publish a list of species taken during an excursion of the Society in June 1870. Mocquerys, *ibid.*, gives a supplement to the list of species found in the department of the Seine-Inférieure, and a list of species taken at La Bouille in June 1871.

Marseilles: exceptional scarcity of species noticed by Abeille de Perrin, Pet. Nouv. no. 59, p. 236.

Canterbury, New Zealand: remarks on *Coleoptera* by C. M. Wakefield, Tr. N. Z. Inst. v. (1872), pp. 294-304.

Labrador: A. S. Packard gives a list of species, iv. Rep. Peab. Ac. pp. 92-94 (to commencement of *Staphylinidæ*).

Grimsby, Ontario: J. Pettitt concludes his list. Canad. Ent. iv. pp. 12 & 98.

E. Colorado and N.E. New Mexico: in F. V. Hayden's Geological Survey of Wyoming (1871) is a list of species collected by Cyrus Thomas during the survey of 1869.

Montana. In the same geologist's 'Preliminary Report of the United States Geological Survey of Montana and portions of adjacent territories' (Washington: 1872, pp. 538, pls. 2), pt. iv. pp. 382-392, is a list by Horn of the species found by C. Thomas during this survey, in June and July 1871, the space explored being intermediate between the faunal regions of Oregon and the plains to the east of the Rocky Mountains. In *Eleodes* (especially *E. obscura*, Say), *Calosoma luxatum*, *Omus*, &c., the sculpture is deeper and rougher towards the west. Oregon forms (e. g. *Tragosoma harrisi* and *Phryganophilus collaris*) extend southward to California, gradually seeking a higher mountain-habitat as the region becomes warmer. From S. California, species have extended along the desert bordering the River Colorado to Utah, but cannot be expected to cross the Rocky Mountains. New *Meloidæ* occur in every fresh region. Modifications of species by extended habitat are also discussed by de la Brûlerie, R. Z. (2) xxiii. pp. 173 & 221, especially with regard to *Carabidæ*.

Madagascar. In Vinson's 'Voyage' &c. Annexe C, pp. 1-18, is a list by CH. COQUEREL of nearly 900 known species, in which 22 of Lacordaire's families (including the *Nitidulidæ*!) are not represented.

Cave-beetles. Piochard de la Brûlerie, Ann. Soc. Ent. Fr. (5) ii. pp. 443-472, under the title "Notes pour servir à l'étude des Coléoptères cavernicoles," describes various new species, of which mention will be made hereafter. Eyeless insects seem nevertheless capable of being affected by light; but the means supplying the want of sight are not capable of explanation. Most blind beetles have all the limbs much elongated. In *Adelops* and *Anophthalmus*, compared with *Catops* and *Trochus*, the author considers that the greater diversification of form and more considerable number of species of the two blind genera may be due to the more trenchant differences in the conditions of life of the cave-dwellers than of those free to occupy various points of the surface, and to their absolute isolation [see also ABEILLE, *suprà*, p. 230].

Ants'-nest beetles at Baikal are of the same species as those commonly found in Europe. Solsky, Hor. Ent. Ross. viii. p. 236, note.

Captures of rare or local species are recorded from the Manchester district by W. Broadhurst, Ent. M. M. viii. p. 289; from the New Forest, by G. C. Champion, *ibid.* ix. p. 86; from Caterham, *id. ibid.* p. 159; from Kent, by H. S. Gorham, *ibid.* pp. 12 & 118; from S. Devon, by T. V. Wollaston, *ibid.* p. 33; from North Brabant, by Everts, Tijdschr. Ent. (2) vii. p. xxvi; from Luxemburg, by v. Volxem, CR. Ent. Belg. xv. p. lxvii; from Flemish Zealand, by Weyers, *ibid.* pp. lix & lxvii; from St. Vaast-la-Hougue, by A. Fauvel, Bull. Soc. L. Norm. (2) v. p. 402; from Finisterre, by Vézé, Hervé, & Oberthur, Pet. Nouv. no. 60, p. 240; from Fontainebleau, by Grouvelle & Lèveillé, *ibid.* no. 59, p. 236; from Central France, by Desbrochers, Bull. Soc. Ent. Fr. (5) ii. p. lxxxiv; from the Valley of Lantosque, Alpes Maritimes, by Peragallo, Pet. Nouv. no. 65, p. 259; from the Caves of Ariège, by de la Brûlerie, *ibid.* no. 66, p. 263, and (also from Switzerland) Abeille de Perrin,

Nouv. et Faits, p. cix; from Mont Cenis, by Donzel, Pet. Nouv. no. 60, p. 241; from Turin, by Baudi, Bull. Ent. Ital. iv. p. 367; from Trieste, by Bertolini, *ibid.* p. 371; from the Valle di Sole, Trentino, *id. ibid.* pp. 109-118; from Silesia, by E. Schwartz, B. E. Z. xvi. pp. 153-156; from Berlin and Sommerfeld by J. Weise, *ibid.* pp. 157-159; from Liegnitz, by Gerhardt, *ibid.* p. 160; from Königsberg, by G. Czwalina, *ibid.* p. 161; from Hamburg, by W. Koltze, *ibid.*, and H. Beuthin, *ibid.* p. 162; from Syria, by Auzoux, Nouv. et Faits, pp. cvi, cx, cxiii, cxix, cxxvii; and from Buenos Aires, by Burmeister, S. E. Z. xxxiii. p. 227.

On leaf-mining *Coleoptera* in Canada: Chambers, Canad. Ent. iv. p. 123.

On *Coleoptera* in birds' nests: E. C. Rye, Ent. Ann. 1873, p. 7. In flood-refuse: G. C. Champion, Ent. M. M. viii. p. 270.

Instances of sudden and unaccountable disappearance of species (e. g. *Gonioctena pallida*, *Orsodacna cerasi*, and *Agathidium varians*) from localities where they were formerly abundant are recorded by E. A. Waterhouse, Ent. M. M. viii. p. 205.

Bethune (Canad. Ent. iv. pp. 31, 52, 93, 111, 151, 175, 196, 231) continues his reproductions of the descriptions of species from Kirby's 'Fauna Boreali-Americana,' with synonymic and other notes (*Buprestidae* to *Halictidae*).

Diagnoses of new species from Italy described in various recent publications are compiled by Piccioli & Bargagli, Bull. Ent. Ital. iv. pp. 305-315.

Parts i.-v. of a 3rd edition of Redtenbacher's "Fauna Austriaca. Die Käfer" (*Cicindelidæ*—*Dascillidæ*) have been published in 1871 and 1872. Vienna: 8vo.

The Rev. J. G. Wood has published a small introductory treatise on Common British Beetles, pp. 140, pls. 12, in outline, and woodcuts, giving a general view of the type species. These are treated in a popular and untrustworthy manner.

The characters of the underside &c. used by Thomson are pointed out by Bedel, Ann. Soc. Ent. Fr. (5) ii. p. 396, and by Ch. Brisout, *ibid.* Bull. p. xxiii *et seq.*

On collecting and preserving beetles, *cf.* Rye, Sc. Goss. no. 91, pp. 145-151.

CICINDELIDÆ.

Oxygonia. H. W. Bates, Ent. M. M. viii. p. 237, refers to the affinities of this genus, the members of which seem to occur on mossy stones in the beds of cold rapid streams (at Ecuador). The bispinose apices of the femora appear not to be constant; the acuminate apex of the elytra is only found in the ♂ of some species; and the *l^a* seems only to have one central tooth. Other characters are briefly stated, and 12 species are noticed, fresh localities &c. being given for *O. schænherr*, Mann., *prodiga*, Er., *vuillefroyi*, Chaud., *dentipennis*, Germ., and *albitenia* and *cyanopsis*, Bates.

Phyllodroma delia, Thoms., is an *Oxygonia*, possibly *O. prodiga*, Er.: *id.* l. c. p. 287.

Cicindela compressicornis, Boh., is probably a *Bostrichophorus*, Chaud., of which the peculiar characters are possibly sexual: *id. ibid.*

Cicindela. 16 Italian species described, with synonyms, by O. Pirazzoli, Bull. Ent. Ital. iv. pp. 3-28. *C. hybrida* is the commonest.

C. dahurica, Chaud., *ex. typ.*, = *gracilis*, Pall., var.; *C. decipiens*, Steven, MS. is probably a good species: Des Cottes, Pet. Nouv. no. 56, p. 223. *C. desertorum*, Fald., = *desertorum*, Dej., var. *certe*: Gilnicki, R. Z. (2) xxiii. p. 468.

Pentacomia, g. n., H. W. Bates, *l. c.* p. 265. Allied to *Odontochila*, but with ungrooved tarsi to all legs and in both sexes, and densely pubescent soles to all joints of front tarsi in ♂. *P. chrysamma*, sp. n., *id. l. c.* p. 266, Ecuador.

Ozychila nigroænea (and var. *variipes*) and *gracillima*, Ecuador, p. 263, *chestertoni*, New Granada, and *polita*, Nicaragua, p. 264: *id. l. c.*, spp. nn.

Ozygonia gloriola, p. 240, *floridula* and *buckleyi*, p. 241, *moronensis*, *carissima*, and *annulipes*, p. 242, Ecuador: *id. l. c.*, spp. nn.

Cicindela hispidula, p. 264, S. Brazil, *chalceola*, N. Peru, and *microtheres*, Ecuador, p. 265, *id. l. c.* viiii., *ditissima*, Hong Kong, p. 49, *velata*, N. Borneo, p. 50, *id. l. c.* ix.; *C. lagunensis*, des Cottes, *l. c.* p. 223, Castille: spp. nn.

Odontochila vermiculata, Ecuador, *iodopleura*, Nicaragua: H. W. Bates, *l. c.* viiii. p. 285, spp. nn.

Therates caligatus, p. 285, *bellulus*, p. 286, Philippines: *id. l. c.*, spp. nn.

Dromica (*Myrmecoptera*) *polyhirmoides*, p. 286, *mauchi*, p. 287, S.E. Africa: *id. l. c.*, spp. nn.

Ctenostoma eburatum, sp. n., *id. l. c.* ix. p. 49, S. Brazil.

CARABIDÆ.

Chaudoir, Bull. Mosc. xlv. 2, p. 279 *et seq.*, publishes various corrections of errors &c. in Gemminger & von Harold's 'Catalogus' (some, apparently, mere guesses). Many genera are considered to be of uncertain position; *Actenonyx*, White, is near *Scopodes* (with which *Periblepusa*, Redt., is identical); *A. vittata* is a *Xanthophæa*; *Promecoptera*, Dej., = *Anchomenus*; *Nematotarsus*, Lec., *Lirodira*, Cast., and *Cyclosomus*, Dej., belong to the *Tetragonoderides*; *Perigona*, Cast., has nothing to do with *Somoplatus*; *Graniger*, Mots., = *Cocsinia*, *G. alginus* = *C. semelederi*; *Dregus*, Mots., = *Pangus*, *D. nitidus* = *Harpalus glebalis*, Coquerel; *Hematochares*, Thoms., = *Stereostoma*; *Meliodera* is one of the *Morionides*; *Abacodes*, Thoms., = *Buderes*; *Geta*, Putz., = *Homalomorpha*, which is referred to the *Morionides*, *Gnathozys*, Westw., to the *Broschides*, *Stomonaxus*, Mots., to the *Drimostomides*, *Copterus*, Guér., to the *Trechides*, *Eucærus*, Lec., to the *Lachnophorides*, *Dirotus*, M'L., *Amblytelus*, Er., *Olisares*, Mots., *Ctenognathus*, Fairm., *Habropus*, Waterh., to the *Colpodides*; *Systenognathus*, Putz., and *Batoscelis*, Lac., = *Pachytrachelus*; *Trichisia*, Mots., = *Eudema*; *Callistoides*, Mots., = *Chlenius*; *Stomatocolus*, M'L., = *Dichrochile*, Cast.; *Tetraodes*, Blanch., = *Cardiophthalmus*, Putz.; *Phymatocephalus*, Schaum, and *Cratocara*, Putz., = *Polpochila*, which is one of the *Harpalides* (*P. parallela* = *Melanotus chüensis*, Chaud.); *Pachauchenius*, M'L., = *Phorticosomus*; *Actena*, Dej., = *Actenoncus*; *Geobænus*, Dej., *Metius*, Curt., = *Antarctia*; *Sagræmerus*, Redt., = *Hyparparax*; *Cylloscelis*, Curt., = *Paramecus*; *Megaristerus*, Nietn., = *Hispalis*; *Lyschromus*, Chaud., = *Euchroa*; *Trigonognatha*, Mots., = *Triplogenus*; *Sphenopalpus*, Blanch., belongs to the *Cymindides*, *Lophidius*, Dej., to the *Masoreides*, and *Nemoglossa*, Sol., to the

Ansodactylides; *Platyccelus*, Blanch., = *Feronia*; *Tibarizus*, Cast., and *Pachidius*, Chaud., = *Cratogaster*; *Pristosia*, Mots., = *Calathus*; *Metallosomus*, Mots., = *Colpodes*.

Bedel, Ann. Soc. Ent. Fr. (5) ii. p. 369 *et seq.*, refers to the novel characters pointed out by Thomson in studying genera and species, adding observations on the importance of the pubescence and form of the limbs.

Gilnicki, R. Z. (2) xxiii. pp. 466-480, pl. iv., gives a catalogue of the species found by T. Deyrolle in Asia Minor.

Elaphrides.

Elaphrus sibiricus, Mots.: characters pointed out; *E. dauricus* (Mann.), A. Moraw., is apparently identical with it, and it is suggested to be a local race of *E. cupreus*. Solsky, Hor. Ent. Ross. viii. p. 232.

Carabides.

Nebria complanata: larva described by Lallemand, in Reiche's Cat. Col. Alg. p. 2, note. That of *N. andalusiaca*, Ramb., briefly noted: *id. ibid.*

Procerus colchicus, Mots., ? = *scabrosus*, var.; *Carabus bonvouloiri*, Chaud., ♂ described, pl. iv. fig. 4; *C. ponticus*, E. Deyr., redescribed, pl. iv. fig. 1, *C. gilnickii*, E. Deyr., pl. iii. fig. 3, redescribed, and objections made to Chaudoir's opinion that it is a var. of *C. scowitzii*; *C. theophilii*, E. Deyr., pl. iii. fig. 2, redescribed; a var. of *C. cribratus*, Quens., from Trebizond, pl. iv. fig. 2; *C. robustus*, E. Deyr., redescribed, pl. iii. fig. 1: Gilnicki, R. Z. (2) xxiii. p. 468 *et seq.*

Carabus withii, Deyr., *ex. typ.*, = *lineatus*, Dej., ♀ var., *teste* Sharp: Perez Arcas, Act. Soc. Esp. i. p. 7. *C. lineatus* is certainly distinct from *splendens*: de la Brûlerie, R. Z. (2) xxiii. p. 224, and Pet. Nouv. no. 45, p. 179. Kraatz especially notes the record by Seidlitz (Fauna Balt. p. 7) of *C. splendens* at Polloper, 35 versts from Dorpat: B. E. Z. xvi. p. 240. Faust, Hor. Ent. Ross. viii. Rev. Bibl. p. xi, considers this capture purely accidental!

Reduplication of right intermediate leg in *C. splendens*, and of left antenna of *C. monilis*, recorded by Lartigue, Bull. Soc. Ent. Fr. (5) ii. p. lxi.

Of about 50 species inhabiting Eastern Siberia, only one (*C. granulatus*) is found also in Western Europe; though several have parallel forms: H. W. Bates, P. E. Soc. 1872, p. viii. Spanish species are mostly confined to the Iberian peninsula: D. Sharp, *ibid.*

Coptolabrus pustulifer, Luc.: ♂ & ♀ from Moupin, Thibet, redescribed by the author, Ann. Soc. Ent. Fr. (5) ii. p. 293; ♂ figured, pl. xiv. fig. 12.

Calosoma sycophanta found in quantity on putrefying human corpse near Rheims: Follias, Pet. Nouv. no. 53, p. 212.

C. inquisitor found on broom, and *Carabus intricatus* on sloe: Joubé, Pet. Nouv. no. 55, p. 220.

Nebria mandibularis, p. 51, N. Persia?, *chinensis*, p. 52, China: H. W. Bates, Ent. M. M. ix., spp. nn.

Leistus angulatus, sp. n., La Brûlerie, Pet. Nouv. no. 45, p. 179, Spain.

Carabus riffensis, Fairmaire, R. Z. (2) xxiii. p. 60, Morocco (Feb. 1872); *C. elephas* (? = *riffensis*, Fairm.; *cf.* Pet. Nouv. no. 51, p. 205) and *olcesii*, p. lii, Riff, *auriculatus*, Asturias: Putzeys, CR. Ent. Belg. xv.: spp. nn.

Cychrines.

Damaster lewisi, sp. n., Rye, Ent. M. M. ix. p. 131, Nipon and Kiushiu, Japan.

Cychrus costæ, sp. n., Emery, Bull. Ent. Ital. iv. p. 166, pl. 2. fig. 1, Naples.

Odontacanthides.

Homethes, Newm.: Chaudoir, Bull. Mosc. xlv. 1, p. 387 (adopting Gemm. & v. Harold's correction of *Homothes*), removes this genus from the neighbourhood of *Cymindis* to that of *Stenochila*, on account of the outer lobe of its internally ciliated maxillæ being non-articulate, its palpi, mandibles, and tarsi slender, the structure of its ligula, &c.

Casnomia hæmorrhoidalis, Mots., is described from Tranquebar examples of *fuscipennis*, Chaud., and is apparently a good species; *Od[ont]acantha litura*, Schm.-G., is a *Casnomia*; *C. picta*, var. n. *suturalis*, United States, p. 405; *C. clarencii*, Cast., = *australis*, Chaud., = *aliena*, Pasc., and forms a separate section; *C. obscura*, Cast., and *O. micans*, Macl., are probably identical; *C. incerta*, Chaud., = *geniculata*, Gory; *Apiodera longicollis*, Mots., = *C. brevipennis*, Chaud.; *C. marginestriata*, Putz., redescribed; *Lachnothorax*, Mots., is only a section of the genus: *id. l. c.* p. 404 et seq.

Stenidia, characterized by its ligula: *id. l. c.* p. 409.

Homethes emarginatus, sp. n., *id. l. c.* p. 389, Melbourne.

Casnomia ænescens, p. 398, Cantagallo, *umbriger*, *ibid.*, *hodiscus*, *lignata*, p. 399, Rio Janeiro, *rudis*, Ega, *punctatostriata*, Cayenne, p. 400, *santarema*, p. 401, Santarem, *bivittis*, p. 402, Mexico, *virgulifera*, p. 403, Siam, *latifascia*, p. 404, East Indies: *id. l. c.*, spp. nn.

Od[ont]acantha fulvipennis, p. 407, Celebes, *apicalis*, p. 408, Bangkok, Singapore: *id. l. c.*, spp. nn.

Stenidia quadricollis, sp. n., *id. l. c.* p. 410, Lake N'gami.

Anchonoderides.

Callistus. Chaudoir, *l. c.* p. 384, defends his former opinion that this genus and its allies approach *Anchonoderus* more than *Chlænius*. If separated from the present group, *Callistus*, *Callistomimus* (infra), and *Callistochrous*, Chaud. (type *Tetragonoderus baxi*, Gory, from Senegal), should form a fresh one, under the name *Callistides*. *Callistochrous* (Bull. Mosc. 1850) is practically recharacterized (pp. 385 & 386), and stated to form a transition to *Camptotoma*, Reiche, also recharacterized, which may also form a transitional group between the proposed *Callistides* and the *Lachnophorides*.

Ega. Striation of elytra the best diagnostic character. *E. brasiliensis*, Mots., ? = *longiceps*, Schaum. The known species are briefly referred to,—*amazonica* (p. 394), from Ega, and *sulcipennis* (*ibid.*) and *obliqua* (p. 395), from Rio Janeiro, being named (not described) as new. *E. ? angusticollis*, Montrouz., is a Bembidiid, near *Tachys*. *Steleodera* (*Selina*, Mots.) *westermanni* is generically quite distinct from *Ega*. *Id. l. c.* p. 392 et seq.

Chalybe. *C. lepreiuri*, Cast., occurs in the Amazon district, and *C. basalis*, H. W. Bates, is queried as a var. of it; *C. inæqualis*, Bates, is doubted as identical with Brullé's species of that name (*grata*, Mots., *puncticollis*, Laf.): *id. l. c.* p. 396.

Callistomimus, g. n., Chaudoir, *l. c.* p. 382. Facies of *Callistus lunatus*, but with no tooth in the emargination of the mentum, more slender, pointed, and pubescent palpi, and the dilated joints of the tarsi in the ♂ not so wide. *Callistus amabilis*, Redt., = *modestus*, Schaum, *coarctatus*, Laf., = *littoralis*, Mots., = *westwoodi*, Schaum, *4-pustulatus*, Gory, *5-maculatus*, Laf., *elegans*, *caffer*, and *6-pustulatus*, Boh., and *C. guttatus*, sp. n., *id. l. c.* p. 383, Natal.

Ctenodactylides.

Amblycoleus, g. n., Chaudoir, *l. c.* p. 410. Facies of *Trigonodactyla*; differs from *Leptotrachelus* in its more enlarged tarsi, with the lobes of the 4th joint less slender, stout, and ovate, its very obtusely rounded elytral apex, and flatter surface. *Leptotrachelus platyderus*, Chaud., and *A. doucei*, sp. n., *id. l. c.* p. 411, Cayenne.

Leptotrachelus nigriceps, p. 412, Para, *pallidipennis*, *ibid.*, *punctaticeps*, p. 413, Ega, *debilis*, *striatopunctatus*, p. 413, Rio Janeiro: *id. l. c.*, spp. nn.

Galeritides.

Dendrocellus rugicollis, Chaud., = *flavipes*, Schm.-G., omitted by Gemm. and v. Harold, and is also *nepalensis*, Hope Coll. (? described); *D. geniculatus* occurs at Malacca. *Galerita mexicana* is distinct from *atripes*, Lec. *Zuphium rufifrons*, Chaud., = *pubescens*, Nietn., *Z. vittigerum*, Schm.-G., = *bimaculatum*, S.-G.; *Diaphorus* is divided into subgenera, *D. proper*, and *Thalpius* (*Enaphorus*), Lec.: Chaudoir, R. Z. (2) xxiii. p. 139 *et seq.*

Drypta. The perfect insect can live for some time under water, readily submerging itself when pursued. Lallemand, in Reiche's Cat. Col. Alg. p. 3, note.

Zuphium chevrolati, Lap.: habits noted; *id. l. c.* p. 4, note.

Dicrodontus, g. n., Chaudoir, R. Z. (2) xxiii. p. 139. Emargination of mentum distinctly bifid; elytra almost as in *Aptinus*. *Polystichus brunneus*, Dej. (*unicolor*, Brullé).

Calophæna bonvouloiri, sp. n., Chaudoir, *l. c.* p. 101, French Guiana.

Dendrocellus parallelus, *id. ibid.*, Sumatra, *ternatensis*, *id. l. c.* p. 102, Ternate, spp. nn.

Drypta mouhoti, sp. n., *id. l. c.* p. 102, Laos.

Zuphium brasiliense, p. 103, St. Catherines, Brazil, *columbianum*, New Granada, *siamense*, Siam, p. 104: *id. l. c.*, spp. nn.

Diaphorus intermedius, New Granada, *granulosus*, Brazil, p. 105, *tenuicornis*, p. 106, Mexico, *D. (Enaphorus) horni*, p. 107, California: *id. l. c.*, spp. nn.

Polystichus intermedius, sp. n., *id. l. c.* p. 138, no locality given.

Helluonides.

Planetes bimaculatus, Macl., and *ruficeps*, Schm. (*bimaculatus*, Nietn.), differential characters &c. given; *Polystichus australis*, W. Macl., is a *Planetes*, very close to *immaculatus*, Schm.; *Planetes stigma*, F., is erroneously so placed by Gemm. and v. H., being a *Strigia* (*Selenidia*, Mots., near *Orthogonus*); *Omphra brevis*, Chaud., = *complanata*, Rche.; *Helluo rufipes*, Kl., is not a *Polystichus* but an *Omphra*; *Meladroma*, Mots., is briefly characterized (p. 172), and *Acanthogenius grandis*, Dej., *dispar*, Lac., = *grandis*, Murray, = *opacus*, Laf., = *umbraculatus*, F. (*Anthia*), and *grandis*, Boh., = *lugubris*,

Schaum, referred to it; *A. bimaculatus*, Murr., *ex. typ.*, = *labrosus*, Dej.; *Planetes crucifer*, Redt., = *A. asteriscus*, White; *A. (Macrochilus) 4-maculatus*, Guér., is not identical with *3-pustulatus*, Dej., but = *bensoni*, Hope; *Creagris*, Nietn., is generically different from *Acanthogenius*, and *labrosus*, Nietn., can then stand; *Erinnys*, Thoms., should be removed next *Polystichus (Galeritides)*, and to it belong *Heluomorpha bellicosa*, Cast., = *Helluo heros*, Gory, and *Heluomorpha obscuricornis*, Chev., = *chabrilaci*, Thoms., = *macroptera*, Chaud.; *Ænigma newmani*, Cast., = *iris*, ♀; *Helluo carinatus*, Chaud., is a good species; *Gigadema* is differentially compared with *Helluo*, and both sexes of five species noted, viz. *titana*, Thoms., = *longipennis*, Germ. (? = *noctis*, Newm., insufficiently characterized), *grandis*, Mcl., not the ♂ of *titana*, as Castelnau avers, *bostocki*, Cast., *castelnaui*, Chaud., and *minuta*, Cast., = (*Ænigma*) *unicolor*, Hope; *Helluodema*, Cast., requires division: Chaudoir, R. Z. (2) xxiii. p. 139 *et seq.*

Helluonidius, g. n., *id. l. c.* p. 216. Separated from *Helluodema* by its ovate and subobtusely rounded ligula, sharp but not very elongate tooth of the mentum, much longer labrum, which is obtusely toothed in the middle, and bilobed 4th joint of tarsi. *Ænigma cyanipenne*, Hope.

Dicranoglossus, g. n., *id. l. c.* p. 217. Also separated from *Helluodema*, chiefly by its bifurcate ligula. *Helluodema resplendens*, Cast.

Simoglossus, g. n., *id. ibid.* Allied to *Helluodema*. Ligula slightly emarginate in the middle and elongated beneath &c. *S. niger*, sp. n., *id. ibid.* (no locality given).

Omphra rotundicollis, sp. n., *id. l. c.* p. 140, East Indies.

Heluomorpha squiresi, Rio Janeiro, *gagatina*, Cayenne, p. 141, *mexicana*, p. 143, Yucatan: *id. l. c.*, spp. nn.

Pleuracanthus luctuosus and *cribricollis*, spp. nn., *id. l. c.* p. 168, Brazil.

Acanthogenius anthioides, p. 169, Benguela (connects *Anthiides* and *Helluonides*), *A. (Macrochilus) 3-maculatus*, p. 171, Deccan: *id. l. c.*, spp. nn.

Brachinides.

Brachinus mutilatus, F., = *bombarda*, Ill., and *B. plagiatus*, Rehe., is adopted for *bombarda*, Dej. (already published in C. H. iii. p. i): Reiche, Cat. Col. Alg. p. 4, note [Reiche uses *Brachynus* for the genus, *Brachinideæ* for the group].

Brachinus lethierryi, sp. n., *id. l. c.* p. 5, note, Atlas, Batna.

Lebiides.

CHAUDOIR (Ann. Ent. Belg. xv. pp. 97-204) proposes, under the name *Callidides* (too near *Callidiides* in the *Cerambycideæ*, cf. *l. c.* C. R. p. lxiii), to establish a group, of which the chief character seems to be that the ligula is bordered in front by a membrane joining the paraglossæ, a structure, however, reproduced in *Agra*, *Graphipterus*, &c. The genera now associated are *Glycia*, Chaud., *Callida*, Dej., *Stenonotum*, Lac. (= *Cylindronotum*, Putz., both preoccupied, and the name *Micragra* proposed), *Plochionus*, Dej. (subgenus *Menidius* proposed, p. 170), *Bothynoptera*, Schaum, *Euproctus*, Sol., *Xanthophæa*, Chaud., and many new genera.

The following observations occur:—*Glycia karelini*, Mots., Chaud., = *ornata*, Klug, var.; *Cymindis henoni*, Fairm., = *G. unicolor*, Chaud.; *Callida cordicollis*, Boh., = *marginicollis*, Chaud.; *C. analis*, Chaud., = *ruficollis*, F., var.;

C. angusticollis, Boh., = *nobilis*, Er.; *C. cærulea*, Laf., = *erythrodera*, Chaud., = *nigriventris*, Hope; *C. amabilis*, Boh., = *affinis*, Chaud.; *C. jucunda*, Boh., = *capensis*, Chaud.; *C. rubricata*, Mots., = *splendidula*, F.; *C. amabilis*, Chaud., is named *rufocuprea*; *C. modesta* and *similata*, Chaud., = *similis*, Rche.; *C. marginata*, Dej., = *viridipennis*, Lec.; *C. interrupta*, Chaud., = *lacunosa*, Mann.; *C. obscurata*, Mots., = *picipes*, Chaud.; *C. limbata*, Sahlb., jun., is to stand for *viridipennis*, Dej., deform.; *C. splendida*, Gory, *auricollis*, Cast., *festiva*, Brul., *dimidiata*, Rche., = *amethystina*, F.; *C. viridula*, Chaud., = *refulgens*, Sahlb.; *C. alcyonea*, Er., and *cyanescens*, Brul., ? = *smaragdula*, Rche.; *C. mæsta*, Chaud., = *conica*, Rche.; *C. cærulea*, Mots., = *thalassina*, Dej., var.; *C. tersa*, Er., *xanthoptera*, Chaud., and ? *amœnula*, Boh., = *tibialis*, Brullé; *C. elegans*, Chaud., = *rubicollis*, Dej.; *C. amœna*, Sahlb., and ? *geniculata*, Boh., and *linearis*, Sahlb., = *nigriceps*, Chaud.; *C. cincipennis*, Chaud., = *suturella*, Rche.; *C. semirufa*, Mots., = *basalis*, Putz.; *C. brunnea* and *flava (fusca)*, Chev., *testacea*, Rche., = *pallidipennis*, Chaud.; *C. maura*, Mots., probably does not belong to the genus; *australis*, Er., *fenestratus*, Schm.-G., *nigrolineatus*, Chaud., and *pradieri*, Fairm., associated in Gemm. & v. Harold's Cat. with *Plochionus*, are to be therefrom withdrawn; *P. 4-notatus*, Esch., = *4-pustulatus*, Dej.; *P. vittatus*, Lec., = *amandus*, Newm.

The author characterizes the following new genera and species:—

Merizomena, p. 100. Properly speaking, only a subdivision of *Glycia*, but pilose above, the sides of anus much punctured, and less elongate. *Cy-mindis basalis*, Chaud., *Agatus tricolor*, Gebl., and *Singilis dimidiata*, Mots.

Lipostratia, p. 101. Closely allied to *Callida*, but with 4th joint of tarsi not bilobed but deeply notched. *Callida dichroa*, Chaud., *C. rufula*, Gory, *L. cribripennis*, p. 102, Natal, and *mouffleti*, p. 103, Benguela, spp. nn., and ? *C. elongata*, Boh.

Spongoloba, p. 152. Apparently a transitional form between *Callida* and *Philopyga*; intermediate tarsi in ♂ with first (and sometimes second) joint lamellate beneath. *C. fulgida*, Dej., *cyanipennis*, Chaud. (= *smaragdina*, Dej., ♀), and *punctata*, Lec.

Euplatia, p. 153. Last joint of labial palpi only slightly dilated, and no lamellæ to intermediate tarsi in ♂; of wide, short, and flat build. *E. latiuscula*, *ibid.*, Ega.

Phæa, p. 154. 4th joint of all tarsi simply cordate; tarsi not spongy beneath. *Callida diluta*, Chaud.

Otoglossa, p. 158. Differs from *Micragra (Cylindronotum)*, Putz. in its less elongate build, smooth head and thorax, prominent eyes, and shorter, quadrate, and flat elytra. *O. tuberculosa*, *ibid.*, Minas, *semilævis* and *inæqualis*, p. 160, Ega, *terminalis*, p. 161, Rio.

Hyboptera, p. 161. Form of *Cryptobatis*, elytra tuberculate. *Lebia tuberculata*, Dej., *Aspasia verrucosa*, Reiche, *H. viridivittis*, Rio, *angulicollis*, Ega, p. 164.

Onota, p. 165. Allied to *Otoglossa*; anterior angles of paraglossæ widely subproduced-rotundate. *O. bicolor*, *ibid.*, Brazil, *Lebia? angulicollis*, Rche., *O. tenuicincta*, p. 166, Ega, *rutilans*, Cayenne, *elongata*, Brazil, p. 167.

Phacocerus, p. 173. Possibly only a section of *Plochionus*; mentum un-toothed. *P. piceus*, *ibid.*, Minas.

Amelus, p. 174. Differs slightly from *Plochionus* in the structure of its palpi, antennæ, and tarsi. *Coptodera nigripennis*, Gory.

Metallica, p. 175. Allied to *Plochionus*, differing in labial palpi, mandibles, untoothed mentum, and metallic elytra. *Plochionus æneipennis*, Dej., *M. purpureipennis*, p. 176, Natal; *viridipennis*, p. 177, White Nile.

Crossoglossa, p. 177. Ligula wide, with long hairs, palpi not securiform, claws much pectinated, &c. *C. testacea*, p. 178, Deccan, *mellea* and *fasciata*, Moluccas, p. 179, and *Plochionus nigrilineatus*, Chaud.

Endynomena, p. 186. Allied to *Callida* and *Xanthophæa*; pubescent. *Lebia pradierei*?, Fairm.

Callida erythropyga, p. 105, and *ruficeps*, p. 108, Natal, *umbriger*a, p. 106, Gaboon, *rubiginosa*, p. 109, Benguela, *femoralis*, p. 112, Deccan, *permunda*, Celebes, *lativittis*, Deccan, p. 113, *dyschroma*, Cayenne, Bahia, *lurida*, Colombia, p. 116, *purpureipennis*, p. 117, *misella*, p. 118, Mexico, *metallescens*, Vera Cruz, *batesi*, Ega, *cayennensis*, Cayenne, p. 120, *ænea*, p. 121, Brazil, *robusta* (? = *nitida*, Putz.), Rio Negro, *guyanensis*, Guiana, p. 122, *clara*, Venezuela, *onypterygioides*, Deccan (? Colombia), p. 123, *pretiosa*, p. 124, Hayti, *lindigi*, p. 128, New Granada, *magnifica*, Venezuela, *decolor*, Martinique, p. 131, *rhyti[do]dera* and *viridimicans*, Minas, p. 134, *cavicolis*, p. 135, Brazil, *cupreipennis*, p. 136, Minas, *ambigua*, Bahia, *cuprea*, New Granada, *nigricans*, Venezuela, p. 138, *bella*, p. 140, Mexico, *convexicollis*, p. 142, *properans*, p. 143, Ega, *levistriata*, p. 144, Mexico (? Bolivia), *schistoptera*, Ega, *scutellaris*, Brazil, p. 145, *hæmatodera*, p. 146, Bolivia, *procerula*, p. 147, Parahyba and Rio, *chevrolati*, p. 149, New Granada.

Micragra lissonota, p. 155, Ega, *reichii*, p. 157, Brazil, *crenulata*, p. 158, Minas.

Plochionus pictus, p. 170, Colombia, *faviger*, p. 172, New Granada.

Euproctus xanthophæus, Cayenne, *quadrivittis*, Rio, p. 184, *putzeysi*, p. 185, Bogota.

Xanthophæa infuscata, p. 188, Tasmania, *angustula* and *pilosula*, p. 189, Melbourne, *picipennis*, p. 190, S. Australia (? = *Plochionus australis*, Er.), *lissodera*, p. 191, S.W. Australia, *parallela*, p. 192, Cape York, *ferruginea*, p. 193, *lineolata*, p. 194, N. Australia.

Inna, Putzeys, recharacterized by Chaudoir, R. Z. (2) xxiii. p. 219; it should come near *Platytarus*, and forms a passage to the *Helluonides*. It contains *I. punctata*, Putz., *Polystichus boyeri* (redescribed as new, p. 241), Solier, *Cymindis atrata*, Dej., and 3 spp. nn.

Metabletus exclamationis, Mén., is not *M. vittula*, Fairm. (to which *M. arenicola*, Woll., and *obscuroguttatus*, Hart., probably belong), but *M. fuscimaculatus*, Mots., *virgatus*, Rche., and ? *patruelis*, Chaud., should be referred to it. *M. paracanthesis*, Mots., is erroneously placed in *Dromius* by Gemm. and v. Harold. Solsky, Hor. Ent. Ross. viii. p. 177.

Agra ignobilis, p. 217, 4-*spinosa*, p. 218, Cayenne, *plebeia*, p. 219, Brazil: Chaudoir, R. Z. (2) xxiii., spp. nn.

Cymindis maroccana, Reiche, Cat. Col. Alg. p. 5, note, Tangiers; *C. ehlersi*, Putzeys, S. E. Z. xxxiii. p. 168, Asturias: spp. nn.

Inna costulata, p. 242, New Granada, *granulata*, Brazil, *breviformis*, Ega, p. 243: Chaudoir, R. Z. (2) xxiii., spp. nn.

Metabletus oblique signatus, sp. n., Solsky, l. c. p. 178, Astracan.

Lebia nigripicta, sp. n., Chaudoir, Bull. Mosc. xlv. 2, p. 314 (no locality mentioned).

“*Gallerucidides*” and “*Gallerucidæ*.”

Chaudoir, Bull. Mosc. xlv. 1, p. 416, proposes to establish under one of these names a distinct group, intermediate between his ‘*Lébiides*’ and ‘*Tetragonodérides*,’ and founded on *Lebidia*, Moraw., and *Gallerucidia* [*Galer-*], g. n., p. 417, which, agreeing with *Lebia* in having no epilobes to the mentum, differs from it in the want of an emargination at the inner apex of the intermediate tibiæ of the ♂, and in the anterior and intermediate tarsi of that sex having 2 rows of squamulæ beneath. From *Lebidia* it differs in the shorter lobes of the mentum, the less elongate antennæ, whereof the first 4 joints are glabrous, and the more slender tarsi, and very prominent eyes. *G. octonotata*, p. 418, Rio Janeiro, *basinotata*, p. 419, Ega, *dimidiata*, p. 420, Cuba, *id. l. c.* spp. nn. The elytra of all this group are never truncate, and the form and clothing of their tarsi beneath recalls those of *Sarothrocepis*.

Pericalides.

Catascopus oxygonus, Chaud., is now considered not distinct from *angulatus*; *C. æneus*, Mots., nec Saund., is named *fuscœneus*; *C. amœnus*, Chaud., = *elegans*, var., of which *C. australasiæ*, Hope Coll., is also a var., named *celebensis* (with which *C. lateralis*, Brullé, is queried as identical), and another var. from Cape York is named *cyaneus*; *C. versicolor*, Saund., ? = *aculeatus*, badly developed; *C. splendidus*, Saund., = *costulatus*, Chaud.; *C. subquadratus*, Mots., ? = *rufipes*, Gory; and general observations on the genus are made: Chaudoir, R. Z. (2) xxiii. pp. 244–250.

Periblepusa elaphroides, Redt., = *Scopodes* (*Helæotrechus*) *elaphroides*, White. *Scopodes* (ligula and front tarsi of ♂ described) is apparently allied to *Sphallax*, Bates, = *Actenonyx*, White; and these two genera cannot be placed near *Catascopus* or *Pericalus*, but should probably form a separate group near the *Lachnophorides*. *Id.* Bull. Mosc. xlv. 1, pp. 390–392.

Catascopus diffinis, Celebes, *agnatus*, Moluccas, p. 244, *gæbeli*, Malacca, and var. ? *basalis*, Cambodia, *virens*, Celebes, p. 245, *simplex*, p. 246, Mindanao, Philippines, *cayennensis*, Cayenne, *vollenhoveni*, Sumatra, p. 248: *id.* R. Z. (2) xxiii., spp. nn.

Scopodes aterrimus, sp. n., *id.* Bull. Mosc. xlv. 1, p. 391, S. E. Australia.

Ditomides.

Carterus rufipes, Luc., clashing with *Odogenus rufipes*, Chaud., is renamed *lucasi*: Reiche, Cat. Col. Alg. p. 8, note (already published in Ann. Soc. Ent. Fr. 1861, but an unnecessary change, Chaudoir’s insect being a *Ditomus*; C. H. x. p. 230).

Aristus semicylindricus, sp. n. (La Brûlerie, MS.), Gilnicki, R. Z. (2) xxiii. p. 476, Erzeroum.

Morionides.

Stereodema, g. n., Chaudoir, Ann. Ent. Belg. xv. p. 21. Allied to *Stereostoma*, Murray, but with no hook to the maxillæ, apex of labial palpi much

less wide, joints of tarsi slender and triangular, and point of prosternum bidentate. *S. corpulentum*, sp. n., *id. l. c.* p. 22, Zulu country.

Cratocerides.

CHAUDOIR, Ann. Ent. Belg. xv. pp. 16-21, notices the proposed disintegration of this subfamily as proposed by Lacordaire, and which he considers to comprise only *Cratocerus*, *Brachidius*, and *Basolia*, of which he monographs the species. In Gemminger and v. Harold's Catalogue, *Basolia attenuata* should be attributed to Chaudoir, and the following corrections are made:—*B. nitida*, Sol., = *lucanoides*, Mann.; *B. brasiliensis*, Gray, = *elongata*, Chaud.

Brachidius corpulentus, sp. n., *id. l. c.* p. 20 (no locality given).

Anisodactylides.

Anisodactylus binotatus. Larva described; Rupertsberger, Verh. z.-b. Wien, xxii. pp. 575 & 576.

Amarotypus, g. n., H. W. Bates, Ent. M. M. ix. p. 50. Allied to *Migadops*, but with facies of *Amara*, and with middle tarsi generally dilated. *A. Edwardsi*, sp. n., *id. l. c.* p. 51, New Zealand.

Anisodactylus orientalis, sp. n., des Cottes, Pet. Nouv. no. 56, p. 223, Constantinople (brief diagnosis only).

Harpalides.

Acinopus nitidus, Fald., = *subquadratus*, Br.: *A. lævigatus*, Mén., = *minutus*, Br., both species being distributed over the greater part of the eastern basin of the Mediterranean: Gilnicki, R. Z. (2) xxiii. p. 477. *A. gutturosus*, Buq., is wrongly associated with *megacephalus*, Rossi: Reiche, Cat. Col. Alg. p. 12, note.

Acmaestes haroldi, Schm., recorded from Andalusia. Perez Arcas, Act. Soc. Esp. i. p. 22.

Harpalus caliginosus, Say, extends westward over all obstacles to the base of the Sierra Nevada, but is not yet recorded from California proper: Horn, in Hayden's Geol. Surv. Montana, p. 384. *H. nigritarsis*, Sahlb., var. *b.*, is redescribed and considered a good species: Thomson, Opusc. Ent. (iv.), p. 365.

Mizotrechus, g. n., H. W. Bates, Ent. M. M. viii. p. 199. Allied to *Trechicus*, Lec., but with dentate mentum, thick tarsal joints, and square thorax; also approaches *Diploharpus* in mandibles and maxillæ. *M. novemstriatus* and *lævilateris*, *ibid.*, *ozænoides* and *præcisus*, p. 200, Amazons, *lævigatus*, Vera Cruz, *vixstriatus*, R. Janeiro, p. 200: *id. l. c.*, spp. nn.

Lachnaces, g. n., *id. ibid.* p. 201. Facies of *Olisthopus* or *Badister*, with surface of *Loxandrus*, but really allied to *Eucærus*. *L. sericeus*, *ibid.*, *olisthopoides* and *badistrinus*, p. 202, Ega: *id. l. c.*, spp. nn.

Acinopus medius, sp. n., Reiche, *l. c.* p. 12, note, Algeria.

Dichirotrichus barbarus, sp. n., Leder, B. E. Z. xvi. p. 137, Oran.

Harpalus janthinus (? sp. n.), Des Cottes, Pet. Nouv. no. 56, p. 223, Taurus; *H. insignis* (do.), *id. l. c.* p. 224, Caucasus [mere indications of a diagnosis in each case]; *H. arenicola* (Wesmael), Sauveur, Ann. Ent. Belg. xv.

p. 226, Belgium; *H. cardiaderus*[*cardio*-], Putzeys, *ibid.* CR. p. lxxi, Asturias; *H. (Ophonus) promissus*, Reiche, *l. c.* p. 13, note, Algiers: spp. nn.

Pangus laticollis, sp. n., Reiche, *l. c.* p. 14, note, Constantine.

Eucærus opacicollis, sp. n., H. W. Bates, *l. c.* p. 202, Ega.

Trigonotomides.

CHAUDOIR, Ann. Ent. Belg. xv. pp. 5-16, monographs the portion of this subfamily restricted by him under the name *Drimostomides*, which he considers to form a point of transition from his *Abacetides* to the *Morionides*, though admitting their relation to the *Feroniides*. In it he includes only *Drimostoma*, Dej., and *Stomonaxus*, Mots., with 3 other genera. *D. costatum*, Laf., = *punctifrons*, Chaud.; *D. rufipes*, Boh. (? *marginale*, Walk.), and ? *Stom. sculptipennis*, Mots. (*D. ceylanicum*, Nietn.), = *S. (D.) striaticollis*, Dej. The species of *Drimostoma* described by Castelnau are probably *Abaceti*; *D. fuscipes*, Brullé, is an *Adrimus*, *D. mexicanum*, Chevr., a *Diploharpus*, *D. 4-pustulatum*, Peyr., an *Abacetus*, and *D. laticolle*, Laf., does not belong to the group. *Stomonaxus* is erroneously compared by Motschoulsky with *Drimostoma*, and certain species of the latter are transferred to it.

Strigomerus, g. n., *id. l. c.* p. 7. Antennæ filiform, 3rd joint much shorter than the rest, which are elongate-quadrate and somewhat robust; tarsi slightly pilose above, evidently unisulcate in the middle. Type *S. (Drimostoma) schænherrri*, Dej.

Hoplizomenus, g. n., *id. l. c.* p. 8. Allied to *Drimostoma* (no differential characters given). Type *H. carinatus*, sp. n., *id. l. c.*, Guinea.

Diceromerus, g. n., *id. l. c.* p. 15. Closely allied to *Stomonaxus*. Type *D. (S.) orientalis*, Mots.

Drimostoma westermanni, Guinea, *pradiieri*, Gaboon, p. 10, *cribrifrons*, Gaboon, *rectangulum*, Birmah, Java, p. 11: Chaudoir, *l. c.*, spp. nn.

Stomonaxus celebensis, sp. n., *id. l. c.* p. 14, Celebes.

Feroniides.

Harpalus furvus and *H. ater*, C. R. Sahlb., *ex. typ.*, = *Pterostichus melanarius*, Ill.; *H. pratermissus*, Sahlb., *ex. typ.*, = *Amara (Celia) grandicollis*, Zimm. (*rufocincta*, Mann.), and *quenseli*, Sch., var. *floricola*, Mann.; *H. despectus*, Sahlb., *ex. typ.*, = *municipalis*, Duft. (*modesta*, Dej.): F. W. Mäklin, S. E. Z. xxxiii. p. 242 *et seq.*

Pterostichus cupreus. Rupertsberger, Verh. z.-b. Wien, xxii. p. 7, fully describes the larva; also the pupa, found among pupæ of *Aphodius factens*. At p. 9 he gives particulars of the habits of the insect and of the young larvæ bred from the egg-state in captivity. *P. vulgaris*: larva and pupa described; *id. ibid.* pp. 573-575.

Platyderus varians, Schauf., is not identical with *lusitanicus*, Dej., or with *montanellus*, Graells; but *Haptoderus cantabricus*, Schauf., = *nemoralis*, Gr.: Perez Arcas, An. Soc. Esp. i. p. 126.

Pterostichus (Tapinopterus?) azaræ, Per. Arcas; redescribed from both sexes by the author and figured, *l. c.* p. 93, pl. i. fig. 7. *P. (T.) cephalotes*, des Cottes, figured, R. Z. (2) xxiii. pl. iv. fig. 3.

Feronia. Reiche, Cat. Col. Alg. p. 16, note, proposes the name *Aulacotarsus*

for the subgenus to which *vernalis*, Pz., belongs, and states that *Glyptodactylus*, proposed for the insect by des Cottes, is preoccupied [he does not say by whom: there is a *Glyphodactylus* of Chaudoir].

Steropus mannerheimi, Dej.: ♂ described, from Orenburg, by Solsky, Hor. Ent. Ross. viii. p. 180. *S. æneus*, Mots., redescribed, ♂ characters pointed out: *id. l. c. p. 234*.

Adrimus, g. n., H. W. Bates, Ent. M. M. viii. p. 176. Allied to *Loxandrus*, but with short and broad metatarsal epimera, which have straight hind margins. Ant. tarsi in ♂ dilated as in the *Anchomeni*. *Adrimus microderus*, *ibid.*, *rufangulus* and *geminatus*, p. 177, *creperus*, p. 178, Amazons, *id. l. c. spp. nn.*, and *Loxandrus viridescens*, Bates.

Platyderus angulosus, Bône, Algiers, *cyrtensis*, Constantine: Reiche, Cat. Col. Alg. p. 15, note, *spp. nn.*

Feronia (Orites) silesiaca, sp. n., Des Cottes, Pet. Nouv. no. 56, p. 223, Silesia.

Feronia (Steropus) insidiatrix, La Brûlerie, *ibid.* no. 45, p. 179, Spain; *S. æreipennis*, Solsky, Hor. Ent. Ross. viii. p. 234, Vladivostok: *spp. nn.*

Zabrus brondeli, sp. n., Reiche, *l. c. p. 17*, note, Blidah.

Amara curvicrus, Thomson, Opusc. Ent. (iv.) p. 362, Sweden; *A. africana*, Putzeys, CR. Ent. Belg. xv. p. xcix, Auseba; *A. (Liocnemis) atrivirescens*, Putzeys, *l. c. p. c.*, Carthage: *spp. nn.*

Anchomenides.

Pristonychus. La Brûlerie, Ann. Soc. Ent. Fr. (5) ii. 453 *et seq.*, discusses *P. inæqualis* and its allies, considering that local forms have been permitted to rank as species: according to him, *P. reichenbachi*, Schauf., *polyphemus* and *beticus*, Ramb., and *cyanescens*, Fairm., = *inæqualis*, Panz., varr.; *P. obtusus*, Chaud., = *angustatus*, Dej., var.; *P. ellipticus* and *latus*, Schauf., *balmae*, Delar., *latebricola*, *hypogæus*, and *pyrenæus*, Fairm., *jacquelinei*, Boield., = *oblongus*, Dej.; *P. parviceps*, Fairm., *carinulatus*, Schauf., = *carinatus*, Chaud., *certe*; *P. acutangulus*, Schauf., *ex. typ.*, = *elongatus*, Dej. Abeille, Étud. Col. Cav. p. 9, also considers *P. terricola*, *cyanescens*, *latebricola*, *hypogæus*, and ? *pyrenæus* to be one species.

Calathus nubigena, Hal., considered a good species by Thomson, Opusc. Ent. (iv.) p. 364. *C. cisteloides*, *angularis*, and *fulvipes*: individuals wrongly supposed to connect these species mentioned by La Brûlerie, R. Z. (2) xxiii. p. 222.

Anchomenus (Agonum) oblongus, Dej., would clash with *oblongus*, F., if the latter species were not rightly attributable to *obscurus*, Hbst.: Reiche, Col. Cat. Alg. p. 19, note [practically, *oblongus*, F., is always used].

Sphodrus parumstriatus, sp. n., Fairmaire, Ann. Soc. Ent. Fr. (5) ii. p. 47, ? Mediterranean district.

Diploharpus ebeninus, *rubripes*, and *striolatus*, p. 178, *sexstriatus*, p. 179, Amazons: H. W. Bates, Ent. M. M. viii., *spp. nn.*

Pogonides.

Pogonus littoralis: observations on Chaudoir's opinion as to English re-

presentatives of this South European species by E. C. Rye, Ent. M. M. viii. p. 269.

Trechides.

Trechus longicornis in Scotland: R. Hislop, Scot. Nat. i. p. 212.

Trechus perezi, Crotch, = *fulvus*, Dej., var.; *T. spelæus*, Reitt., = *microphthalmus*, Mill.: Putzeys, S. E. Z. xxxiii. p. 167.

*Anophth[*h*]almus*. Abeille, Étud. Col. Cav. pp. 9-12 (table, pp. 24-26), divides the French species into 5 groups: 1, subgen. *Duvalius*, with elytra striated, shoulders more or less marked, of medium size, inhabiting surface caves, types *auberti*, *raymondi*, *delphinensis*, &c.; 2, not named, *A. orcinus*, *trophonius*, *consorranus*, &c.; 3, *Anophthalmus* proper, *gallicus*, *rhadamanthus*, *bucephalus*; 4, "Formes Aphænopsiennes," *A. pandellæi*, *minos*, *pluto*, &c. 5, *A. ehlersi*, transitional between *Duvalius* and *Aphænops*. Recent discoveries connect *Anophthalmus* and *Aphænops*, and possibly both with *Trechus*; if *Anophthalmus* be retained, it should be limited to species with no black pigment to the eye. *A. navarricus*, Vuill., is, under any circumstances, a *Trechus*. *A. consorranus*, Dieck, is specifically distinct from *A. orpheus*. A var. of *A. cerberus*, from Mas d'Azil, is described under the name *inæqualis*, p. 14.

La Brûlerie, Ann. Soc. Ent. Fr. (5) ii. pp. 460-467, discusses varieties of *A. cerberus*, with remarks on the influences of caves upon the variability of species. He reconnects *consorranus* to *orpheus*, from specimens found on a mountain, and not in caves.

Aphænops leschenaulti: habits detailed by É. Deyrolle, Bull. Soc. Ent. Fr. (5) ii. p. lxxxvii. The seat of smell seems to be in the palpi. Heat, and not light, appears to affect it. Cf. Ch. Brisout, *ibid.* p. lxxxviii.

Trechus complanatus, p. 167, Sierra Nevada, *artemisæ*, p. 168, Piedmontese Alps, Putzeys, *l. c.*; *T. abeillii*, Pandellé, in Abeille's Étud. Col. Cav. p. 13, Ariège: spp. nn.

Anophthalmus trophonius, p. 13, *ehlersi*, p. 15, Abeille, *l. c.*, *A. tiresias*, La Brûlerie, Pet. Nouv. no. 65, p. 259, and *l. c.* p. 443, Ariège; *A. tenuis*, p. 420, *eremita*, p. 421, Wyandotte Cave, Indiana, Horn, Am. Nat. vi.: spp. nn.

Bembidiides.

Bembidium velox, Er. [? = *lampros*, Hbst., var.], *nec* L., is named *14-striatum*: Thomson, Opusc. Ent. (iv) p. 361. *B. mannerheimi*, Sahlb. (*nec* Schaum), 8 *exx. typ.* = *guttula*, 7, and *obtusum*, 1 [*B. mannerheimi*, Schaum, a good species, therefore requires renaming, and *unicolor*, Chaudoir, should apparently stand for it], and confusion between *B. guttula*, *pusillum*, and *gilvipes*, of Mann. and Sahlb., is referred to; *B. grapii*, Sahlb., = *schuppeli*, Dej.; *B. pfeiffi*, Sahlb., = *virens*, Gyll. (*nec* Meg., which is *5-striatum*, Gyll., var.): W. F. Mäklin, S. E. Z. xxxiii. pp. 245 & 246.

Tachys quadrinæva, sp. n., Reitter, B. E. Z. xvi. p. 177, Oran (possibly = *4-signata*, var., *teste* Kraatz, *ibid.* note).

Bembidium crassicorne, sp. n., Putzeys, CR. Ent. Belg. xv. p. lxxi, Asturias.

DYTISCIDÆ.

Schirer (Verh. z.-b. Wien, xxii. p. 75) records the survival of water-beetles in an aquarium left dry from August to October.

Hutchinson, Ent. M. M. ix. p. 12, records species occurring near York.

Amphizoides.

Amphizoa josephi, p. 119, *lecontii*, p. 121, Vancouver's Island: A. Matthews, Cist. Ent. pt. v., spp. nn.

Haliplides.

Haliplus impressus (*flavicollis*, auctt.) being the only species known to Fabricius, represented the genus with him, and neither it nor *ruficollis*, Deg., var. *laminatus*, Schall., can be considered as being more than synonyms; *H. amœnus*, Ol., should stand for *obliquus*, F. (= *Hydroporus reticulatus*): G. R. Crotch, C. H. x. p. 205.

Haliplus andalusicus, sp. n., Wehncke, B. E. Z. xvi. p. 135, Andalusia.

Hydroporides.

Hydroporus obsoletus, Aubé, with quadrifurcate antennæ: R. Lawson, Ent. M. M. viii. p. 288.

Hydroporus ferrugineus, Lucas, is gravely stated to clash with *Hyphydrus ferrugineus*, Linn., and is named *inflatus*, by Reiche (Cat. Col. Alg. p. 24), who forgets *Hydroporus ferrugineus*, Stephens (*victor*, Aubé), and the fact of Perris having long named the Algerian species *hyphydroides* (cf. C. H. x. p. 230); *H. confusus*, Luc., nec Klug, is named *lucasi* [an alteration made in De Marseul's Cat. 1867]: Reiche, *l. c.* (v. Harold, x. p. 230, objects to this, as *confusus*, Klug, = *geminus*, F.). *H. granularis*, L., = *minimus*, Scop.; *H. reticulatus* and *obliquus* (not a *Haliplus*), F., = *versicolor*, Schall.; *H. unistriatus*, Goeze, Schr., = *parvulus*, Müll.: G. R. Crotch, C. H. x. p. 204. *H. avunculus*, Fairm., = *distinguendus*, Desbr.; *H. nigricollis*, Fairm., = *nigricollis*, Desbr.: Desbrochers, Bull. Soc. Ent. Fr. (5) ii. p. xxiii.

Hydroporus nigrita and *discretus*: T. J. Bold, Tr. North. Durh. iv. p. 375, repeats his opinion that these are sexes of one species [but does not adduce any instance of their having been taken *in copulâ*, or mention any examination of the *genitalia*].

Hydroporus subalpinus, p. 365, *incrassatus*, p. 366, Thomson, Opusc. Ent. (iv.), Sweden; *H. gracilis*, Wehncke, B. E. Z. xvi. p. 136, Malaga: spp. nn.

Colymbetides.

Noterus semipunctatus, F., = *capricornis*, Hbst.; *Ilybius 4-notatus*, Steph., should stand for the preoccupied *ater*, Deg.; *I. fenestratus*, F., confuses *fenestratus* and *fuliginosus*, and *comma*, Müll., should stand for the first, *fœtidus*, Müll., for the latter of these; *Agabus biguttatus*, Ol., ? = *nitidus*, F., var.; *A. didymus*, Ol., = *biocellatus*, Müll.: G. R. Crotch, C. H. x. p. 205. *Agabus sexualis*, Reiche, = *Gaurodytes alpestris*, Heer; *A. solieri*, Aubé, *ex. typ.* (from Schaum), = *tarsatus*, Zett. [Aubé's name is four years prior]: Thomson,

Opusc. Ent. (iv.), p. 368. *Gaurodytes angusticollis*, J. Sahlb. (*nec* Mots.) = *adpressus*, Mann.: F. W. Mäklin, S. E. Z. xxxiii. p. 247.

Ilybius ænescens, Thoms., recorded as British: E. C. Rye, Ent. M. M. ix. p. 36.

Agabus heydeni, p. 134, Sierra Nevada, *rotundatus*, p. 135, Sardinia: Wehncke, B. E. Z. xvi., spp. nn.

Ilybius kiesewetteri, sp. n., *id. l. c.* p. 136, Harburg.

Dytiscides.

Trogus costalis, F. (1775), being a *Dytiscus*, and *T. costalis*, Ol., F. (1801), a *Cybister*, the latter is [?] necessarily] named *olivieri*; *Hydaticus lineatus*, F., should stand for *stagnalis*, F., *hunteri*, Crotch, be used for the preoccupied *fasciatus*, F., and *banksi*, Cr., for the preoccupied *ruficollis*, F.: G. R. Crotch, C. H. x. p. 205 (v. Harold, *ibid.* note, objects to the latter names proposed by Crotch).

Von Frauenfeld (Verh. z.-b. Wien, xxii. p. 390) refers to *Dytiscus marginalis* and *latissimus* as giving the first indications of the approach of the phenomenon known in Germany as 'Fischaufstand,' being apparently the rushing by fishes to the surface of the water after the winter's lethargy.

PLATEAU (Ann. Ent. Belg. xv. pp. 205-212) publishes the results of experiments upon the powers of adherence of the tarsi of the males of *Acilius*, *Dytiscus*, and *Hydaticus* to the bodies of the females during copulation; and finds that the weight necessary for disconnexion is 13 times that of the insect. He considers that the sulcations on the elytra of the ♀ are merely of use in assisting the ♂, when in a transverse position, to secure himself on the back of the ♀. He proposes the term "sessiles" for the larger and "pédiculées" for the smaller cupules or suckers on the underside of the tarsi in the ♂.

Acilius fasciatus in early spring climbs up water-plants and basks in the sun: P. Cameron, jun., Scot. Nat. i. p. 265.

GYRINIDÆ.

Dineutes caledonicus, sp. n., Fauvel, Bull. Soc. L. Norm. (2) i. p. 177, note, pl. i. figs. 13-14 (apex of elytra of *D. australis* and this sp.), New Caledonia.

HYDROPHILIDÆ.

Limnebius. Baudi, Bull. Ent. Ital. iv. pp. 35-40, discusses the Italian species.

Sphæridium dytiscoides, F., *ex. typ.*, is a true *Cyclonotum*, occurring at the Cape of Good Hope, and has nothing to do with *Dactylosternum abdominale*; T. V. Wollaston, Ann. N. H. (4) x. p. 114.

Cyloma, g. n., Sharp, Ent. M. M. ix. p. 152. Connects the *Sphæridiides* and *Hydrophilides*, having the short basal joint of the hind tarsus characteristic of the latter. *C. lawsonus* [*sic*], sp. n., *id. ibid.*, Auckland, New Zealand.

Philhydrus suturalis, sp. n., *id. l. c.* p. 153, Gt. Britain.

Laccobius atricephalus and *kiesewetteri*, spp. nn., Reitter, B. E. Z. xvi. p. 178, Géryville, Oran.

Limnebius nitiduloides, p. 35, *furcatus* and *similis*, p. 37, *mucronatus*, p. 39, Baudi, l. c., Italy, spp. nn.

Ochthebius maculatus, Reiche, Cat. Col. Alg. p. 27, note, Oran, Sicily [the author revives the spelling *Elophoridae*; but the derivative can only be ἑλος]; *O. numidicus*, Reitter, B. E. Z. xvi. p. 179, Oran: spp. nn.]

PAUSSIDÆ.

Paussus ludekingi, sp. n., Snellen v. Vollenhoven, S. E. Z. xxxiii. p. 82, E. India.

STAPHYLINIDÆ.

A. FAUVEL, Bull. Soc. L. Norm. (2) i. pp. 6-67, pl. i., gives the completion of his treatise, headed 'Faune du Chili: Insectes, Coléoptères' [and which, apparently from the confusion of dates attending that publication, has hitherto escaped record in the present work], describing the *Staphylinidæ* of that region, with synonymy, new genera, and species (Catalogue, pp. 62-66). The present portion is from the *Pederides* to the end of the group.

The same author, *ibid.* pp. 67-75, describes species found by C. Coquerel in the island of Réunion; and, pp. 210-214, gives various synonymic observations not necessary now to be reproduced in detail.

SOLSKY, Hor. Ent. Ross. viii. pp. 289-314, enumerates and describes species taken in South America by C. Solsky and Baron von Nolcken.

Aleocharides.

Fauvel, in de Marseul's 'Répertoire' &c. (L'Ab. viii. p. 176 *et seq.*) gives the following synonymical observations with others:—*Ocyusa longitarsis*, Thoms., ? = *ruficornis*, Ktz.; *Oxyroda nigra*, Bris., = *Leptusa incrassata*, Muls.; *O. longula*, Bris., = *exoleta*, Er.; *Homalota anthracina*, Fairm., ? = *halobrectha*, Shp., *H. trogophloeoides*, Woll., = *plumbea*, Wat.; *H. sinuaticollis*, Bris., = *fusca*, Sahlb.; *Phlæopora angustiformis*, Baudi, = *corticina*, Woll., which is not *reptans*, Grav.; *Gyrophæna punctulata*, Muls., = *poweri*, Crotch, *G. despecta*, Muls., = *carpini*, Baudi, = *bihamata*, Thoms.

Microglossa, Fauvel, renamed *Nanoglossa*; *Euryglossa*, *id.*, renamed *Pachyglossa*, both being preoccupied: *id.* Bull. Soc. L. Norm. (2) ii. p. 379.

Dembowski notes the capture by Jelski in equatorial America of a small species, parasitic upon mice, and rostrate [!]. Pet. Nouv. no. 65, p. 260.

Leptusa testacea, Ch. Bris.: new to Britain. E. C. Rye, Ent. M. M. ix. p. 5.

Aleochara tæniata, Er., from Peru and Cayenne, ♂ & ♀ sexual characters described: Solsky, Hor. Ent. Ross. viii. p. 290. *A. villosa*, common in pigeons' nests: E. C. Rye, Ent. Ann. 1873, p. 8.

Calodera glabriventris, Rye; again taken in France (Dijon). Nouv. et Faits, p. cxi.

Homalota (Bessobia) occulta, ♀; characters for distinguishing it from *fungivora* ♀ given; *H. (Atheta) breviceps*, Thoms., probably = *aubæi*, Bris.; *H. londinensis*, Sharp, = *H. (A.) gyllenhali*, Thoms.; *H. (A.) opacula*, Thoms. in all probably = *hygrotopora*, Ktz.; *H. ignobilis*, Shp., = *H. (A.) fungicola*, Thoms.; *H. fungicola*, Shp., = *H. (A.) sericans*, Thoms.: Thomson, Opusc.

Ent. (iv.) p. 376. *H. parva*, Sahlb., = *parvula*, Mann. : W. F. Mäklin, S. E. Z. xxxiii. p. 247.

Homalota fossigera, Mann., redescribed : Hochhuth, Bull. Mosc. xlv. 2, p. 111. *H. difficilis* and *fimorum*, Bris., and *humeralis*, Ktz., recorded as British by D. Sharp, Ent. M. M. viii. p. 247; *H. atrata*, Mann., also recorded as British by G. C. Champion, *ibid.* *H. hepatica*, habits &c. noted : E. C. Rye, Ent. M. M. ix. p. 36.

New species :—

Falagria atra, p. 86, Kiew, *crassiuscula*, p. 87, Volhynia (with *Formica rufa*), Hochhuth, *l. c.*

Thiasophila subcorticalis, *id. l. c.* p. 90, Kiew (with *Formica pubescens*).

Crataræa rubripennis, Fauvel, in Reiche's Cat. Col. Alg. p. 28, note, Biskra.

Aleochara notatipennis, Hochhuth, *l. c.* p. 95, Kiew.

Atemeles excisus, Thomson, Opusc. Ent. (iv.) p. 371, West Gothland.

Myrmedonia kawalli, Hochhuth, *l. c.* p. 97, Volhynia, Kiew (with *Formica rufa*).

Oxyptoda luctifera and *ambigena*, Fauvel, Reche. Cat. Col. Alg. p. 30, note, Bone; *O. (?) funicularis*, Hochhuth, *l. c.* p. 104, Kiew.

Homalota seorsicornis, p. 108, *dimidiata*, p. 109, Kiew, Hochhuth, *l. c.*; *H. platycephala*, Fauvel, Bull. Soc. L. Norm. (2) i. p. 68, I. Réunion (renamed *megacephala*, *id. l. c.* ii. p. 379); *H. (Aloconota) rivulorum*, p. 373, *H. (Lio-gluta) 6-notata*, p. 375, *H. nigricans*, p. 376 : Thomson, *l. c.*, Sweden.

Notothecta inflata, Fauvel, Reche. Cat. Col. Alg. p. 31, note, Bône.

Encephalus kraatzi, Hochhuth, *l. c.* p. 118, Kiew.

Gyrophæna (?) rugicollis, p. 120, *G. puncticollis* [preoccupied by Thomson] p. 121, Kiew : Hochhuth, *l. c.*

Tachyporides.

Tachyporus nitidicollis, Steph., recorded from England : J. R. Hardy, Ent. M. M. viii. p. 289. *T. discus*, Reche., certainly = *solutus*, Er., var. : Fauvel, Reche. Cat. Col. Alg. p. 32, note.

Tachyporus signifer, sp. n., Pandellé, Reche. Cat. Col. Alg. p. 32, note, Bone.

Conosoma erythrinum, sp. n., Hochhuth, *l. c.* p. 126, Kiew.

Bolitobius maacki, p. 236, *arcuatus*, p. 238, Solsky, Hor. Ent. Ross., E. Siberia : spp. nn.

Quediides.

Quedius virens, v. Rott., = *cruentus*, Ol., var. ; *Q. myagrus*, v. Rott., = *semiæneus*, Steph. : Fauvel, L'Ab. viii. pp. 278 & 279. *Q. polystigma*, Wank., = *maurus*, Sahlb., a good species : Hochhuth, *l. c.* p. 133.

Quedius molochinus. Pupa described and figured : C. V. Riley, iv. Rep. Ins. Mo., p. 21, fig. 12.

Heterothops distinguendus [Grav. ; but ? sp. n.], Hochhuth, *l. c.* p. 130, Kiew.

Quedius ernestini, Fauvel, Rche. Cat. Col. Alg. p. 34, note, Algeria; *Q. spelæus*, Horn, Am. Nat. vi. p. 421, Wyandotte Cave, Indiana: spp. nn.

Staphylinides.

Creophilus fulvago, Mots. (1860), found in some numbers near the Amour, in company with *maxillosus*, is maintained as a good species [it evidently = var. *ciliaris*, Leach, Steph.]; *Philonthus duplopunctatus*, Mots., = *scutatus*, Er., var.: Solsky, Hor. Ent. Ross. viii. pp. 240, 241.

Ocyopus subænescens, Woll., ? = *fuscatus*, Brullé; *Philonthus marcidus*, Woll., = *concinus*, Grav.; *P. obscuripes*, Bris., = *fulvipes*, F.; *P. libanicus*, Saulcy, and ? *mimulus*, v. Rott., = *maritimus*, Mots.; *P. dissimilis*, Baudi, = *prolixus*, Er.; *P. tenellus*, Woll., = *orbis*, Kies.; *P. rubiginosus*, Solsky, = *turbidus*, Er.: Fauvel, L'Ab. viii. p. 293 et seq.

Ocyopus morio: two races observed. E. C. Rye, Ent. M M. ix. p. 36; T. J. Bold, *ibid.* p. 60.

Philonthus interpunctatus, Hochh., redescribed; *P. megacephalus*, Heer, = *laticeps*, Zett., nec *cephalotes*: Hochhuth, Bull. Mosc. xlv. 2, pp. 137, 139.

Glenus jelskii, sp. n., Solsky, l. c. p. 291, Monte Rico, Peru.

Staphylinus notatus, id. l. c. p. 293, Lima; *S.* (*Creophilus*) *coquereli*, Fauvel, Bull. Soc. L. Norm. (2) i. p. 71, I. Réunion: spp. nn.

Philonthus erythropterus, Oran, *fenestratus*, Bone, Teneriffé, Fauvel, Rche. Cat. Col. Alg. p. 35, note; *P. peregrinus*, p. 69, *colubrinus*, p. 70, Réunion, *id.* Bull. Soc. L. Norm. (2) i.; *P. coxalus*, Hochhuth, l. c. p. 142, Kiev; *P. jelskii*, p. 296, Puna, Lima, *brachypterus*, p. 297, *chlorocephalus*, p. 301, Cayenne, *trochilus*, p. 299, note, Venezuela, *limensis*, p. 300, Lima: Solsky, l. c., spp. nn.

Belonuchus taczanovskii, sp. n., Solsky, l. c. p. 303, Monte Rico.

Trigonopselaphus nolkeni, sp. n., *id.* l. c. p. 305, New Granada.

Xanthopygius peruvianus, sp. n., *id.* l. c. p. 306, Monte Rico.

Plociopterus jelskii, sp. n., *id.* *ibid.*, Monte Rico.

Brachydirus picticornis, sp. n., *id.* l. c. p. 307 (S. America).

Xantholinides.

Xantholinus picipes, Thoms., = *atratus*, Heer; *X. atratus*, Thoms., is named *thomsoni*: Schwarz, B. E. Z. xvi. 154. *X. anachoreta*, Er., extends to I. Réunion: Fauvel, Bull. Soc. L. Norm. (2) i. p. 73. *Leptolinus sareptanus*, Stierl., = *nothus*, Er.: *id.* L'Ab. viii. p. 306.

Xantholinus morio, sp. n., Reitter, B. E. Z. xvi. p. 167, Frensdah, Oran (re-named *melanarius*, on account of the prior *morio*, Woll.: Fauvel, l. c. p. 304).

Leptolinus versicolor, sp. n., Solsky, l. c. p. 181, Astracan.

Othius longicornis, sp. n., Thomson, Opusc. Ent. (iv.) p. 369, Sweden.

Pæderides.

Baryopsis, Fairm. & G., is very near *Latona*, not *Pinophilus*, and its maxillary palpi are figured, pl. i. fig. 1; *Ædodactylus castaneipennis*, F. & G., is a *Lathrobium*; *L. rufipartitum*, F. & G., = *dimidiatum*, Say; *Lithocharis fusciventris*, F. & G., = *obscuriventris*, F. & G.; *L. obscurella*, Er., ? = *obsoleta*, Nordm.; *Stilicis apicipennis*, F. & G., = *chilensis*, Sol.; *Ædodactylus fusco-*

brunneus, F. & G. (redescribed), tarsi figured, pl. i. figs. 2 & 3: Fauvel, Bull. Soc. L. Norm. (2) i. p. 8 *et seq.* *Lathrobium erythrurum*, v. Rott., = *lusitanicum*, Grav.; *L. pyrenaicum*, Fairm., = *multipunctum*, Gr.; *Achenium saintpierrii*, All., = *Scimbalum testaceum*, Er.; *A. pallidipenne*, Stierl., = *Lathrobium dividuum*, Er.; *Dolicaon truquii*, Sauley, = *venustus*, Peyr.; *Lithocharis maritima*, Aubé, = *pocofera*, Peyron; *L. auranitica*, Sauley, = *fuscula*, Mann.; *L. monticola*, Hampe, = *brunnea*, Er.; *Sunius humeralis*, Rott., *ex. typ.*, = *diversicollis*, Fauv., local race: *id.* L'Ab. viii. p. 312 *et seq.* *Stiliculus flavipes*, Mots., = *similis*, Er., var.: Hochhuth, Bull. Mosc. xlv. 2, p. 149.

Lithocharis picea, Ktz., recorded from England: E. C. Rye. Ent. M. M. ix. p. 156.

Sunius humeralis, Rott., = *diversicollis*, Baudi, ? = *filiiformis*, var. *abbreviatus*, Fvel., ? = *fusciatus*, Hoch. (? = *diversus*, Aubé, var.): Solsky, Hor. Ent. Ross. viii. p. 182.

Dibelonetes biplagiatus, Sahlb.: a var. from Monte Rico, Peru, described. Solsky, Hor. Ent. Ross. viii. p. 309.

Lathrobium lethierrii, sp. n., Reiche, Cat. Col. Alg. p. 37, note, Algeria.

Dolicaon cribricollis, sp. n., Fauvel, Rche. Cat. Col. Alg. p. 37, note, Tangiers.

Scopæus ryii, sp. n., Wollaston, Ent. M. M. ix. p. 34, England.

Lithocharis africana, sp. n., Fauvel, Rche. Cat. Col. Alg. p. 38, note, Bone.

Sunius diversicollis, sp. n., *id.* Bull. Soc. L. Norm. (2) v. p. 21, Sicily, Algeria [see FAUVEL, List of Titles, *suprà*; *S. diversicollis*, Baudi, B. E. Z. xiii. (1869), p. 393].

Gnathymenus obesus, sp. n., Fauvel, Bull. Soc. L. Norm. (2) i. p. 18, Chillan.

Pæderus chilensis, sp. n., *id.* l. c. p. 20, Valparaiso.

Pinophilides.

Tænodema elegans, sp. n., Solsky, l. c. p. 310 (S. America).

Stenides.

Stenus gracilicornis, Baudi, = *serpentinus*, Fauvel; *S. italicus*, Baudi, = *scaber*, Fauv.; *S. fauveli*, Bris., = *aerosus*, Er.; *S. insidiosus*, Solsky, = *tarsalis*, Ljungh; *S. siculus*, Stierl., = *oculatus*, Grav. Fauvel, L'Ab. viii. p. 356 *et seq.*

Stenus rogeri, Ktz., is considered a good species by Thomson, Opusc. Ent. (iv.) p. 369.

Stenus scaber, Fauvel, Bull. Soc. L. Norm. (2) v. p. 20 [see FAUVEL, List of Titles, *suprà*], Corsica, Tuscany; *S. cordicollis*, *id.* Rche. Cat. Col. Alg. p. 40, note, Algiers: spp. nn.

Oxytelides.

Bledius atramentarius, Rott., = *bos*, Fauv.; *B. cornutissimus*, Woll., = *corniger*, Ros.; *B. obscurus*, Muls., is renamed *denticollis*; *Platystethus pilosellus*, Wank., = *capito*, Heer (nec *nodifrons*, Sahlb.); *P. constrictus*, Scriba, = *burlii*, Bris.; *P. angustipennis*, Scriba, = *nitens*, Sahlb.; *Trogophlæus brebissoni*, Fauv.,

=*plagiatus*, Kies.; *T. oculus*, Woll., = *memnonius*, Er.; *T. exilis*, Woll., = *pusillus*, Gr.; *T. discolor*, Baudi, and *bledioides*, Woll., = *exiguus*, Er.; *Thinobius brevicollis*, Muls., ? = *linearis*, Ktz.; *T. wenckeri*, Fauv., = *longipennis*, Heer; *Planeustomus miles*, Scriba, = *cephalotes*, Er.: Fauvel, L'Ab. viii. p. 361 *et seq.* *Bledius irroratus*, Fauv., = *maculipennis*, Sol.; *Oxytelus testaceipennis*, Fairm. & G., = *sculptus*, Gr.; *Homalotrichus fuscus*, Sol., and *Trogophlæus andicola*, F. & G., = *T. luteipes*, F. & G.; *T. mersus*, F. & G., = *obscurus*, Sol.; *T. sobrinus*, F. & G., = *riparius*, Lac.; *Homalotrichus*, Sol., = *Coprophilus*, Latr., of which anatomical details are figured, pl. i. figs. 4-8: *id.* Bull. Soc. L. Norm. (2) i. p. 26 *et seq.* *Ancyrophorus venustus*, Rosenh., ? = *homalinus*, Er., var.; *Trogophlæus aridus*, Duv., and *rubripennis*, Fauv., = *memnonius*, Er., which occurs in N. America and Cuba; *T. discolor*, Baudi, *glabricollis*, Mots., and ? *atomus*, Saulcy, = *exiguus*, Er.; *Oxytelus maritimus*, Thoms., = *perrisi*, Fauvel [again relying on Bull. Soc. L. Norm.]; the specific identity of *Platystethus cornutus*, Gyll., and *alutaceus*, Thoms. (*tristis*, Muls.), is maintained: *id.* Faune & c. iii. p. 143 *et seq.*

Bledius fuscipes, Rye. The Recorder maintains the value of this species: Nouv. et Faits, p. cliii.

Oxytelus. All species received from Eastern Siberia are specifically identical with those of Britain; but no species of *Bledius* is common to both countries. D. Sharp, P. E. Soc. 1872, p. ix.

Trogophlæus arcuatus, Fauv., *nec* Steph., renamed *croceipes*: Fauvel, Bull. Soc. L. Norm. (2) ii. p. 379.

Planeustomus (*Compsochilus*). The tarsi are 4-jointed: *id.* Faune & c. iii. p. 128, note.

New genera and species:—

Cylindrogaster, Fauvel, *ibid.* p. 213, note. Differs from *Osorius* and *Holotrochus* in its non-spatulate legs, 5-jointed maxillary palpi, want of eyes and scutellum, &c. *C. corsicus*, *id.* *ibid.* pl. ii. fig. 17, Corsica.

Actocharis, *id.* Bull. Soc. L. Norm. (2) v. p. 19 [see FAUVEL, List of Titles, *suprà*]. Allied to *Thinobius*. [This genus is the prior *Actocharis* of Sharp: see Zool. Rec. vii. p. 265.] *A. marina*, *id.* *ibid.*, St. Vaast, Plymouth, Messina [= *readingi*, Sharp].

Oxyporus dybowskii, Solsky, Hor. Ent. Ross. viii. p. 242, E. Siberia.

Bledius puelches, Fauvel, Bull. Soc. L. Norm. (2) i. p. 28, S. Antonio, Chili; *B. bos*, *id.* *ibid.* v. p. 20 [see FAUVEL, List of Titles, *suprà*], Oran [= *atramentarius*, Rott.]; *B. baudii*, p. 205, France, Switzerland, Germany, *obsoletus*, p. 207, Pyrenees, *strictus*, p. 211, note, Switzerland, Syria, *defensus*, p. 212, Calvados: *id.* Faune & c. iii.; *B. limbalus*, Hochhuth, Bull. Mosc. xlv. 2, p. 158, Kiew.

Platystethus debilis, p. 161, *wankowiczi*, p. 162, Kiew: *id.* l. c.

Oxytelus rugifrons, *id.* l. c. p. 164, Volhynia and Kiew; *O. brevipennis*, Fauvel, Reche. Cat. Col. Alg. p. 42, note, Algeria.

Trogophlæus araucanus, p. 35, *angulicollis*, p. 36, *nitidifrons*, p. 38, Santiago, *senex* and *luniger*, p. 40, St. Antonio, Chili: *id.* Bull. Soc. L. Norm. (2) i.

Thinobius iridipennis, *id.* *ibid.* p. 43, Santiago; *T. micros* and *nitens*, p. 137, *atomus*, p. 139, France: *id.* Faune & c. iii.

Ancyrophorus emarginatus, p. 141, note, Spain, *aureus*, p. 142, Switzerland, Great Britain, Corsica (= *longipennis* of English Cats.): *id.* Faune &c. iii.

Planeustomus flavicollis, *id. ibid.* p. 129, Verviers; *P. curtipennis*, *id.* Rche. Cat. Col. Alg. p. 43, note, Algeria.

Homaliides.

Lesteva lepontia, Baudi, = *pandellii*, Fauv.; *Lathrimæum baudii*, Ktz., *ex. typ.*, ? = *atrocephalum*, Gyl.; *Philorhinum cadomense*, Fauv., = *sordidum*, Steph.; *Anthobium obscurum*, Bris., = *scribæ*, Schauf.; *A. cribricolle*, Baudi, = *foveicolle*, Fauv.; *A. lævipenne*, Baudi, = *stramineum*, Ktz.; *A. silesiacum*, Letz., ? = *sorbi*, Gyll.: Fauvel, L'Ab. viii. p. 387 *et seq.* *Homalium nigrum*, Grav., and *florale*, Er., are identical as a species, for which *rufipes*, Fourcr., is adopted; *H. heeri*, Heer, = *vile*, Er., var.; *H. punctipenne* and *abietinum*, Thoms., are considered mere phases of *pusillum*, Gr.; *H. salzmanni*, Saulcy, ? = *allardi*, Fairm., from which *ocellatum*, Woll., is now admitted to be distinct; *Arpedium quadrum* is resolved into two races, Erichson's species being named *alpinum*; the *A. brachypterum* of British Cats. = *trogloodytes*, Kies., dubiously considered a form of *brachypterum*, Grav.; *Lesteva major*, Muls., ? = *fontinalis*, Kies.; *L. muscorum*, Duv., = *punctata*, Er.; *L. punctata*, Ktz., Duv., is renamed *heeri*; *Geodromicus suturalis*, *nigrita*, *plagiatus*, *litturatus*, *marginatus*, *globulicollis*, and *curtipennis* are regrouped as one species, under the name *plagiatus*; *Anthophagus abbreviatus*, F., *gracilis*, Heer, *obscuriceps*, Mots., = *caraboides*, L.; and various errors of locality are corrected. *Id.* Faune &c. iii. p. 62 *et seq.*

Acidota ferruginea, Lac., discussed as to its claims to specific value: Hochhuth, Bull. Mosc. xliv. 2, p. 169 [*cf.* Rye, Ent. M. M. ix. p. 190].

Acidota seriata, Lec., from Lake Superior, = *crenata*, F.: W. F. Mäklin, S. E. Z. xxxiii. p. 247.

Olophrum, sp. n., from the Altvatergebirge, described, but not named: Schwarz, B. E. Z. xvi. p. 155.

Homalium rugulipenne, Rye, from Scotch and Lancashire coasts: E. C. Rye, Ent. Ann. 1873, p. 6. It occurs in abundance on the Welsh coast: *id.* Ent. M. M. viii. p. 204. *H. florale*, var. *ruficorne*, Waltl, in pigeons' nests: *id.* Ent. Ann. 1873, p. 8.

Ischnoderus, g. n., Fauvel, Bull. Soc. L. Norm. (2) i. p. 51, pl. i. figs. 9-12. Facies of certain American *Oxytelideæ*; in mouth and tarsi allied to *Anthobium*, but maxillary lobes different; ligula bilobed, as in *Eudectus*, and four first joints of tarsi very short. *Homalium insigne*, Fairm. & G.

Lesteva pandellii, Fauvel, *l. c.* (2) v. p. 18 [see FAUVEL, List of Titles], Pyrenees; *L. luctuosa*, *id.* Faune &c. iii. p. 103, Grande Chartreuse: spp. nn.

Homalium picipenne, sp. n., *id.* Bull. Soc. L. Norm. (2) i. p. 49, Chili.

Anthobium andicola, *id. ibid.* p. 51, Chillan; *A. octavii* and *foveicolle*, p. 18, Alps, *pruinatum*, p. 19, Corsica, *rectangulum*, p. 17, France, Italy, and Germany: *id. l. c.* v. [see FAUVEL, List of Titles, *suprà*]; *nigriceps*, p. 41, note, Corsica, *sinuatum*, p. 44, Basses-Alpes, *angusticolle*, p. 47, Maritime Alps: *id.* Faune &c. iii.: spp. nn.

Protinides.

Protinus olivieri, Saulcy, = *clavicornis*, Steph., *P. crenulatus*, Pand., = *limbatus*, Mäkl.: Fauvel, L'Ab. viii. p. 409.

Protinus nigriceps, id. Bull. Soc. L. Norm. (2) i. p. 55, Santiago; *P. levigatus*, Hochhuth, Bull. Mosc. xlv. 2, p. 174, Kiev: spp. nn.

Phlæocharides.

Pseudopsis sulcatus occurs in quantity near Angers: Nouv. et Faits, p. cli.

Thermocharis, subg. n. of *Phlæocharis*; no eyes, scutellum, or wings. *P. (T.) cæca*, sp. n., Eastern Pyrenees. Fauvel, Faune &c. iii. p. 22, pl. 1. fig. 4.

Piestides.

Glyptoma punctatiplicatum, Solsky, is a *Thoracophorus*: Solsky, Hor. Ent. Ross. viii. p. 313.

Chasolium ernestini, Lap., ex. typ., = *Isomalus complanatus*, Er.: Fauvel, Bull. Soc. L. Norm. (2) i. p. 57, note.

Piestus (?) *lævis*, sp. n., Solsky, l. c. p. 311, Monte Rico, Peru.

Glyptoma bonvouloiri, sp. n., Fauvel, l. c. p. 59, Santiago.

Lispinus parvipennis, p. 73, *microcephalus*, p. 74, I. Réunion: id. l. c., spp. nn.

Micropeplides.

Micropeplus mathani and *cælatus* (nec Er.), Fauvel, = *porcatus*, Payk.; *M. duvali*, Fauv., = *staphylinoides*, Msh.: Fauvel, Faune &c. iii. p. 10.

PSELAPHIDÆ.

Trichonyx sulcicollis, Reiche, lives in company with *Ponera contracta*: Bedel, Bull. Soc. Ent. Fr. (5) ii. p. li.

Batrismus delaportii, Aubé, in numbers, associated with ants: J. Weise, B. E. Z. xvi. p. 157.

Machærites cristatus, sp. n., Saulcy, in Abeille's Étud. Col. Cav. p. 16, Ariège.

SCYDMÆNIDÆ.

Scydmænus pumilio, Schaum, has been erroneously considered British: E. C. Rye, Ent. M. M. ix. p. 8.

Scydmænus præteritus, sp. n., id. l. c. p. 6, England (? = *sparshalli*, Schaum, nec Denny).

SILPHIDÆ.

Silphides.

Necrophorus sepulchralis, Heer, redescribed by Stierlin, from a second specimen found by Frei-Gessner in the Swiss Alps; MT. schw. ent. Ges. iii. p. 475.

Silpha carinata, Hbst., = *tyrolensis*, Laich.: v. Harold, C. H. x. p. 205.

Adelops. A synopsis of 20 Pyrenæan species, including many new: Abeille, Étud. Col. Cav. pp. 17-23. La Brûlerie, Ann. Soc. Ent. Fr. (5) ii. p. 450, considers that more than one species is united under the name *abeillii*

by Abeille & Saulcy. He points out indications of confusion in other species, and suggests the existence of more new forms, thinking that the same species is only found in connected caves.

Adelops wollastoni, Jans., found in a bee's nest: H. S. Gorham, Ent. M. M. ix. p. 12.

Colon calcaratus new to France: Ch. Brisout, Bull. Soc. Ent. Fr. (5) ii. p. li.

Agyrtes bicolor feeds on larvæ of *Bibio marci*: Laboulbène, Ann. Soc. Ent. Fr. (5) ii. p. 211. It occurs among these larvæ in January, as larva, pupa, and imago: Berce & Ch. Brisout, *ibid.* Bull. p. v.

Adelops cisnerosi, Perez Arcas, An. Soc. Esp. i. p. 127, pl. 3. fig. 2, Spain; *A. kerimi*, Mte. Rosa, *gestroi*, Sardinia, p. 54, *doriae*, p. 55, Mte. Ceppo: Fairmaire, Ann. Mus. Genov. iii, Italy; *A. curvipes*, p. 444, *novemfontium*, p. 445, *perieri*, p. 446, *crassicornis*, *oviformis*, p. 447, Ariège, *vasconicus*, p. 448, Orduña, Portuguese Pyrenees: La Brûlerie, Ann. Soc. Ent. Fr. (5) ii.; *A. crotchii*, Sharp, An. Soc. Esp. i. p. 270 (but published in 1873), Alsasua, described from ♀ (La Brûlerie, *l. c.* p. 449, describes both sexes); *A. ehlersi*, p. 17, *sauleii*, p. 19, Abeille, *l. c.*, *A. diecki*, *discontignii*, *barnevillii*, p. 18, *longicornis*, p. 19, *abeillii*, *clavatus*, p. 20, *zophosinus*, p. 21, *subasperatus*, *lupidicola*, p. 22, Saulcy, *ibid.*, Ariège; *A. grenieri*, *id. l. c.* p. 22, Vernet: spp. nn.

Choleva barnevillii, sp. n., Tournier, MT. schw. ent. Ges. iii. p. 436, Blidah.

Catops bugnioni, sp. n., *id. l. c.* p. 437, Tour d'Ai.

Anisotomides.

Hydnobius punctatus, Schm., and *spinipes*, Gyll., differentiated, and both [the latter erroneously] stated to occur in England: E. C. Rye, Ent. M. M. viii. p. 204.

Anisotoma brunnea, Stm., is quite distinct from *obesa*, Schmidt, and occurs in England: *id. l. c.* ix. p. 135.

Agathidium monographed by Ch. Brisout de Barneville: Ann. Soc. Ent. Fr. (5) ii. pp. 169-198. *A. seriepunctatum*, Bris., is wrongly placed in *Anisotoma* by Gemminger & v. Harold; *A. polonicum*, Wank., = *confusum*, Bris., ? = *piceum*, Thoms. (?? nec Er.). *A. pallidum*, Gyll., and *pallidum*, Fairm., are not to be associated with certainty (but if Fairmaire's species be not Gyllenhal's, it requires renaming: Von Harold, C. H. x. p. 219).

Anisotoma lunicollis, sp. n., Rye, Ent. M. M. viii. p. 203, England: *id. l. c.* ix. p. 136.

Agathidium algiricum, p. 173, *leprieuri*, p. 180, *nigriceps*, p. 193, Bone, *escorialiensis*, p. 176, Escorial, *siculum*, p. 179, Sicily, *pisanum*, p. 182, Pisa, Brisout, *l. c.*; *A. wancowiczi*, Hochhuth, Bull. Mosc. xlv. 2, p. 212, Kiew: spp. nn.

CLAMBIDÆ.

Clambus punctulum, Gyll., has been erroneously considered British: E. C. Rye, Ent. M. M. ix. p. 8.

TRICHOPTERYGIDÆ.

MATTHEWS, A. Trichopterygia illustrata et descripta. A Mo-

nograph of the Trichopterygia. London: 1872, sm. 4to, pp. 189, 31 pls. [reviewed in Ent. M. M. viii. p. 277, and Nouv. et Faits, p. cxvii].

The author places the *Trichopterygia* between the *Philhydrida* (or *Hydradephaga*) and *Brachelytra*, commencing with *Nossidium* and finishing with *Ptinella*; but no affinities between any of the members of the group and *Gyrinus* or *Cercyon* are suggested. He recognizes 21 genera and 149 species, for the reception of which two families are proposed, viz. *Ptiliadae*, in which the elytra are not truncate, and *Trichopterygidae*, in which the elytra are truncate. In discussing the general anatomy of the group, the following observations occur:—the mandibles are ribbed transversely on the outer edge, and are capable of being turned inwards towards the gullet, so that the ribbed portions crush the food *inter se*. Gillmeister has figured the clongate curved process of the stipes as the mandible, at the articulation with which is always a large transparent membranous plate, used in clearing a space for the above-mentioned inverted use of the mandibles* (a somewhat analogous formation occurs in *Dinopsis*). The maxillary palpi are 4-jointed. Du Val's account of the buccal organs is the most correct, Erichson's being hopelessly obscure, and Gillmeister's founded on mutilated objects. There are no biarticulate setæ at the apex of the ligula. The peculiar structure of the wing is retained throughout all the genera except *Nossidium* and *Motschulskium*. The "knobbed bristle" said to exist between the claws is apparently mythical. The larvæ of *Trichopteryx*, *Pteryx*, and *Ptinella* (all that are known) resemble each other closely.

The following synonymic and other observations occur, amongst others:—*Ptenidium formicetorum*, Ktz., is adopted for *myrmecophilum*, Mots., *nec* Allib.; *P. apicale*, Gillm., Er., *terminale*, Hald., = *evanescens*, Msh.; *P. lævigatum*, Woll., *nec* Gillm., is named *brucki*, p. 82; *P. nitidum*, Bris., *nec* Heer, is named *brisouti*, *ibid.*; *Acteella*, Mots., = *Actidium*, Mots.; *A. transversale*, Er., = *boudieri*, Allib.; *A. filiforme*, Aubé, *mediterraneum*, Mots., = *coarctatum*, Hal.; *Ptilium canadense*, Lec., = *collani* (errore *bollani*), Mann.; *Microcrus*, Matth., *nec* Mots., is named *Smicrus*, p. 110; *Trichopteryx silbermanni*, Wencker, = *littoralis*, Thoms., *nec* Mots., = *variolosum*, Muls.; *T. chevrieri*, Matth., *nec* Allib., is renamed *poweri*, p. 118; *T. insularis*, Mann., = *sitkensis*, Mots.; *T. convexa*, Matth., = *convexiuscula*, Mots.; *T. cursitans*, Matth., *nec* Nietn., = *fuscipennis*, Hald. (1848), "*nomen prius usitatum*" [but not so appearing in the dated list of all prior described species given by the author], is named *dohrni*, p. 144; *Astatopteryx laticollis*, Perris, *nec* Mann., is named *perrisi*, p. 154 [but *laticollis*, Mann., is a recognized *Trichopteryx*, and Perris's insect is the type on which that author founded his genus, recognized as such by Matthews, and differing *toto cælo* from *Trichopteryx*]; *Pteryx dimidiata* Mots., = *balteatum*, Lec.; *Ptinella proteus*, Matth., = *limbata*, Heer, ♀, = *testacea*, Heer; *P. punctipenne*, Fairm., = *denticolle*, Fairm., ♀; *P. nigrivittis*, Lec., = *pallidula*, Mots., ♀, = *quercus*, Lec.; *P. ratisonensis*, Gillm., = *aptera*, Guér., ♀; *P. gracilis*, Gillm., = *angustula*, Gillm., ♀; *Myrmicotrichis subvittata*, Mots., ? = *æquatorialis*, Mots., ♀.

* C. Lindemann, Bull. Mosc. xlv. 2, Séances, p. 12, also records this structure of the mandibles.

The author gives 19 excellent and highly magnified plates, in outline, of the most important portions of the external anatomy (including the cibarian organs) of all the genera, and 11 of half-bodies of all the described species; and reproduces in Latin the original descriptions of former authors, adding the revised synonymy in each case.

He characterizes the following new genera and species [no comparative diagnostic characters are given for the former, the observations here made being from the synoptical table, p. 59]:—

Euryptilium, p. 63. Allied to *Nossidium*, but with the metasternum reaching the sides of the body. *Trichopteryx saxonica*, Gillm.; pl. xx. fig. 3.

Throscidium, p. 64, pl. iii. Differs from *Nanosella*, Mots., in the elongate posterior angles of the pronotum. *T. germaini*, pl. xx. fig. 4, *fairmairii*, fig. 5, p. 67, Chili.

Motschulskium, p. 72, pl. v. Differs from its ally *Millidium* in having the pronotum not constricted at the base. *M. sinuaticolle*, p. 74, pl. xx. fig. 9, N. America.

Microptilium, p. 107, pl. x. Allied to *Nephanes*, but with long elytra and simple posterior coxæ. *Trichopteryx pulchella*, Allib.; pl. xxiii. fig. 4.

Actinopteryx, p. 148, pl. xiii. Differs from *Pteryx* in its greatly dilated pronotum, and in its posterior coxæ being widely remote. *Trichopteryx fucicola*, Allib.; pl. xxiii. fig. 12 (and *A. australis*, sp. n., Matthews, Cist. Ent. pt. v. p. 93, Swan River, Australia).

Ptinellodes, p. 158, pl. xvii. Allied to *Trichopteryx*, but with the posterior coxæ exceedingly remote, and the mesosternum but slightly keeled. *Ptilium testaceum*, Lec. (*nec* Heer), renamed *lecontii*; pl. xxiii. fig. 8.

Ptenidium kraatzi, p. 79, pl. xxix. fig. 1, North Britain, *mannerheimi*, p. 83, fig. 2, North America.

Ptilium croaticum, p. 103, pl. xxii. fig. 7, Austria, *sharpi*, p. 101, fig. 9, Vancouver's Island, *færsteri*, p. 102, fig. 11, France.

Nephanes meridionalis, p. 174, pl. xxx. fig. 1. Venezuela.

Trichopteryx aubæi, pl. xxiv. fig. 1, *motschulskii*, fig. 2, p. 117, Chili, *reichii*, fig. 7, p. 119, Caracas, *wenckeri*, p. 125, pl. xxix. fig. 14, Brazil, *diffinis*, pl. xxv. fig. 13, N. America, *josephi*, fig. 14, Vancouver's Island, p. 132, *henrici*, p. 136, pl. xxvi. fig. 6, Vancouver's Island, *marseuli*, p. 137, fig. 9, France, *alliberti*, p. 139, fig. 13, Caracas, *sallei*, p. 143, pl. xxix. fig. 10, Caracas (? = *T. fenestrata*, Gillm.), *horni*, p. 176, pl. xxx. fig. 6, Arizona.

Pteryx duvali, p. 164, pl. xxix. fig. 7, North America.

Ptenidium laticolle, sp. n., Hochhuth, Bull. Mosc. xlv. 2, p. 214, Kiew (? = *nitidum*, Bris., *nec* Heer).

Nossidium scaphidiiforme, sp. n., *id. l. c.* p. 215, Kiew.

HISTERIDÆ.

Saprinus krinickii, Kryn., ? = *nitidulus*, var., p. 224; *S. virescens*, var. n. *violaceus* (? = *azurescens*, Stev.), S. Russia, p. 226; *S. conjungens*, Payk., var. n. *micans*, Podolia, p. 228; *S. rugiceps*, Dufts., observations on specific value. Hochhuth, Bull. Mosc. xlv. 2.

Saprinus: punctuation very variable. Koltze, B. E. Z. xvi. p. 162.

Platysoma betulinum, sp. n., Hochhuth, *l. c.* p. 219, Kiew.

Heterius setulosus, sp. n., Reitter, B. E. Z. xvi. p. 179, Oran.

Saprinus perrisi, Marseul, L'Ab. viii. p. 415, Corsica; *S. rugipennis*, p. 225, Steppes of Novomirgorod, *asphaltinus*, p. 226, Kiew, Hochhuth, *l. c.*: spp. nn.

Onthophilus interruptus, sp. n., Reitter, *l. c.* p. 168, Oran (= *exaratus*, Ill., *ex. typ.*, Kraatz, *ibid.* p. 186).

PHALACRIDÆ.

Olibrus particeps, Muls., recorded as British, and probably represents the *O. affinis* of British lists; *O. bicolor* is erroneously considered British: E. C. Rye, Ent. M. M. ix. p. 38. *O. ulicis*, Gyll., considered distinct from *millefolii*, Payk.: Hochhuth, Bull. Mosc. xlv. 2, p. 233.

Olistherus (Erichson, *Staphylinidæ*, changed to *Stilbus*, p. 35 of generic table), g. n., Seidlitz, Fauna Baltica, p. 157. Metasternum not extending forwards beyond the middle coxæ, separated from prosternum by a distinct mesosternum &c. *Olibrus geminus*, Ill., *piceus*, Steph., *oblongus*, Er.

Phalacrus brisouti, Rye, *l. c.* p. 8, England; *P. intermedius*, Hochhuth, *l. c.* p. 231, Kiew: spp. nn.

Olibrus pumilus, sp. n., Hochhuth, *l. c.* p. 234, Kiew.

NITIDULIDÆ.

Cercus sambuci. Rupertsberger, Verh. z.-b. Wien, xxii. p. 10, fully describes the larva and pupa.

Epuræa. Note on habits of Swiss species: Perrin, Nouv. et Faits, cx.

Nitidula flexuosa corroborated as British: R. Lawson, Ent. M. M. viii. p. 248. *N. castanea*, Sahlb., characterized, and is distinctly a good species, not a var. of *rufipes*: Hochhuth, Bull. Mosc. xlv. 2, p. 286.

Meligethes. Ch. Brisout (L'Ab. viii. pp. 1-36, separate pagination) publishes a synopsis of the genus, dichotomously describing 67 species known to him. According to him *M. pictus*, Rye, = *mutabilis*, Rosenh. (*cf.* Zool. Rec. viii. p. 253); *carinulatus*, Först., = *erythropus*, Gyll.; *subtilis*, Bris., is renamed *hypocrita*; *flavicornis*, Mill., = *flavipes*, Stm.; *niger*, Bris., *nec* Newm., is renamed *parvulus*. Notes of food-plants and localities are given for all the species. This paper is abstracted &c., as regards British species, by the Recorder, Ent. M. M. viii. p. 267.

Reitter, B. E. Z. xvi. pp. 125-134, pl. vii., and pp. 265-269, publishes 2 supplements to his revision of the European species. According to him, *M. anthracinus*, Bris., is a good species; *M. bonvouloiri*, Bris., probably = *æneus*, var.; *M. azureus*, Heer, = *viridescens*, Fab., var., probably the var. *germanicus*; *M. marmottani*, Bris., = *lederi*, Reitt.; *M. confusus*, Bris., probably = *obscurus*, var.; *M. parvulus*, Bris., = *memnonius*, Er.; *M. niger*, Newm., is rightly dismissed as non-existent; *M. brucki*, Reitt., = *punctatus*, Bris. The same author, *ibid.* pp. 241-264, and p. 269, discusses the South-African species known to him, including 18 new. *M. exilis* is recorded from the Cape, and the Canarian *virescens*, Woll., from S. Africa (the latter probably doubtful).

Meligethes incanus, Sturm, recorded as British, and the *M. maurus* of British lists stated to be *M. ovatus*, Sturm: E. C. Rye, Ent. M. M. viii. pp. 267 & 268.

M. pictus, Rye, occurs in an immaculate form: *id. ibid.* p. 288. *M. ochropus*, Stm., recorded as British, and *M. kunzii* asserted to be specifically distinct from *difficilis*: *id. l. c.* ix. p. 156.

Epuræa thoracica, Tournier, R. Z. (2) xxiii. p. 250, Valais; *E. heeri*, *id.* MT. schw. ent. Ges. iii. p. 439, Blidah: spp. nn.

Soronia lichenæa, sp. n., Fauvel, Bull. Soc. L. Norm. (2) i. p. 180, note, New Caledonia.

Meligethes crotchi, p. 3 (= *elongatus*, Rosenh., *sec. Reitter*), *grenieri*, p. 7, Provence, *gracilis*, France, *bonvouloiri*, Switzerland, p. 10, *anthracinus*, p. 12, Provence, Pyrenees, *marmottani*, p. 19, Constantine, *syriacus*, p. 20, Jerusalem, *confusus*, p. 24, St. Germain: Ch. Brisout, *l. c.*; *M. rhenanus*, p. 126, fig. 1, Rhenish Prussia, *ranunculi*, fig. 2, Aix, *dives*, fig. 3, Moravia, p. 127 (probably = *brachialis*, Er., var., p. 267), *liguricus*, p. 128, fig. 4, Nice, *luctifer*, p. 129, fig. 5, Styria, *blandulus*, fig. 6, Rhenish provinces, *milleri*, Austria, p. 130, *solitarius*, p. 131, fig. 8, Madrid, *mellitulus*, p. 132, fig. 9, Rhenish Prussia, *sauleii* (= *picipes*, Stm., ♂, p. 267), Perpignan, *estimabilis*, Austria, p. 133, *discolor*, p. 265, Elberfeld, *stierlini*, p. 268, Sicily, Algiers; *odiosus*, p. 245, *nebulosus*, *pulchellus*, p. 247, *cercoides*, *variabilis*, p. 248 (and varr. *bimaculatus*, *suturalis*, *confluens*, *luridipennis*, p. 249), *confertus*, p. 250, *rufiventris*, p. 251, *arcuatus*, *limbatus*, p. 252, *haagi*, *reticulatus*, p. 253, *grandicollis*, p. 254, *plumbeus*, *pygmæus*, p. 255, *serrator*, *floralis*, p. 256, *rimulosus*, p. 257, *morulus*, p. 269, *M. (Acanthogethes) ruficollis* and var. *rufus*, p. 258, *atratus*, *pubescens*, p. 259, *fritschi*, *comosus*, p. 260, *clavatus*, *capensis*, p. 261, *chevrolati*, p. 262, *latissimus* (? = *M. ampliocollis*, Boh.), *strigulosus*, p. 263, *inhonestus*, p. 264, S. Africa: *Reitter*, *l. c.*, spp. nn.

Ips grandis, sp. n., Tournier, MT. schw. ent. Ges. iii. p. 440, Caucasus.

Pityophagus levior, sp. n., Abeille, Étud. Col. Cav. &c. p. 29, S. France.

Rhizophagus hannenfeldti, sp. n., Tournier, R. Z. (2) xxiii. p. 251, Sunzel, Russia.

TROGOSITIDÆ.

Nemosoma elongatum. Parasitic on *Hylesinus vittatus*: J. E. Sidebotham, Ent. M. M. viii. p. 180. Attributed to *Hylesinus fraxini* and *Tomicus chalcographus* (the former probably in error) by Bischoff-Ehinger, MT. schw. ent. Ges. iii. p. 485.

Peltis. In some species the inner lobe of the maxilla does not end in a hook; and in others the anterior cotyloid cavities are closed behind. *Peltis dentata*, from Europe, is the type of *Calitys*, C. G. Thoms. (= *Nosodes*, Lec.): Pascoe, Ann. N. H. (4) x. p. 319.

Cymba, g. n., Seidlitz, Fauna Baltica, p. 34. Allied to *Peltis*: eyes very flat, sides of thorax not explanato-emarginate beneath, thorax with very acuminate anterior angles, &c. Type *Peltis procera*, Ktz.

Neaspis, g. n., Pascoe, *l. c.* p. 317. Antennæ 10-jointed, 7-jointed without the club; tarsi 4-jointed, with no indication of an atrophied basal joint; inner lobe of maxillæ unarmed. Type of a new subfamily, *Neaspidinæ*. *N. villosa*, sp. n., *id. l. c.* p. 318, Australia.

Peltis moniliata, sp. n., *id. l. c.* p. 318, Australia.

Melambia gautardi, sp. n., Tournier, MT. schw. ent. Ges. iii. p. 441, Upper Egypt.

COLYDIIDÆ.

Sarrotrium clavicorne. Rupertsberger, Verh. z.-b. Wien, xxii. p. 12, describes the larva and pupa.

Cerylon histeroides (?): a var. from the Caucasus described by Tournier, MT. schw. ent. Ges. iii. p. 442.

Cossyphodes beccarii, sp. n., Gestro, Ann. Mus. Genov. iii. p. 49, fig., Keren, Bogos.

CUCUJIDÆ.

Dendrophagus crenatus. Earlier stages and economy described by F. Buchanan White & D. Sharp, Ent. M. M. viii. p. 196.

A *Læmophlæus* parasitic on *Hylesinus thuyæ* and *H. aubæi* at Fontainebleau provisionally named *juniperi*: Grouvelle, Bull. Soc. Ent. Fr. (5) ii. p. xiv.

Psammæchus boudieri, Luc., reasserted to be a good species: C. A. Dohrn, S. E. Z. xxxiii. p. 485.

Diocares, g. n., Reitter, B. E. Z. xvi. p. 168. Allied to *Nausibius*. *D. depressus*, sp. n., *id. l. c.* p. 169, Frensdah, Oran (= *Pediacus costipennis*, Fairm., *ex. typ.*: Kraatz, *ibid.* p. 186).

CRYPTOPHAGIDÆ.

Cryptophagus grandis, Ktz. British exponents, and probably also Kraatz's insect, = *C. populi*, Payk., pallid; *C. waterhousii*, Rye, = *acutangulus*, Gyll., equilaterally deformed: E. C. Rye, Ent. M. M. viii. p. 179. *C. ruficornis*, Steph., redescribed: *id. l. c.* ix. p. 38.

Haplolophus robustus, Moraw., and *Paramecosoma langi*, Solsky: Hochhuth, Bull. Mosc. xlv. 2, pp. 297 & 301, describes insects from Kiew, dubiously referred to these species.

Atomaria fimetarii occurs in *Coprinus comatus* (Fung.): H. Hutchinson, Ent. M. M. viii. p. 205. *A. badia* and *fumata*, Er., corroborated as British: E. C. Rye, *ibid.* ix. p. 9.

Cryptophagus parallelus [preoccupied by Brisout], Thomson, Opusc. Ent. (iv.) p. 387, Sweden; *C. impressicollis*, p. 253, *helveticus*, p. 254, Valais, Tournier, R. Z. (2) xxiii.; *C. dilaticollis*, pp. 443, Geneva, *hexagonalis*, p. 444, Minsk, *barnevillii*, p. 445, Sicily: *id.* MT. schw. ent. Ges. iii.: spp. nn.

Paramecosoma oculare, sp. n., Reitter, B. E. Z. xvi. p. 172, Oran.

Atomaria abeillii, p. 446, Algeria, *delicatula*, Jura, *minutissima*, Geneva, p. 447, Tournier, MT. schw. ent. Ges. iii.: spp. nn.

Ephistemus lepidus, sp. n., Hochhuth, Bull. Mosc. xlv. 2, p. 305, Museum garden, Kiew.

LATHRIDIIDÆ.

Merophysia. Synoptical table of species, by Kiesenwetter; B. E. Z. xvi. p. 163, and Nouv. et Faits, p. cxxxvii.

Lathridius testaceus, Stephens, is stated not to stand for *crenicollis*, Thoms. (= *cordaticollis*, Aubé), as, from the description, it is probably a species of *Cartodere*, Thoms.: Seidlitz, Fauna Baltica, p. 167, note [but Aubé's insect has been abundantly proved to be the same as Stephens's; the latter author gives $\frac{3}{4}$ lin. as the size of *ruficollis* and of his *testaceus*, having evidently dropped 1 line out of the dimensions of the latter in the 'Manual' by accident. The figure &c. in the 'Illustrations' is unmistakable].

Corticaria saginata, Mann., probably = *lapponica*, Zett.; a var. of *C. cylindrica*, Mann., with dark elytra, is recorded from Sweden; *C. foveola*, Mann., Thoms., nec Gyll., is named *depressa*: Thomson, Opusc. Ent. (iv.) p. 383 et seq. *C. longicollis*, Zett., Mann. (= *linearis*, Payk., Gyll.), and *C. formicetorum*, Mann.: observations on synonymy &c., Hochhuth, Bull. Mosc. xlv. 2, pp. 309 & 310.

Derotoma, g. n., Reitter, B. E. Z. xvi. p. 170. Between *Monotoma* and *Hypocoprus*; antennæ 11-jointed, club 2-jointed, maxillary palpi 4-jointed, tarsi 4-jointed, simple. *D. lederi*, sp. n., *id. l. c.* p. 171, Oran.

Reitteria, g. n., Leder, B. E. Z. xvi. p. 137. Myrmecophilous: allied to *Merophysia*, but with a distinct scutellum and no eyes, as in *Cholovocera*. *R. lucifuga*, sp. n., *id. l. c.* p. 138, Frensdah, Oran.

Merophysia cretica, p. 163, *lata*, Athens, *oblonga*, Zante, p. 164, *sicula*, p. 166, Sicily: Kiesenwetter, B. E. Z. xvi., spp. nn.

Holoparamecus occultus, sp. n., Leder, *l. c.* p. 139, Frensdah.

Corticaria flavescens, p. 383, Sweden, *spinulosa*, p. 385, Lapland: Thomson, *l. c.*, spp. nn.

MYCETOPHAGIDÆ.

Mycetophagus variegatus, Sahlb., *ex. typ.*, = *4-guttatus*, Müll.; *M. histrio*, Sahlb., ? = *variabilis*, var.: Kraatz, B. E. Z. xvi. p. 271.

Litargus coloratus, Rosenh., new to French fauna: Grouvelle, Bull. Soc. Ent. Fr. (5) ii. p. xiv.

THORICTIDÆ.

Thorictus sulcicollis, Perez Arcas. Redescribed and figured, and fresh localities given by the author, who suggests some connexion between the myrmecophilous habits of the insect and the peculiar appendages at the base of its thorax. An. Soc. Esp. i. p. 94, pl. 2. fig. 7.

Thorictus ehlersi, sp. n., *id. l. c.* p. 95, pl. 2. fig. 8, Mazarron.

DERMESTIDÆ.

Dermestes lardarius. The larva injurious to broods of *Bombyx mori*, devouring the parent moth and eggs; also destroys *Attacus pyri* and *cynthia*, and *Psyche calvella*, decidedly not waiting for the death of the insects attacked. Means of defence suggested. Giraud: Ann. Soc. Ent. Fr. (5) ii. p. 205.

Trogoderma hieroglyphicum, sp. n., Abeille, Étud. Col. Cav. &c. p. 30, Marseilles.

BYRRHIDÆ.

Byrrhus dennii, Curt., recharacterized by C. A. Dohrn, S. E. Z. xxxiii. p. 483, and Erichson's description of it criticized.

Byrrhus tuscanus, sp. n., *id. l. c.* p. 485, Tuscany.

PARNIDÆ.

Parnus hydrobates, Kies., occurs at Kiew: Hochhuth, Bull. Mosc. xlv. 2, p. 318.

HETEROCERIDÆ.

Heterocerus obsoletus, Curt., var. n. *4-maculatus*: Hochhuth, *l. c.* p. 319.

LUCANIDÆ.

Rectifications in Parry's catalogue of Lucanoid Coleoptera, by the author, in Tr. E. Soc. 1872, p. 83.

Lucanus capreolus, Sulz., recharacterized, and queried as being only a var. of *ceruus*, occurs in *Populus tremula* at Kiew: Hochhuth, *l. c.* p. 320.

Odontolabis stevensi, Thoms.; head of ♂ [*errore* ♀] exhibiting singular malformation of antennæ figured, Tr. E. Soc. pl. i. fig. 6.

Cantharolethrus. Observations on recorded species by F. J. S. Parry, Tr. E. Soc. 1872, p. 75 *et seq.*

Passalus cornutus, F. Larva and details, pupa, and imago figured, and the first two fully described, with observations on habits &c.: the developed larval legs are only four, the antennæ 3-jointed, the stigmata 9 pairs. C. V. Riley, iv. Rep. Ins. Mo. pp. 139-141, fig. 62.

Sphenognathus armatus, sp. n., Parry, *l. c.* p. 73, pl. 1. fig. 3, ♂, Colombia, and ♀, Bogota, *id. l. c.* p. 74.

Neolucanus marginatus, sp. n., C. O. Waterhouse, Ent. M. M. ix. p. 53, N. India.

Prosopocoilus[-*cælus*] *rosenbergi*, sp. n., Von Vollenhoven, Tr. E. Soc. 1872, p. 81, pl. ii. fig. 1, Java (? Siam).

Cantharolethrus buckleyi, sp. n., *id. l. c.* p. 77, pl. 1. fig. 1, ♂, fig. 2, ♀, Ecuador.

Leptinopterus affinis, pl. 1. fig. 5, *paranensis*, fig. 4, *id. l. c.* p. 80, Parana, S. Brazil: spp. nn.

Ceratognathus rufipennis, sp. n., Westwood, *ibid.* p. 82, pl. ii. fig. 2, Albany, King George's Sound.

SCARABÆIDÆ.

Coprines.

Epirinus armatus, Boh., is a *Coptorrhina*, and *C. granulifera*, Har., is probably identical with it; *Onitis nicanor*, Lec., = *caffer*, Boh.; *Onthophagus adspersipennis*, Fähr., *ex. typ.*, = *prasinus*, Er.; *O. costipennis*, Fähr., = *pilosus*; *O. ferrugineus*, Fähr., is a *Caccobius*; *O. glaber*, Boh., = *interstitialis*; *O. inconspicuus*, Fähr., = *Caccobius fuliginosus*, Roth; *O. mæstus*, Fähr., = *anomalus*, Klug; *O. obesus*, Fähr., = *vinctus*, Er.; *O. bituberculatus*, Scriba, = *verticicornis*, Laich.; *O. pedestris* and *scabrosus*, Fähr., = *setosus*; *O. reflexicornis*, Redt., *turbatus*, Walk., = *spinifex*, F.: v. Harold, C. H. x. pp. 205 & 206. *Canthonosoma*, W. Macl., = *Cephalodesmius*, and *Canth. mastersi*, Macl., = *Ceph. castelnaui*, Har.; and the erection of genera from negative characters is unsafe. *Merodontus*, Macl., a name used by Jekel in the *Curculionidæ* (1857), is close to *Eurysternus*, one of the *Ateuchides*; *Onthophagus desectus*, Macl., = *declivis*, Har.; *O. inermis*, Macl., = *erichsoni*, Hope: *id. l. c.* p. 210.

Caccobius, Thoms.: Jekel, R. Z. (2) xxiii. p. 405 *et seq.*, discusses the characters of this genus, which he restricts to *schreberi*, L., *mundus* and *histeroides*, Ménétr., *denticollis* and ? *jessoensis*, Harold, in which the prosternum is tricarinate, having a supplementary longitudinal keel, the body is glabrous, and the metasternum strongly convex, longitudinally subgibbous in the middle, and scarcely channelled. He only finds these characters in the above 5 species out of 350 others in his collection.

Onthophagus: a very small Indian species, allied to, if not identical with, *pusillus*, F., is provisionally named *myrmidon*: id. l. c. p. 415.

Caccophilus, g. n., id. l. c. p. 410. Separated from *Caccobius* by its not having a supplemental prosternal keel, its downy surface, and uniformly and slightly convex metasternum, which is distinctly channelled. *C. himalayanus*, p. 411, *pullus*, p. 416, Asia, id. l. c. spp. nn., and *Onthophagus vulcanus*, F., *indicus*, *aterrimus* (nec F., = *pusillus*, F., sec. Harold, but considered distinct by Jekel, and named *haroldi*, p. 416), *signatipennis*, *dorsalis*, and *punctatissimus*, Har., *fuliginosus*, Roth, and *nigritulus*, Klug.

Cacconemus, subg. n. of *Caccophilus*, id. l. c. p. 418. Represents *Chæridium* in the old world. Differs from *Caccophilus* in being glabrous. *Onthophagus rufipennis*, Har., and *castaneus*, Klug.

Aphodiides.

Aphodius fauveli, Har., = *timidus*, Boh.; *peregrinus*, Boh., = *hepaticus*, Roth; *productus*, Boh., = *lætus*, Wied.; *splendidulus*, Har., = *lucidulus*, Boh.: v. Harold, C. H. x. pp. 206 & 207. *A. hyperboreus*, Lec., is probably a form of *hamatus*, Say: id. *ibid.* p. 213.

Aphodius opacus, sp. n., Leconte, C. H. x. p. 193, Vancouver's Island.

Geotrupides.

Odontæus mobilicornis common at Evreux: testaceous form and ♀ most abundant. Bellier de la Chavignerie, Pet. Nouv. no. 63, p. 252.

Geotrupes subarmatus, Er., ex. typ., = *lateridens*, Guér., which does not occur in Chili: Fairmaire, Ann. Soc. Ent. Fr. (5) ii. p. 48.

Enoplotrupes. Lucas, Ann. Soc. Ent. Fr. (5) ii. pp. 287-292, recharacterizes this genus, redescribing and figuring both sexes of his *E. sinensis*, pl. xiv. figs. 6-11.

Trogides.

Trox. Von Harold, C. H. ix. pp. 1-192, monographs this genus (including *Phoberus*, MacL., and *Omorgus*, Er., Lec.), recognizing 93 species, and referring to 18 others. After a very minute account of the external anatomy of the various forms, and an elaborate dichotomous table, the following observations occur (amongst many others referring to the older synonymy of certain species):—*Omorgus texanus*, Lec., = *Trox scutellaris*, Say, var.; a var. of *gemmatus*, Ol., is described, p. 66; *variolosus*, Fähr., = *radula*, Er., of which 2 varr. are described, p. 68; 2 varr. of *denticulatus*, Ol., are described, p. 71, one named *carbo*; *radula*, Boh., nec Er., is named *asperulatus*, p. 75; a var. *carinatus* of *alternans*, McL., is described, p. 86; *australasiæ*, Germ., nec Er., is named *litigiosus*, p. 88; *incultus*, Fähr., and *madagascariensis*, Fairm. (= *melancholicus*, Fähr.), = *squalidus*, Ol., varr., and a North African var. is described, p. 107; *regularis*, Har., = *costatus*, Wied.; *nobilis*, Woll., from the Cape-Verdes, = *suberosus*, F. (occurring in America from Patagonia to Pennsylvania), of which 4 varr. are described, p. 120; *Omorgus integer* and *tessellatus*, Lec., = *morsus*, Lec., varr. (= *punctatus*, Germ.); *denticulatus*, Blanch., nec Ol., is named *pedestris*, p. 128; a var. *bolivianus* of *pilularius*, Germ., is described, p. 140; *perrisi*, Fairm., *concinus*, Er., = *eversmanni*, Kryn.; *alternans*, Lec., nec MacL., is named *lecontii*, and a var. described,

p. 157; *clathratus*, Reche., = *cribrum*, Géné, var.; 3 forms of *perlatus* (which is referred to Goeze) are recognized, of which *chevrolati*, Har., = *a*, and *fabricii*, Reiche (*granulatus*, F., nec Hbst.), is *c*; *asiaticus*, Fald., = *hispidus* (referred to Pontoppidan), var., and a var. *nodulosus* is described, p. 165; 3 varr. of *granulipennis*, Fairm., are described, one named *mixtus* and another being *4-maculatus*, Ball.; *variolatus*, Melsh., = *scaber*, L.; *sulcatus*, Ol., is probably *Bolitophagus crenatus*; and *crispans*, Hbst., possibly a *Pimelia* or *Hexodon*.

The author describes the following new species:—*Trox rhyparoides*, p. 32, *nasutus*, p. 34, C. of G. Hope, *aculeatus*, p. 37, Caffraria, *caffer*, p. 41, S. Africa, *gigas*, p. 48, Adelaide, *torpidus*, p. 58, Buenos Ayres, *haagi*, p. 59, Tranquebar, Bengal, *elevatus*, p. 73, Angola, *desertorum*, p. 77, Egypt, Arabia, *niloticus*, p. 79, Nubia, Upper Egypt, *badeni*, p. 83, N. coast of Brazil, *borrii*, p. 84, Montevideo, *curvipes*, p. 90, New Holland, *stellatus*, p. 92, and *brucki*, p. 93, Australia, *fenestratus*, p. 97, Cape York, Pt. Denison, *candidus*, p. 98, E. and S.E. Australia, Queensland, and N. S. Wales, *indicus*, p. 102, East India, *candezii*, p. 113, Pampas of S. America, *batesi*, p. 126, Amazons, *procerus*, p. 127, Arabia, Senegal, *tenebrosus*, p. 130, ? S. America, *gemmingeri*, p. 134, interior of Brazil, *longitarsis*, p. 136, *chilensis*, p. 137, Chili, *sallæi*, p. 138, Bolivia, *argentinus*, p. 143, Cordova, Buenos Ayres, *acanthinus*, p. 154, Mexico, *barbarus*, p. 169, Beyruth, Egypt, *foveicollis*, p. 181, N. America.

Melolonthides.

Amphimallus flavicornis, Blanch. (? *Rhizotrogus fulvicornis*, Dej. Cat.) = *Rhizotrogus niger*, Waltl, which is truly Spanish: Perez Arcas, An. Soc. Esp. i. p. 96. *R. parvulus*, Rosenh. (*hidalgoi*, Per. MS.) is figured, and peculiarities of its antennal structure are pointed out: *id. l. c.* p. 97, pl. i. fig. 1.

An Algerian *Amphimallus* flies from 18th to 25th Dec.: Leprieur, Bull. Soc. Ent. Fr. (5) ii. p. vi.

Schismatocera, g. n., Des Cottes, MT. schw. ent. Ges. iii. p. 520. Allied to *Amphimallus*, and replacing *Schizonycha* in Europe. Type *Adoretus nitidulus*, Des C.

Rhizotrogus tornosi, sp. n., Perez Arcas, An. Soc. Esp. i. p. 98, pl. i. fig. 2, Cuenca.

Rutelides.

Phyllopertha horticola: ravages by the larva, Ent. vi. p. 62.

Anisophia pallidiventris, Des Cottes, is an *Anomala*: Des Cottes, MT. schw. nt. Ges. iii. p. 522.

Anoplognathides.

Adoretus squamosus, Des Cottes, = *umbrosus*, F., var.: *id. ibid.* p. 523.

Dynastides.

Enoplus tridens, Montr. Development of frontal horn in ♂ from New Caledonia described and figured by Fauvel, Bull. Soc. L. Norm. (2) i. p. 183, note, pl. i. fig. 15.

Cetoniides.

Mycteristes and *Phædimus*. Lucas, Ann. Soc. Ent. Fr. (5) ii. pp. 277-279,

maintains the distinctness of these genera, and, p. 280, recharacterizes his own genus *Neophædimus*, redescribing and figuring (pl. xiv. figs. 1, 2, & 3) both sexes of his *N. auzouxi*, from Mou-Pin, Thibet.

Dicranocephalus. Lucas, *l. c.* pp. 282-284, discusses the known species, referring *D. dabrii*, Auz., to *adamsi*, Pasc., and figuring the ♂, pl. xiv. figs. 4 & 5.

Romborrhina resplendens: observations on the localities of specimens in Leyden Museum. Von Vollenhoven, Tijdschr. Ent. (2) vii. p. 125 *et seq.*

Cetonia athalia, Rche., *ex. typ.*, = *subpilosa*, Desbr.: Bedel, Bull. Soc. Ent. Fr. (5) ii. p. xxiii. *C. caucasica*, Kol., = *ærata*, Er.; Des Cottes, MT. schw. ent. Ges. iii. p. 523.

C. (Protætia) bremsii, Schaum, is apparently specifically distinct from *fer-ruginea*, Gory; and the variability &c. of the Philippine species is discussed: Dohrn; S. E. Z. xxxiii. p. 154 *et seq.*

Cetonia (Protætia) scepisia, sp. n., Dohrn, *l. c.* p. 157, Manilla.

BUPRESTIDÆ.

In Australian species the ♂ is apparently always much smaller than the ♀. E. Saunders, P. E. Soc. 1872, p. xx.

H. Burmeister, S. E. Z. xxxiii. pp. 367-387, revises the species from the district of La Plata known to him. *Agrius insanus*, Gemm. & v. H., ? = *incanus*, Cast.

Ancylochira splendida, Payk., = *bicolor*, F., a N. American species: Thomson, Opusc. Ent. (iv.) p. 389.

Lampetis argentata, Mann., ? = *composita*, Palis. Bauv., and is certainly rightly placed by de Marseul in this genus. Solsky, Hor. Ent. Ross. viii. p. 183.

Coræbus bifasciatus: larva makes a circular gallery round branches of *Quercus ilex*, between the bark and wood. So far from being rare in the Department of the Var, it is absolutely a noxious species. A. Champenois, Pet. Nouv. no. 43, p. 171.

Trachys quercicola, Mars., fully described: L'Ab. viii. p. 414.

Brachys æruginosa, Say: the larva mines leaves of *Fagus ferruginea*, and the larva of *Metonius levigatus*, Say, mines those of a species of *Desmodium*: V. T. Chambers, Canad. Ent. iv. pp. 123 & 124.

Notograptus, g. n., W. Macleay, Tr. Ent. Soc. N. S. W. ii. p. 243. Nearly allied to *Anthaxia*, but with labrum rounded at apex, thorax transverse, rounded at the sides, considerably narrowed at the posterior angles, and bisinuate at the base, with a central lobe. *N. sulcipennis*, *ibid.*, *hieroglyphicus*, p. 244, *id. l. c.*, Gayndah, Queensland, spp. nn.

Tylauchenia, g. n., H. Burmeister, *l. c.* p. 377. *Polycestides*: between *Polycesta* and *Acherusa*. *Buprestis sphaericollis*, Desm., and *B. crassicollis*, Gory, La Plata.

New species :—

Amblysterna subvittata, E. Saunders, Tr. E. Soc. 1872, p. 238, Zambesi.

Chrysochroa browni, p. 240, Ceylon, *punctatissima*, p. 241, E. Indies, *id. l. c.*

Philocteanus igneiceps, *id. l. c.* p. 242, Burmah.

- Chrysaspis auricauda*, id. *ibid.*, Cape Palmas.
Steraspis welwitschi, id. *l. c.* p. 243, Loando.
Cyria elateroides, id. *l. c.* p. 244, Swan River.
Chalcotænia ajax, pl. vi. fig. 8, *quadrisignata*, fig. 4, p. 245, Queensland, *superba*, p. 246, fig. 2, Nicol Bay, W. Australia, *martini*, p. 247, *australasie*, p. 248, fig. 6, N.W. Australia, id. *l. c.*
Paracupta tibialis, id. *l. c.* p. 248, Owahan I., Fiji.
Halecia maculicollis, id. *l. c.* p. 249, Brazil.
Psiloptera viridizænea, H. Burmeister, *l. c.* p. 371, Pampas.
Nascio viridis, W. Macleay, *l. c.* p. 239, Gayndah.
Astræus mastersi, id. *l. c.*, Gayndah.
Melobasis azureipennis, Port Denison, *costata*, p. 240, *apicalis*, *obscura*, p. 241, Gayndah, id. *l. c.*
Anthaxia obscura, *cupr[e]ipes*, *purpureicollis*, p. 242, *nigra*, p. 243, id. *l. c.*, Gayndah; *A. orientalis*, H. Burmeister, *l. c.* p. 373, Uruguay; *A. ditescens*, Abeille, Étud. Col. Cav. p. 31, Toulon.
Neocuris mastersi and *gracilis*, W. Macleay, *l. c.* p. 241, Gayndah.
Curis splendens, id. *l. c.* p. 244, Gayndah; *C. hemiptera*, H. Burmeister, *l. c.* p. 374, Mendoza.
Polycesta mastersi, W. Macleay, *l. c.* p. 246, Gayndah.
Cognatha propinqua, H. Burmeister, *l. c.* p. 376, Corrientes, Paraguay; *C. badeni*, pl. vi. fig. 1, New Friburg, *rogersi*, fig. 9, Minas Geraes, p. 250, *paranensis*, fig. 3, p. 251, Parana: E. Saunders, *l. c.*
Stigmodera rubricauda, Queensland, *unicincta*, pl. vi. fig. 7, Adelaide, p. 252, *duboulayi*, fig. 5, p. 253, Nicol Bay, W. Australia, E. Saunders, *l. c.*; *S. mastersi*, *kreffti*, p. 245, *elongatula*, p. 246, W. Macleay, *l. c.*, Gayndah.
Chrysobothris saundersi, p. 246, *mastersi*, *viridis*, p. 247, id. *l. c.*, Gayndah; *C. maxima*, p. 378, Santiago, *laticollis*, p. 379, *holochalcea*, p. 380, Buenos Aires, *auricincta*, Tucuman, *polyspilota*, Paraná, p. 382: H. Burmeister, *l. c.*
Ethon latipennis, W. Macleay, *l. c.* p. 247, Gayndah.
Cisseis dimidiata, *impressicollis*, *viridiaurea*, id. *l. c.* p. 248, Gayndah.
Coræbus marmoratus, id. *l. c.* p. 248, Gayndah.
Agrihus mastersi, *deauratus*, id. *l. c.* p. 249, Gayndah; *A. nobilis*, p. 383, Tucuman, *sulphurifer*, p. 384, *perplexus*, p. 386, Paraná, *decipiens*, p. 385, Buenos Aires, H. Burmeister, *l. c.*
Brachys undularia, id. *l. c.* p. 387, Buenos Aires.
Ianthe beccarii, Gestro, Ann. Mus. Genov. iii. p. 47, Bogos (antennæ figured).

EUCNEMIDÆ.

Microrhagus, Esch., = *Dirhagus*, Latr.; *Dirhagus*, Esch., = *Fornax*, Casteln.; *Hypocælus*, Esch., = *Nematodes*, Latr.; *Hypocælus*, Lac., is adopted for *Nematodes*, Esch., nec Latr.; *Hylochares*, Latr., Kies., = *Xylophilus*, Mann. [nec Latr.]: Seidlitz, Fauna Balt. pp. 108 & 109.

Anelastes barbarus, Luc. The insect recorded from Corsica in Nouv. et Faits, p. c, as *A. drurii*, is now referred to this species: *ibid.* p. cxiv.

Three species, of different genera, from Gayndah, Queensland, noticed by W. Macleay, Tr. Ent. Soc. N. S. W. ii. p. 249.

DE BONVOULOIR, Ann. Soc. Ent. Fr. (4) x. supplement. (2me. cah. pp. 289-416, pls. 22-28, 15 July, 1872; 3me. cah. pp. 417-560, pls. 29-36, 31 Dec. 1872), continues his monograph. He figures, in addition to such as he describes as new, the following species:—*Galbodemum mannerheimi*, Cast., pl. 22; *Scython bicolor*, Cast., *Balistica picipes*, Mots., pl. 25; *Microrhagus clypeatus*, Hampe, *imperfectus*, Lec., *triangularis*, Say, *emii*, Rouget, pl. 26; *M. longicornis*, Hampe, pl. 28; *M. sahlbergi*, Mann., *humeralis*, Say, pl. 29; *Farsus unicolor*, Latr., *Arrhipes subacuta*, Guér., pl. 30; *Nematodes mexicanus*, Cast., *atropos*, Say, *filum*, F., pl. 31; *N. cylindricus*, Cast., and var., and *buqueti*, Guér., var., pl. 32; *Anelastidius feisthameli*, Graëlls, *Epiphaniis cornutus*, Esch., *Anelastes barbarus*, Luc., *latreillii*, Lec., *Eudorus javanicus*, Cast., pl. 34; *Phyllocerus flavipennis*, Guér., ♂ and ♀, *Cephalodendrum ramicorne*, Cast., pl. 35; *Phlegon heterocerus*, Say, *buqueti*, Cast., *Cryptostoma spinicorne*, F., *nigricorne*, Westw., var., *Xylobius humeralis*, Duf., pl. 36. *Lacus laticornis*, Bonv. (p. 288), is from Ega. *Isarthrus*, Lec., = *Fornax*. Varr. of *F. tumidicollis*, Redt., are described and figured (p. 413) under the names *parens*, *minor*, *distinguendus* and *cribriceps* (pl. 20); and a var., *ruficeps*, of *Galbodemum mannerheimi*, Cast., p. 444, from interior of Australia. *Rhacopus*, Hampe, *Aulacosternus*, Mots., = *Microrhagus*, Esch. *Dirhagus nitidus*, Costa, = *M. lepidus*, Ros., described in the same year. *M. chevrolati*, Stierl., = *pygmæus*, F.; var. *M. clypeatus*, Hampe, is not the ♀ of *longicornis*.

This author describes the following new genera and species:—

Cyrtostethus, p. 289. Distinguished from *Lacus*, Bonv., by the elevation of its prosternum behind, between the coxæ, the penultimate joint of post. tarsi being less than the rest united, the hind border of the propleural triangle conspicuously shorter than the inner border, &c. *C. throscoïdes*, p. 290, pl. 13. fig. 3, Sarawak.

Ceratus, p. 292. Antennæ as in *Diacerus*, though not in the same division as that genus. *C. insolitus*, p. 293, pl. 16. fig. 3, Java, *sodalis*, p. 294, fig. 4, Macassar.

Cladus, p. 432. Distinct from *Fornax* by its prosternum being very strongly excavated in front, with the prosternal projection very distinctly elevated behind, and by its considerably developed mandibles. The buccal organs are stated to terminate in long narrow branching filaments. *C. maxillaris*, p. 433, pl. 21. fig. 9, Teapa, Cayenne, *assimilis*, p. 435, Ega.

Euryaulacus, p. 445. Differs from *Galbodemum* in its posterior coxæ and strongly pectinated antennæ. *E. carbonarius*, p. 446, pl. 22. fig. 2, Cayenne, *luctuosus*, p. 447, fig. 3, Minas Geraes.

Hodocerus, p. 449. Third joint of antennæ of same size as 2nd, both together scarcely equalling the 4th; 4th joint of post. tarsi shorter than the rest united. *H. maluisiensis*, p. 450, pl. 22. fig. 4, Singapore.

Di cladus, p. 451. Antennæ very short, strongly bipectinate; propleural triangle reduced to a simple band in the anterior 3rd. *D. bipectinatus*, p. 452, pl. 22. fig. 5, Malacca.

Tachycnemis, p. 454. Marginal furrow of propectus shallow, not limited internally but distinctly terminated behind, before the posterior angles, by the hinder margin of the propleural triangle. *T. nigra*, p. 455, pl. 22. fig. 6, Ega.

Dromæocnemis, p. 456. Distinguished from *Tachycnemis* by its epistoma

being less contracted at the base, and by the marginal furrows being limited internally in the anterior half. *D. sinuaticollis*, p. 457, pl. 22. fig. 7, Ega.

Acedax, p. 458. Allied to *Tachycnemis* by the marginal furrows, but with 3rd joint of the antennæ smaller than the 2nd. *A. discors*, *ibid.*, Rio Janeiro.

Plesiofornax, p. 460. No comparative characters given, and the name is quoted for species dated 1866, viz. *P. bonvouloiri*, Coq., and *insularis*, Bonv.; the genus also comprises *P. ligniperda*, p. 462, pl. 22. fig. 8, Cayenne, Mexico, *sublucidus*, p. 464, pl. 22. fig. 9, Cayenne, Ega, *coquereli*, p. 468, Réunion, *otti*, *ibid.* pl. 23. fig. 1, Mauritius, *gravis*, p. 470, pl. 23. fig. 2, Brazil, Cayenne, *megacerus*, p. 471, pl. 23. fig. 3, Brazil, *confœderatus*, p. 472, pl. 23. fig. 4, and *mandibularis*, p. 474, fig. 5, Mexico, *unguicularis*, p. 475, pl. 23. fig. 6, Madagascar, spp. nn.

Microtrigonus, p. 476. Antennary furrows very wide, propleural triangle very small, prosternum very short, elytral epipleuræ not limited. *M. 4-foveolatus*, p. 478, pl. 23. fig. 7, *compressicornis*, p. 480, pl. 23. fig. 8, *semipartitus*, p. 482, pl. 23. fig. 9, *univittatus*, p. 483, pl. 24. fig. 3, Ega.

Eucalodemas, p. 485. Differs from *Microtrigonus* by its epistoma being less contracted at the base, its marginal furrows more than twice as narrow as the posterior margin of the propleural triangle, and the epipleuræ of its elytra frequently distinctly limited externally by a well marked elevated line. *E. sanguinicolle*, p. 487, pl. 24. fig. 1, Brazil, *notaticolle*, p. 488, pl. 24. fig. 2, Batchian, *brazilianum*, p. 489, pl. 24. fig. 4, and *antiquum*, p. 491, pl. 24. fig. 5 (*Fornax testaceus*, Guér., not described), Brazil.

Melanocoleus, p. 506. Metathoracic epimera visible. Differs from *Scython* in the marginal furrows of its propectus being very distinctly limited internally. *M. grossus*, p. 507, pl. 25. fig. 5, New Guinea.

Macraulacus, p. 508. Propleuræ very widely furrowed on their entire surface. *M. excavatus*, p. 509, pl. 25. fig. 8, Ega.

Entomophthalmus, p. 513. Near *Microrhagus*, but pronotum not contracted in front, rather subquadrangular, with posterior angles and front margin carinate-elevate; 2nd and 3rd joints of antennæ globular, together not so long as 4th joint. *E. interruptus*, p. 515, pl. 25. fig. 9, Brazil, *americanus*, p. 516, New Friburg, Rio Janeiro, *pallens*, p. 518, Tennessee, *brevicollis*, p. 519, *fugax*, p. 520, Sarawak, *minutus*, p. 521, St. Catherine.

Fornax debilis, p. 309, pl. 16. fig. 2, Colombia, *guineensis*, p. 310, Guinea, *ater*, p. 312, pl. 13. figs. 4 & 5, New Guinea, Batchian, Gilolo, &c., *morosus*, p. 313, pl. 13. figs. 6 & 7, Ceram, Ceylon, &c., *pictus*, p. 317, pl. 13. fig. 9, Dorey, *thoracicus*, p. 319, pl. 14. fig. 1, Batchian, *subquadratus*, p. 320, pl. 14. fig. 2, Singapore, *australis*, p. 321, pl. 14. fig. 3, and *substriatus*, p. 323, pl. 14. fig. 4, Batchian, *puncticollis*, p. 324, pl. 14. fig. 5, Celebes, *latus*, p. 325, pl. 14. fig. 6, Aru, *elegantulus*, p. 327, pl. 14. fig. 8, Ceylon, *dohrni*, p. 329, pl. 14. fig. 9, no locality known, *seponendus*, p. 330, Mysol, *clarki*, p. 331, pl. 15. fig. 1, Tejuca, *sinuatus*, p. 333, pl. 15. fig. 2, Cayenne, *virginum*, p. 334, and *striatulus*, p. 335, fig. 3, Ega, *salax*, p. 336, pl. 15. fig. 4, Cayenne, *lucërda*, p. 337, pl. 15. fig. 5, Bahia, *meridianus*, p. 341, pl. 15. fig. 7, Cayenne, *additus*, p. 342, New Holland, *westermanni*, p. 344, Brazil, *fairmairii*, p. 345, ? Java, ? Rio Janeiro, *subacuminatus*, p. 346, pl. 15. fig. 8, Dorey, *tenuis*, p. 348, pl. 15. fig. 9, Ceram, *parvulus*, p. 349, pl. 16. fig. 1, Victoria, *superbus*, p. 350, pl. 16. fig. 5, Malay Islands, *mirabilis*, p. 352, pl. 16. fig. 6, Sarawak *venustus*, p. 354,

pl. 16. fig. 7, Batchian, *spectabilis*, p. 355, pl. 16. fig. 8, Sarawak, *arrogans*, p. 357, pl. 16. fig. 9, Amboina, *incisus*, p. 358, pl. 17. fig. 1, Singapore, *adnexus*, p. 359, pl. 17. fig. 2, Sarawak, New Guinea, *mysolensis*, p. 364, pl. 17. fig. 5, Mysol, *novator*, p. 365, Malacca, *collega*, p. 367, pl. 17. fig. 6, Sumatra, *sternalis*, p. 368, pl. 17. fig. 7, Batchian, *stupefactus*, p. 369, Java, *infrequens*, p. 371, pl. 18. fig. 1, Mexico, *consentaneus*, p. 373, pl. 18. fig. 3, Colombia, *dissimilis*, p. 375, New Friburg, *molestus*, p. 376, pl. 18. fig. 4, N. America, *subdentatus*, p. 379, pl. 18. fig. 6, Colombia, *confusus*, p. 383, pl. 18. fig. 8, Mexico, *ventralis*, p. 385, pl. 18. fig. 9, Colombia, *affinis*, p. 386, pl. 19. fig. 1, Mexico, *perfidus*, p. 387, and *pilosellus*, p. 388, pl. 19. fig. 3, Brazil, *macrocerus*, p. 389, pl. 19. fig. 4, Madagascar, *intermedius*, p. 391, pl. 19. fig. 5, no locality known, *filicornis*, p. 392, pl. 19. fig. 6, Madagascar, *mendax*, p. 393, pl. 19. fig. 7, Mexico, *variopunctatus*, p. 396, pl. 19. fig. 9, Cayenne, *gibbosus*, p. 397, and *mniszehi*, p. 402, Brazil, *lineatus*, p. 403, pl. 20. fig. 2, New Guinea, *pisciformis*, p. 405, pl. 20. fig. 3, Brazil, *costulatus*, p. 408, pl. 20. fig. 5, Ceram, Java, *planus*, p. 410, pl. 20. fig. 6, Waigiou, *tarsalis*, p. 411, pl. 20. fig. 7, Bangkok, *africanus*, p. 418, pl. 21. fig. 2, Senegal, *variipennis*, p. 421, pl. 21. fig. 4, Teapa, Brazil, *notabilis*, p. 423, Mexico, *sericeus*, p. 426, pl. 19. fig. 2, Brazil, *fraudentus*, p. 427, pl. 21. fig. 6, and *senilis*, p. 430, fig. 8, Cayenne.

Eucallosoma bilineatum, p. 438, pl. 17. fig. 9, Brazil.

Scythin coloratus, p. 494, pl. 24. figs. 6 & 7, Borneo, Malayan peninsula, *nigriventris*, p. 496, fig. 8, Mysol, *apicalis*, p. 498, fig. 9, Malayan Islands, Gilolo, *nigripennis*, p. 501, pl. 25. fig. 2, Malayan peninsula, *maculicollis*, p. 502, fig. 3, Sarawak, Hong Kong, *ultimus*, p. 503, fig. 4, Sumatra, *velutinus*, p. 504, Madagascar.

Microrhagus eximius, p. 532, Mysol, Ceram, *derelictus*, p. 544, pl. 26. fig. 2, Dorey, *pyrenæus*, p. 548, fig. 4, Pyrenees, *neglectus*, p. 549, fig. 5, New Friburg, *oblitus*, p. 552, Illinois, *amazonicus*, p. 554, fig. 7, Ega, *alienus*, p. 555, Rio Janeiro, *fragilis*, p. 558, fig. 9, Caraccas, *peregrinus*, p. 559.

ELATERIDÆ.

Elater præustus, Schiödte (*nec* Fab.), = *pomorum*, Geoffr. [Schiödte's insect is almost certainly the *pomonæ* of Stephens]; *E. coccineus*, Schdt., = *sanguineus*, L.: Thomson, Opusc. Ent. (iv.) p. 388.

Melanotus: the posterior coxæ are not always narrow and slightly and imperceptibly enlarged on the inner side, as Candèze states. Abeille, Étud. Col. Cav. p. 33.

Athous difformis, Lac., taken in Kent, figured in Ent. Ann. 1873, fig. 5.

Dima perezi, Seidl. (*Celox dima*, Schauf.), figured by Perez Arcas, An. Soc. Esp. i. pl. 3. fig. 6, and the characters &c. of the genus discussed, p. 129.

Agriotes mancus, Say: larva and pupa fully described and figured, and general account of its ravages, by J. Pettitt, Canad. Ent. iv. pp. 3-6. *A. sordidus*, Ill., corroborated as British: G. C. Champion, Ent. M. M. ix. p. 12.

Hemiopsida, g. n., W. Macleay, Tr. Ent. Soc. N. S. W. ii. p. 261. *H. mastersi*, *ibid.*, Gayndah.

New species :—

Agrypnus mastersi, p. 249, *latior*, p. 250 : *id. l. c.*, Gayndah.

Lacon gayndahensis, p. 250, *alternans*, *maculatus*, *granulatus*, p. 251 : *id. l. c.*, Gayndah.

Monocrepidius mastersi, *striatus*, *acuminatus*, *breviceps*, p. 252, *rubicundus*, *atratus*, *minor*, p. 253, *submarmoratus*, *fulvipennis*, *nebulosus*, p. 254, *subflavus*, *submaculatus*, *albidus*, *subgeminatus*, p. 255, *candezii*, *elongatulus*, *castaneipennis*, p. 256 : *id. l. c.*, Gayndah.

Elastrus flavipes, *id. l. c.* p. 257, Gayndah.

Elater mastersi, *id. ibid.*, Gayndah.

Cryptohypnus variegatus, *id. ibid.*, Gayndah.

Cardiophorus mastersi, *id. l. c.* p. 258, Gayndah.

Melanotus sublucens, Abeille, *l. c.* p. 32, Ste. Baume.

Athous jugicola, Perez Arcas, *l. c.* p. 101, pl. 1. fig. 6, Spain.

Corymbites rufipennis and *nigrinus*, W. Macleay, *l. c.* p. 258, Gayndah.

Ophidius brevicornis, *id. l. c.* p. 259, Gayndah.

Acroniopus rufipennis, p. 259, *pubescens*, p. 260 : *id. l. c.*, Gayndah.

Dima assoi, Perez Arcas, *l. c.* p. 131, pl. 3. figs. 4 & 5, Arragon.

Ludius candezii, Fauvel, Bull. Soc. L. Norm. (2) i. p. 185, note, Lifu ;

L. atripennis, W. Macleay, *l. c.* p. 259, Gayndah.

Ascesis (?) *mastersi*, *id. l. c.* p. 260, Gayndah.

Dicteniophorus vitticollis, p. 260, *apicalis*, *vittatus*, p. 261 : *id. l. c.*, Gayndah.

CEBRIONIDÆ.

Cebrio getschmanni, sp. n., Chevrolat, Ann. Soc. Ent. Fr. (5) ii. p. 409, Sierra Morena.

RHIPIDOCERIDÆ.

Psacus mastersi, sp. n., W. Macleay, *l. c.* p. 313, Gayndah.

DASCILLIDÆ.

Sharp, Ent. M. M. ix. p. 154, revises certain British species. *Helodes bohemandi*, Mann., = *livida*, var. ; but British *livida* does not seem to agree with *livida* or *bohemandi* of Tournier ; *Cyphon pallidiventris*, Thoms., ? = *nitidulus*, ♀.

C. Moore, J. G. Soc. xxvi. pp. 261–263, pl. xviii., notices the elytra of a fossil species of *Cyphon*, accompanied by traces of a larva, in marly bed of the Rocky River, N. S. Wales.

Dascillus parallelus, C. A. Dohrn, S. E. Z. xxxiii. p. 482, Vallombrosa ;

D. brevicornis, W. Macleay, *l. c.* p. 313, Gayndah : spp. nn.

Helodes chrysocomes, sp. n., Abeille, Étud. Col. Cav. p. 34, Basses-Alpes.

Cyphon punctipennis, sp. n., Sharp, *l. c.* p. 155, Scotland.

TELEPHORIDÆ.

Lycides.

Metriorrhynchus femoralis, *nigripes*, p. 262, *marginicollis*, p. 263, W. Macleay, *l. c.*, Gayndah : spp. nn.

Calochromus guerini, sp. n., *id. l. c.* p. 263, Gayndah.

Lampyrides.

Luciola flavicollis, sp. n., W. Macleay, *ibid.*, Gayndah.

Telephorides.

Telephorus bilineatus, Say. Larva fully described and figured: C. V. Riley, iv. Rep. Ins. Mo. p. 30, fig. 15; stigmata 9 pairs, not 13, as attributed by Walsh to *Chauliognathus*. It is parasitic on *Carpocapsa* (*Lepidopt.*).

Biurus, Mots., originally corrected to *Diurus*, and then clashing with *Diurus*, Pasc. (*Brenthidae*), is changed to *Dissacurus* by Gemminger, C. H. x. p. 307.

Telephorus flavipennis, *ruficollis*, *mastersi*, W. Macleay, *l. c.* p. 264; *T. distinguendus*, des Cottes, Pet. Nouv. no. 56, p. 224, Salève and Paris: spp. nn.

Malthinides.

Malthodes. Kiesenwetter, B. E. Z. xvi. pp. 369-392, pls. iv. & v., commences a revision of the European species, figuring in outline the apical abdominal segments of the males of 64 of them. Referring to the enormous number of known ♀ individuals of *M. brevicollis* and the excessive rarity of the ♂, and also to the various species of which only the ♀ is known, the author suggests parthenogenesis as an explanation, pointing out that in *M. brachypterus*, and in a less degree also in *M. brevicollis*, an arrest of development, suggestive of the ♀ of *Psyche*, occurs. *M. meloiformis*, Linder, is considered to be described from an aborted form of a ♀, similar forms of that sex often occurring, though never of the ♂. *M. hispanicus*, Baudi, = *validicornis*, Kies.

Ichthyurus depressicollis, sp. n., W. Macleay, *l. c.* p. 264, Gayndah.

Malthodes simplex, p. 372, pl. iv. fig. 2, Naples, *tristis*, p. 373, fig. 4, Görz, Upper Italy, *græcus*, p. 374, fig. 5, Greece, *turcicus*, p. 375, fig. 6, Constantinople, *volgensis*, p. 377, fig. 10, Sarepta: Kiesenwetter, *l. c.*, spp. nn.

Malachiides.

Hapalochrus vittatus, F. Moraw., ♀ described from Astracan, p. 183; *H. fulvicollis*, Gebl., p. 184, Crimea, and *maculicollis*, Mots., p. 185, Astracan, redescribed. Solsky, Hor. Ent. Ross. viii.

Ebæus thoracicus frequents nests of *Chalicodoma muraria* (*Hymenopt.*), on which it is apparently parasitic: Bedel, Bull. Soc. Ent. Fr. (5) ii. p. li.

Balanophorus, g. n., W. Macleay, *l. c.* p. 267. *B. mastersi*, sp. n., *id. ibid.*, Gayndah.

Laius mastersi, sp. n., *id. l. c.* p. 265, Gayndah.

Malachius luridicollis, sp. n., *id. ibid.*, Gayndah.

Carphurus cyaneipennis, p. 265, *elongatus*, *apicalis*, *azureipennis*, p. 266, *pallidipennis*, p. 267, *id. l. c.*, Gayndah: spp. nn.

Troglops angustatus, sp. n., Reitter, B. E. Z. xvi. p. 181, Frensdah.

Dasytides.

Cerallus. Kiesenwetter, B. E. Z. xvi. pp. 314-318, revises this genus.

Lobonyx gracilis, sp. n., Reitter, *l. c.* p. 180, Frensdah.

Henicopus kiesewetteri, sp. n., *id. l. c.* p. 181, Frenadah.

Haplocnemus trinacriensis, sp. n., Ragusa, Bull. Ent. Ital. iv. p. 82, pl. 1. figs. 1 & 1 a, Italy.

Cerallus brevicollis, p. 314, Sarepta, *luteus*, p. 315, ? Turkey, *concolor*, p. 316, Turkey in Asia, *hispanicus*, S. Spain, *bicolor*, Sarepta, p. 317: Kiesewetter, *l. c.*, spp. nn.

CLERIDÆ.

W. Macleay, Tr. Ent. Soc. N. S. W. ii., describes the following new species from Gayndah, Queensland:—

Cylidrus basalis, p. 268.

Opilus incertus, p. 269.

Natalis mastersi, *ibid.*

Stigmatium mastersi, p. 269, *levius* and *ventrale*, p. 270.

Thanasimus sculptus, p. 271.

Clerus mastersi and *apicalis*, *ibid.*

Aulicus rufipes and *foveicollis*, p. 272.

Tarsostenus pulcher, p. 272, *mastersi*, p. 273.

Eleale fasciata, p. 273, *apicalis*, *elongatula* and *viridicollis*, p. 274.

Tenerus ruficollis, p. 275.

Pylus pallipes, *ibid.*

LYMEXYLIDÆ.

Lymexylum navale corroborated as British: J. Chappell, Ent. M. M. ix. p. 158; Ent. Ann. 1873, fig. 4.

CUPESIDÆ.

Cupes ocularis, sp. n., Pascoe, Ann. N. H. (4) x. p. 319, Japan.

PTINIDÆ.

Hadrobregmus canaliculatus, Thoms., = *Anobium nitidum*, Stm.; *A. fulvicorne*, Thoms., = *fagicola*, Muls.: Thomson, Opusc. Ent. (iv.) p. 381.

Anobium: ravages recorded by E. C. Rye, Ent. M. M. ix. p. 59. *A. striatum* perforating silk ribbon: Ent. vi. p. 39.

Pseudochina thoracica, F. Moraw., Sarepta, is not a *Xyletinus*: Solsky, Hor. Ent. Ross. viii. p. 186.

Dorca[do]toma bovistæ. On habits of earlier stages, *cf.* Sidebotham, Ent. M. M. viii. p. 180.

Hedobia regalis. v. Frauenfeld, Verh. z.-b. Wien, xxii. p. 395, refers to its economy in connexion with *Diospyrus lotus*.

Ptinus sexpunctatus occurs plentifully at Bellevue in entrances of nests of mason bees: Bedel, Bull. Soc. Ent. Fr. (5) ii. p. li.

Niptus hololeucus swarming: A. Nash, Ent. M. M. ix. p. 119; J. Weise, B. E. Z. xvi. p. 158.

Ozognathus cornutus, Lec., bred from an oak-gall (*Cynips californica*, Riley, MS.), and its habits (especially in copulation) recorded by A. Müller, P. E. Soc. 1872, p. xxxii.

Dryophilus densipilis, sp. n., Abeille, Étud. Col. Cav. p. 34, Marseilles.

Ernobius canaliculatus, sp. n., Thomson, Opusc. Ent. (iv.) p. 380, Sweden.

Ptinus albimaculatus, sp. n. W. Macleay, *l. c.* p. 276, Gayndah.

BOSTRYCHIDÆ.

Bostrychus (Amphicerus) bicaudatus, Say, and *Sinoxylum basilare*, Say. An account of the ravages of the former in apple-trees, and of the latter in grape-vines, with figs.: C. V. Riley, iv. Rep. Ins. Mo. pp. 51-54, figs. 24-27.

Rhizopertha elongatula and *gibbicollis*, spp. nn., W. Macleay, l. c. p. 276, Gayndah.

Bostrychus bispinosus, *ibid.*, *cylindricus*, p. 277, *id. l. c.*, Gayndah : spp. nn.

CIOIDÆ.

Cis jacquemarti. The basal joint of the antennæ in the larva is cylindrical and highly developed, supporting two 2-jointed branches, the lower joint of each of which is thick and conical, and the apical elongate. C. Lindemann, Bull. Mosc. xlv. 2, Séances, p. 12.

TENEBRIONIDÆ.

Epiphysides.

Epiphysa ovata, p. 133, Benguela, *ciliata*, p. 134, Angola : F. Bates, Ent. M. M. ix., spp. nn.

Tentyriides.

Aryenis, F. Bates, allied to *Sphenaria*, Mann., must be removed to the *Epitragides*: W. F. Mäklin, S. E. Z. xxxiii. p. 247. This genus is reasserted by its author to be allied to *Evaniosomus*, Guér., through *Chorasmius*, F. B.: Ent. M. M. ix. p. 97.

Chorasmius, F. Bates: the elytra are entirely margined at the base. *Id. l. c.* p. 135.

Aryenis haagi, sp. n., *id. l. c.* p. 134, Peru.

Epitragides.

Epitrichia (Helops) tomentosa, Gebl., belongs to this group, near *Himatismus*, and not to the *Tentyriides*. W. F. Mäklin, l. c. p. 247.

Cryptochilides.

HAAG-RUTENBERG, B. E. Z. xvi. pp. 273-313, monographs the group, which now consists of 6 genera (3 new) and 31 species. The character of denticulation to the front tibiæ in *Cryptochile* is only sexual, and the scutellum is not absent. *C. maculata*, Sol., nec F., is named *granulata*; *distincta*, Sol., = *tomentosa*, Hbst.; *vicina*, Sol. (in error quoted as *distincta*, p. 287), = *costata*, F., var.; *penicillata*, Sol., = *minuta*, Ol., var.; *gayi*, Sol., = *assimilis*, Sol., ♂, of which *crassipes*, Sol., is ♀ var.; *trilineata*, Sol., = *globulum*, Sol., ♂. *Horatoma sedecimcostata*, Sol., = *parvula*, Sol., var. The following new genera and species are described:—

Saccophorus, p. 303. Distinct from *Pachynotelus*, *Horatoma*, and *Epipagus* in the structure of its antennæ, thorax, and tarsi. *S. crenulatus*, p. 304, Cape of Good Hope.

Horatomodes, p. 305. Differs from *Saccophorus* in its tarsi being normal, and from all others in having the 9th and 10th joints of its antennæ cåpitulate: forms a transition to *Pachynotelus*. *H. batesi*, *ibid.*, Damara Land.

Epipagus, p. 311. Differs from *Cryptochile* in its emarginate prosternum, from *Saccophorus* and *Horatomodes* in the structure of its antennæ, and from *Horatoma* in its different anterior tibiæ and differently sculptured thorax. Facies of a very small *Pimelia*. *E. benguelensis*, p. 312, Benguela.

Cryptochile tessulata, p. 281, *bipunctata*, p. 285, *curta*, p. 287, *undata*, p. 288, *denticollis*, p. 289, *consita*, p. 291, *puncticosta*[*ta*], p. 293, *affinis*, p. 295, *circulum*, p. 299, Cape of Good Hope.

Pachynotelus albistriatus and *albinotatus*, p. 308, Kuisip, S. Africa.

Horatoma tuberculata, p. 310, Cape of Good Hope.

Asidides.

Asida horrens, Schauf. (1869), = *reichii*, All. (Oct. 1868), = *cardonæ*, Perez Arcas (Sept. 1868); *A. moræ*, Per. Arcas (Sept. 1868), has nothing to do with *crassicollis*, Fairm. (Oct. 1868), of which Allard treats it as a synonym. Perez Arcas, An. Soc. Esp. i. pp. 105 & 106.

Asida zapateri, sp. n., *id. l. c.* p. 103, pl. i. fig. 5, Arragon.

Pimeliides.

Polpogenia rimosa, sp. n., F. Bates, Ent. M. M. ix. p. 149, Niger (differences between *Polpogenia* and *Pterolasia* pointed out, *ibid.*).

Pedinides.

Micrositus levis, Perez Arcas, briefly redescribed and figured by the author, An. Soc. Esp. i. p. 107, pl. 1. fig. 3.

Micrositus nitidicollis, sp. n., *id. ibid.* pl. 1. fig. 4, Mallorca (? type of a new genus).

Hopatrides.

Trichosternum, Woll., = *Trichopodus*, Muls.: F. Bates, *l. c.* p. 98.

Gonocephalum puberulum, p. 187, note, *irroratum*, p. 188, note, Lifu, spp. nn., Fauvel, Bull. Soc. L. Norm. (2) i.

Hopatrum mastersi, sp. n., W. Macleay, Tr. Ent. Soc. N. S. W. ii. p. 277, Gayndah.

Apatehus squamosus, sp. n., *id. l. c.* p. 278, Gayndah.

Cestrinus squalidus, sp. n., *id. ibid.*, Gayndah.

Trachyscelides.

Hyois pallida, p. 278, *pubescens*, p. 279, *id. l. c.*, Gayndah: spp. nn.

Bolitophagides.

Mychestes pascoii and *mastersi*, spp. nn., *id. l. c.* p. 279, Gayndah.

Diaperides.

Diaperis picta, Mén., *Neomida ead.*, Fald., *Platydema id.* Gemm. & v. H. Cat., = *Phyletus populi*, Redt., = *Alphitophagus 4-pustulatus*, Steph.: W. F. Mäklin, S. E. Z. xxxiii. p. 247.

Tetraphyllus, Cast., removed by Lacordaire to the *Cnodalonides*, is restored to the *Diaperides*: id. l. c. p. 248.

Acanthosternus, Montrouz., ? = *Diphyrrhynchus*, Fairm.: F. Bates, Ent. M. M. ix. p. 97.

Heterochira, Dej., placed by Lacordaire in the *Ulomides*, is really to be referred here, near *Diphyrrhynchus*, Fairm.: F. Bates, Tr. E. Soc. 1872, p. 266.

[H] *Oplocephala iris*, sp. n., Fauvel, Bull. Soc. L. Norm. (2) i. p. 189, note, Lifu.

Platydema pascoii and *laticolle*, spp. nn., W. Macleay, l. c. p. 280, Gayndah.

Diphyrrhynchus ovalis, *caledonicus*, p. 268, *nigrobrunneus*, p. 269, spp. nn.: F. Bates, Tr. E. Soc. 1872, New Caledonia.

Ulomides.

Aniara, Lac. F. Bates, Ent. M. M. ix. p. 98, points out that Leconte proposed the name *Eutochia* for this genus in 1862, *Aniara* being preoccupied by Hope; and that *Cenoscelis*, Woll., *Aniarus*, Gemm., and *Holaniara*, Fairm., are therefore not required. The peculiarity in the labial palpi of *Cenoscelis* is only sexual: id. *ibid.*, note.

"*Tenebrio*" *crotchi*, Woll. (*parallelus*, Dej. Cat.), is the type of a new genus (*Pelleas*, ined.) near *Ulosonia*: id. *ibid.*

Melasia tarsalis, Perroud, is from Venezuela, and wrongly joined to *Uloma* by Lacordaire and Gemminger and v. Harold: Chevrolat, CR. Ent. Belg. xv. p. xxix.

Alphitobius. F. Bates confirms Mulsant's definition of the last joint of the palpi, in opposition to Lacordaire: Tr. E. Soc. 1872, p. 267, note.

Mesotretis, g. n., F. Bates, Ent. M. M. ix. p. 151. To be provisionally placed in the group *Triboliides*, but with tarsi dilated, pulvillate beneath, and having the penultimate joint subbilobed. *M. ferruginea*, sp. n., id. *ibid.*, King George's Sound, Australia.

Aptora, g. n., id. Tr. E. Soc. 1872, p. 265. *Triboliides*: allied to *Phtora*. *A. rufipes*, sp. n., id. l. c. p. 266, New Zealand (? = *P. lifuana*, Montr.).

Melasia brasiliiana, sp. n., Chevrolat, l. c. p. xlvii, Brazil.

Toxicum distinctum and *parvicorne*, spp. nn., W. Macleay, l. c. p. 281, Gayndah.

Helæides.

Onosterrhus, Pasc., referred by its author to the *Pedimides*, should be removed to the group *Nyctozoilides* of this subfamily: F. Bates, Ent. M. M. ix. p. 98. Recharacterized, id. Tr. E. Soc. 1872, p. 277.

Saragodinus, g. n., F. Bates, Tr. E. Soc. 1872, p. 269. Should probably constitute a distinct subdivision; form of *Nyctozoilus*, but approaches *Saragus*. *S. duboulayi*, p. 272, *howitti*, p. 273, Champion Bay, W. Australia: id. l. c., spp. nn.

Hypocilibe, g. n., *id. l. c.* p. 274. Differs from *Nyctozoilus* in having the gula deeply transversely sulcate, &c. *H. macleayi*, sp. n., *id. l. c.* p. 276, Australia.

Pterohelæus breinii, p. 281, *elongatus, pascoii*, p. 282, *confusus*, p. 283: W. Macleay, *l. c.*, Gayndah, spp. nn.

Saragus ovalis, sp. n., *id. l. c.* p. 283, Gayndah.

Nyctozoilus mastersi and *elongatulus*, *id. l. c.* p. 284, Gayndah; *N. reticulatus*, F. Bates, Tr. E. Soc. 1872, p. 274, N. S. Wales: spp. nn.

Onosterrhus marginicollis, p. 277 (? sexual form of *O. lævis*, Pasc.), *opacus*, p. 278, W. Australia: *id. l. c.*, spp. nn.

Tenebrionides.

Motschoulsky's 'Enumérations' &c. are continued after his death in Bull. Mosc. xlv. 2; pp. 23-42 being devoted to the *Tenebrionides* and *Calcarides*. The genera of the former are thus grouped:—*Milaris*, Pall. (type *Upis maxima*, Erm.), *Deriles*, Mots. (type *U. excavata*, Hbst.), *Pediris*, Mots., *Ipthimus*, Truqui, *Setenis*, Mots. (type *Tenebrio valgus*, Wied.), *Mederis*, Mots. (type *Upis angulata*, Er.), *Asiris*, Mots., *Nyctobates*, Guér., *Alobates*, Mots. (type *Tenebrio pennsylvanicus*, Deg.), *Tænobates*, Mots. (type *Tenebrio saperdoides*, Ol.), *Upis*, F., *Nuptis*, Mots., *Notiolesthus*, Mots. (type *natalensis*, M.), *Encyalesthus*, Mots. (type *subviolaceus*, M.), *Augolesthus*, Mots., *Menechides*, Mots. (type *Helops calcaratus*), *Zophobas*, Deg., *Lobetas*, Mots. (type *Tenebrio costatus*, Guér.), *Rophobas*, Mots., *Menephilus*, Muls., *Tenebrio*, L., *Menedrio*, Mots. (type *Tenebrio obscurus*). The genera of *Calcarides* are thus grouped:—*Calcar*, Dej., *Centorus*, Muls., *Biomorphus*, Mots., *Bius*, Dej., *Dysmastes*, Mann., *Boros*, Hbst., *Boromorphus*, Mots. (type *Boros tagenioides*, Luc.), *Meglyphus*, Mots., *Aspi[do]cephalus*, Mots. (type *A. desertus*, Mots., note, p. 42). The salient characters of all these genera are given briefly in a table; and it is probable that at least such of them as are attributed to this author, and have no type mentioned in the above notice, are intended to be described as new; but the usual indications of such an intention are not given. The following species are treated in the same way, and may possibly be new:—*Milaris attenuaticollis*, tropical America, *cayennensis*, Guiana, Surinam, p. 27, *Setenis rectangula*, E. India, p. 28, *puncticollis*, Java, *punctatistriata*, West Indies, Assam, *transversicollis*, E. India, Java, p. 29, *impressa*, E. India, Java, *crenatistriata*, E. India, Birma, p. 30, *Nyctobates glabriculus*, p. 31, *subrobustus*, p. 32, E. India, *Upis crenipennis*, p. 32, E. India, *Encyalesthus brevipennis*, p. 33, E. India, *Zophobas subnitidus*, p. 35, *laticollis*, p. 36, Amazons, *Menephilus indicus*, E. India, *capensis*, C. of G. Hope, *longipennis*, N. America, *longicollis*, Russian Georgia, p. 37, *Centorus tenuicornis*, Lenkoran, *americanus* [sic], Armenia, *filiformis*, Kirghese desert, p. 40, *Borocus sibiricus*, p. 41, Siberia. If these, or some of them, be not new, the reference to the author's characters for them may yet be of use. The descriptions of the author's species recorded *infra* as new are longer than any of these; but none are stated to be new (beyond the inference from the title).

Ecerestus, F. Bates, = *Rhinandrus*, Lec., and *E. jansoni*, F. B., ? = *elongatus*, Horn; *Ipthimus cancellatus*, Montr., belongs to *Dechius*, Pasc., and *Nyctobates orcus*, Pasc., to *Hypaulax*, F. B.; *Adelina plana*, Lec., belongs to *Doliema*, Pasc. (which is near *Sitophagus*, Muls.); and, if *plana*, Fab., be also a *Doliema*, Leconte's sp. will require renaming; *Sitophagus solieri*, Muls., and

? *Adelina farinaria*, Woll., = *Hypogena complanata*, Dej. Cat. : F. Bates, Ent. M. M. ix. pp. 98 & 99.

Ephidonius, Pasc., recharacterized : *id.* Tr. E. Soc. 1872, p. 279.

Microphyes, g. n., W. Macleay, Tr. Ent. Soc. N. S. W. ii. p. 286. Of broad, oval, subdepressed form; in other respects approaching *Tenebrio*. *M. rufipes*, sp. n., *id. ibid.*, Gayndah.

New species :—

Hypaulax gayndahensis, p. 284, *opacicollis*, p. 285, *id. l. c.*, Gayndah.

Promethis pascoi, *id. ibid.*, Gayndah.

Menephilus (?) *parvulus*, *id. ibid.*, Gayndah.

Ephidonius duboulayi, F. Bates, *l. c.* p. 279, W. Australia.

Pediris longipes, Motschoulsky, Bull. Mosc. xlv. 2, p. 28, Sonda I., Sumatra.

Asiris angulicollis, p. 30, New Holland, Van Diemen's Land, *natalensis*, p. 31, Pt. Natal : *id. l. c.*

Nuptis tenuis, *id. l. c.* p. 32, Nicaragua.

Notiolesthus natalensis, *id. l. c.* p. 33, Pt. Natal.

Augolesthus purpureifasciatus, p. 34, E. India, *australasiæ*, p. 35, north of New Holland : *id. l. c.*

Rhophobas asperatus, *id. l. c.* p. 36, E. India.

Biomorphus tuberculatus, *id. l. c.* p. 40, California.

Meglyphus lenoides, *id. l. c.* p. 41, Cape of Good Hope.

Heterotarsides.

Ancylopoma, Pasc., should be referred to this group, next after *Anædus*, Blanch. : F. Bates, Ent. M. M. ix. p. 97.

Cyphaleides.

Cyphaleus chalybeipennis, p. 286, *cupreicollis*, p. 287, spp. nn. : W. Macleay, *l. c.*, Gayndah.

Prophanes westwoodi, sp. n., *id. l. c.* p. 287, Gayndah.

Chartopteryx mastersi, sp. n., *id. ibid.*, Gayndah.

Cnodalonides.

Scotæus, Hope, and *Eucyrtus*, Pascoe, are absolutely distinct; *Strongylium æneum* and *mulsanti*, Montr., form a new genus near *Titæna*, Er. : F. Bates, Ent. M. M. ix. p. 99.

Psyds, Pasc., does not belong to the *Strongyliides*, but to this group, very near *Thecacerus*, Lac. : W. F. Mäklin, S. E. Z. xxxiii. p. 248. *Damatris*, Cast., also belongs here : *id. l. c.* p. 249.

Helopides.

Adelium triste, Montr., belongs to *Arcothymus*, Pasc. : F. Bates, *l. c.* p. 99.

Leptogastrus, g. n., W. Macleay, *l. c.* p. 293. Perhaps nearest to *Licinoma*, Pasc.; resembles *Adelium* in some characters, but separated from all the

group by its elongate form, pedunculated body, and clavate antennæ. *L. mastersi*, sp. n., *id. l. c.* p. 294, Gayndah.

Atryphodes opacicollis and *mastersi*, spp. nn., *id. l. c.* p. 288, Gayndah.

Adelium viridipenne, *rugosicolle*, *convexiusculum*, p. 289, *parvulum*, *panagæi-colle* [!], p. 290, *monilicorne*, p. 291, spp. nn.: *id. l. c.*, Gayndah.

Seirotiana punctifera, p. 291, *femoralis*, p. 292, spp. nn.: *id. l. c.*, Gayndah.

Coripera mastersi, sp. n., *id. l. c.* p. 292, Gayndah.

Licinoma violacea, sp. n., *id. ibid.*, Gayndah.

Brycopia longipes and *B. (?) dubia*, spp. nn., *id. l. c.* p. 293, Gayndah.

Omolipus grandis, sp. n., *id. l. c.* p. 294, Gayndah.

Nephodes barbarus, sp. n., Reitter, B. E. Z. xvi. p. 182, Oran (= *villiger*, Rosenh., which is not the same as *metallescens*: Kraatz, *ibid.*).

Amarygmides.

Amarygmus aheneus, De Haan, of colls., = *Dictysus* (not *Dietysus*) *lucidus*, De Brême, with which *D. confusus*, Pasc., is probably identical: W. F. Mäklin, S. E. Z. xxxiii. p. 249.

Amarygmus rufipes, p. 294, *picipes*, *opacicollis*, *grandis*, *rugosicollis*, p. 295, *punctipennis*, *obsoletus*, *rugosipennis*, p. 296, *foveolatus*, *striatus*, *convexiusculus*, p. 297: W. Macleay, *l. c.*, Gayndah, spp. nn.

Strongyliides.

Odontopus physodes (? = *Lagria æruginea*, Gerst.) and *asperatus*, Pasc., belong to *Aspidosternum*, Mäkl.; *O. speciosus*, Pasc., = *A. cyaneum*, Mäkl.; *Strongylium viridipenne*, Montr., is very near, if not identical with, *Chariotheca*, Pasc.: F. Bates, Ent. M. M. ix. p. 99.

Strongylium mastersi and *ruficolle*, spp. nn., W. Macleay, *l. c.* p. 298, Gayndah.

Stenochia deplanchii, sp. n., Fauvel, Bull. Soc. L. Norm. (2) i. p. 190, note, New Caledonia.

CISTELIDÆ.

Cistela costassii, Bertol. Fully redescribed by the author, from the Valle di Sole, Trentino: Bull. Ent. Ital. iv. p. 115.

Apellatus palpalis, p. 298, *mastersi*, p. 299: W. Macleay, Tr. Ent. Soc. N. S. W. ii., Gayndah, spp. nn.-

Metistete pascoii, sp. n., *id. l. c.* p. 299, Gayndah.

Atractus ruficollis, *cyaneus*, *ibid.*, *vitticollis*, *rugosulus*, p. 300: *id. l. c.*, Gayndah, spp. nn.

Chromomæa mastersi and *picea*, spp. nn., *id. l. c.* p. 300, Gayndah.

Homotrysis ruficornis, *subgeminatus*, *regularis*, spp. nn.: *id. l. c.* p. 301, Gayndah.

Allecula elongata, *ibid.*, *subsulcata*, *punctipennis*, *pascoii*, *mastersi*, p. 302, *planicollis*, p. 303: *id. l. c.*, Gayndah, spp. nn.

Cistela convexa, *ovata*, *depressiuscula*, p. 303, *polita*, p. 304: *id. l. c.*, Gayndah, spp. nn.

Homophlus menticornis, p. 172, *oranensis*, p. 173, *kirschi*, p. 174, Oran: Reitter, B. E. Z. xvi., spp. nn.

MONOMMATIDÆ.

Monomma. Table of the 21 known species, with localities &c., by Gestro, Ann. Mus. Genov. iii. p. 52.

Monomma abyssinicum, p. 50, *antinorii*, p. 51, Bogos, *doriæ*, p. 51, Sarawak : *id. l. c.*, spp. nn.

MELANDRYIDÆ.

Serropalpus striatus. A. Müller, P. E. Soc. 1872, p. x, notices the occurrence and habits of this insect at Basle, in connexion with timber-rafts. He quotes and confirms the Recorder's opinion that the name *barbatus*, Schall., should stand for it. Brems-Wolf & Stierlin adopt this, though Schaum did not. From an editorial note in C. H. x., it would appear that the last-named author had no other ground for his opinion but his inveterate dislike to alter any received name.

J. Erné, MT. schw. ent. Ges. iii. pp. 525-530, pl., describes the economy of this species, giving rough figures of its various stages. It appears to be a destructive insect, its larva attacking growing or recently dead fir trees, and being commonly known at Mülhausen as the "black worm."

Dæmon, g. n., Motschoulsky, Bull. Mosc. xlv. 2, p. 44. Anterior coxæ contiguous, hooks of tarsi simple. *D. testaceus* and *suturalis*, spp. nn., *id. l. c.* p. 45, Cape of G. Hope.

Eustrophus ochraceus, sp. n., *id. l. c.* p. 42, Brazil.

Orchesia grävada, *id. ibid.*, Atlanta, American Georgia; *O. elongata*, W. Macleay, Tr. Ent. Soc. N. S. W. ii. p. 304, Gayndah : spp. nn.

Hallomenus variegatus, p. 42, Caucasian Alps, *reticulatus*, p. 43, Atlanta : Motschoulsky, *l. c.*, spp. nn.

Xylita umbrata, Pennsylvania, *robusta*, E. Siberia : *id. l. c.* p. 43, spp. nn.

Direcæ fusca, sp. n., *id. l. c.* p. 44, California.

Emmesa californica, sp. n., *id. l. c.* p. 45, pl. 2. fig. 10, California.

Melandrya alternans, sp. n., *id. ibid.*, E. Siberia.

Scotodes uniformis, sp. n., *id. l. c.* p. 46, Kamschatka.

LAGRIIDÆ.

Ommatophorus [*Ommatophora*, Brandt, *Myriopoda*], g. n., W. Macleay, Tr. Ent. Soc. N. S. W. ii. p. 304; ? rightly placed here, according to the author, who gives no differential characters. *O. mastersi*, sp. n., *id. l. c.*, p. 305, Gayndah.

Lagria cyanea, sp. n., *id. l. c.* p. 304, Gayndah.

PEDILIDÆ.

Anidorus, Muls. & R. The elytra of the ♂ have a small spine on the posterior discal declivity: Abeille, Étud. Col. Cav. p. 37.

Xylophilus patricius, sp. n., *id. ibid.*, Sos.

ANTHICIDÆ.

Anthicus. Sexual characters used by Thomson referred to, and an un-

described French species, near *antherimus*, noted : Ch. Brisout, Bull. Soc. Ent. Fr. (5) ii. p. xxv.

Mecynotarsus kingi and *mastersi*, spp. nn., W. Macleay, Tr. Ent. Soc. N. S. W. ii. p. 305, Gayndah.

Formicomus kingi and *humeralis*, spp. nn., *id. l. c.* p. 306, Gayndah.

Anthicus kingi, *ibid.*, *propinquus*, *laticollis*, *mastersi*, *constrictus*, *pallidus*, p. 307, and *A. (?) aberrans*, p. 308, *id. l. c.*, Gayndah ; *A. scoticus*, Rye, Ent. M. M. ix. p. 10, Scotland : spp. nn.

PYROCHROIDÆ.

Lemodes mastersi, sp. n., W. Macleay, *l. c.* p. 308, Gayndah.

MORDELLIDÆ.

Anaspis maculata bred from large woody excrescences on birch : A. Müller, P. E. Soc. 1872, p. xviii.

Mordella quadriguttulata, Motschoulsky, Bull. Mosc. xlv. 2, p. 46, South Daouria ; *M. octomaculata*, *14-maculata*, p. 308, *aterrima*, *brunneipennis*, *cuspidata* [descriptions utterly inadequate], p. 309, W. Macleay, *l. c.*, Gayndah : spp. nn.

RHIPIDOPHORIDÆ.

Trigonodera gerstæckeri, p. 309, *mastersi*, p. 310, spp. nn. : W. Macleay, *l. c.*, Gayndah.

Ptilophorus gerstæckeri, sp. n., *id. l. c.*, p. 310, Gayndah.

Rhipidophorus luteipennis, sp. n., *id. ibid.*, Gayndah.

Rhipidius quadriceps, sp. n., Abeille, Étud. Col. Cav. p. 36, Isère (? parasitic on a small yellow *Blatta*).

STYLOPIDÆ.

Sir S. S. SAUNDERS, Tr. E. Soc. 1872, pp. 1-48, pl. vii., has published an exhaustive account of this group, under the title "Stylopidarum, ordinem Strepsipterorum Kirbii constituentium, mihi tamen potius Coleopterorum Familiæ, Rhipiphoridis Meloidisque propinquæ, Monographia." At p. 287 is a list of numerous corrections &c., and at p. 288 an explanation of the accompanying plate, on which the various portions of the wing of a *Stylops* are indicated, and the wings of *Myrmecolax nietneri*, *Xenus rossii*, and *Hylechthrus rubi* figured, besides portions of the species described as new.

Basing his classification on the species upon which the various members of the group are parasitic, the author forms the family into two divisions :—1. HYMENOPTEROBLÆ, comprising as subfamilies the *Stylopidides* (parasitic on bees), *Myrmecolacides* (on ants), *Xenides* (on social wasps), and *Pseudoxenides* (on solitary wasps and *Fossores*) ; 2. HOMOPTEROBLÆ, founded on a parasite on one of the *Fulgoridæ*, and to be described hereafter by Westwood. Useful tables of the infested species &c. are given ; and the following new genera and species described in the *Pseudoxenides* :—

Pseudoxenos[-nus], p. 44. Antennæ and tarsi 4-jointed ; branches of the former "tæniæform," basal cubitus of 3rd joint subrotundate ; insulated apical

nerve of wings double, discoidal nerve simple. *P. schaumii*, *ibid.* pl. vii. figs. 6-9, Corfu, parasitic on *Odynerus parietum*; and *P. heydeni* and *klugi*, Saund.

Paraxenos[-*nus*], p. 45. Branches of antennæ distorted, swollen; basal cubitus of 3rd joint rather prominent, rectangularly recurved; both alar nerves double. *P. erberi*, pl. vii. figs. 5 & 13-15, parasitic on *Larra peregrina*, and *P. corcyricus*, on *Odynerus spinipes*, Corfu, p. 46; also *Xenus sphecidarum*, Duf. (wrongly renamed *sieboldi*, because other species are parasitic on members of the *Sphegidae*), and *X. westwoodi*, Templeton.

CANTHARIDÆ.

Meloides.

Meloe. Motschoulsky, Bull. Mosc. xlv. 2, p. 48, indicates and names, without fully describing, the following species as new:—*M. strigosa*, Kamtschatka (?=*violacea*, var.), *prolifericornis*, Georgia, *sculpticornis*, Nicaragua, *opaca*, tropical America.

Meloe cyanea, Muls., referred with some reserve to Britain: E. C. Rye, Ent. M. M. viii. p. 248. Further British locality for the insect mentioned, by C. G. Rotheram-Websdale, *ibid.* p. 288. Connecting links between it and *M. proscarabæus* recorded from the Isle of Man by Rye, *ibid.*

Meloe maculifrons and ? *maculicollis*, Luc., = *majalis*, varr.: Reitter, B. E. Z. xvi. p. 176.

Meloetyphlus, g. n., C. O. Waterhouse, Ent. M. M. ix. p. 31. Eyeless. *M. fuscatus*, sp. n., *id.* l. c. p. 32, E. Peru.

Meloe puncticollis, p. 46, Siberia, *granulifera*, p. 47, E. Siberia, spp. nn.: Motschoulsky, l. c.

Mylabrides.

Mylabris variabilis. A pair observed digging holes in the ground, near Carcassonne, by Gavoy, probably for some purpose connected with ovipositing. *Nouv. et Faits*, p. cli.

Ceracoma. Table of species: Motschoulsky, Bull. Mosc. xlv. 2, p. 49.

Mylabris axillaris, *flavipennis*, *brevicornis*, *id.* l. c. p. 50, Dauria; *M. sanguinosa*, Marseul, L'Ab. viii. p. 417, Persia: spp. nn.

Coryma dolens, p. 417, Syria, *denticulata*, p. 418, Arabia: Marseul, l. c., spp. nn.

Deratus tibialis, sp. n., Motschoulsky, l. c. p. 51, Dauria.

Rhampolyssa batesi, sp. n., Marseul, l. c. p. 416, Arabia.

Cantharides.

Epicauta and *Lytta*. New species are found in every fresh region; each kind of *Astragalus* having its accompanying Vesicant: Horn, in Hayden's Geol. Surv. of Montana, p. 384.

Zonites. Table of species, Motschoulsky, l. c. pp. 52 & 53.

Lydus stigmatifrons, sp. n., Marseul, l. c. p. 419, Syria.

Zonites lutea, *fuscicornis*, p. 310, *apicalis*, *bizonata*, *annulata*, p. 311: W. Macleay, Tr. Ent. Soc. N. S. W. ii., Gayndah, spp. nn.

Sitarides.

Sitaris taurica, sp. n., Motschoulsky, *l. c.* p. 54, Tauris.

Nematognathides.

Nem[at]ognatha asiatica, sp. n., *id. ibid.*, Teheran.

ÆDEMERIDÆ.

Edechira [*Edechirus*, Er.], g. n., Motschoulsky, Bull. Mosc. xlv. 2, p. 54. Allied to *Lethonymus*; distinguished from *Ædemera* by its swollen anterior and simple posterior femora. *Ædemera paradoxa*, Fald. (not in same genus as *Anoncodes adusta*, Pz., as Mulsant states); *Æ. flavipennis*, sp. n., Motschoulsky, *l. c.* p. 55, Caucasus.

Selenopalpus (?) *fuscus*, p. 311, *mastersi*, p. 312: W. Macleay, Tr. Ent. Soc. N. S. W. ii., Gayndah, spp. nn.

Anonca vitticollis and *ruficollis*, spp. nn., *id. l. c.* p. 312, Gayndah.

Pseudolychus apicalis, sp. n., *id. l. c.* p. 313, Gayndah.

Chrysanthia superba, sp. n., Reitter, B. E. Z. xvi. p. 182, Oran (also from Sierra de Jaen, *teste* Kraatz, *ibid.*).

CURCULIONIDÆ.

SUFFRIAN, Arch. f. Nat. xxxviii. pp. 156-207, continues his enumeration of the species found by Dr. Gundlach in Cuba, with descriptions of new species (many named by Chevrolat) of *Hylobiides*, *Derelomides*, *Ithyporides*, and *Cryptorhynchides*. Observations are made upon various insects already described by Schönherr, Lacordaire, and others.

Brachyderides.

Cneorhinus hypocyamus, Boh., redescribed and figured: Perez Arcas, An. Soc. Esp. i. p. 110, pl. 2. fig. 3.

Liophlœus geminatus, Sch., and *L. opacus*, Chev., *exx. typ.*, = *nubilus*, varr.; *L. atricornis*, Desbr., is a distinct species: Bedel, Bull. Soc. Ent. Fr. (5) ii. p. 1.

Sitones cribricollis, Schön. [1834], is identified with and adopted for *S. cambricus*, Steph. [1831]; *S. punctiger*, Thoms., = *puncticollis*, Kby.: Thomson, Opusc. Ent. (iv.) p. 390. *S. biseriatus*, All., = *discoideus*, Gyll.; *S. niger*, All., = *ellipticus*, All., abraded; *S. tibialis*, *ambiguus*, and *brevicollis* are not specifically distinct, nor are *lineatus* and *geniculatus*; *S. puncticollis* should be placed near *flavescens*; and a var. of *S. chloroloma*, with almost black legs, is recorded. Desbrochers, Ann. Soc. Ent. Fr. (5) ii. pp. 420 & 421.

Eusomus smaragdinus, Fairm., ? = *Polydrosus salsicola*, var., *id. l. c.* p. 428. *P. arvernicus* is very distinct from *melanostictus*, according to Chevrolat: *id.* Bull. Soc. Ent. Fr. (5) ii. p. xxiii.

Thylacites tessellatus, Gyll. Perez Arcas, *l. c.* p. 118, demurs to Desbrochers's opinion that *T. turbatus* and *glabratus*, Gyll., are synonyms of this species, and suggests the identity of *turbatus* with *fullo*, Er.

Amomphus concinnus, Küst., = *westringi*, Sch., *ex. typ.*: Desbrochers, *l. c.* 1872. [VOL. IX.]

p. 427 [who nevertheless does not himself hesitate to describe as a new species an insect which he is constrained to query as var. ♀ of *vestringi*!]

Tanymecus femoralis, Desbr., = *metallinus*, Fairm.; *T. congener*, Desbr., ? = *persulcatus*, Fairm.; *T. araneiformis* and *insidiosus* are distinct: Fairmaire, Ann. Soc. Ent. Fr. (5) ii. p. 48.

Psalidium pactolum, Rche., = *forcipatum*, Rche., ♀: Desbrochers, l. c. p. 427.

Leptolepurus [rectius *-porus*], g. n., *id. l. c.* p. 424. Follows *Cneorhinus*. *L. olivieri*, sp. n., *id. l. c.* p. 425, Bone.

Ottistira, g. n., Pascoe, J. L. S. xi. p. 440. Near *Sciaphilus*; scrobes transverse, running far beneath the eyes, with a longitudinal abbreviated furrow in front; elytra much wider than thorax at base; anterior coxæ not contiguous (*Pachyrhynchides*, Lac.). *O. bispinosa*, *ibid.* pl. x. fig. 6, Dorey, *bicornis*, New Guinea, *planidorosis*, Batchian, *ocularis*, Singapore, *pulchella*, Morty, p. 441, *leucogenys*, Sula, *gibbosa*, Malacca, *naso*, Flores, *punctata*, Tondano, p. 442: *id. l. c.*, spp. nn.

Cneorhinus spinipes, sp. n., Perez Arcas, l. c. p. 112, pl. 2. fig. 1, Salamanca.

Strophosomus palearius, *id. l. c.* p. 132, pl. 3. fig. 1, Arragon; *S. puberulus*, p. 409, *aureolus*, *canus*, p. 410, Chevrolat, Ann. Soc. Ent. Fr. (5) ii., Spain; *S. (Neliocarus) seidlitzii*, Reitter, B. E. Z. xvi. p. 183, Frensdah: spp. nn.

Polydrosus juniperi, sp. n., Desbrochers, l. c. p. 421, Ajaccio.

Thylacites emarginatus, *id. l. c.* p. 422, Portugal; *T. planicollis*, p. 114, pl. 2. fig. 2, *elongatus*, p. 117, fig. 4, Cordova: Perez Arcas, l. c., spp. nn.

Amomphus dissimilis, sp. n., Desbrochers, l. c. p. 422, Carthage (♀ = *vestringi*, Sch., ♀ var. *sec.* Desbr.).

Tanymecus zuberi, sp. n., *id. ibid.*, Astracan.

Chlorophanus crotchi, Imeritia, *nitidulus*, Sarepta, p. 423, *separandus*, p. 424, Russia, *id. l. c.*: spp. nn.

Otiorhynchides.

DE MARSEUL (L'Ab. viii. pp. 1-104, separate pagination) has commenced a monograph of this group, founded on the works of Seidlitz and Stierlin. The part published discusses the genera *Holcorhinus*, *Cyclomaurus*, *Mylacus*, *Cyclopterus*, *Peritelus*, *Cenopsis*, and the commencement of *Otiorhynchus*. The following observations occur (the changes of nomenclature being apparently based on the grounds stated in Zool. Rec. viii. p. 299):—*Holcorhinus pilosulus*, Chev., *ex. typ.*, = *querulus*, Boh., ♀, with which species *H. albimarginatus*, Luc., is probably identical; *Cyclomaurus punctatus*, All., ? = *H. parvicollis*, Seidl. (renamed *parvicollellis*); *C. velutinus*, Fairm., is renamed *fairmarii*; *C. piceus*, All., = *metallescens*, Luc.; *Mylacus murinus*, Boh., is renamed *soricinus*; *M. puberulus*, Sch., = *rotundatus*, F.; *M. hæmatopus*, Rosenh., is renamed *rubripes*; *M. armatus*, Seidl., is renamed *armipotens*; *Myllocerus hispanus*, Chev., = *Peritelus gougeleti*, Seidl.; *P. kiesenwetteri*, Seidl., is renamed *hispalensis*; *P. prolixus* is renamed *promissus*; *P. siculus*, Seidl., = *subdepressus*, Muls., var.; *P. rudis*, Boh., = *brucki*, Seidl., ♂ [which latter name should therefore apparently sink]; *P. parvulus*, Seidl., is renamed *italicus*; *P. (Cathormiocerus) squamulatus*, Rche., is renamed *squamans*; *P. crassicornis*, Duv., is renamed *crassulicornis*; *Meira elongatula*, Fairm., and ? *Otiorh. minimus*, Stierl., = *P. suturellus*, Fairm.; *P. aquilus*, Seidl., *nec* Chev., = *mu-*

ricatus, Chev. ; *Otiorhynchus furinus* and *gracilis*, Chev., = *P. aquila*, Chev. (-lus; cf. v. Harold, C. H. x. p. 220). v. HAROLD, C. H. x. pp. 214 & 220, in some strictures upon the above changes, notes that *O. elongatus*, Stierl., nec Hoch., was in 1867 altered by its author to *francolinus*, and that *O. glabratus*, Stierl., nec Kryn., and *tristis*, Stierl., nec Scop., have been passed over.

Otiorhynchus. STIERLIN, B. E. Z. xvi. pp. 321-368, has published a 3rd supplement to his revision of the European species, giving a new systematic list. *O. rotundatus*, Sieb., is redescribed, and (p. 344) stated to be *imparidentatus*, Hochhuth; fresh divisional characters are pointed out and alterations of position made; *O. lefeburi*, Gyll., = *aurifer*, Sch., var.; *multipunctatus*, F., is specifically distinct from *irritans*, Germ., and is now placed in another subgenus; *francolinus*, Schauf., is adopted for *elongatus*, Hoch.; *pubens*, Sch., is very variable [in Stierlin's original Revision this name is altered in the errata to *pubeus*, but now rightly stands again as *pubens*]; *lutosus*, Stl., = *pseudomias*, Hoch.; *incivilis* ["Germ." in text, "Gyll." in list; ? = "*inclivis*, Sch.," of original revision, p. 334] comes next to *compressus*, Stl.; a Lapland var. of *politus* is referred to as *borealis*; the species allied to *rugifrons* are tabulated, p. 343; *rutilipes*, Hoch., is doubtfully distinct from *cribrosicollis*, Sch. [the latter name occurs in two different places in the list, p. 367, the first time apparently in error for *cribricollis*]; *chrysopterus*, Stl., = *scopularis*, Hoch.; *crucirostris*, Hoch., = *ovalipennis*, Sch.; *puberulus*, Hoch., is not an *Otiorhynchus*, but possibly a *Phyllobius* or *Chiloneus*; *angustior*, Rosenh., *ex. typ.*, is erroneously stated by v. Harold to be a syn. of *carnagnole*, Stl.; the subgenus *Eurychirus* is tabulated, p. 345, as is the 3rd group of *Tournieria*, p. 347; *O. reynosa*, Ch. Bris., = *hispanus*, var.; *O. sylvestris*, Chev., *ex. typ.*, = *jugicola*, Stl.; *O. tenuicornis*, Mill., is extremely close to *eremicola*; *O. egregius*, Mill., = *kratteri* [? *krattereri*], Sch., var.; the diagnosis of all species published since the original Revision are reproduced, with comments.

Otiorhynchus agrosicollis, Boh., new to France: Ch. Brisout, Bull. Soc. Ent. Fr. (5) ii. p. xlvi.

Cneorhinus cæsifrons, Desbr., is a *Holcorhinus*, and very probably = *seriehispidus*, Boh., ♀: Desbrochers, Ann. Soc. Ent. Fr. (5) ii. p. 428.

Peritelus gougeleti, Seidl., has priority over *hispanicus*, Chev., the reference by Desbrochers [Zool. Rec. viii. p. 300] being erroneous. De Marseul, Nouv. et Faits, p. cxxxix.

Trachyphlæus scaber, Redt., = *alternans*, Sch.: Thomson, Opusc. Ent. (iv.) p. 391.

Pholicodes lepidopterus and *inauratus*, Boh., are presumably sexes of one species; *P. tristis*, Mots., *ex. typ.*, = *trivialis*, Sch.; *P. murinus*, Mars., nec Boh., is referred to: Desbrochers, l. c.

New genera and species:—

Cyrtomezia, Pascoe, J. L. S. xi. p. 443. Allied to *Laparocerus*, but with widely separated posterior coxæ, a longer metasternum, the basal groove of rostrum transverse, and short foveiform scrobes. *C. dispar*, id. *ibid.* pl. x. fig. 9, Bombay.

Psidiopsis, id. *ibid.* Agrees in most respects with *Otiorhynchus*, but with

posterior coxæ approximated, scape thickened only at the tip, and cylindrical thorax. *P. filicornis*, id. l. c. p. 444, Amazons.

Telenica, id. l. c. p. 444. Between *Merimnetes* and *Mylocerus*, having rostrum of the former and the free claws of the latter; scape straight, no humeral angle to elytra. *T. sublimbata* and *nebulosa*, id. l. c. p. 445, W. Australia.

Onychopoma, id. l. c. p. 445. Allied to *Drepanoderes*, but with arched, dilated, and flattened scape, and rounded eyes. *O. parda*, id. *ibid.* pl. x. fig. 8, Cochin China, Pegu.

Timareta, id. *ibid.* Between *Trachyphæus* and *Asceparnus*, differing in the form of its posterior tarsi [? tibiæ]. *T. figurata* (pl. xii. fig. 8) and *satellina*, id. l. c. p. 446, Freemantle, Swan River.

Otiorynchus amputatus, Nouv. et Faits, p. cxxxii, *gossippiipes*, Ann. Soc. Ent. Fr. (5) ii. p. 410, Chevrolat, Spain; *O. caucasicus*, p. 321, Caucasus, *spoliatus*, p. 322, Silesia, *subdepressus*, p. 323, locality unknown, *coronatus*, p. 324, *cribratistriatus*, p. 326, Greece, *seriehispidus*, p. 325, Neufchatel, *dieki*, Upper Italy, *irregularis*, ? Greece, p. 327, *caunicus*, p. 336, Spain, *delicatulus*, p. 337, Maritime Alps; *O. (Eurychirus) villosus*, p. 329, *hellenicus*, *gravidus*, p. 330, *messenicus*, p. 332, Greece, *anniboli* [? *annibali*], p. 331, Syria, *ponticus*, p. 333, Pontic Alps, *allardi*, p. 334, Algiers, *paradoxus*, p. 338, ? Syria, *marseuli*, p. 339, locality unknown; *O. (Tournieria) longipes*, p. 335, Gurien; *O. (Stomodes) angustatus*, p. 335, Greece: Stierlin, l. c.

Holcorhinus conglobatus, Marseul, l. c. p. 14, Algeria.

Peritelus globulicollis and *hybridus*, p. 61, Spain, *curticollis*, p. 86, *hamatus*, p. 91, Corsica: id. l. c.

Barypithes rhytidiceps, Chevrolat, l. c. p. 411, Spain.

Platytarsus ebeninus, id. *ibid.*, Spain.

Titinia marmorata, Pascoe, Ann. N. H. (4) ix. p. 132, N. S. Wales.

Atmesia (? better placed in *Leptopides*, teste Pascoe) *glauca*, id. J. L. S. xi. p. 446, W. Australia.

Eremnides.

Acanthotrachelus albus, sp. n., id. l. c. p. 447, Malabar.

Leptopides.

Dystirus, g. n., id. *ibid.* Allied to the Australian *Leptops*, differing in its transverse prothorax, which is calloso-dilate on each side, with distinct ocular lobes, its loosely attached antennal club, and the want of a humeral projection to the elytra. *D. strumosus*, sp. n., id. *ibid.* pl. xiii. fig. 10, Mexico.

Polyphrades longipennis, sp. n., id. Ann. N. H. (4) ix. p. 133, S. Australia.

Cherrus aureolus, sp. n., id. *ibid.*, King George's Sound.

Stenocorynus vittatus, Night Island, Australia, *aridus*, Lizard Island, spp. nn., id. l. c. p. 134.

Entimus arrogans, sp. n., id. J. L. S. xi. p. 448, Panama.

Brachycerides.

Brachycerus. BEDEL, Nouv. et Faits, p. cxviii, restricts the Old-World species to 21, giving the following synonymy:—*B. besseri* and *lutulentus*,

Gyll., *incertus*, Desbr., *junix*, Hbst., = *sinuatus*, Ol.; *fimbriatus*, Desbr., = *cribipennis*, Rche.; *olivieri*, *insularis*, and *tauricus*, Desbr., *siculus*, Gyll., *nodulosus*, *argillosus*, and *ornatus*, Rche., = *ægyptiacus*, Ol.; *latro*, *punicanus*, and *libertinus*, Gyll., *curtulus*, Desbr., = *barbarus*, L.; *fluctiger*, Gyll., = *lateralis*, Gyll.; *pterygomalis*, *corrosus*, and *incultus*, Gyll., *serratus*, Ol., *undatus*, F., *ovatus*, Brullé, *subvariolatus*, *hispidus*, *sericeus*, *cornifrons*, and *nubilus*, Desbr., = *mauritanicus*, Ol.; *clathratus* and *recticostatus*, Desbr., = *crispatus*, Ol.; *semituberculatus*, Luc., *peninsularis*, Chevr., *raffrayi* and *parens*, Desbr., = *chevrolati*, Gyl.; *kabylianus* and *velutinus*, Desbr., = *scutellaris*, Luc.; *insignis*, Mill., *vespertilio* and *scutipennis*, Desbr., *plicatus*, Gyl., = *tetanicus*, Luc.; *pradieri*, Fairm., *peninsularis*, Chevr., pt., = *europæus*, Thunb.; *plauirostris* and ? *cirrosus* and *perodiosus*, Gyll., *semicæneus*, Desbr., = *algirus*, F.; *foveicollis*, Gyll., *ventralis*, Desbr., = *muricatus*, F. For 34 of these corrections the author has the authority of authentic types. Subsequently (*ibid.* p. cli) he refers *fimbriatus*, Desbr., to *cribrarius*, Ol., *diformis*, Fald., to *sinuatus*, Ol., *pulverulentus*, Ol., to *cinereus*, Ol., and considers *europæus*, Thunb., a doubtful species. Cf. also *id.* Bull. Soc. Ent. Fr. (5) ii. p. l.

Brachycerus algirus, F., reared from larvæ found in cloves of garlic, the genus appearing as a rule to be attached to *Liliaceæ*: *id.* Bull. Soc. Ent. Fr. (5) ii. p. vii. Desbrochers, *ibid.* p. lxxxv.

"*Tainophthalmidæ.*"

Desbrochers, Ann. Soc. Ent. Fr. (5) ii. p. 426, considers the erection of a separate "tribu" under the above name necessary, to follow *Brachycerus* in the European lists, comprising a new genus characterized by him as *Tainophthalmus* [*Teniphthalmus*, on the author's own derivation], in which the rostral scrobes are not united beneath, the mandibles only slightly project and are not arched, the prothorax has no lobes, &c. *T. crotchi*, sp. n., *id. ibid.*, Astrabad.

Byrsopides.

Ixodius, g. n., Pascoe, J. L. S. xi. p. 448. Differs from *Byrsops* in its short and stout form and rounded elytra, which are not truncate behind, smooth surface, and minute concolorous scales. *I. ocellus* (pl. xiii. fig. 8) and *sordidus*, spp. nn., *id. ibid.*, C. of G. Hope.

Amycterides.

DOHRN, S. E. Z. xxxiii. pp. 143-154, continues his digestion of the *Amycterus mirus-rabilis-rabundus* question raised in a former volume. *A. chaudiéri*, Guér., and *karelini*, Boh., are the same species, and were apparently published simultaneously.

Pascoe, Ann. N. H. (4) x. p. 91, tabulates the known genera of the short-scaped species forming Lacordaire's *Euomides*. *Phalidura scorpio*, Bois., seems the species on which Schönherr founded *Euomus*, naming it *E. fahræi* (p. 85).

Ædirodes, g. n., *id. l. c.* p. 85. Eyes small, roundish, away from the thorax, notwithstanding its ocular lobes. *Euomus nodipennis*, Boh., and *Æ. fasti-*

giatus, pl. 1. fig. 8, and *mendosus*, King George's Sound, *inuus*, W. Australia, p. 86: *id. l. c.* spp. nn.

Acherres, g. n., *id. l. c.* p. 87. No ocular lobes; rostrum short, stout, thicker towards apex, bialate, the projection running on each side above the eye. *A. mamillatus*, sp. n., *id. ibid.* pl. 1. fig. 5, W. Australia.

Ennothus, g. n., *id. ibid.* Differs from *Acherres* in its bicornute rostrum, and in having no epipleural plica to the elytra, and the last joint of the tarsi bilobed. *E. fallax*, sp. n., *id. ibid.*, W. Australia.

Oditesus, g. n., *id. l. c.* p. 88. Head subplanate in front or slightly excavated, elevated above the eyes; rostrum narrower and longer than head, elevated on the upperside at the base, and bicornute. *O. indutus*, *ibid.* pl. 1. fig. 6, *lycosarius*, *incanis*, *perditus*, p. 89, *sulcirostris*, *bucerus*, p. 90, King George's Sound: *id. l. c.*, spp. nn.

Sosytelus, g. n., *id. l. c.* p. 90. Rostrum short and stout, not cornuted; tarsi unusually dilated for the group. *S. lobatus*, sp. n., *id. l. c.* p. 91, pl. 1. fig. 1, Sydney.

Phalidura decipiens, sp. n., Dohrn, *l. c.* pp. 143-149 ["Soviel über *Phalidura decipiens*. Vielleicht zu viel:—" *id.* p. 149], E. Australia.

Euomus retusus, sp. n., Pascoe, J. L. S. xi. p. 449, pl. xii. fig. 12, W. Australia.

Dialeptopus serricollis, *granulatus*, and *plantaris* (pl. xii. fig. 11), *id. ibid.*, W. Australia: spp. nn.

Mythites asperatus, Sydney, *pithecius*, N. S. Wales, p. 84, *degener*, p. 85, S. Australia: Pascoe, Ann. N. H. (4) x., spp. nn.

Rhyparosomides.

Dichotrachelus manuehi, Mars., fully described: L'Ab. viii. p. 413.

Geobyrsa, g. n., Pascoe, J. L. S. xi. p. 450. Resembles *Styphlus*, but with elytra at base not broader than thorax, to which they are closely applied, and antennal club shortly conical, its basal half formed of last 2 joints of funiculus. *G. nodifera*, sp. n., *id. ibid.* pl. xiii. fig. 1, Nicaragua.

Opfryota, g. n., *id. l. c.* p. 451. Allied to *Zephyryne*, but stouter, antennal club closely applied to the funiculus, thorax rounded, and metasternum short. *O. squamibunda*, sp. n., *id. ibid.*, Port Augusta, S. Australia.

Cylindrorhinides.

Centyres ovis, sp. n., *id.* Ann. N. H. (4) x. 91, Pt. Dennison.

Enchymus humeralis, sp. n., *id. l. c.* p. 92, W. Australia.

Gonipterides.

Pantorites vittatus, sp. n., *id.* J. L. S. xi. p. 451, Australia.

Hyperides.

Phytonomus polygoni. Rupertsberger, Verh. z.-b. Wien, xxii. p. 14, describes all the earlier stages: the larva occurs on *Silene inflata*, and more rarely on *Dianthus deltooides*. Barrett, Ent. M. M. viii. p. 205, describes the larva from pseudo-galls on *Lychnis vespertina*.

Coniatus mimonti, Boield., is reunited on insufficient grounds to *tamarisci*; *A. deyrollii*, Cap., also = *tamarisci*, var.; *C. wenckeri*, Cap., must be reunited to *repandus*, F.; *C. saulcii* and *ægyptiacus*, Cap., are extremely close to small *tamarisci*; *C. steveni*, Cap., is probably only a simple modification of *splendidulus*, F.; *C. ionicus*, Cap., = *letus*, Mill.; and for notes on other species, cf. Kirsch, B. E. Z. xvi. pp. 45 & 46.

Saginesis, g. n., Pascoe, J. L. S. xi. p. 452. Facies of *Hypera*, but with antemedian oblique scrobes, disappearing beneath the eyes, as in *Eurychirus*, from which it differs in its short legs and narrower tarsi. *S. latipennis*, sp. n., *id. ibid.* pl. x. fig. 4, Aru.

Diabathrariides.

Atelicus miniatus, sp. n., *id.* Ann. N. H. (4) ix. p. 134, Moreton Bay.

Aterpides.

Aterpus griseatus, sp. n., *id. ibid.*, Queensland.

Rhinaria foveipennis and *caliginosa*, Bombala, N. S. Wales, p. 135, *myrrhata*, S. Australia, p. 136: *id. l. c.*, spp. nn.

Cleonides.

CHEVROLAT gives a revised catalogue of the group, R. Z. (2) xxiii. pp. 16-18, 107-110.

Cleonus sulcirostris: Rupertsberger, Verh. z.-b. Wien, xxii. p. 18, fully describes all the earlier stages of this species, found on *Cirsium arvense*. *C. (Bothynoderes) salinus*, Gebl., *communis*, Mots., *fatuus*, Gyll., = *foveicollis*, Esch., of which various forms are specified: J. Faust, Hor. Ent. Ross. viii. pp. 279-282.

Larinus saintpierrii, All., = *afer*, Gyl.: Desbrochers, Ann. Soc. Ent. Fr. (5) ii. p. 427

KRAATZ, B. E. Z. xvi. pp. 140-142, enumerates the Andalusian species of *Lixus* (19) and *Larinus* (19) from Capiomont's MS. *Lixus vilis*, Rossi, and *cinnabarinus*, Waltl., = *bicolor*, Ol. *Larinus reichii*, Capiom. MS., is not described, but compared with *flavescens*, Germ. *L. trivius*, Germ., Waltl, Ros., = *ursus*, F. Andalusia is probably the richest of all S. European districts in these genera. The same author, *l. c.* pp. 143 & 144, analyzes the German species: *Lixus angustatus*, F., = *algirus*, L.; *L. sanguineus*, Rossi (*nec* Boh.), is to be used for *rufulus*, Boh.; *L. punctiventris* and *subtilis*, Boh., and *cylindricus*, F., are new to Germany. *Larinus costirostris*, Gyll., = *cardui*, Rossi; *L. planus*, F., = *carlinæ*, Ol.; *L. conspersus*, Boh., *cinerascens*, Stm., and *crinitus*, Boh., are to be added to the German list.

Lixus lepidii, Mots., = *eschsoltzi*, Boh., = *myagri*, Ol., var.: J. Faust, *l. c.* p. 282.

Larinus kirschi, Reitter, B. E. Z. xvi. p. 184, Frensdah; *L. sanctæbalmæ*, Ste. Baume (Var), Abeille, Étud. Col. Cav. p. 38: spp. nn.

Hylobiides.

Peribleptus and *Pæpalosomus*, Sch. Jekel, Ann. Soc. Ent. Fr. (5) ii. pp. 433-442, reviews the position &c. of these genera, considering Lacordaire wrong in placing the former among the *Cleonides*, and suggests that the

"*Sternechiens*" of that author cannot be associated with his "*Hylobiens*" (which should assume a separate and higher rank), but, with the *Gonipterides* &c., should form a natural group among the *Isogynes*, Jek. The "*Pacholeniens*" could then, with a new genus described by him, be placed between the *Lixides* and *Hylobiides*, the latter commencing with *Pepalosomus* and *Peribleptus*. He refers *Pepalosomus pistriarius*, Sch., *zonatus*, Pasc., *Peribleptus 10-maculatus*, Chevr., and *Alcides notatus*, Blanch., to *Pep. dealbatus*, Boisd., recording among other varr. of it, one named *niveimucosus*. *Cleonus dehaani*, Sch., is probably not a *Peribleptus*.

Paipalephorus [rectius *Pepalophorus*], g. n., Jekel, l. c. p. 437. Claws united at base; funiculus apparently 6-jointed, club 4-jointed (compared with the club of the *Calandrides*): resembles *Alcides*, having elytra strongly lobed at base. *P. mucoreus*, sp. n., *id. l. c.* p. 439, Moluccas.

Cechides, g. n., Pascoe, J. L. S. xi. p. 453. Allied to *Alphitophis*, but rostrum short and thick, and scrobes distant from the eyes. *C. amœnus*, sp. n., *id. ibid.* pl. xii. fig. 7, Champion Bay, W. Australia.

Cycotida, g. n., *id. ibid.* Between *Alphitophis* and *Orthorhinus*: scales individually deeply divided into 6 or 7 hair-like branches. *C. lineata*, sp. n., *id. l. c.* p. 454, pl. xii. fig. 6, Champion Bay.

Demyrsus, g. n., *id. Ann. N. H.* (4) ix. p. 136. Facies of *Meleus*. *D. meleoides*, sp. n., *id. ibid.*, Sydney.

Sternuchus pectoralis, sp. n., Suffrian, Arch. f. Nat. xxxviii. p. 156, Cuba.

Erirhinides.

Smicronyx reichii, Gyll., new to Britain: E. C. Rye, Ent. M. M. ix. p. 11; Ent. Ann. 1873, fig. 7.

Enochroma, g. n., Pascoe, Ann. N. H. (4) x. p. 92. Differs from *Aoplocnemis* in its scrobes not meeting beneath, and ending rather far from the eyes, in its anterior tibiæ being falcate towards the apex, and the last joints of its funiculus being transverse. *E. rubeta*, sp. n., *id. l. c.* p. 93, tibia figured pl. l. fig. 18, Sydney.

Misophrice, g. n., *id. l. c.* p. 93. Funiculus 6-jointed; no claw-joint to tarsi. *M. hispida*, sp. n., *id. ibid.*, S. Australia.

Phrenozemia, g. n., *id. l. c.* p. 94. In Lacordaire's *Eugnomides*, next *Ophthalmoborus*. *P. hyproides*, sp. n., *id. l. c.* p. 95, King George's Sound.

Nemestra, g. n., Pascoe, J. L. S. xi. p. 454. Approaches *Aoplocnemis*, but with quadrangular rostrum,—a structure foreign to the group. *N. incerta*, sp. n., *id. l. c.* p. 455, pl. xii. fig. 5, W. Australia.

Nedyleda, g. n., *id. l. c.* p. 455. Allied to *Dorytomus* (not *Erirhinus*), but with anterior tibiæ straight, spurless at tip, posterior coxæ distant, and intercoxal process widely truncate. *N. semiusta*, sp. n., *id. ibid.* pl. xii. fig. 9, W. Australia.

Nychiomma, g. n., *id. l. c.* p. 456. Near *Eugnomus*; head elongate behind, and scape impinging on the eyes, which are very large and closely approximated in front. *N. testacea*, sp. n., *id. ibid.*, Sarawak.

Pelibia [altered to *Peliobia*, *id. l. c.* p. 492], g. n., *id. ibid.* Resembles *Ectinura* (*Hylobiides*), but to be placed provisionally near *Aoplocnemis*. *P. geniculata*, sp. n., *id. l. c.* p. 457, pl. xiii. fig. 3, Ecuador.

Cydmaea, g. n., *id. Ann. N. H.* (4) ix. p. 137. Habit of *Tychius*. Meso-

sternum wide; intermediate coxæ remote; basal half of rostrum striolate. *C. bimaculata*, *luctuosa*, p. 137, *pusilla*, p. 138, Gawler, S. Australia, *viridula*, *ibid.*, W. Australia, *id. l. c.*: spp. nn.

Aoplocnemis lineata, sp. n., *id. l. c. x.* p. 92, N. Australia.

Orpha persimilis, sp. n., *id. ibid.* p. 94, Sydney.

Belides.

Dicordylus luctuosus, Pasc., = *ithycerooides*, Lac., = *balteatus*, Fairm. (*Homalocerus*); *D. heilpioides*, Lac., = (*H.*) *albidivarius*, Fairm.; *D. pupillatus*, Pasc., = (*H.*) *argus*, Fairm.; *D. amœnus*, Pasc., = (*H.*) *exquisitus*, Fairm.: Fairmaire, Ann. Soc. Ent. Fr. (5) ii. p. 48. v. Harold, C. H. x. p. 217, points out that the 'Coleoptera chilensia,' for which Fairmaire claims the date of 1860, cannot confer priority for his species, not having been properly published.

Belus anguineus, p. 457, *farinarius*, *acicularis*, *parallelus*, p. 458, W. Australia, *aphthosus*, p. 457, S. Australia, Pascoe, J. L. S. xi.; *B. centralis*, *id.* Ann. N. H. (4) x. p. 95, pl. 1. fig. 4, S. Australia: spp. nn.

Rhinotia elytrura, p. 138, *venusta*, p. 139, Queensland, *id.* Ann. N. H. (4) ix.: spp. nn.

Cyladides.

Myrmacichelus exsertus, sp. n., *id.* Ann. N. H. (4) x. p. 95, W. Australia (claw-joint exserted).

Apionides.

Apion tamarisci and *poupilieri* have their tarsi constructed after the same scheme as those of *Hæmonia* and *Macronychus*: Leprieur, Bull. Soc. Ent. Fr. (5) ii. p. lviii.

Apion apricans: general observations on damages by it to clover seed, Ent. vi. p. 177.

Apion costipenne, sp. n., Fauvel, Bull. Soc. L. Norm. (2) i. p. 193, note, New Caledonia.

Attelabides.

Attelabus bipustulatus, F.: method of constructing cases with leaves of *Quercus imbricaria*, and other particulars, by Mary E. Murtfeldt, Canad. Ent. iv. p. 143.

Rhinomacerides.

Rhynchites (Bytiscus) princeps, sp. n., Solsky, Hor. Ent. Ross. viii. p. 284, E. Siberia.

Magdalimides.

Weise, B. E. Z. xvi. pp. 145-152, analyzes Desbrochers's monograph, reproducing the diagnoses of spp. nn. He describes as *quercicola*, from Berlin, a var. of *M. flavicornis*, Gyll., p. 150. *M. languidus*, Boh., is apparently not European. *M. cæruleipennis*, Desbr., = *violuceus*, L., Redt.; *M. violaceus*, Desbr., nec L., = *frontalis*, Gyll.

Magdalinus carbonarius: larva feeds in *Betula alba*. R. Hislop, Ent. M. ix. p. 39.

Magdalinus kraatzi, Weise, l. c. p. 149, Austria; *M. caucasicus*, Tournier, R. Z. (2) xxiii. p. 255, Caucasus: spp. nn.

Balaninides.

Desbrochers, Ann. Soc. Ent. Fr. (5) ii. pp. 413-419, has published a first supplement to his monograph of this and the next group, giving fresh localities for certain species.

Balaninus mastersi, sp. n., Pascoe, Ann. N. H. (4) ix. p. 139, Queensland.

Anthonomides.

Anthonomus cinctus. v. Frauenfeld, Verh. z.-b. Wien, xxii. p. 393, refers to its economy in connexion with *Pyrus salicifolius*. *A. bituberculatus*, Thomson, apparently = *ulmi*, from note by the author, Opusc. Ent. (iv.) p. 393.

Nothops, Mars. (*Pseudomorphus*, Desbr.), merely forms a subdivision of *Bradybatus*, uniting it with *Anthonomus*. Localities &c. for *B. elongatulus* and *kellneri* are referred to: *Anthonomus stierlini*, Desbr., is redescribed, and fresh localities are given for various spp. of the genus. Desbrochers, l. c.

Aubeus [? *Aubæus*], g. n., Desbrochers, l. c. p. 413. Head suddenly and sharply constricted behind the eyes. *Anthonomus lethierryi*, Desbr., and *Aubeus bruleriei*, sp. n., *id.* l. c. p. 415, Jericho.

Anthonomus gracilipes, sp. n., *id.* l. c. p. 417, N. France.

Ceratopides.

Polydus, g. n., Pascoe, J. L. S. xi. p. 459. Much the habit of *Lemosaccus*, but evidently to be placed here, except for its short and stout rostrum. *P. dumosus*, sp. n., *id.* *ibid.* pl. xiii. fig. 4, Bahia.

Tychiides.

Tychius hæmatocephalus corroborated as British, and figured, E. C. Rye, Ent. Ann. 1873, p. 7, fig. 6.

Cionides.

Nanophyes. Kraatz, B. E. Z. xvi. pp. 47 & 48, publishes some notes on Andalusian species, and demurs to H. Brisout's reference of his *liliputanus* (inedit.) to *pallidulus*, Boh., as a var. *N. gracilis*, Redt., recorded as British; E. C. Rye, Ent. M. M. ix. p. 157.

Gymnetrides.

Gymnetrum melinum and *bellum*, spp. nn., Reitter, B. E. Z. xvi. p. 185, Oran.

Derelomides.

Ochrophæbe, g. n., Pascoe, Ann. N. H. (4) ix. p. 139. Facies of *Sibinia*; allied to *Derelomus*, but not pubescent. *O. uniformis*, sp. n., *id.* l. c. p. 140, Champion Bay, W. Australia.

Derelomus albidus, sp. n., Suffrian, Arch. f. Nat. xxxviii. p. 159, Cuba.
Eurges dimidiatus, sp. n., *id. l. c.* p. 160, Cuba.

Læmosaccides.

Læmosaccus dapsilis, ? S. Australia, *longimanus*, Queensland, p. 140, *narinus*, Pt. Lincoln, *cryptonyx*, King George's Sound, p. 141 : Pascoe, *l. c.*, spp. nn.

Alcidides.

Alcides chaudiroi, (Chevr.) Guérin, = *karelini*, Boh. : J. Faust, Hor. Ent. Ross. viii. p. 278 (pl. v. fig. 3).

Haplonychides.

Zeopus, g. n., Pascoe, J. L. S. xi. p. 460. Allied to *Haplonyx* and *Aolles*, but with 6-jointed funiculus (of which the last joints are obconic and distinctly articulated) and 3-jointed tarsi, an elongate, arched rostrum, and postmedian scrobes. *Z. storcoides*, sp. n., *id. ibid.*, S. Australia.

Menemachides.

Berethia, g. n., *id. l. c.* p. 463. Differs from *Acicnemis* in its shorter and scarcely pedunculate femora, of which the posterior pair do not reach beyond the body, and in the first suture of the abdomen being obsolete. *B. medianotata*, pl. x. fig. 3, *sannio*, fig. 2, spp. nn., Ceram, *id. ibid.*

Semilima, g. n., *id. l. c.* p. 464. Two basal segments of abdomen united by obliteration of suture; ocular lobes present. *S. triangulum*, sp. n., *id. ibid.* pl. x. fig. 1, Sarawak.

Acicnemis pardalis, p. 460, Java, *subsignata*, Madras, *peduncularis*, Singapore, *frenata*, Sarawak, p. 461, *meriones* (pl. x. fig. 5), Batchian, *palliatata*, Japan, *pachymera*, Laos, p. 462, *brevipennis*, Batchian, Amboina, p. 463 : *id. l. c.*, spp. nn.

Cholides.

Cholus. Pascoe, *l. c.* p. 465, note, failing entirely to separate *Polyderces*, thinks *Archarias* also impossible in some cases to distinguish from this genus, which he suggests, however, should be restricted to species with eyes round or oval, scape barely reaching the eye, club distinct, anterior coxæ more or less separated, and anterior tibiæ unguiculated as well as mucronated at apex. *C. carinatus*, Guér., is a *Callinotus*. He describes the following new genera and species:—

Erethistes, p. 471. Differs from *Perideræus* in having no ocular lobes, and the anterior tibiæ not being unguiculated. *Cholus lateralis*, *tetricus*, and *silaceiguttatus*, and *E. leucospilus*, Cayenne, *licheneus* (pl. xi. fig. 6), Ecuador, *ibid.*, *ochriventris* and *congestus*, p. 472, Venezuela.]

Anænomus, p. 472. Resembles *Brachycnemis* in its short tibiæ, otherwise more allied to *Cholus*: head enlarged behind eyes. *A. rubiginæus*, *ibid.* pl. xi. fig. 5, Brazil.

Astyage, p. 473. Near *Cholus*, but scape impinging on eye, thorax conic, with acute posterior angles, and anterior tibiæ not unguiculate. *A. lineigera*, *ibid.* pl. xi. fig. 8, Brazil.

Ozopherus, *ibid.* Also allied to *Cholus*, but with elongate, transverse eyes, which are acuminate beneath; distinct ocular lobes, approximated anterior coxæ, biunguiculate tibiæ, the inner edge of the intermediate and posterior pairs of which is densely fringed. *O. muricatus*, p. 474, pl. xi. fig. 9, Amazons, Cayenne.

Necedus, p. 474. Differs from *Callinotus* in having a distinct antennal club, no ocular lobes, and no hook to apex of anterior tibiæ. *N. bivittatus*, *ibid.* pl. xi. fig. 7, Amazons.

Cryptaspis, p. 476. Approaches *Sclerosomus* in its short metasternum, but with unarmed tibiæ, a large and non-emarginate propectus, and no scutellum. *C. amplicollis*, *ibid.* pl. xi. fig. 10, New Granada.

Cholus pulchellus, p. 464, Cayenne, *æmulus*, p. 465, *uniformis*, p. 466, *bufonius*, p. 467, *notabilis*, p. 470, pl. xi. fig. 1, Amazons, *brominus*, p. 466, Peru, *nivosus*, *ibid.*, *sycophanta*, p. 468, New Granada, *atomarius*, p. 466, Venezuela, *delumbis* (= *basalis*, Boh.), p. 467, *buckleyi*, p. 469, pl. xi. fig. 3, Ecuador, *calamita*, p. 467, Brazil, *mimetes*, *curialis*, p. 468, *viduatus*, p. 469, *lecideosus*, p. 470, Nicaragua, *nitidicollis*, *hæmatostictus*, p. 469, Bogota, *prætorius*, p. 470, pl. xi. fig. 2, Panama.

Callinotus microspilotus, p. 474, Brazil.

Solenopus bilineatus, Cayenne, *transversalis*, pl. xi. fig. 4, Brazil, p. 475.

Cryptorhynchides.

Poropterus succosus, Boh., ? = *Cryptorhynchus succisus*, Er.: *id. l. c.* p. 484.

Tylodes is not generically distinct from *Acalles*: Suffrian, Arch. f. Nat. xxxviii. p. 174.

Rhinochenus. Roelofs, CR. Ent. Belg. xv. p. xlvi, criticizes Chevrolat's amended characters for this genus, and disputes its affinity to *Cratosomus*.

Mecomastyx montraveli, Lac., nec Perroud, is redescribed and named *lacordairii*; it is from New Caledonia. Chevrolat, *ibid.* p. xxix.

Trigonopterus, Fauv., nec Perroud (*Longicornia*), is renamed *Trigonus*: Fauvel, Bul. Soc. L. Norm. (2) i. p. 196.

New genera and species:—

Inozetes, Pascoe, J. L. S. xi. p. 479. Allied to *Psepholax* and *Strongylopterus*, but with 6-jointed funiculus and very short propectus. *I. petechialis*, *id. ibid.* pl. x. fig. 11, Batchian.

Osseteris, *id. ibid.* Differs from its nearest ally, *Empleurus*, Lac., in rostrum and scrobes. Pectoral channel limited behind by truncate anterior portion of mesosternum; but its sides behind anterior coxæ are open. *O. scutellaris*, *id. l. c.* p. 480, Dorey.

Therebus, *id. l. c.* p. 480. Allied to *Empleurus*; but rostrum thrice the length of head, more slender, straight, and with median scrobes. *T. cepuroides*, *id. ibid.*, W. Australia.

Metrania, *id. l. c.* p. 481. To be placed after *Mecistocerus*. Pectoral channel passing beyond metasternum to first segment of abdomen (not to extremity, as in *Panolcus*). *M. palliata*, *id. l. c.* p. 482, pl. xiii. fig. 11. Cayenne.

Metyrus, *id. l. c.* p. 482. Form of *Chætectetorus*, but allied to *Metacymia*, having, however, a larger claw-joint, a shorter metasternum, and a narrower

intercoxal process. *M. collaris*, id. *ibid.* pl. xii. fig. 4, W. Australia, and ? *Cryptorhynchus albicollis*, Germ.

Mæchius, id. Ann. N. H. (4) x. p. 96. Facies of *Melanterius*, allied to *Mecistocerus* and *Ædemonus*, Schön. (*nec* Lac., which requires renaming), but with pectoral channel passing behind intermediate coxæ, &c. *M. anaglyptus*, id. *ibid.*, Wide Bay.

Agriochæta, g. n., id. *ibid.* The pectoral channel places this in Lacordaire's subtribe *Ithyporides*, but it is questionable whether he would not have placed it in the *Erirhinides*. Facies of *Ocladius*. *A. crinita*, id. l. c. p. 97, pl. 1. fig. 2, Queensland.

Drassicus, id. l. c. p. 98. Differs from *Tragopus* in its short legs and thick femora, and from *Imaliodes* in the elytra not projecting beyond the prothorax at the base. *D. nigricornis*, *ibid.* pl. 1. fig. 3, *illotus*, p. 99, Queensland, id. l. c.

Agenopus, id. l. c. p. 99. Allied to *Poropterus*, but with linear tarsi, which are naked beneath, sparingly setulose at the sides, and with 3rd joint not bilobed. Differs from *Mormosintes* in not having its tarsi spongy or hispid beneath. *A. agricola*, id. *ibid.*, W. Australia.

Conotrachelus presbyta, p. 165, *lineola*, p. 167, *albicans*, p. 168, Cuba: Suffrian, Arch. f. Nat. xxxviii.

Cleogonus (?) *grossulus*, id. l. c. p. 170, Cuba.

Rhysomatus pupillatus, id. l. c. p. 173, Cuba.

Guioperus eques, Pascoe, J. L. S. xi. p. 476, Nicaragua.

Euthyrhinus pictus, pl. x. fig. 12, Singapore, *iconicus*, Mysol, id. l. c. p. 477.

Aonychus luctuosus, id. *ibid.* pl. xii. fig. 1, W. Australia.

Ectatorhinus adamsi, Japan, *femoratus* (pl. x. fig. 10), Sarawak, id. l. c. p. 478.

Poropterus porrigineus (pl. xii. fig. 2), Victoria, *musculus*, Tasmania, p. 483, *bisignatus*, Moreton Bay, *foveipennis*, N. S. Wales, p. 484, id. l. c.

Petosiris cordipennis, id. l. c. p. 485, pl. xii. fig. 3, Queensland.

Hexymus monachus, id. *ibid.*, Queensland.

Colobodes nodulosus, Batchian, *fasciculatus* (pl. x. fig. 7), Amboina, id. l. c. p. 486.

Tragopus plagiatus, id. Ann. N. H. (4) x. p. 97, pl. 1. fig. 7, Queensland.

Imaliodes nodulosus, id. l. c. p. 98, Rockhampton.

Nechyrus incomptus, id. l. c. p. 99, pl. 1. fig. 9, Queensland.

Melanterius vinosus, p. 141, S. Australia, *cinnamomeus*, Champion Bay, *servulus*, King George's Sound, p. 142, id. Ann. N. H. (4) ix.

Acalles terrosus, p. 175, *stipulosus*, p. 176, *lateritius*, p. 177, *miserabilis*, p. 178, *plebeius*, p. 179, *ptochoides*, p. 181, *sulcifrons*, p. 182, *interruptus*, p. 185, *brunneus*, p. 186, *frontalis*, p. 188, *squamiger*, p. 190, Cuba: Suffrian, l. c.

Analcis fulvicornis, id. l. c. p. 192, Cuba.

Ulosomus furo, p. 193, *laticaudis*, p. 196, Cuba: id. l. c.

Pseudomus rugifer, p. 201, *maximus*, p. 204, *bimaculatus*, p. 206, Cuba: id. l. c.

Trigonus jekeli, Fauvel, Bull. Soc. L. Norm. (2) i. p. 196, note, New Caledonia.

(? g. n. unnamed, uncharacterized) *grisescens*, Suffrian, l. c. p. 162, Cuba.

Zygopides.

Latychnus, g. n., Pascoe, J. L. S. xi. p. 486. Allied to *Pinarus* and *Piazurus*, but with a stout and rather short rostrum, rather small eyes, not contiguous to the prothorax or to each other, and the femora but slightly thickened, and not toothed beneath. *L. rivulosus*, sp. n., *id. ibid.* pl. xiii. fig. 9, Brazil.

Idotasia æqualis, Cape York, *evanida*, Queensland, *id. Ann. N. H.* (4) x. p. 100, spp. nn.

Ceuthorhynchides.

Ceuthorhynchus contractus: v. Frauenfeld, Verh. z.-b. Wien, xxii. p. 394, refers to its economy in connexion with *Thlaspi perfoliatum*. *C. stenbergi*, Thoms., = *melanostictus*, Msh.: Thomson, Opusc. Ent. (iv.) p. 392.

Ceuthorhynchideus chevrolati (Bris. MS.) occurs chiefly in restricted localities in Kent. W. Tylden, Ent. M. M. viii. p. 205.

Rhinoncus subfasciatus possessed of saltatory power: E. A. Waterhouse, Ent. M. M. ix. p. 119.

Mononychnus 4-fossulatus, Algiers, *tangerianus*, Tangiers, Chevrolat, Ann. Soc. Ent. Fr. (5) ii. p. 412, spp. nn.

Ceuthorhynchus unguicularis, sp. n., Thomson, l. c. p. 391, Celand.

Baridiides.

Baridius scolopaceus, Germ.: food-plant in Britain, *Atriplex portulacoides*; G. C. Champion, Ent. M. M. ix. p. 117.

Methyorrhina, g. n., Pascoe, J. L. S. xi. p. 487. Allied to *Phacelobarus*, but with ocular lobes, and rostrum not compressed or gibbous at the base, and sharply constricted at its junction with the head. *M. hispida*, sp. n., *id. ibid.*, Brazil.

Pithecomus, g. n., *ib. ibid.* Differs from both the last mentioned genera in the form of its rostrum, which proceeds gradually from the head, narrowing in profile to the apex. *P. ursulus*, sp. n., *id. l. c.* p. 488, pl. xiii. fig. 5, Bogota.

Bebelatus, g. n., *id. l. c.* p. 488. Resembles a small spider! Anterior coxæ sloped for reception of rostrum. *B. aranea*, sp. n., *id. l. c.* p. 489, pl. xiii. fig. 7, Amazons.

Eurypages, g. n., *id. l. c.* p. 489. Compared with *Centrinus*, Schön., this genus differs principally in the absence of a pectoral channel, and in the remoteness of the anterior coxæ. *E. pennatus*, sp. n., *id. ibid.* pl. xiii. fig. 6, Brazil.

Cossonides.

Microxylobius westwoodi, Chevr., redescribed: Wollaston, Ann. N. H. (4) ix. p. 112.

Phlæophagus spadix and *scalptus* are sexes of one species: Desbrochers, Ann. Soc. Ent. Fr. (5) ii. p. 428.

Raymondia curvinasus, sp. n., Abeille, Étud. Col. Cav. p. 39, Marseilles.

Phenomerus notatus, pl. xiii. fig. 2, New Guinea, *exilis*, Queensland, spp. nn., Pascoe, J. L. S. xi. p. 496.

SCOLYTIIDÆ.

In "Les Oiseaux et les Insectes," by E. Perris [suprà, p. 227], is a general account of the ravages of members of this family. In many trees, especially in those that are resinous, disease is inevitably followed by death; and disease is frequently caused by the perfect insects eating the young top shoots.

Hylesinus. T. A. Chapman's observations on the habits of *H. crenatus*, *fraxini*, and *vittatus* are translated in *Nouv. et Faits*, p. cvi *et seq.*

Tomicus typographus: ravages and parasites in Styria described by Giraud, *Bull. Soc. Ent. Fr.* (5) ii. p. viii.

Hylastes lifuanus, sp. n., Fauvel, *Bull. Soc. L. Norm.* (2) i. p. 199, note, Lifu.

Polygraphus subopacus, sp. n., Thomson, *Opusc. Ent.* (iv.) p. 393, Sweden.

BRENTHIIDÆ.

Cyphagogus advena, Pasc., re-examined, is apparently referred to its correct genus; *Aprostoma*, Guér. (*Mecedanum*, Er.), is a Colydiid, according to F. P. Pascoe, *Ann. N. H.* (4) x. p. 320, who describes the following new genera and species:—

Stratiorrhina, p. 322. *Arrhenodinæ*: differs from *Estenorhinus* in its rostrum being serrate or dentate before the antennæ, and in its small concrete mandibles. Type *Arrhenodes xiphias*, Westw.

Blysmia, p. 323. *Belophorinæ*: tarsi apparently glabrous beneath; abdomen comparatively short, but nearly twice as long as metasternum. *B. ruficollis*, p. 324, pl. xv. fig. 1, Batchian.

Phocylides, p. 324. *Ithysteninæ*: antennæ shorter and stouter than in *Prodeutor* or *Diurus*; elytra drawn out at apex to two parallel and contiguous tails, nearly as wide as the rest of the elytra. *P. collaris*, pl. xv. fig. 2, Batchian, *ebeninus*, Amboina, p. 325, and *Brenthus ruficollis*, Guér.

Achrionota, p. 325. Differs from *Ithystenus* in its linear femora, and in having only one sutural stria to each elytron; and from *Diurus* in having the rostrum dilated at the apex. *A. bilineata*, *ibid.* pl. xv. fig. 3, Sarawak.

Taphroderes filiformis, p. 319, *obtusus*, p. 320, Amazons.

Ionthocerus ophthalmicus, p. 320, pl. xv. fig. 4, Queensland.

Trachelizus howitti, *ibid.*, Melbourne.

Cordus (? g. n.) *semipunctatus*, p. 321, pl. xv. fig. 7, Natal.

Amorphocephalus sulcicollis, *ibid.*, W. Australia (see pl. xv. figs. 9 a & 9 b).

Prophthalmus sanguinalis, pl. xv. fig. 6, India, *planipennis*, *ibid.* fig. 5, Celebes, p. 322.

Eupsalis promissus, p. 323, pl. xv. fig. 8, Batchian.

Ceocephalus internatus, Queensland, *tenuitarsis*, Sydney, p. 324.

ANTHRIBIDÆ.

Phlæophilus, Schön., is three years posterior in date to *Phlæophilus* of Stephens, and the name *Lemmophilus* is proposed for it. E. C. Rye, *Ent. Mo. Mag.* ix. p. 86 [rectius *Lemmatophilus*, clashing with *Lemmatophila*, Treitschke, *Lep.*].

CERAMBYCIDÆ.

H. W. BATES, *Tr. E. Soc.* 1872, pp. 163–238, describes species (about

280) found by Mr. Belt near St. Domingo, Chontales, Nicaragua. He gives the latter's general observations on that district; and, from an analysis of the collection, comes to the conclusions:—1, that there is a homogeneity of type of the insect fauna of the forest region of Tropical America, over probably 45 degrees of latitude, with great local speciality; and, 2, that there is a distinct northern element, the metropolis of which is Central America.

C. BLESSIG and S. SOLSKY, *Hor. Ent. Ross.* ix. pp. 113–192, commence a descriptive enumeration of the *Longicornia* of S.E. Siberia, especially of Amour-land.

TOURNIER, *R. Z.* (2) xxiii. pp. 257, 276, 338 *et seqq.*, catalogues the species found by T. Deyrolle in Imeretia, Mingrelia, and Georgia, describing some as new.

Prionides.

Prionocalus, White: generic characters amended, the species tabulated, and ♀ of *P. cacicus* described. *C. O. Waterhouse, Ent. M. M.* viii. p. 260.

Orthosoma cylindricum and *Prionus imbricornis*: on the stridulating organs of these species, *cf. C. V. Riley, Canad. Ent.* iv. p. 139.

Prionus insularis, Mots., from S.E. Siberia. *Blessig & Solsky, Hor. Ent. Ross.* ix. p. 164.

Callipogon barbatus, F., probably described from the form occurring at Nicaragua; if so, the Mexican form should take the name *senex*, *Dup.: H. W. Bates, Tr. E. Soc.* 1872, p. 167.

Mallodon gnatho, Lec., *nec* White, is renamed *mandibularis*: *Gemminger, C. H.* x. p. 254.

Mallaspis paradoxa, H. W. Bates: ♂ described by the author, *l. c.* p. 168.

Ortheostethus, g. n., *id. l. c.* p. 169. *Pæcilosominæ*: resembles certain *Pyrodes*; differs from *Nicias* in its robust serrated antennæ. *O. melanurus*, sp. n., *id. l. c.* p. 170, Chontales.

Prionocalus buckleyi, sp. n., *C. O. Waterhouse, l. c.* p. 261, Ecuador.

Ergates grandiceps, sp. n., *Tournier, R. Z.* (2) xxiii. p. 257, Bagdad.

Macrotoma fuliginosa, sp. n., *Fähræus, Cefv. Ak. Förh.* xxix. no. 1, p. 47, Caffraria.

Braderochus longicornis, Nicaragua, p. 166, *inæqualis*, Guatemala, p. 167, note: *H. W. Bates, l. c.*, spp. nn.

Strongylaspis bullatus [-*ta*], sp. n., *id. l. c.* p. 167, Chontales.

Archetypus? deplanchii, sp. n., *J. Thomson, Bull. Soc. L. Norm.* (2) i. p. 205, note, pl. i. fig. 17, Lifu.

Cerambycides.

FÄHRÆUS, *Cefv. Ak. Förh.* xxix. (1872) no. 1, pp. 45–69, no. 2, pp. 29–60, under the heading “*Coleoptera Caffrariæ, Longicornia*,” describes the species collected by Wahlberg in Caffraria.

Achryson surinamum, L., var. n. *chontalense*, p. 171, Chontales; *Hammaticerus castaneus*, Bates, ? = *mexicanus*, Thoms., and only differs in colour from *batus*, L., p. 171; *Eburia proletaria*, Er., and *morosa*, Serv., belong to *Pontomallus*, p. 173; in *Trichophorus* the antennal spines in some cases afford only a sexual character, p. 176; *Ibidion textile* and *mexicanum*, Thoms., are possibly sexes or varr. of the same species, p. 181: *H. W. Bates, Tr. E. Soc.* 1872.

? *Anoplistes affinis*, Mots., = *altaiensis*, Laxm., p. 174; *Cerambyx sibiricus*, Gmel., *bicinctus*, Ol., = *Polyzonus fasciatus*, F., p. 177; *Clytus popovii*, Mann., ? = *altaiicus*, Gebl., p. 187; *C. 6-maculatus*, Mots., = *verbasci*, F., var., p. 190; *C. angusticollis*, Muls., ? = *gracilipes*, Fald., p. 191: Blessig, Hor. Ent. Ross. ix.

Criocephalus ferus, Ktz., = *epibata*, Schiödte, which probably has priority; and the identity of it with the long prior *coriaceus* and *polonicus* of Motschoulsky is suggested. The differential characters of it and *C. rusticus* are pointed out. Kraatz, B. E. Z. xvi. pp. 319 & 320.

Exilia timida, Mén., var. n. *brunnea*, from Koutais: Tournier, R. Z. (2) xxiii. p. 280.

Sympies[*t*] *ocera laurasi*: its habits at Fontainebleau (apparently its most northern limit, and where it is not rare) recorded by Lévillé, Bull. Soc. Ent. Fr. (5) ii. pp. xxxv & lxxvii. Notes on a parasite, one of the *Braconidæ*: id. & Grouvelle, *ibid.* p. lii.

Clytus mysticus: v. Frauenfeld, Verh. z.-b. Wien, xxii. p. 395, refers to its economy in connexion with *Diospyrus lotus*.

Phænicus sanguineipennis, Lac., and *Ischnocnemis*, Thoms.: Dohrn, S. E. Z. xxxiii. p. 160 *et seq.*, discusses characters and synonymy.

A ♀ of *Vesperus zartarti* deposited eggs and died in December: at liberty, the species is matured towards the end of autumn, and would be found during the winter. Lichtenstein, Bull. Soc. Ent. Fr. (5) ii. p. v. Grenier, *ibid.*, thinks it a vernal species. Cf. Lucas, *ibid.* p. lxxxi.

New genera and species:—

Aporus, [Spinola, *Hym.* 1808], Fähræus, *l. c.* no. 1, p. 54. Belongs to Lacordaire's "Sectio A." *A. cylindricus*, id. *ibid.*, Caffraria.

Adiaphorus (preoccupied in *Elateridæ*, and altered to *Acathartus* by the author, C. H. x. p. 194), *id. l. c.* p. 55. Same section. *A. crinitus*, id. *ibid.*, Caffraria.

Lygrus (altered to *Zoolygrus*, on account of *Lygris*, in *Lepidoptera*, *id. l. c.*), *id. ibid.* Same section. *L. apicalis*, *id. l. c.* p. 56, Caffraria.

Tristachycera, H. W. Bates, Tr. E. Soc. 1872, p. 170. Of the metallic colouring of *Xystrocera*, but form (especially as to thorax) of *Æme*. *T. viridis*, *id. l. c.* p. 171, Chontales.

Neomarius, Fairmaire, R. Z. (2) xxiii. p. 60. Allied to *Xytrrocera*. *N. gandolphii*, *id. ibid.*, Algeria.

Miltesthus, H. W. Bates, *l. c.* p. 177. Allied to *Sphæron*, but of different facies, and with no carinæ to the tibiæ. *M. marginatus*, *id. l. c.* p. 178, Chontales.

Ironeus, *id. l. c.* p. 178. Allied to *Peribæus*, but with smaller and less prominent eyes, which are much less coarsely faceted. In the *Sphæron* group. *I. duplex*, *id. l. c.* p. 179, Chontales.

Cosmius (preoccupied in *Diptera*, and altered to *Zoocosmius*, *l. c.* p. 194), Fähræus, *l. c.* p. 67. In Section B of Lacordaire. *C. vittatus*, *id. ibid.*, Caffraria.

Evtactus [*Eut-*] (altered to *Agnoristus*, on account of *Eutactis* in *Lepidoptera*, *l. c.*), *id. l. c.* p. 68. Allied to *Zoocosmius*. *E. lineatus*, *id. ibid.*, Caffraria.

Chontalia, H. W. Bates, *l. c.* p. 233. *Lepturineæ*. Allied to *Ophistomis*, but 1872. [VOL. IX.]

resembling *Dorcasomus* and *Desmocerus* in facies. *C. cyanicollis*, id. *ibid.*, Chontales.

Tethlimmena, id. *l. c.* p. 185. *Eroscheminæ*, near *Pyrocalymma*. *T. aliena*, id. *ibid.*, Chontales.

Evgoa [*Eug-*], Fähræus, *l. c.* p. 57. Allied to *Zonopterus*. *E. dalmani*, id. *ibid.*, Caffraria.

Promecidus, id. *l. c.* p. 62. Allied to *Promeces*. Type *P. chalybeatus*, White.

Hypocrites, id. *ibid.* Also allied to *Promeces*. *H. mendax*, *ibid.*, *ambiguus*, p. 63, id. *l. c.*, Caffraria.

Evgenius [*Eug-*], id. *l. c.* p. 65. Belongs to the *Compsocerides*. *E. plumatus*, id. *ibid.*, Caffraria.

Diphyrama, H. W. Bates, *l. c.* p. 187. *Tillomorphinæ*. Allied to *Ipomorina* and *Epropetes*, but with joints 3 & 4 of antennæ in both sexes strongly ovate-clavate. *D. singularis*, id. *l. c.* p. 188, Chontales.

Metaleptus, id. *l. c.* p. 192. Differs from *Purpuricenus* in its elongate, slender, posterior tarsi and the more slender antennæ of its male. *M. marginellus* and *coccinatus*, Chontales, p. 193, *binoculus*, Mexico, *ibid.*, note, id. *l. c.*

Pleuromenus, id. *l. c.* p. 194. *Stenaspidinæ*. Head and palpi of *Purpuricenus*. Somewhat resembles *Entomosterna*, but with short and wide posterior tarsi, and the sterna much elevated between the coxæ. *P. baccifer*, *ibid.*, *semicostatus*, p. 195, id. *l. c.*, Nicaragua.

Apheles, Blessig, Hor. Ent. Ross. ix. p. 165. Allied to *Distenia*, *Cometes*, and *Noemia*. *A. gracilis*, id. *l. c.* p. 198, pl. viii. fig. 1, Port Mai, S.E. Siberia.

Asemum punctulatum, id. *l. c.* p. 182, S.E. Siberia.

Zamium triviale, p. 48, *4-signatum*, *dispar*, p. 49: Fähræus, *l. c.*, Caffraria.

Xystrocera semilunaris, id. *l. c.* p. 50, Caffraria.

Cæloдон rusticum, id. *ibid.*, Caffraria.

Neocerambyx raddii, Blessig, *l. c.* p. 170, pl. vii. fig. 1, S.E. Siberia.

Plocæderus pronus and *frenatus*, Fähræus, *l. c.* p. 51, Caffraria.

Tapinolachnus gyllenhali and *furvus*, id. *l. c.* p. 52, Caffraria.

Stromatium inermis[-*me*], Tournier, R. Z. (2) xxiii. p. 260, Bagdad.

Sphallenum robustum, H. W. Bates, *l. c.* p. 172, Chontales.

Xestia pilosivittata and *nitida*, p. 172, *sagittaria*, p. 173: id. *l. c.*, Chontales.

Pantomallus fuliginus, p. 173, Chontales, *meridianus*, p. 174, note, Venezuela: id. *l. c.*

Eburodacrys [rectius *Eborid-*; vox hybr.] *callixantha*, id. *l. c.* p. 174, Chontales.

Hypermallus scabricollis, id. *l. c.* p. 175, Chontales.

Cordylomera schænerri, Fähræus, *l. c.* p. 53, Caffraria.

Trichophorus albisparsus, H. W. Bates, *l. c.* p. 175, Chontales.

Peribæum villosulum and *bimaculatum*, id. *l. c.* p. 176, Chontales.

Niphalius xestioides and *rutilus*, id. *l. c.* p. 177, Chontales.

Mallocera spinicollis, id. *l. c.* p. 179, Chontales.

Hexoplon albipenne, id. *ibid.*, Chontales.

Octoplon glabriolum, id. *l. c.* p. 180, Chontales.

Ibidion carinicolle and *griseicolle*, id. *ibid.*, Chontales.

Heterachthes ditelus, p. 181, *nigricinctus*, p. 182: id. *l. c.*, Chontales.

Obrium caucasicum, Tournier, *l. c.* p. 279, Persath; *O. albifasciatum*, H. W. Bates, *l. c.* p. 182, Chontales.

Ophi[ostomis] belti, p. 182, *pallidus* and *rufiventris*, p. 183, *nigellus*, p. 233, Chontales, *rostratus*, New Granada, *fulvicornis*, Brazil, p. 183, note: H. W. Bates, *l. c.*

Toxotus biforme[-mis], Tournier, *l. c.* p. 342, Persath.

Strangalia mingrelica, *id. l. c.* p. 344, Mingrelia.

Leptura pallidipennis, p. 346, Ratcha, *distincta*, p. 347, Persath: *id. l. c.*

Anoplodera rufiventris, *id. l. c.* p. 348, Persath, Koutais.

Psebiium linnæi, Fähræus, *l. c.* p. 56, Caffraria.

Ommata beltiana and *cyaneipennis*, Chontales, p. 184, *atrata* and *asperiventris*, Brazil, *ibid.*, note: H. W. Bates, *l. c.*

Odontocera ægrota, *id. l. c.* p. 233, Chontales.

Hypatium friesi, Fähræus, *l. c.* p. 58, Caffraria.

Callichroma cuprea[-eum], *id. ibid.*, Caffraria; *C. holochlorum*, p. 185, Chontales, *melancholicum*, p. 186, note, Mexico, H. W. Bates, *l. c.*

Rhopaligus cinctus, Fähræus, *l. c.* p. 59, Caffraria.

Litopus caffer, *id. l. c.* p. 60, Caffraria.

Promeces velox, *fulvipes*, and *pauper*, *id. l. c.* p. 61, Caffraria.

Closteromerus gracilis, *id. l. c.* p. 63, Caffraria.

Helymæus glabripennis and *rufipes*, *id. l. c.* p. 64, Caffraria.

Mecometopus macilentus, H. W. Bates, *l. c.* p. 187, Chontales.

Rhopalophora serripes, *id. l. c.* p. 188, Chontales.

Hylotrypes koziorowiczi, Desbrochers, Ann. Soc. Ent. Fr. (5) ii. p. 429, Ajaccio.

Rhopalopus signaticollis, Solsky, Hor. Ent. Ross. ix. p. 177, S.E. Siberia.

Callidium cinnabarinum [-barinum], Blessig, *l. c.* p. 179, S.E. Siberia.

Clytus stierlini, Tournier, *l. c.* p. 276, note, Bernese Alps; *C. auboueri*, Desbrochers, *l. c.* p. 429, Allier; *C. (Plagionotus) pulcher*, Blessig, *l. c.* p. 184, pl. viii. fig. 2, S.E. Siberia; *C. (Anaglyptus) deyrollii*, Tournier, *l. c.* p. 277, Batcha (unites *Anaglyptus* and *Cyrtophorus*).

Clytanthus westringi, Fähræus, *l. c.* p. 66, Caffraria.

Xylothrecus caffer, *id. ibid.*, Caffraria.

Dihamm[at]ophora chontalensis, H. W. Bates, *l. c.* p. 188, Chontales.

Ozodes xanthophasma, *id. l. c.* p. 189, Chontales.

Chrysopraxis belti, p. 190, Chontales, *atrata*, *ibid.*, note, Venezuela: *id. l. c.*

Stenosphenus ochraceus, p. 190, *ebeninus*, p. 234, Chontales, *hirsutipennis*, *trispinosus*, *rufipes*, *suturalis*, p. 191, note, Mexico: *id. l. c.*

Evander nobilis, *id. l. c.* p. 192, Chontales.

Philagathes wahlbergi, Fähræus, *l. c.* p. 68, Caffraria.

Eleanor dohrni, *id. l. c.* p. 69, Caffraria.

Anoplistes sanguineipennis, Blessig, *l. c.* p. 175, Amour Land.

Eriphus prolixus, H. W. Bates, *l. c.* p. 193, Esquipula, Nicaragua.

Distenia geniculata, p. 195, *chrysostigma*, p. 196, *id. l. c.*, Chontales.

Cometes pulcherrimus, *id. l. c.* p. 196, Chontales.

Lamiides.

The posthumous second part of the ninth volume of Lacordaire's 'Genera des Coléoptères,' dated 1872, contains the completion of his original scheme of classification of the 'Longi-

cornes.' In it, the 3rd "Tribe" (*Lamiides vraies*) of the 3rd subfamily, *Lamiides*, is ended by the discussion of its 2nd division, containing the following numerous groups (often founded on a single genus):—

Tragocephalides (p. 417), *Cliniides* (p. 424), *Ceroplesides* (p. 425), *Phrynetides* (p. 432), *Barceides* (p. 439), *Xylorhizides* (p. 443), *Omacanthides* (p. 447), *Rhodopides* (p. 450), *Protonarthrides* (p. 452), *Acmoderides* (p. 453), *Protorhopalides* (p. 455), *Dorcaschemides* (p. 456), *Xenoleides* (p. 460), *Nemotragides* (p. 461), *Anauxesides* (p. 462), *Auxesides* (p. 463), *Methüides* (p. 465), *Nyctemenides* (p. 467), *Anymomides* (p. 468), *Homoneides* (p. 469), *Crinotarsides* (p. 475), *Bumetopides* (p. 477), *Arsysiides* (p. 479), *Leptonotides* (p. 483), *Enotides* (p. 487), *Tapeinides* (p. 488), *Epicastides* (p. 490), *Theocrides* (p. 494), *Atossides* (p. 496), *Zygocerides* (p. 498), *Disternides* (p. 500), *Ecyroschemides* (p. 503), *Crossotides* (p. 505), *Hebesecides* (p. 510), *Hecyridides* (p. 517), *Niphonides* (p. 519), *Apomecynides* (p. 579), *Cloniocerides* (p. 590), *Agennopsides* (p. 593) [better *Adetides*, as *Agennopsis*, Thoms., = *Adetus*, Lec.: Candèze, *ibid.* pp. 592 & 593, notes], *Pterophiides* (p. 595), *Ataxiides* (p. 597), *Ptericoptides* (p. 601), *Desmiphorides* (p. 620), *Apodasyides* (p. 623), *Nedinides* (p. 635), *Estolides* (p. 636), *Pogonocherides* (p. 650), *Megabasides* (p. 657), *Composomides* (p. 659), *Æreneides* (p. 662), *Phacellides* (p. 664), *Onciderides* (p. 666), *Onocephalides* (p. 688), *Hippopsides* (p. 690), *Spalacopsides* (p. 701), *Ectatosiides* (p. 708), *Ischiolonchides* (p. 709), *Emphytæcides* (p. 713), *Anisocerides* (p. 716), *Platysternides* (p. 729), *Polyraphides* (p. 731), *Acrociniides* (p. 732), *Acanthoderides* (p. 735), *Acanthociniides* (p. 757), *Cyrtinides* (p. 818), *Colobothoides* (p. 821), *Agapanthiides* (p. 829), *Saperdides* (p. 831), and *Gle-neides* (p. 841).

The 4th Tribe, *Phytæciides*, is composed of the following groups:—*P. vraies* (p. 849), *Tetraopides* (p. 871), *Amphionychides* (p. 881), *Ærenicides* (p. 897), *Gryllicides* (p. 902), *Calliides* (p. 905), and *Hebestolides* (p. 910).

FÄHRÆUS, C. H. x. pp. 195 & 196, makes the following observations (among others) upon species contained in his 'Coleoptera Caffrariæ, Longicornia,' as affected by the above work:—*Phyma*[to]*sterna* (*Solymus*, Lac.) *pictor* seems allied to the *Crossotides*; *Pycnopsis brachyptera* is the same as Thomson's sp. of that name; *Tragiscoschema amabile*, Perroud, *Tragiscus lascivus*, Thoms., and *Tragocephala gracilicornis*, Chev., are all one species; *Cerambyx obscurus*, Ol., seems not to be a *Phryneta*, but allied to *Lamia brunneicornis*, and apparently better placed in *Inesida*; *Cloniocerus kraussi* does not justify the erection of a separate genus (*Thercladodes*).

Tæniotes suturalis, Thoms., = *scalaris*, F., var.; *Agennopsis mexicana*, Thoms., = *Adetus muticus*, Thoms., and ? = *Adetus analis*, Lec. (*Polyopsia ead.*, Hald.); *Hypsioma gemmata*, Blanch., is a *Jamesia*; *Trestonia coarctata*, Bates, = *Cylicasta terminata*, Buquet; *Lagochirus v-album*, Bates, = *binumeratus*, Thoms.; *Anisocerus personatus*, Bates, = *palliatu*s, White; *Anisopodus phalangioides*, Er., attains an enormous development in Chontales, and *Trypanidius geminus*, Pascoe, originally recorded from Cayenne, occurs also there; *Colobothea dioptica*, Bates, = *Priscilla hypsiomoides*, Thoms.: H. W. Bates, Tr. E. Soc. 1872, p. 197 *et seq.*

Dorcadion pedestre, L., var. n. *kraatzii*, from Turkey, p. 281, note; *D. suturalba*, Desbr., = *gallipolitanum*, Thoms.; *D. balcanicum*, Mill. [? before

published], described, p. 284, note: Tournier, R. Z. (2) xxiii. *D. fuliginator*: great swarms of this species at Champrosay recorded, and *mendax*, Muls., considered to be connected to it by intermediate stages. Localities and habits of others of the genus mentioned. Fallou, Bull. Soc. Ent. Fr. (5) ii. p. xxxiii. Desbrochers, *ibid.* p. lxxxv, doubts that *mendax* is satisfactorily to be connected with *fuliginator* (which feeds on roots of grasses); if it be so, other species must also be connected with it, and many others suppressed. A. Chevrolat, *ibid.* p. lxxxvi, considers the so-called *mendax*, recorded from Gannat, to be *pyrenæum*.

Ibidi[oni]morphum, Mots. (in Schrenck's Reisen und Forschungen im Amurlande, ii. p. 152), fully characterized. Blessig, Hor. Ent. Ross. viii. p. 191.

Ædilis montana. ♂ apparently attracted by trace of presence of ♀, under very peculiar circumstances: Fromont, CR. Ent. Belg. xv. p. cxvi.

Phytæcia rufiventris fully described by Des Cottes, MT. schw. ent. Ges. iii. p. 524.

Oberea euphorbiæ: bred from *Euphorbia* in the Valais, and its specific characters pointed out. Abeille de Perrin, Nouv. et Faits, p. cix.

New genera and species:—

Phygas (preoccupied in *Lepidoptera*, and altered to *Herpetophygas* by the author, C. H. x. p. 194), Fähræus, Öfv. Ak. Förh. xxix. no. 3, p. 31. Belongs to the *Ancylonotides*. *P. fasciatus*, id. *ibid.*, Caffraria.

Arr[h]ostus [*Arrhostia*, Hübn., *Lepid.*], id. l. c. p. 32. In Lacordaire's Section B. *A. pauper*, id. *ibid.*, Caffraria.

Zalat[oida], id. l. c. p. 33. Allied to *Zalate*. *Z. paykulli*, id. l. c. p. 34, Caffraria.

Phrynesthis, Lacordaire, l. c. p. 440. Facies of *Pachystola*, and probably including some species now attributed to that genus. *P. pachystoloides*, p. 441, note, Zambesi.

Temnoscelis (Chevr., uncharact.), id. l. c. p. 441. Type *T. waddeli*, Chevr.

Stenobia, id. l. c. p. 442. Somewhat the facies of *Thylactus angularis*. *S. pradierei*, *ibid.*, Gaboon.

Zygocera (Dej., inedit.) [*Zygoceros*, Ehr., Polyg., 1840], id. l. c. p. 499. Type *Acanthocinus pruinosis*, Boisd.

Eumimetes, id. l. c. p. 506. Differs from *Frea*, Thoms., in its prothorax being scarcely tuberculated on the sides, and its scutellum strongly transverse-quadrate. Type *Lamia sparsa*, Klug.

Solymus, id. l. c. p. 507. Closely allied to *Pterotragus*. *Phyma[to]sterna pictor*, Dej. Cat., Madagascar.

Retilla, id. l. c. p. 512. Allied to *Probatodes*, Thoms., but with prothorax scarcely tuberculated on the sides, and mesosternum rather wide, vertical, and concave in front. *R. indigens*, *ibid.*, Malasia.

Hylobrotus, id. l. c. p. 538. Closely allied to *Praonetha*, Pasc., but of very different facies. *H. plæmi*, p. 539, note, Java and Malacca.

Diatylus, id. l. c. p. 565. Allied to *Sthenias*. *D. zonarius*, *ibid.*, note, Malasia.

Vocula, id. l. c. p. 587. Allied to *Hippaphesis*, Thoms., but differing widely in structure of the antennæ and sculpture. *V. guttifera* and *irrorata*, *ibid.*, note, Gaboon.

Athenes (altered by the author, *l. c.*, to *Molyctypus*, on account of *Athenea*, in *Lepidoptera*), Fähræus, *l. c.* p. 36. Belongs to the *Apomecynides*. *A. caudatus*, *id. ibid.*, Caffraria.

Solenus, Lacordaire, *l. c.* p. 638. 4 front tarsi of ♂ strongly dilated; resembles the American *Blabia*. *S. humeralis*, p. 639, note, Madagascar.

Styne, *id. l. c.* p. 648. But for the scape of its antennæ being quite different, to be placed near *Omoderisus* [a g. n. of *Acanthocinides* subsequently characterized, and possibly referred to in error]. *S. divaricata*, *id. ibid.*, note, ? Madagascar.

Soluta, *id. l. c.* p. 657. Closely resembles *Graminea* (*Calliüdes*), but with unfurrowed front legs, and simple hooks to the tarsi. *S. gramineoides*, *ibid.*, note, Brazil.

Periergates, *id. l. c.* p. 679. Facies of *Oncideres*, but antennæ of quite different form. *P. rodriguezi*, *ibid.*, note, Guatemala.

Perma, *id. l. c.* p. 690. Facies of *Ischiocentra*; differs from *Onocephala* in its head being slightly concave between the antenniferous tubercles, which are strongly separated, very short and truncate, &c. *P. aulica*, *ibid.* note, Brazil.

Smermus, *id. l. c.* p. 696. Facies of *Aliboron antennatum*. *S. mniszzechi*, *ibid.*, note, Sylhet.

Symperga, *id. l. c.* p. 711. Type *Gryllica bali*, Thoms.

Olenosus, H. W. Bates, *l. c.* p. 205. *Acanthoderina*: closely allied to *Alphus* and *Æthomerus*, differing from both in the more elongate basal joint of its antennæ, which forms a moderately abrupt elongate-oval club. *O. serrimanus*, *id. l. c.* p. 206, Chontales and Mexico.

Mecotetartus, *id. l. c.* p. 213. A *Liopus* form, remarkable for the enormous length of the 4th antennal joint in the ♂. *M. antennatus*, *id. ibid.*, Chontales.

Omoderisus, Lacordaire, *l. c.* p. 803. Allied to *Nonyma* and *Criodule*, Pasc., but with longer posterior tarsi. *O. deyrollii*, p. 804, note, Madagascar.

Carphina, H. W. Bates, *l. c.* p. 223. Differs from *Eutrypanus* in the distinct and elongated lateral carinæ of the elytra, and in the form of the thorax. *C. arcifera*, *id. ibid.*, Chontales, and *Colobotha lignicolor* and *lignicola*, and *Eutrypanus assula*, Bates.

Singalia, Lacordaire, *l. c.* p. 834. Unlike any described Saperdoid, its free abdomen and four front femora recalling the *Æmides*. *S. spinipennis*, p. 835, note, Taprobana.

Malloderma, *id. l. c.* p. 842. Allied to *Glenea*, Newm., but elytra strongly declivous behind. *M. pascoii*, *ibid.*, note, E. Indies.

Eulachnesia, H. W. Bates, *l. c.* p. 231. Between *Amphionycha* and *Ærenica*; head not retractile; antennæ thick, filiform, densely ciliated; eyes more distant from prothorax than in the latter genus. Type *Amphionycha sapphira*, Bates, and *E. smaragdina*, *id. ibid.*, Chontales.

Chalanus (preoccupied in *Diptera*, altered to *Anomamomus* by the author, *l. c.*), Fähræus, *l. c.* p. 45. *E. leucaspis*, *id. ibid.*, Caffraria.

Acartus, *id. l. c.* p. 50. Belongs to the *Hebestolides*. *A. hirtus*, *id. ibid.*, Caffraria.

Amblesthidus, *id. l. c.* p. 51. Allied to *Amblesthis*. *A. plagiatus*, *ibid.*, *simplex*, p. 52, *id. l. c.*, Caffraria.

Dorcadion immersum, Turkey, p. 281, note, *impressicorne*, p. 282, Gori, *abeillii*, *ibid.*, note, Turkey, *nodicornis*[-ne], p. 287, note, Taurus, *gandolphii*, *ibid.*, Gallipoli, *auratum*, p. 291, Sourram, *modestum*, p. 338, Annenfeld, *obesum* [preoccupied by Des Cottes, 1870], p. 340, Sourram: Tournier, R. Z. (2) xxiii.

Phantasis carinata, Fähræus, *l. c.* p. 29, Caffraria.

Monohammus degeeri, *id. l. c.* p. 30, Caffraria.

Ptychodes cretatus, Chontales, p. 197, *niveisparsus*, Panama, *ibid.*, note: H. W. Bates, *l. c.*

Teniotus præclarus, p. 197, Chontales, New Granada, *buckleyi* and *nævius*, Ecuador, p. 198, note: *id. l. c.*

Hammoderus elatus and *rubefactus*, *id. l. c.* p. 199, Chontales.

Pycnopsis obsoleta, Fähræus, *l. c.* p. 39, Caffraria.

Ceroplessis marginalis, p. 39, *thunbergi*, p. 40: *id. l. c.*, Caffraria.

Tragiscoschema wahlbergi, *id. l. c.* p. 43, Caffraria.

Rhaphidopsis vittata, *id. l. c.* p. 44, Caffraria.

Eutænia picta, *id. l. c.* p. 46, Caffraria.

Baræus sundewalli, *id. ibid.*, Caffraria.

Heterochytomorpha simplex, Lacordaire, *l. c.* p. 476, Philippines.

Coptops 4-stigma, Fähræus, *l. c.* p. 30, Caffraria.

Alphitopola rugosipennis, *id. l. c.* p. 33, Caffraria.

Nema[to]schema thomsoni, Fauvel, Bull. Soc. L. Norm. (2) i. p. 201, note, Lifu.

Dichostates stigmaticus, p. 37, *caffer*, *lacunosus*, p. 38: Fähræus, *l. c.*, Caffraria.

Heceyrida sordida, p. 35, *tenebrio[no]ides*, p. 36: *id. l. c.*, Caffraria.

Mæchotypa umbrosa, Lacordaire, *l. c.* p. 519, note, Laos.

Nicomia leucoma, *id. l. c.* p. 536, note, Malasia.

Enaretta brevicornis, *id. l. c.* p. 589, note, Cape of Good Hope.

Cloniocerus constrictus, Fähræus, *l. c.* p. 49, Caffraria.

Tautoclina griseicauda, H. W. Bates, *l. c.* p. 199, Chontales.

Adetus costicollis, *id. ibid.*, Chontales.

Eupogonius subæneus, p. 234, *flavicinctus*, *ursulus*, p. 235: *id. l. c.*, Chontales.

Amblesthis nemorensis, Fähræus, *l. c.* p. 50, Caffraria.

Esthlogena porosa, H. W. Bates, *l. c.* p. 200, Chontales.

Estola perforata and *ignobilis*, *id. ibid.* Chontales.

Phacellus purpureus, Lacordaire, *l. c.* p. 665, note, Brazil.

Tybalma cæca, p. 201, Chontales, *tetrops*, Upper Amazons, *ibid.*, note: H. W. Bates, *l. c.*

Ischiocentra heraldica, *id. l. c.* p. 201, Chontales.

Oncideres fulvistillata, *id. l. c.* p. 202, Chontales.

Onocephala obliquata, Lacordaire, *l. c.* p. 690, note, Brazil.

Hippopsicon debile, Fähræus, *l. c.* p. 48, Caffraria.

Hyllisia vittata, p. 47, *gracilis*, p. 48, *id. l. c.*, Caffraria.

Amphicnæia brevivittis, p. 202, *crustulata*, p. 235, Chontales: H. W. Bates,

l. c.

Trigonocephalus paterculus, Lacordaire, *l. c.* p. 718, note, Brazil.

Thryallis undatus (*Tragomorphus id.*, Dej.), *id. l. c.* p. 720, note, Mexico.

Chalastinus pantherinus (*Trigonocephalus id.*, Dej.), *id. l. c.* p. 721, note, Cayenne.

- Gymnocerus belti*, H. W. Bates, *l. c.* p. 203, Chontales.
Oreodora canitogata, p. 203, *verrucosa*, *granulifera*, *c-album*, p. 204, *inscripta*, p. 205: *id. l. c.*, Chontales.
Macrophora lateralis, Lacordaire, *l. c.* p. 735, note, Brazil.
Alphus cavifrons, H. W. Bates, *l. c.* p. 206, Chontales.
Myoximorpha vidua, Lacordaire, *l. c.* p. 746, note, Brazil.
Stirastoma albiceps, H. W. Bates, *l. c.* p. 207, Chontales.
Acanthoderes inquinatus, p. 207, *rubripes*, *laevicollis*, p. 208: *id. l. c.*, Chontales.
Lagochirus cristulatus (? = *L. obsoletus*, Thoms.), *præcellens*, p. 209, *simplificornis*, p. 210: *id. l. c.*, Chontales.
Leptostylus viriditinctus, p. 210, *hilaris*, *triangulifer*, p. 211, *macrostigma*, *pygialis*, *leucopygus*, p. 212, *cristulatus*, p. 213: *id. l. c.*, Chontales.
Deces balteatus, Lacordaire, *l. c.* p. 775, note, Oajaca.
Cosmotoma viridanum, *id. l. c.* p. 781, note, St. Catharine.
Hylettus vindex, *id. l. c.* p. 788, note, Cayenne.
Alcidion brachiale (= *A. adjunctum*, Thoms.), H. W. Bates, *l. c.* p. 214, Chontales.
Lophopæum barbiscopum, p. 214, *scopiferum*, *saronoto* [sic], p. 215: *id. l. c.*, Chontales.
Ozineus arietinus, *id. l. c.* p. 215, Chontales.
Anisopodus argus, p. 216, *hamaticollis*, *scriptipennis*, p. 236: *id. l. c.*, Chontales.
Lepturges infilatus, *limpidus*, p. 216, *calligramma*, *navicularis*, *lætabilis*, p. 217, *festivus*, p. 236, *unilineatus*, *lætificus*, p. 237: *id. l. c.*, Chontales.
Baryssinus bicirrifera, *id. l. c.* p. 218, note, Rio Janeiro.
Trypanidius rubripes, *id. l. c.* p. 219, Chontales.
Nyssodryis punctatella, p. 219, *polygramma*, p. 220, *roseicollis*, *leucopyga*, p. 221: *id. l. c.*, Chontales.
Astynomus mucoreus, p. 221, *vexillaris*, *setiger*, p. 222: *id. l. c.*, Chontales.
Synchyzopus geometricus, *id. l. c.* p. 224, Chontales.
Colobotha chontalensis, *ramosa*, *unilineata*, p. 225, *dispersa*, *bitincta*, p. 226: *id. l. c.*, Chontales.
Eumidia puncticollis, *senilis*, p. 52, *rustica*, *strigata*, p. 53, *pygmæa*, *caffra*, *hurida*, p. 54: Fähræus, *l. c.*, Caffraria.
Saperda haroldi, *id. l. c.* p. 55, Caffraria.
Nitocris necydaloides, *funesta*, p. 57, *lugens*, *nigricornis*, p. 58, *varicornis*, *pectoralis*, *pusilla*, p. 59: *id. l. c.*, Caffraria.
Dyenmonus apicalis and *analis*, *id. l. c.* p. 56, Caffraria.
Carneades glaucothea, p. 227, note, *princeps*, p. 238: H. W. Bates, Ecuador.
Phæa scuticollis, p. 227, *lineola*, p. 228, Chontales, *rufoventris*, *vitticollis*, *tenuata*, *semirufa*, Mexico, *ibid.*, note: *id. l. c.*
Lycidola belti, *id. l. c.* p. 228, Chontales.
Hemilophus prolixus, *id. l. c.* p. 229, Chontales.
Isomerida picticornis and *subdilata*, *id. l. c.* p. 229, Chontales.
Amphionycha princeps and *albaria*, *id. l. c.* p. 230, Chontales.
Phaula thomsoni, Lacordaire, *l. c.* p. 898, note, Minas.
Antodyce cretata, H. W. Bates, *l. c.* p. 232, Chontales.
Cullia fauveli, J. Thomson, Bull. Soc. L. Norm. (2) i. p. 203, note, pl. i. fig. 16, Lifu; *C. minuta*, H. W. Bates, *l. c.* p. 238, Chontales.

CHRYSEMELIDÆ.

Sagrides.

Sagra splendida, F.: economy in connexion with *Dioscoræa batatas* noted by Lucas, Bull. Soc. Ent. Fr. (5) ii. p. xciii.

Donaciides.

Donacia phellandrii, Sahlb., *ex. typ.*, = *dentata*: Kraatz, B. E. Z. xvi. p. 271.

Donacia nitida, Germ., redescribed; *D. cærulea*, Ol., Lac., redescribed from Illinois, apparently = *carolina*, Lac., var.; *D. æqualis*, Say, redescribed, that author having apparently mixed *D. confusa*, Lac., with it. *D. subtilis*, Kunze, and its synonyms discussed; a species from Illinois described, and dubiously referred to *fulgens*, Lec.; and various incidental observations on the position, synonymy, &c., of other North-American species made. Suffrian, S. E. Z. xxxiii. pp. 11-22.

Hæmonia. The silky pubescence probably assists in retaining air under the elytra when the insect is submerged. Fauvel, Bull. Soc. L. Norm. (2) v. p. 347.

Hæmonia mosellæ, Bellev., = *chevrolati*, Lac.: Bedel, Bull. Soc. Ent. Fr. (5) ii. p. li (= *equiseti*, F.: Leprieur, *ibid.* note).

Donacia pubicollis, Suffrian, l. c. p. 21, Illinois; *D. glabrata* and *sibirica*, Solsky, Hor. Ent. Ross. viii. p. 245, E. Siberia: spp. nn.

Criocerides.

Lema puncticollis: economy in connexion with *Cirsium arvense*, by Ruptersberger, Verh. z.-b. Wien, xxii. p. 20.

Clythrides.

KRAATZ, B. E. Z. xvi. pp. 193-232, revises the European species on the basis of Lacordaire's treatment. *Labidostomis taxicornis*, Lac., is apparently not found in Germany; *L. tibialis*, Lac. (*nec F.*, = *lacordairii*, Rche.), = *lusitanica*, Germ.; a form of *L. meridionalis*, Lac., from the Eastern Pyrenees is named *pyrenæa*, p. 197; *L. bigemina*, Suffr., is adopted for the anterior *quadrimaculata* of Mots., which clashes with the Linnæan *Clythra*; *L. distinguenda*, Ros., and ? *pilicollis*, Lac., = *pallidipennis*, Gebl.; *L. limbata* and *hebræa*, Lac., are probably the same species; a middle form, apparently connecting *L. humeralis*, Sch., and *tridentata*, L., is recorded from the Rhine; *L. axillaris*, Lac., = *lucida*, Germ.; *Macrolenes bellieri*, Rche., is distinct from *ruficollis*, F.; a var. of *Titubæa 6-maculata*, F., from Andalusia is described; *T. dispar*, L., = *6-punctata*, Ol., of which *umbellatarum*, Ol., is a var., *biguttata*, Ol., the ♂, and *dispar*, Luc., a ♂ var.; *Clythra maculicollis*, Brullé, = *T. dispar*, Lac., var. A; *Lachnæa vicina* is not German, but has been confused with *tripunctata*, F.; *tripunctata*, Lac., *nec F.*, is named *suffriani*, p. 210; *L. hirta*, F., is now rightly recorded as European; *Coptocephala tibialis*, Brullé, sinks as a var. of *Gynandrophthalma bioculata*, Lac. (*tibialis* being also preoccupied); *G. diversipes*, Letz., seems a good species; the species of *Coptocephala* are discussed at length, and finally restricted to 10, viz. *apicalis*, Lac. (? *hæmorrhoidalis*, Stev.), *chalybæa*, Germ., *unicolor*, Luc.

(possibly not distinct from *chalybæa*), *gebleri*, GebL. (4-*maculata*, F., nec L.), 4-*maculata*, L. (of which *femoralis*, Küst., and *maculiceps*, Ktz., are varr.), *scopolina*, F. (of which *plagiocephala*, F., is a var.), *melanocephala*, Küst., nec Ol., named *kuesteri*, p. 230, *melanocephala*, Ol. (6-*notata*, F.), *cyclocephala*, Luc., and *rubicunda*, Laich. (*tetradyma*, Küst., and of which *floralis*, Ol., *bis-trimaculata*, Küst., and *plagiocephala*, Germ., are varr.).

LEFÈVRE, Ann. Soc. Ent. Fr. (5) ii. pp. 49-168, 313-396 (sep. paging 1-204), pls. 1-4, monographs the species found in Europe and the Mediterranean basin. [The author differs from all other writers in spelling the typical genus "*Clytra*," and follows the same root in its compounds. He gives the derivation thus:—"κλυτός, beau;" but, without pointing out the difficulty of getting the letter *r* from that root, it is obvious that the name was given on account of the cases made by the species, and that it comes from one of the forms commencing κλειθρ- (from κλείω, to shut), giving *Clythra*, instead of *Clythra*, as usually received.] A var. of *Titubæa* 6-*maculata*, F., from Jerusalem, is described under the name *fulvipes* (p. 123), apparently connecting *macropus*, Ill., with that species; and the author suggests that both these and *illigeri* and *parviceps*, Lac., may be only modifications of one and the same type. *T. dispar*, Lac., is retained as a var. of 6-*punctata*, Ol. A var. of *T. paykulli*, Lac., is described (p. 129) under the name *fasciata*. *Clythra algerica*, Desbr., = *laticollis*, Ol., var. *Gynandrophthalma* is stated to be of less southern distribution than others of the group, and to reach to England [this latter statement is quite incorrect]. *G. hellenica*, Mars., *ex. typ.*, = *tibialis*, Brullé; *G. limbata*, Stev., = *dorsalis*, Ol., and *dorsalis*, Dej., is named *plagiata*. *Chilotoma raffrayi*, Desbr., is a *Gynandrophthalma*. *Cyaniris unicolor*, Luc., = *Coptocephala chalybæa*, Germ.

The author, pp. 383-386, referring to the almost simultaneous publication of Kraatz's work on the same family, demurs to the association by the latter of *Labidostomis lusitanica*, Germ., with *lacordairii* (*tibialis*, Lac.), and of *L. distinguenda*, Rosenh., with *pallidipennis*; he refers *L. kindermanni*, Ktz., to *maculipennis*, Lef. (1870), and his own *diversifrons*, with doubt, to *speculifrons*, Ktz.; records *L. guerini* from Algeria; affirms the identity of *L. pelissieri* (Buq.), Ktz., with *lejeunii*, Fairm.; describes eggs of *L. taxicornis* and *trifoveolata*; describes an Algerian var. of *Titubæa illigeri*, Lac.; refers *Calyptorhina andalusica*, Heyd., to *Otiocephala opaca*, Ros.; maintains the specific distinctness of *Gynandrophthalma tibialis*, Brullé, and *bioculata*, Lac.; and retains *scopolina*, L., for *Coptocephala unifasciata*, Scop., which, though prior, cannot be identified with certainty with the Linnean species.

Besides certain of the species described as new, the following are figured:—Pl. 1, *Labidostomis* 4-*notata*, Fab., ♂ and ♀ var., *bigemina*, Suffr., ♂, *lejeunii*, Fairm., ♀, and various details of *L. lacordairii*, *rufa*, *taxicornis*, *lucida*, *decipiens*, *diversifrons*, *pallidipennis*, *pilicollis*, and *lepida*; pl. 2, *Titubæa illigeri*, *olivieri*, *paykulli*, Lac., 13-*punctata*, Desbr., and details of *T. 6-maculata* and 8-*punctata*, *Macrolenes ruficollis*, and *bellieri*, *Clythra læviuscula*, 4-*punctata*, *valerianæ*, and *appendicina*; pl. 3, details of *Barathræa cerealis* and *stramineipennis*, *Lachnæa pubescens*, 3-*punctata*, *vicina*, *longipes*, and *cylindrica*, *Calyptorhina chloris*, and *Otiocephala opaca*; pl. 4, *Gynandrophthalma dorsalis*, Ol., *collaris*, F., *menetriesi*, Fald., *coptocephaloides*, Lac., and details, *Coptocephala æneipicta*, Fairm., ♂, and details of *G. viridana* and *concolor*, *Chilotoma*

musciiformis, *erythrostroma*, and *reyi*, *Coptocephala melanocephala*, *4-maculata*, *fossulata*, and *scopolina*.

For review of Lefèvre's work, especially on the nomenclature employed, cf. v. Harold, C. H. x. pp. 217 & 218; and for criticisms on his derivations, cf. de Marseul, Nouv. et Faits, p. cxliii.

Clythra 4-punctata: case from nest of *Formica rufa*, F. J. M. Heylaerts, Tijdschr. Ent. (2) vii. p. xxi; larva and case (which is not hairy) described by R. Hislop, Ent. M. M. viii. p. 269.

Otiocephala, g. n., Lefèvre, l. c. p. 317. Differs from *Calyptorhina* in having the head elongated under each eye into a stout perpendicular ear-piece, the structure of the epistoma, mandibles, and scutellum, &c. *Labidostomis forcipifera*, Luc., and *Clythra opaca*, Rosenh. (with which *Barathræa lethierryi*, Chev., and *Gymandrophthalma bisbipunctata*, Desbr., are identical).

Labidostomis speculifrons, p. 200, Asia Minor, *kindermanni*, p. 201, Syria, *pelissieri*, p. 205, Algiers (probably a local form of *guerini*, Bassi), Kraatz, l. c.; *L. cavifrons*, p. 80, Tangiers, *metallica*, p. 83, *rugicollis*, p. 86, S. Russia, *diversifrons*, p. 90, pl. 1. fig. 5, Beyrout, S. Russia, *lepida* [preoccupied by Lacordaire], p. 94, pl. 1. figs. 19 & 20, Russia, *maroccana*, p. 380, *lucaniformis*, p. 381, Morocco, Lefèvre, l. c.: spp. nn.

Titubæa nigriventris, sp. n., Lefèvre, l. c. p. 136, pl. 2. fig. 5, Russia (? = *sericea*, Ol.).

Calyptorhina biornata (? Kinderm.), *id.* l. c. p. 322, Amasia, Diarbékir.

Gymandrophthalma græca, Kraatz, l. c. p. 217, Greece (? = *affinis*, Ill., var.); *G. scutellaris*, p. 335, pl. 4. fig. 2, Syria, *manicata*, p. 341, Spain, *judaica*, p. 342, Syria, *græca*, p. 346, Mt. Parnassus, *djebellina*, p. 349, pl. 4. fig. 3, Syria, Beyrout, *brevicornis*, p. 351, pl. 4. fig. 4, Oran, Portugal, Lefèvre, l. c.: spp. nn.

Coptocephala quinquenotata, p. 364, pl. 4. fig. 18, Corsica, *fossulata*, p. 372, Sicily: *id.* l. c., spp. nn.

Eumolpides.

Colaspis flavida, Say. Larva redescribed fully, and figured in detail: C. V. Riley, iv. Rep. Ins. Mo. p. 34, fig. 16.

Pseudocolaspis and *Pachnephorus*. Observations on real and reputed European species by Kraatz, B. E. Z. xvi. pp. 187-190, who criticizes Schaufuss. *Pseudocolaspis setosa*, Lucas (1847), = *cylindrica*, Küst. (1846, as *Pachnephorus*); *Pachnephorus cylindricus*, Luc. (1849), does not clash.

Cryptocephalides.

Cryptocephalus. Von Harold, C. H. x. p. 254, changes *C. imperialis*, F., *nec* Laich., to *primarius*; *nitidulus*, Gyll., *nec* F., to *ochrostoma*; *ruficollis*, Ol., *nec* F., to *erythroderes*; *hindi*, Ol., *nec* F., to *olivieri*; *ocellatus*, Suffr., *nec* Drap., to *subtilis*; *fasciatus*, H.-S., *nec* Say, to *sinuatus*; *trivittatus*, Gebl., *nec* Ol., to *altaicus*; *8-punctatus*, Ol., *nec* Scop., to *capensis*; *pulchellus*, Suffr., *nec* Saunders, to *blandulus*; *melanocephalus*, Suffr., *nec* Saund., to *mucidus*.

Cryptoccephalus (*Ochrosopsis*) *erosus*, Seidlitz, *nec* Saunders, is renamed *excisus* by its author, C. H. x. p. 254.

Cryptocephalus frontalis occurs in profusion at Marly on sallows of one year's growth: Leprieur, Bull. Soc. Ent. Fr. (5) ii. p. xl.

- Coptocycla reticulata*, F., nec Thunb., is renamed *retecta*: v. Harold, *l. c.*
Pachybrachys viridissimus, Suffr., *elegans*, Graells, *regius*, Schauf., are colour-varr. of *azureus*, Suffr.: Perez Arcas, An. Soc. Esp. i. p. 119.
Cryptocephalus tetrathyrus, p. 248, *liothorax*, p. 250, *peliopterus*, p. 251, E. Siberia: Solsky, Hor. Ent. Ross. viii., spp. nn.
Pachybrachys ochropygus, sp. n., *id. l. c.* p. 253, E. Siberia.

Chrysomelides.

Doryphora 10-lineata. Additional particulars as to its habits, new remedies, and the following insects first recorded as parasitic upon it:—*Mysia 15-punctata*, *Hippodamia glacialis*, *Perillus circumcinctus*, *Euschistus punctipes*, *Promachus bastardi*: C. V. Riley, iv. Rep. Ins. Mo. pp. 5–22, figs. 4–9. It does not progress westward: Horn, in Hayden's Geol. Surv. of Montana, p. 384.

Timarcha rugipennis, Per. Arcas, is distinct from *T. hispanica*, H.-Sch.: Perez Arcas, An. Soc. Esp. i. p. 123.

Gonioctena pallida. Economy, in connexion with *Prunus padus*, by v. Frauenfeld, Verh. z.-b. Wien, xxii. p. 394.

Phædon omissum, Sahlb., *ex. typ.*, = *cochleariæ*, F., Suffr., Thoms.; *P. cochleariæ*, Sahlb., = *betulæ*, Suffr. (*armoraciæ*, L., *cochleariæ*, Gyll., *sec.* Thomson): Kraatz, B. E. Z. xvi. p. 272.

Cyrtonus denticulatus, Chevrolat, Nouv. et Faits, p. cxxxii, Spain; *C. cupreivirens*, Perez Arcas, *l. c.* p. 134, pl. 3. fig. 3, Arragon: spp. nn.

Timarcha splendida, sp. n., Perez Arcas, *l. c.* p. 121, pl. 2. fig. 5, Spain.

Chrysomela graellsii, sp. n., *id. l. c.* p. 124, pl. 2. fig. 6, Spain.

Chrysomela nigripunctata, sp. n., Reitter, B. E. Z. xvi. p. 175, Oran (= *bicolor*, F., var., *ex. typ.*: Kraatz, *ibid.* p. 186).

Galerucides.

Lyperus megalophthalmus, Joannis: ♀ described, from Mont Cenis. A var. ? of *L. flavipes*, from Corsica, named *maculicornis*. *L. geniculatus*, Joann., = *nigripes*, Kies., var. *Adimonia dispar*, Joann., is better united to *tanacetii*. Desbrochers, Ann. Soc. Ent. Fr. (5) ii. p. 431.

Adimonia capreæ, L.: the v. β , Joannis, from E. Siberia, named *cribrata*. Solsky, Hor. Ent. Ross. viii. p. 256.

Adimonia cicatricosa, Chevrolat, Nouv. et Faits, p. cxxxi, Spain; *A. vicina*, Solsky, *l. c.* p. 255, E. Siberia: spp. nn.

Galerucida flavipennis, sp. n., Solsky, *l. c.* p. 257, E. Siberia.

Halticides.

Longitarsus luridus. Rupertsberger, Verh. z.-b. Wien, xxii. p. 20, describes the larva (from *Rhinanthus alectorolophus*) and pupa.

Thyamis agilis, Rye, feeds on *Scrophularia aquatica*: E. C. Rye, Ent. Ann. 1873, p. 7.

Psylliodes luteolus, Müll., occurs in galls on oaks at Arnstadt: Kellner, B. E. Z. xvi. p. 162.

Epiotis, g. n., Solsky, Hor. Ent. Ross. viii. p. 259. Facies of *Agelastica*

alni, or of certain species of *Edionychis*. *E. plagioderoides*, Mots., Japan (re-described fully, p. 260).

Thyamis distinguenda, sp. n., Rye, Ent. M. M. ix. p. 157, England.

Hispides.

Hispa quadrata, F. The larva mines leaves of *Tilia americana*; and that of *H. inæqualis*, Web., mines the leaves of *Eupatorium ageratoïdes*: V. T. Chambers, Canad. Ent. iv. p. 125.

Hispa angulosa, sp. n., Solsky, Hor. Ent. Ross. viii. p. 263, Baikal, or south of the Amour.

Cassidides.

BALY, Tr. E. Soc. 1872, p. 59 *et seq.*, describing new species from Ecuador, remarks on their similarity of markings and coloration, although they belong to different genera. He describes a var. of *Calaspidea colossa*, Boh., from Ecuador, p. 62.

Cassida equestris, *nobilis*, and *margaritacea*. Rupertsberger, Verh. z.-b. Wien, xxii. pp. 22, 23, & 25, describes the earlier stages of these species, the first of which occurs on *Mentha aquatica* and *arvensis*, *Galeopsis tetrahit*, *Salvia glutinosa*, and *Cirsium arvense*; the second and third on *Silene inflata* (the second also on *Spergula*). *C. vittata*, a black var. from Hamburg: H. Beuthin, B. E. Z. xvi. p. 162. *C. murræa*, almost entirely black: J. Weise, *ibid.* p. 158.

Cassida concha, sp. n., Solsky, l. c. p. 264, Lake Khanka, E. Siberia.

Dolichotoma instabilis, p. 59, *sericea*, p. 60, Ecuador: Baly, l. c., spp. nn.

Calaspidea contacta, sp. n., *id.* l. c. p. 61, Ecuador.

Mesomphalia deliciosa, *pauperula*, p. 62, *buckleyi*, p. 63, *pectinata*, p. 64,

pascoii, p. 65, *interjecta*, *perjucunda*, p. 66, *emorsitans*, p. 67, *latissima*, p. 68,

pæcilasp[is]oides, p. 69, Ecuador, *consociata*, p. 68, Bolivia: *id.* l. c., spp. nn.

Omaspides bivittata and *abbreviata*, spp. nn., *id.* l. c. p. 70, Ecuador.

Batonota distincta, Ecuador, *jansoni*, Nicaragua: *id.* l. c. p. 71, spp. nn.

EROTYLIDÆ.

Encaustes. Bedel confirms Erichson's observations as to the existence of two teeth on the inner lobe of the maxillæ. He adds localities for his *Aulacochilus tetraphacus*, *sericeus*, and *micans*, and renames as *motschulskii* the *Triplax melanocephala* of Mots., *nec* Latr.: Ann. Soc. Ent. Fr. (5) ii. pp. 407 & 408.

Dacne moravitzii, sp. n., Solsky, Hor. Ent. Ross. viii. p. 266, E. Siberia.

Triplax amœna, p. 269, E. Siberia, *gracilentata*, p. 271, ? Baikal: *id.* l. c., spp. nn.

Aulacochilus brevis, p. 403, *niger*, p. 407, Malacca, *tetradyma*, p. 404, Pulu-Penang, *oceanicus*, p. 405, Ceram, New Guinea: Bedel, l. c., spp. nn.

COCCINELLIDÆ.

PELLET, Bull. Soc. Pyrén. xix. 1872, pp. 36 (reviewed Nouv. et Faits,

p. cl), gives an account, founded on Mulsant's work, of the genera and species observed in the Perpignan district, with details of economy.

Anatis ocellata. Varr. with confluent spots more frequent than the type at Koultouk, some having a transverse plica on the hinder part of the elytra, as in *Coccinella variabilis*. Seven varr. of ? *Leis frigida*, Muls., described, from E. Siberia and China. Solsky, Hor. Ent. Ross. viii. pp. 272-275.

Cydonia vicina, Muls., recorded from St. Helena: T. V. Wollaston, Ann. N. H. (4) x. p. 113.

Scymnus arcuatus, Rossi, recorded from Mid-England: *id.* Ent. M. M. ix. p. 117.

Ithone, g. n., Solsky, *l. c.* p. 275. Differs from *Synonycha* in its bifid claws, and from *Leis* in its deeply sinuated and laterally strongly toothed epistoma. Most nearly allied to *Neda*, Muls. *Leis mirabilis*, Mots., south of the Amour.

Calvia deflorata, sp. n., *id. l. c.* p. 272, Vladivostok (? = *C. hololeuca*, Mots., MS.).

Chilomenes 12-punctata, sp. n., Fauvel, Bull. Soc. L. Norm. (2) i. p. 209, note, Lifu.

Rhizobius subdepressus, sp. n., Seidlitz, Fauna Baltica, p. 193, Germany, Pyrenees.

HYMENOPTERA

By E. C. RYE.

MARSHALL, T. A. A Catalogue of British Hymenoptera; Chrysididæ, Ichneumonidæ, Braconidæ, and Evaniidæ. London: 1872, 8vo, pp. viii & 136.

Published by the Entomological Society of London, being a 3rd part of a proposed general Catalogue of the Insects of the British Isles. Of the *Chrysididæ*, 6 genera and 22 species are enumerated; of the *Ichneumonidæ*, 136 genera and 1186 species; of the *Braconidæ*, 125 genera and 439 species; and of the *Evaniidæ*, 4 genera and 7 species: in all, 271 genera and 1654 species. Complete synonymical and bibliographical references are given. Reviewed by J. W. Dunning in Ent. M. M. ix. p. 221 *et seq.*; notes by author, in Tr. E. Soc. 1872, pp. 259-264, detailed observations from which will be hereafter noticed. Various orthographic corrections are pointed out, and at pp. 263 & 264 is a list of species doubtfully British.

RADOSZKOWSKY, O. de B. Hyménoptères de l'Asie. Description et énumération de quelques espèces reçues de Samarkand, Astrabad, Himalaya, et Ning-Po, en Chine. Hor. Ent. Ross. viii. pp. 187-200.

10 species taken by Fedtschenko in Zaravchan, 36 by Felder from the Himalayas and China, and 40 by Haberhauer from Astrabad. Some are new.

— Supplément indispensable à l'article publié par M.

Gerstaecker en 1869, sur quelques genres d'hyménoptères. Bull. Mosc. xlv. 1, pp. 1-40, pl. 1.

Relates chiefly to the "Philérémides" of Lepelletier.

SNELLEN VAN VOLLENHOVEN, S. C. Schetsen ten Gebruike bij de Studie der Hymenoptera. I. Ichneumoniden, pls. i.-iii. (1868); II. Braconiden, pls. iv.-vi. (1869); III. Pteromalinen, pls. vii.-x. (1871). 'S Gravenhage: oblong 4to.

Each part consists of an introductory page and outline figures, with occasional details, of the most remarkable genera.

THOMSON, C. G. Hymenoptera Scandinaviæ. Lund: 8vo, i. 1871, pp. 1-342; ii. 1872, pp. 285, 1 pl.

Vol. i. (reviewed in Ent. M. M. viii. p. 189) comprises *Tenthredo* and *Sirex*, Linn., and commences a proposed monographic revision of the Swedish species of *Hymenoptera*. Vol. ii. comprises *Apis*, Linn. As usual, the author is original in his treatment: his habit of investigating *all* portions of the structure of any insect to which his attention is directed, and of not confining himself to any one set of organs, causing him frequently to arrive at conclusions at variance with those of former writers. In discussing the *Tenthredinidæ*, however, he omits to notice the larval stage, in spite of Dahlbom's valuable observations upon it.

KRÄPLIN, Tagebl. xlv. Vers. Natur. p. 140, notes the homology between the last abdominal segments of the ♂ and ♀.

Japan (Hiogo). In a collection received from this country, all the genera (except one of *Formicidæ*) were European, and some of the species appeared to be identical with European: F. Smith, P. E. Soc. 1872, p. xx. But the collective faunas of the two regions are totally distinct: H. W. BATES, *ibid.* p. xlvii.

APIDÆ.

THOMSON, Hym. Scand. ii., adopting as primary the sections *Sociales* and *Solitariæ*, comprises in the former the tribes *Apina* and *Bombina*, and in the latter the equivalent tribes of *Megillina*, *Andrenina*, *Halictina*, *Nomadina*, and *Melectina*. For all of these he points out fresh characters, derived from varied structural peculiarities.

F. RUDOW, S. E. Z. xxxiii. pp. 414-429, recapitulates the species of the Lower-Harz district, with brief notices of habits, times of appearance, &c.

Andrenides.

DOURS, R. Z. (2) xxiii. pp. 293, 349, 396, 419, *et seqq.*, under the title of "Hyménoptères nouveaux du bassin méditerranéen," describes various new species of this group (many by L. Dufour & Sichel, unpublished before).

Hylæus. MORAWITZ, Verh. z.-b. Wien, xxii. p. 374 *et seq.*, reviews Förster's monograph, adding to it 9 European species already recorded. *H.*

schencki, Först., = *rinki*, Mor., = *annularis*, Schenck, = *distans*, Eversm.; *H. barbatus*, Först. (♂), = *annulatus*, Mor., = *patellatus*, Eversm., = *borealis*, Nyl.; *H. nivalis* and *alpinus*, Mor., are recorded as occurring in Germany.

Hylæus hyalinatus, Först., = *armillatus*, Nyl.; *H. confusus*, Först., nec Nyl., is renamed *genalis*, p. 124; *H. annularis*, Först., = *confusus*, Nyl.; *H. subfasciatus*, Först., = *difformis*, Eversm., ? = *marginatus*, Thoms. (? *subfasciatus*, Schenck); *H. pictipes*, Nyl., is adopted for *annularis*, Kby.; *H. barbatus*, Först., = *annulatus*, L.; *Prosopis dilatata*, Puton, = *H. clathratus*, Thoms., = *gerstæckeri*, Hensel, = *rinki*, Gorski [cf. Z. R. viii. p. 332]: Thomson, *l. c.*

Halictus abdominalis, Thoms., = *cylindricus*, F.; *H. rufitarsis*, Thoms., nec Zett., = *punctulatus*, Kby.; wings and patella of posterior tibia of *Halictus*, figs. 1, 2, 3: *id. l. c.* p. 140. *H. pollinosus*, Sichel, ♀, = *mucoreus*, Eversm.: Morawitz, *l. c.*

Nomia. Gerstäcker, S. E. Z. xxxiii. pp. 298-308, revises the European species.

Andrena intermedia, Mor., nec Thoms., = *bicolor*, Nyl., nec F., is renamed *moravitzii*, p. 78; *A. flessæ*, Thoms., is renamed *nigrispina*, p. 80; *A. melanocephala*, Thoms., = *vitrea*, Smith; *A. angulosa*, Kby., is separated from *helvola* as a good species; *A. angustipes*, Schenck, ? = a stylopized individual of *lapponica*, Zett.; *A. squamea*, Gir., ? = *curvungula*, Thoms.; *A. nasalis*, Thoms., = *fulvescens*, Smith, ♂: Thomson, *l. c.* *A. calabra*, Costa, redescribed from Samarcand: Radoszkowsky, Hor. Ent. Ross. viii. p. 188.

Lucasius, subg. n. of *Halictus*, Dours, *l. c.* p. 350. Transitional between *Halictus* and *Systropha*. *L. clavipes*, p. 351, pl. xxviii. fig. 5, Algeria, S. France, Grecian archipelago, *cochleitaris*, p. 352, fig. 4, Montpellier: *id. l. c.*, spp. nn.

New species:—

Colletes alpinus, Morawitz, *l. c.* p. 372, Tyrol; *C. niveifasciatus*, p. 295, *collaris*, p. 296, Cannes, Algeria, Greece, *lacunatus*, p. 297, Algeria, S. France, *dentiventris* and *acanthopygus*, p. 298, Algeria, Dours, *l. c.*; *C. picistigma*, Thomson, *l. c.* p. 165, Gothland, Scania.

Hylæus submarginatus, Thomson, *l. c.* p. 130, Gothland (? = *H. angustatus*, Sch., Först.); *H. glacialis*, Morawitz, *l. c.* p. 379, Tyrol.

Prosopis luteibalteata, p. 293, *niveifasciata*, p. 294, Algeria: Dours, *l. c.*

Halictus formosus, p. 300, pl. xxviii. fig. 1, *ferrugineizonatus*, p. 301, *albizonatus*, *soreli*, fig. 2, p. 302, *ochraceivittatus*, p. 303, *sexcinctellus*, p. 305, *platycestus*, p. 306, fig. 3, *griseizonatus*, p. 308, *semipubescentis*, p. 309, *gemmeus*, p. 310, *carneiventris*, p. 311, *bimaculatus*, p. 349, Algeria (some also in S. France), *aureipes*, p. 307, Grecian Archipelago, Dours, *l. c.*; *H. porcus*, p. 369, Meran, Graz, *puncticollis*, p. 370, Badenweiler, Bamberg, *pleuralis*, Creuznach, *griseolus*, Meran, p. 371, *glabriusculus*, p. 372, Bamberg, Meran: Morawitz, *l. c.*

Nomia valga, Andalusia, *equestris*, Xante: Gerstäcker, *l. c.* p. 302.

Andrena elongata, Radoszkowsky, Hor. Ent. Ross. viii. p. 197, Astrabad; *A. nigribarbata*, p. 217, Dalmatia, *inconspicua*, p. 218, *croceiventris*, p. 219, *orbitalis*, p. 224, Calabria, *transitoria*, p. 220, *erberi*, p. 222, Syra, *mucronata*, p. 224, Corfu: Morawitz, *ibid.*; *A. alpina*, p. 364, Tyrol, *favosa*, p. 365, Piesting, *rogenhoferi*, Alps, *tscheki*, Piesting, p. 366, *ochracea*, p. 367, Creuz-

nach, Vienna, *ceneiventris*, p. 368, Meran: *id.* Verh. z.-b. Wien, xxii.; *A. mesopyrrha*, p. 353, *basalis*, p. 354, *picciolii*, p. 356, *fonscolombii*, p. 357, Grecian archipelago, *atrirubricata*, p. 358, *arietina*, p. 396, pl. xxviii. figs. 6 & 7, *melanaria*, p. 397, *nigrisericea*, p. 398, *soror*, p. 419, *heteroxantha*, p. 420, *insolita*, p. 422, *chrysopyga*, p. 423, fig. 10, *succinea*, p. 424, fig. 11, *nigrincta*, *planiventris* (figs. 12 & 13), p. 426, *griseibalteata*, p. 427, *boyerella*, *gravida*, fig. 14, p. 429, *poupillieri*, p. 430, *ferrugineicrus*, p. 431, *ustulata*, p. 432, *rufihispida*, p. 433, Algeria (some also from S. Europe), *piceicornis*, p. 421, fig. 9, *trachyderma*, p. 425, *strigosa*, p. 428, S. France: Dours, *l. c.*

Dasypoda rufipes, Morawitz, Hor. Ent. Ross. viii. p. 216, Dalmatia.

Dasypoda rufipes, Dours, *l. c.*, Grecian archipelago, Spain, Algeria.

Apides.

MORAWITZ, Verh. z.-b. Wien, xxii. p. 354 *et seq.*, refers to the following species as new to the German fauna, or hitherto only known to occur in isolated localities, and gives the synonymy here recorded:—*Anthophora canescens*, Brullé (*Apis grisea*, Christ., ♀ = *Anth. nigricincta*, Lep.), *flabellifera*, Lep. (♂ = *pubescens*, Lep.), and *albigena*, Lep.; *Tetralonia ruficornis*, F. (♂ = var. *alticincta*, Lep.), and *pollinosa*, Lep. (= var. ♀ *tricincta*, Lep.); *Chalicodoma pyrrhopeza*, Gerst., var. *alpina*; *Megachile ursula*, Gerst. (with which *nigriventris*, Schenck, is probably identical), *nalis*, Nyl., and *imbecilla*, Gerst.; *Osmia solskii*, *confusa*, *panzeri*, and *loti*, Mor., *emarginata*, Lep. (= *mustelina*, Gerst., ♀; nest mentioned at p. 359), *corticalis* and *platycera* (nest, p. 360), Gerst., *rufihirta*, Latr., and *tuberculata*, Nyl. (♀ = *cylindrica*, Gir.; ♂ redescribed, p. 362); *Heriades foveolata*, Mor.; *Anthidium 7-dentatum* and *laterale*, Latr., and *montanum*, Mor.; *Ceratina callosa*, F., and *dentiventris*, Gerst.; *Rophitoides canus*, Eversm.; *Dufourea halictula*, Nyl., and *alpina*, Mor.; *Halictoides paradoxus*, Mor. (♀ now first described, p. 364, from the Prader-Alp, on *Phyteuma scheuchzeri*); *Panurginus montanus*, Gir.; *Nomada ferruginata*, L., var. *major* (with *Andrena ochracea*), *mutabilis*, *cinnabarina* (redescribed, p. 384) and *femoralis*, Mor., and *fuscicornis*, Nyl. (parasitic on *Panurgus lobatus*), and *Epeolus speciosus*, Gerst.

Osmia vulpecula, Gerst., = *inermis*, Zett., ♀; *O. corticalis*, Zett., = *nigriventris*, Zett.; *O. xanthomelana*, Gerst. (*nec* Kby.), = *pilicornis*, Smith; *O. interrupta*, Schenck, = *leucomelana*, Nyl., *nec* Kby., is renamed *claviventris*, p. 254; *O. cylindrica*, Gir., = *tuberculata*, Nyl.: Thomson, Hym. Scand. ii.

Osmia canadensis, Cresson, destructive to strawberry plants: Saunders, Canad. Ent. iv. p. 237, fig. 14.

RADOSZKOWSKY, Hor. Ent. Ross. viii. Bull. pp. xvi-xviii, considers that the different structure of the nest in *Chalicodoma*, *Megachile*, and *Osmia* is one of the generic characteristics, and points out differences in the maxillary palpi, which are 3-jointed in the first two, 5-jointed in the last, and 4-jointed in a proposed new genus, *Pseudosmia*, of which the other characters are briefly exposed (published Nov. 1872). He considers Gerstäcker wrong in placing *Megachile lefevrii* and *M. pyrrhopeza* in *Chalicodoma*. In the claws of the anterior tarsi of ♀ *Megachile lagopoda*, *ligniseca*, *maxillosa*, and others, there is a small auxiliary mobile denticle; in ♂ of *Osmia* and *Megachile* the inner claw is always the shorter; in *Chalicodoma* the claws are of equal length.

Megachile ligniseca, Nyl., *nec* Kby., is renamed *curvicrus*, Thomson, *l. c.* p. 223.

M. combusta, Sm.; economy described, from Natal: Taschenberg, Z. ges. Naturw. xxxix. pp. 7-10. *M. brevis*, Say, figured, and habits noted, by Reed, Rep. Ins. Ont. i. pp. 24-26, fig. 22. *M. centuncularis*: habits described by R. Walker, Scot. Nat. i. p. 222.

Anthidium. Walther Schmid, MT. schw. ent. Ges. iii. pp. 448-475, pl., describes the Swiss species, giving particulars of external anatomy, analytical tables, &c. The plate is of little value. This paper is severely criticized by A. Müller, Ent. M. M. ix. p. 95, from whose remarks it would appear that it is founded on unacknowledged MS. of the late W. Imhoff.

Nomada subcornuta, Kby., is separated from *lineola*, Panz., and *jacobæ*, Kby., var. *b*, is attributed to it as its ♂; *N. cornigera*, Kby., is also separated from *lineola*; *N. quinquespinosa*, Thoms., is compounded of *obscura* and *ochrostoma*, Nyl., *ochrostoma*, Zett. *pt.*, and ♀ *lateralis*, Sm., and *pallescens*, H.-S.; *N. lata*, Thoms., = *albiguttata*, var. *b*, H.-S., ♀ = *baccata*, Sm. (both are parasitic on *Andrena argentata*); *Apis leucophthalma*, L., is possibly to be referred to *N. borealis*, Zett.; *N. glabella*, Thoms., = *ochrostoma*, Zett., *pt.*; *N. punctiscuta*, Thoms., ♀ = *ochrostoma*, Mor., ♀ Kby.; *N. villosa*, Thoms., ♀ = *hillana*, Kby.; *N. xanthosticta*, Kby., = *lateralis*, Panz., *certe* [in which case either *xanthosticta* or *lateralis* of Smith requires renaming]: Thomson, *l. c.*

Epeoloides, Gir., recharacterized; maxillary palpi (6-jointed) of *E. ambiguus*, ♂ & ♀, figured, pl. 1. fig. 3; ♂ & ♀ of a species in the Vienna Museum noted as having only 2 cubital cells. *E. cecutiens*, Gerst., nec F., = *fulviventris*, Schk., = *Saropoda fulva*, Eversm., = *ambiguus*, Gir., ♂. Radoszkowsky, Bull. Mosc. xlv. 1, p. 4 *et seq.*

Ammobates, Latr., recharacterized: maxillary palpi 6-jointed; those of *A. setosus*, Mor. (adopted for the prior *vinctus* of Gerstäcker, on account of the greater applicability of its name!), figured, pl. 1. fig. 1, and of *rufiventris*, Latr., fig. 2: *id. l. c. p. 7 et seq.*

Ammobatoides, Radosz., nec Schenck, is renamed *Paidia* [rectius *Pædia*] by Radoszkowsky, Hor. Ent. Ross. viii. Bull. p. xxi (Nov. 1872), and Bull. Mosc. xlv. p. 10. In the latter publication, the author severely (and apparently with justice) criticizes Gerstäcker's treatment of this genus; but it seems useless to give a fresh name for it in 1872, since Gerstäcker has employed the name *Phiarus* for it in 1869. The genus is recharacterized, and the 6-jointed maxillary palpi of both sexes of *P. abdominalis* and *melectoides*, and the anus of the former, ♀, figured, pl. 1. figs. 4 & 5, 6, and 16-16*b*. *P. hirsutulus*, Ev., is corroborated as *abdominalis*, ♂. *Euglages scripta*, Gerst., = *P. melectoides*, Rad. (♀ Smith), ♂: the author seems to prove that his *melectoides* is not identical with Smith's prior *Phileremus* of that name [if he be right in this, it is not improbable that *scripta*, Gerst., may have to stand]. *Id.* Bull. Mosc. xlv. i. p. 10 *et seq.*

Pasites, Latr., recharacterized: maxillary palpi (4-jointed) of both sexes of *P. schotti* and *punctata*, and anus of ♀ of both species figured, pl. 1. figs. 7, 8, 14-14*e*, and 15-15*b*. *Biastes*, Panz., though prior, is considered irrecognizable, and *B. brevicornis*, Panz., is dropped in favour of *schotti*, F., as Panzer himself adopted the latter name, *Nomada atra*, F., being still considered doubtful as its ♂. *Phileremus nasutus*, Gerst., = *P. punctata*, Schenck. *Id. l. c. p. 19 et seq.*

Ammobatoides, Schenck, recharacterized: maxillary palpi of ♀ 3-jointed,

of ♂ 4-jointed; *Epeolus punctatus*, F., is probably a worn example of *A. bicolor*, Lep.: *id. l. c.* pp. 26-29, pl. 1. figs. 9 & 10.

Phileremus, Lep., recharacterized, and *P. oraniensis*, Lep., taken as the type; its maxillary palpi (2-jointed) figured, pl. 1. fig. 11. *P. punctatus*, Lep., is considered a myth. *Id. l. c.* p. 29 *et seq.*

Phiarus, Gerst. Radoszkowsky, *l. c.* p. 34, proposes (sarcastically) to adopt this name for the genus of *Pasites maculata*, Jur., not now recognized as a true *Pasites*, and of which *Nomada albimaculata* and *pusilla*, Luc., are varr., and *P. schotti*, Eversm., is ♀. *Ammobates kirbianus*, Rad., is suppressed.

Epeolus productus, Thoms., is parasitic on *Colletes daviesana* [so is *E. variegatus*, Sm.; Thomson's *variegatus* being parasitic on *C. impunctata*]: Thomson, *Hym. Scand.* ii. p. 211.

Cœlixys acuta, ♀, *fissidens* and *fraterna*, ♂, Först., = *conica*, L.; *C. conoidea*, Gerst., = *punctata*, Lep., = *vectis*, Curtis; *C. trinaeria* and *diglypha*, Först., = *rufescens*, Lep., ♀, of which *hebescens*, Nyl., Thoms., is a var.; *C. tricuspidata* and *divergens*, Först., = *simplex*, Nyl., ♀ & ♂; *C. lanceolata*, Thoms., = *acuminata*, Nyl.: *id. l. c.* p. 272 *et seq.*

Tetralonia graia, Eversm., redescribed: Morawitz, *Hor. Ent. Ross.* ix. p. 52.

Habropoda ezonata, Sm., = *Tetralonia tarsata*, Spin., *Anthidium mosaicum*, Costa, = *variegatum*, F.; *Saropoda fulva*, Eversm., ♀, ? = *Epeoloides cæcutiens*, F., ♂; *Eucera punctilabris*, Lep., ? = *clypeata*, Er.; *Macrocera nasalis*, Eversm., ? = *Melitturga clavicornis*, Latr.; *Heriades bidenticulata*, Costa, ? = *Osmia parvula*, Duf. & Perr.; *O. 4-cornis*, Kriechb., ? = *latreillii*, Spin.; *Rophites bifoveolatus*, Sich., ? = *canus*, Eversm.: *id. ibid.* p. 63.

Megilla, F. [1804], is adopted for *Anthophora*, Latr. [1803]; *Panurgus* is included in the *Andrenina*: Thomson, *l. c.*

Anthophora parietina, L. Nests described and figured by Cartereau, *Ann. Soc. Ent. Fr.* (5) ii. p. 307, pl. xi. Its parasites are *Melecta armata*, *punctata*, and *aterrima*, *Cœlixys rufescens* (*Hym.*), and *Anthrax sinuata* (*Dipt.*).

Xylocopa. Gerstäcker, *S. E. Z.* xxxiii. pp. 269-282, revises and redescribes the 5 European species, including a new one. There are undoubtedly two broods in every year. *X. violacea* is considered as doubtfully described by Linnæus, and should be referred to Poda.

Xylocopa violacea, Kriechbaumer, *Tagebl.* xlv. *Vers. Natur.* p. 137, describes an hermaphrodite example.

Xylocopa fuscata, Smith, ♂ described, from Samarcand: Radoszkowsky, *Hor. Ent. Ross.* viii. p. 194.

Fossil wood perforated by ? *Xylocopa*, from Vaugirard, mentioned by Dubouchet, *Bull. Soc. Ent. Fr.* (5) ii. p. xlvi.

Apathus quadricolor, Kriechb., ? = *Psithyrus sylvestris*, Lep.; *Bombus autumnalis*, Zett. (*nec F.*), ♂, is an *Apathus*, and is described as new under the name *lissonurus*, p. 49, from Lapland: Thomson, *l. c.*

Bombus. Thomson, *l. c.*, lays considerable stress on the use of the anal forceps of the ♂ in determining species, and figures those organs in *B. sylvarum* (fig. 4), *lapidarius* (fig. 5), *soroensis* (fig. 6), *hypnorum* (fig. 7), *horrorum* (fig. 8), *terrestris* (fig. 9), *subterraneus* (fig. 10), *nivalis* (fig. 11), and the portions of them termed *squama* and *lacinia* by the author in *B. tricolor*, *brevigena*, *hypnorum*, *pratorum*, *lapponicus*, and *scrimshiranus*. According to

him, *B. opulentus*, Gerst., ? = *consobrinus*, Dbm.; *B. tunstallanus*, Drews. & Sch., = *harrisellus*, Kby., = *ruderatus*, F.; *B. distinguendus*, Moraw., is to be used for *fragrans*, Kby., Dbm., = *pratorum*, F., nec L.; *B. sylvorum*, Moraw., nec L., = *autumnalis*, Dbm., nec F., = *equestris*, Drews. & Sch., nec F., and is renamed *arenicola*; *B. mastrucatus*, Gerst., ? = *brevigena*, Thoms.

Gerstäcker, *l. c.* pp. 282-298, gives particulars as to distribution, sexes, varieties, structure, &c. of *B. terrestris*, *martes*, *hortorum*, *subterraneus*, *pascurorum*, Scop. (= *muscorum*, L., *certe*), *mesomelas*, *mucidus*, *lapponicus*, *montanus*, *mendax*, *proteus* (♀ and workers), *mastrucatus*, and *globosus*. *B. soroensis* should be written *sorceensis*.

Apis mellifica. Giotto Ulivi has published a pamphlet (extracted from the 'Industriale Italiano,' vi. 1872, nos. 5 & 6, and reviewed in Pet. Nouv. no. 61, p. 245), under the title 'Esame critico delle teorie sulla partenogenesi delle Api,' in which the existence of that phenomenon in the bee is negatived.

Gyrodroma, g. n., Thomson, Hym. Scand. ii. p. 259. Allied to *Chelostoma*. Types *Heriades nigricornis*, Nyl. (*truncorum*, L., nec Kby.), and *florisomnis*, L.

New species:—

Panurgus siculus, Morawitz, Hor. Ent. Ross. viii. p. 215, Sicily.

Panurginus sculpturatus, id. *l. c.* ix. p. 60, Saratov; *P. samarcandus*, Radoszkowsky, *ibid.* viii. p. 192, pl. vii. figs. 3 & 4, Samarcand.

Osmia melanura, p. 203, Calabria, *clypearis*, Corfu, *curvipes*, Syra, &c., p. 204, *tigrina*, p. 206, Epirus, *dalmatica*, p. 207, Dalmatia, *crenulata*, p. 208, Crete, Corsica, &c., Morawitz, *l. c.* viii.; *O. grandis*, p. 54, Saratov, Amasia, *princeps*, p. 57, Astracan, *id. l. c.* ix.; *O. aterrima*, p. 357, Meran, Dalmatia, Sicily, Persia, *carniolica*, p. 358, Carinthia, *levifrons*, p. 360, Meran, *montivaga*, p. 361, Swiss Alps, *id. Verh. z.-b. Wien*, xxii.; *O. truncatula*, p. 239, Sweden, *laticeps*, p. 242 (? = *uncinata*, Gerst.), Scandinavia, Thomson, Hym. Scand. ii.

Lithurgus maximus, Radoszkowsky, *l. c.* p. 191, pl. vii. fig. 1, Samarcand.

Megachile lapponica, Thomson, *l. c.* p. 227, Lapland; *M. arundinacea*, Taschenberg, Z. ges. Naturw. xxxix. p. 10, Natal; *M. excellens*, Morawitz, *l. c.* ix. p. 53, Tauria.

Anthidium pubescens, Morawitz, *l. c.* ix. p. 59, and 3 varr., Caucasus; *A. decoratum*, p. 492, *6-maculatum*, p. 502, Sion (Leman), *albidulum*, p. 495, *6-lineatum*, p. 499, Begniens: Chevrier, MT. schw. ent. Ges. iii.

Dufourea cæruleocephala, Morawitz, *l. c.* ix. p. 61, Astracan.

Heriades casularum and *angustata*, p. 505, *intermedia* and *paxillorum*, p. 506, Nyon, Chevrier, *l. c.*; *H. appendiculata*, Morawitz, *l. c.* viii. p. 209, Calabria.

Ceratina cærulea (? = *cyanea*, Lep.), p. 490, *chalybea*, p. 491, Nyon, Chevrier, *l. c.*; *C. tarsata*, Morawitz, *l. c.* viii. p. 214, Crete.

Nomada manni, p. 227, Corsica, Tinus, &c., *chrysoptya*, p. 228, Tinus, Calabria, *3-punctata*, p. 229, Calabria, Syra, Corfu, *calabra*, p. 230, Calabria, Morawitz, *l. c.* viii.; *N. mutica*, p. 380, *rhenana*, and 6 varr., p. 382, *similis* (parasitic on *Panurgus ater*), p. 386, Creuznach, *id. Verh. z.-b. Wien*, xxii.; *N. bifida*, Thomson, *l. c.* p. 196, Sweden (*ruficornis*, Kby., var. *a*).

Ammobates carinatus, Morawitz, Hor. Ent. Ross. viii. p. 202, Calabria; Radoszkowsky, Bull. Mosc. xlv. p. 8, Portugal, Algiers.

- Phileremus algeriensis* and var. β , Radoszkowsky, *l. c.* p. 31, Algeria.
Epeolus fallax, Morawitz, Verh. z.-b. Wien, xxii. p. 387, Italy.
Cœlixys mandibularis, Chevrier, *l. c.* p. 487, Nyon; *C. fœrsteri*, Morawitz, Hor. Ent. Ross. viii. p. 211, Dalmatia, Epirus; *C. obtusispina*, Thomson, *l. c.* p. 277, Gothland.
Stelis ruficornis, Morawitz, *l. c.* viii. p. 210, Rhodes.
Tetralonia radoszkovskii, *id. l. c.* ix. p. 50, Saratov; *T. albirufa*, Radoszkowsky, Hor. Ent. Ross. viii. p. 193, Samarcand.
Anthophora denticrus, Morawitz, Verh. z.-b. Wien, xxii. p. 356, Creuznach; *A. rogenhoferi*, *id.* Hor. Ent. Ross. viii. p. 201, Tinus, Rhodes; *A. nigricornis*, p. 45, *deserticola*, p. 48, Astracan, *gracilipes*, p. 46, Derbent, Caucasus, *id. ibid.* ix.; *A. fedchenkoi*, Radoszkowsky, *ibid.* viii. p. 189, pl. vii. fig. 2, Samarcand.
Xylocopa valga, Gerstäcker, S. E. Z. xxxiii. p. 276, Bozen, Crimea, Syria, Trieste.
Bombus vorticosus, *id. l. c.* p. 290, Cracow, Greece, Roumelia, Dauria.

VESPIDÆ.

- "Inlandsche sociale Wespen," by H. J. van Ankum (Gröningen: 1870), has not been seen by the Recorder.
Synagris calida: economy described, from Natal. Taschenberg, Z. ges. Naturw. xxxix. pp. 1-5.
Belonogaster sp.: described (not named) and habits recorded, from Natal: *id. l. c.* pp. 18-20.
Polistes gallicus. Radoszkowsky, Hor. Ent. Ross. viii. Bull. pp. v & vi, indorsing Sichel's opinion, that *P. diadema*, *geoffroyi*, *pictior*, *biglumis*, and *bucharensis* are merely varieties of this, the only European species, which is also spread over Africa and Asia, also refers *P. chinensis*, F., Sauss., from the Himalayas to it. Differences are attributed to hybridization.
Vespa crabro: specimens from Europe, Siberia, and N. America are certainly specifically identical, whereas *V. orientalis*, from Asia, differs from it in the structure of the genital organs. F. Smith, P. E. Soc. 1872, p. x.
Vespa germanica. Note on nidification by H. J. van Ankum, Arch. Néerl. v. 1870 (sep. Abdr.).

CRABRONIDÆ.

- Stizus annulatus*, Klug, ♂ described, from Astrabad. Radoszkowsky, Hor. Ent. Ross. viii. p. 198.
 Observations on various species of *Ampulex*, *Priononyx*, *Sphex*, *Pseudosphex*, *Chlorion*, *Stethorectus*, *Podium*, *Pelopæus*, *Ammophila*, *Pepsis*, *Prionocnemus* (*Prionemis*, auctt.), *Agenia*, *Pogonius*, *Pompilus*, *Planiceps*, and *Ceropales*, from the district of La Plata, in connexion with Taschenberg's paper in Z. ges. Naturw. xxxvi.: H. Burmeister, S. E. Z. xxxiii. p. 239 *et seq.*
Ammophila sabulosa: defective neuration in fore wing: C. Ritsema, Tijdschr. Ent. (2) vii. p. xxxv. pl. 12. fig. a.
Pelopæus chalybeus and *spirifex*, from Natal: habits &c. noted by Taschenberg, Z. ges. Naturw. xxxix. pp. 11 & 12.
Pompilus (? *fuscus*). F. Karsch, Z. ges. Naturw. xxxix. pp. 441-452, pl. iii.,

describes and figures a species parasitic on *Aranea inquilina*, Clk., and discusses its economy.

Myzine. Instances of sexes being generically separated are recapitulated: *M. cylindrica*, Pz., and *Tiphia glabrata*, F., are added as being sexes of the same species; the characters of the genus are discussed, and it is suggested that *Myzine* should be dropped and *Plesia*, Jur., adopted: Gerstäcker, S. E. Z. xxxiii. p. 250.

Piagetia, g. n., C. Ritsema, Ent. M. M. ix. p. 121. Allied to *Larrada* and *Larraxena*, Sm., but with 1st submarginal cell longer than 2 next together; one ocellus, prothorax neck-shaped, petiolated cordate abdomen, and armed hind femora. *P. waerdeni*, sp. n., *id. ibid.* (and figs. *d* & *e*), Congo; *P. ritsemae*, sp. n., *id. l. c.* p. 122, figs. *a*, *b*, *c*, E. Java.

Tachytes grandis, sp. n., Chevrier, MT. schw. ent. Ges. iii. p. 508, Nyon.

Pelopceus targionii, sp. n., Caruccio, Bull. Ent. Ital. iv. pp. 273-275, Sardinia.

Sphex haberhaueri, sp. n., Radoszkowsky, Hor. Ent. Ross. viii. p. 199, pl. vii. fig. 5, Astrabad.

Pompilus natalensis, sp. n., Tachenberg, Z. ges. Naturw. xxxix. p. 13, Natal.

Agenia domestica, sp. n., *id. l. c.* p. 16, Natal.

Pepsis chrysoptera, p. 233, Tucuman, Catamarca, *auriguttata*, p. 234, Parana, spp. nn., Burmeister, *l. c.*

Myzine xanthocera, sp. n., Gerstäcker, *l. c.* p. 252, Zanzibar.

DORYLIDÆ.

Gerstäcker, S. E. Z. xxxiii. pp. 254-269, discusses at great length the affinities of *Dorylus* and *Dichthadia*, chiefly from the analogy afforded by the real or supposed relations of the former with *Typhlopone* and *Anomma*. His observations are of considerable physiological interest, but incapable of satisfactory abstraction.

Dichthadia furcata, sp. n., *id. l. c.* p. 267, S. Africa.

FORMICIDÆ.

GUSTAV MAYR, SB. Ak. Wien, lxi. (1870) pp. 370-417, pl., under the title "*Formicidæ Novogranadenses*," describes 101 species from New Granada (including 43 new, and 2 new genera), which he considers to be probably one half of the number existing in that district. Of those already known, some have been recorded from Mexico, the Antilles, Panama, Brazil, the Argentine Republic, and elsewhere in South America; others occur from Mexico to Brazil; and *Prenolepis longicornis*, *Odontomachus hematodes*, *Tetramorium guineense*, and *Solenopsis geminata* are considered to be cosmopolitan. In addition to portions of various new species, the author figures parts of *Camponotus pellitus*, Mayr, small worker, fig. 1, and *Hypoclinea abrupta*, Smith, fig. 9. The following observations occur:—*Camponotus atriceps*, Sm., and *C. esuriens*, Sm. (*vulpinus*, Mayr), are corroborated as one species, of which *fulvaceus*, Norton, *ex typ.*, is a colour variety, and *tæniatus*, Rog., is the ♀; *C. flexus*, Mayr, = *crassus*, small worker; *Formica abrupta*, Sm., is a *Hypoclinea*, but erroneously referred by Roger to *H. bidens*, L.; *Prenolepis*

pyramica, Rog., is a *Dorymyrmex*, of which genus the workers are only to be distinguished by the metanotum from those of *Hypoclinea*; 9 varieties of *Pseudomyrma gracilis*, F., are briefly described, including *P. bicolor*, Guér., *dimidiata*, Rog., and probably *mexicana*, Rog.

The same author, Ann. Mus. Genov. ii. pp. 133-155, under the title "*Formicidæ Borneenses*," describes species collected by Doria & Beccari in Sarawak, 64 in number. Some synonymy is given, and females or workers of known species apparently described for the first time.

Formica rufa. On its nest, habits, and parasites, cf. Buchanan White, Scot. Nat. i. pp. 216-222, 258-263.

Formica fusca: 2 ♂ simultaneously *in copulâ* with one ♀. A. Müller, Ent. M. M. ix. p. 120.

Buchanan White notes the habits of a black *Formica* at Capri, which carried seeds of leguminose and other plants along a road to the nest. P. E. Soc. 1872, p. v.

Aphanogaster: J. T. Moggridge, P. E. Soc. 1872, p. viii, having kept a colony under glass, confirms his previously expressed belief that the insects feed on stored grain.

Camponotus pubescens absorbs fluid from *Tettigometra virescens*, Latr., as from an *Aphis*: Delpino, Bull. Ent. Ital. iv. p. 342 *et seq.* The author discusses various questions suggested by this unexpected association of species, his chief deductions being that *Formica* was created before *Aphis*, *Coccus*, or *Tettigometra*, and that the latter is probably the stem-form of the *Aphidi*!

Tetramorium cæspitum: *Chennium bituberculatum* and *Centrotoma lucifuga* (Col.), *Myrmecophila acervorum* (Orth.), and one Hemipterous and two Hymenopterous species, recorded by Javet as living in its nests: Bull. Soc. Ent. Fr. (5) ii. p. li.

Mayr describes the following new genera and species:—

Technomyrmex, Ann. Mus. Genov. ii. p. 147. Allied to *Tapinoma*: abdomen, seen from above, with 5 segments, and with the anus apical, cleft and not ciliated. *T. strenua*, *ibid.*, worker and ♀, Sarawak and Singapore.

Belonopelta, SB. Ak. Wien, lxi. p. 394. *Ponerides*. Facies of *Ponera contracta*, but the clypeus has a sharp, straight, porrect spine in the middle. *B. attenuata*, l. c. p. 395, fig. 11, *a, b* (worker only), New Granada.

Rhopalothrix, *ibid.* p. 415. Very near *Strumigenys*, but with 7-jointed antennæ. *R. ciliata*, *ibid.* (worker), New Granada, *R.* (? g. n.) *bolani*, *ibid.*, note (♀), Surinam.

Camponotus nitens, worker and ♀, p. 378, *fasciatus*, worker, p. 379, *novo-granadensis*, worker, *circularis*, fig. 2, worker, p. 380, *angulatus*, worker, *conulus*, fig. 3, worker, p. 382, *sphenoidalis*, worker, p. 383, *excisus*, fig. 4, worker, p. 384, *trapezoidus*, worker, *lindigi*, fig. 5, worker and ♀, p. 385, *canescens*, worker, p. 386, *bidens*, worker, p. 387, *bispinosus*, worker, fig. 6, p. 388, New Granada, *ibid.*; *C. inconspicuus*, p. 135, Sarawak and Java, *contractus* and *doriæ*, p. 137, Sarawak, all workers: Ann. Mus. Genov. ii.

Prenolepis nodifera, SB. Ak. Wien, lxi. p. 388, worker, New Granada.

Brachymyrmex tristis, *ibid.* p. 389, worker, New Granada.

Polyrhachis beccarii, *nigripilosa*, p. 141, *pruinosa*, p. 142, workers, Sarawak (the 2nd also from Celebes): Ann. Mus. Genov. ii.

Hypoclinea laminata, worker, fig. 8, p. 389, *lamellosa*, ♀, p. 390, *iniqua*

worker, fig. 10, p. 392, *pilifera*, worker and ♀, p. 393, New Granada: SB. Ak. Wien, lxi.

Pachycondyla mæsta, worker, p. 395, *ænescens*, worker, p. 396, New Granada: *ibid.*

Ectatomma confine, *ibid.* p. 397, worker, New Granada.

Monomorium latinode, Ann. Mus. Genov. ii. p. 152, worker, Sarawak.

Phidole biconstricta, ♂ and worker, p. 399, New Granada, *punctatissima*, ♂ and worker, p. 400, St. Fé de Bogota, Mexico, *leviventris*, worker, *incisa*, ♂ and worker, p. 401, New Granada: SB. Ak. Wien, lxi.

Cremastogaster distans, p. 402, *sulcata*, *brevispinosa*, p. 403, *torosa*, p. 404, *nigripilosa*, p. 405, all workers, New Granada: *ibid.* *C. coriaria*, Ann. Mus. Genov. ii. p. 154, worker, Sarawak.

Solenopsis rugiceps and *laviceps*, both workers, SB. Ak. Wien, lxi. p. 406, New Granada.

Pseudomyrma excisa, *excavata*, p. 410, *sericea*, p. 412, *elongata*, p. 413, workers, *pallens*, worker and ♀, p. 411, New Granada: *ibid.*

Cataulacus coriarius, *carbonarius*, *rudis*, *ibid.* p. 414, workers, New Granada.

ICHNEUMONIDÆ.

SNELLEN VAN VOLLENHOVEN, Schetzen &c. i., gives outlines (with some details of external anatomy) of the following genera:—*Ichneumon*, *Pœcilostrictus*, *Ischnus*, *Stilpnus*, *Brachypterus*, *Microleptes*, *Mesoleptus*, *Lampronota*, *Tryphon*, *Exochus*, *Cybocephalus*, *Scolobates*, *Sphinctus*, *Trogus*, [*H*] *Alomy*[*i*]a, *Hoplismenus*, *Cryptus*, *Phygadeuon*, *Mesostenus*, *Hemiteles*, *Pezomachus*, *Phytodietus*, *Ischnocerus*, *Nematopodius*, pl. i.; *Mesochorus*, *Plectiscus*, *Glypta*, *Lissonota*, *Polysphincta*, *Schizopyga*, *Pimpla*, *Ephialtes*, *Rhyssa*, *Trachyderma*, *Metopius*, *Bassus*, *Orthocentrus*, *Eucerus*, *Banchus*, *Exetastes*, *Coleocentrus*, *Arotos*, *Campoplex*, *Paniscus*, *Anomalon*, *Ophion*, *Trachynotus*, *Pachymerus*, pl. ii.; *Cremastus*, *Porizon*, *Atractodes*, *Hellwigia*, *Acocnites*, *Xylonomus*, *Xorides*, *Amblyteles*, *Listrodromus*, *Eurylabus*, *Platylabus*, *Herpestomus*, *Colpognathus*, *Dicælotus*, *Centeterus*, *Phæogenes*, *Agrothereutes*, *Aptesis*, *Theronia*, *Polyblastus*, *Exyston*, *Pristomerus*, pl. iii.

Ichneumonides.

Amblyteles camelinus, Wsm., = *cardui*, Schrank; *A. fuscipennis* bred from *Mamestra pisi*: Kriechbaumer, M.T. schw. ent. Ges. iii. p. 477.

Ichneumon alpicola, p. 482, *capito*, p. 484, *id. l. c.*, Swiss Alps; *I. opulentus*, p. 307, *kastneri*, p. 309, Taschenberg, Z. ges. Naturw. xxxviii., Innsbruck: spp. nn.

Cryptides.

TSCHEK, Ver. z.-b. Wien, xxii. pp. 232 & 233, describes both sexes and 4 varieties of *Cryptus recreator*, F., from Austria, remarking that *Meringopus*, Först., is founded only on a sexual character, the extreme outer side of the base of the tarsal claws being minutely toothed in the females of *C. calescens*, *obscurus*, *australis*, *cyanator*, and *tarsoleucus*, as well as in this species. He describes (p. 237) individuals from his own collection apparently not corro-

borating Taschenberg's reference of *C. inconspicuus*, Grav., to the ♂ of *spiralis*, Grav.; (p. 238) both sexes of his *C. incisus*; ♂ & ♀ varr. of his *C. extintor* [in error, *extinctor*], p. 239; the males of his *C. bucculentus* and *mactator*, p. 241, *C. femoralis*, Gr., p. 242, *C. confector* and *6-annulatus*, Gr., p. 246, *C. vindex* (and ♀ var. of *C. alutaceus*), Tsch., p. 247, and *C. ornatus*, Gr., p. 248. At p. 250 he supplements the diagnostic characters of *C. incubitor*, Ratz., and his own *C. cimbicis*.

Cryptus extrematis, Cresson, ♂, = *nunciuus*, Say, and the true ♂ described; habits and earlier stages recorded: C. V. Riley, iv. Rep. Ins. Mo. pp. 110 & 111, figs. 40 & 41. *C. samia*, Pack., ? = *extrematis*, var.: *id. ibid.*

Pupæ referred to *Cryptus* are recorded as springing more *Mordellarum*: Mink, Tijdschr. Ent. (2) vii. p. 285.

Cryptus pygoleucus, Gr., probably ♂ of *Agrothereutes hopii*, Gr.: T. A. Marshall, Ent. M. M. ix. p. 120.

Linoceras, Tasch. (1865), preferred to *Macrobatas*, Holmgr. (1854), as the latter clashes with the species *macrobatas*, Grav.; *Brachycentrus*, Tasch., renamed *Cyrtocryptus* for a similar reason, and because that name is pre-occupied in *Neuroptera*. *Id.* Tr. E. Soc. 1872, p. 259 (Cat. Brit. Hym. iii. p. 41).

Pezomachus trux, Först., ♀, = *hortensis*, Gr., var. 5, ♀, = *Hemiteles palpator*, Gr., ♂, and var. 4, ♂ (excl. ♀ and other varr.), = *H. palpator*, Tasch., ♂. The insect is to be referred to *Hemimachus*, and *trux*, Först., should be retained as its specific name; *hortensis*, Grav., including more than one species. *P. fasciatus*, F., Gr., ♀, = *Hemiteles luteiventris*, Gr., ♂, = *Hemimachus fasciatus*, Ratz., ♂ ♀ (reared from eggs of *Agelena brunnea*). *Id.* Ent. M. M. viii. p. 180.

Cryptus murorum, Austria and Tyrol, and *lutescens*, ? Austria, p. 234, *divisorius*, p. 235, Lower Austria, *pseudonymus*, p. 238, Dalmatia, *genalis*, p. 240, ? Austria, *mediterraneus*, p. 242, Calabria, Corfu, &c., *ionicus*, p. 244, Corfu, *buccatus*, p. 245, Lower Austria, *polytomi*, p. 248 (bred from cocoon of *Lophyrus polytomus*), *bipunctatus*, Lower Austria, and *collaris*, Piesting, p. 249: Tschek, l. c., spp. nn.

Listrognathus tricolor, sp. n., *id. l. c.* p. 251, ? Austria.

Pezomachus pettiti, p. 61, Ontario, *canadensis*, p. 62, *tantillus*, *meabilis*, p. 62, *compactus*, p. 63, *alternatus*, p. 64, Illinois, *gentilis*, p. 61, *gracilis*, p. 63, *macer* (? = ♂ of *P. gracilis* or *dimidiatus*), p. 64, Pennsylvania, *obscurus*, p. 62, New Jersey, *dimidiatus*, p. 63, *unicolor*, p. 64, Massachusetts, *texanus*, p. 64, Texas: Cresson, Canad. Ent. iv., spp. nn.

Ophionides.

Ophion macrurum, L. (parasitic on *Attacus cecropia*), and larva figured: C. V. Riley, iv. Rep. Ins. Mo. pp. 107 & 108, figs. 37 & 38.

Trachynotus, Grav., nec Latr. (*Tenebrionidæ*) is changed to *Nototrachys*; *Collyria* [*Collyris*, Fab., *Coleoptera*, 1801], Schiödt, is employed for *Pachymerus*, Grav. (1829), nec Lep. & Serv. (*Hemiptera*, 1825). [Thunberg, *Coleoptera*, 1805]: T. A. Marshall, Tr. E. Soc. 1872, p. 260 (Cat. Brit. Hym. iii. pp. 50 & 63).

Campoplex carbonarius, Ratz., and *Meteorus (Perilitus) bimaculatus*, Wesm.,

parasitic on *Fidomia ericæ*. Snellen v. Vollenhoven, Sepp's Ned. Ins. (2) ii. p. 207.

Limneria fugitiva, Say, bred from *Phycita nebulo*, *Dryocampa senatoria*, *D. stigma*, *Euchaetes egle*, *Clisiocampa sylvatica*, and *Saturnia maia*: C. V. Riley, l. c. p. 41.

Atractodes guienzi, sp. n., Taschenberg, Z. ges. Naturw. xxxix. p. 7, Natal. *Mesochorus atriventris*, p. 21, Illinois, *luteipes*, New Jersey, *basalis*, Massachusetts, p. 22, *americanus*, Pennsylvania, Delaware, Illinois, *totonacus*, Orizaba, p. 23, *scitulus*, *obliquus*, *melleus*, p. 24, Pennsylvania: Cresson, Canad. Ent. iv., spp. nn.

Pimplides.

Thalessa clavata, F. Ghiliani, Bull. Ent. Ital. iv. p. 352 *et seq.*, refers to capture of ♂ of this species near Turin, but considers there is no evidence of the ♀ having been found in Italy.

Pimpla arundinator, F., ♂ described, parasitic on *Lipara*; *P. gallicola*, M., *stercorator*, Gr., varr., ♂, described from oak-galls and willow-galls of *Nematus gallarum*; *P. graminellæ*, Schr., ♂ described (*Ephialtes inanis*, Gr., ♂, pt.), parasitic on *Anthomyia spreta*, Meig.: Giraud, Ann. Soc. Ent. Fr. (5) ii. p. 506. *P. conquistator*, *indagatrix*, and *annulipes* bred from *Acrobasis juglandis*: C. V. Riley, iv. Rep. Ins. Mo. p. 43, note.

Sphaetes crassicus, Bremi, *ex. typ.*, = *Echthrus reluctator*, L., ♀, var.: Kriechbaumer, S. E. Z. xxxiii. p. 10.

Atractogaster, g. n., Kriechbaumer, l. c. p. 6. Resembles *Ephialtes*; last joint of tarsi nearly equal in length to the two preceding; head subbuccate; 2nd abdominal segment obliquely impressed on each side. *A. semisculptus*, sp. n., *id.* l. c. p. 7, Chur.

BRACONIDÆ.

SNELLEN VAN VOLLENHOVEN, Schetsen &c. ii., gives outlines (with some details of external anatomy) of the following genera:—*Euphorus*, *Rhopalophorus*, *Perilitus*, *Streblocera*, *Microctonus*, *Blacus*, *Centistes*, *Pygostolus*, *Sigalphus*, *Calyptus*, *Eubadizon*, *Elasmosoma*, *Acelius*, *Microgaster*, *Meteorus*, *Microtypus*, *Diospilus*, *Aspigonus*, *Helcon*, *Laccophrys*, *Macrocentrus*, *Phylax*, *Orgilus*, pl. iv.; *Earinus*, *Microdus*, *Agathis*, *Proterops*, *Ichneutes*, *Chelonus*, *Ascogaster*, *Rhyti[do]gaster*, *Acampsis*, *Opius*, *Bracon*, *Cæloides*, *Histeromerus*, *Exothecus*, *Pelecystoma*, *Rhogas*, *Clinocentrus*, *Oncophanes*, *Hormius*, *Doryctes*, *Dendrosoter*, *Spathius*, *Corystes*, *Hecabolus*, pl. v.; *Ecphyllus*, *Pambolus*, *Chremylus*, *Alysia*, *Trachyusa*, *Syncrasis*, *Aphereta*, *Chasmodon*, *Synaldis*, *Polemon*, *Copisura* (*Chænon*), *Cælinius*, *Enone*, *Chænusa*, *Chorebus*, *Dacnusa*, *Praon*, *Trioxys*, *Aphidius*, *Ephedrus*, *Neoneurus*, *Dyscolus*, *Mirax*, *Cenocælius*, *Cardiophiles*, pl. vi.

Hybrizon, Fall., preferred to *Pachylomma*, Bréb.: T. A. Marshall, Tr. E. Soc. 1872, p. 260.

Microgaster: about 1000 individuals bred from one larva of a large Ceylonese species of the *Bombycidae*: J. O. Westwood, P. E. Soc. 1872, p. xxiii.

M. alvearius: peculiar circumstances attending its occurrence under larvæ of a *Geometer* on *Thuia aurea*. T. Bell, Ent. vi. p. 187, fig.

Wesmaelia cremasta, sp. n., Marshall, Ent. M. M. viii. p. 257, Spanish Pyrenees and North Devon.

Aphidius gregarius, sp. n., *id. l. c.* ix. p. 123, parasitic on *Aphides* of poplar and willow, near London. Habits by R. M'Lachlan, P. E. Soc. 1872, p. ii.

Perilitus niveitarsis, p. 81, *intermedius*, p. 82, Massachusetts, *pallitarsis*, p. 80, *dimidiatus*, p. 83, New Jersey, *communis*, p. 82, Connecticut, *proximus*, *vulgaris*, p. 83, *humilis*, p. 84, Illinois, Cresson, *Canad. Ent. iv.*; *P. indagator*, Riley, *iv. Rep. Ins. Mo.* p. 43 (bred from *Acrobasis juglandis*): spp. nn.

Microctonus agilis, sp. n., Cresson, *l. c.* p. 226, Illinois.

Euphorus sculptus, *mellipes*, *scitulus*, spp. nn., Illinois, *id. l. c.* p. 227.

Licphron læve, sp. n., *id. l. c.* p. 228, Canada.

Calyptus major, Canada, Virginia, Illinois, *rotundiceps*, Illinois, *ibid.*, *mexicanus*, Orizaba, *tibiator*, New Jersey, p. 229: *id. l. c.*, spp. nn.

Eubadizon laterale, p. 229, Illinois, *pleurale*, Missouri, *americanum*, New Jersey, p. 230: *id. l. c.*, spp. nn.

Ichneutes bicolor, p. 230, Massachusetts, *fulvipes*, p. 231, Illinois: *id. l. c.* spp. nn.

CHALCIDIDÆ.

SNELLEN VAN VOLLENHOVEN, Schetsen &c. iii. ("Pteromalinen") gives outline figures of the following genera, often with details of external anatomy:—*Leucaspis*, *Dirrhinus*, *Smicra*, *Comurus*, *Chalcis*, *Halticella*, *Agonioneurus*, *Mesidia*, *Coccophagus*, *Stenocera*, *Eusandalum*, *Eupelmus*, *Chiloneurus*, *Comys*, *Bothryothorax*, *Discodes*, *Euryscapus*, *Cerapterocerus*, *Choria*, *Cercobelus*, *Copidosoma*, *Cerchysius*, *Ericydnus*, *Dinocarsis*, *Rhopus*, pl. vii.; *Leptomastix*, *Habrolepis*, *Sceptrophorus*, *Ectroma*, *Encyrtus*, *Calypso*, *Macroglenes*, *Pirene*, *Spalangia*, *Cerocephala*, *Eucharis*, *Perilampus*, *Chrysolampus*, *Elatus*, *Ormyrus*, *Palmon*, *Cryptopristus*, *Monodontomerus*, *Diomorus*, *Oligosthenus*, *Megastigmus*, *Syntomaspis*, *Lochites*, *Callimome*, *Decatoma*, *Eurytoma*, pl. viii.; *Systole*, *Isosoma*, *Cea*, *Tetracampe*, *Trigonoderus*, *Prosopon*, *Platynochilus*, *Notanisus*, *Macroneura*, *Cleonymus*, *Merostenus*, *Cratomus*, *Dipara*, *Pachycrepis*, *Pachyneurum*, *Cyrtogaster*, *Pachylarthrus*, *Syntomopus*, *Dichalysis*, *Panstenon*, *Cryptoprymna*, *Micromelus*, *Lamprotatus*, *Sphegigaster*, *Toxeuma*, pl. ix.; *Isocratus*, *Merisus*, *Dicyclus*, *Urolepis*, *Micradelus*, *Psilonotus*, *Isoplata*, *Rhaphidotelus*, *Gastrancistrus*, *Tridymus*, *Megapelte*, *Systasis*, *Stictonotus*, *Meraporus*, *Rhoptrocerus*, *Peridesmia*, *Simopterus*, *Chiropachys*, *Rhopalicus*, *Etroxys*, *Pteromalus*, *Epicopterus*, *Elasmus*, *Euplectrus*, *Elachistus*, *Aulogymnus*, pl. x.

F. WALKER (London: 1872) completes his 'Notes on Chalcididæ' (see Zool. Rec. viii. p. 344 *et seq.*), under the following heads:—Part v. Encyrtidæ (continuation), Myinidæ, Eupelmidæ, Cleonymidæ, Spalangidæ, and Pirenidæ, pp. 71–88; Part vi. Hormoceridæ, Sphegigasteridæ, Pteromalidæ, Elasmidæ, Elachistidæ, Eulophidæ, Entedonidæ, Tetrastichidæ, and Trichogrammidæ, pp. 89–105; Part vii. notice of species found in Madeira, pp. 106–129. These notes are, practically, abstracts or reproductions of Förster's prior work, with descriptions at random of new species and reproductions of figures (from Haliday's drawings, originally published in the 'Entomologist' of 1842) of *Ormyrus punctiger*, *Aphelinus basalis*, *Coccophagus scutellaris*, *Ericydnus strigosus*, *Cerchysius urocerus*, *Cercobelus jugæus*, *Encyrtus corniger*, *Cerapterocerus mirabilis*, *Ectroma fulvescens*, *Trigonoderus obscurus*, *Lelapsadales*, *Notanisus versicolor*, *Cea pulicaris*, *Calosoter vernalis*, *Eupelmus urozonus*, *E. degeeri*, *Cerocephala formiciformis*, *Pirene varicornis*, *Gastrancistrus*

laticornis, *Hormocerus maritimus*, *Pilonotus adamas*, *Rhaphi[do]telus maculatus*, *Semiotus varians*, *Systasis encyrtoides*, *Syntomopus thoracicus*, *Sphegigaster flavicornis*, *Merisus splendidus*, *Merostenus phedyma*, *Dipara petiolata*, *Coryna clavata*, *Toxeuma ericæ*, *Psilocera obscura*, *Prosodes ater*, *Metopon atrum*, *Euteius immaculatus*, *Pteromalus latus*, *Ætroxys scenicus*, *Eunotus cretaceus*, *Hemiptarsenus fulvicollis*, *Prosoxon montanum*, *Micromelus pyrrhogaster*, *Entedon amyclas*, *Euplectrus albiventris*, *Eulophus aphaca*, *Cirrospilus pulchellus*, *C. attalus*, *C. pacuvius*, *Tetrastichus caudatus*, *Pteroptrix menes*, *Trichogramma evanescens*, and *Thysanus ater*.

Bothryothorax may be reunited to *Encyrtus*; *Calosoter bifasciatus* may be renamed *Eupelmus fasciipennis*; *Pteromalus abnormis*, Boh., perhaps belongs to the *Agaonides*. The author (Ent. vi. pp. 17, 41, 67, 89, 113, 131, 201, 225, 249) simultaneously again reproduces the first 18 of the above-named figures, with others, derived from the same source, of *Isosoma flavicolle*, *Eurytoma platyptera*, *Podagrion splendidum*, *Torymus caliginosus*, *Schizaspidia furcata*, *Eucharis iello*, *Stilbula volusus*, and *Notaspis formiciformis*, accompanied by unconnected observations of the nature above mentioned. In the same publication, pp. 52 & 78, he refers to species found in the Scilly Isles; and in Canad. Ent. iv. pp. 186, 209, 236, makes some vague observations on the distribution &c. of Canadian genera.

Chalcis maricæ, Riley, figured; parasitic on *Attacus cecropia* and *prometheus*: C. V. Riley, iv. Rep. Ins. Mo. p. 109, fig. 30.

Larva of a *Chalcis* recorded as feeding upon imago of *Cynips*: T. A. Chapman, Ent. M. M. ix. p. 13.

2 unknown species of *Eurytoma* and *Callinome* reared from gall of *Cynips lignicola*: F. Walker, Ent. vi. p. 101. Other parasites (including *Ormyrus punctiger*) noted by E. A. Fitch, *ibid.* p. 243.

Coccophagus: habits referred to by J. O. Westwood, P. E. Soc. 1872, p. xviii.

Pteromalus multicolor and *abieticola*, Ratz., *Roptrocerus xylophagarum*, Ratz., and ? *Cæloides scolyticida*, Wesm., referred to as parasitic upon *Tomiscus typographus* in Styria, and the name *bostrichorum* suggested for the *Cæloides* (which is described), if not identical with Wesmael's species. Giraud, Bull. Soc. Ent. Fr. (5) ii. pp. ix-xi.

New genera and species :—

Tineomyza [vox hybr.], Rondani, Bull. Ent. Ital. iv. p. 205. *Myinides*. *T. pistacina*, id. *ibid.*, parasitic on a *Tinea (terebintella)*, Rond. MS.), from galls of *Pistacia terebinthus*, Palermo.

Cleptimorpha [Clepto-], Walker, Notes &c. p. 84. In the *Cleonymides*, but resembles the *Chalcidides* in structure of hind legs. *C. binotata*, id. *l. c.* p. 85, Madeira.

Sparthiophilus [? *Spartiophilus*, vox hybr.; *Spartophila*, Chevr., Col.], Rondani, *l. c.* p. 208. *Entedonides*. *S. bruchicida*, id. *ibid.*, parasitic on *Bruchus spartii*, Italy.

Encyrtus ceuthorhynchi, Rondani, *l. c.* p. 207, parasitic on *Ceuthorhynchus assimilis*, Italy; *E. areolatus*, p. 79, Corsica, *colligatus*, *congruus*, p. 115, Madeira, Walker, Notes &c.

Metallon atriceps, Walker, *l. c.* p. 115, Madeira.

Eupelmus subnubilus, p. 81, *pezomachoides*, p. 82, Corsica, *subvittatus*, S. France, *leithi*, Bombay, p. 83, *tenuicollis*, p. 86, Mysol: *id. l. c.*

Prionopelma longifica, id. l. c. p. 84, Amazons.
Trigonoderus contractus, id. l. c. p. 85, England.
Epistenia nigra, Zulu, 4-*plagiata*, Amazons, id. l. c. p. 87.
Hormocerus impletus, id. l. c. p. 96, Corsica.
Ectroma maderensis, id. l. c. p. 116, Madeira.
Gastrancistrus pallicornis, id. *ibid.*, Madeira.
Dicyclus pallinervosus, id. l. c. p. 117, Madeira.
Sphegigaster degener, id. *ibid.*, Madeira.
Stictonotus degener and *insuetus*, id. *ibid.*, Madeira.

Metastenus purus, id. l. c. p. 118, Madeira.

Pteromalus insularis, p. 100, *semiluteus*, p. 101, Corsica, *pandens*, p. 101, Torla, Spain, *tinctipennis*, p. 118, *integer*, p. 119, *contaminatus*, *alternipes*, p. 120, *nigricans*, *dulcis*, *consuetus*, p. 121, *obscurus*, *obumbratus*, p. 122, *stigmatizans*, *basicyaneus*, p. 123, Madeira, id. l. c.; *P.* (? g. n.) *oomyzus*, p. 202, *ovivorus*, p. 203, Rondani, l. c., Italy, parasitic on eggs of *Eurydema ornatum* (Hemipt.).

Euplectrus intactus, Walker, l. c. p. 102, Corsica.

Elachistus equalis and *contractus*, id. l. c. p. 124, Madeira.

Cirrospilus bifasciatus, id. l. c. p. 103, Bordeaux.

Eulophus sobrius, p. 124, *divisus*, *entedonoides*, *centralis*, p. 125, *maculipennis*, p. 126, id. l. c., Madeira, the last ? also Gt. Britain.

Diglyphus clavicornis, id. l. c. p. 126, Madeira.

Epiclerus femoralis, id. *ibid.*, Madeira.

Entedon intaminatus, id. *ibid.*, Madeira.

Tetrastichus maderæ, *socius*, p. 128, *subpictus*, *perpusillus*, p. 129, Madeira: id. l. c.

PROCTOTRYPIDÆ.

Ceraphron (*Lygocerus*) *carpenteri*, Curt., attacks larvæ of *Aphidius* in *Aphides*: T. A. Marshall, Ent. M. M. ix. p. 124.

CYNIPIDÆ.

MAYR (Verh. z.-b. Wien, xxii. pp. 669-726) supplements his work on the oak-galls of Central Europe by tabulating and describing the inquiline species of the genera *Synergus*, *Sapholytus*, and *Ceroptres*. He reviews the general literature &c. of the subject, specially noting that in *Ceroptres* two forms of parthenogenesis occur, in which either females alone or both sexes are produced; and, generally, that two well-marked species of inquilines can live in one gall. The results (as regards production of species) of an examination of 100 isolated galls of *Cynips lignicola* are given at p. 675, note. The author notes the varied times of appearance of the different species, and tabulates them by the galls from which they are produced. *Cynips quercus-pedunculii*, L., Réaumur, = *Spathogaster baccharum*, L.; *Synergus rugulosus*, Htg., = *haynianus*, Htg.; *S. immarginatus*, Htg., = *apicalis*, Htg.; *S. australis* and *pallicornis*, Htg., = *flavicornis*, Htg., but *pallicornis* is retained; *S. erythrocerus*, Htg., *ex. typ.*, = *albipes*, Htg.; *S. tibialis* and *nigricornis*, Htg., = *nervosus*, Htg.; *S. bispinus*, Htg., and ? *palliceps*, Htg., = *facialis*, Htg.; *S. luteus* and ? *carinatus*, Htg., = *thau[m]a[to]cera*, Dalm.; *Sapholytus erythronerurus*, Htg., *ex. typ.*, = *connatus*, Htg.

The species described, with synonymy, full account of habits, and of galls frequented, &c., are:—*Synergus melanopus*, p. 695, *flavipes* and *haynianus*,

p. 700, *ruficornis*, p. 701, *apicalis*, p. 705, *incrassatus*, p. 707, *pallicornis*, p. 709, *albipes*, p. 712, *varius* and *nervosus*, p. 713, *vulgaris*, p. 715, *facialis*, p. 717, and *physoceras*, p. 721 (all Htg.), and *S. thauma[to]cera*, Dalm., p. 719; *Sapholytus connatus*, Htg., p. 722, *Ceroptres arator*, Htg., p. 724, and several new species.

Microscopic slides of portions of *Cynipidæ* referred to, and a fresh specific character noted in the structure of the compressed lobes at the apex of the ventral segment of the abdomen. J. O. Westwood, P. E. Soc. 1872, p. xviii.

Cynips lignicola: parasites recorded, F. Walker, Ent. vi. p. 101; E. A. Fitch, *ibid.* p. 243. It extends to East Lothian, J. Hardy, Scot. Nat. i. p. 181; also to Glasgow and near Hamilton, P. Cameron, Jun., *ibid.* p. 266.

Spathogaster baccarum: gall on upper side of leaf. P. Cameron, Jun., *l. c.* p. 266.

"Chinese Artichoke Gall" (Hance, J. L. S. Bot. xiii.): A. Müller, J. L. S. xi. pp. 428-431, compares an excrescence found on oaks in China, and presumably resulting from the operations of a *Cynips*, with the gall of the European *Aphilothrix gemmæ*, L.

Mayr, *l. c.*, describes the following new species:—

Synergus reinhardi, p. 698, Austria, from galls of *Cynips argentea* and of 6 other species; *S. evanescens*, various parts of Germany, from galls of *Aphilothrix gemmæ* &c., and *S. pallidipennis*, Hungary and Austria, galls of *Cynips conifica* &c., p. 699; *S. variabilis*, p. 702, Austria, galls of *Cynips cerricola*, &c.; *S. rotundiventris*, p. 706, Austria, galls of *Diophanta macroptera*; *S. tscheki* (?=*pallipes*, Htg.), p. 708, Germany and Austria, galls of *D. scutellaris* &c.; *S. tristis*, p. 715, Austria, galls of *Andricus urniformis* and *Neuroterus ostreus*; *S. radiatus*, p. 718, Austria and Germany, galls of *Aphilothrix albipunctata* &c.

Sapholytus haimi, galls of *Andricus nitidus* &c., and *S. undulatus*, galls of *Cynips cerricola*, Austria, p. 723.

Ceroptres cerri, p. 725, Austria, galls of *Cynips cerricola* &c.

URO CERIDÆ.

THOMSON, Hym. Scand. i. pp. 323-333, discusses the Swedish species, under the "tribes" *Siricina*, *Xiphydr[i]na*, and *Oryssina*. He describes as a new species, under the name *melanocerus*, p. 328, the *Sirex juvenicus* of Htg., *nec* L.

TENTHREDINIDÆ.

THOMSON, Hym. Scand. i. pp. 13-323, discusses the Swedish species, under the "tribes" *Cimbicina*, *Hylotomina*, *Tenthredinina*, *Blasticotomina*, *Lydina*, *Xyelina*, and *Cephina*, giving (pp. 334 & 335) an outline plate with copious explanation of various portions of external anatomy. He adopts the name *pentandræ* from De Geer for the *Cynips (Nematus) amerinæ* of Linnæus, supposed to clash with the *Cimbex* of the latter name; renames *exarmata* his own *Blennocampa monticola* (*nec* Htg.); and gives copious synonymy, partly original.

A. J. VAN ROSSUM, Arch. Néerl. vii. pp. 381-384, describes the results of experiments upon the fluid ejected by *Cimbex connata* and *syvarum*. He comes to the conclusion that it is a concentrated solution of a variable

substance greatly resembling albumen. The colouring-matter is probably only chlorophyl from the leaves of the plants on which the larvæ feed.

Nematus vallisnerii, Htg.: galls on willows by water only on the sides of the tree overhanging the land. P. Cameron, Jun., P. E. Soc. 1872, p. vi.

Nematus pallicercus, Htg., *Dineura opaca*, F., and *Athalia phthisica*, Ritz.: observations on varieties &c. by C. Ritsema, Tijdschr. Ent. (2) vii. p. 110.

Dineura rufa, *Macrophya albicincta*, *Phyllotoma melanopyga*, *Nematus aquilegiæ* and *betularius*: van Vollenhoven's descriptions &c. translated by J. F. May, Ent. vi. pp. 18, 43, 70, 94, 132, et seqq.

Allantus (Htg.). Rudow, S. E. Z. xxxiii. pp. 83-94, 137-142, revises the European species, restricted to 13, including 3 treated as new. *A. propinquus*, Klg., = *scrophulariæ*, L.; *marginellus*, F., = *viennensis*, Schr.; *6-annulatus*, Schr., = *tricinctus*, F., var.; a var. n. of *nothus*, Klg., is described under the name *melanotus*, p. 139; *succinctus* and *luteiventris*, St. F., *zonulus*, Klg., *bicinctus*, Schf., = *zona*, Klg., varr.; other synonymy is given.

Emphytus fulvicinctus, sp. n., Rudow, l. c. p. 217, ? Harz district.

Dineura unicolor, sp. n., id. l. c. p. 218, ? Harz district.

Allantus heraclei, p. 90, *multicinctus*, p. 91, *semifasciatus*, p. 140, id. l. c., ? Harz district; *A. himalayensis*, p. 195, Himalaya, *felderi*, p. 196, Ning-Po: Radoszkowsky, Hor. Ent. Ross. viii.: spp. nn.

Thomson, l. c., describes the following new species, from various parts of Scandinavia:—

Cimbex violascens, p. 20 (*lutea*, var. B, Fall., Hart., Dahlb.; *lutea*, Deg., nec L., var. *humboldti*, Ratz.), *brevispina*, p. 21 (*lutea*, var. A, Fall., *variabilis*, Ratz., ? *femorata*, L.).

Abia bifida (*ænea*, ♀, Dablb.), *mutica* (*nitens*, Fall., nec L.), p. 28.

Schizocera cylindricornis, p. 44, *geniculata*, p. 45, *fusicornis* (? *intermedia*, Zadd.), p. 46.

Lophyrus eremita, p. 62.

Monoctenus subconstrictus, p. 67.

Cladius drewseni, p. 73.

Leptocercus nigriceps, p. 78.

Nematus dochmocerus, p. 93, *alpinus*, p. 98, *lativentris*, p. 99, *erythrogaster*, p. 103, *subbifidus*, *bistriatus*, p. 105, *retusus*, p. 109, *puactifrons*, p. 111, *fumipennis*, p. 112, *olivaceus*, p. 120 (? *pallicarpus*, Htg.), *wahlbergi*, p. 125, *hyperboreus*, p. 127, *scabrivalvis*, p. 132, *dahlbomi*, p. 134 (*viduatus*, Dahlb., nec Zett.), *acuminatus*, p. 138, *inflatus*, p. 139, *umbratus*, p. 142, *bohemani*, p. 143, *jugicola*, p. 146, *monticola*, p. 147, *brevivalvis*, p. 151, *microcercus*, *curtispina*, p. 152, *lacteus*, p. 155, *puella*, p. 160, *crassipes*, p. 162, *crassispina*, p. 164.

Fenusa intermedia, p. 186.

Emphytus klugi, p. 194 (*apicalis*, Kl., ♀, *filiformis*, Kl., ♂).

Hoplocampa pectoralis, p. 202.

Blennocampa recta, p. 210, *emarginata*, p. 217, *mentiens*, p. 221.

Pecilosoma guttatum, p. 231, *longicorne*, *submuticum*, p. 232, *excisum*, p. 233.

Taxonus albipes, p. 235 (*cerasi*, ♂, Zett.).

Selandria interstitialis, p. 237, *temporalis*, *analis*, p. 239.

Strongylogaster geniculata, p. 243.

Pachyprotasis lævicollis, p. 249 (? = *simulans*, Kl.).

Perineura alpina, p. 267.

Tenthredo arctica, p. 273.

Dolerus annulipes, p. 280, *arcticus*, p. 284, *cericeps*, p. 285, *puncticollis*, *liogaster*, p. 286, *brevicornis*, p. 288, *elongatus*, p. 293.

Lyda scutellaris, p. 303, *albipicta*, p. 312.

Xyela piliserra, p. 317.

Cephus brachycercus, p. 322, *pilosulus*, p. 323.

LEPIDOPTERA

By W. F. KIRBY, M.E.S. &c.

GENERAL NOTES.

H. STRECKER has published "Lepidoptera, Rhopaloceres, and Heteroceres [*sic*], indigenous and exotic, with descriptions and coloured illustrations." No. I. Reading, Pa. : 1872, 4to, pp. 8, pl. 1.

A. GUÉNÉE ("Notice sur divers Lépidoptères du Musée de Genève," Mém. Soc. Phys. Genève, xxi. pp. 369-424, 1 plate; also separate, pp. 56) describes several species of *Papilio* as new, monographs the *Catagrammides*, and describes and figures an hermaphrodite *Bombyx quercus*.

On the colour and edibility of larvæ, *cf.* H. Doubleday & P. Meldola, Ent. M. M. ix. pp. 45, 68, 69.

On variation in the colour of Lepidopterous larvæ and pupæ, *cf.* Fallou & Mabille, Bull. Soc. Ent. Fr. (5) ii. pp. lv & lvi.

On destructive swarms of larvæ in Belgium, *cf.* E. Birchall, Ent. vi. pp. 13, 81, 82.

On larvæ found living on the surface of snow, *cf.* Du Plessis, Bull. Soc. Vaud. (2) xi. p. 176.

On destroying caterpillars, *cf.* Pet. Nouv. 1872, pp. 195 & 196.

On the development of *Lepidoptera* after leaving the pupa, *cf.* A. Kuwert, S. E. Z. 1872, pp. 412-414.

HAGEN remarks on the various *Lepidoptera* which have retained a larval head in the perfect state. This monstrosity has been noticed in *Noctua heteroclitia*, *Bombyx mori* (twice), *Nymphalis populi*, *Vanessa antiopa*, *Zygæna exulans*, var. *vanadis*, *Vanessa atalanta*, *Gastropacha quercifolia*, *Botys fuscalis*, *Sphinx* sp., *Zerene adustata*, and *Morpho eurylochus*. S. E. Z. 1872, pp. 388-402.

The ribs of the battledore scales of *Polyommatus alexis* and other *Lycænidae* are furnished with rows of "beads," consisting of a base, a column, and a rounded head, and these vary in size in different species: J. Anthony, M. Micr. J. vii. pp. 1-3, 250-252, pls. 1 & 2. The beaded appearance on the scales of many other butterflies and moths is also confirmed by H. de Cerebecq and H. J. Slack, *op. cit.* pp. 24-26, 48 & 49.

C. R. BREE argues against the views of Darwin and his followers as regards sexual selection, mimicry, &c. in *Lepidoptera*. 'Exposition of Fallacies in the Hypothesis of Mr. Darwin,' pp. 207-214.

On mimicry in British *Lepidoptera*: R. C. R. Jordan, Ent. M. M. viii. pp. 251-253, and P. Meldola, Ent. v. p. 163.

On the copulation of distinct species, *cf.* W. V. Andrews, Canad. Ent. iv. pp. 78 & 79.

On sterility in *Lepidoptera*: Westwood & Briggs, P. E. Soc. 1872, p. 27.

On hybrids, *cf.* Breyer, Ann. E. Belg. xv. pp. 45 & 46.

On plants fertilized by *Lepidoptera*: W. C. Marshall, Nature, vi. p. 393.

On neuration in *Lepidoptera*: Clemens & Stainton, Tin. N. Amer. pp. 13-16.

On varr. of British *Lepidoptera*: Meldola, Stevens, & Bond, P. E. Soc. 1872, pp. 28, 31, 43, 44.

On relaxing *Lepidoptera* with laurel leaves, *cf.* Ragonot and others, Ann. Soc. Ent. Fr. (5) ii. pp. 212-214; Bull. pp. lxiv, xc, xci, xcii, xciv.

The European and N.-American faunas are more nearly related than the European and Siberian, and should be regarded as one: P. C. Zeller, in the introductory remarks to his 'Beiträge zur Kenntniss der nordamerikanischen Nachtfalter, besonders der Microlepidopteren,' l. Abth. (Verh. z.-b. Wien, xxii. pp. 447-556, pls. 2 & 3).

On the distribution of various *Lepidoptera*: M. Wagner, SB. Bayer. Ak. 1870, ii. pp. 167-171. Distinct but closely allied species either feed on different plants, or are confined to different localities.

Notes on a few European *Lepidoptera*: W. Henäcker, S. E. Z. 1872, pp. 320-322.

GREAT BRITAIN:—

On the relations of the British Lepidopterous fauna to that of the Continent, *cf.* E. Birchall, Zool. (s. s.) vii. pp. 3304-3306.

H. G. KNAGGS, in "Notes on new and rare British Lepidoptera (excepting Tineina) in 1872," Ent. Ann. 1873, pp. 34-47, records 8 species new to Britain, and 18 larvæ not before described.

On *Lepidoptera* observed in the North of England in 1871, *cf.* Maling & Bold, Tr. North. Durh. iv. pp. 380-385.

List of *Lepidoptera* of N. Staffordshire, by T. W. Daltry, Rep. N. Staff. Club, 1872 (*cf.* Ent. vi. p. 133).

F. B. WHITE has commenced a list of the *Lepidoptera* of Scotland, giving range, habitats, &c., and also indicating the British and European ranges. The portion now published includes the *Rhopalocera* and *Hepialida*. Scot. Nat. i. pp. 161-168, 198-202, 238-241, 273-276, map.

R. C. R. JORDAN (Ent. Ann. 1873, pp. 70-82), in a critical notice of F. Buchanan White's 'Fauna Perthensis' (*cf.* Zool. Rec. viii. p. 353), adds remarks on many of the most interesting species.

Notes on Irish *Lepidoptera*: A. W. Foot, P. Dubl. Soc. vi. pp. 5-15.

Lists of captures are published by J. J. Walker, at Sheerness and Sheppy (Ent. M. M. viii. pp. 184 & 185, ix. pp. 162 & 163); by W. D. Robinson, at Braemar (*op. cit.* pp. 186 & 187); by E. N. Bloomfield, at Guestling (*op. cit.* p. 188); by J. H. A. Jenner, at Battle and Lewes (*op. cit.* pp. 211, 250); by R. P. Murray, in the Isle of Man (*op. cit.* p. 250); by C. G. Barrett, at Norwich &c. (*op. cit.* p. 271, ix. pp. 18-21, 89-91); by G. T. Porritt, in Lancashire and Cheshire (*op. cit.* ix. p. 21, Ent. vi. pp. 7 & 8); by J. W. H. Traill,

in Aberdeenshire (Ent. M. M. ix. pp. 42-44, Scot. Nat. i. pp. 212 & 213); by J. B. Hodgkinson, in the Isle of Man and at Witherslack (Ent. M. M. ix. pp. 44, 66, 67, 141); by G. C. B. Madden, H. Birchall, & G. Parry, at Sherwood Forest (*op. cit.* pp. 139-141, Ent. vi. pp. 211-213); by W. H. Cole, in Norfolk and Suffolk (Ent. vi. p. 52); by E. Lawless, in Ireland, with notes on species new to Ireland, &c. (*op. cit.* pp. 74-78, 97-100); by G. H. Raynor, at Tonbridge (*op. cit.* pp. 79 & 80); by F. J. Battersby, in Westmeath (*op. cit.* pp. 101 & 102); by T. P. Lucas, at Leominster and Watlington (*op. cit.* pp. 114-119, 134-137); by A. B. Farn, in the New Forest (*op. cit.* pp. 120-122); by W. Thomas, in Surrey (*op. cit.* pp. 173 & 174); by G. B. Corbin, at Lough-ton (*op. cit.* pp. 187 & 188); by G. T. Porritt and T. W. Daltry, on the Lancashire and Cheshire sand-hills (Zool. s. s. vii. pp. 3075 & 3076).

FRANCE. Captures by H. Millière, in the Vallée de Lantosque (Alpes Maritimes): Pet. Nouv. 1872, pp. 265 & 266.

HOLLAND.

SEPP, JAN CHRISTIAN. Nederlandsche Insecten. Beschrijvingen en afbeeldingen van Nederlandsche Vlinders, bijeengebragt door S. C. Snellen van Vollenhoven. (2) ii. 's Gravenhage: 1870, 4to, pp. 236, pls. 50.

Of this work a portion, as published in numbers, has already been noticed in Zool. Rec. (Nos. 35-38, containing pp. 152-178, and pls. 35-39, issued in 1869: cf. Zool. Rec. vi.). It is now issued as a complete volume; and the species hitherto unnoticed will be discussed *in situ*.

SNELLEN, P. C. T. De Vlinders van Nederland. Macrolepidoptera, systematisch beschreven. 's Gravenhage: 1867, large 8vo, pp. xi & 763, pls. 4.

A work which would undoubtedly obtain (as it deserves) a more extended circulation, if it were not entirely (including even the diagnoses) written in Dutch. The author has apparently laid much greater stress than is usual on *structural* characters. The plates consist of various portions of the external anatomy of many genera throughout the *Lepidoptera*. One new species and 3 professedly new genera are described; and probable Dutch species are mentioned in the notes.

The author (pp. 13-20) arranges the Dutch *Lepidoptera* as follows:—

RHOPALOCERA: Papilionidæ, Hesperiidæ.

HETEROCERA: (*Macrolepidoptera*) Sphingidæ, Sesiidæ, Cossidæ, Hepialidæ, Cochliopodæ, Psychidæ, Zygenidæ, Syntomidæ, Chelonariæ, Liparidæ, Bombycidæ, Endromidæ, Saturniidæ, Drepanulidæ, Notodontidæ, Cymatophoridæ, Noctuina, Brehpidæ, Geometridæ.

HETEROCERA: (*Microlepidoptera*) Pyralidæ, Tortricidæ, Micropterygidæ, Tineina, Pterophoridæ, Alucitina.

10 *Macrolepidoptera* new to the fauna of Breda recorded by F. J. M. Heylaerts, fils: Tijdschr. Ent. (2) vii. pp. 118-120.

BELGIUM. Captures by C. Donckier & L. Quaedvlieg: Ann. E. Belg. xv. pp. 110-115, with notes on altitude &c.

ITALY and S. FRANCE. Captures by F. Walker: Ent. vi. pp. 227-230.

ITALY. *Lepidoptera Rhopalocera* of Padua: Tacchetti, Atti Soc. Ven. Trent. i.; Bull. Soc. Ent. Fr. (5) ii. p. cxiii; and Atti Soc. Pad. i. pp. 97-126 (105 species).

SICILY. Captures by von Kalchberg: S. E. Z. 1872, pp. 312-320, 403-414.

Thecla w-album, *Lycæna icarus*, var. *icarinus*, and *Lasiocampa otus* are noticed as new to Sicily: G. P. Marott, Bull. Ent. Ital. iv. pp. 105 & 106.

SWITZERLAND. Captures in the Grisons by P. C. T. Zeller: S. E. Z. 1872, pp. 27-63, 99-120. On Mt. Pilat by Peyerimhoff: Pet. Nouv. 1872, p. 231.

M. TÄSCHLER has published (Ber. St. Gall. Ges. 1869-1870, pp. 51-146) a list of the *Lepidoptera* of the Cantons of Appenzell and St. Gall. The list extends to the end of the *Geometræ*. 580 species are recorded, as against 1433 for Germany and Switzerland, and 2179 for Europe. Interesting general remarks are prefixed on the nature of the district, the distribution of *Lepidoptera*, and the causes which influence it, the height at which they have been observed in the Swiss Alps, variation, hybrids, parthenogenesis, &c.

NORWAY. List of 119 species captured at Osterdalen by H. Siebke: N. Mag. Naturw. xix. pp. 68-73.

RUSSIA. Captures at Anton and Schilling by A. Becker: Bull. Mosc. 1872 (3), p. 116.

Von Nolcken's 'Catalogue of the *Lepidoptera* of Esthonia &c.' is reviewed by Weinmann: Ann. E. Belg. xv. pp. 78-91.

ASIA. Captures in Persia by H. Christoph: S. E. Z. 1872, pp. 204-207.

C. Oberthur publishes a list of the *Lepidoptera* collected by T. Deyrolle in Asia Minor: R. Z. xxiii. pp. 480-488.

G. v. Emich makes some additions to the Lepidopterous fauna of Transcaucasia, and describes a few new species: Hor. Ent. Ross. ix. pp. 40-44.

Notes on Chinese Butterflies: A. David, N. Arch. Mus. vii. p. 96.

AFRICA. Captures by T. Blackmore in N.W. Morocco, with remarks on the *Microlepidoptera* by Stainton: Ent. M. M. viii. pp. 228-236.

On the *Lepidoptera* of Lower Guinea: P. C. T. Snellen, Tijdschr. Ent. (2) vii. pp. 1-110. 95 species noticed, many new.

H. D. J. WALLENGREN publishes notes (in Latin) on the Lepidopterous fauna of S. Africa, describing many new moths, and redescribing several butterflies previously briefly characterized by himself. Remarks (in Swedish) on Trimen's Rhop. Afr. Austr. and Kirby's Cat. D. Lep. are prefixed to the paper. Öfv. Vet. Ak. 1872, pp. 41-61.

In Auguste Vinson's 'Voyage à Madagascar au couronnement de Radama II.' (Paris: 1865, royal 8vo: not hitherto mentioned in Z. R.), Annexe F, is a list of *Lepidoptera*, pp. 25-48 (180 species), with introduction, notes, and description of new genera and species by Guénéé. The list is full of new and uncharacterized family names.

AUSTRALIA. Captures in S. Australia by H. R. Cox: Ent. vi. pp. 203-209.

NEW ZEALAND. R. W. Fereday, in a criticism on A. Bathgate's paper (cf. Zool. Rec. viii. p. 355), reviews the Lepidopterous fauna of New Zealand. The *Noctuæ*, *Geometræ*, *Pyralides*, *Crambida*, and *Pterophori* are well repre-

sented; the butterflies, *Bombyces*, and *Tineæ* badly: Tr. N. Z. Inst. iv. pp. 214-218.

AMERICA. H. D. J. Wallengren enumerates 35 *Lepidoptera* as occurring in the small Caribbean island of St. Bartholomew. Three new species are described in Latin; the remainder of the paper is in Swedish. Cfv. Vet. Ak. 1871, pp. 909-919.

Captures in New-York State by J. A. Lintner, Rep. N.-York Cab. xxiii. pp. 180-197.

'A Classified Catalogue of the *Lepidoptera* of Canada,' Toronto, 1872, 8vo, pp. 9, has been published by A. M. Ross, containing the name of one new species.

On Butterflies and Sphingæ collected at Fox Bay, Anticosti, and the north shore of the St. Lawrence: W. Couper, Canad. Ent. iv. pp. 201-206.

On the *Lepidoptera* of Nova Scotia: J. M. Jones, Tr. N. Scot. Inst. iii. pp. 18-27, 100-103.

A few *Lepidoptera* from Camel's Hump, Orleans Co., are mentioned by P. S. Sprague, Arch. Sci. Orl. Co. i. pp. 87 & 88.

List of Butterflies collected by Campbell Carrington and W. B. Logan in 1871 at Montana, Yellowstone, Colorado, Nevada, &c., cf. W. H. Edwards, Hayden's Rep. of U. S. Geol. Survey of Montana &c. pp. 466 & 467.

A list of 113 butterflies occurring in the State of New York: J. A. Lintner, Rep. N. Y. S. Cab. xxiii. pp. 176-179.

Captures of butterflies in Massachusetts and Iowa: H. W. Parker, Am. Nat. vi. pp. 115 & 116.

E. NEWMAN, Zool. (s. s.) vii. pp. 2877-2898, reviewing Kirby's 'Catalogue of Diurnal Lepidoptera,' gives a sketch of the systems of Ray, Haworth, Leach, Latreille, Herrich-Schäffer, Newman, and Kirby [which latter differs little from that previously proposed by Bates].

G. R. CROTCH reviews the generic nomenclature of *Lepidoptera* from 1735 to 1816, and attempts to fix the types of the genera with precision: Cist. Ent. pp. 59-71, 91 & 92.

On the changes of nomenclature in Staudinger & Wocke's Catalogue: Staudinger, De Borre, & Guénéé, Pet. Nouv. 1872, pp. 180 & 181, 184 & 185.

An obituary notice of R. Felder's life and works: J. R. Schiner, Verh. z.-b. Wien, xxii. pp. 41-50.

RHOPALOCERA.

Parts 81-84 of Hewitson's 'Exotic Butterflies,' and parts 11-14 of Butler's 'Lepidoptera Exotica,' have appeared within the year.

W. F. KIRBY (On the Geographical Distribution of the Butterflies as compared with that of the Birds, P. L. S. Zool. xi. pp. 431-439) adopts Scater's regions of distribution, and indicates the representative genera of each. 7500 birds are mentioned by Scater, and 7700 butterflies by Kirby. The number of birds slightly predominates in all districts except the Neotropical, where there are 4200 butterflies to 2250 birds. The Palæartic and Nearctic faunæ can scarcely be considered primary divisions. Within the Palæartic region are the Arctic, Central (including the Alpine), and Mediterranean faunas, and probably a "Steppe-fauna" in Central Asia. Africa possesses a number of peculiar forms; but most of the characteristic Palæartic and Indian forms are

absent, and the fauna is generally very uniform in character. The N.-Indian species have a great affinity with those of Singapore; those of S. India and Ceylon are imperfectly known; but these districts are probably much poorer than N. India, with a larger proportion of African or Australian forms. The Australian region is poor in butterflies, though rich in peculiar forms of *Lepidoptera Heterocera*. The Nearctic region is remarkably poor in peculiar forms, possessing hardly any which are not equally well represented in the Palearctic region, and by no means all the Palearctic forms. California and Chili properly belong to the Palearctic region, and not to the Nearctic or Neotropical. The Neotropical region is remarkable for its enormous number both of species and characteristic forms. The line between the Nearctic and Neotropical regions appears to intersect the West Indies. The Mexican fauna is chiefly Neotropical.

S. H. SCUDDER has published a "Systematic Revision of some of the American Butterflies, with brief notes on those known to occur in Essex County, Mass." (Rep. Peab. Acad. iv. pp. 24-83; also separate, pp. 62). Many new genera and species (the latter all *Hesperiidæ*) are characterized, and short notes on the earlier stages of many species added. All old tribal names are restored throughout, independently of their terminations. Many known genera are recharacterized, and the types of all indicated, but perhaps in some instances incorrectly (reviewed Amer. Nat. vi. pp. 354-359).

On nomenclature, with special reference to Scudder's revision, cf. Canad. Ent. iv. pp. 212-216, 218.

Scudder copies Abbott's MS. notes on such Georgian butterflies as are also to be met with in the Northern States: Canad. Ent. iv. pp. 73-77, 84-87.

Edwards's 'Butterflies of North America,' vol. i., has been completed by the issue of pt. 10 and a supplementary number. The appended "Synopsis of N.-American Butterflies" having been completed by the publication of pp. 39-52 (including the *Hesperiidæ* and supplement) has since been issued separately. It includes 509 species, against 137 known before 1852, as occurring in the United States and British America.

On the Diurnal Lepidoptera described by Jablonsky & Herbst: W. F. Kirby, Tr. E. Soc. 1872, pp. 111-120. Herbst's classification is also noticed, *l. c.*

On variation in butterflies: C. Oberthur, Pet. Nouv. 1872, p. 220.

On migration of butterflies, their settling on the sea, &c.: Holdsworth & Pocklington, Ent. vi. pp. 150-152 (extracted from the 'Field').

On the earliest and latest dates of appearance of some of the rarer British butterflies: J. C. Dale, Ent. vi. pp. 159-161.

Papilionides.

A list of the *Papilionidæ* in the Museum of the Royal Dublin Society is published by W. F. Kirby, J. R. Dubl. Soc. vi. pp. 63-66.

On *Papilio pandarus*, *phorbanta*, *pelaus*, *multiades*, *pompilius* (= *policenes*, Cr.), *atticus* (= *empedocles*, F., nec Cr.), and *apollinus*, of Jablonsky & Herbst, cf. W. F. Kirby, Tr. E. Soc. 1872, pp. 111, 112, 117.

On aberrant variations in specimens of *Papilio cloanthus*, *Parnassius apollo*, *delius*, and *clodius*, and *Thais polyxena*, cf. R. P. Murray, P. E. Soc. 1872, pp. 33 & 34.

On sexual variation in *Papilio*, cf. C. Oberthur, Pet. Nouv. 1872, p. 220.

Papilio machaon: formation of tracheæ, scales, &c., in the pupa, at different stages. H. H. Higgins, Nature, v. p. 204.

S. H. SCUDDER (Rep. Peab. Ac. iv. pp. 64-66) recharacterizes and restricts the genera *Laertias*, Hübn., *Pterurus*, Scop., *Euphaides* and *Iphiclides*, Hübn., and *Amaryssus*, Dalm., and indicates *Papilio philenor*, *troilus*, *glaucus*, *podalirius*, and *machaon* as their respective types.

Guénéé (Mém. Soc. Phys. Genève. xxi. pp. 370-379) describes *Papilio xenodamas*, Hübn., var. ?, notices *P. neptunus*, Guér., and redescribes *P. photinus*, Doubl. He also remarks on the structure of *P. corethrus* and *duponcheli*, describes both sexes, and figures the females (plate, figs. 3 & 4).

Prof. Westwood describes several new species and varieties (Tr. E. Soc. 1872, pp. 85-110), and remarks on *Papilio crino*, *P. palinurus*, Fab. (= *brama*, Guér., = *regulus*, Stoll), *P. dædalus*, Feld. (= *palinurus*, Guér.), *P. nox*, ♂ (pl. 4. fig. 2, outline), and *P. zenobia*, Fab., Don. *P. thersander*, Don., is a fictitious species.

Papilio demoleus has been artificially introduced into Mauritius: Vinson, P. R. Soc. Maur. (2) vi. p. 30. Larva described by Vinson & Guénéé, Voy. Mad. Annexe F, p. 33.

P. idalion, Feld., = *P. cymochles*, Doubl., ♀: W. F. Kirby, J. R. Dubl. Soc. vi. p. 65.

P. brutus. Pupa described by Guénéé, l. c. (1865).

P. podalirius. *P. zancleus*, Zell., is a second brood: De Sélys Longchamps, Ann. Ent. Belg. xv. p. 94.

P. polymnestor, var.: Kirby, l. c. p. 64.

P. calverleyi, Grote. W. H. Edwards now considers it distinct from *P. asterias*: Syn. N. Amer. Butt. p. 51.

Armandia, Blanch., is intermediate between *Thais* and *Papilio*, and replaces *Sericinus* in Mou-pin: A. David, N. Arch. Mus. vii. p. 96.

Thais deyrollii, Oberthur, redescribed and figured by him: R. Z. xxiii. p. 481, pl. 21. f. 1 & 2.

On the affinity of *Thais* with *Parnassius* and *Zegris*, and on the pouch in the ♀s of *Parnassius* and *Eurycus*, cf. R. P. Murray, P. E. Soc. 1872, p. 34.

Parnassius and *Doritis*. Newman places these as a family, *Doritidae*, between the *Pieridae* and *Hesperiidae* (Zool. s. s. vii. p. 2890), but elsewhere (pp. 2880 & 2893) shows an inclination to regard them as moths.

Parnassius apollo. On its pupation, cf. M. Täschler, Ber. St. Gall. Ges. 1869-1870, p. 87. Supposed to have been taken at Epping [an impossible locality], cf. G. B. Holmes, Ent. vi. p. 39.

P. eversmanni, Ménétr. A specimen from Alaska described and figured by W. H. Edwards, Butt. N. Amer. Parn. pl. 4. figs. 6 & 7.

P. glacialis, Butler, figured and described: Lep. Ex. p. 88, pl. 34. fig. 1.

P. mnemosyne, var., from Asia Minor, described by C. Oberthur, R. Z. xxiii. p. 481.

P. smintheus, Doubl. W. H. Edwards figures different varieties of this species, with which he unites *P. sayi* and *P. behri*. He also remarks on its habits and variation, on the pouch in the ♀ of *Parnassius*, &c. The egg and

pouch of *P. behri* are also figured. Butt. N. Amer. *Parn.* pls. 2, 3, & 4, figs. 1-5.

Eurycus cressida. On the pouch of the ♀, cf. H. Lucas, Bull. Soc. Ent. Fr. (5) ii. pp. lxxxix & xc.

New species:—

Papilio buddha, pl. 3. f. 1, hab. —?, *noctula*, pl. 4. f. 3, *strix*, Borneo (? = *noctula*, ♀), *papone*, pl. 3. f. 2, E. Indies, *ramaceus*, pl. 5. f. 3, Borneo, *odenatus*, pl. 3. f. 3 & 4, W. Africa, *parsedon* (= *sarpedon*, local form), pl. 5. f. 1 & 2, hab. —?, *burchellanus*, pl. 3. f. 5, Brazil, *chinsiades*, pl. 5. f. 4 & 5, Ecuador, *P. (Euryades) reevii*, Buenos Ayres (? = *duponcheli*, ♀): Westwood, Tr. E. Soc. 1872, pp. 86-103; *P. horribilis*, Butler, Lep. Ex. p. 88, pl. 34. f. 2, Fantee, Cape Coast; *P. orabilis*, *letitia*, *vulneratus*, and *clusoculis*, *id.* Cist. Ent. pp. 84 & 85, Costa Rica; (*Pyrrhosticta*, g. n., with serrated costa to fore wings, proposed by Butler, *l. c.* p. 86, for *P. letitia* and allies;) *P. kirbii*, Hewitson, Ent. M. M. ix. p. 146, Lagos; *P. chlorodamas*, p. 369, f. 1, Peru [= *madyes*, Doubl.], *hypodamas*, p. 371, Hayti [= *polycrates*, Hopff., and probably = *eurydamas*, Roger], *damocrates*, p. 371, f. 2, Buenos Ayres [= *perrhebus*, Boisd.], *thetyx*, p. 378, f. 5 [probably = *neptunus*, Guér.], *hermolaus*, p. 379 [= *pausanias*, Hew.]: Guénéé, Mém. Soc. Phys. Genève. xxi. (cf. Hewitson, Kirby, and Guénéé, Pet. Nouv. 1872, pp. 213, 239, 244).

Thais puziloi, Erschoff, Hor. Ent. Ross. viii. p. 315, Ussuri.

Pierides.

Mesapia and *Culinaga* appear to belong to the *Pieridæ*: G. Weymer, S. E. Z. 1872, p. 182. [Moore considers *Culinaga* to be allied to *Diadema*.]

S. H. SCUDDER (Rep. Peab. Ac. iv. pp. 58-63) recharacterizes and restricts the genera *Catopsilia* and *Zerene*, Hübn., *Colias*, Fab., *Eurema* and *Abæis*, Hübn., *Ascia*, Scop., *Ganoris*, Dalm., and *Synchloe* and *Euchloe*, Hübn., assigning to them as their types *crocale*, *cæsonia*, *palæno*, *delia*, *nicippe*, *monuste*, *rapæ*, *callidice*, and *genutia*. [He has overlooked the fact that *cardamines* has already been selected as the type of *Euchloe* by English entomologists.]

On *Papilio myrti* (= *Archonius bellona* ♀), *minna* (= *Catopsilia pyranthe*, var.), *lina* (*Dismorphia*, sp.), *arya*, *aurora*, *meta* (= *Callosune aurora*, var. ?), *eucharis*, *autonoe* (= *Delias cæneus*), *hyparethe* (sic), *mærula* (= *Papilio ecclipsis*, Lin., sp. fict.), *lulage* (= *Catopsilia crocale* ♂), *hecabe*, *hanna* (prior to *Callosune cebrene*, Boisd.), *ænippe*, *ulrica* (= *Ixias ænippe*, Cr., pt.), *sesia*, *hyale*, *palæno*, *europome*, and *heos* (= *Papilio aurora*, Esp., nec Stoll) of Herbst, cf. W. F. Kirby, Tr. E. Soc. 1872, pp. 112-114.

Euterpe. Hewitson (Ex. Butt. v. *Ent.* pl. 2) redescribes and figures his *E. teutamis* ♀ (= *epinene*, Hew. *olim*), figs. 7 & 8, *eurigania*, figs. 9 & 10, *stemene*, figs. 11 & 12, and *anaitis*, figs. 13-15.

Leptalis othoe, Hew., = *L. core*, Feld.; *L. zuthoe*, Hew., = *L. lelex*, Hew., ♀; *L. terena* ♂, Hew. (f. 50), = *L. praxidice*, Hew., ♀; for *L. terena* ♀ (figs. 51 & 52) the name *L. abilene*, Hew., is proposed. Hewitson, Ex. Butt. iv., corrections.

Dismorphia cordillera, Feld. Butler describes the ♀, Cist. Ent. p. 81.

Hesperocharis fulvinota, Butler, redescribed and figured, Lep. Ex. p. 89, pl. 34. fig. 4.

Terias caffra, Feld. On this species and its allies, cf. Wallengren, *Öfv. Vet. Ak.* 1872, p. 46.

T. zoe, Hopff., and *pulchella*, Trim., = *T. rachel* ♀: Snellen, *Tijdschr. Ent.* (2) vii. p. 27.

T. reticulata, Butler, redescribed and figured, *Lep. Ex.* p. 90, pl. 34. fig. 7.

BUTLER (P. Z. S. 1872, pp. 26–67) publishes a revised list of the species formerly included in the genus *Pieris*. He now recognizes 15 genera (already characterized in *Cist. Ent.*, cf. *Zool. Rec.* vii. pp. 363 & 379) and 341 species. He proposes the names *Delias stollii* (p. 32) for *Papilo autonoe*, Stoll, *nec* Cr., from China; *Appias poeyi* (p. 49) for *Pieris ilaire*, Poey, *nec* Godt., from St. Domingo, Panama, and Honduras; and *Belenois confusa* (p. 55) for *Pieris phileris*, Boisdu., ♀, *nec* ♂, from Madagascar.

Neophasia menapia. Edwards describes the ♀: *Butt. N. Amer. suppl.*; *Tr. Am. Ent. Soc.* iv. p. 63.

Pontia brassicæ. Great swarms, in company with a few other insects, noticed at sea off Bremen on the 17th of July, 1868: *Abh. Ver. Brem.* iii. pp. 297 & 298.

Pieris napi, var. *bryoniæ*: Zeller, *S. E. Z.* 1872, pp. 34–37.

P. oleracea, Harr. On its transformations &c., cf. J. A. Lintner, *Rep. N. Y. S. Cab.* xxiii. pp. 160 & 161.

P. rapæ. Pupa with larval head: *Poujade, Bull. Soc. Ent. Fr.* (5) ii. p. lxxxiii.

Ganoris rapæ. S. H. Scudder describes var. *novangliæ*, from New England: *Canad. Ent.* iv. p. 79. On the occurrence of this species and variety (supposed to be the same as one mentioned in Curtis's 'Farm Insects') in America, cf. G. J. Bowles, *Canad. Ent.* iv. pp. 102–105.

Perrhybris, Hübn., cannot be separated from *Pieris*: Wallengren, *Öfv. Vet. Ak.* 1872, p. 43.

Pinacopteryx. Wallengren points out the characters of this genus. His *P. syrinx* probably = *P. gidica*, var. *Öfv. Vet. Ak.* 1872, pp. 43 & 44.

Synchlœ mesentina. A specimen with aberrant neuration mentioned by R. P. Murray, *P. E. Soc.* 1872, pp. 33 & 34.

Belenois. Butler (*Lep. Ex.*) redescribes and figures his *B. ianthe* (p. 91, pl. 34. fig. 8) and *B. meldolæ* (p. 117, pl. 43. fig. 5).

Appias vacans, Butler, redescribed and figured, *l. c.* p. 90, pl. 34. figs. 5 & 6.

Callidryas. Butler (*l. c.*) redescribes and figures *C. philea*, *thalestris*, *solstitia*, and *avellaneda* (pp. 92–95, pls. 35, 36), *C. editha*, *fornax*, and *hersilia* (pp. 105, 106, pl. 39); *C. rotata*, *argante*, and *minuscula*, pp. 118–120, pl. 44.

C. drya, Fab., probably = *C. eubule*, var., Wallengren, *l. c.* 1871, p. 910.

C. fiaduna, Hew., = *C. thaurama*, Reak. Hewitson, *Ex. Butt.* iv. corrections.

Colias hyale, auctt. *nec* Linn., is renamed *kirbii*. W. A. Lewis, *Discussion*, p. 34.

C. pallens, Butler, redescribed and figured by the author, *l. c.* p. 89, pl. 34. fig. 3.

C. scudderi, Reak., and *C. meadi*, Edw., redescribed and figured by W. H. Edwards, *Butt. N. Amer. Col.* p. 8.

Teracolus interruptus and *T. jobina*, Butler, redescribed and figured, *Lep. Ex.* pp. 115, 116, pl. 43. figs. 1–3.

Callosune deidamia and *pholoe*, Wallengren, redescribed, *l. c.* 1872, pp. 44, 45.

C. ayoie belongs to this genus and not to *Teracolus*, Wgr., *l. c.* p. 46.

New species:—

Euterpe dimorphites, Butler, Cist. Ent. p. 80, Costa Rica.

Dismorphia sororna, *hagaresa*, *lubina*, and *viridifascia*, Butler, *l. c.* pp. 82 & 83; *D. lumina*, Butl. & Druce, *op. cit.* p. 111, all from Costa Rica.

Terias persistens and *calceolaria*, Butler & Druce, *l. c.* p. 111, Costa Rica; *T. rama*, Moore, P. Z. S. 1872, p. 566, Colombo, Ceylon.

Leptophobia tenuicornis, Butler & Druce, *l. c.* p. 110; Butler, Lep. Ex. p. 116, pl. 43. fig. 4, Costa Rica.

Pieris notistriga, Butler & Druce, *l. c.* p. 111; *P. noctipennis*, B. & D., *l. c.*, Butler, Lep. Ex. p. 118, pl. 43. fig. 7, Costa Rica; *P. vipasa*, Derajat, Punjaub, N.W. India; *P. taprobana*, Ceylon, Moore, *l. c.* p. 565.

Metaporis caphusa, N.W. Himalayas; *M. ariaca*, Himalayas (Nynee-Tal district), Moore, *l. c.* p. 564.

Mylothris alethina, Butler, Cist. Ent. p. 81, Costa Rica.

Catacticta actinotis, id. *l. c.* p. 80; Lep. Ex. p. 117, pl. 43. fig. 6, Costa Rica.

Thyca devaca, Burmah, *T. derinda*, Khasia Hills, Moore, *l. c.* p. 566.

Eronia pingasa, id. *l. c.* p. 565, Canara, S. India.

Callidryas intermedia, Butler, Cist. Ent. p. 81, Costa Rica.

Cobias astræa, Edwards, Tr. Am. Ent. Soc. iv. p. 61, Yellowstone Lake.

Teracolus loandicus, Butler, Lep. Ex. p. 91, pl. 34. figs. 9 & 10, Loanda, Angola.

Anthocharis juha, Edwards, *l. c.* p. 61, Colorado.

Danaides.

Danais archippus. Wallengren describes a local form from St. Bartholomew. Efv. Vet. Ak. 1871, p. 911. On the duration of life of the imago, cf. L. Mitchell, Am. Nat. vi. pp. 237 & 238.

D. chrysippus from Lower Guinea: P. C. T. Snellen, Tijdschr. Ent. (2) vii. p. 12.

D. plexippus and allies: G. Weymer, S. E. Z. 1872, p. 179.

Amauris inferna, Butler, redescribed and figured, Lep. Ex. p. 86, pl. 33, f. 2.

Euplœa sylvester, Fab. Prof. Westwood remarks on Donovan's figure. Tr. E. Soc. 1872, p. 108.

Papilio superbus and *claudius*, Herbst: W. F. Kirby, Tr. E. Soc. 1872, p. 114.

Heliconiides.

Papilio carolina, *hecale*, *karschina* (prior to *Melinæa gazoria*, Godt.), and *unzerina*, of Herbst. W. F. Kirby, Tr. E. Soc. 1872, p. 112.

Athesis acrisione and *dercyllidas*, Hewitson, redescribed and figured, Ex. Butt. v. *Ath.* f. 1-3.

Mechanitis mantineus, Hewitson, redescribed and figured, *l. c.* *Mech.* f. 16.

Ithomia. Hewitson (*l. c.* *Ith.* pls. 20, 21) redescribes and figures *I. ozia*, *cidonia* (neuration), *ilderina*, var., *pronuba*, *antea*, *harbona*, *lycora*, *cœnina*, *praxilla*, and *tabera*, figs. 194, 197 a, 199, 201-205, 207, 208.

Leucothyris, Boisd., recharacterized and the species enumerated by Butler & Druce, Cist. Ent. p. 97.

Heliconius. If Crotch be right in regarding *Papilio psidii*, Linn., as the type, the genus *Heliconius*, auctt., must take the name of *Migonitis*, Hübn. W. F. Kirby, Tr. E. Soc. 1872, p. 112.

Heliconia euryas, *melpomene*, *vesta*, *thelxiope*, and *cybele*. On their variation, cf. C. Oberthur, Pet. Nouv. 1872, p. 220.

Pteronymia, g. n., Butler & Druce, Cist. Ent. i. p. 96. Type *Ithomia aletta*, Hew.

New species :—

Olyras translucens, Hewitson, Ent. M. M. ix. p. 83, Ecuador.

Dircenna lonera and *relata*, Butler & Druce, l. c. p. 95, Costa Rica.

Ithomia plaginota, Butler & Druce, l. c., Costa Rica; *I. kusa*, Ecuador, *I. seba*, hab. — ?; *I. eglæ*, *kena*, *lota*, and *theuda* (= *adelinda*, var. ?), Hewitson, Ex. Butt. v. *Ith.*, pls. 20, 21. figs. 195–197, 197 b, 198, 200, 206; and *I. linda* (= *adelinda*, var. ?), Hew., l. c. text, all from Ecuador.

Pteronymia olyrilla, *notilla*, and *fulvimargo*, Butler & Druce, l. c. pp. 96 & 97, Costa Rica.

Leucothyris rubescens, Butler & Druce, l. c. p. 97, Costa Rica.

Heliconia fritschi, Möschler, S. E. Z. 1872, p. 336, Peru? or N. Granada?; *H. charina*, Hewitson, Ent. M. M. ix. p. 83, Ecuador; *H. chestertoni*, id. Ex. Butt. v. *Hel.* fig. 22, Columbia.

Euides vulgiformis [!], Butler & Druce, l. c. p. 102, Costa Rica.

Acraeides.

Papilio ludovica, Herbst, = *Acraea egina*, Cram., W. F. Kirby, Tr. E. Soc. 1872, p. 112.

Acraea hova, Boisd., ♀ and structure of pouch described by Guénéé. Vinson, Voy. à Mad. Annexe F, p. 35 (1865).

A. manjaca, Boisd., is distinct from *A. eponina*, Cr. : Snellen, Tijdschr. Ent. (2) vii. p. 11.

A. stenobea, Wallengren, redescrbed, Cefv. Vet. Ak. 1872, p. 49.

A. zitja, Boisd. *A. rakehi*, Boisd., is the ♀, and *A. rahira*, Boisd., a var. : Guénéé, l. c.

Acraea piva, Guénéé, l. c. p. 34 (1865) (? = *A. ranavalona*, ♂ nec ♀, Boisd.); *A. maranetra*, p. 2, *masamba* and *masonala*, p. 3, *A. manandaza* (= *A. ranavalona*, Boisd., ♀ nec ♂), p. 147, C. Ward, Ent. M. M. ix., Madagascar, spp. nn.

Nymphalides.

S. H. SCUDDER (Rep. Peab. Ac. iv. pp. 30–46) recharacterizes (in addition to new genera) and restricts *Doxocopa* and *Polygonia*, Hübn., *Nymphalis*, Latr., *Papilio*, Linn., *Aglais*, Dalm., *Vanessa*, Fabr., *Junonia*, Hübn., *Euptoicta*, Doubl., *Argynnis*, Fabr., and *Brenthis* and *Phyciodes*, Hübn., assigning to them as their respective types *agathina*, *c-aureum*, *polychloros*, *antiopa*, *artica*, *atalanta*, *lavinia*, *claudia*, *aglaia*, *hecate*, and *coccyta*. He also (p. 29) proposes the name *Basilarchia* (type *astyanax*) for *Cullianira*, Hübn., preocc. (nec Westw.) [The names *Nymphalis*, *Papilio*, *Aglais*, and *Vanessa* are, strictly speaking, synonymous; and if the Linnean sections of *Papilio* are

entitled to rank as genera, the type of *Papilio* should be *atalanta*, but otherwise *antiopa*.]

On *Papilio chrithon*, *cujus*, *cicero* (= *Euthalia evelina*, Stoll), *aconthea*, *trullus* (= *Precis pelarga*, Fabr.), *cortina* (= *Eryolis ariadne*, var. *merione*, Cram.), *atalanta*, *cortes* (= *Junonia lavinia*, Cram.), *claudia*, *iris*, *daunius* (= *Euptoieta hegesia* ♀, Cram.), *laudoni* (= *Atella phalanta*, Dru.), *clausius*, *goetzius*, *fingal*, *ossianus*, *tomyris*, *marphisa*, *rinaldus*, *trivia*, *antigonus*, and *parthenie* of Herbst, cf. W. F. Kirby, Tr. E. Soc. 1872, pp. 111-118.

Agraulis vanilla. Local form from St. Bartholomew described by Wallengren, Cefv. Vet. Ak. 1871, p. 911.

Cirrochroa satellita, Butler, redescribed and figured: Lep. Ex. p. 103, pl. 38. f. 7.

C. thais, Fabr., from Ceylon and S. India, redescribed by F. Moore, P. Z. S. 1872, p. 557.

Argynnis diana, *leto*, and *nokemis*, Edwards (Butt. N. Amer. pt. suppl.), gives fresh plates, representing both sexes.

A. niobe and *adippe*. Their specific distinctness affirmed by Doubleday, and denied by Butler: Ent. M. M. viii. pp. 183 & 203.

A. amasia, Meigen, is probably a Californian species: G. Weymer, S. E. Z. 1872, p. 180.

A. cybele. Larva and pupa described by W. Saunders, and young larva noticed by W. H. Edwards: Canad. Ent. iv. pp. 121-123, 238 & 239.

A. mormonia, Boisd., = *montivaga*, Behr, not *neoguis*, Reak.: W. H. Edwards, Syn. Butt. N. Amer. p. 50.

A. paphia. Newman figures 2 varieties, Ent. vi. pp. 1 & 145.

Brenthis bellona. This insect and some allies are actually single-brooded; for although several broods are hatched in the course of the year, the different series are independent of each other: S. H. Scudder, Am. Nat. vi. pp. 514-518.

Melitea athalia. Transformations described by Buckler, Ent. M. M. viii. pp. 258-260.

M. phaeton, Fabr. Eggs, and early stages of larvæ to third moult, described by J. A. Lintner, Rep. N. York Cab. xxiii. pp. 154-157.

M. harrisi. Eggs and young larva described by W. Saunders, l. c. pp. 161-163. The supposed larva figured in Packard's 'Guide' is that of an *Aglossa*: G. M. Dodge, op. cit. pp. 198 & 199.

M. nycteis, Doubl. Larva and pupa described and pupa figured by J. A. Lintner, l. c. pp. 158 & 159, pl. 8. fig. 14.

Phyciodes ismeria, Boisd. & Lec. As the description and figure are irre-cognizable, W. H. Edwards would retain the name *carlota*, Reak, for this species: Syn. Butt. N. Amer. p. 52.

P. orsa, Boisd., = *montana*, Behr: Edwards, l. c. p. 50.

Eresia. Hewitson (Ex. Butt. v. *Eres*. pl. 10) figures and redescribes his *E. neria*, f. 80, *E. elæa*, f. 81 & 82, and *E. ildica* (= *mæsta*, Salv., var. ?), fig. 84 (no fig. 79 on plate).

Grapta silenus, Edw. Edwards describes the ♂, Tr. Am. Ent. Soc. iv.

Vanessa antiopa. On its unusually frequent occurrence in Britain in 1872, cf. H. T. Stainton, F. B. White, and D. Sharp, Ent. M. M. ix. pp. 105-107, 130 & 131, fig.; also H. G. Knaggs, Ent. Ann. 1873, pp. 37-39; and E. New-

man & S. Stevens, Ent. vi. pp. 215-220, 236 & 237, 258 & 259. [It appears also to have been much commoner than usual throughout N. Europe in 1872.]

V. io. Newman figures a variety, *l. c.* p. 105.

V. kaschmirensis and *V. i-album* appear to be distinct from *V. urticae* and *V. vau-album* respectively: G. Weymer, S. E. Z. 1872, pp. 180 & 181.

V. polychloros, new to Scotland, taken at Inverary: J. Garrow, Scot. Nat. i. p. 267. Dwarfed specimens bred from nettle, Ent. v. p. 88. Taken *in coitu* with *V. urticae*, J. Clark, Ent. vi. p. 221.

V. urticae. Imago with larval head: *id. ibid. l. c.*

V. cardui. On its distribution and representative species, *cf.* M. Wagner, SB. bayer. Ak. 1870, ii. pp. 169-171. D. Hay and F. B. White record an extraordinary flight observed off Corfu in 1842: Ent. M. M. ix. p. 149.

P. atalanta. On habits of larva, *cf.* J. A. Lintner, *l. c.* p. 183, note.

Junonia ixia, Butler, redescribed and figured, Lep. Ex. p. 85, pl. 33. fig. 1.

J. orythia, L., var. *madagascariensis*: Guénée, in Vinson, Voyage &c., Annexe F, p. 37, Madagascar.

Salamis andremitaja, Boisduval, redescribed by Guénée, *l. c.* p. 36.

Salamis dupræi redescribed and figured by Vinson, Voyage &c., Annexe iv. pp. 573-575, pl. 5, interior of Madagascar.

Doleschallia australis, Feld., is probably distinct from *D. bisaltide*: G. Weymer, *l. c.* p. 181.

A. GUÉNÉE (Mém. Soc. Phys. Genève, xxi. pp. 381-417) monographs the genera *Callicore* (with which he unites *Perisama*) and *Catagramma*. He describes many species as new, but overlooks 18 species recently described by English authors, and one of Boisduval's. *Cf.* Hewitson, Kirby, & Guénée, Pet. Nouv. 1872, pp. 239-244.

Callicore chymena, Cram. Varr. *peruviana*, Peru, and *bisosto*, Central America, described by Guénée, *l. c.* p. 384.

Catagramma phytas, Boisduval, = *Callicore anna*, Guér.; *Cat. sinamara*, Hew., = *Cat. astarte*, Cram., ♀ [?]: Hewitson & Kirby, Pet. Nouv. 1872, p. 239.

Cybdelis calamis, Hew., is a *Catagramma*: Hewitson, Ex. Butt. iv., corrections.

Panopea, Hübn., recharacterized by Guénée: Vinson, Voyage &c., Annexe F, p. 38.

Heterochroa mephistopheles, Butler, redescribed and figured, Lep. Ex. p. 101, pl. 38. fig. 4.

Limenitis misippus and *ursula*. T. L. Mead describes varieties, Can. Ent. iv. pp. 216 & 217.

L. camilla, W. V. Lewis (Zool. s. s. vii. p. 3074, Discussion, p. 33) renames this species *anonyma*, overlooking Bergsträsser's name *drusilla*.

L. proserpina appears to be distinct from *L. ursula*: Edwards, Butt. N. Amer. pt. suppl.

L. sibylla. A black var. noticed by H. Reeks, Ent. vi. p. 171.

Neptis sappho, Kirb., *nec* Pall., = *Papilio lucilla*, W. V. [1776], *nec* Esp. [1778?], is renamed *innominata* by Lewis, Zool. (s. s.) vii. p. 3074, Discussion, p. 33.

Neptis leucothoe, Cram. (= *Acca matuta*, Hübn.), briefly characterized by Moore, P. Z. S. 1872, p. 561. The localities given by Cramer are Java,

China, and Coromandel; but those from the two latter localities are quite distinct species.

Apatura alicia ? = *Papilio lycaon*, Fab., nec *A. celtis*, Boisd. & Lec.: Edwards, Butt. N. Amer. pt. suppl.

A. phæacia, Hew., = *A. sordida*, Moore, ♀: Hewitson, Ex. Butt. iv., corrections.

Charaxes pleistoanax, Feld., figured by Butler, Lep. Ex. pl. 37. fig. 3.

C. polyxena, Cram., varies to such an extent that no two specimens are alike: G. Weymer, S. E. Z. 1872, p. 180.

New genera and species:—

Speyeria, Scudder, Rep. Peab. Ac. iv. p. 44. Type *Pap. idalia*, Dru.

Charidryas, id. l. c. p. 47. Type *Melitæa nycteis*, Doubl.

Limnæcia, id. l. c. Type *Melitæa harrisi*, Scudd.

Euphydryas, id. l. c. p. 48. Type *Pap. phaeton*, Drury.

Cethosia mahratta, Moore, P. Z. S. 1872, p. 556 (= *Papilio cyane*, Cram., nec Dru.), Malabar.

Cirrochroa lanka, Ceylon, S. India, p. 557; *C. mithila*, Bengal, p. 558: id. l. c.

Cynthia asela, id. l. c. p. 558, Ceylon.

Argynnis brenneri, San Juan I., p. 63; *A. inornata*, California, p. 64; *A. eurynome*, p. 66, and *A. meadi*, p. 67, Colorado: W. H. Edwards, Tr. Am. Ent. Soc. iv.

Melitæa thekla, id. l. c. iii. p. 191, California.

Phyciodes fulviplaga, Butler, Cist. Ent. iv. p. 77; *P. niveinotis*, Butler & Druce, l. c. v. p. 100, Costa Rica.

Eresia dimorphina, Butler, l. c. iv. p. 78, Costa Rica; *E. margaretha*, N. Granada, *levina*, Columbia, *quintilla*, Ecuador: Hewitson, Ex. Butt. v. *Eres.* pl. 10. figs. 77 & 78, 83.

Symbrenthia brabira, N. India, p. 558, *niphanda*, Sikkim Himalayas, p. 559: Moore, l. c.

Grapta agnicola, id. l. c. p. 559, Nepal, Goolmurg; *G. hylas*, W. H. Edwards, l. c. iv. p. 68, Colorado.

Vanessa æquatorialis, M. Wagner, SB. bayer. Akad. 1870, ii. p. 171, Chimborazo, Pinchacha; *V. rizana*, Moore, l. c. p. 559, Middle Kunawur.

Presis hopfferi, Möschler, S. E. Z. 1872, p. 337, Silhet.

Crenis benguelæ, Chapman, Ent. M. M. viii. p. 175, S. W. Africa.

Epiphile grandis, Butler, Cist. Ent. iv. p. 76, Costa Rica.

Myscelia pattenia (= *M. cyananthe* ♀, Feld. ?), Butler & Druce, Cist. Ent. v. p. 101, Costa Rica.

Callicore elinda and *aurelia*, hab. — ?; *C. bourcierii*, Peru, p. 385; *C. serofa* (= *C. chymenus*, Hübn. Samml. figs. 1 & 2, nec 3 & 4), Para, p. 386; *C. dodone*, Columbia; *C. granatensis* [= *C. neglecta*, Salv.], N. Granada; *C. nystographa*, Quito, p. 387; *C. pavira* [= *C. euclides*, Latr. ?], Peru, p. 388; *C. cælinula* [= *C. chymenus*, Hübn. Zutr. f. 583 & 584], Brazil, p. 389; *C. brevipalpis* [= *elvina*, var., Hew. ? = *lidwina*, Feld. ?], Venezuela, p. 390; *C. carmen*, Brazil, p. 392; *C. equatorialis* [= *bonplandi*, var., Hew.], Quito; *C. picteti*, Peru, p. 395; *C. jurinii* [= *C. euriclea*, Doubl. & Hew. ?], Peru, p. 396, plate, f. 6; *C. saussurii*, Brazil, p. 398; *C. tringa* [= *humboldti*, Hew., var. ?], p. 401; *C. ?? laxis*, Peru, p. 402. Guénéé, Mém. Soc. Phys. Genève, xxi.

Catagramma dulima, p. 408, *cajetani*, p. 410, *mellii* (= *C. hesperis*, Guér. ?), p. 413, Peru, *oculata*, hab. — ?, p. 414, plate, fig. 7: Guénéé, *l. c.*

Megalura valetta, Butler & Druce, *l. c.* p. 101, Costa Rica.

Diadema ruhama, Hewitson, Ent. M. M. ix. p. 84, Angola; *D. usambara*, Ward, *op. cit.* p. 148, Ribé, E. Africa.

Panopea glaucina, Guénéé, in Vinson's 'Voyage' &c., Annexe F, p. 38, pl. vi. figs. 1 & 2, Madagascar.

Lebadea austenia, Moore, *l. c.* p. 560, pl. 32. fig. 1, Khasia Hills.

Heterochroa demialba, Butler, *l. c.* iv. p. 77, Lep. Ex. p. 103, pl. 38. fig. 2; *H. lucina* and *H. tracta*, *l. c.* p. 102, pl. 38. figs. 5 & 6, Costa Rica.

Iæra duodecimpunctata, Snellen, Tijdschr. Ent. (2) vii. p. 15, pl. 1. figs. 1-3, Lower Guinea.

Neptis astola, *N. mahendra*, N.W. Himalayas, p. 560; *N. varmona*, mountains of S. India; *N. emodes*, f. 2, S.E. Himalayas; *N. surakarta*, Java; *N. ophiana*, Sikkim, p. 561; *N. khasiana*, f. 7, Khasia Hills; *N. cartica*, Nepal, p. 562; *N. clinia*, f. 5, Bengal; *N. adipata*, f. 8, Khasia Hills; *N. susruta*, f. 4, N. India; *N. viraja*, f. 6, N.E. Bengal, p. 563. Moore, *l. c.* pl. 32.

Athyma zerosa, Moore, *l. c.* p. 564, Khasia Hills.

Apatura plesaurina, Butler & Druce, *l. c.* v. p. 102, Costa Rica.

Charaxes khimalara, p. 97, f. 1 (= *hierax* ♀, Feld.), N.W. Himalayas, Nepal, *khasianus*, p. 98, f. 6, Khasia Hills, N.E. Bengal, *jalinder*, p. 98, f. 4 (= *hipponax* ♀, Feld.), N.E. Himalayas, *hindia*, p. 99, f. 5, Darjeeling, *lunawara*, p. 99, f. 2, N.E. Bengal: Butler, Lep. Ex. pl. 37; *C. wallacii*, p. 100, pl. 38. f. 2, Menado, *aruanus*, p. 100, Aru (= *papuensis* ♀, Butl. olim): *id. l. c.*; *C. analava*, Ward, *l. c.* p. 3; *C. antamboulon* [= *candiope*, Godt., var. ?], *antanala* [= *cacuthis*, Hew., teste Hew. in litt.], p. 1, *betsimisaraka*, p. 2, *betuni-mena*, p. 3, Lucas, Ann. Sc. Nat. xv. no. 22, all from Madagascar.

Philognoma falcata, Butler, Lep. Ex. p. 101, pl. 38. fig. 1, Gold Coast, Ashanti.

Paphia herbacea, Butler & Druce, Cist. Ent. v. p. 100, Costa Rica.

Morphides.

Morpho alexandra, Hew., = *godarti*, Guér., = *menelaus*, Bolivian form, albino; *M. psyche*, Feld., = *hebe*, Westw.; *M. perseus*, Cram., = *telemachus*, Cram. [= *crameri*, Kirb.], = *metellus*, Cram. ?; *M. luna*, Butl., = *polyphemus*, Doubl. & Hew., var.; *M. æga*, Hübn., is distinct from *adonis*, Cram.; *M. theseus*, Deyr., is allied to *hercules*, Dalm. Deyrolle, Pet. Nouv. 1872, p. 175.

M. telemachus, Cram., probably = *metellus*, Cram., blue var: Oberthur, *op. cit.* pp. 175 & 176. He also corroborates Deyrolle's remarks on the other species.

M. sulkowskii, Koll., with aberrant neuration, figured and described by Butler, Lep. Ex. p. 113, pl. 42. figs. 1 & 1 a.

E. DEYROLLE (*l. c.* pp. 224 & 225) thus divides the species of *Morpho* of the *Achilles* group:—1. *M. pelcides*, Koll., = *corydon*, Guén., varr. *montezuma*, Guén., *thetis*, Butl., *octavia*, Bates, *hyacinthus*, Butl., and *briseis*, Feld. 2. *M. granatensis*, Feld. 3. *M. helenor*, Seba., = *achillena*, Hübn., var. *achillides*, Feld. 4. *M. achilles*, L., = *helenor*, Cram., = *leonte*, Hübn., varr. *cælestis* and *vitrea*, Butl. 5. *M. deidamia*, Mer., = *achilles*, Cram., var. *patrochus*, Feld., = *neoptolemus*, Bates.

Morpho thalpius, Hübn., = *Prepona demophon*, L.: W. F. Kirby, Pet. Nouv. 1872, p. 288.

Morpho limpida, Cist. Ent. v. p. 75, *aquarius*, *marinita*, and *hydorina* (= *limpida*, var.): Butler, l. c. pp. 74 & 75, Lep. Ex. p. 113, pl. 41. figs. 1 & 2, pl. 42. fig. 2, Costa Rica, spp. nn.

Brassolides.

Papilio 10-punctata, Goeze, = *Clerome eumeus*, Dru.; *Opsiphanes cassina*, Feld., = *O. cassie*, L.; *O. æthon*, Fabr., = *O. berecynthus*, Cram., ♂; *Caligo arisbe*, Hübn., = *C. taramela*, Godt.; *Papilio automedon*, Cram., = *Eryphanis polyxena*, Meerb. W. F. Kirby, Pet. Nouv. 1872, p. 288.

Pavonia euphorbus, Feld., redescribed and figured by Deyrolle, R. Z. xxiii. p. 64, pls. 9 & 11.

P. eurylochus, Cram. Var. *brasiliensis*, Feld., is specifically distinct from the type: *id.* l. c. pp. 19 & 20.

Dynastor stygianus, sp. n., Butler, Cist. Ent. iv. p. 73, Costa Rica.

Caligo bubocula, sp. n., *id.* l. c. p. 74, Costa Rica.

Pavonia oberthuri, p. 20, pl. 1, hab. —?, *suzanna*, p. 275, pls. 24 & 26, Bogota: Deyrolle, l. c., spp. nn.

Satyrides.

On *Papilio anacardii* (= *Hætera piera*, L.), *zitenius* (prior to *Hipio vama*, Moore), *suwarovius*, *syllius*, *procida*, *hannibal*, *hamilcar*, *mineus*, *iphigenus*, *hippolytus*, *tyndarellus*, *cyrillus*, *medea*, *medusa*, *æthiops*, *maccabæus*, and *melas*, of Herbst, cf. W. F. Kirby, Tr. E. Soc. 1872, pp. 113–116.

Lethe distans, figs. 4, 6, & 7, *L. alberta*, fig. 5, redescribed and figured by Butler, Lep. Ex. p. 87, pl. 33.

Cylo leda, Linn., from Lower Guinea, cf. P. C. T. Snellen, Tijdschr. Ent. (2) vii. p. 12.

Argus, Scop. Scudder (Rep. Peab. Acad. iv. p. 27) selects *Papilio euridice*, L., as the type of this genus, and recharacterizes it accordingly.

Paleonympha opalina redescribed and figured by Butler, l. c. p. 86, pl. 33. fig. 3.

The genera *Pseudonympha*, Wgr., and *Erebia*, Dalm., are quite distinct: Wallengren, Öfv. Vet. Ak. 1872, p. 42.

Erebia ligea new to Belgium: L. Quaedvlieg, Ann. E. Belg. xv. pp. 7 & 8. *E. melampus*. Pupa, cf. Zeller, S. E. Z. 1872, pp. 42 & 43.

Cænonympha symphita, Led. ♀ described by G. v. Emich, Hor. Ent. Ross. ix. p. 41.

Chionobas stretchii = *Satyris ridingsi*: Edwards, Syn. Butt. N. Amer. p. 50.

Melanargia galathea. A black var. figured and described by E. Newman, Ent. vi. pp. 58 & 59.

M. pherusa. Larva described by von Kalchberg, S. E. Z. 1872, p. 408.

Pararge hiera. On its relationship to its allies, cf. Zeller, l. c. pp. 46 & 47.

P. megæra. A var. figured and described by E. Newman, l. c. p. 129. On the supposed occurrence of var. *lyssa* in England, cf. Websdale & Doubleday, Ent. vi. p. 12.

Satyrus semele. Hermaphrodite described by O. Nickerl, Verh. z.-b. Wien, xxii. p. 728.

[H] *Yphthima asterope*, Kl. : cf. Snellen, l. c. p. 14.

Pronophila. Hewitson (Ex. Butt. v.) figures and redescribes his *P. pœania*, Pron. pl. 6. fig. 37, *pomponia* and *tena*, Pron. pl. 7. figs. 43, 44, & 49.

Satyrites reynesi, g. & s. nn., Scudder, R. Z. xxiii. pp. 66-72, pl. 7, Provence (fossil). Allied to *Debis*. He remarks on the affinity between the fossil fauna of S. France and the existing fauna of India.

Drucina, g. n., Butler, Cist. Ent. iv. p. 72. Allied to *Pronophila*. Type *D. leonata*, sp. n., *id.* l. c., Costa Rica.

New species :—

Lethe sihala, Moore, P. Z. S. 1872, p. 555, Ceylon.

Debis deliades and *dolopes*, Hewitson, Ent. M. M. ix. pp. 84 & 85, Darjeeling.

Euptychia argentella and *insolata*, Butler & Druce, Cist. Ent. v. pp. 98 & 99, Costa Rica.

Erebia dabanensis, Erschoff, Hor. Ent. Ross. viii. p. 315, Irkutsk ; *E. meadi*, W. H. Edwards, Tr. Am. Ent. Soc. iv. p. 70, Colorado ; *E. haydeni*, *id.* Rep. of U.S. Geol. Surv. of Montana &c. p. 467, Yellowstone ; *E. phuto*, R. W. Fereday (not characterized), Tr. N. Z. Ins. iv. p. 217, high mountains of New Zealand.

Callerebia orixa, Moore, l. c. p. 555, Khasia Hills.

Lasiommata lybnessa, Hewitson, l. c. p. 85, New Caledonia.

Satyrus charon, Edwards, Tr. Am. Ent. Soc. iv. p. 69, Colorado.

Mycalesis antahala, Ward, Ent. M. M. ix. p. 148, Madagascar.

[H] *Yphthima vinsoni*, Guénee, Vinson's 'Voyage' &c., Annexe F, p. 39, Madagascar.

Pedaliodes hulda and *lithochalcis*, Butler & Druce, l. c. v. pp. 99, 100, Costa Rica.

Oxeoschistus euriphyle, Butler, l. c. iv. p. 73, Costa Rica.

Pronophila palades, f. 37, 39 (= *circe*, var.), *persepolis*, f. 38, 42, *parthyene*, f. 40 & 41, Hewitson, Ex. Butt. v. Pron. pl. 6 ; *P. pasicles*, f. 45, *pheretias*, f. 46, *parrhœbia*, f. 47, 50, and *philonis*, f. 48, *id.* l. c. pl. 7, all from Ecuador.

Taygetis umbracea and *incerta*, Butler & Druce, l. c. v. p. 98, Costa Rica.

Eurytelides.

Melanitis. *Papilio undularis*, Dru., is the type according to Latreille. W. F. Kirby, Tr. E. Soc. 1872, p. 115.

Eurytela narinda, sp. n., Ward, Ent. M. M. ix. p. 148, Madagascar.

Libytheides.

E. NEWMAN proposes to unite this family with the *Satyrides*. Zool. (s. s.) vii. p. 2888.

Libythea rama, Moore, P. Z. S. 1872, p. 555, Ceylon.

Erycinides.

Papilio eustachius, Herbst, has priority over *Euselasia mys*, H.-S. ; and *Mesoemia formosa*, Hew., probably = *Papilio nina*, Herbst. W. F. Kirby, Tr. E. Soc. 1872, pp. 115, 117.

Eurygona labiena, Hew.,? = *E. chryssippe*, Bates: Hewitson, Ex. Butt. iv., corrections.

E. argentea, Hew., figured and redescribed, *l. c. v. Eur.* pl. 10. figs. 98-100.

Esthemopsis. Hewitson figures and redescribes *E. sericina*, Bates, and var. *colaxes*, Hew., *E. celina* and *E. alicia*, var., Bates, *l. c. Necyria* and *Esth.* figs. 1-4.

Emesis. Hewitson (*l. c. Em.* pl. 1) figures and redescribes his *E. angularis* and *lacrines*, figs. 1 & 2, *E. cilix*, figs. 5 & 6, and *E. fastidiosa*, Ménétr., var., fig. 8.

E. tepahi, ♂, described by Guénéé, in Vinson's Voy. à Madagasc. Annexe F, p. 39.

Lemonias. Hewitson (*l. c. Lem.* pl. 5) figures and redescribes *L. thara*, Hew., var. (♀ = *melia*, Bates), figs. 41 & 42, *amphis*, Hew., fig. 43, *pione*, Bates, fig. 46, *lasthenes*, *amasis*, and *luceres*, Hew., figs. 47-49.

Comptoseria, Hew., = *Ithomiola*, Feld.: Hewitson, *l. c. iv.*, corrections.

New species:—

Mesosemia frequens, Butler & Druce, Cist. Ent. v. p. 104, Costa Rica.

Eurygona regipennis and *aurantia*, Butler & Druce, *l. c.* p. 103, Costa Rica.

*E. eurysthene*s, Ecuador, f. 93 & 94, *eucerus*, Brazil, f. 95-97, *eucrates*, and *eurymachus*, figs. 101-104, Ecuador. Hewitson, Ex. Butt. v. *Eur.* pl. 10.

Methonella chrysomela, Butler, Cist. Ent. iv. p. 78, Costa Rica, Bogota.

Necyria ingaretha, Nicaragua, *vetulonia*, Ecuador. Hewitson, *l. c. Nec.* & *Esthemopsis*.

Emesis olivæ, p. 103, Costa Rica, S. America, *furor*, p. 104, Costa Rica, Honduras: Butler & Druce, *l. c. E. neemias*, figs. 3 & 4, *zelotes*, fig. 7, Brazil: Hewitson, *l. c. Em.* pl. 1.

Lemonias adelina, Butler, *l. c.* p. 79, Costa Rica; *L. byzeres*, figs. 39 & 40, *zerna*, figs. 44 & 45, Brazil, Hewitson, *l. c. Lem.* pl. 5.

Pandemos nymphidioides, Butler, *l. c.* p. 79, Costa Rica.

Lycænides.

S. H. SCUDDER (Rep. Peab. Ac. iv. pp. 50-58) recharacterizes and restricts the genera *Thecla*, Fabr., *Strymon* and *Lycæides*, Hübn., *Cyaniris*, Dalm., *Everes* and *Chrysophanus*, Hübn., *Lycæna*, Fabr., and *Feniseca*, Grote, assigning to them as their respective types *spini*, *titus*, *argus*, *argiolus*, *amyntas*, *hyllus*, *phlœas*, and *tarquinius*.

On *Papilio pulsus*, *esra*, *hylassus* (prior to *Plebeius enchylas*, Hübn.), *pelopus*, *cyllarissus*, *silenissa*, *eryssus*, *amelia*, *amyntor*, *hesiodus*, *amor*, *lincus*, *plato*, *telicanus*, *cerasi*, *cyllarus*, *dymus*, *semiargus*, *zachæus*, *nanus*, *tespis*, and *arites*, of Herbst, cf. W. F. Kirby, Tr. E. Soc. 1872, pp. 115-120.

Thecla lara, L., is not congeneric with *ora*, Cram. Wallengren, Öfv. Vet. Ak. 1872, p. 47.

T. liparops, Bois. & Lec. As the plate and description are irre recognizable, W. H. Edwards would retain the name *strigosa*, Harr., for this species. Syn. Butt. N. Amer. p. 51.

T. melantho, Klug, is certainly the Caucasian var. of *T. spini*. C. Oberthur, R. Z. xxiii. p. 482.

T. timon. On Donovan's figure, cf. Westwood, Tr. E. Soc. 1872, p. 109.

Polyommatus xanthe, Fabr., var. ♀, from Asia Minor, described by C. Oberthur, *l. c.* p. 482.

Lycæna. On the African species, with special reference to *asteris*, Gdt., *anubis*, n. sp., *asopus*, Hopff., *gamra*, Led., and *lysimon*, Hb., from Lower Guinea, cf. P. C. T. Snellen, Tijdschr. Ent. (2) vii. pp. 16-25.

L. ripperti, *actis*, *erschoffi*, *damon*, *posidon*, *iphigenia*, *damone*, *dolus*, *menalcas*, and *hopfferi* are probably all one species. C. Oberthur, *l. c.* p. 484; Pet. Nouv. 1872, p. 220. He also thinks that *L. adonis*, *polona*, *corydonius*, *corydon*, and *albicans* are likewise one species.

L. dolus. *L. hopfferi* and *epidolus* are probably varr. of this species: Oberthur, R. Z. xxiii. p. 484.

L. argus. *L. ægon* and *zephyrus* are probably varr. of this: *id. l. c.* p. 485.

L. cyllarus. *L. cælestina* is perhaps an Oriental var. of this: *id. ibid.*

L. corydon and *adonis*. Deyrolle considers them distinct species: *op. cit.* pp. 227, 228. On the difference between their females, cf. W. H. Tugwell, Ent. vi. p. 58.

L. ægon. A specimen combining the two forms of female in one individual noticed by F. Bond, P. E. Soc. 1872, p. 43.

L. amyntas is double-brooded. E. Lefevre, Pet. Nouv. 1872, p. 243.

L. anteros, var., from Asia Minor, described by C. Oberthur, *l. c.* p. 483.

L. argus, hermaphrodite, described by O. Nickerl, Verh. z.-b. Wien, xxii. p. 727.

L. arion. A var. from the Grisons described by Zeller, S. E. Z. 1872, p. 40.

L. pylaon, var. or sp. n., from Asia Minor: C. Oberthur, *l. c.* p. 484.

L. asteris, Godt., redescribed and figured by Snellen, from Lower Guinea, Tijdschr. Ent. (2) vii. p. 18, pl. 1. f. 4, 5.

L. cilla, Behr, = *L. tehama*, Reak.: W. H. Edwards, *l. c.* p. 51.

Cupido metophis, Wallengren, redescribed, *l. c.* p. 48.

New genera and species:—

Mimacrea, Butler, Lep. Ex. p. 104. Allied to *Pentila*. Type *M. darwinia*, sp. n., *l. c.* pl. 38. fig. 8, West Africa.

Arrugia, Wallengren, Öfv. Vet. Ak. 1872, p. 47. Types *Papilio protumnus*, L., and *Zerythis basuta*, Wgr.

Callipareus, Scudder, Rep. Peab. Ac. iv. p. 51. Type *Strymon melinus*, Hübn.

Mitoura [*Mitu-*], Scudder, *l. c.* p. 52. Type *Thecla smilacis*, Boisd. & Lec.

Incisalia, Scudder, *l. c.* p. 52. Type *Licus nippon*, Hübn.

Erora, Scudder, *l. c.* p. 53. Type *Thecla lata*, Edw.

Glaucopsyche, Scudder, *l. c.* p. 54. Type *Lycæna lygdanus*, Doubl.

Iolaus inores, Hewitson, Ent. M. M. ix. p. 85, hab. —?

Strymon pastor, *agricolor* [!], and *cælicolor*, Butler & Druce, Cist. Ent. v. pp. 105 & 106, Costa Rica.

Mithras augustinus, Butler & Druce, *l. c.* p. 106, Costa Rica.

Bithys azurinus and *hesperitis*, Butler & Druce, *l. c.* p. 107, Costa Rica.

Tmolus erolinus, *invisus*, *halcionis*, *isobeaon*, *vespasianus*, *charichlorus*, and *denarius*, Butler & Druce, *l. c.* pp. 107-109, Costa Rica.

Lampides zachæina, Butler & Druce, *l. c.* p. 104, Costa Rica.

Lycæna anubis (and var. *phoa*, p. 24), Snellen, Tijdschr. Ent. (2) vii. p. 21, pl. 1. f. 6-9, Lower Guinea.

Lucia emperanus, *id. l. c.* p. 25, pl. 2. f. 1-3, Lower Guinea.

Hesperiides.

S. H. SCUDDER (Rep. Peab. Ac. iv. pp. 68-82) makes the following corrections of synonymy:—*Goniloba cariosa*, H.-S., = *Thymele santiago*, Luc.; *Syrichthus albus*, Edw., = *Leucoscirtes ericetorum*, Bd.; *Papilio orcus*, Cr., = *P. oileus*, auctt. nec L., = *Hesperia syrichthus*, F.; *H. wyandot*, Edw., = *H. centaureæ*, Ramb.; *H. ricara*, Edw., = *H. ruralis*, Bd.; *Thymelicus puer*, Hb., = *Heteropterus marginatus*, Harr., = *Ancyloxypha numitor*, F.; *Hesperia minima*, Edw., = *Thymelicus waco*, Edw.; *H. mingo*, Edw., = *Potanthus omaha*, Edw.; *H. mesapano*, Sc., ? = *Cyclopides mandan*, Edw.; *H. hegon*, Sc., = *H. nemoris*, Edw., = *H. alternata*, Gr. & Rob., = *Amblyscirtes samoset*, Sc.; *H. oneko*, Sc., = *H. wakulla*, Edw., = *Stomyles textor*, Hb., from Florida, not Connecticut; *Papilio vitellius*, Sm. & Abb. (? F.), = *Atrytone iowa*, Sc.; *Hesperia delaware*, Edw., = *A. logan*, Edw.; *H. hobomok*, Harr., = *H. pocahontas* and *quadaquina*, Sc., = *A. zabulon*, Bd. & Lec.; *H. colon*, F. (? = *H. vitellius*, F.), = *Euthymus phylæus*, Dru.; *H. comma*, Bd. (nec L.), from California, is renamed *Pamphila juba*, Sc.; *H. dacotah*, Edw. [MS. ?], = *H. melane*, Edw., = *Pamphila napa*, Edw.; *H. wamsutta*, Harr., = *Polites peckius*, Kb.; *H. yreka*, Edw., = *Ochlodes nemorum*, Bd.; *Hesperia wingina*, Sc., = *Hedone brettus*, Bd. & Lec.; *Hesperia otho*, Bd. & Lec. (nec Sm. & Abb.), = *H. egeremet*, Sc., = *Hedone ætna*, Bd.; *Hesperia acanootus*, Sc., = *Limochores bimacula*, Gr. & Rob.; *Talides vestris*, Btl. (nec Bd.), = *Limochores manataaquæ*, Sc.; *Hesperia phocion*, F., = *H. themistocles*, Gdt., = *H. cerne*s and *arogos*, Bd. & Lec., = *H. ahaton*, Harr., = *L. thaumas*, F.; *Pamphila rurea*, Edw. (? = *Hesperia kiawah*, Rk.), = *Euphyes metacomet*, Harr.; *H. ophis*, Edw., = *Prenes panoquin*, Sc., hab. S. Carolina to Key West, not Connecticut; *H. mesogramma*, Poey (nec Latr.), = *Pansydia cunaxa*, Hew.; *H. adela*, Hew., = ? *Perichares trinitad*, Lef.; *H. chemnis*, F., = *Eudamus olynthus*, Bd. & Lec., = *Calpodes ethlius*, Cr.; *H. monoco*, Sc., = *H. nortoni*, Edw., = *H. punctella*, Gr. & Rob., = *Lerema accius*, Sm. & Abb.

BUTLER (Lep. Ex. pl. 40) figures and redescribes his *Telegonus omphale* and *Æthilla jaira*, p. 110, figs. 10 & 11; *Æ. jariba* and *Typhedanus evelinda*, p. 111, figs. 3, 5; *T. zephus*, f. 12; *Augiades despecta* and *lemna*, figs. 7, 9, p. 112.

Anastrus obscurus, Hübn., is distinct from *Achlyodes corbulo*, Cram.; *Papilio telegonus*, Esp., = *Thracides salius*, Cram.; *Antigonus westermanni*, Latr., and *erosus*, Hübn., are sexes of the same species. G. Weymer, S. E. Z 1872, p. 182.

Hesperia. Hewitson (Ex. Butt. v. *Hesp.* pl. 5. figs. 42-49) figures and re-describes his *H. ceraca*, *chalestra*, *argentea*, and *ethoda*.

H. adela, Hew., = *H. corydon*, Fabr.; *H. phænicis*, Hew., = *H. praba*, Moore: Hewitson, l. c. iv., corrections.

H. hobomok, Harr. *H. pocahontas*, Scudd., is a melanic female variety of this species: Strecker, Lepidoptera, p. 7.

Limochores bimacula, Scudd., redescribed by C. S. Minot, Canad. Ent. iv. p. 150.

Pamphila marshali, Boisd., redescribed and figured by Snellen, Tijdschr. Ent. (2) vii. p. 29, pl. 2. figs. 7-9, from Lower Guinea.

Syrichthus andromedæ and *centaureæ*: cf. Zeller, S. E. Z. 1872, pp. 48 & 49.

Cyclopides, Hübn., and *Carterocephalus*, Led. Cat., are properly characterized, with *steropes*, W. V., and *paniscus*, Sulz., as their respective types. Snellen, Vlinders, pp. 82 & 83.

Cyclopides lepeletieri, Latr., redescribed and figured by Snellen, *l. c.* p. 32, pl. 2, figs. 13 & 14, from Lower Guinea.

Nisoniades. J. A. Lintner (Rep. N. Y. S. Cab. xxiii. pl. 7) describes and figures *N. icelus*, p. 162, figs. 5 & 6, and *N. lucilius*, p. 164, figs. 1 & 2 (both previously known only by the descriptions of the ♂ genital segments by Scudder & Burgess, in P. Bost. Soc. xiii.; cf. Zool. Rec. vii. p. 398); and figures *N. martialis*, Scudd., figs. 7 & 8, *N. persius*, Scudd., figs. 3 & 4, and *N. brizo*, Boisd. & Lec., figs. 9 & 10.

Antigonus flyas, Cram. (= *philemon*, Fabr., = *velasquez*, Lef.) and *ostreus*, Cram. (= *zephodes*, Hübn.), have been taken *in coitu*, and may be sexes of the same species. Wallengren, Cefv. Vet. Ak. 1871, p. 913.

S. H. SCUDDER (Rep. Peab. Ac. iv.) proposes a great number of new generic names, indicating the types, but without characters (*Callimormus* excepted). They are as follows, with the types in brackets:—*Dysenius* (*Erycides albicilla*, H.-S.), p. 67; *Achalarus* (*Papilio lycidas*, Sm. & Abb.), *Acolastus* (*Hesperia savignii*, Latr.); *Thorybes* (*Papilio bathyllus*, Sm. & Abb.), p. 71; *Pholisora* (*Papilio catullus*, F.), p. 72; *Leucoscirtes* (*Syrichthus erictorum*, Bd.), p. 73; *Callimormus*, p. 74, type *C. juvenus*, sp. n.; *Oarisma* (*Hesperia powesheik*, Park.); *Potanthus* (*H. omaha*, Edw.); *Amblyscirtes* (*H. vialis*, Edw.), p. 75; *Stomyles* (*Pyrgus textor*, Hb.); *Ocytes* (*H. metea*, Sc.); *Poanes* (*H. massasoit*, Sc.), p. 76; *Phycanassa* (*H. viator*, Edw.); *Atrytone* (*H. iowa*, Sc.); *Euthymus* (*Papilio phylæus*, Dru.), p. 77; *Atalopedes* (*H. huron*, Edw.); *Anthomaster* (*H. leonardus*, Harr.); *Polites* (*H. peckius*, Kb.); *Ochlodes* (*H. nemorum*, Bd.), p. 78; *Choranthus* (*H. radians*, Lef.); *Hedone* (*H. brettus*, Bd. & Lec.), p. 79; *Limochores* (*H. manataaqua*, Sc.); *Euphyes* (*H. metacomet*, Harr.); *Lerodea* (*H. enfala*, Edw.), p. 80; *Prenes* (*H. panoquin*, Sc.); *Pansydia* (*H. mesogramma*, Poey); *Perichares* (*Papilio corydon*, F.), p. 81; *Oligoria* (*H. maculata*, Edw.); *Cymænes* (*Cobalus tripunctus*, H.-S.); *Lerema* (*Papilio accius*, Sm. & Abb.), p. 82; *Megathymus* (*H. yuccæ*, Bd. & Lec.), p. 83.

Arteurotia, g. n., Butler and Druce, Cist. Ent. v. p. 112. Allied to *Spathilepia* and *Hydrænomia*. Type *A. tractipennis*, sp. n., *id. l. c.*, Costa Rica.

New species:—

Pyrrhopyga venezuela, Venezuela, *chalybea*, Mexico: Scudder, *l. c.* p. 67.

Dysenius cruentus, *id. l. c.*, Guatemala.

Erycides viola, Butler, Cist. Ent. iv. p. 86; *E. socius*, Butler & Druce, *l. c.* v. p. 112, Costa Rica; *E. texana* and *E. sanguinea*, Scudder, *l. c.* p. 68, Texas.

Carystus gemmatus, Butler, *l. c.* iv. p. 86; *C. deceptus* and *epicinea*, Butler & Druce, *l. c.* v. pp. 112 & 113, Costa Rica.

Thymele vitreus[-rea], p. 68, Venezuela, *sumichrasti* and *montezuma*, pp. 69, 70, Tehuantepec, *domingo*, Hayti, p. 69: Scudder, *l. c.*

Goniurus zilpa, Butler, Lep. Ex. p. 109, pl. 40. f. 2, Costa Rica.

Epargyreus orizaba, Scudder, *l. c.* p. 70, Guatemala.

Thorybes nevada [-dæ], *id. l. c.* p. 71, Sierra Nevada, California.

Telegonus imalena, Butler, *l. c.* fig. 1, Costa Rica.

Goniloba cretacea, Snellen, Tijdschr. Ent. (2) vii. p. 27, pl. 2. figs. 4-6, Lower Guinea.

Eudamus vectilucis, Butler, *l. c.* fig. 6, Costa Rica.

Æthilla tavochea, *id. l. c.* p. 110, fig. 4, Costa Rica.

- Spathilepia terranea*, id. *l. c.* p. 111, fig. 8, Costa Rica.
Achlyodes sempiternus and *viridiceps*, Butler & Druce, *Cist. Ent.* v. pp. 114, 115, Costa Rica.
Helias luctifera, iid. *l. c.* p. 115, Costa Rica.
Nisoniades ausonius, Lintner, N. Y. S. Cab. xxiii. p. 166, pl. 7. figs. 11 & 12, Center, N. Y.
Thanaos invisus, Butler & Druce, *l. c.* p. 114, Costa Rica.
Pholisora azteca, Scudder, *l. c.* p. 72, Tehuantepec.
Leucoscirtes nivea, id. *l. c.* p. 73, Tehuantepec, Guatemala.
Hesperia tessellata, id. *l. c.* p. 73 (= *Syrichthys oileus*, Bd. nec L.), N. America; *H. mango*, Guénéé, in Vinson's 'Voyage' &c., Annexe F, p. 40, Madagascar; *H. illinois*, G. M. Dodge, *Canad. Ent.* iv. p. 217, Illinois (= *H. acanootus*, Scudd., id. *op. cit.* v. p. 60).
Syrichthys communis, Grote, *Canad. Ent.* iv. p. 69, Central Alabama (= *H. tessellata*, Scudd.; but the dates are doubtful: Grote, *l. c.* p. 220).
Callimormus juvenis, Scudder, *l. c.* p. 74, Panama.
Ancyloxypha brunnea, id. *l. c.*, Guatemala.
Potanthus californicum, id. *l. c.* p. 75, California.
Cyclopides abjecta, Snellen, *l. c.* p. 32, pl. 2. figs. 15 & 16, Lower Guinea.
Amblyscirtes tolteca, Scudder, *l. c.* p. 76, Tehuantepec.
Ocytes seminolæ, id. *l. c.*, Florida to Texas.
Pamphila incerta, Snellen, *l. c.* p. 29, pl. 2. figs. 10-12, Lower Guinea; *P. uniformis* and *inimica*, Butler & Druce, *l. c.* pp. 113 & 114, Costa Rica; *P. columbia*, Scudder, *l. c.* p. 77, California.
Phlebodes justinoides, Butler & Druce, *l. c.* p. 113, Costa Rica.
Ochlodes sonora, Scudder, *l. c.* p. 78, Sierra Nevada, California.
Hedone præceps, Tehuantepec, orono, ? Northern States, id. *l. c.* p. 79
Lerodea inca, id. *l. c.* p. 80, Peru.
Preneis hecebolus, id. *l. c.* p. 81, Tehuantepec.
Perichares marmorata, id. *l. c.* p. 81, Venezuela.
Lerema patteni, id. *l. c.* p. 82, Guatemala.

HETEROCERA.

STRETCH, R. H. Illustrations of the *Zygenidæ* and *Bombycidæ* of North America. I. Parts 1-7. June to Dec. 1872. San Francisco: 8vo, pp. 1-184, pls. 1-7.

P. C. ZELLER ("Beiträge zur Kenntniss der nordamerikanischen Nachtfalter, besonders der Microlepidopteren," Verh. z.-b. Wien, xxii. pp. 447-566, pls. 2 & 3) describes a great number of new and little-known species.

For a list of North-American *Heterocera* contained in Guénéé's 'Species Général,' vols. v.-x. cf. J. A. Lintner, Rep. N. Y. S. Cab. xxiii. pp. 198-212.

A. GÄRTNER records 93 additional species of *Geometræ* and *Microlepidoptera* as found in the neighbourhood of Brünn, and makes many notes on their transformations. Verh. Ges. Brünn, viii. pp. 63-90.

On certain coast insects [*Heterocera*] found existing inland at Brandon, Suffolk, cf. C. G. Barrett, Tr. Norw. Soc. 1870-71, pp. 61-65; 1871-72, pp. 40-42.

On the destructive larvæ of various *Bombyces*, cf. Breyer, Ann. E. Belg. xv. pp. 121-127.

On a new moth-trap, *cf.* Peyerimhoff, *Pet. Nouv.* 1872, pp. 247, 248.

Micro-Lepidoptera. On various species: *id. l. c.* pp. 239 & 240.

On denuding wings, *cf.* V. T. Chambers, *Canad. Ent.* iv. pp. 41-42.

On collecting and preparing, *cf.* E. L. Ragonot, *Pet. Nouv.* 1872, pp. 256, 257, 265, 266.

On collecting only, *cf.* Lord Walsingham & Chambers, *Amer. Nat.* vi. pp. 275-280, 432, 433.

SPHINGIDÆ.

For a list of 40 Sphingidæ occurring in the State of New York, *cf.* J. A. Lintner, *Rep. N. Y. S. Cab.* xxiii. pp. 172-175.

A list of the *Sphingidæ* in the Museum of the Royal Dublin Society is published by W. F. Kirby, *J. R. Dubl. Soc.* vi. pp. 60-62.

Macroglossa fuciformis (scabiosæ). On its synonymy, *cf.* Zeller, *S. E. Z.* 1872, pp. 49-51, who points out that *Sphinx bombylififormis*, L., was probably a very much worn *Deilephila porcellus*.

Sphinx camertus, Cram., = *Enyo lugubris*, Dru.: Wallengren, *Cefv. Vet. Ak.* 1871, p. 913.

Deilephila chamaeneri, Harr., = *D. galii*, W. V.: Strecker, *Canad. Ent.* iv. p. 206.

Chærocampa elpenor. An extraordinary var. with hyaline wings (*cf.* *Zool. Rec.* viii. p. 367) is figured and described by Newman, *Ent.* vi. p. 81.

C. transfigurata, Wgr., = *Sphinx clio*, Fab., = *S. idrieus*, Dru., = ? *S. medea*, Fab.: Wallengren, *l. c.* 1872, p. 50.

Pachylia lyncea, Clem., and allies: *id. l. c.* 1871, p. 913.

Sphinx pinastri. British specimens recorded by A. J. Spiller and J. Purdue, *Ent.* vi. pp. 114, 115, 127.

S. ligustri. On its agamogenesis, *cf.* S. Clegg, *Ent.* vi. pp. 221-233. (Remarks by Knaggs, *Ent. Ann.* 1873, p. 39.) Larva figured, with detail: Vollenhoven, *Sepp's Nederl. Ins.* (2) ii. p. 221, pl. xlvii. figs. 2 & 3.

Ellema harrisi, Clem. J. A. Lintner notices and figures it in all stages: *l. c.* pp. 170 & 171, pl. 8. f. 8-11. *Lapara bombycoides*, Walk., appears to be distinct both from this species and from the new *E. pineum*, Lintn.

Acherontia atropos. For a summary of published observations, with additional remarks on dissections, and a fig. of section of head, *cf.* H. N. Moseley, *Nature*, vi. pp. 151-153. The seat of the sound is certainly in the head. Larva figured: Vollenhoven, *Sepp's Nederl. Ins.* (2) ii. p. 220, pl. xlvii. fig. 1.

Smerinthus ocellatus. The larva will eat *Prunus padus*: Speyer, *S. E. Z.* 1872, p. 149.

S. populi. An hermaphrodite described by O. Nickerl, *Verh. z.-b. Wien*, xxii. p. 728. A var. of the larva recorded by G. R. Dawson, *Ent.* vi. p. 184.

Langia, *g. n.*, Moore, *P. Z. S.* 1872, p. 567. Types *L. zeuzeroides*, Kotghur, N.W. Himalayas, and *L. khasiana*, Khasia Hills: Moore, *l. c.* pp. 567 & 568, spp. nn.

New species :—

Chærocampa schencki, Müschler, *S. E. Z.* 1872, p. 339, Natal, Caffraria.

Pergesa olivacea, Simla, *P. castanea*, Bombay : Moore, *l. c.* p. 567.

Sphinx snelli, Weyenbergh, Ins. Foss.

Ellema pineum, J. A. Lintner, Rep. N. Y. S. Cab. xxiii. p. 169, pl. 8. figs. 12 & 13 (larva also described), Schoharie, N. Y., Canada.

Smerinthus decoratus, Moore, *l. c.* p. 568, Sikkim.

ÆGERIIDÆ.

Sesia apiformis. Larva will feed on cork, *cf.* G. H. Raynor, Ent. vi. p. 79.

Ægeria exitiosa figured by W. Saunders, Canad. Ent. iv. p. 133.

Sesia guriensis, Emich, R. Z. xxiii. p. 63, Hor. Ent. Ross. ix. p. 41, pl. 26. fig. 1, Guria, Transcaucasia; *S. pimpliformis* (Boisd., MS.), C. Oberthur, R. Z. xxiii. p. 486, pl. 21. fig. 3, Van, Asia Minor: spp. nn.

URANIIDÆ.

Newman would unite *Urania*, *Synemon*, &c. with the butterflies: Zool. (s. s.) vii. p. 2887.

CASTNIIDÆ.

Ægiale indecisa, Butler & Druce, Cist. Ent. v. p. 116, Costa Rica.

Ægocera limbata, Möschler, S. E. Z. 1872, p. 354, Silhet.

Eusemia funebris, Darjeeling, *E. albimarginata*, Burmah : Moore, P. Z. S. 1872, p. 569.

Alypia. Stretch (Illustrations, pp. 5-16, pl. 1. figs. 1-8) enumerates 12 species found in the United States and Canada, and describes and figures *A. octomaculata*, Fabr., *A. dipsaci*, *sacramenti*, *ridingsi*, and *lorquini*, Grote, and three new species.

Eudryas. Stretch (*l. c.* pp. 145-151, pl. 7. figs. 1 & 2) figures and redescribes *E. grata*, Fabr., and *E. unio*, Hübn.

New species :—

Alypia braumani, p. 8, fig. 8, *similis*, p. 14, fig. 5, *lunata*, p. 15, fig. 6 : Stretch, *l. c.* pl. 1, California.

Eudryas brevipennis, id. *l. c.* p. 191, pl. 7. figs. 3 & 4, California.

ZYGÆNIDÆ.

Zygæna dorycnii, Ochs., is certainly the Caucasian variety of *Z. peucedani* C. Oberthur, R. Z. xxiii. p. 486.

Z. exulans, *cf.* Newman, Ent. vi. pp. 22-25. F. B. White proposes the name *subochracea* for the Scotch var., which he describes, Scot. Nat. i p. 175.

Z. filipendulæ. The larva and pupa are sometimes eaten by birds : Lawless & Newman, Ent. vi. p. 77.

Z. meliloti has occurred in Britain : J. P. Barrett, Ent. M. M. ix. p. 111. See also Tugwell, Barrett, Harpur, and Doubleday, Ent. vi. pp. 184-186, and H. G. Knaggs, Ent. Ann. 1873, p. 40.

Z. pilosellæ (*minos*, W. V.), *cf.* Zeller, S. E. Z. 1872, pp. 51 & 52.

Zygæna trifolii. On its variation in England and Belgium, cf. De Selys-Longchamps, Ann. E. Belg. xv. pp. 56-59 (translated, Ent. M. M. ix. p. 14).

Z. hottentota, H.-S., = *caffra*, L.; *Z. negamica*, Wlk., = *Arichalca erythro-pyga*, Wgr.: Wallengren, Cefv. Vet. Ak. 1872, p. 50.

Syntomis phegea has occurred near Dover: N. E. Brown, Ent. M. M. ix. p. 160; cf. also Knaggs, Ent. Ann. 1873, pp. 41 & 42.

S. thyreiformis, Wgr.: cf. Snellen, Tijdschr. Ent. (2) vii. p. 35, pl. 3. figs. 1-3.

Cosmosoma omphale, Hübn., figured and redescribed by Stretch, Illustrations, p. 153, pl. 7. fig. 5.

Desmidocnemis, g. n., Möschler, S. E. Z. 1872, p. 346. Allied to *Diptilon*. Type *D. prittwitzi*, sp. n., id. l. c. p. 348, Cayenne.

New species:—

Chrysoptola albifrons and *splendens*, id. l. c. pp. 344 & 345, Cayenne.

Euchromia (Automolis) scintillans, Butler, Cist. Ent. iv. p. 87, Costa Rica.

Phalanna amæna, Möschler, l. c. p. 350, Silhet.

Gymnelia jansonis[-ni], Butler & Druce, Cist. Ent. v. p. 116, Costa Rica.

Aelytia obscura, Cayenne, *flaviventris*, Brazil: Möschler, l. c. pp. 348 & 349.

Charidea rufigularis, id. l. c. p. 349, Brazil.

NYCTEOLIDÆ.

Halias prasinana. F. B. White describes the anatomical structure by which the sound produced by this insect is caused. It appears to be analogous to the "drum" of the ♂ *Cicada*, and occupies a similar position. Scot. Nat. i. pp. 213-215.

H. quercana. Larvæ described and figured: Vollenhoven, Sepp's Nederl. Ins. (2) ii. p. 234, pl. 50. figs. 9 & 10.

H. siliquana. On its ravages in Egypt, cf. Bull. Soc. Ent. Fr. (5) ii. pp. lxxvii & lxxviii.

Sarothripus revayanus. Further particulars of economy: Vollenhoven, l. c. p. 235.

Eurias fusciciliana and *maculana*, Snellen, Tijdschr. Ent. (2) vii. p. 36, Lower Guinea, spp. nn.

LITHOSIIDÆ.

A. G. BUTLER (Tr. E. Soc. 1872, pp. 49-58) catalogues the described species of *Pericopides* of the genera *Esthema*, *Eucyane*, *Composia*, *Phaloesia*, *Stenele*, *Hyalurga*, *Gyara*, *Hyelosia*, *Phaloe*, and *Pericopis*. *Pericopis disjuncta*, Walk., = *P. bivittata*, Walk. *Daretis marginalis*, Walk., is a *Pericopis*, and perhaps = *P. dissimulans*, Walk., ♀. *P. lunifera*, Butl., = *turbida*, Hübn. The genus *Gyara* is hardly distinct from *Hyalurga*.

Butler also (l. c. pp. 255-257) reviews the species described by Boisduval from Guatemala (cf. Zool. Rec. vii. pp. 403 & 404) as follows:—*Calepidos celina* = *Eucyane pylotis*; *C. anacharsis* may be an *Esthema*; *Chetone loræ* is a *Phaloe*, near *P. cruenta*; *C. phæba* probably = *Pericopis isse*, var.; *C. aorsa* probably = *P. bivittata*; *C. iscarיות*, *felderi*, and *helicon[io]ides* are probably new.

Ctenucha. Stretch (Illustrations, pp. 23-32, pl. 1. f. 10-15) enumerates 8 species found in the United States, and describes and figures *C. virginica*, Charp., *C. cressonana* and *ochriscapus*, Grote, *C. multifaria* and *venosa*, Walk., and one new species.

Stretch (*l. c.*) figures and redescribes (sometimes with notices of transformations) *Scepsis fulvicollis*, Hübn. (= *Glaucopis semidiaphana*, Morr., and *Scepsis packardi*, Grote); *Acolothus falsarius*, Clem. (figured as *A. americanus*, Cl.); *Harrisina americana*, Boisd.; *Lycomorpha pholus*, Dru.; *Anatolmis grotii*, Pack.; *Pyromorpha dimidiata*, H.-S.; *Gnophala vermiculata* and *hopfferi* (? = *Glaucopis latipennis*, Boisd.), Grote; *Ecantheria scribonia*, Stoll; *Psychomorpha epimenis*, Dru.; *Phryganidia californica*, Grote, apparently intermediate between *Procris* and *Ctenucha* [?]; *Hypoprepia fucosa*, Hübn. (= *miniata*, Kirb., *vittata*, Harr., and *tricolor*, Fitch); *Lithosia argillacea*, Pack.; *L. aphalica*, Grote, and *L. casta*, Sanb.; *Crambidia pallida*, Pack.; *Eustixis subfervens*, Walk.; *Cydosia nobilitella*, Cram.?, from Texas (*C. imitella* proposed for this species, if distinct from Cramer's), and *C. aurivitta*, Gr. & R.; *Æta aurea*, Fitch; *Cisthene faustinula* and *nexa* (= *C. grisea*, Pack.), Boisd.; *C. subjecta*, Walk., and *C. unifascia*, G. & R.; *Clemensia albata* and *umbrata*, Pack.; *Utetheisa bella*, L.; *U. speciosa*, Walk.; *U. ornatrix*, L.; and a form intermediate between the two latter (the 3 forms are perhaps not truly distinct) and *Euphanessa mendica*, Walk. (should perhaps be referred to the *Geometræ*, according to some observations made by W. Saunders on the newly-hatched larva).

Leptosoma insulare. Larva from Madagascar described by Vinson & Guénéé, 'Voyage' &c., Annexe F, p. 42.

Tumida sagenaria, Wgr., = *Barsine natalensis*, Walk.: Wallengren, Öfv. Vet. Ak. 1872, p. 50.

On the earlier stages of *Nudaria senex* and *mundana*, *Setina irrorella*, *Lithosia mesomella*, *muscerda*, and *complana*, cf. Buckler & Hellins, Ent. M. M. viii. pp. 169-175.

Nudaria senex, Hübn.: F. J. M. Heylaerts, fils, Tijdschr. Ent. (2) vii. p. 121.

Nola strigula. Larva described by Buckler, Ent. M. M. ix. pp. 15 & 16.

N. malana (*Brachytænia malana*, Fitch) redescribed by Zeller, Verh. z.-b. Wien, xxii. p. 454. On *B. triquetana*, Fitch, cf. Zeller, *l. c.* p. 457.

Calpenia, g. n. (*Hypsineæ*), Moore, P. Z. S. 1872, p. 571. Type *C. saundersi*, sp. n., *l. c.* pl. 33. fig. 1, India.

New species:—

Ctenucha brunnea, Stretch, Illustrations, p. 30, pl. 1. fig. 11, California.

Harrisina texana, *id. l. c.* p. 181, pl. 8. fig. 1, Texas.

Lycomorpha miniata, S. California, *L. palmeri*, Arizona: A. S. Packard, Rep. Peab. Ac. iv. p. 84.

Euagra quadrimaculata, Möschler, S. E. Z. 1872, p. 349, Cayenne.

Diopsis ithomeina and *noctiluces*, Butler, Cist. Ent. iv. pp. 87 & 88, Costa Rica.

Esthema confluens, *id.* Tr. E. Soc. 1872, p. 49, Villa Nova.

Pericopsis noctuites, Minas Geraes?, *rubripicta*, Bogota, and *fenestrata* (= *P. thetis*, local form), San Geronimo, Vera Paz: Butler, *l. c.* p. 50; *P. irenides* and *leonina*, Butler, Cist. Ent. iv. pp. 88 & 89, Costa Rica.

Milionia zonea, N.W. Bengal, *lativitta*, Sikkim: Moore, P. Z. S. 1872, pp. 569 & 570.

Chrysaugae lutescens, Butler, l. c. p. 88, Costa Rica.

Nelo chrysomela, Butler & Druce, Cist. Ent. v. p. 117, Costa Rica.

Emplocia primulina, iid. l. c. p. 118, Costa Rica.

Heterusia fasciata, *signata*, *trinacula*, *flavimaculata*, and *oclopunctata*, Möschler, l. c. pp. 340-344, Silhet.

Chelura glacialis, Moore, l. c. p. 570, Darjeeling.

Neochera tortuosa, id. l. c. p. 570, pl. 33. fig. 2, India.

Bizone hova, Guénéé, in Vinson's 'Voyage' &c., Annexe F, p. 42, Madagascar; *B. gazella*, Moore, l. c. p. 572, pl. 33. fig. 4, Masuri, N.W. Himalayas.

Gnophria quadrimaculata and *G. (Ænistis) strigata*, Möschler, l. c. pp. 352 & 353, Silhet.

Lithosia colon, Silhet, *natalica*, Natal: Möschler, l. c. pp. 353 & 354. *L. distorta*, Sikkim, *nigrifrons*, N. India: Moore, l. c. p. 572.

Cisthene grisea [= *C. nexa*, Boisd., vide antè], A. S. Packard, Rep. Peab. Ac. iv. p. 84, California.

Clemensia umbrata, A. S. Packard, l. c. p. 85, California.

Nola nigrifasciata, p. 454, pl. 2. fig. 1, Massachusetts, *minuscule*, p. 455, *melanopa*, p. 458, pl. 2. fig. 2, *strictalis*, p. 459, pl. 2. fig. 3, Texas: Zeller, Verh. z.-b. Wien, xxii.

ARCTIIDÆ.

Arctiina. Under this heading Snellen includes as subfamilies *Agaristina*, *Syntomina*, and *Cymbidæ*. Tijdschr. Ent. (2) vii. p. 34.

STRETCH (Illustrations) figures and redescrives, sometimes with notices of transformations, *Euprepia americana*, Harr.; *Epicallia virginialis*, Boisd., with varr. *guttata*, Boisd., and *ochracea*, Stretch; *Arctia antholea* and *dahurica* (? = *complicata*, Walk.), Boisd.; *A. achaia*, Grote, and *A. virgo*, L.; *Seiarctia clio*, Pack.; *Leptarctia lena* and *decia*, Boisd.; *Callimorpha lecontei*, Boisd.; *C. interrupto-marginata*, De Beauv. and *C. clymene*, Esp.; *Spilosoma virginica*, F., and *S. vestalis*, Pack.; *Leucarctia aurea*, Dru. (= *L. californica*, Pack.); *Halesidota edwardsi*, Pack. (= *H. translucida*, Walk., and *Phægoptera quercus*, Boisd.); *H. agassizi*, Pack. (= *H. californica* and *angulifera*, Walk., and *P. salicis*, Boisd.); *H. argentata*, Pack.; *H. tessellaris*, Smith, and *H. caryæ*, Harr.; and *Arachnis picta* (? = *A. aulæa*, Hübn., and *Ecpantheria incarnata*, Walk.).

Chelonia hebe. On the habits of the larva, cf. Ragonot and Fallou, Bull. Soc. Ent. Fr. (5) ii. pp. xxxviii & xxxix.

C. caja, var., described by E. F. Bisshopp, Ent. vi. p. 183.

Arctia cervini, Fall. Frey describes var. *hnatecki* from the Valais, MT. Schw. Ent. Ges. iii. p. 479.

Callimorpha hera. Figured and all stages described by E. Newman, Ent. vi. pp. 33-36. On yellow and intermediate varr. of this and *C. dominula*, cf. Fallou and Oberthur, Pet. Nouv. 1872, p. 236; Ann. E. Belg. xv. Bull. pp. 5 & 6.

C. fulvicosta, Clem. Habits, cf. Le Baron, Rep. Ins. Illin. i. p. 47 (Rec. Am. Ent. 1871, p. 18).

Nemeophila petrosa, Walk., cf. A. S. Packard, Rep. Peab. Ac. iv. p. 85.
Platarctia scudderi, Pack., is an allied *Nemeophila*.

Leucarctia ucræa, Sm. *L. californica*, Pack., is the same as this: Rep. Peab. Ac. iv. p. 86.

Arctia isabella, Smith. Noticed and figured in all stages by Riley, Rep. Ins. Miss iv. pp. 143 & 144.

Pyrrharctia californica? = *P. isabella*. Packard, Rep. Peab. Ac. iv. p. 86.

Senura alba, Wgr., = *Aloa simplex*, Walk.; *Spilosoma strigatum*, Wgr., = *S. linea* and *S. dorsale*, Walk.: Wallengren, Öfv. Vet. Ak. 1872, pp. 50 & 51.

Spilosoma sordidum. A ♂ with ♀ coloration refused to pair. Guénéé, Pet. Nouv. 1872, p. 212.

Epantheria scribonia, Stoll. Both sexes and larva figured, and the latter described by Riley, Rep. Ins. Mo. iv. pp. 141-143.

Euchætes egle. The supposed grey and white varr. of the ♀ never occur in the same locality. Strecker, Lepidoptera, p. 7.

Leptarctia, g. n., Stretch, Illustrations, p. 118. Allied to *Nemeophila* and *Platarctia*. To include *Lithosia lena*, Boisd. (of which *L. adusta*, Boisd., and probably *Platarctia modesta*, Pack., are varr.), *L. decia*, Boisd., and one new species.

Ko[Co-]diosoma, g. n., *id. l. c.* p. 67. Allied to *Phragmatobia*. Types *K. [C.] fulva*, *l. c.* pl. 2. fig. 7, and *nigra*, p. 68, fig. 8 (spp. nn.), California; *tricolor*, *l. c.* fig. 5, and *eavesi*, p. 69, fig. 6 (spp. nn.) from Nevada, are included provisionally in the genus.

New species :—

Arctia behri, p. 75, pl. 3. figs. 11 & 12; *A. bolanderi*, p. 76, fig. 13; *A. edwardsi*, p. 71, fig. 9, California, *id. l. c.*; *A. vittata*, Möschler, S. E. Z. 1872, p. 351, Melbourne.

Leptarctia dimidiata, Stretch, *l. c.* p. 123, pl. 5. fig. 7-10, California.

Leucarctia permaculata, A. S. Packard, Rep. Peab. Ac. iv. p. 86, S. California.

Halesidota sobrina, Stretch, *l. c.* p. 135, pl. 6. fig. 10, California.

Estigmene strigosa, Möschler, *l. c.* p. 355, Natal.

Cretonotus rubricosta, Moore, P. Z. S. 1872, p. 573. Maupuri, N.W. India, Bombay.

Hypercompa regalis, Moore, *l. c.* p. 575, pl. 33. fig. 7, N. India.

Spilosoma dentilinea, Sikkim, p. 573, *brunneum*, Bombay, *todara*, Coonoor, Nilghiris, p. 574, Moore, *l. c.*; *S. melanostigma*, Erschoff, Hor. Ent. Ross. viii. p. 316, Turan; *S. latipenne*, Stretch, *l. c.* p. 123, pl. 6. fig. 5, United States.

Cyenia natalica, Möschler, *l. c.* p. 356, Natal.

Aloa nigricans and *sipahi*, Moore, *l. c.* pp. 572 & 573, Bombay, Deccan, &c.

Agrisius fuliginosus, *id. l. c.* p. 571, pl. 33. fig. 3, India.

LIPARIDÆ.

Creagra aliena, Wgr., = *Liparis dealbata*, H.-S.; *C. prolixa*, Wgr., = *L. adpersa*, H.-S.; *Porthesia cateja*, Wgr., = *Liparis crocata*, Bd.; *Homæomeria flavicapilla*, Wgr., = *Stilpnotia luteipes*, Walk.; *Phiala xanthosoma*, Wgr., =

Heteromorpha costipuncta, H.-S., var. ?; *Striphnopteryx crepax*, Wgr., = *Jana tantalus*, H.-S. Wallengren, Öfv. Vet. Ak. 1872, pp. 50 & 51.

Porthesia auriflua and *chrysorrhæa*. On the habits of their larvæ and the mischief caused by them, cf. L. Léon and E. Lefevre, Pet. Nouv. 1872, pp. 209, 243.

Orgyia leucostigma, Smith. Notes on larva, cf. J. A. Lintner, Rep. N. York Cab. xxiii. p. 189, note.

O. leucostigma, Sm. & Abb., and *Hyphantria textor*, Harr. On habits, cf. Le Baron, Rep. Ins. Illin. i. p. 13 (Rec. Am. Ent. 1871, p. 18).

O. ericæ, Germ. Transformations and habits: Vollenhoven, Sepp's Nederl. Ins. (2) ii. pp. 202-207, pl. xlv.

Ocneria dispar. Hermaphrodite described by O. Nickerl, Verh. z.-b. Wien, xxii. p. 729.

Leucoma salicis. On its parthenogenesis, cf. Breyer, Ann. E. Belg. xv. p. 44; on the habits of the larva, cf. G. F. Matthew, Ent. M. M. viii. pp. 206, 207.

Liparis rufescens, Brullé. A larva from Teneriffe, supposed to belong to this species, described by D. L. v. Heyden, Ber. senck. Ges. 1871-1872, p. 88.

L. monacha, var., described and figured by E. Newman, Ent. vi. pp. 145, 146.

New species :—

Orgyia mixta, Snellen, Tijdschr. Ent. (2) vii. p. 38, pl. 3. figs. 6 & 7, Lower Guinea.

Procodeca testacea, Moore, P. Z. S. 1872, p. 574, Bengal.

Deroca maculata, Moore, l. c. p. 575, Masuri, N. W. Himalayas.

Lælia subrufa, p. 39, *L. ochracea*, p. 39, pl. 3. fig. 8, Snellen, l. c., Lower Guinea.

Leucoma (?) *margaritacea*[-eum], Möschler, S. E. Z. 1872, p. 357, Paramaribo, Surinam; *L. flavisulphurea*[-eum], Erschoff, Hor. Ent. Ross. viii. p. 316, Samarcond.

Euproctis æthiopica, Snellen, l. c. p. 37, pl. 3. figs. 4 & 5, Lower Guinea.

Naxa puncticollis, Moore, l. c. p. 575, Nilghiris.

PSYCHIDÆ.

Psyche vesubiella, sp. n., Millière, Pet. Nouv. 1872, pp. 255 & 256, Alpes Maritimes.

NOTODONTIDÆ.

Cnethocampa processionea. On habits of larva, cf. Heywood and Clifford, Ent. vi. pp. 39, 40, 60, 61.

Pygæra bucephala. Larva infested by a large (Dipterous?) larva, cf. Butler, P. E. Soc. 1872, p. 5.

New genera and species :—

Tarsolepis, g. n., Butler, Ann. N. H. (4) x. p. 125. Type *P. remicauda* sp. n., id. l. c. pl. 8, Java. On its supposed identity with *Crinodes sommersi*, Hübn., cf. Ritsema & Butler, l. c. pp. 228, 274, 446; Ent. M. M. ix. pp. 94 & 95, 111 & 112, 164-166. [Cf. also *Bombycidae*.]

Lomatosticha, g. n., Möschler, S. E. Z. 1872, p. 358. Type *L. nigristriata*, sp. n., *id. l. c.* p. 359, Melbourne.

Wærdenia, g. n., Snellen, Tijdschr. Ent. (2) vii. p. 40. Allied to *Demas* and *Diloba*. Type *W. weyenberghi*, sp. n., p. 43, pl. 3. figs. 9–12, Lower Guinea.

Harpyia æruginosa, H. Christoph, Hor. Ent. Ross. ix. p. 4, pl. 1. fig. 1, Sarepta.

Notodonta californica, Stretch, Illustrations, p. 116, pl. 4. fig. 5, California.

Phalera woerdeni, Snellen, *l. c.* p. 45, pl. 4. figs. 1–3, Lower Guinea.

Asbolia micans, Möschler, *l. c.* p. 359, Paramaraibo, Surinam.

Rhinogyne australasiæ, *id. l. c.* p. 360, Melbourne.

LIMACODIDÆ.

Limacodes testudo, var., described by E. F. Bisshopp, Ent. vi. p. 183.

Euphaga (H.-S., plate), Guénée, in Vinson's 'Voyage' &c. Annexe F, p. 40. Allied to *Sibine* and *Nyssia*, but larva spined (eaten by natives of Madagascar). Type *E. floccifera*, H.-S.

DREPANULIDÆ.

Platypteryx falcula. On breeding, *cf.* G. H. Raynor, Ent. vi. pp. 5, 6.

P. falcataria and *curvatula*. Larvæ noticed by F. J. M. Heylaerts, *filis*, Tijdschr. Ent. (2) vii. p. 123.

P. cultraria. Speyer describes var. *æstiva*, S. E. Z. 1872, p. 169.

Apona, Walk. Recharacterized, and both sexes of *A. pallida*, Walk., re-described by Moore, P. Z. S. 1872, p. 579, from Sikkim.

Atompra, g. n., Moore, *l. c.* p. 579. Allied to *Apona*. Type *A. ferruginea*, sp. n., *id. l. c.* p. 580, pl. 33. fig. 8, Darjeeling.

New species :—

Apona plumosa, Moore, *l. c.* p. 579, Kurnool, Nilghiris.

Drepana siculifer, A. S. Packard, Rep. Peab. Ac. iv. p. 87; Stretch, Illustrations, p. 110, pl. 4. fig. 11, California.

SATURNIIDÆ.

A list of the *Saturniide* in the Museum of the Royal Dublin Society is published by W. F. Kirby, J. R. Dubl. Soc. vi. pp. 201–204. Vars. of *Samia cecropia* and *Telea paphia* are mentioned, and remarks made on *Anthracæa mylitta*, *perni*, *yamamai*, &c.

J. P. MAASSEN, with the co-editorship of G. W. Weymer, has published a second part of his 'Beiträge zur Schmetterlingskunde' (Elberfeld, 1872), with 10 plain plates, entirely devoted to the *Saturniide*. The following corrections are made to pt. 1 (*cf.* Zool. Rec. vi. pp. 335, 392):—*Rhescyntis pandora*, Klug., = *R. meander* ♀, Walk.; *Eudæmonia phoenix*, Deyr., = *E. semiramis*, Cram.; *Actias cometes*, Maass., = *A. cometes*, Guén. They figure *Actias dictynna*, Walk., fig. 15; *Brahmæa whitii*, Butl., fig. 17 [= *B. hearseyi*, White, P. E. Soc. (3) i. p. 26]; *Bunæa deyrollii*, Thoms., figs. 18 & 19; *Rinaca zuleica*, Hope, fig. 24; *Actias mænas*, Doubl., figs. 25 and 26.

Attacus atlas. On rearing in France, M. Girard, Bull. Soc. Ent. Fr. (5) ii. pp. lxxxii & lxxxiii.

Attacus cynthia. Report on its rearing in France by Givelet and Usèbe, cf. Guérin-Méneville, R. Z. xxiii. pp. 189-192. On its parthenogenesis, cf. Girard, Bull. Soc. Ent. Fr. (5) ii. p. xii.

Saturnia pyri and *cynthia*. On the structure of their larvæ, cf. Goossens, Bull. Soc. Ent. Fr. (5) ii. p. lxiv.

Platysamia cecropia and *Telea polyphemus*. On their "assembling," cf. R. V. Rogers, Can. Ent. iv. pp. 138 & 139.

Attacus cecropia. On its emergence from its cocoon, cf. B. Clemens, Tin. of N. Amer. pp. 6 & 7.

Samia columbia, Smith, is probably either a variety of *S. cecropia* or a hybrid between this and *S. promethea*. Riley, Rep. Ins. Mo. iv. p. 107.

On rearing *Saturnia yamamai* and *mylitta* in Switzerland, cf. C. Henzi, Verh. schw. Ges. liii. pp. 60-64; MT. Ges. Bern, 1869-1870, nos. 684-711, pp. 206-217; 1870-1871, nos. 711-744, pp. iii-viii. On rearing *S. yamamai* in Italy, cf. Tacchetti, Bull. Ent. Ital. iv. pp. 381-383: at Münster in Westphalia, cf. Verh. Ver. Rheinl. CB. xxviii. pp. 59, 60; VB. westph. rheinl. Ver. Bien. Seidenz. 1870, nos. 1 & 9.

Aglia tau, L. An hermaphrodite noticed by Dietze, S. E. Z. 1872, pp. 331-333.

Hemileuca maia, Drury. Earlier stages, development, habits, &c. minutely described, and imago (♂), pupa, and egg-belt figured by J. A. Lintner, Rep. N. Y. S. Cab. xxiii. pp. 137-153, pl. 8. f. 1-3.

New genera and species :—

Euleucopæus, g. n., A. S. Packard, Rep. Peab. Ac. iv. p. 88. Allied to *Hemileuca*. Type *E. tricolor*, sp. n., p. 89; Stretch, Illustrations, p. 143, pl. 6. figs. 3 & 4, New Mexico.

Rhodia, g. n., Moore, P. Z. S. 1872, p. 578. Type *R. newara*, sp. n., *id. l. c.*, Nepal.

Attacus cæsar, Maassen & Weymer, *l. c.* figs. 22 & 23, Mindanao, Bohol.

Antheræa simplicia, *id. l. c.* p. 20, E. Indies; *A. gueinzii*, Staudinger, S. E. Z. 1872, p. 120, Natal.

Platysamia gloveri, Strecker, Lepidoptera, p. 5, pl. 1, Arizona.

Saturnia dyops, Maassen & Weymer, *l. c.* fig. 21, Natal.

Eudæmonia darceto, *id. l. c.* figs. 13 & 14, New Friburg.

Actias diana, Java, fig. 12, *astarte*, E. Indies, fig. 16 (= *A. selene*, var. ?), *id. l. c.*; *A. cometes* (Boisd. MS.), Guénéé, in Vinson's 'Voyage,' &c., Annexe F, p. 46, pl. 7, Madagascar; *A. rossi*, Ross [!], Cat. Lep. Canada, p. 5, note, Toronto.

Hyperchiria euryopa, Rio, *maasseni*, Cayenne, Möschler, S. E. Z. 1872, p. 361.

Hemileuca nevadensis, Stretch, *l. c.* p. 108, pl. 4. fig. 10, Nevada; *H. juno*, Packard, *l. c.* p. 87, Arizona and Sonora.

Caligula cachara, Moore, *l. c.* p. 578, N. Cachar.

Neoris shadulla, *id. l. c.* p. 577, Shadulla, near Yarkand.

BOMBYCIDÆ.

LUPPI, G. Dictionnaire de Séricologie, comprenant l'art de produire la soie et de l'apprêter. Synonymie en cinq langues, texte en français.

Paris, 1872, 8vo, pp. 530.

Noticed R. Z. xxiii. p. 366.

Clisiocampa americana and *sylvatica*. Larvæ figured by W. Saunders, Can. Ent. iv. p. 134. On destructive swarms of the larva of the latter, cf. Bell, Canad. Ent. iv. p. 199.

Lasiocampa potatoaria. Larva hibernates full-fed in Scotland, like that of *Bombyx rubi*: J. Boswell Syme, Scot. Natii. p. 176. †

Gastropacha cratægi and *quercus*. Hermaphrodites described by O. Nickerl, Verh. z-b. Wien, xxii. p. 731.

Bombyx rubi and *quercus*. On hibernation of larvæ, cf. J. R. S. Clifford and G. B. Corbin, Ent. vi. pp. 15, 83, 84.

B. quercus. Guénéé describes and figures an hermaphrodite, Mém. Soc. Phys. Genève, xxi. pp. 418-422, fig. 8.

On double cocoons in *B. mori* and *Eriogaster lanestris*, cf. P. E. Soc. 1872, p. 5.

Adelocephalides. Boisduval has published a review of the species of this new group, which is closely allied to the *Ceratocampides*. Ann. E. Belg. xv. pp. 79-96. Known species as well as new are described.

Adelocephala pellucida, Smith, probably = *Phalæna virginensis*, Drury. Boisduval, Ann. Ent. Belg. xv. p. 87.

A. senatoria, Smith. Described (with the other known species of the genus) and larva figured by Boisduval, Ann. E. Belg. xv. p. 87, pl. 3. fig. 5.

Phiala xanthosoma, Wgr.: cf. Snellen, Tijdschr. Ent. (2) vii. p. 47, pl. 4. figs. 4-6.

Bombyx mori. P. Eymard ("Rapport de la Commission des Soies sur ses opérations de l'année, 1868," Ann. Soc. L. Lyon (4), i. pp. 87-119) publishes a number of reports and statistics on sericulture which hardly admit of abridgment.

Pasteur's work on the diseases of the silkworm (cf. Zool. Rec. vii. p. 369) is reviewed at length by Kózli, Term. Közl. 1871, pp. 191-195.

On a dipterous parasite infesting the silkworm, cf. E. Cornalia, Rend. Ist. Lomb. (2) iii. pp. 561 & 562.

B. mori. On its parthenogenesis, &c., cf. Bull. Ent. Ital. iv. pp. 276-278, 291-298, 302, 303, 384-388. On its most suitable food, cf. T. C. Batchelor, Tr. N. Y. Inst. iv. pp. 424-427.

On the progress of sericulture throughout the world, cf. Guérin-Ménéville, R. Z. xxiii. pp. 27-32, 123-127.

On sericulture in Mauritius &c., cf. H. C. Descroizilles, P. R. Soc. Maur. (2) vi. pp. 50-56; see also pp. 157-163, 177, 178.

For a detailed paper on sericulture, with notices and figures of the most important of the large silk-producing *Bombycidae* and *Saturniidae* (American and imported), cf. Riley, Rep. Ins. Mo. iv. pp. 72-138.

New genera and species :—

Napta, g. n., Guénéé, Vinson's 'Voyage' &c. Annexe F, p. 43. Allied to *Lasiocampa*. Type *N. serratilinea*, sp. n., *id. l. c.* Madagascar.

Gloveria, g. n., A. S. Packard, Rep. Peab. Ac. iv. p. 89. Allied to *Lasiocampa* (*Otus*). Type *G. arizonensis*, sp. n., *id. l. c.* p. 90, Arizona and New Mexico.

Norasuma, g. n., Moore, P. Z. S. 1872, p. 575. Allied to *Bombyx* and *Theophila*. Type *N. javanica*, sp. n., *id. l. c.* p. 576, pl. 33. fig. 6, Java.

Ceroderes, g. n., Boisd. Ann. E. Belg. xv. p. 81. Intermediate between

the *Ceratocampides* and *Adelocephalides*. Type *Phalena molina*, Cr. (described).

Othorene, g. n., Boisduval, Ann. E. Belg. xv. p. 82. Type *Adelocephala cadmus* (Boisd.), H.-S. (described, p. 83).

Astylis, g. n., *id. l. c.* p. 94. To contain *Phalena bellatrix*, Cr., and *Crino besckii* and *sommeri*, Hübn. [*vide also Notodontidæ*].

Gastropacha hæmat[oid]ea, Snellen, Tijdschr. Ent. (2) vii. p. 44, pl. 3. figs. 13 & 14, Lower Guinea; *G. roseata*, Stretch, Illustrations, pl. 4. fig. 12 (subsequently described as *G. mildi*, p. 113), California; *G. californica*, Packard, *l. c.* p. 91, S. California.

Borocera cajani, Vinson (figured, with descriptions of transformations and remarks on its sericultural importance), 'Voyage' &c. pp. 562-568, pl. 4. figs. 1 & 2; "Le ver à soie de Madagascar, ou ver à soie de l'Ambrevate" (pupæ eaten by the natives, *ibid.* p. 309). Additions by É. Blanchard, *ibid.* pp. 568-572. ? = *madagascariensis*, Bdv.: Guénéé, *ibid.* Annexe F, pp. 45 & 46.

Lasiocampa tamatavæ, Guénéé, *l. c.* p. 44, Madagascar.

Othorene jason, Mexico, p. 83, *fallax*, pl. 3. fig. 3, Brazil, *mexicana*, Oaxaca, *wardi*, Brazil, pl. 3. fig. 2, p. 84: Boisduval, Ann. E. Belg. xv.

Adelocephala leucostigma, Guatemala and Oaxaca, p. 85, *tristigma*, Brazil, pl. 3. fig. 4, p. 86, *leucantha*, p. 89, Brazil, *crocata*, Brazil (?), *argyrantha*, New Friburg, p. 90, *erubescens*, Brazil, p. 91, *isias*, p. 92, Mexico, *dissimilis*, *ruspa*, pl. 3. fig. 1, Oaxaca, p. 93: Boisduval, *l. c.*

Theophila mandarina, sp. n., Moore, *l. c.* p. 576, pl. 33. fig. 5, Shanghai.

Dudusa sphingiformis, sp. n., *id. l. c.* p. 577, pl. 34. fig. 1, Sikkim.

HEPIALIDÆ.

Sthenopsis behrensi and *montana*, Stretch, Illustrations, p. 105, pl. 4. figs. 6 & 7, California: spp. nn.

NOCTUIDÆ.

Vollenhoven, Sepp's Nederl. Ins. (2) ii., gives supplementary observations to his former accounts in the same work, on various (figured) stages of the following species:—*Hadena protea*, p. 222, pl. xlvii. figs. 4-6, egg and larva; *H. nebulosa*, p. 225, pl. xlviii. figs. 1-3, larva; *Luperina pinastri* and *Orthosia stabilis*, p. 226, pl. xlviii. figs. 4 & 5, eggs; *Cymatophora flavicornis*, p. 227, pl. xlviii. figs. 10-12, eggs and detail of larva; *Heliophobus popularis*, p. 231, pl. xlix. figs. 11-13, egg; *Cucullia scrophulariæ*, economy, p. 235; *Herminia barbalis*, *ibid.* pl. 50. fig. 11, larva and food-plant.

A list of 244 *Noctuæ* (exclusive of varieties) occurring in the northern Hartz Mountains is given by W. Henacker, B. E. Z. 1872, pp. 192, 233-237, pl. 6 (topographical).

On very young larvæ of *Noctuæ*, with a figure of that of *Pachetra leuco-phæa*, cf. Bull. Soc. Ent. Fr. (5) ii. pp. lvi-lviii.

Captures of *Noctuæ* in Morayshire by G. Norman, Ent. M. M. viii. pp. 210, 211, ix. pp. 141-143.

Acronycta occidentalis, Grote. W. Saunders describes the larva, and concludes that the species is identical with *A. psi*. Canad. Ent. iv. pp. 49-52.

- A. leporina*. A specimen combining coloration of type and var. *brady-porina*: J. Bond, P. E. Soc. 1872, p. 10.
- A. superans*, Guén. Larva described by W. Le Baron, Rep. Ins. Illin. i. p. 52 (Rec. Am. Ent. 1871, p. 20).
- Leucania straminea*. Larva described by Buckler, Ent. M. M. viii. p. 248.
- Xylophasia zollikoferi*. A very pale var. from Inverarie described, F. B. White, Scot. Nat. i. pp. 267, 268. The species is new to Scotland.
- Hadena hepatica*. Larva described by Rössler, S. E. Z. 1872, pp. 310 & 311.
- Xylomiges conspicillar*. On its variation, cf. H. W. Marsden and T. Goodyear, Ent. vi. p. 130.
- Cerigo cytherea*. Larva described by E. Newman, Ent. vi. pp. 28, 29.
- C. amathusia*, Rambur, noticed and figured by P. Mabille, Ann. Soc. Ent. Fr. (5) ii. p. 500, pl. 15, fig. 8.
- Crymodes exulis*. On its habits in Iceland, cf. W. D. Robinson, Scot. Nat. i. p. 266.
- Mamestra persicariae*. On habits of larva, cf. B. Lockyer, Ent. vi. pp. 198 & 199.
- Apamea unanimitis*. Larva described by Buckler, l. c. pp. 207 & 208.
- A. oclea*. Larva described by G. T. Porritt, Ent. vi. p. 125.
- Caradrina grisea*, Eversm., ? = *petræa*, Tengstr., but is distinct from *4-punctata*, F. (*cubicularis*, W. V.): Keferstein, S. E. Z. 1872, p. 362.
- Agrotis cursoria*. Larva described by Buckler, l. c. ix. pp. 14 & 15.
- A. porphyrea*, W. V. All stages and economy described and figured in detail, with food-plant and dipterous parasite: De Roo van Westmaas, in Vollenhoven's continuation of Sepp's Nederl. Ins. (2) ii. pp. 191-195, pl. xlii.
- A. helvetina*, Boisd., has occurred in Britain, and is redescribed by Knaggs, Ent. M. M. viii. p. 182.
- A. spinifera* has occurred in the Isle of Man: Ent. vi. pp. 124 & 125.
- A. segetum* and *exclamationis*. On the mischief caused by their larvæ in France, cf. Girard, Bull. Soc. Ent. Fr. (5) ii. pp. lxii & lxiii.
- Triphæna subsequa*. Larva described by Buckler, l. c. ix. pp. 56-59.
- Noctua triangulum*, *brunnea*, and *festiva*. Larvæ described by B. Lockyer, l. c. pp. 162-166.
- N. ditrapezium* new to Scotland: F. B. White, l. c. p. 267.
- Xanthia citrigo*. Larva described by G. T. Porritt, l. c. pp. 257 & 258.
- Cirrhædia* [*Cirrhoidia*] *xerampelina*. Var. described by W. Prest, Ent. vi. p. 241.
- Tæniocampa cruda*. Larva described by G. T. Porritt, l. c. pp. 138 & 139.
- T. opima*. Larva described by E. Newman, l. c. pp. 167 & 168.
- T. rubricosa*. Larva found feeding on seed-vessels of wild hyacinth: A. G. Moore, Zool. s. s. vii. p. 3027.
- Anchoelis litura*. Larva described by Buckler, l. c. pp. 39-41.
- A. rufina*. Larva described by Newman, l. c. pp. 126 & 127.
- Euperia fulvago*. A var. described by H. Bartlett, Ent. M. M. viii. pp. 187 & 188.
- Dianthæcia cæsia*. Larva described by Buckler, l. c. pp. 64 & 65.
- Cucullia umbratica* has occurred on an island in the middle of Derwent-1872. [VOL. IX.]

water, half a mile from any point of the shore where *Habenaria chloantha* (butterfly-orchis) grows, with pollen of this plant sticking to its eyes: W. C. Marshall, *Nature*, vi. p. 393.

Cucullia intermedia, Speyer. On this species, cf. J. A. Lintner, Rep. N. York Cab. xxiii. pp. 213-216. The imago, pupa-case, and larva are figured, pl. 8. figs. 5-7 (*C. umbratica*, fig. 4). Speyer's original paper (*S. E. Z.* 1870, pp. 400-406) is translated by E. L. Graef, Rep. &c. *l. c.* pp. 217-222.

Cloantha solidaginis. Larva described by G. T. Porritt, Ent. M. M. ix. p. 92.

Cosmophila auraginioides, Guén.: Snellen, Tijdschr. Ent. (2) vii. p. 60, pl. 5. fig. 6.

Brephos notha. Larva described by Buckler, *l. c.* pp. 41 & 42.

Catocala. For a list of the N.-American species, cf. A. R. Grote, Canad. Ent. iv. pp. 164-167; and for descriptions, *id.* Tr. Am. Ent. Soc. iv. pp. 1-20. *C. neogama*, Guén., nec Smith, is renamed *communis*, p. 9.

Plusia gamma. Large flight observed at sea, 20 miles off Oporto: W. H. Tugwell, Ent. vi. p. 80.

Gonoptera libatrix. Larva described by J. A. Lintner, Rep. N. York Cab. xxiii. p. 195, note.

Amphipyra pyramideoides, Guén. Habits noticed by W. Le Baron, *l. c.* p. 56 (Rec. Am. Ent. 1871, p. 20).

Erebus odora, L. On a var. from St. Bartholomew, cf. Wallengren, Cefv. Vet. Ak. 1871, p. 918.

E. marquesi, Philippi, = *odora*, L.: Weymer & Dohrn, *S. E. Z.* 1872, p. 363.

Ophiodes lunaris new to Scotland, but supposed to be imported: J. Stewart, Scot. Nat. i. p. 215.

Trigonodes hippasia, Cr.: Snellen, Tijdschr. Ent. (2) vii. p. 61.

Remigia frugalis, F. (♀): *id.* *l. c.* p. 64, pl. 5. fig. 7.

Craniophora, g. n., *id.* Vlinders &c., p. 262. Type *Acronycta ligustri*, auctt. *Spudæa*, g. n., *id.* *l. c.* p. 289. Between *Orthosia* and *Orrhodia*. Type *Noctua rutilicilla*, Esp.

Marasmalus, g. n., Grote, Tr. Am. Ent. Soc. iv. p. 89. Allied to *Eurhipia*. Type *M. ventilator*, sp. n., *id.* *l. c.*, New York, Massachusetts.

Pleonectyptera, g. n., *id.* *l. c.* p. 23. Allied to *Catocala*. *Heliothis pyralis*, Hübn. (re-described, *l. c.*), and *P. geometralis* and *phalænalis*, *id.* *l. c.* p. 24, Alabama, spp. nn.

Matigramma, g. n., *id.* *l. c.* p. 22. Allied to *Euclidia*. Type *M. pulverilinea*, sp. n., *id.* *l. c.*, Alabama.

Eutoremma, g. n., *id.* *l. c.* p. 21. Allied to *Toxocampa*. Type *E. tenuis*, sp. n., *id.* *l. c.* p. 23, Alabama.

Phyprosopus, g. n., *id.* *l. c.* p. 90. Allied to *Calpe*. Type *P. callitrichoides*, sp. n., *id.* *l. c.*, New York, Texas.

Notocyma, g. n., Snellen, Tijdschr. Ent. (2) vii. p. 67. Allied to *Calpe*. Type *N. pruinosa*, sp. n., *id.* *l. c.*, Lower Guinea.

Cirrhophamus, g. n., Grote, Canad. Ent. iv. p. 187. Allied to *Gortyna*, but with a superficial resemblance to *Halesidota*. Type *C. triangulifer*, sp. n., *id.* *l. c.*, Missouri.

New species:—

Leucania brantsi, Snellen, Tijdschr. Ent. (2) vii. p. 48, pl. 4. fig. 7, Lower Guinea.

Sesamia tosta, id. l. c. p. 50, pl. 4. fig. 8, Lower Guinea.

Caradrina sericea, id., Vlinders &c., p. 447, Amsterdam [also occurs in Germany, and is described by Speyer in S. E. Z. 1867, p. 73, teste Staudinger's Catalogue, ed. 2: cf. also Zool. Rec. v.].

Agrotis golickii, Erschoff, Hor. Ent. Ross. viii. p. 316, Turkestan.

Graphiphora barthelemica, Wallengren, Öfv. Vet. Ak. 1871, p. 915.

Hadena (Mamestra) badistriga, Grote, Tr. Am. Ent. Soc. iv. p. 20, Canada, N. York.

Agrophila gibbosa, Snellen, Tijdschr. Ent. (2) vii. p. 50, pl. figs. 9-11, Lower Guinea; *A. tortricina*, Zeller, Verh. z.-b. Wien, xxii. p. 461, pl. 2. fig. 5, Texas.

Eumelia (Agrophila) apicella, Grote, l. c. p. 21, Alabama.

Acontia trista [sic], Snellen, l. c. p. 52, pl. 4. figs. 12 & 13, Lower Guinea.

Erastria hamula, p. 33, pl. 4. fig. 14, *griseola*, p. 34, pl. 4. fig. 15, *stigmatula*, p. 35, pl. 4. fig. 16, Lower Guinea: id. l. c.

Xanthoptera africana, p. 56, pl. 5. figs. 1 & 2, *semilutea*, p. 57, pl. 5. fig. 3, Lower Guinea: id. l. c.

Micra nuga and *orthogramma*, id. l. c. pp. 58 & 59, pl. 5. figs. 4 & 5, Lower Guinea.

Micra stali, Wallengren, l. c. p. 916, St. Bartholomew.

Thalpochares mandula, Zeller, l. c. p. 460, pl. 2. fig. 4, Texas.

Phusia orbifer, Guénée, in Vinson's 'Voyage' &c., Annexe F, p. 47, pl. 6. fig. 3, Madagascar.

Catocala resecta, Middle States, *flexibilis*, p. 4, *coccinata*, p. 6, *habilis*, p. 11, Pennsylvania, *abbreviatella* and *frederici*, Texas, p. 14, *linneella*, p. 18, Eastern States, *robinsoni*, p. 20, hab. —? : Grote, l. c.

Cylogramma raboudou, Lucas, Ann. Sc. Nat. xv. no. 22, p. 3, Madagascar.

Trigonia wærdenialis, Snellen, l. c. p. 62, pl. 5. figs. 8 & 9, Lower Guinea.

Remigia impressa, Butler & Druce, Cist. Ent. v. p. 117, Costa Rica.

GEOMETRIDÆ.

Vollenhoven, Sepp's Nederl. Ins. (2) ii. gives supplementary observations to his former accounts of various (figured) stages of the following species:—*Macaria notata*, p. 223, pl. xlvi. fig. 8, egg; *Timandra amataria*, p. 231, pl. xlix. fig. 10, imago, var.; *Melanippe montanata*, p. 233, pl. 2. figs. 1-8, larva and pupa, with details, and food-plant.

Ellopiæ fasciaria. On eggs and young larvæ, cf. T. Groves, Ent. vi. p. 14.

Angerona prunaria. On its varieties, cf. Breyer, Ann. E. Belg. xv. pp. 44 & 45.

Selenia lunaria and *tetralunaria*, F. J. M. Heylaerts, fils, Tijdschr. Ent. (2) vii. p. 123.

Azelina huebneraria, Guén., occurs in California: Packard, P. Bost. Soc. xiii.

Boarmia ilicaria. On this species, cf. Speyer, S. E. Z. 1872, pp. 169-171.

B. adustata, Hb. Larva described by E. Gärtner, Verh. Ver. Brünn, viii. pp. 64-66.

Tephrosia crepuscularia and *consonaria*. Larvæ described by G. T. Porritt, Ent. M. M. viii. pp. 208 & 209, ix. pp. 17 & 18. On breeding varieties of the former, cf. J. T. D. Llewellyn, *op. cit.* p. 272. A black var. noticed by E. Earl, Ent. vi. p. 127.

Gnophos pullata. A. Fuchs describes var. *nubilata* from the Rhine district: S. E. Z. 1872, pp. 429-432.

On *Nemoria porrinata* and *viridata*, cf. Zeller, S. E. Z. 1872, pp. 56 & 57. *N. etruscaria*, Zell., is a false species, founded on *N. pubmentaria* ♂ and *porrinata* ♀.

Iodis vernaria. Life-history by E. Newman, Ent. vi. pp. 168 & 169.

I. vicinaria and *invenusta*, Wgr., redescribed, Öfv. Vet. Ak. 1872, p. 51.

Eucrostis frustrataria, Wgr., redescribed: *id. l. c.* p. 52.

Omphax plantaria, Guén., occurs in E. Caffraria: *id. ibid.*

Ephyra punctaria. Larva described by G. T. Porritt, *l. c.* viii. p. 183.

Micronia erycinaria, Guén.: Snellen, Tijdschr. Ent. (2) vii. p. 78, pl. 6. f. 10.

Fidonia atomaria, L. All stages and economy described and figured in detail, with food-plant, by De Roo van Westmaas, in Vollenhoven's continuation of Sepp's Nederl. Ins. (2) ii. pp. 196-201, pl. xliii.

Bupalus, Leach Cat., Stephens, Walk., &c., recharacterized as new under the name *Bupala*. Snellen, Vlinders, p. 602.

Shanelia hippocastanaria, Hübn. All stages and economy described and figured in detail, with food-plant, by De Roo van Westmaas, *l. c.* pp. 185-190, pl. xli.

Acidalia degeneraria. Larva described by Buckler, Ent. M. M. ix. pp. 115-117.

A. inornata, Haw., and *deversaria*, Hb.: Rössler, S. E. Z. 1872, pp. 309 & 310.

A. imitaria. Larva described by E. Newman, *l. c.* pp. 139 & 140.

A. flaveolaria redescribed: Zeller, *l. c.* pp. 57 & 58.

A. purata, Guén., redescribed: *id.* Verh. z.-b. Wien, xxii. p. 477.

A. pygargata, *nemorivagata*, *antiloparia*, and *gazellaria*, Wgr., redescribed by Wallengren, *l. c.* pp. 52-55.

Timandra viridaria, Walk., = *ledereri*, Wgr.: *id. l. c.* p. 52.

T. neptunaria, Guén.: Snellen, Tijdschr. Ent. (2) vii. p. 78.

Cabera pusaria. A black var. noted by A. Priest, Ent. vi. p. 264.

Macaria ocellinata, Guén., and *æmulataria*, Walk., redescribed by Zeller, *l. c.* pp. 486 & 487.

Lythria plumularia redescribed: *id.* S. E. Z. 1872, pp. 58 & 59.

Abraxas grossulariata. On larvæ feeding on rose and peach, cf. J. R. S. Clifford, Ent. vi. pp. 172 & 173.

Abraxas ribearia, Fitch, cf. A. S. Packard, Rep. Ins. Mass. i. p. 13.

Phalæna petavia, Cr., 347 F, is a *Nassunia*, perhaps = *N. bupalata*, Walk.: Wallengren, *l. c.* p. 55.

Chimatobia brumata. On the ravages of its larva, cf. Ent. vi. pp. 108 & 109.

Hybernia aurantiaria, ♀: F. J. M. Heylaerts fils, Tijdschr. Ent. (2) vii. p. 124.

Larentia literata, Don. Speyer considers this a good species: *l. c.* pp. 171-173.

Eupithecia. P. Mabille, Ann. Soc. Ent. Fr. (5) ii. pp. 500-502, enumerates 26 species as occurring in the department of the Aude, with short notes:—*oblongata*, Thunb., = *centaureata*, W. V.; *laquearia*, H.-S., = *merinata*, Guén.; *nepetata*, Mab., = *semigrapharia*, Mill.; *denotata*, Hübn., is distinct from *campanulata*, H.-S.; *euphrasiata*, H.-S., = *constricta*[*ta*], Mill., nec Guén.; *massiliata*, Mill., = *peyerimhoffata*, Mill.; *tamarisciata*, Frey, may be a summer brood of *innotata*, Hübn.

P. MABILLE (*l. c.* pp. 492-499, pl. 15) redescribes and figures his *E. pyreneata*, fig. 5, *chloerata*, fig. 7, *santolinata*, fig. 4, and *lentiscata*, fig. 6, and *pauvillata*, Ramb., Boisd. (nec H.-S.), fig. 3 (= *expressaria*, Mill., nec H.-S.), = *millieriata*, Staud. He also notices *nepetata*, Mab. (= *semigrapharia*, Mill., ♀ Guén.), and considers *impurata*, Hübn. (= *minoraria*, Dup., = *semigrapharia*, H.-S., = *modicaria*, H.-S., var., ? = *unitaria*, H.-S.), and *E. modicaria*, Hübn. (nec *al.*, sed = *prohuaria*, Frey), to be distinct.

Dietze describes the larvæ of *E. semigrapharia*, *fraxinata*, and of an undetermined species: S. E. Z. 1872, pp. 184, 188, 200. He also (pp. 199-204) publishes short notes on several other species, and (pl. 1. figs. 4-7, 10-19) figures the larvæ of *cauchyata*, *virgaureata*, *campanulata*, *denticulata*, *extraversaria*, *libanotidata*, *trisignaria*, *vulgata*, *semigrapharia*, *selinata*, *irriguata*, *euphrasiata*, *fraxinata*, and *laquearia*.

E. acteata. On the larva, cf. Speyer, *l. c.* pp. 173 & 174.

E. chloerata, Mab.: Dietze, *l. c.* pp. 329-331.

E. pygmæata and *togata*. Larvæ described by H. H. Crewe, Ent. vi. pp. 166 & 167, 223, Zool. (s. s.) vii. pp. 3193 & 3276; cf. also Hellins & Crewe, Ent. M. M. ix. pp. 42, 65, 113-115.

E. subciliata and *pimpinellata*. Larvæ described by Crewe, Ent. vi. pp. 125 & 126, 240; also *E. subciliata*, larva, cf. Crewe & Williams, Ent. M. M. ix. pp. 65 & 66.

Coremia propugnata, W. V., occurs in California: Packard, P. Bost. Soc. xiii.

Cidaria miata. Larva described by G. T. Porritt, Ent. vi. p. 49.

C. designata, Bkh., *fluviata*, Hb., and *ferrugata*, L.: cf. Zeller, Verh. z.-b. Wien, xxii. pp. 494 & 495.

C. lacteata, Hb., probably = second brood of *C. tristata*, L.: H. de Peyerimhoff, Pet. Nouv. 1872, p. 231.

Carsia imbutata. Larva described by H. Hellins, Ent. M. M. ix. pp. 92 & 93.

Anaitis plagiata. On habits of larva, cf. G. F. Mathew, Ent. vi. pp. 27 & 28.

Sudariophora [vox hybr.: ? rectius *Sudarifer*], g. n., Zeller, Verh. z.-b. Wien, xxii. p. 489. Type *S. nasutaria*, id. *l. c.* p. 450 (= *Doryodes acutalis*, Walk., nec *acutaria*, H.-S.), Texas.

New species:—

Chærodes nubilata, A. S. Packard, P. Bost. Soc. xiii., California.

Drepanodes juniperarii, id. Rep. Ins. Mass. i. p. 13, figured in all stages

(=*D. varius*, Gr. & Rob., cf. Packard, Rec. Am. Ent. 1871, p. 21), Massachusetts.

Epione (Euchlœna) mollicularia, Zeller, l. c. p. 481, Texas.

Heterolocha edwardsata, Packard, P. Bost. Soc. xiii., California.

Ellopiæ californiaria, id. l. c., California.

Tetracis triangulifera, id. l. c., California.

Azelina behrensaria, id. l. c., California.

Odontoptera chalybeata, Moore, P. Z. S. 1872, p. 580, pl. 34. fig. 4, N. India.

Metanema cervinaria, Packard, l. c., California.

Biston lefuarius, Erschoff, Hor. Ent. Ross. viii. p. 317, E. Siberia.

Boarmia psilogrammæria, Texas, *fraudentaria*, hab. — ?, Zeller, l. c. pp. 490 & 492; *B. buxicolaria*, P. Mabille, Ann. Soc. Ent. Fr. (5) ii. p. 490, pl. 15. figs. 1 & 2 (possibly = *B. abstersaria*, Boisid.), Department of the Aude; *B. californiaria*, Packard, l. c., California.

B. derogaria, Snellen, Tijdschr. Ent. (2) vii. pl. 6. figs. 5 & 6, Lower Guinea.

Tephrosia californiaria and *ferruginosaria*, Packard, l. c., California.

Geometra lineata, p. 580, pl. 34. fig. 2, Sikkim, *albiviridis*, p. 581, pl. 34. fig. 3, N. India: Moore, l. c.

Nemoria oporaria, Zeller, l. c. p. 481, Northern U.S.

Eucrostis (rectius *Euchrostis*, note) *phyllinaria*, id. l. c. p. 479, Texas.

Nematocampa expunctaria, Grote, Canad. Ent. iv. p. 101, Alabama.

Acidalia 5-linearis, *granitaria*, *californiaria*, *pacificaria*, and *rubrimarginaria*, Packard, l. c., California; *A. ferruminaria*, Zeller, l. c. p. 478, Texas; *A. pulveraria*, p. 75, pl. 6. fig. 7, *reconditaria*, p. 76, pl. 6. figs. 8 & 9: Snellen, l. c., Lower Guinea; *A. erschoffi*, H. Christoph, Hor. Ent. Ross. ix. p. 5, pl. 1. fig. 2, North Persia.

Syngria hamularia, Snellen, l. c. p. 79, pl. 6. fig. 11, Lower Guinea.

Macaria consimilata, *galbilineata*, and *succosata*, Zeller, l. c. pp. 483–485, Massachusetts; *M. grimmia*, Knisip River, p. 57, *getula*, Swakop River, p. 58, Wallengren, Gefv. Vet. Ak. 1872; *M. californiaria*, Packard, l. c., California; *M. angolaria*, Snellen, l. c. p. 81, pl. 6. figs. 12 & 13, Lower Guinea.

Halia cineraria, Packard, l. c., California.

Tephрина marmorata, id. l. c., Nevada; *T. nemorivaga*, Wallengren, l. c. p. 59, Caffraria.

Panagra platyrhync[h]ata, p. 59, Rondebosch, *octomaculata*, p. 60, E. Caffraria, Wallengren, l. c.; *P. flavifasciata*, Packard, l. c., California; *P. smilodontaria*, Snellen, l. c. p. 83, pl. 7. figs. 1 & 2, Lower Guinea.

Scodiona scapularia, Snellen, l. c. p. 84, pl. 7. fig. 4, Lower Guinea.

Selidosema californiaria, Packard, l. c., California.

Fidonia haesaria, Zeller, l. c. p. 488, Texas.

Conchylia pactolaria, Wallengren, l. c. p. 55, E. Caffraria.

Eupithecia schmidi, p. 190, pl. 1. fig. 2, ♂? fig. 1, larva? fig. 3, Tyrol, *chlorofasciata*, p. 192, pl. 1. figs. 8 & 9, Georgia, U.S., *digitaliaria* (= *linariata*, subspecies), p. 194, Odenwald: Dietze, S. E. Z. 1872; *E. provinciata*, P. Millière, R. Z. xxiii. p. 61, Cannes; *E. rotundipuncta*, California, *nevadata*, Nevada, Packard, l. c.

Hypsipetes californiata, *5-fasciata*, and *nubilifasciata*, Packard, l. c., California.

Scordylia mortipax, Butler & Druce, Cist. Ent. v. p. 118, Costa Rica.

Melanippe oxybiata, Millière, l. c. p. 61, Cannes.

Coremia californiata, Packard, *l. c.*, California.

Camptogramma quaggaria and *sylicultrix*, Wallengren, *l. c.* pp. 56 & 57, E. Caffraria.

Scotosia californiata, Packard, *l. c.*, California.

Cidaria nubilata, *subochreatea*, *leoninata*, *4-punctata*, *multilineata*, California, *rubrisuffusata*, Nevada, Packard, *l. c.*; *C. bistriolata* and *parinotata*, Zeller, *l. c.* pp. 493, 495, Texas; *C. guriata*, Emich, R. Z. xxiii. p. 64, and *Guria*, Hor. Ent. Ross. ix. p. 43, pl. 2b. fig. 2, Transcaucasia.

Lithostege staudingeri, Erschoff, Hor. Ent. Ross. viii. p. 317, Turan.

Chesias occidentaliata, Packard, *l. c.*, California.

Baptria californiata, *id. l. c.*, California.

Mesotype textilis, Wallengren, *l. c.* p. 60, E. Caffraria.

PYRALIDÆ.

A. S. PACKARD, "Catalogue of the *Pyralidæ* of California, with descriptions of new Californian *Pterophoridae*," Ann. Lyc. N. York, x. pp. 257-267, enumerates 15 species of the former group, 12 new, and describes 3 new species of the latter. He also (*l. c.* pp. 267-271) publishes "Notes on some *Pyralidæ* from New England, with remarks on the Labrador species of this family," describing 5 new species. The Californian *Pyralidæ* appear to be allied as closely to the fauna of Eastern N. America as to Europe. He does not regard the *Phycidæ* as a distinct family from the *Pyralidæ*, or, at most, considers them a subordinate group connecting the lower *Pyralidæ*, such as *Botys* and *Scopula*, with the *Crambi*.

On the classification of the *Pyralidina*, *cf.* Snellen, Tijdschr. Ent. (2) vii. pp. 85-87.

P. C. ZELLER ("Columbianer Arten der Gattungen Chilo, Crambus et Scoparia," S. E. Z. 1872, pp. 463-481, pl. 2) remarks on the species taken by Von Nolcken, and describes some as new.

Zanclognatha zelleralis (from Neuholdensleben) and *Scoparia zelleri* (from the Upper Harz), both Silesian species, noted by W. Henäcker, B. E. Z. 1872, p. 238.

Pangrapta, Hübn., recharacterized by Grote; and *P. decoralis* (type) re-described, Tr. Am. Ent. Soc. iv. p. 91.

Bleptina caradrinalis, Guén., re-described by Grote, *l. c.* p. 93.

B. interior [!], Grote, *l. c.* p. 94, Alabama, Texas.

Hypena. Grote describes 14 species, some new, as occurring in the Atlantic district, U. S., *l. c.* pp. 101-104; *H. erectalis*, var. *subrufalis* is described; *H. benignalis*, Walk., = *H. baltimoralis*, Guén., ♂, *id. l. c.* p. 102.

Hypena internalis, Robinson (*nec* Guén.) is renamed *torenta*, pp. 24, 103; *H. fallacialis*, Walk., = *Renia discoloralis*, Guén., p. 25: Grote, *l. c.*

Herminia. Guénéé's section §§. S. g. is named *Philometra*, but not re-characterized or adopted as a generic name: *id. l. c.* p. 98.

H. morbidalis, *pedipilalis*, and *cruralis*, Guénéé, re-described: *id. l. c.* pp. 96 & 97.

H. modestalis, Heyd., *cf.* Zeller, S. E. Z. 1872, pp. 54-56.

Clanyma angulalis, Hübn., and *asopialis*, Guén., re-described by Grote, *l. c.* pp. 107 & 108.

Epizeuxis phæalis and *americælis*, Guén.; *æmula*, Hübn.: Zeller, Verh. z.-b. Wien, xiii. pp. 470 & 471.

Zanclognatha pedipilalis, Guén., and *Z. lituralis*, Hübn., described, *id. l. c.* pp. 472 & 473.

Aglossa pinguinalis. Erschoff describes var. *asiatica* from Turan and Persia. Hor. Ent. Ross. viii. p. 317.

Pyralis forficælis. Larva destructive to cabbages, *cf.* C. G. H. Brischke, Schr. Ges. Danz. (2) ii. pts. 3 & 4, no. 9. p. 25. Its occurrence in California is recorded by Packard, Ann. Lyc. N. York, x. p. 265.

Pyralis saccharalis, F. On this and other species feeding on sugar-cane, *cf.* Zeller, S. E. Z. 1872, pp. 466 & 467.

Asopia fimbrialis, W. V., and *A. olinalis*, Guér. (= *trentonalis*, Led., = *costalis*, auctt. Amer.): *id.* Verh. z.-b. Wien, xxii. pp. 491-500.

Acentropus. After a thorough examination of the literature of this genus and of numerous specimens, Dunning concludes that *Acentropus* is Lepidopterous, and that there is but one species, *niveus*, Ol., the females of which vary in alar development. Tr. E. Soc. 1872, pp. 121-156, 281, 282. McLachlan (*op. cit.* pp. 157-162) describes and figures the genital segments of several specimens, and withholds his judgment as to the probable number of species (*cf.* also E. Newman, Ent. vi. pp. 153-158; Zool. s. s. vii. pp. 3117-3125).

C. RITSEMA admits two species of *Acentropus*—*niveus* and *latipennis*: Pet. Nouv. 1872, p. 200.

Botys opacalis, Hübn., appears to be distinct from *ærealis*, Hübn.; *ærealis*, H. S., = *limbipunctalis*, Zell. Zeller, S. E. Z. 1872, pp. 97-99. *B. fodinalis*, Led., from California, is redescribed by Packard, Ann. Lyc. N. York, x. p. 263. *B. inquinatalis*, Zell., probably = *Scopula glacialis*, Pack.: Packard, *l. c.* p. 271.

B. octomaculata, L. (= *Ennychia glomerata*, Walk.); *B. laticlaria*, Grote (= *Rhodaria tyralis*, var., Walk.); *B. cinerosa*, Gr. (= *B. laticlaria*, spring brood ?); *B. signatalis*, Walk.; *B. maculenta*, G.; *B. citrina*, Gr. (= *B. apteralis*, pt., Walk.); *B. ventralis*, Gr.; *B. rubigalis*, Guén. (= *ferrugalis*, var. ?); *B. subjectalis*, Led. (= *euphæsalis*, Walk., ? = *illibalis*, Hübn. ?); *B. adipaloides*, Gr. (= *Samea elealis*, *liparalis* [nec Guén.], and *B. tædialis*, Walk.); *B. flavidalis*, Gr. (= *lucoalis* and *cinctipedalis*, Walk.); and *B. thesealis*, Led. ? (= *partactalis*, Led.). On these N. American species, *cf.* Zeller, Verh. z.-b. Wien, xxii. pp. 503-517.

B. ægrotalis, Zell.: Sellen, Tijdschr. Ent. (2) vii. p. 90, pl. 7. fig. 8.

Conchylodes diaphana, Cr.: Snellen, *l. c.* p. 95, pl. 7. fig. 13.

Isopteryx fædalis and *tenellalis*, Guén., appear to be the same species. Snellen, *l. c.* p. 96.

Eurycreon rantalis, Guén., and *crinitalis*, Led.: Zeller, *l. c.* p. 519.

Mesographe stramentalis, Hübn. (= *Pionea eunusalis*, Walk.): *id. l. c.* p. 520.

Ehulea crocealis, Tr. Millière describes var. ? *oxybialis*. R. Z. xxiii. p. 62, Valley of Cannet.

Crocidophora tuberculalis, Led.: Zeller, *l. c.* p. 521.

Blepharomastix runalis, Guén. (= *Botys gracilis*, Grote): *id. l. c.* p. 523.

Homophysa glaphyrælis (Guén. ?), Led., and *H. sesquistriælis* (Hübn. ?), Led.: *id. l. c.* p. 524.

Nomophila noctuella. On its occurrence in California, and general variation and distribution, cf. Packard, *l. c.* pp. 258, 260. He adds, "Such cosmopolitan forms give rise to the suspicion that they are relics of a preceding geologic age, which is borne out by the fact that quite a gap separates it from its nearest allies."

Ephestia artemisiella. Larva described by Buckler, Ent. M. M. ix. pp. 143 & 144.

Trachonitis cristella, Hübn. Larva described by A. Gärtner, Verh. Ver. Brünn, viii. pp. 69 & 70.

Pempelia albariella, Zeller. *Phycis davisellus*, Newm., is apparently not this species. Doubleday, Ent. M. M. viii. p. 271.

P. lignosella, *petrella*, and allies: Zeller, Verh. z.-b. Wien, xxii. pp. 544 & 545.

Eudorea? *frigidella*, Pack., = *P. fusca*, Haw. Packard, Ann. Lyc. N. York, x. p. 270.

Phycita (Acrobasis) nebulo, Walsh. Fully described and figured in all stages with notice of habits, parasites, &c., by Riley, Rep. Ins. Mo. iv. pp. 38-42.

Anerastia farrella. Larva feeds on *Anthyllis vulneraria*: Schleich and Stainton, Ent. M. M. viii. p. 290.

Epischnia farrella, Curt. (= *Myelois lafauryella*, Const.), and *E. leucoloma* H.-S.: Zeller, *l. c.* p. 558.

Crambus. F. Buchanan White describes all the British species, noting their distribution in Britain and on the Continent. He also notices those continental species which are likely to occur in Britain. Scot. Nat. i. pp. 135-141, 169-174 (also published separately).

C. verellus, Zinck., new to Britain, has occurred at Folkestone: cf. H. Vaughan and H. R. Cox, Ent. M. M. ix. pp. 88, 161; also H. G. Knaggs, Ent. Ann. 1873, p. 42, fig. 1.

C. rhombellus, Zell., = *conchellus*, W. V.; *C. pinetellus* and *pauperellus* are distinct. Zeller, S. E. Z. 1872, pp. 99 & 100.

C. prasinellus and *elegans (terminellus)*, Zell.: *id. l. c.* pp. 470, 473, pl. 2. figs. 3, 5.

C. zermattensis, Frey, redescribed: M.T. Schw. ent. Ges. iii. p. 478.

C. albiclavellus, Schl., = *agitatellus*, var.; *C. polygastrinellus*, Koll., = *decorellus*, Zinck.; *C. terminellus*, Zell., = *elegans*, Clem., and is confounded by Walker with *chalybeirostris*, Zell., as *aurifimbrialis*. On these and other N. American species, cf. Zeller, Verh. z.-b. Wien, xxii. pp. 535-540.

Catharylla pulchella, Walk.?, described and figured from Massachusetts and Texas, p. 541, pl. 3. f. 18; *C. nummulalis* (Hubn.?), Zell., = *Urola microchrysellus* and *subænescens*, Walk., according to Grote. The latter may be *fuscipes*, Zell.; and Grote seems to have confounded several species as *nummulalis*, which, however, is a variable species, and widely distributed in N. America. Zeller, *l. c.* p. 542.

Eromene texana, Rob., probably = *C. ocella*: *id. l. c.* p. 543.

Schænobius longirostellus, Clem. Zeller (*l. c.* p. 533) describes its vars. He doubts if *mehinellus*, *clemensellus*, *dispersellus*, *unipunctellus*, and *tripunctellus*, Robinson, are distinct.

Chilo neuricellus and *obliteratellus*, Zell.: *id. S. E. Z.* 1872, p. 465.

New genera and species :—

Coptocnemis, Zeller, Verh. z.-b. Wien, xxii. p. 475. Allied to *Pechypogon*, p. 476, pl. 2^e fig. 10 *a, b*, Texas.

Cavifrons, id. *l. c.* p. 502. Perhaps a mere section of *Sedenia*. Type *C. biundulalis*, sp. n., id. *l. c.* pl. 3. fig. 14 *a-c*, Texas.

Chalcoela, id. *l. c.* p. 528. Type *C. aurifera*, sp. n., id. *l. c.* p. 529, pl. 2. fig. 12 *a, b*, Texas.

Dicymolomia, id. *l. c.* p. 530. Allied to the last. Type *D. decora*, sp. n., id. *l. c.* p. 531, pl. 2. fig. 13 *a-c*, Texas.

Colobochila saligna, id. *l. c.* p. 488, Texas.

Hypena albisignalis, p. 463, *achatinalis*, p. 463, pl. 2. fig. 7 (= *madefactalis*, Guén. ?), *trituberalis*, p. 469, fig. 6, Texas, *lacinososa*, p. 464, fig. 8, Massachusetts?, *pallialis*, p. 466, fig. 9, Texas and Massachusetts, id. *l. c.*; *H. citata*, p. 101, Alabama, *sordidula*, p. 103, and *profecta*, p. 104, Pennsylvania, Grote, Tr. Am. Ent. Soc. iv.

Renia brevirostralis, p. 25, Pennsylvania, Alabama, *larvalis*, p. 26, Pennsylvania, Texas, *restrictalis*, p. 26, Pennsylvania, *centralis*, West Virginia, *pastoralis*, Pennsylvania, *belfragii*, Texas, p. 27: Grote, *l. c.*

Renia ulutalis and *plenilinealis*, id. *l. c.* p. 99.

Herminia levigata, p. 95, Atlantic States, *marcidilinea*, p. 97, Pennsylvania, Alabama, *obscuripennis*, Alabama, *ochreipennis*, p. 98, West Virginia, Pennsylvania, *serraticornis*, p. 98, *longilabris*, p. 99, Pennsylvania, Virginia: id. *l. c.*

Madopa interpuncta[*ta*], id. *l. c.* p. 93, Alabama.

Tortricodes bifidalis, p. 105, Atlantic district, *indivialis*, p. 106, New York, Alabama (? sexes of one sp.): id. *l. c.*

Zanclognatha deceptricalis, Zeller, Verh. z.-b. Wien, xxii. p. 474, Ohio?

Platydia selenialis, Snellen, Tijdschr. Ent. (2) vii. p. 64, Lower Guinea.

Rivula terrosa, id. *l. c.* p. 66, pl. 5. fig. 10, Lower Guinea.

Acropteris hypocrita, pl. 6. figs. 1 & 2, Lower Guinea, *mendar*, figs. 3 & 4, Java, Africa: id. *l. c.* p. 71.

Palthis walkeri, Wallengren, Öfv. Vet. Ak. 1871, p. 918, St. Bartholomew.

Aglossa cuprina, Zeller, *l. c.* p. 497, Texas.

Asopia himonialis [? *hemionionalis*], Massachusetts, *binodulalis*, Texas, id. *l. c.* pp. 500 & 501; *A. cultralis*, Snellen, *l. c.* p. 88, pl. 7. fig. 5, Lower Guinea.

Hercyna staudingeri, H. Christoph, Hor. Ent. Ross. ix. p. 6, pl. 1. fig. 3, Persia.

Anthophilodes conchylialis, id. *l. c.* p. 7, pl. 1. fig. 4, Sarepta.

Catachysta metalliferalis, Packard, Ann. Lyc. N. York, x. p. 265, California.

Botys tithonalis, p. 504, pl. 3. fig. 15, Siberia, *fracturalis*, p. 509, fig. 16, Texas, *abdominalis*, p. 515, N. America, Zeller, *l. c.*; *B. auralis*, Peyerimhoff, Pet. Nouv. 1872, p. 252, Alsace? (*cf.* also 1871, pp. 168 & 169); *B. californicalis* [!], p. 260, California, *subovalis*, p. 261, note, Maine, *unifascialis* and *profundalis*, p. 261, *mustchinalis*, p. 262, *semirubralis*, p. 263, *perrubralis*, p. 265, all from California, Packard, *l. c.*; *B. tridentalis*, p. 89, pl. 7. figs. 6 & 7, *auralis*, p. 90, pl. 7. figs. 9 & 10, Lower Guinea, Snellen, *l. c.*; *B. monialis*, Erschoff, Hor. Ent. Ross. viii. p. 317, Samarcand.

Marasmia rectistrigosa, Snellen, *l. c.* p. 92, pl. 7. figs. 11 & 12, Lower Guinea.

Paraponyx hartoghialis, id. *l. c.* p. 97, pl. 7. figs. 14 & 15, Lower Guinea.

- Cataclysta tripunctalis*, id. l. c. p. 98, pl. 8. fig. 1, Lower Guinea.
- Eurycreon (Spilodes) cereralis*, Zeller, Verh. z.-b. Wien, xxii. p. 517, Texas.
- Scopula occidentalis*, Packard, Ann. Lyc. N. York, x. p. 260, California.
- Crocidophora serratissimalis*, Zeller, l. c. p. 521, Massachusetts, Texas.
- Homophya lentifualis* and *unicolalis*, id. l. c. pp. 525 & 526, Texas.
- Scoparia scotica*, F. B. White, Ent. M. M. viii. p. 169, Perth (cf. also H. G. Knaggs, Ent. Ann. 1873, p. 42); *S. biscutella*, p. 474, pl. 2. fig. 8, *tersella*, p. 476, fig. 9, *tricolor*, p. 478, fig. 10, *longipennis*, p. 479, fig. 11, Zeller, S. E. Z. 1872, Bogota.
- Galleria inimicella*, Zeller, Verh. z.-b. Wien, xxii. p. 559, pl. 3. fig. 20, Texas.
- Melissoblyptes æconomellus*, Mann, Verh. z.-b. Wien, xxii. p. 35, Bulgaria;
- M. fulminalis*, Zeller, l. c. p. 560, pl. 3. fig. 19, Texas.
- Zophodia balli*, Zeller, l. c. p. 550, pl. 3. fig. 21 a, b, Texas.
- Anerastia tetradella*, *glareocella*, *binotella*, Texas, *hæmatica*, Massachusetts: id. l. c. pp. 552-555.
- Acrobasis rubrifasciella*, Packard, Ann. Lyc. N. York, x. p. 267, Maine (with remarks on transformations, indicating that 2 species may possibly be included under the name); *A. juglandis* (Le Baron), Riley, Rep. Ins. Mo. iv. pp. 42 & 43, United States, figured and habits described.
- Myelois ciliatella*, Zeller, l. c. p. 557, Sarepta; *M. albiplagiata*, Packard, l. c. p. 269, New Hampshire; *M. stibiella*, Snellen, l. c. p. 104, pl. 8. figs. 7 & 8, Lower Guinea; *M. (?) diffusella* (Zell. MS.), Christoph, l. c. p. 8, pl. 1. fig. 5, Sarepta.
- Ematheudes straminella*, Snellen, l. c. p. 107, pl. 8. fig. 9, Lower Guinea.
- Nephoteryx consobrinella*, Texas, *basilaris*, Massachusetts, Zeller, l. c. pp. 548 & 549, pl. 3. figs. 22 & 23; *N. latifasciatella*, Maine, p. 269, *roseatella*, Massachusetts, p. 270, Packard, l. c.
- Ephestia polyxenella*, Millière, R. Z. xxiii. p. 63, Cannes, Caucasus.
- Pempelia (?) tartarella* and *incantella*, Zeller, l. c. pp. 544 & 545, Texas;
- P. fenestrella* and *leoninella*, p. 259, California, *ovalis*, p. 269, Maine, Packard, l. c.; *P. hammondi*, Riley, l. c. pp. 44-46, fig. 21, described in all stages, Missouri, Illinois.
- Tetralopha melanogramma*, Zeller, l. c. p. 546, pl. 3. fig. 24 a, b, Texas.
- Calamotropha robustella*, p. 100, pl. 8. fig. 2 & 3, *abjectella*, p. 101, pl. 8. fig. 4, Snellen, l. c., Lower Guinea.
- Chilo cervinellus*, Nilghiris, S. India, pl. 34. fig. 7, *bivitellus*, fig. 8, *interruptellus*, fig. 5, p. 581, *inconspicuellus*, fig. 6, p. 582, Bombay: Moore, P. Z. S. 1872.
- Scirpophaga [vox hybr.] vestaliella*, Zeller, l. c. p. 532, Texas.
- Crambus xiphiellus*, p. 467, pl. 2. fig. 1, *falcarius*, p. 469, fig. 2, *pulverulentellus*, p. 473, fig. 7, Bogota, *nolckeniellus*, p. 470, fig. 4, *immunellus*, p. 472, fig. 6, Ubaque, Zeller, S. E. Z. 1872; *C. bidens*, p. 535, pl. 3. f. 17, *floridus*, p. 537, Massachusetts, id. Verh. z.-b. Wien, xxii.; *C. oxybiellus*, Millière, R. Z. xxiii. p. 62, Valley of Cannel; *C. inconspicuellus* and *troglydytellus*, Snellen, l. c. pp. 102 & 103, pl. 8. figs. 5 & 6, Lower Guinea.
- Eromene californicalis* [?] *californica*, vel *californiæ*], Packard, Ann. Lyc. N. York, x. p. 264, California.
- Catharylla contiguella*, p. 540, Cuba, *rufisignella*, p. 542, Texas: Zeller, Verh. z.-b. Wien, xxii.
- Jartheza biplagella*, Moore, l. c. p. 582, pl. 34. fig. 9, Bombay.

TORTRICIDÆ.

Vollenhoven, Sepp's Nederl. Ins. (2) ii., supplements former accounts of various (figured) stages of the following species:—*Tortrix variegata* [na], p. 226, pl. xlvi. figs. 6 & 7, eggs; *T. ribe[s]ana*, p. 229, pl. xlix. figs. 1–9, eggs and larva, with details; *Grapholitha corticana*, p. 227, pl. xlvi. fig. 8, imago.

On species of *Tortricidæ* destructive to the vine in Switzerland, cf. Kübler, Verh. Schw. Ges. 1871, pp. 52–54.

A. GÄRTNER (Verh. Ver. Brünn, viii. pp. 70–84) describes the larvæ or transformations of *Conchylis zoegana*, *roseana*, *kindermanniana*, *smeathmanniana*, *tischerana*, *cruentana*, *atricapitana*, *pulvillana*, *Grapholitha cæcimaculana*, *reliquana*, *servilliana*, and *Dicrorampha alpinana*, and mentions the larvæ and pupæ of several other species.

BARRETT (Ent. M. M. ix. pp. 124–130) publishes “Notes on British Tortricæ, with descriptions of two new species.” *Hypermezia augustana*, Hübn., *Antithesia grevilliana*, Curt., and *Dichelia gnomana*, L., are redescribed (the last new to Britain: cf. Knaggs, Ent. Ann. 1873, p. 43). The paper mainly consists of short synonymic notes, not original.

BARRETT (*l. c.* pp. 25–31) notices the British species of the genera *Dicrorampha* and *Endopisa*, as restricted by Wilkinson. *D. flavidorsana*, Knaggs, = *petiverella*, var.; *D. politana*, Hübn., is apparently distinct; *D. tanacetii*, Staint., = *saturnana*, Hein. (*nec* Guén., Wilk., Staint.), but not *plumbagana*, Tr.; *Endopisa nigricana*, Steph., = *tenebrosana*, Dup., = *pisana*, Guén., = *proximana*, Wilk., = *nebritana*, Wilk., Doubl., *nec*. Tr. Guénéé's description of his *D. senectana* is reproduced.

Steganoptycha augustana new to Scotland: J. Dunsmore and F. B. White, Scot. Nat. i. p. 176.

Teras mixtana, Hübn. Peyerimhoff describes and figures var. *provinciana* from Cannes: Ann. Soc. Ent. Fr. (5) ii. p. 8, pl. 5. fig. 2.

Retinia turionella, var. *mughiana*, Zell.: Zeller, S. E. Z. 1872, pp. 103 & 104.

Grapholitha pflugiana, Hübn., var. *alsatiana*, from Alsace, described and figured: Peyerimhoff, *l. c.* p. 10, pl. 5. figs. 4 & 4 a.

G. pusillana, Peyerimhoff, from the Vosges, is redescribed and figured by him, *l. c.* p. 9, pl. 5. figs. 3 & 3 a.

Sciaphila wahlbomiana, L., and *minusculana*, Zell. On their structure, transformations, variation, &c., cf. Zeller and O. Hofmann, S. E. Z. 1872, pp. 102 & 103, 433–446. (Hofmann's paper is translated, Ent. Ann. 1873, pp. 50–69.)

New species :—

Tortrix albardana, Snellen, Tijdschr. Ent. (2) vii. p. 108, pl. 8. fig. 10, Lower Guinea; *T. cinderella*, Riley, Rep. Ins. Mo. iv. pp. 46 & 47, fig. 22, described and figured in all stages, Missouri; *T. malivorana*, Le Baron, Rep. Ins. Illin. pp. 16 & 20, Illinois, Am. Nat. v. pp. 209–212 (habits noticed by Riley and Wier, Rep. Ins. Mo. iv. pp. 47–49).

Antithesia staintoniana, Barrett, Ent. M. M. ix. p. 127, Perthshire (cf. Knaggs, Ent. Ann. 1873, p. 44).

Dicrorampha herbosana, Barrett, *l. c.* p. 27, England (cf. Knaggs, Ent. Ann. 1873, pp. 45 & 46).

Atteria leopardina, p. 89, New Granada, *volcanica*, p. 90, Costa Rica, Butler, Cist. Ent. iv.

Steganoptycha languentana, Staudinger, Verh. z.-b. Wien, xxii. p. 733, Upper Engadine.

Teras cyaneana, Peyerimhoff, Ann. Soc. Ent. Fr. (5) ii. p. 7, pl. 5. figs. 1 & 1 a, Switzerland.

Phthoroblastis fraxinana, id. l. c. p. 12, pl. 5. fig. 5, Colmar.

Retinia amethystana, id. Pet. Nouv. 1872, p. 289, Alsace? (♀ = *R. obesana*, Delaharpe).

Conchylis exasperatana (Zell. MS.), p. 9, pl. 1. fig. 6, *halophilana*, p. 10, pl. 1. fig. 7, *coagulana* (Zell. MS.), p. 11, pl. 1. fig. 8, H. Christoph, Hor. Ent. Ross. ix., Sarepta; *C. robinsonana*, Grote, Canad. Ent. iv. p. 161, Alabama.

Aspis jaspidana, Christoph, l. c. p. 12, pl. 1. fig. 9, Sarepta.

Aphelia robustana, id. l. c. p. 13, pl. 1. fig. 10, Sarepta, Bogdo.

Grapholitha conformana, Mann, Verh. z.-b. Wien, xxii. p. 36, S. Europe, Brussa; *G. cæmentana* (Zell. MS.), p. 14, pl. 1. fig. 11, *agnatana*, p. 15, pl. 1. fig. 12, *sarmatana* (Zell. MS.), p. 16, pl. 1. fig. 13, *labyrinthicana* (with notice of larva), p. 17, pl. 1. fig. 14, Christoph, l. c., Sarepta; *G. improbana*, Snellen, l. c. p. 109, pl. 8. fig. 11, Lower Guinea.

Sericoris doubledayana, Barrett, l. c. viii. p. 246, England (cf. Knaggs, Ent. Ann. 1873. p. 45).

TINEIDÆ.

H. T. STANTON has republished the scattered papers of the late Dr. Brackenridge Clemens, under the title of 'The Tineina of North America' (London: 1872, 8vo, pp. xv & 232, woodcuts), adding a classified arrangement of species, brief notes on those described, and on Clemens's writings on other groups of *Lepidoptera*; and extracts from the correspondence of Clemens, Walsh, and Stainton. The work is illustrated by reproductions of Clemens's drawings of structural detail of various genera, &c.

A tabular arrangement of the groups of *Tineidæ* by Clemens (who regarded the *Tortricidæ* as a section of this family) is given by Stainton, l. c. pp. 34 & 35.

On various leaf-mining larvæ, cf. E. L. Ragonot, Pet. Nouv. 1872, p. 232. An unknown mine is figured by Clemens, l. c. p. 27.

On fungus-feeding *Tineina*, cf. C. G. Barrett, Ent. M. M. viii. pp. 250 & 251. GÄRTNER notices the larvæ or pupæ of *Argyresthia gœdartella*, *Hypso-lopha barbella*, *Anacamptis subsequella*, *Gracilaria stigmatella*, *G. phasianipennella*, *Coleophora fuscadinella*, *limosipennella*, *otitæ*, *tiliella*, &c.: Verh. Ver. Brünn, viii. pp. 84-90.

An hitherto unpublished plate by Clemens, representing details of the genera *Tinea*, *Xylesthia*, *Amydria*, and *Anaphora*, is given by Stainton, l. c. p. 60.

Exapate duratella, v. Heyd., redescribed: H. Frey, MT. schw. ent. Ges. iii. p. 478.

Tinea bistavimaculella, Clemens, = *T. rusticella*, Hübn., v. *spilotella*, Tengstr.; *T. carnariella*, Cl., = *T. pelliella*, L. ?; *T. lanariella*, Cl., = *T. biselliella*, Humm.; *T. nubilipennella*, Cl., = *T. fuscipunctella*, Haw.; *T. variatella*, Cl., = *T. granella*, L. ? : Stainton, l. c. p. viii.

T. pallescentella and *rusticella*. Larvæ found feeding on a dead and dried-up cat. C. Eales, Ent. M. M. viii. pp. 209, 210.

T. tapetzella, egg described and figured: Vollenhoven, Sepp's Nederl. Ins. (2) ii. p. 223, pl. xlvii. fig. 7.

Anaphora agrotipennella. ♀ described: Grote, Canad. Ent. iv. pp. 142, 143.

Nemophora reaumurella, Peyerimhoff, redescribed and figured by him, Ann. Soc. Ent. Fr. (5) ii. p. 13, pl. 5. figs. 6 & 6 a.

Nemotois inauratellus, Dup., redescribed: *id. l. c.* p. 14.

Plutella vigilariella, Clemens, = *porrectella*, L.; *P. limbipennella*, Cl., = *cruciferarum*, Zell.; *P. mollipedella*, Cl., = *cruciferarum*, ♀? Stainton, *l. c.* p. ix.

Gelechiidæ. V. T. Chambers seems inclined to unite all the genera of this family. Canad. Ent. iv. p. 148.

Psecadia flavitibiella noticed by Zeller, S. E. Z. 1872, p. 104.

P. funerella. Larva described and figured: Vollenhoven, Sepp's Nederl. Ins. (2) ii. p. 227, pl. xlviii. fig. 9.

Scythropia cratægella, L. All stages and economy described and figured with details and food-plant: De Roo van Westmaas, in Vollenhoven's continuation of Sepp's Nederl. Ins. (2) ii. pp. 208-211, pl. xlv.

Chimabacche phryganella, Hübn. The like notice: *id. l. c.* pp. 212-219, pl. xlvi.

Depressaria yeatiana feeds on wild carrot. Stainton, Ent. M. M. ix. p. 113.

D. depressella. On variation in larva, *cf.* L. Webb, Ent. M. M. ix. p. 144.

D. liturella, W. V., = *Phalæna kækritziana*, L. Speyer, S. E. Z. 1872, pp. 174 & 175.

Gelechia tripunctella (and var. *maculosella*, H.-S.) and *continuella*, Zell.: Zeller, *l. c.* pp. 104-108. *G. libertinella* and allies: *id. l. c.* pp. 112-115.

G. hermanella, Staint. Comments by V. T. Chambers, Canad. Ent. iv. pp. 67 & 68.

Holcocera glandulella, Riley, Canad. Ent. iv. pp. 18 & 19; Rep. Ins. Mo. iv. pp. 144 & 145, fig. 66 (described in all stages), United States.

Endrosis (?) *kennicottella*, Clemens, ? = *fenestrella*, Scop. [*lacteella*, W. V.; *fenestrella*, Scop., is a *Thyris*, *sec.* Werneburg]: Stainton, Tin. N. Amer. p. xi.

Anarsia prunicella, Cl., = *lineatella*, Zell.: Chambers, Can. Ent. iv. p. 208.

Butalis fallacella, *amphonycella*, *laminella*, and *chenopodiella*: Zeller, *l. c.* pp. 115-117.

B. flavifrontella, Clem., ? = *basilaris*, Zell.; *B. malutella*, Cl., ? = *impositella*, Zell.: Stainton, *l. c.* p. xi.

Antispila rivillii. On its rediscovery, *cf.* Stainton, P. E. Soc. 1872, pp. 23, 24; fully described, Ent. M. M. ix. pp. 54-56.

A. nyssifoliella. On its transformations, *cf.* Clemens, *l. c.* p. 20.

Aspidisca. A species bred from poplar by Stainton, Ent. M. M. ix. p. 18.

A. splendoriferella. Transformations described by Clemens; imago noticed by Stainton, Tin. N. Amer. pp. 26, 27, 105.

Argyresthia oreasella, Clemens, = *andereggiella*, Dup. Stainton, *l. c.* p. xi.

Elachista apicipunctella, Staint. All stages and economy described and figured with details and food-plant. H. Albarda, in Vollenhoven's continuation of Sepp's Nederl. Ins. (2) ii. pp. 179-184, pl. xl.

Lithocolletis robiniella. On its transformations, cf. Clemens, *l. c.* pp. 9-12.

Phyllocnistis vitigenella. On the larva, cf. Clemens, *l. c.* p. 25.

Zelleria saxifragæ, Staint., new to Britain. Trail & White, Scot. Nat. i. p. 176; Ent. M. M. viii. p. 271; Stainton, Ent. Ann. 1873, pp. 48 & 49, fig. 3 (who also, *l. c.* fig. 2, notices and figures *Z. fasciipennella*, Logan).

Gracilaria. V. T. Chambers classes the genera *Coriscium*, Zell., *Parectopa*, Clem., and *Euspilapteryx*, H.-S., under this, thinking it is quite premature to subdivide it. He also notices *G. (Parectopa) robiniella*, Cl., pp. 8 & 9; *G. desmodifoliella*, Cl., = *violacella*, Cl., *olim*, pp. 26 & 27. Canad. Ent. iv. pp. 7 & 8.

G. syringella. Larva: L. Glaser, Pollich. 28 & 29, pp. 34 & 35.

Coriscium sulphurellum, Haw. Peyerimhoff describes and figures var. *aurantiellum* from Hyères. Ann. Soc. Ent. Fr. (5) ii. p. 200, pl. 6. fig. 10.

Coleophora cistorum, Peyerimhoff, redescribed and figured by him, *l. c.* p. 199, pl. 6. figs. 9 & 9 a.

Bedellia staintonella, Clemens, = *B. somnulentella*, Zell.: Stainton, Tin. N. Amer. p. xii.

Chauliodus daucellus, Pey., new to Britain: Stainton, Ent. Ann. 1873, p. 49.

Stigmatophora albiapicella. Transformations noticed: G. R. v. Frauenfeld, Verh. z.-b. Wien, xxii. pp. 395 & 396.

Cemistoma. Chambers, Am. Nat. iv. pp. 489 & 490.

C. coffeellum. Life history by B. P. Mann, Amer. Nat. vi. pp. 332-341, with figs. pp. 596-607.

Bucculatrix pomifoliella, Clem., figured, with description of larva, pupa, and habits, by Riley, Rep. Ins. Mo. iv. pp. 49-51, fig. 23.

New genera and species:—

Enæmia, g. n., Zeller, Verh. z.-b. Wien, xxii. p. 562. Allied to *Psecadia*. *E. psammitis*, and *crassivenella*, spp. nn., *id. l. c.* pp. 562 & 563, pl. 3. figs. 26 & 27, Texas.

Agnippe, g. n., Chambers, Canad. Ent. iv. p. 194. Allied to *Gelechia* by the palpi, but with more pointed and convoluted wings, and by the neuration to *Anorthosia* and *Chrysochorys*, Clem. *A. bicolorella* and *fuscipulvella*, spp. nn., *id. l. c.* p. 195, Kentucky.

Adrasteia[-*tia*], g. n., *id. l. c.* p. 149. Allied to *Gelechia*; 2nd joint of palpi clothed beneath with a dense spreading but scarcely divided brush; basal joint of palpi distinctly clavate; wings with distinct though small tufts of raised scales, and rows of separate raised scales not in tufts. *A. alexandriacella* and *fasciella*, spp. nn., *id. ibid.*, Kentucky; *A. quercifoliella* (= *Depressaria bicostomaculella*, Chamb., *olim* [less appropriate name!], *id. l. c.* p. 206; *D. querciella* is also referred to this genus, p. 207.

Hagno, g. n., *id. l. c.* p. 129. Probably identical with *Psilocorsis*, Cl. Types *Depressaria cryptolechiella*, Chamb., and *H. faginella*, sp. n., *id. l. c.* p. 131.

Telphusa [*Thelphusa*, Latr.], g. n., *id. l. c.* p. 132. Allied to *Depressaria*; abdomen not depressed; antennæ more setiform; palpal brush very small, though with a trace of a longitudinal division; terminal joint of palpi shorter than second. Type *T. curvistrigella*, sp. n., *id. l. c.* p. 132 (= *Gelechia longifasciella*, Clem., cf. p. 174).

Cirrho, g. n., *id. l. c.* p. 146. Allied to *Depressaria*; antennæ more di-

stinctly pectinated; brush on the palpi long, ragged, not divided; abdomen less flat. Type *C. platanella* (= *Depressaria albisparsella*, Chambers, olim [name changed for one more appropriate !]).

Venilia [long preocc. in *Geometridæ*], g. n., *id. l. c.* p. 207. Allied to *Anarsia*, *Cleodora*, and *Hypsilophus*. Neuration and tuft at the end of 2nd joint of palpi resembles *Anarsia*; antennæ slender, as in *Cleodora*, but wings wider, and terminal joint of palpi too long and slender. Type *V. albipalpella*, sp. n., *id. l. c.* p. 208, Kentucky.

Begoe, g. n., *id. l. c.* p. 209. Allied to *Hypsilophus*; terminal joint of palpi a little more robust, 2nd joint clavate, rounded at apex, laterally compressed, vertically thickest just before the end, forming a thick, rather compact, undivided brush. Type *B. costolutella* [rectius *luteicostella*], sp. n., *id. ibid.*, Kentucky.

Sagaritis [used on a plate by Hübner in *Rhopalocera*, and preoccupied in *Ichneumonidæ*], g. n., *id. l. c.* p. 225. Possibly = *Chatochilus*; allied to *Anorthosia*, except in neuration, and to *Hypsilophus* in neuration and palpi. Type *S. gracilella*, sp. n., *id. l. c.* p. 226, Kentucky.

Promiba yuccasella, Riley, g. & s. nn. Habits &c. described: Nature, vi. p. 444, in a report of Amer. Assoc.

Solenobia pretiosa, Stainton, Ent. M. M. viii. p. 233, Tangiers.

Tinea prætoriiella (Zell. MS.) H. Christoph, Hor. Ent. Ross. ix. p. 19, pl. 1. fig. 15, Sarepta.

Anaphora mortipennella and *agrotipennella*, Grote, Can. Ent. iv. p. 137, Central Alabama.

Lampronia dumicolella, Peyerimhoff, Pet. Nouv. 1872, p. 240, Alsace.

Hyponomeuta evonymella and *longimaculella*, Chambers, *l. c.* pp. 42, 43, Kentucky (the first species renamed *orbimaculella*: *id. l. c.* p. 88).

Heribeia (?) *incertella*, *id. l. c.* p. 44, Kentucky (with notice of structural characters).

Psecadia semilugens, Zeller, *l. c.* p. 561, pl. 3. fig. 25, Texas.

Depressaria lepidella and *niviferella*, Christoph, *l. c.* pp. 19 & 20, pl. 1. figs. 16 & 17, Sarepta.

Strobisia aphroditella and *venustella*, Chambers, *l. c.* pp. 88 & 90, Kentucky.

Depressaria cryptolechiella, p. 91, *D.* (?) *dubitella* and *albisparsella*, Kentucky, *D. bistrigella*, Ontario (?), p. 92, *rileyella*, *fusciochrella*, *fuscitella*, *obscurusella* [!], p. 106; *pseudacaciella*, p. 107, *bimaculella*, and *cercerisella*, p. 108, *pallidochrella*, p. 126, *versicolorella*, *bicostomaculella* [? *bimaculicostella*], and *querciella* [sic], p. 127, Chambers, *l. c.*, Kentucky (revised, pp. 128 & 129). [On the position of some of these species, cf. p. 147; and also p. 379 of this Record.]

Gelechia squamulella, Peyerimhoff, Ann. Soc. Ent. Fr. (5) ii. p. 15, pl. 5. fig. 7, Hyères; *G. succinctella*, p. 108, *feralella*, p. 110, *terrestrella*, p. 111, Zeller, S. E. Z. 1872, Grisons; *G. brucinella*, (larva in tamarisk-galls at) Palermo, Brussa, and Cairo; *gallincolella* (larva in tamarisk-galls at) Spalato, p. 37, *decuriella*, Raibl, p. 38, Mann, Verh. z.-b. Wien, xxii.; *G. tephrianella* and *palpiannulella* [? *annulipalpella*], p. 68, *thoraceochrella* [? *ochreithoracella*], p. 169, *obscorella*, *fuscipulvella*, *fuscimaculella*, and *quercinigrac*[i]ella, p. 170, *gris*[e]ella, *albistrigella*, *suffusella*, p. 171, *discimaculella*, *aurimaculella*, *G.* (?) *curvilineella*, p. 172, *G. physaliella*, *quercivorella*, p. 173, *varicella*, p. 174, *G.* (?) *quinqueannulella*, p. 191, and *badiimaculella*, p. 191, *G. æquipulvella*, *ibid.*,

similella and *rubensella*, p. 193, *discoocellella* [?] *ocellatidiscella*], p. 194, Chambers, l. c., Kentucky; *G. interstratella*, Christoph, l. c. p. 21, pl. 1. fig. 18, Sarepta.

Evagora difficilisella [!], Chambers, l. c. p. 66, Kentucky. (For an amended description, referring the species provisionally to *Gelechia*, cf. pp. 192 & 193).

Lita schleichi, Christoph, l. c. p. 22, pl. 1. fig. 19, Sarepta.

Ptochenusa sublutella (Zell. MS.), id. l. c. p. 23, pl. 2 a. fig. 20, Sarepta.

Parasia griseella, p. 88, Ontario (?), *apicistrigella*, p. 66, Kentucky, Chambers, l. c.

Ergatis calastomella (Zell. MS.), Christoph, l. c. p. 24, pl. 2 a. fig. 21, Sarepta; *E. rogenhoferi*, Staudinger, Verh. z.-b. Wien, xxii. p. 734, Upper Engadine.

Doryphora? *praticolella* (Zell. MS.), Christoph, l. c. p. 25, pl. 2 a. fig. 22 Sarepta.

Hypsolophus [*Hypsil-*] *eupatoriellus*, p. 221, *reedellus* and *quercipominellus* [*sic*], p. 222, *querciellus* [*sic*], p. 223, *caryifoliellus* and *straminiellus*, p. 224, Chambers, l. c., Kentucky.

Anarsia obliquistrigella, id. l. c. p. 65, Kentucky; *A.* (?) *saniculella*, Christoph, l. c. p. 27, pl. 2 a. fig. 23, Persia.

Pleurota sublustrella, Mann, Verh. z.-b. Wien, xxii. p. 39, Brussa; *P. dorsella* and *contignatella* (Zell. MS.), Christoph, l. c. pp. 28 & 29, pl. 2 a. figs. 24 & 25, Sarepta.

Ecophora hirticuralis (Frey, MS.), Peyerimhoff, l. c. p. 16, pl. 5. fig. 8, Vosges.

Gracilaria eupatoriella, *plantaginasella* [*-niella*], and *12-lineella*, pp. 9-11, *G.* (*Coriscium*?) *albinatella* and *salicifoliella*, p. 25, *G. packardella* and *purpuricella* [*sic*], p. 27, *juglandiella*, p. 28 (the last renamed *juglandisnigrella* [!], p. 88), Kentucky, Chambers, l. c.; *G. inquinatella* (Zell. MS.), Christoph, l. c. p. 30, pl. 2 a. fig. 26, Sarepta.

Butalis tangerensis, Stainton, Ent. M. M. viii. p. 235, Tangier, *B. leucogaster*, Mann, l. c. p. 40, Sangraben; *B. ericetella*, v. Heinemann & Snellen, Tijdschr. Ent. (2) vii. p. 280, Holland.

Bucculatrix thuiella, A. S. Packard, Rep. Ins. Mass. i. p. 24. fig., Massachusetts (Rec. Am. Ent. 1871, p. 22, and Zool. Rec. viii. p. 216).

Tinagma matutinellum (= *perdicellum*, var. ?), Zeller, l. c. p. 117, Grisons; *T. dryadis*, Staudinger, l. c. p. 735, Upper Engadine.

Elachista sepulchrella, Stainton, l. c. p. 235, Tangier.

Coleophora uliginosella, Glitz, S. E. Z. 1872, p. 23, Hanover; *C. falcigerella*, *asperginella*, p. 31, *æqualella*, p. 32, *cartilaginella* (with notice of larva), p. 33, *delibutella*, p. 35, *serimpennella*, p. 36, *trientella*, p. 37 (Zell. MS.), Christoph, l. c. pl. 2 a. figs. 27-33, Sarepta.

Lithocolletis tangerensis, Stainton, l. c. p. 236, Tangiers, *L. cerisoella*, Hyères, *triflorella*, Cannes: Peyerimhoff, Ann. Soc. Ent. Fr. (5), ii. pp. 201 & 202, pl. 6. figs. 11, 11 a & 12, 12 a.

Nepticula ilicivora, Peyerimhoff, l. c. p. 203, pl. 6. figs. 13 & 13 a, Cannes; *N. potentilla*, Hanover, Brunswick, *diversa*, p. 24, *hamnoverella*, p. 25, Hanover: Glitz, l. c.

PTEROPHORIDÆ.

Pterophorus pergraciliductylus, p. 265, *sulphureidactylus*, and *cervinidactylus*, p. 256, spp. nn., Packard, Ann. Lyc. N. York, x.

Lioptilus trimmatodactylus (Zell. MS.), Christoph, Hor. Ent. Ross. ix. p. 38, pl. 2 a. fig. 34, Sarepta.

Aciptilia marphys (Zell. MS.), *id. l. c.* p. 39, pl. 2 a. fig. 35, Sarepta.

DIPTERA

By E. C. RYE.

LOEW, H. *Diptera Americæ septentrionalis indigena* (Centuria decima). B. E. Z. xvi. pp. 49-124.

100 new species and some new genera are characterized; the latter incidentally, at the end of specific descriptions. This "century" completes the work; and some general observations, corrections, and additions, with an index to it as a whole, are given, pp. 112-124. The genera *Triglyphus*, *Arthropeas*, *Bolbomyia*, *Synamphotera*, *Cacoxenus*, *Stilpon*, and *Rhinoessa*, founded by the author in other publications, are quoted, with proper references, at p. 113.

POUCHET, M. G. De l'influence de la lumière sur les larves de diptères privées d'organes extérieurs de la vision. R. Z. (2) xxiii. pt. 1, pp. 110-117, 129-138; pt. 2, pp. 183-186, 225-231, 261-264, 312-316, pls. 12, 13, 16, woodcuts.

From varied experiments and observations upon the eyeless larvæ of *Lucilia cæsar* and *Eristalis tenax*, the author concludes that they not only perceive light, but immediately appreciate its intensity and the direction in which it comes, that this sensibility is not by means of the antenniferous organs, and that it is only completely developed when the larvæ are full-grown. The name *actinæsthesia* is proposed for this sense. The plates are reproductions of the actual movements of the larvæ under the influence of light of various natures.

General observations: R. H. Meade, Ent. vi. pp. 251-255.

Deafness for two years in a boy caused by a fly blocking the external meatus of the ear. J. J. K. Duncanson, Scot. Nat. i. p. 212.

Dipterous parasite on *Bombyx mori*: E. Cornalia, Rend. Ist. Lomb. (2) iii. pp. 561 & 562.

Heligoland: v. Röder, B. E. Z. xvi. p. 102, names 9 species of shore-frequenting *Diptera* observed by him and not mentioned by Zetterstedt in his account of Dahlbom's collection from this island.

The Grisons: a list of species (with indications of some being new) by Zeller, S. E. Z. xxxiii. pp. 31 & 32.

Granada: v. Röder gives a list of species taken by Ribbe: *l. c.* pp. 190 & 191.

Madagascar: in Aug. Vinson's 'Voyage à Madagascar au couronnement de Radama ii.' (Paris: 1865), Annexe E, pp. 23 & 24, is a list of 62 species, by C. Coquerel.

CECIDOMYIIDÆ.

Larvæ, dubiously referred to a *Cecidomyia*, recorded as found in mines of *Sesia tipuliformis*: J. R. S. Clifford, Ent. vi. p. 59.

Galls on *Glechoma hederaceum* caused by *Cecidomyia bursaria*: A. Müller, Ent. vi. p. 180.

Galls on *Quercus pubescens*, from the Crimea, referred to a *Cecidomyia*; and observations on galls of *C. circinans* and *C. cerris*: Gernet, Hor. Ent. Ross. viii. Bull. p. iv.

MYCETOPHILIDÆ.

T. Beling, S. E. Z. xxxiii. pp. 322-329, recapitulates instances of the appearance of swarms of the "Heerwurm" [not well to be translated by "Army-worm," a recognized term for the larvæ of an *Agrotis* in America]. It appears to be the larva of a species of *Sciara*.

Sciara thomæ: migrations of larvæ in Russia. J. Portchinsky, Hor. Ent. Ross. viii. Bull. p. xi.

Molobrus sp. 2 ♂ and 1 ♀ observed flying in copulâ. C. W. Dale, Ent. M. M. ix. p. 46.

Sciara atrata, p. 51, *gregaria*, p. 53, *arenaria*, p. 58: T. Beling, Verh. z.-b. Wien, xxii., Hartz, spp. nn. (notices of economy of the last two).

RHYPHIDÆ.

Rhyphus punctatus, F., and *R. fenestralis*, Scop.: metamorphoses and economy described fully. T. Beling, Arch. f. Nat. xxxviii. (Bd. i.) pp. 48-54.

BIBIONIDÆ.

T. BELING (Verh. z.-b. Wien, xxii. p. 617 *et seq.*) fully describes the early stages and economy of *Bibio marci* (p. 619), *pomonæ* (p. 625), *hortulanus* (p. 626), *varipes* (p. 627), *laniger* (p. 630), *johannis* (p. 632), *albipennis* (p. 635), *ferruginatus* (p. 638), *clavipes* (p. 640), *venosus* (p. 644), and *Dilophus vulgaris* (p. 648).

Bibio marci. Laboulbène, Ann. Soc. Ent. Fr. (5) ii. p. 209, notes its appearance in large numbers in Paris, in April and May 1872, and refers to its economy. Lucas, *ibid.*, Bull. p. xlv, quotes a similar account from the journal 'La France,' in which it is referred to the *Ichneumonidæ*! On its occurring in immense abundance at Brighton, *cf.* G. D. Rowley, Ent. vi. p. 143.

CULICIDÆ.

Culex. C. Rondani, Bull. Ent. Ital. iv. p. 29 *et seq.*, analyzes the Italian species, with the conclusion that there are 12. Of these he gives a dichotomous table, indicating as new *C. articulatus*, *albipunctatus*, *penicillaris*, *pulchritarsis*, *pulchripalpis*, and *spathipalpis*. None of them are described, but the characters inferred from their position in the table are possibly meant to be equivalent to descriptions.

Swarmings of ♀ gnats in one room of a house at Oxford noted by J. O. Westwood, P. E. Soc. 1872, p. xxxi.

Scales of *Culex*: a general account in Ent. vi. pp. 9-11.

TIPULIDÆ.

Dixa venosa, sp. n., Loew, B. E. Z. xvi. p. 50, Texas.

Tipula præcisa, sp. n., *id. l. c.* p. 51, California.

Ctenophora angustipennis, sp. n., *id. ibid.*, California.

STRATIOMYIIDÆ.

Odontomyia arcuata, p. 52, California, *plebeia*, Connecticut, *nigerrima*, Middle States, p. 53, Loew, *l. c.*, spp. nn.

Stratiomyia insignis, p. 54, California, *constans*, p. 55, Texas, *id. l. c.* spp. nn.

Clitellaria lata, sp. n., *id. l. c.* p. 55, California.

Nemotelus glaber, sp. n., *id. l. c.* p. 56, Texas.

Hermetia chrysopila, sp. n., *id. ibid.*, Texas.

XYLOPHAGIDÆ.

Rhachicerus, Hal., Walk., apparently uncharacterized, has the 3rd joint of its antennæ distinctly annulated, with many more rings in the ♂ than in the ♀. Loew, *l. c.* p. 113.

TABANIDÆ.

Hæmatopota pluvialis avoids any thing coloured white. J. Portchinsky, Hor. Ent. Ross. viii. Bull. p. xii.

Chrysops gigantulus, sp. n., Loew, *l. c.* p. 57, California.

LEPTIDÆ.

Triptotricha, g. n., Loew, *l. c.* p. 59. Differs from *Leptis* in being glabrous, with a lesser thorax, wider abdomen, and 4th post. cell closed before the margin of the wing. *T. lauta*, sp. n., *id. ibid.*, California.

Atherix varicornis, sp. n., *id. l. c.* p. 58, California.

Chrysopila modesta, sp. n., *id. ibid.*, Texas.

Leptis incisa, sp. n., *id. ibid.*, California.

THEREVIDÆ.

The specific name of *Psilocephala laticornis* being preoccupied, is changed to *platycera*: Loew, *l. c.* p. 114.

Thereva melanoneura and *fucata*, spp. nn., *id. l. c.* p. 74, California.

Xestomyza planiceps, sp. n., *id. l. c.* p. 75, California.

ACROCERIDÆ.

Oncodes melampus, California, *eugonatus*, Texas, spp. nn., Loew, *l. c.* p. 60.

Eulonchus tristis, sp. n., *id. ibid.*, California.

BOMBYLIIDÆ.

Anthrax hottentota and pupa figured; ? parasitic on *Agrotis porphyrea*. De Roo van Westmaas, in Snellen v. Vollenhoven's continuation of Sepp's Ned. Ins. (2) ii. pl. xlii. figs. *a* & *b*, p. 195.

Aphæbantus, g. n., Loew, *l. c.* p. 77. Allied to *Argyramæba*, but with a short appendage to 3rd joint of antennæ. *A. cervinus*, sp. n., *id. l. c.* p. 76, Texas.

Leptocheilus, g. n., *id. l. c.* p. 78. Differs from *Aphæbantus* in its 2nd submarginal cell not being appendiculated, more prominent face, much longer oral aperture, &c. *L. modestus*, sp. n., *id. l. c.* p. 77, Texas.

Allocotus, g. n., *id. l. c.* p. 82. Neuration somewhat as in *Sparnopolius*. *A. edwardsi*, sp. n., *id. l. c.* p. 81, California.

Bombylius semirufus, Hayti, *albicapillus*, California, spp. nn., *id. l. c.* p. 78.

Sparnopolius brevicornis, sp. n., *id. l. c.* p. 79, Texas.

Ploas atratula, *ibid.*, *nigripennis*, *obesula*, p. 80, *id. l. c.*, California, spp. nn.

Phthiria egerminans, sp. n., *id. l. c.* p. 80, California.

MYDASIDÆ.

Mydas (? *Leptomidas* or *Cephalocera*) *tenuipes*, sp. n., Loew, *l. c.* p. 61, California.

ASILIDÆ.

VAN DER WULP, Tijdschr. Ent. (2) vii. pp. 129-279, pls. 9-12, describes the known species from the East-Indian archipelago. According to him, *Laphria horrida*, Walk., ? = *gigas*, Macq., ♀; *L. fervens* and *sæva*, Walk., and ? *Asilus apicatus*, Walk., = *L. reinwardti*, Wied.; *L. flagrantissima* and *ardescens*, Walk., = *notabilis*, Macq.; *L. senomera*, Macq., = *alternans*, Wied.; *L. splendida*, Guér., = *Mæra spectabilis*, Guér.; *L. socia* and *consobrina*, Walk., = *M. kollari*, Dol.; *L. comes* and *consors*, Walk., *colorata*, Boisd., *pellucida*, Dol., = *M. ænea*, F.; *L. cyanea*, Macq., ? = *M. aurifacies*, Macq.; *Trypanea strenua*, Walk., = *Promachus bifasciatus*, Macq.; *Asilus perplexus*, Wied., = *Philodicus javanus*, Wied.; *Ommatius scitulus*, Walk., = *Allocotasia aurata*, F.; *O. pennus*, *coryphe*, and *androcles*, Walk., *Asilus garnoti*, Guér., = *O. fulvidus*, Wied.; *O. noctifer*, Walk., = *minor*, Dol. V. d. Wulp figures portions of *Damalis maculata*, Wied., pl. 9. fig. 5; *Laphria gigas*, Macq., figs. 11-13; *L. vulcanus*, Wied., pl. 10. fig. 2; *L. notabilis*, Macq., figs. 5 & 6; *L. obliquistriga*, Walk., fig. 7; *Mæra spectabilis*, Guér., figs. 8 & 9; *M. ænea*, fig. 10; *M. kurbini*, Dol., fig. 11; *Promachus bifasciatus*, Macq., pl. 11. figs. 7 & 8; *Philodicus javanus*, Wied., fig. 15; *Synolcus xanthopus*, Wied., ♂, fig. 19, and pl. 12. figs. 1 & 2; *Itamus longistylus*, Wied., pl. 12. figs. 4 & 5; *Allocotasia aurata*, F., fig. 7; *Ommatius fulvidus*, Wied., fig. 12; and also figures portions (sometimes the whole insect) of several new species.

Nicocles (*Pygostolus*, Lw., *nec* Hal.) differs entirely from *Brachyrhopala*; *Dasyopogon lucasi* and *4-maculatus*, Bell., belong to *Dizonia*, *Dasyopogon spathulatus*, Bell., to *Ospriocerus*; *Dasyopogon magnificus*, Walk., is a *Microstylum*. Loew, *l. c.* pp. 65 & 68.

Stichopogon. Schiner, Verh. z.-b. Wien, xxii. p. 74, refers to capture by C. Koch, at Nuremburg, of individuals supposed by the latter to constitute two new species, but which are evidently considered by Schiner to be sexes of one species, the difference in coloration of the mouth-pubesence being apparently only sexual; if these eventually prove sexes of one species, the name of the ♂ is to stand (C. Koch, *ibid.*).

New genera and species:—

Taracticus, Loew, *l. c.* p. 64 (*Dasyopogonides*). Anterior tibiæ spined; allied to *Dioctria*. Type *D. 8-punctata*, Say.

Blax, *id. l. c.* p. 65 (*Dasyopogonides*). Allied to *Taracticus* and *Nicocles*. *B. bellus*, *id. l. c.* p. 63, Texas.

Callinicus, *id. l. c.* p. 71 (*Dasyopogonides*). Resembles *Diognita*, but with spurless anterior tibiæ. *C. calcaneus*, *id. l. c.* p. 70, California.

- Dioctria resplendens*, id. *l. c.* p. 62, California.
Echthopoda formosa, id. *ibid.*, Pennsylvania.
Leptogaster brevicornis, id. *ibid.*, Texas; *L. vitiosus*, p. 137, pl. 9. fig. 1, *macilentus*, p. 139, Java, *habilis*, p. 138, fig. 2, *hirticollis*, p. 139, fig. 3, Timor, *levis*, p. 140, Sumatra, v. d. Wulp, *l. c.*
Heteropogon phœnicurus, p. 71, *lautus*, p. 72, Loew, *l. c.*, Texas.
Stenopogon brevisculus, p. 68, *univittatus*, *obscuriventris*, *gratus*, p. 69, id. *l. c.*, California.
Damalis marginata, p. 142, pl. 9. fig. 4, *major*, p. 143, Borneo; *nigella*, p. 143, Bel Menado; *pallida*, p. 145, Borneo and Sumatra: v. d. Wulp, *l. c.*
Discocephala hirsuta, id. *l. c.* p. 146, Sumatra; *D. calva*, Loew, *l. c.* p. 73, Texas.
Stichopogon albicapillus, v. d. Wulp, *l. c.* p. 147, Java; *S. schineri*, ♂, p. 79, and *arenivagus*, ♀, p. 80, C. Koch, Verh. z.-b. Wien, xxii., Nuremberg.
Habropogon jucundus, v. d. Wulp, *l. c.* p. 148, pl. 9. fig. 6, Java.
Xiphocerus complacitus, id. *l. c.* p. 150, pl. 9. figs. 7 & 8, Waigiou.
Pygostolus æmulator, Loew, *l. c.* p. 66, California.
Diognites symmachus, id. *ibid.*, Texas.
Microstylum morosum, id. *l. c.* p. 67, Texas.
Hyperechia fera, v. d. Wulp, *l. c.* p. 155, pl. 9. fig. 9, Borneo.
Pogonosoma stigmaticum, p. 157, Sumatra; *semifuscum*, p. 158, pl. 9. fig. 10, Batchian: id. *l. c.*
Laphria terminalis, p. 169, pl. 10. fig. 1, Celebes; *blumii*, Java and Sumatra; *pernigra*, Zuid-Halmaheira, p. 170; *auricincta*, p. 171, Timor; *definita*, p. 172, *ferruginosa*, p. 185, Ceram; *ignobilis*, p. 173, *gravipes*, p. 175, *aureola*, p. 180, *tricolor*, p. 181, pl. 10. figs. 3 & 4, Java; *muelleri*, p. 174, Borneo; *bernsteini*, p. 175, Batchian; *solita*, p. 178, Java and Timor; *histrionica*, p. 179, *signatipes*, p. 191, Sumatra; *futilis*, p. 183, Borneo and Sumatra; *amabilis*, p. 186, Gebeh; *rubidifasciata*, p. 188, Waigiou; *soror*, p. 190, Zuid-Halmaheira, Waigiou, Ceram (? = *dissimilis*, Dolesch.); *nigricærulea*, p. 194, New Guinea: id. *l. c.*
Mæra tomentosa, p. 202, Aru and Salawatti; *occulta*, p. 205, pl. 10. fig. 12, Salawatti, Waigiou, New Guinea; *albifacies*, p. 207, Celebes; *nyc[h]themera*, p. 208, pl. 11. fig. 1, Java, Pagowat, Celebes; *nigrithorax*, p. 210, Aru; *tuberculata*, p. 211, pl. 11. fig. 2, Java and Borneo; *hispidella*, p. 213, Java, &c.: id. *l. c.*
Atomosia conspicua, id. *l. c.* p. 214, pl. 11. figs. 5 & 6, Waigiou.
Promachus melampygyus, p. 223, *leucopareus*, p. 227, pl. 11. figs. 10 & 11, Java; *xanthostoma*, p. 225, pl. 11. fig. 9, Salawatti; *albicauda*, p. 228, pl. 11. figs. 12-14, Celebes (? = *Trypanea varipes*, Macq.), *inornatus* and *felinus*, p. 250, Borneo: id. *l. c.*
Eccoctopus impiger, id. *l. c.* p. 234, pl. 11. figs. 16-18, Celebes.
Pamponerus nigrutilus, id. *l. c.* p. 235, Halmaheira &c. (? = *Asilus atratulus*, Wlk.).
Philonicus longulus, id. *l. c.* p. 237, Celebes.
Antipalus wieneckii, id. *l. c.* p. 238, Timor, Java.
Mochtherus lautus, p. 242, New Guinea, *gnavus*, p. 243, pl. 12. fig. 3, Java, Obi, &c., *patruelis*, p. 244, Java, Bel Menado: id. *l. c.*
Itanus dentipes, id. *l. c.* p. 248, pl. 12. fig. 6, Salawatti.
Allocotusia triangulum, id. *l. c.* p. 251, pl. 12. fig. 8, Java.

Emphysomera peregrina, id. l. c. p. 253, pl. 12. figs. 9–11, Borneo, Ternate, Sumatra.

Ommatius concinens (? = *Dasypogon flavescens*, F., var.), p. 260, Timor, *dilatipennis*, p. 261, pl. 12. figs. 13 & 14, *despectus*, p. 268, *argyrochirus*, p. 270, *insularis*, p. 272, *pinguis*, p. 275, Java, *excurrens*, p. 263, pl. 12. fig. 15, Morotai, *fulvimanus*, p. 264, Obi, *spinibarbis*, p. 265, pl. 12. fig. 16, Halmaheira, Borneo, Ternate, *aruensis*, p. 269, pl. 12. fig. 17, Aru, *impeditus*, p. 270, Borneo, *suffusus*, p. 271, Sangir, *infirmus*, p. 273, Gilolo, Ternate, Morotai, *serenus*, p. 274, Waigiou, *rubicundus*, p. 276, Java, Borneo, Sumatra: id. l. c.

EMPIDÆ.

The specific name of *Rhamphomyia lugens*, being preoccupied, is changed to *luctuosa*: Loew, l. c. p. 114. *R. latipennis*, Meig., corroborated as ♂ of *R. platyptera*, Pz.: Schiner, Verh. z.-b. Wien, xxii. p. 74.

Empis stercorea. G. H. Verrall, Ent. M. M. viii. p. 281, describes the British species allied to this, reviving the prior name *scutellata* of Curtis for *E. parvula*, Egger.

Empis concolor, sp. n., Verrall, l. c. p. 283, Scotland.

Drapetis gilvipes, p. 89, *divergens*, p. 90, spp. nn.: Loew, l. c., Texas.

DOLICHOPODIDÆ.

G. H. Verrall, Ent. M. M. ix. p. 71, publishes a revised synonymic list of the British species (154 spp., 34 gg.), of which 17 are recorded as indigenous for the first time.

Xanthochlorus (? *tenellus*, Wied.). A. Müller, Ent. M. M. ix. p. 45, notes a fungoid epidemic occurring in this species.

Parachius pumilio, sp. n., Loew, l. c. p. 90, Texas.

Pelastoneurus furcifer, sp. n., id. *ibid.*, Texas.

Hydrophorus cerutias, sp. n., id. *ibid.*, Texas.

SYRPHIDÆ.

Eristalis tenax attracted by painted flowers: A. Müller, Ent. M. M. viii. p. 273.

Syrphus lasiophthalmus: an example with tibia and tarsus malformed, having apparently been broken and badly united during life, referred to by G. H. Verrall, P. E. Soc. 1872, p. xxi.

(?) *Chilosia chalybeata*, Meig., described in all its stages; bred from stems of *Sonchus oleraceus*. J. Hardy, Scot. Nat. i. pp. 177–180.

Spilomyia longicornis, sp. n., Loew, l. c. p. 82, N. America.

Brachypalpus frontosus, Columbia, and *B.* (? g. n.) *cyanogaster*, Pennsylvania, spp. nn.: id. l. c. p. 83.

Myiolepta nigra, Pennsylvania, *ærea*, Illinois, p. 84, *strigilata*, p. 85, Texas: id. l. c., spp. nn.

Helophilus polygrammus, sp. n., id. l. c. p. 85, California.

Microdon baliopterus, sp. n., id. l. c. p. 86, Texas.

Ceria tridens, sp. n., id. *ibid.*, California.

PIPUNCULIDÆ.

Pipunculus subvirescens, p. 87, *fasciatus*, p. 88, Texas: Loew, l. c., spp. nn.

MUSCIDÆ.

A. Müller, Ent. M. M. viii. p. 181, describes puparia, dubiously referred to the *Muscidæ*, found in gall-like nidi on fronds of *Athyrium filix-fœmina*.

Schiner, Verh. z.-b. Wien, xxii. p. 74, records capture of rare species of *Tachinides* by Koch at Nuremberg.

Triptocera exoleta, Meig., parasitic on *Polia flavicincta* (*Lepidopt.*), *Tricholyga properans*, Rond. (*Tachina festinans*, Meig., ♀, *diluta*, Meig., *rufiscutellata*, Macq., ♂), on *Liparis chryssorrhœa* and *auriflua* (*Lep.*), *Cyrtophlœba* (*Plagia*) *ruvicola*, Meig., on *Spintherops spectrum* (*Lep.*), *Masicera girovaga*, Rond., MS., on *Lophyrus rufus* (*Hym.*): Rondani, Bull. Ent. Ital. iv. p. 210 et seq.

Tachina (*Masicera*) *anonyma*. C. V. Riley, iv. Rep. Ins. Mo. p. 129, refers under this name to an undescribed species bred by him from *Attacus polyphemus*, *Citheronia regalis*, *Prodenia autumnalis*, *Noctua* sp., *Cynthia cardui*, *Heliothis armigera*, *Datana ministra*, *Danaïd archippus*, and ? var. from *Sphinx carolina* (all *Lepidopt.*).

Tachina beelzebul and *diabolus*: affinities with *Megistogaster fuscipennis*, Mcq., = *Cordyligaster petiolata*, Wied., discussed: they should form a new genus: v. d. Wulp, Tijdschr. Ent. (2) vii. p. lviii.

Degeeria seria, Meig., parasitic on larvæ of *Ctenophora ruficornis* and *pectinicornis* (*Dipt.*): Weyenburgh, *ibid.*

Exorista leucaniæ, Kirk, var. *cecropiæ*, Riley, parasitic on *Attacus cecropia* (*Lep.*): economy described, Riley, *l. c.* p. 108.

Cynomyia mortuorum, F., breeds in corpses of any vertebrate animal; its economy referred to: J. Portchinsky, Hor. Ent. Ross. viii. Bull. p. xxii.

Lucilia hominivorax? : death to human beings in Peru caused by larvæ of a fly proceeding from eggs laid in the nose: Jelski, Pet. Nouv. No. 65, p. 260.

Anthomyia spreta, Mg. Economy recorded by Giraud, Ann. Soc. Ent. Fr. (5) ii. p. 502 et seq. It lives in *Sphæria typhina*, Dec., a fungoid growth in *Holcus* and other grasses.

Anthomyia [surely *Tachina*] *larvarum* bred from cocoons of *Saturnia carpi*: W. D. Roebuck, Ent. vi. p. 182.

Schœnomyza shows affinities to many families, and is placed in the *Anthomyides* provisionally: Loew, B. E. Z. xvi. p. 96.

The specific name of *Phytomyza ilicis*, being preoccupied, is changed to *ilicifolia*: id. *l. c.* p. 114.

Leucopis obscura, Hal., parasitic on *Chermes* (*Adelges*) *piceæ* and *corticalis* (*Rhynch.*): economy &c. described: J. Hardy, Scot. Nat. i. pp. 256-258.

Trigonometopus, Mcq., usually associated with the *Cordylurides*, should possibly be placed in the *Heteroneurides*: Loew, *l. c.* p. 114.

Schiner, Verh. z.-b. Wien, xxii. p. 75, notes the occurrence of 5 examples of *Chelifera hahni*, Koch, on the hind legs of a living specimen of *Chloria demandata*.

Ceratitis hispanica occurs in Algeria, *C. citriperda* in the island of Bourbon and the Azores. Pet. Nouv. no. 43, p. 171.

Urophora solstitialis, L., bred from galls in flower-heads of *Serratula tinctoria*: E. A. Fitch, Ent. vi. p. 142.

Chlorops. Schiner, Verh. z.-b. Wien, xxii. pp. 61-73, discusses at great length

the confusion in nomenclature of certain members of this genus, which he attributes to one species, redescribed and renamed (p. 70) *copiosa*, and to which he refers his own *C. hypostigma*, *circumdata*, *notata*, and *lineata*, *Chloropisca ornata*, Lw., *Oscinis circumdata* and *notata*, Zett., and (dubiously) *Chlorops hypostigma*, *notata*, *circumdata*, and *ornata*, Meig., as synonyms. He recapitulates recorded instances of swarms of this insect, and refers generally to the difficulty of correctly determining members of the group.

Phortica, Schiner, = *Amiota*, Lw. : Loew, *l. c.* p. 112.

Blepharoptera sp. : larvæ and pupæ swarm in bat-excreta, in a cave of the Ariège : Abeille, Étud. Col. Cav. p. 12.

Diplocentra, Lw., = *Cyrtonotum*, Macq. (*nec* Steph.) : Loew, *l. c.* p. 112.

Opetiophara, g. n., *id. l. c.* p. 106. *Chloropides*. Agrees somewhat with *Lipara*, but with last abdominal segment of ♀ prolonged into a horny subulate terebra. *O. straminea*, sp. n., *id. l. c.* p. 105, Texas.

New species :—

Tachina (*Exorista*) *phycitæ* (Le Baron, MS.), Riley, iv. Rep. Ins. Mo. p. 40, bred from *Phycita nebulo*, Walsh (*Lep.*).

Gymnosoma filiola, Loew, *l. c.* p. 92, Texas.

Blepharoptera adusta, *id. ibid.*, California (from larvæ of *Spilosoma ærea*).

Anthomyia sonchi, p. 209, from *Sonchus oleraceus*, and *A. jacobææ*, p. 254, from *Senecio*, Scotland : J. Hardy, Scot. Nat. i.

Homalomyia tetracantha, Loew, *l. c.* p. 93, Middle States.

Cænusia nivea, *calopyga*, p. 95, Pennsylvania, *modesta*, p. 96, Washington : *id. l. c.*

Schænomyza dorsalis, *id. l. c.* p. 95, Columbia.

Cordylura vittipes, *lutea*, p. 96, Sitka, *fulvibarba*, p. 97, Hudson's Bay Territory, *capillata*, p. 88, New Hampshire : *id. l. c.*

Phytomyza hepaticæ, Frauenfeld, Verh. z.-b. Wien, xxii. p. 396, bred from *Hepatica triloba*, Vienna.

Leucopis palumbii, Rondani, Bull. Ent. Ital. iv. p. 213, parasitic on *Pemphigus utricularius*, Pass. (*Aphid.*), Italy.

Sapromyza macula, Loew, *l. c.* p. 101, Texas.

Lauxania eucephala, *id. ibid.*, Texas.

Hippelates pusio, p. 103, *eulophus*, p. 104, *id. l. c.*, Texas.

Crassiseta eunota, *id. l. c.* p. 104, Texas.

Chlorops (*Centor*) *procera*, p. 106, Connecticut, *C. (Diplotoxa) gundlachi*, Cuba, and *confluens*, p. 107, *microcera*, *pulchripes*, p. 108, *alternata*, p. 109, *nigricans*, p. 110, *C. (Anthracophaga) maculosa* and *Chlorops mellea*, p. 111, Texas : *id. l. c.*

Siphonella latifrons, *id. l. c.* p. 106, Texas.

Notiphila pulchrifrons, *id. l. c.* p. 102, Texas.

Drosophila obesa, p. 102, *sigmoides*, p. 103, Texas : *id. l. c.*

Sciomyza tenuipes, p. 99, Middle States, *trabeculata*, p. 100, Texas : *id. l. c.*

Blepharoptera discolor, New Hampshire, *pectinata*, Texas : *id. l. c.* p. 99.

CESTRIDÆ.

For observations on a fly developed in the skin of man at Senegal, termed "Ver de Cayor" by Bérenger-Féraud, and wrongly referred to *Ochromyia* (*anthropophaga*, MS.) by Blanchard, cf. Guérin-Ménéville, R. Z. (2) xxiii. p. 491.

Cestrus equi: larvæ commonly extracted from the intestinal meatus of horses by *Monedula turium* in Russia. J. Portchinsky, Hor. Ent. Ross. viii. Bull. p. xi.

(APHANIPTERA.)

PULICIDÆ.

Pulex. C. Ritsema, Alb. Nat. xi. (1872), p. 65 *et seq.*, figures (woodcuts) and minutely describes the metamorphosis and habits of *P. irritans*.

Pulex felis, Bouché. Metamorphosis described and figured: Laboulbène, Ann. Soc. Ent. Fr. (5) ii. pp. 267-274, pl. xiii.

PLATYPSYLLIDÆ.

Platypsylla. Leconte, P. Z. S. 1872, pp. 799-804, pl. lxxviii., describes the single known species very minutely, in all the salient features of its external anatomy. He considers it should form the type of a family, *Platypsyllidæ*, which he places in the *Coleoptera*, between the *Hydrophilidæ* and a family *Leptinidæ* (erected by himself in 1866 for the reception of *Leptinus*), but with a strong tendency to the *Trichopterygidæ* and *Corylophidæ*. Various portions of the insect are figured. The author repeats this opinion in P. E. Soc. 1872, p. xxviii, considering *P. castoris* to be rather an inquiline than a true parasite, living probably on epidermal scales. Westwood, *ibid.*, demurs to the insect being considered Coleopterous.

NEUROPTERA

By R. M'LACHLAN, F.L.S.

M'LACHLAN, R. Notes on the *Neuroptera* of Siberia and European Russia. Nachr. Ges. Mosc. (1872). Translated into the Russian language from the Recorder's MS., with Latin diagnoses of some new spp.

Consists chiefly of notes on a collection of Russian *Neuroptera*. An extract, under the title 'Notes sur quelques espèces de Phryganides, et sur une *Chrysopa*,' appears (in French) in Bull. Mosc. 1872, pt. 3, pp. 187-194.

SELYS-LONGCHAMPS, E. DE, and M'LACHLAN, R. Matériaux pour une faune Névroptérologique de l'Asie septentrionale. Ann. Ent. Belg. xv. pp. 25-77, pls. i., ii.

The *Odonata* are by De Selys, the *Non-Odonata* by the Recorder. They enumerate about 110 spp. as now known from Asia north of the parallel of 50° of latitude. Of these 43 are *Odonata* and 67 *Non-Odonata*. 77 also occur within the limits of Europe, and 49 in the British Isles. The aspect of the fauna is decidedly European, with occasional North American and Exotic elements.

In Ann. Sc. Géol. ii. is a memoir by OUSTALET (see *antè*; p. 224) on the fossil insects of the tertiary formations of France, in which a larva is described and figured as *Libellula minuscula*; the impression of a wing as *Ascalaphus edwardsi* (which the Recorder thinks was no *Ascalaphus*), and

certain forms of the cases of *Trichoptera* from the indusial limestone at Chavroches are noted as *Phryganea gerandiana*.

The Recorder, Ent. M. M. ix. pp. 99-104, 168-176, has commenced a series of articles as "Instructions for the Collection and Preservation of Neuropterous Insects."

TRICHOPTERA.

Limnophilidæ.

M'Lachlan notices the occurrence of a species of this family, apparently a *Limnophilus*, in the Falkland Islands, the group being almost confined to the northern hemisphere. Ent. M. M. viii. p. 273.

Stenophylax dubius, Stephens. For notes respecting the occurrence near Moscow of a second example of this, hitherto only known from the British type specimen, see M'Lachlan, Nach. Ges. Mosc. 1872, and Bull. Mosc. 1872, pt. 3, p. 188.

Thamastes dipterus, Hagen. Copies of Hagen's drawings of this species given by M'Lachlan in Ann. Ent. Belg. xv. pl. ii. fig. 2.

Radema infernale, Hagen (name hitherto only noticed), *id. l. c.* p. 65, pl. ii. fig. 3 (details), Siberia.

Glyphotælius mutatus, sp. n., McLachlan, *l. c.* p. 60, pl. i. fig. 12 (details), Siberia.

Limnophilus abstrusus, sp. n., *id. l. c.* p. 62, pl. i. fig. 13 (details), Siberia.

Stenophylax palatus, sp. n., *id. l. c.* p. 63, pl. i. fig. 14 (details), Siberia.

Platyphylax nigrivittatus, sp. n., *id. l. c.* p. 64, pl. ii. fig. 1 (details), Siberia.

Apatania majuscula, sp. n., *id. l. c.* p. 66, pl. ii. fig. 4 (details), Siberia.

Sericostomatidæ.

Brachycentrus. M'Lachlan records that W. C. Boyd has reared young larvæ from the egg, and that they manufactured decidedly quadrangular cases, but died when very young, so that no opportunity was afforded of completing the investigation. Ent. M. M. ix. p. 166.

Leptoceridæ.

Mystacida trifasciata, Thevenet, = *Setodes interrupta*, F. (M'Lachlan, Ann. Soc. Ent. Fr. (5) ii. p. 18). (Cf. Zool. Rec. viii. p. 400.)

Molanna submarginalis, sp. n., M'Lachlan, Nachr. Ges. Mosc. 1872, and Bull. Mosc. 1872, pt. 3. p. 188 (woodcuts), Wologda.

Molannodes steini, sp. n., *id. ibid.* p. 191, Silesia and Finland.

Hydropsychidæ.

Hydropsyche albifasciata, sp. n., *id.* Ann. Ent. Belg. xv. p. 68, pl. ii. fig. 6, Amur Land.

Macronema radiatum, sp. n., *id. l. c.* p. 67, pl. ii. fig. 5, Siberia and Amur Land.

Cestropsidæ.

Anphipsyche, g. n., *id. l. c.* p. 68. With evidently articulated palpi. Spurs 1. 4. 4; no discoidal cell. The presence of articulated palpi throws doubt on the validity of this family as distinct from *Hydropsychidæ*. *A. probuta*, sp. n., *id. l. c.* p. 70, pl. ii. fig. 7 (details), Amur Land.

Hydroptilidæ.

A. E. Eaton has determined 9 British species and 5 genera. Ent. M. M. ix. p. 120.

NEUROPTERA PLANIPENNIA.

Sialis sibirica, sp. n., M'Lachlan, Ann. Ent. Belg. xv. p. 55, pl. i. fig. 10 (details), Siberia.

An analysis of the Recorder's recent work on the *Ascalaphidæ* (cf. Zool. Rec. viii. p. 401) is given by De Selys-Longchamps in CR. Ent. Belg. 1872, pp. xxxiv-xxxvi.

Sisyra dalii occurs in abundance near Reigate (England). R. M'Lachlan, Ent. M. M. ix. p. 62.

Hemerobius inconspicuus occurs at Rannoch (Scotland): *id. ibid.* p. 88.

Chrysopa septempunctata. An account of the mode of oviposition and of the newly hatched larva is given by A. Müller, *ibid.* pp. 60 & 88.

Chrysopa dasyptera, sp. n., McLachlan, Nachr. Ges. Mosc. and Bull. Mosc. 1872, pt. 3, p. 193, South Russia and Samarcand.

Panorpa amurensis, sp. n., *id.* Ann. Ent. Belg. xv. p. 59, pl. i. fig. 11, Amur Land. .

PSEUDO-NEUROPTERA.

THYSANURA.

Iapyx solifugus, Haliday. Lucas notices its discovery in Burgundy, and discusses the homology of the abdominal segments after the opinions of Haliday, Meinert, and Humbert. Bull. Soc. Ent. Fr. (5) ii. p. lxxi.

THYSANOPTERA.

Thrips. A. Müller notices damage to framed engravings caused by the insects getting between the paper and the glass. Ent. M. M. ix. p. 13.

Thrips frumentarius, sp. n., T. Beling, Verh. z.-b. Wien, xxii. pp. 651-654, injurious to corn crops in the Harz. Its habits, larva, &c. are noticed at length.

PSOCIDÆ.

Clothilla inquilina. Ritsema (Alb. Nat. 1872, p. 255) notes an instance recorded in Arch. path. Anat. 1871, p. 283, of immense numbers of this insect (so determined by Gerstäcker) appearing suddenly in an old house in August.

Psocus longicornis, F., occurs in North India according to M'Lachlan. *P. cosmopterus*, M'Lach., = *P. taprobanes*, Hag., Ent. M. M. ix. p. 76. *P. palliatus*, Hag., allied in some respects to *Amphipsocus*, probably forms the type of another genus: *id. l. c.* p. 77. *P. roseus*, Hag., is an *Epipsocus*: *id. l. c.* p. 78.

Stenopsocus stigmaticus (redescribed) occurs in Britain: *id. l. c.* p. 63.

Amphipsocus, g. n., *id. ibid.* p. 76. Allied to *Cæcilius*; but the pterostigma emits an abbreviated veinlet. *A. pilosus*, sp. n., *id. l. c.* p. 77 (fore-wing figured), North India.

Psyllipsocus, g. n., Selys-Longchamps, *ibid.* p. 145. Allied to *Cæcilius*, but with a supplementary nervure to the inner margin near the base. Type

Psocus pedicularis, Rambur (*nec* L.), renamed *ramburi*, p. 146 (fore-wing figured).

Hemipsocus, g. n., *id. l. c.* p. 146. Allied to *Psocus* (restricted), but with only 3 cellules on the inner margin. Type *P. chloroticus*, Hag. (fore-wing figured).

Psocus 5-punctatus and *clarus*, Ceylon, *malayanus*, Sula: M'Lachlan, *l. c.* p. 75, spp. nn.

Cæcilius pictipennis, sp. n., *id. l. c.* p. 76, Ceylon.

PERLIDÆ.

Pteronarcys reticulata, Burm. M'Lachlan redescribes this insect, and figures the abdominal characters of ♂ ♀. *Ann. Ent. Belg.* xv. p. 51, pl. i. figs. 2 & 3.

Dictyopteryx dichroa, *id. l. c.* p. 52, pl. i. figs. 4 & 5, and *D. compacta*, *l. c.* pl. i. figs. 6 & 7, Siberia: spp. nn.

Perla flavitincta, *id. l. c.* p. 54, pl. i. fig. 9, and *P. exilis*, *l. c.* pl. i. fig. 8, Siberia: spp. nn.

EPHEMERIDÆ.

JOLY, N. & E. Études sur le prétendu Crustacé au sujet duquel Latreille a créé le genre *Prosopistoma*, et qui n'est autre qu'un véritable insecte hexapode. *Ann. Sci. Nat.* (5) xvi. no. 7, pp. 1-16, pl. 3.

This very important article contains an amplification of the views already promulgated by E. Joly (*cf.* *Zool. Rec.* viii. p. 406), that Latreille's supposed genus of branchiopod *Crustacea*, termed *Prosopistoma*, is the immature condition of an insect pertaining to this family. The fact that the animals breathe by means of tracheæ is almost conclusive evidence that they are true insects; but it is difficult to imagine what the imago can be like; for no European species yet discovered offers any analogy in the enormous thoracic development. *Prosopistoma* had never been thoroughly accepted by crustaceologists; and it now rests with entomologists to follow up the clue given by the authors of the above-quoted article, and, which ought not to be difficult, to *prove* the position they assign to the genus with so much show of probability.

Westwood, *Proc. Ent. Soc.* 1872, p. vi, remarks on types of *Prosopistoma* from Madagascar.

Palingenia sibirica, sp. n., M'Lachlan, *Ann. Ent. Belg.* xv. p. 50, pl. i. fig. 1 (details), Siberia.

ODONATA.

CABOT, LOUIS. The immature state of the *Odonata*. Part i. Subfamily *Gomphina*. *Illust. Cat. Harvard College*, no. 5, pp. 1-17, pls. i.-iii.

SELYS-LONGCHAMPS, E. DE. Note sur plusieurs Odonates de Madagascar et des îles Mascareignes. *R. Z.* 1872, pp. 175-182.

Attention is called in P. E. Soc. 1872, p. xxv, to the fact that *Merops persicus* is known to line its nest with the wings of dragonflies.

Libellulina.

Libellula lycoris, p. 176, Madagascar or Mauritius, *assignata*, p. 177, Madagascar: Selys, *l. c.*, spp. nn.

Gomphina. Cabot, *l. c.*, has published (with Hagen's assistance) a memoir on the immature state of 17 species of this tribe; but only 4 are referred to their respective genera without doubt, the others not having been bred. The plates (beautifully executed) are supposed to illustrate the following genera:—*Gomphus*, *Herpetogomphus*, *Macrogomphus*, *Progomphus*, *Gomphoides*, *Hagenius*, *Ictinus*, and *Cordulegaster*.

Onychogomphus ruptus is redescribed by Selys from perfect specimens. Ann. Ent. Belg. xv. p. 29, pl. ii. fig. 12 (details).

Gomphus epophthalmus, p. 31, pl. ii. fig. 13 (details), and *maacki*, p. 33, pl. ii. fig. 14 (details), Irkutsk: *id. l. c.*, spp. nn.

Æschnina.

Anax goliath, sp. n., Selys, R. Z. 1872, p. 178, Madagascar.

Æschna arundinacea, sp. n., *id.* Ann. Ent. Belg. xv. p. 36, Irkutsk.

Agrionina.

Agrion concinnum, Johanson, is redescribed from Siberian examples by Selys, Ann. Ent. Belg. xv. p. 40, pl. ii. fig. 8 (details).

Agrion glaciale (Hagen), p. 41, pl. ii. fig. 9 (details), *lanceolatum*, p. 43, pl. ii. fig. 10 (details), *ecornutum* (? race of *mercuriale*), p. 44, pl. ii. fig. 11 (details), Siberia; *hermeticum* (? race of *mercuriale*), p. 45, Algeria, *id. l. c.*; *A.* (?) *insulare*, p. 179, Mauritius and Bourbon; *mauritianum*, p. 180, Mauritius, Selys, R. Z. 1872: spp. nn.

Agriocnemis solitaria, p. 181, Rodrigues, *A.* (?) *exilis*, p. 182, Madagascar or Mauritius: *id.* R. Z. 1872, spp. nn.

Psilocnemis alatipes, sp. n., M'Lachlan, Ent. M. M. ix. p. 1 (leg figured), Madagascar.

ORTHOPTERA

By R. M'LACHLAN, F.L.S.

FISCHER, L. H. Ueber Vitus Graber's Mittheilungen der Aehnlichkeit der Geschlechtsorgane bei Orthopteren. Verh. z.-b. Wien, xxii. pp. 77, 78.

GLOVER, TOWNEND. Illustrations of North-American Entomology: *Orthoptera*. Washington, 1872. 4to.

Consists of 13 crowded coloured plates by the author, with explanatory letterpress. The edition is stated to be limited to 50 copies only. Although scarcely a scientific work, it may be found of great use to beginners, the figures appearing to be sufficiently accurate for the identification of species,

though there is an unfortunate absence of details of special structures. On some of the plates are included species of *Thysanura*, *Thysanoptera*, and *Mallophaga*, concerning which the author states that "they may be left out altogether, or removed into other orders if found desirable," according to individual fancy. In all, about 220 species are figured, in many cases from type specimens.

SAUSSURE, H. DE. Mémoires pour servir à l'Histoire Naturelle de Mexique, des Antilles, et des États-Unis: Synopsis des Mantides Américains. Genève, 1871, pp. 184, 2 pl. 4to.

Forms t. ii. 1^{re} partie, of the entire work.

——. Mission Scientifique au Mexique et dans l'Amérique Centrale. Ouvrage publié par l'ordre de l'Empereur, et par les soins du Ministre de l'Instruction publique. Recherches Zoologiques. 6^{me} partie: Études sur les Insectes Orthoptères. 1^e livraison, 1870, pp. 132, 4 pl.; 2^e livraison, 1872, pp. 133-292, 2 pl. Folio.

The completion of the magnificent work of which these form portions has been delayed by the political events of the last few years. The Recorder has seen only the first livraison, and is indebted to the courtesy of the author for information concerning both it and the second.

——. Mélanges Orthoptérologiques. Fasc. iv. Mantides et Blattides. Genève et Bâle: 1872, pp. 160, 3 pl. 4to.

Supplementary to previous fascicules of the 'Mélanges,' published as a separate work in 1872, but will appear also in the Mém. Soc. Phys. Genève. 1873.

THOMAS, C. Notes on the Saltatorial *Orthoptera* of the Rocky Mountain regions. Hayden's Preliminary Report on the U. S. Geolog. Survey of Montana, &c., pp. 423-466, pls. i., ii.

An important article, giving the results of an examination of the materials collected by the author during the expedition. 101 species (including many new) are noticed as occurring west of Iowa, Missouri, and Arkansas. The introductory portion is occupied by a demonstration of the author's views concerning the classification &c. of the order as a whole, with critical remarks on Packard's arrangement, especially in regard to the Darwinian theory. He considers Fieber's classification the best. The figures are copied from Glover's work noticed above.

WALKER gives a list of 26 species of this order found in America "north of the United States." Canad. Ent. iv. p. 30.

L. VON HEYDEN notices 10 known species collected by Noll and Grenacher in the island of Teneriffe. Ber. senck. Ges. 1872, pp. 83-85.

THOMAS, in Hayden's Geological Survey of Wyoming (1871), pp. 265-284, gives a list of 38 species collected by him during the expedition, with notes on synonymy and descriptions of new species.

BLATTIDÆ.

The notices under this heading consist entirely of extracts from the works of H. DE SAUSSURE.

In the 'Mission Scientifique au Mexique,' &c., livr. i., he gives generalities on the structure of the abdomen and of the organs of flight, and a synonymic table of the nomenclature of the parts of the wing. The subject is treated in a comparative manner with respect to the author's previous works, and the system laid down by Brunner v. Wattenwyl. There are also numerous modifications of classification, many species redescribed, and beautifully executed coloured plates. Two new genera are established:—

Paraloboptera, p. 86. As in *Loboptera*, but the tarsi without arolia.

Paraletindia, p. 111. Formed to receive *Letindia azteca*.

In the 'Mélanges Orthoptérologiques,' fasc. iv. pp. 91–154, he describes many new species, previously unknown sexes, and other species previously described but hitherto unknown to him. The following are the new species:—

Temnopteryx kaupiana, p. 92, Mexico?; *abyssinica*, p. 93, Abyssinia.

Blatta (Phyllodromia) munzigeri, p. 94, interior of Africa; *albovittata*, p. 95, New Holland.

Pseudophyllodromia obscura, p. 98, and *lineolata*, p. 99, Brazil; *maximiliani*, p. 100, fig. 35, Mexico.

Ischnoptera ocularis, p. 103, Cayenne; *ectobioides*, p. 104, South China.

Nyctobora intermedia, p. 105, Brazil.

Platyzosteria liturata, p. 108, fig. 36, New Georgia; *bifida* (Brunner), p. 110, fig. 37, Queensland; *finschiana*, p. 111, Cuba.

Periplaneta borrii, p. 113, fig. 38, Java.

Deropeltis antennata, p. 116, fig. 39, South Africa?; *longipennis*, p. 117, Caffraria.

Archiblatta valvularia, p. 118, fig. 40, Java.

Glyptopeltis, g. n., p. 119. Allied to *Archiblatta*. *G. biguttata*, p. 122, fig. 41, Java; *couloniana*, p. 124, fig. 42, Java?

Thorax punctata, p. 125, Brazil.

Epilampra deflexa, p. 126, fig. 43, *borrei*, p. 127, fig. 44, *levicollis*, p. 129, fig. 45, Java; *quadrata*, p. 129, China and Java.

Chorisoneura pectinata, p. 131, New Holland.

Panchlora tolteca, p. 131, Mexico; *grandis*, p. 132, fig. 46, Sierra Leone.

Nauphæta guineensis, p. 133, fig. 47, Guinea.

Perisphæria pubescens, p. 136, Natal.

Derocalymna virescens (Brunner), p. 138, figs. 48, 49, South Africa; *carinata*, p. 139, fig. 50, Natal; *contigua*, p. 140, fig. 51, New Guinea; *clypeata*, p. 142, fig. 52, Java; *reflexa*, p. 143, Cape?

Paraphormetica punctata, p. 145, Brazil; *obscura*, p. 146, Java.

Panesthia kraussiana, p. 150, Melbourne; *levicollis*, p. 151, New Holland; *ornata*, p. 152, fig. 54, Java, China?

Paranauphæta javanica, p. 153, Java.

MANTIDÆ.

Also nearly entirely occupied by the works of DE SAUSSURE.

In the "Mission Scientifique au Mexique," livr. ii., he gives notes on habits,

development, mimicry in those species that inhabit sands and deserts, principles of classification, &c. The new species are:—

Thespis vicina, Colombia.

Epaphrodita dentifrons, Antilles.

The 'Mémoires pour servir à l'Histoire Naturelle de Mexique,' &c., t. ii. 1^{re} partie, are entirely occupied by a synopsis of American *Mantidæ*, forming, as the author remarks, a complement to the 3rd fascicule of his 'Mélanges,' from which the American species were excluded owing to the 'Mission' being then in the press. The following are the new genera and species:—

ORTHODÉRIENS.

Chetessa caudata, p. 11, *brunneriana*, p. 14, Brazil.

MANTIENS.

Angela miranda, p. 60, Mexico.

Macromantis, g. n., p. 77, formed to receive *Mantis ovalifolia*, Stoll, and *M. hyalina*, De Geer.

Miopteryx brunneri, p. 113, New Friburg.

Oligonyx brunneri, p. 119, Porto Cabello.

HARPAGIENS.

Acanthops brunneri, p. 144, Surinam.

EMPUSIENS.

Vates pectinata, p. 163, fig. 34, Mexico?; *paraensis*, p. 168, Para.

The greater part of the recent additions to the fauna were diagnosed by the author in the MT. schw. ent. Ges. iii. (cf. Zool. Rec. vii. p. 456), and are here described in detail.

In the 'Mélanges Orthoptérologiques,' fasc. iv., the author revises all his previous works, with many changes in nomenclature (see p. 90), and with again numerous additions to the species previously known; these are:—

ORTHODÉRIENS.

Eremiaphila numida, p. 6, Algeria.

Orthodera marginata, p. 8, fig. 1, Swan River.

Chiropacha meridionalis, p. 10, fig. 19, and *lenticularis*, p. 11, fig. 18, Natal.

Oxyophthalma collaris, p. 14, fig. 17, Senaar.

Humbertiella ocularis, p. 16, Borneo.

MANTIENS.

Acontista brevipennis, p. 21, fig. 20, and *major*, p. 22, Brazil.

Pseudomantis kraussiana, p. 25, fig. 3, New Holland.

Archimantis sobrina, p. 26, Swan River.

Euchomena moluccarum, p. 27, fig. 5, Moluccas.

Gonypteta (Iridopteryx) infumata, p. 30, Egypt?

Mantis viridis, p. 47, Natal.

Ameles gracilipes, p. 50, Cape?; *alata*, p. 51, Turkestan.

Liturgousa surinamensis, p. 53, Surinam.

Iris rogenhoferi, p. 55, fig. 9, Natal.

Angela fulgida, p. 61, Cayenne.

Oxythespis turcomanicæ, p. 61, Turkestan.

Parathespis anomala, p. 64, fig. 13, Cape.

Miomantis brevipeennis, p. 68, Natal; *savignii*, p. 69, Senaar; *semialata*, p. 71, fig. 14, Natal.

HARPAGIENS.

Haania kraussi, p. 75, fig. 26, Swan River.

Pachymantis rogenhoferi, p. 77, fig. 27, Moluccas?

Sibylla tridens, p. 81, fig. 29, Zanzibar.

EMPUSIENS.

Stenovates pantherina, p. 84, fig. 31, Central America.

Heterovates (g. n.) *pardalina*, p. 85, fig. 32, Brazil.

Theoclytes minor, p. 85, fig. 33, Brazil.

Chæradodis squilla, Sauss. Lucas describes the hitherto unknown ♀, from Madras. Ann. Soc. Ent. Fr. (5) ii. p. 31.

PHASMIDÆ.

SAUSSURE, in the 'Mission Scientifique au Mexique,' &c. (liv. i.), gives details on structure, manners, development of the organs of flight, mimicry, &c.; and (livr. ii., not seen by the Recorder) the species are worked out in the same manner as the *Blattidæ* of this work. He describes a new genus, *Phantasis* (to receive *Phasma planula*, Westwood, *Anophelepis vittata*, Westwood, and *A. scythus*, Westwood), and a new species, *Bacteria cubaensis*.

Eurycantha calcarata. LUCAS describes and figures the sexes and larva of this species, and remarks that his *E. insularis* is only the ♀, and larva of the ♂, of the same species. He prefaces his paper by remarks on the habits of insects of this genus according to the observations of Montrouzier. Ann. Soc. Ent. Fr. (5) ii. pp. 19-31, pls. 8-10.

GRYLLIDÆ.

Œcanthus pellucens, Scop. Girard notes the discovery of this abundantly at Champigny and other localities in France. Bull. Soc. Ent. Fr. (5) ii. p. lxxix.

LOCUSTIDÆ.

Thomas describes the following new species:—

Copriophora mucronata, Canad. Ent. iv. p. 17, Washington (introduced).

Stenopelmatus fasciatus, Geolog. Survey Montana, p. 434, Wyoming, Utah, Texas, &c.

Ceuthophilus pallidus, p. 434, Colorado and Wyoming; *castaneus*, p. 435, *pacificus*, p. 436, and *bilobatus*, p. 437, California.

Anabrus coloradus, p. 440, Eastern Colorado.

Thamnotrizon scabricollis, p. 441, Southern Montana.

Decticus pallidipalpis, p. 442, Utah and Idaho.

Locusta fuliginosa, p. 443, Arizona; *occidentalis*, p. 444, California.

ACRYDIIDÆ.

KÖPPEN, F. T. Die geographische Verbreitung der Wanderheuschrecke (*Pachytylus migratorius*, Linn.). Geogr. MT. xvii. pp. 361-386, Taf. 18 (map). 1871.

An exhaustive analysis of this memoir is given by P. de Borre in CR. ent.

Belg. 1872, pp. xviii-xxiii. Köppen, in considering the enormous area over which the species has been found, gives three distinct limits for its distribution:—(1) countries in which it permanently breeds; (2) those beyond these in which it continues for a few years and then disappears; (3) those to which its migrations are occasionally extended, but where it never breeds. De Selys-Longchamps (*l. c.* pp. xxiii & xxiv), in continuation of De Borre's remarks, points out that two species are commonly confounded under *P. migratorius*, viz. this and *P. cinerascens*, F.; and he states that in Belgium the former is only of occasional occurrence, whereas the latter appears every year in certain localities, and no doubt breeds in the kingdom.

Extracts from a South Australian newspaper respecting the ravages caused by "locusts" in that colony appear in P. E. Soc. 1872, pp. xii-xvii.

Edipoda pruinosa, Thomas, = *trifasciata*, Say; *Boopedon nigrum*, Thomas, = *nubilum*, Say: Thomas, Geolog. Survey of Wyoming, p. 273.

Acrolophitus, g. n., *id. l. c.* p. 278. Type *Gryllus hirtipes*, Say.

New species:—

Stenobothrus obionus, p. 279, *brunneus*, p. 280, Cañon City, *quadrifasciatus*, p. 280, S. Colorado: *id. l. c.*

Acridium ambiguum, *id.* Geolog. Survey Montana, p. 447, S. Illinois, Kansas, and Tennessee; *frontalis*, p. 448, pl. ii. fig. 1, Kansas.

Caloptenus dodgii, *id.* Canad. Ent. iii. (1871) p. 168, Pike's Peak, Colorado; *viridis*, *id.* Geolog. Survey Montana, p. 450, Colorado, Wyoming, and Kansas; *turnbulli*, p. 452, pl. ii. fig. 10, and *occidentalis*, p. 453, pl. ii. fig. 2, Wyoming; *griseus*, p. 454, Ohio.

Pezotettix obesa, p. 454, pl. ii. figs. 13 & 14, between Idaho and S. Montana; *nebrascensis*, p. 455, Nebraska: *id. l. c.*

Edipoda undulata and *haydeni*, p. 460, Colorado and Wyoming; *kiowa*, p. 461, Colorado; *gracilis*, p. 461, Colorado and Wyoming; *wyomingana*, p. 462, E. Wyoming; *montana*, p. 462, S. Montana; *longipennis*, p. 463, Texas?: *id. l. c.*

Stenobothrus bicolor, p. 465, Colorado and Wyoming: *id. l. c.*

Oxycoyphus obscurus, p. 466, Wyoming: *id. l. c.*

RHYNCHOTA

By E. C. RYE.

HEMIPTERA-HETEROPTERA.

BOLD, THOMAS JOHN. A Catalogue of the Insects of Northumberland and Durham. Hemiptera-Heteroptera. Tr. North. Durh. iv. (1872), pp. 348-369.

151 species (1 new) are enumerated, with notices of localities, and occasionally of habits &c.

CZERNAY, A. [See IVANOFF, P.]

HORVÁTH, GEYZA V. Beiträge zur Kenntniss der Hemipteren-Fauna Ungarns. Pest: 1871.

Not seen by the Recorder.

IVANOFF, P., & CZERNAY, A. "Énumération de Hémiptères hétéroptères trouvés dans les environs de la ville de Koupiansk," "suivie d'un Supplément—composée d'une liste de Hémiptères hétéroptères des environs de la ville de Kharkow, appartenant au musée de l'université et déterminés par feu le professeur Krynicki." Travaux de la Société des naturalistes à l'université Impériale de Kharkow, iv. (1871, 4to) pp. 69–76.

The Recorder has not seen this work, but finds the above notice in Hor. Ent. Ross. viii., Revue Bibliographique, p. ix. The first list appears to be composed of 75 species; and the supplement, by Czernay alone, reproduces short Latin descriptions, found in the catalogue of the University collections made by Krynicki in 1834, of the following spp. nn.:—*Scutellera albipunctata*, *trigona*, and *obtusata*, and *Ælia panzeri*, and 3 varr. nn. of *Pentatoma festiva*, *Syromastes scapha*, and *Hydrometra lacustris*.

OSCHANINE, B. Species novæ Hemipterorum. Moscou: 1870.

——. Hemiptera Sarafschanensia. Moscou: 1871.

Not seen by the Recorder; probably published in Nachr. Ges. Mosc. vi. & vii.

SNELLEN VAN VOLLENHOVEN, S. C. Essai d'une Faune Entomologique de l'Archipel Indo-Néerlandais. 3me monographie: famille des Pentatomides. Pt. 1. La Haye: 1868, 4to, pp. 49, pls. i.–iv.

Comprises from the *Asopidae* to the *Megymenidae* inclusively. Several new species are described.

STÅL, C. Enumeratio Hemipterorum. Bidrag till en förteckning öfver alla hittills kända Hemiptera. Pt. 2. Sv. Ak. Handl. x. (1872), No. 4, pp. 1–159.

Continuing his treatment of the American species, the author in this part discusses his *Cimicina*, pp. 3–65, and *Reduviina*, pp. 66–128; giving additions and corrections affecting pts. 1 & 2, pp. 129–131, and an index (containing several errors), pp. 132–159. In addition to many evidently new genera and species, the author, in tables and elsewhere, indicates various subfamilies, many of which are probably new; but for which, and for the copious synonymy (much of which may be original), reference must be made to the work itself.

UHLER, P. R. Notes of the Hemiptera of the Western Territories of the United States, chiefly from the Surveys of Dr. F. V. Hayden. In Hayden's Preliminary Report of the United States Geological Survey of Montana. Washington: 1872 (pt. iv.), pp. 392–423.

New genera and species are described. Melanism seems to prevail in species belonging to the mountains of Nevada, while in Colorado and Idaho the insects present the richest and brightest colours.

WALKER, FRANCIS. Catalogue of the Specimens of Hemiptera Heteroptera in the Collection of the British Museum. Part v. pp. 1-202 (1872).

Completes the *Supericornia* (containing the completion of the *Coreidæ*, and the *Lygæidæ*, *Anthocoridæ*, and *Microphysidæ*), and commences the *Cæcigenæ* (*Pyrrhocoridæ*, including the *Largidæ*). The title is scarcely correct, as the object of the work is to give a complete list of all the genera and species known to exist in the collections of European and American Entomologists.

Captures near London: J. W. DOUGLAS, Ent. M. M. viii. p. 289.

F. BUCHANAN WHITE, under the heading "Notes on Scottish Hemiptera," refers to the habits of various well-known species. Scot. Nat. i. pp. 223-226, 263-265.

Corsica. T. A. MARSHALL, Ent. M. M. viii. p. 191, gives localities for, and a few general remarks concerning, species found by him in this island. Descriptions of new species &c. are added by J. Scott.

Madagascar. In Aug. Vinson's 'Voyage à Madagascar au couronnement de Radama II.' (Paris: 1865, roy. 8vo), Annexe D, pp. 19-22, is a list of 191 species by C. COQUEREL.

Names of a few species occurring north of the United States of America are given by F. WALKER: Canad. Ent. iv. p. 29.

E. Colorado and N.E. New Mexico. In Hayden's Geological Survey of Wyoming (1871) is a list of species collected by C. Thomas during the survey of 1869.

The figures and descriptions by Blasquez, in 'Naturaleza,' of *Lystra bombycida* and *Velia* (? *Harpactor*) *agavis*, mentioned in the 'Bericht' published in 1873, p. 114, have not been seen by the Recorder.

On collecting and preserving, cf. PUTON, Pet. Nouv. No. 65, p. 262.

[SCUTATA.]

STÅL, Öfv. Ak. Förh. xxix. (1872) No. 3, pp. 31-40, revises the European genera of his family *Pentatomidæ*, including therein as subfamilies the *Scutellarina*, *Pentatomina*, *Asopina*, *Acanthosomina*, *Diridiorina*, and *Phyllocephalina*. These groups will be here discussed as a whole, to avoid confusion with the references to other now recorded works of the author. The *Scutellarina* are composed of the divisions *Elvisuraria* (*Solenostethium*, Spin.), *Odontarsaria* (*Odontarsus*, Lap., *Ellipsocoris*, Mayr, *Phimodera*, Germ.), *Eurygastaria* (*Pscasta*, Germ., *Eurygaster*, Lap.), and *Odontoscelaria* (*Irochrotus*, Am. & S., *Odontoscelis*, Lap.); the *Pentatomina* of the *Tarisaria* (*Tarisa*, Am. & S.), *Trigonosomaria* (*Trigonosoma*, Lap., *Vilpianus*, St., *Crypsinus*, A. Dohrn), *Graphosomaria* (*Sternodontus*, Muls. & R., *Ancyrosoma*, Am. & S., *Tholagmus*, St., *Graphosoma*, Lap.), *Podoparia* (*Podops*, Lap., *Scotino-*

phara, Stål, type *Podops siculus*, Costa), *Halyaria* (*Mustha*, Am. & S., *Apo-diphus*, Spin.), *Sciocoraria* (*Doryderes*, Spin., *Sciocoris*, Fall., *Menaccarus*, Am. & S.), *Æliaria* (*Ælia*, F., *Neottiglossa*, Kby.), *Eusarcocoraria* (*Dalleria* and *Onylia*, Muls., *Analocus*, g. n., p. 36, for *Eusarcocoris misellus*, Stål, and *E. melanocephalus*, F., *Eusarcocoris*, Hahn, type *E. perlatus*, F.), *Pentatomaria* (*Rubicomia* and *Staria*, Dohrn, *Peribalus*, Muls., = *Dryocoris*, Muls., *Palomena*, Muls., *Holcostethus*, Fieb., type *H. jani*, Fieb., and to which genus *Pentatoma scapularis*, Thunb., *apicalis*, H.-S., and *goniodes*, Dall., are to be referred, *Curpocoris*, Kol., *Codophila*, Muls., St., *Dolycoris*, Muls., *Pentatoma*, Ol., *Chroantha*, g. n., p. 38, type *Pentatoma ornatula*, H.-S., *Brachynema*, Muls., *Nezara*, A. & S., *Acrosternum* and *Piezodorus*, Fieb., *Rhaphidogaster*, Lap., *Tropi[do]coris*, Hahn, *Holcogaster*, Fieb.), and *Strachiaria* (*Eurydema*, Lap., = *Strachia*, Fieb., *Stenozygum*, Fieb., = *Minodia*, Muls., *Bagrada*, St., = *Nitilia*, Muls.); the *Acanthosomina* of *Acanthosoma*, Curt., *Elasmostethus*, Fieb., *Clinocoris*, Hahn, *Cyphostethus*, Fieb.; the *Asopina* of *Cimex*, L. (subgg. *Cimex*, L., = *Picromerus*, Am. & S., and *Pinthæus*, St., = *Platynopus*, Fieb., nec A. & S.), *Ialla*, Hahn, *Troilus*, St. (*Asopus*, Fieb.), *Arma*, Hahn, *Rhacognathus*, Fieb., *Zicrona*, A. & S.; the *Dinidorina* of *Aspongopus*, Lap.; the *Phyllocephalina* of *Schizops*, Spin.

The author, *ibid.* No. 6, pp. 56-58, publishes some addenda to his synopsis of this family:—Subf. *Pentatomina*, div. *Trigonosomaria*, gen. *Putonia*, Stål (*P. torrida*, Stål, Algeria, p. 57, evidently a new species, although no indication of its novelty is given by the author. The Recorder wishes to remark that it is not improbable that some of Stål's genera in this series of papers may also be new, but that, as that author has in only two instances placed the letters "n. g." after generic names, no others but these two have been indicated as new in this Record), *Crypsinus*, transferred from the *Graphosomaria*, and *Leprosoma*, Bär.; div. *Graphosomaria*, gen. *Vilpianus*, St., transferred from the *Trigonosomaria*; div. *Halyaria*, gen. *Mecidea*, Dall. (*M. pallida*, Stål).

Puton, Ann. Soc. Ent. Fr. (5) p. 508, reviews this work.

PACHYCORIDÆ.

Homæmus bijugis, sp. n., Uhler, in Hayden's Geol. Surv. Montana, p. 393, Colorado, Nebraska.

PODOPIDÆ.

Oncozygia, g. n., Stål, Sv. Ak. Handl. x. p. 15. Differs from *Podops* in structure of head, approaching *Aspidestrophus*, but narrower, with longer head, antero-lateral lobe of thorax spinose, and no tubercle to apical angles of ventral segments. *O. clavicornis*, sp. n., *id. l. c.* p. 16, Texas.

ASOPIDÆ.

Cazira verrucosa, Westw., var. figured, pl. 1. fig. 1; *Audinetia*, Ellenrieder, = *Arma*, Hahn; *Zicrona illustris*, A. & S., ? = *cærulca*, L., local var.: Vollenhoven, Essai &c. iii. (i). *Zicrona cuprea*, Dall., Hudson's Bay, Idaho, New Mexico, = *cærulea*, L.: Uhler, in Hayden's Geol. Surv. Montana, p. 395.

Picromerus bidens. A. Müller, Tr. E. Soc. 1872, pp. 283-285, narrates the manner in which this insect has been observed by himself to check the ravages of larvæ of a *Nematus* (? *ochraceus*, Htg.) on *Salix cinerea*.

Canthecona rufescens, Java, pl. 1. fig. 2, *apicalis*, Ternate & c., pl. 1. fig. 3, p. 6; *plebeia*, Ternate, pl. 1. fig. 4, *mitis*, Timor, pl. 1. fig. 5, p. 7; *biguttata*, Aru, pl. 1. fig. 6, *variabilis*, Timor, pl. 1. figs. 7 & 8, p. 8; *acuta*, Timor, pl. 2. fig. 1, *decorata*, Halmaheira, pl. 2. fig. 2, p. 9: Vollenhoven, *l. c.*, spp. nn.

Asopus carnifex, Ternate, p. 12, pl. 2. fig. 3; *distigma*, Amboina, pl. 2. fig. 4, *semiviolaceus*, Halmaheira, pl. 2. fig. 5, p. 13; *bernsteini*, p. 14, pl. 2. fig. 6, New Guinea: *id. l. c.*, spp. nn.

CYDNIDÆ.

Vollenhoven, *l. c.* p. 18, reproduces descriptions of *Hahnia gibbula* and *Æthius*? *rariciliatus*, Ellenrieder (from Tijd. Nederl. Ind. xxiv.).

Cyrtomenus insignis, sp. n., Vollenhoven, *l. c.* p. 16, pl. 2. fig. 7, Java & c.

Æthius pallidicornis, sp. n., *id. l. c.* p. 17, pl. 2. fig. 8, Java, Ceram.

Acatalectus luteimarginatus, sp. n., *id. l. c.* p. 19, pl. 2. fig. 9, Timor.

Microporus obliquus, sp. n., Uhler, in Hayden's Geol. Surv. Montana, p. 394, Utah.

SCIOCORIDÆ.

Dryptocephala latiloba, Brazil, *obtusiceps*, New Granada, Stål, Sv. Ak. Handl. x. p. 4, spp. nn.

Discocephala (*Platycarenum*) *marginella*, sp. n., *id. l. c.* p. 6, Mexico.

HALYDIDÆ.

Brochymena 4-pustulata, H.-S., nec F., renamed *myops*: Stål, *l. c.* p. 16. *B. harrisi*, Uhler, and ? *B. carolinensis*, Westw., = *annulata*, F.; *Apateticus halys*, Dall., = *Halys lineolata*, H.-S.: *id. l. c.* p. 17. *Allocotus*, Mayr, is to be removed from the *Asopidæ* and placed in this family, near *Alphenor*: *id. l. c.* p. 129.

Caracia, g. n., *id. l. c.* p. 14. Of uncertain position, possibly best next to *Macropygium*. *C. sexdens*, sp. n., *id. l. c.* p. 15, Venezuela.

Melanodermus picipes, sp. n., *id. l. c.* p. 14, New Granada.

Chlorocoris subrugosus, sp. n., *id. l. c.* p. 36, Mexico.

PENTATOMIDÆ.

Euschistus punctipes, Say. Earlier stages described and figured: it is parasitic upon *Doryphora 10-lineata*. In its larva and pupa the tarsi and antennæ have one joint less than in the perfect insect, the second joint of each subsequently dividing into two. This structure may be general in the *Scutelleridæ*; it is mentioned by Westwood with regard to *Pentatoma rufipes*, and has been also observed by the author in *Arma spinosa*, *Brochymena annulata*, *Stiretrus fimbriatus*, *Rhaphidogaster*, and *Nazara*. C. V. Riley, iv. Rep. Ins. Mo. p. 20, fig. 9.

Cimex baccarum, Lichtenstein, Pet. Nouv. no. 45, p. 179, considers this name should be retained for the downy species with annulated antennæ and

obtuse shoulders, in spite of the Linnæan type (glabrous, dark antennæ, pointed shoulders, = *nigricornis*, F.).

Strachia (Murgantia) histrionica, Hahn, extends now further north: in the south its dark colours prevail, *M. munda*, Stål, from Mexico, being merely a race of it. Uhler finds that in specimens reared in the dark the pale red predominates, and in others reared in bright daylight the dark blue prevails. Earlier stages described and figured, and an account of its ravages to cruciferous plants given. C. V. Riley, *l. c.* pp. 35-38, fig. 17.

Eurydema ornatum. Chalcididous parasites on its eggs described by Rondani, Bull. Ent. Ital. iv. pp. 202 & 203.

Acanthosoma griseum: dates of brooding &c. given by J. Hellins, Ent. M. M. ix. p. 13.

Melanostoma [Schiner, *Diptera*; 1860], subg. n. of *Neottiglossa*, Kby. (itself a subg. of *Pentatoma*), Stål, Sv. Ak. Handl. x. p. 18. *N. (M.) sulcifrons* and *cavifrons*, Texas, *id. ibid.*, spp. nn.

Melanochila, subg. n. of *Mormidea*, A. & S., for *M. lugens*, F.: *id. l. c.* p. 19.

Sibaria, g. n., *id. l. c.* p. 23. Allied to *Mormidea*, but head more narrowed in front, larger eyes, spinose femora, sulcated tibiæ, &c.; differs from *Euschistus* in obtuse and transversely rugose lateral margins of thorax. *Mormidea armata*, Dall.

Rhytidolomia, subg. n. of *Lioderma*, Uhler, for *L. senilis*, Say, and *belfragii*, sp. n., Illinois: *id. l. c.* p. 33.

Chlorochroa, subg. n. of same genus, for *L. ligata*, Say, and *uhleri*, Mexico, sayi, California, spp. nn.: *id. ibid.*

Modicia, g. n., *id. l. c.* p. 46. Size of *Mormidea*; allied to *Phineus*, *Serdia*, &c., but with 2nd joint of antennæ more than twice the length of 3rd. *M. sexlineata*, sp. n., *id. ibid.*, Cuba.

Blaudus, g. n., *id. l. c.* p. 61. Differs from *Bebæus*, Dall., in its shorter head &c. *B. ruficornis*, sp. n., *id. l. c.* p. 62, New Granada.

Præsus, g. n., *id. l. c.* p. 63. Nearest to *Ditomotarsus*, Spin. *P. incarnatus*, sp. n., *id. l. c.* p. 64, New Granada.

New species:—

Cosmopepla cruciaria, *id. l. c.* p. 19, New Granada.

Mormidea albisignis, Cuba, *metallica*, New Granada, p. 20, *fusca* and *angulosa*, New Granada, *sordidula*, Texas, *griseescens*, Mexico, p. 21: *id. l. c.*

Æbalus insularis, *id. l. c.* p. 22, Cuba.

Euschistus picticornis, p. 23, *cribrarius* and *trilobus*, p. 24, *bilobus* and *armipes*, p. 25, Brazil, *tauricornis*, p. 25, Uruguay, *impictiventris*, p. 26, Texas, *rugifer*, p. 26, *integer*, p. 28, Mexico, *trisinuatus* and *rufimanus*, p. 27, New Granada: *id. l. c.*; *E. fissilis*, Uhler, in Hayden's Geol. Surv. Montana, p. 396, Colorado, Nebraska, Illinois.

Holcostethus abbreviatus, *id. l. c.* p. 397, Kansas, Colorado, California.

Pentatoma granulosa, *id. l. c.* p. 398, Montana, Utah.

Proxys obtusicornis, Stål, *l. c.* p. 29, New Granada.

Hymenarcys reticulata, *id. l. c.* p. 30, Mexico.

Enopia pallidula, *id. l. c.* p. 31, Buenos Aires.

Melpia inermis, p. 31, *sinuata*, p. 32, Brazil, *id. l. c.*

Trichopepla atricornis, id. l. c. p. 34, Illinois.

Peribalus limbolarius, id. *ibid.*, N. America; *P. modestus*, Uhler, l. c. p. 396, Arizona, eastern States of Mississippi.

Arocera rufilimbata, Stål, l. c. p. 38, S. Brazil.

Nezara nigratarsis and *rogenhoferi*, p. 40, *napæa*, p. 42, Brazil; *impicticornis*, New Granada, *bipunctula*[*ta*], Bahia, p. 42: id. l. c.

Banasa packardi, p. 43, *euchlora*, p. 44, N. Carolina: id. l. c.

Piezodorus herbaceus, id. l. c. p. 44, I. St. Thomas.

Sinopla bicallosa, id. l. c. p. 62, New Granada.

EDESSIDÆ.

Pygoplatys ralandii, Ellenr.; description reproduced, p. 24. *Tesseratoma angularis*, Dohrn, and *proxima*, Hope, = *javanica*, Thunb.; anus of ♂ figured, *T. javanica*, pl. iii. fig. 4 b, *chinensis*, 4 a. *T. conspersa*, Stål, = *stictica*, de H., and *nigripes*, Dall., = *javanica*, varr., and var. n. *timorensis*, p. 26, described and figured, pl. iii. fig. 4. *Eurostus grossipes*, Dall., is queried as a local var. of *Eusthenes scutellaris*, Hagenbach (no description by that author mentioned), which is figured pl. iii. fig. 5. *Eusthenes scutellaris*, Herr.-Sch., is renamed *minor*, p. 29, as Hagenbach's type in Leyden Museum is referable to the last-mentioned species [which, however, if grounded on a type only, with no description published, could not possibly have precedence over Herrich-Schäffer's name]. *Oncomerus flavicornis*, Guér., var. n. *chrysoptera*, Wagiau, p. 30, pl. 4. fig. 2. *O. dilatatus*, Montr., ? = *merianæ*, F., var. *Pycanum amethystinum*, F., = *rubens*, F., of which 5 varr. are noted. *P. westwoodi*, Voll., figured, pl. iii. fig. 7. *Lyramorpha vollenhoveni*, Stål, figured, pl. iv. fig. 3; differences in the number of joints to the antennæ in this genus commented on, p. 35, note. *Cyclopelta obscura*, Lep. & S.; var. (? sp.) n., *trimaculata*, p. 37. pl. iv. fig. 4, Malacca, Borneo. Javan var. of *Aspongopus ochreus*, Hope, described, p. 38. Vollenhoven, Essai &c. iii. (i.).

Edessa (Aceratodes) cordifer, Walk., is renamed *albicornis*: Stål, Sv. Ak. Handl. x. p. 58.

Acidosterna, g. n., id. l. c. p. 129. Allied to *Hypencha*, A. & S. *A. nitida*, sp. n., id. l. c. p. 130, Malacca.

Liphæmus, subg. n. of *Cyclogaster*, Westw., for *C. (L.) exsanguis*, sp. n.: id. l. c. p. 130, Brazil.

Edessa thumbergi, p. 49, *costalis*, p. 50, *pictiventris*, p. 52, *falleni*, p. 53, *fuscispina*, p. 55, New Granada; *laticornis*, p. 50, *bonasia*, p. 54, *conspersa*, *westringi*, *picticornis*, p. 58, *mexicana*, *punctiventris*, p. 59, Mexico; *cylindricornis*, *flavinervis*, p. 51, *biguttata*, p. 52, *rugifera*, p. 53, *sahlbergi*, p. 54, *aulacosterna*, p. 56, *ovalis*, p. 57, Brazil; *antennata*, p. 51, Surinam; *limbolaria*, p. 55, locality unknown: id. l. c., spp. nn.

Mucanum patibulum, sp. n., Vollenhoven, Essai &c. iii. (i.) p. 22, pl. 3. fig. 1, Sumatra.

Pygoplatys subrugosus, pl. 3. fig. 2, Amboina; *minax*, pl. 3. fig. 3, Borneo, p. 23; *roseus*, p. 24, note, Malacca: id. l. c., spp. nn.

Oncomerus bernsteini, sp. n., id. l. c. p. 30, pl. 4. fig. 1, Halmaheira.

Aspongopus muelleri, sp. n., id. l. c. p. 39, pl. 4. fig. 5, Java.

PHYLLOCEPHALIDÆ.

Placosternum, A. & S., belongs to the true *Pentatomidæ*; description of *Gonopsis setadjemdei*, Ellenr., reproduced. Vollenhoven, *l. c.* pp. 40 & 44.

Megarhynchus intermedius and *fuscus*, spp. nn., *id. l. c.* p. 44, Ningpo.

MEGYMENIDÆ.

Megymenum merati, Le Guillou, = *cupreum*, Guér. (figured pl. iv. fig. 8), of which *inermis*, H.-S., is probably only a var.; *M. affine*, Boisd., description reproduced, p. 48. *M. crenatum*, De G., ? = *insulare*, Hope. *Eumenotes obscura*, Westw., occurs in Java, Celebes, and Sumatra: Vollenhoven, *l. c.*

Byrsodepsus, g. n., Stål, *l. c.* p. 130. Allied to *Megymenum*. *B. coriarius*, sp. n., *id. l. c.* p. 131, Silhet.

Megymenum semivestitum, fig. 6, Amboina; *quadratum*, fig. 7, Morotai; *anacanthum*, fig. 9, Sumatra, p. 46; *parallellum*, fig. 10, p. 48, Java and Sumatra: Vollenhoven, *l. c.* pl. iv., spp. nn.

MICTIDÆ.

Metapodius thomasi, sp. n., Uhler, in Heyden's Geol. Surv. of Montana, p. 399, Arizona.

ALYDIDÆ.

Alydus rupestris, "Meyer," figured, MT. schw. ent. Ges. iv. pl. 1. fig. 5.

Alydus ater, Dall., = *eurinus*, Say, ♀: Uhler, *l. c.* p. 401.

Alydus pluto, sp. n., *id. l. c.*, Colorado, Kansas.

COREIDÆ.

STÅL, Öfv. Ak. Förh. xxix. (1872), no. 6, pp. 49-58, under this name revises the European genera of the subfamilies *Coreina*, *Pseudophlæina*, *Alydina*, and *Corizina*. The *Coreina* consist of the divisions *Gonoceraria*, gen. *Gonocerus*, Latr.; *Corearia*, gg. *Verlusia*, Spin., *Haploprocta*, Stål (type *Verlusia sulcicornis*, F.), *Coreus*, F. (*Enoplops*, Am. & S., *Palethrocoris*, Kol.), *Syromastes*, Latr., *Centrocoris*, Kol. (*Centrocarenus*, Fieb.; *Centrocoris*, Fieb., = *Vilga*, Stål, and is American), and *Cercinthus*, St. (*Coccodocephalus*, Fieb.); *Atractaria*, gen. *Atractus*, Lap. (*Spathocera*, Stein); *Prionotylaria*, gen. *Prionotylus*, Fieb. (*Myrmiidius*, Costa); and *Phyllomorpharia*, gen. *Phyllomorpha*, Lap.: the *Pseudophlæina* of *Pseudophlæus*, Burm., *Bathysolen*, Fieb., *Arenocoris*, Hahn, *Nemocoris*, Sahlb. (*Aoplochilus*, Fieb., of which an error in diagnosis is suggested, p. 53, note), *Ceraleptus*, Costa, *Strobilotoma*, Fieb., *Dasycoris*, Dall. (*Coreus*, Lap., Fieb.), *Bothrostethus* and *Loxocnemis*, Fieb.: the *Alydina* of the divisions *Stenocephalaria*, gen. *Stenocephalus*, Latr. (*S. neglectus*, H.-S., = *Reduvius albipes*, F., which is a *Stenocephalus*); *Micrelytraria*, gen. *Micrelytra*, Lap.; *Leptocorisaria*, gen. *Leptocorisa*, Latr.; *Alydaria*, gg. *Camptopus*, A. & S., *Alydus*, F., and *Megalotomus*, Fieb. (*Alydus ornaticeps*, St., = *sareptanus*, Bärenspr.): and the *Corizina* of the divisions *Conizaria*, gg. *Corizus*, Fall., *Liorhyssus*, St. (*Colobatus*, Muls.), *Rhopalus*, Schill. (subg. *Æschymtelus*, Stål), *Brachycarenum*, Fieb., *Stictopleurus*, Stål (*Rhop. crassicornis*, L., and *abutylon*, Rossi), *Maccevetthus*, Dall., *Agraphopus*, Stål (with an evidently new species, although no indication whatever is

given of its novelty beyond the description; *A. lethierryi*, Bone, p. 56), and *Myrmaria*, genn. *Myrmus*, Hahn, *Chorosoma*, Curt.

Puton, Ann. Soc. Ent. Fr. (5) ii. p. 509, reviews this work.

Namacus rufescens, p. 1, Orizaba, *semialbus*, p. 2, Villa Nova: Walker, Cat. Hem. Brit. Mus. pt. v., spp. nn.

Clavigralla spinigera, Penang, *dispar*, no locality given: *id. l. c.* p. 6, spp. nn.

Dasycoris humilis, sp. n., Uhler, in Hayden's Geol. Surv. Montana, p. 403, Colorado, California.

RHOPALIDÆ.

Corizus viridicatus, sp. n., Uhler, *l. c.* p. 404, Colorado, Dakota.

BERYTIDÆ.

Neides decurvatus, sp. n., Uhler, *l. c.* p. 402, Colorado, New Hampshire.

PYRRHOCORIDÆ.

Roscius 4-plagiatus, p. 173, Congo; *Odontopus baerhaviae*, p. 176, Natal; *Dysdercus ruficeps*, p. 183, ? S. America; *D. superstitiosus*, p. 185, Angola; *D. cingulatus*, p. 187, Wagiou; *D. philippinus*, p. 188: forms (? spp., ? varr.) described, not named, by Walker, Cat. Hem. Brit. Mus. pt. v., who describes the following new species:—

Pyrrhocoris vittiventris, N. Hindostan, *maculicollis*, N. China, p. 171; *indecorus*, Siam, *ramosus*, Sarawak, *lateralis*, Moreton Bay, p. 172.

Roscius fasciatus, p. 174, Sierra Leone.

Odontopus dilectus, p. 176, Aden; *scutellaris*, p. 178, North Bengal.

Dysdercus mundus, p. 181, Mexico; *jamaicensis*, Jamaica, *fervens*, St. Domingo, p. 182; *coloratus*, p. 189, Ceram, Java; *albescens*, Fiji Isles, *concinulus*, Flores, p. 190; *discolor*, *ibid.*, *pectoralis*, p. 191, locality unknown.

LYGÆIDÆ.

STAL, Cefv. Ak. Förh. xxix. (1872) no. 7, pp. 37–62, revises the European genera under the subfamilies *Lygæina*, *Cymina*, *Blissina*, *Henestarina*, *Geocorina*, *Artheneina*, *Teracriina* (to which the *Pachygronthina*, *Pachygrontha* and *Ædancala*, are very closely allied), *Oxycarenina*, *Mydochina*, *Pyrrhocorina*, and *Heterogastrina*. The *Lygæina* are composed of the following divisions:—1. *Lygæaria*, gg. *Oncopeltus*, Stål (*L. aulicus*, F.), *Melanospilus*, St. (*L. venustus*, Boeber), *Lygæus*, F., and subgg. *Cosmopleurus*, St. (*L. fulvipes*, Dall.), *Graptolomus*, St. (*L. equestris*, L., and *creticus*, Luc.), *Spilostethus*, St. (*L. militaris*, F., and *saxatilis*, Scop., and *Lygæodon marmottani*, Puton, = *Lygæus longulus*, Dall.), and *Melanocoryphus*, St. (*L. apuans*, Rossi, and *punctatiguttatus*, F., which is sometimes hemelytrous, and *Lygæosoma tristrami*, D. & S.), *Lygæosoma*, Spin., and subgg. *Graptostethus*, St. (*L. maculicollis*, Germ., *Apterola kuenckeli*, Muls., = *L. pedestris*, St., *G. rubicundus*, Palestine, p. 42, apparently sp. n.), and *Lygæosoma* proper; *Arocatus*, Spin. (*Tetralaccus*, Fieb.; *A. rufipes**, ? Siberia, and *longiceps**, Greece, p. 42), and *Cænocoris*, Fieb. 2. *Orsillaria*, gg. *Nysius*, Dall., comprising subgg. *Macroparius*, St. (*Nysius graminicola*, Kol.), *Nysius* proper (*N. jacobææ*,

thymi, &c.), and *Ortholomus*, St. (*N. punctipennis*, H.-S.), and *Orsillus*, Dall. (♂ unknown). The *Cymina* are composed of divisions *Cymaria* (gg. *Cymus*, Hahn, and *Cymodema*, Spin., the latter unknown as European) and *Ischnorhyncharia* (*Ischnorhynchus*, Fieb.); the *Blissina* of *Ischnodemus*, Fieb., *Dimorphopterus*, St. (*Micropus spinolæ*, Sign., and *D. signoreti**, A. Kusch, probably a MS. name, described, p. 45, from Sarepta), and *Blissus*, Klug; the *Henestarina* of *Henestaris*, Spin., and *Engistus*, Fieb. (*E. exsanguis**, Stål, p. 45, Biskra); the *Geocorina* of *Piocoris*, St. (*Geocoris erythrocephalus*, St. F. & S., and *P. obesus**, Stål, p. 45, Biskra), *Geocoris*, Fall. (with subgg. *Geocoris* proper and *Ophthalmicus*, Schill.), and *Mallocoris*, St. (*M. discifer**, St., p. 46, Biskra); the *Artheneina* of *Artheneis*, Spin., and *Chilacis*, Fieb.; the *Teracriina* of *Cymophyes*, Fieb. (*C. decolor**, St., p. 47, Biskra), and, extra-European, *Teracrius* and *Phlegyas* (p. 39, note); and the *Oxycarenina* of *Anomaloptera*, Am. & S., *Philomyrmex*, Sahlb., *Camptotelus*, ? Fieb. (*C. lineolatus**, Schill., p. 48, and *C. costalis*, H.-S., p. 49, Germany, both probably MS. names), *Macropterna*, Fieb., limited to *M. convexa*, Fieb., *Microplax*, *Brachyplax*, *Metopoplax* (*M. fuscinervis**, St., p. 50, Bone), and *Oxycarenum*, Fieb., and *Bycanistes*, St. (*B. naso**, St., p. 50, Bone). The *Myodochina* are composed of the following divisions:—1. *Myodocharia*, gg. *Paromius*, Fieb., *Diplonotus*, St. (*Plociomerus fracticolis*, Schill., and *luridus*, Hahn), *Ligyrocoris*, St. (*P. silvestris*, L.). 2. *Rhyparochromaria*, gg. *Rhyparochromus*, Curt., with subgg. *Rhyparochromus* proper (*Megalonotus*, Fieb.), and *Piezoscelis*, Fieb., *Proderus* and *Tropi[do]stethus*, Fieb., *Aphanosoma*, Costa (*Pterometus*, Am. & S.), *Macrodema*, Fieb., with subgg. *Macrodema* proper (*Pionosomus*, Fieb.) and *Aoploscelis*, Fieb., *Lamprodema*, Fieb., *Plinthisus*, Westw., *Lasiosomus*, *Acompus*, *Stygnus*, and *Lasiocoris*, Fieb., *Pasatus*, St. (*Peritrechus luniger*, Schill.), *Peritrechus*, Fieb., and *Anepsius*, Puton. 3. *Beosaria*, gg. *Hyalochilus* and *Trapezonotus*, Fieb., *Gnopherus*, Stål (*Trapezonotus nigripes*, Fieb., = *anorus*, Flor.), *Trapezonotus*, Fieb. (apparently repeated in error for *Sphragisticus*, Stål, which stands as its sole subgenus, type *T. nebulosus*, Fall., and other spp., including *T. dispar**, St., p. 56, S. France), *Microtoma*, Lap. (*Polyacanthus*, Lap., and *Rhyparochromus leucodermus*, Fieb.), *Pachymerus*, St. F. & S. (*Aphanus*, Lap.), with subgg. *Calyptonotus*, D. & S., *Graptopeltus*, St. (*lynceus*, F., and *adpersus*, Muls.), *Xanthochilus*, St. (*Beosus*, Fieb., nec A. & S., for *quadratus*, F., *saturnius*, Rossi, and *douglasi* and *tristis*, Fieb.), *Melandiscus*, St. (*pini*, L., *vulgaris*, Schill., and *phœniceus*, Rossi), and *Raglius*, St. (*caffer*, Thunb., and *pineti*, H.-S.), *Beosus*, A. & S. (*B. luscus*, F., *sphragadimium*, Fieb., and *pulcher*, H.-S.), and *Dieuches*, Dohrn, to which *Elasmolomus*, St., for *Rhyparochromus sordidus*, F., *v-album* and *mendicus* (*caffer*, St.), St., and *transversus*, Sign., possibly European, is at p. 58, note, stated to be very close. 3. *Gonianotaria*, gg. *Neurocladus* (*Acanthocnemis*, Sign.), *Ischnopeza*, *Emblethis*, *Gonianotus* and *Diomphalus*, Fieb. 4. *Lethæaria* for *Lethæus*, Dall. (*Coptoneurus*, Puton; *L. cribratissimus*, St., = *niger*, Fieb.). 5. *Drymaria*, gg. *Ischnocoris*, *Scolopostethus* (? = *Tritomacera*, Costa), *Eremocoris*, *Drymus* (*D. scambus**, St., p. 60, Bone), *Thaumastopus* (including *Notochilus gandolphii*, Puton), and *Notochilus*, Fieb., *Taphropeltus*, St. (*Scolopostethus contractus*, H.-S., with which *hamulatus*, Thoms., is identical, and *S. nervus* and *Notochilus limbatus*, Fieb.), and *Platygaster*, Schill., including subgg. *Platygaster* proper and *Gastrodes*, Westw. The *Pyrrhocorina* are composed of *Pyrrho-*

coris, Fall. (*P. sanguineus*, F., is S. African), and *Scantius*, St. (*S. ægyptius*, L.); and the *Heterogastrina* of *Heterogaster*, Schill., and *Platylax*, Fieb.

Such of the species above mentioned as are marked * are probably new, being fully described and their localities given; but there is no other indication of their novelty, and none whatever as to the generic divisions of the author, some of which may possibly be now first published.

Reviewed by Puton, Ann. Soc. Ent. Fr. (5) ii. p. 509, who objects to *Aphanosoma*, Costa, being used for *Pterotmetus*, A. & S., as it was originally proposed on insufficient grounds, and, as amended, = *Gryllocoris angusticollis*, Bär. Puton proposes to retain both *Pterotmetus* and *Gryllocoris*. *Drymus scambus*, Stål, = *pilipes*, Fieb.

Lygæus reclivatus, Say, = *turcicus*, L., var.; *L. vicinus* and *marginellus*, Dall., = *bistriangularis*, Say, varr.: Uhler, in Hayden's Geol. Surv. Montana, p. 405.

Lygæus punctatiguttatus is gregarious, and occurs in the Channel Isles, Natal, Teneriffe, and elsewhere: F. Walker, Ent. vi. p. 7.

Emblethis verbasci, F.: a new genus and species for the British lists. J. W. Douglas, Ent. M. M. ix. p. 4.

Mimocoris, g. n., Scott, Ent. M. M. viii. p. 194. Facies of *Camaronotus*, but with projecting eyes &c. *M. camaronotoides*, sp. n., *id. l. c.* p. 195, Corsica.

Anisocoris, g. n., Walker, Cat. Hem. Brit. Mus. pt. v. p. 148 (no differential characters mentioned). *A. punctifer*, *id. ibid.*, Columbia, Venezuela.

New species:—

Astacops anticus, *delineatus*, p. 35, *spinipes*, *nigricornis*, p. 36, New Guinea &c.; (*A.?*) *caligatus*, p. 36, Australia: Walker, *l. c.*

Lygæus californicus, p. 42, California; *marginalis*, *dimidiatus*, p. 45, Oajaca; *anticus*, p. 46, St. Domingo; *conspersus*, p. 47, Rio Janeiro; *cognatus*, Santarem, *inæqualis* (*turcicus*, Walk., olim, *nec F.*), Columbia, p. 49; *margifer*, *angulifer*, p. 55, Madagascar, *inæqualis* [again!], p. 57, Silhet; *semiruber*, Hindostan, *japonicus*, Japan, p. 58; *diffusus*, p. 59, Celebes; *dispar* and varr., Batchian, Borneo; *conceisus*, Lombok, p. 60; *dissimilis*, p. 61, Sarawak; *contiguus*, Moreton Bay, *subjectus*, Australia, *divisus*, N. S. Wales, p. 62; *ruficeps*, *singularis*, p. 63, Australia; *ruficollis*, New Zealand, *maoricus*, I. of Pines, *incertus*, locality unknown, p. 64: *id. l. c.* *L. admirabilis*, Uhler, *l. c.* p. 405, Colorado.

Nysius angustatus, Uhler, *l. c.* p. 406, Colorado, Canada; *N. raphanus*, W. R. Howard, Canad. Ent. iv. p. 219, N. America; *N. contiguus*, *proximus*, *mundus*, p. 69, Madeira, *subcinctus*, p. 70, *pallipennis*, p. 71, Ceylon: Walker, *l. c.*

Heterogaster punctosus, p. 72, *notatipes*, *atriclava*, p. 73, Madeira, *signifer*, Ceylon, *cymoides*, Celebes, p. 74: Walker, *l. c.*

Rhyparochromus (*Beosus*) *armatipes*, p. 91, America, (*B.*) *serripes*, Petropolis, *discifer*, Tejuca, p. 92, *R. luscinus*, *concinulus*, p. 93, *glaberrimus*, *mundulus*, p. 94, Madeira, *circumcinctus*, p. 97, Seychelles, *leucospilus*, p. 98, Silhet, *semilucens*, N. Hindostan, *extremus*, Siam, p. 99, (*B.*) *incisus*, Ceylon, and *anticus*, Hindostan, p. 100, (*B.*) *testaceipes*, *leucoceras*, p. 101, Ceylon, *siamicus*, p. 102, Siam, (*B.*) *delineatus*, p. 103, (*B.*) *terminalis*, p. 105, Ceram, and *descriptus*, p. 103, Sula, (*B.*) *obscuripes*, p. 104, and *divisus*, p. 105, New

Guinea, (*B.*) *repressus*, p. 104, Celebes, (*B.*) *alienus*, p. 105, and *nigritulus*, p. 106, Sarawak, *phæophilus*, p. 106, *luteicornis*, p. 107, Celebes, *dimidiatus*, *ibid.*, New Guinea, *coleopteroides*, Ceram, *cincticornis*, Batchian, and *R.* (? *Peritrechus*) *strictus*, Sarawak, p. 109, *rubiginosus*, Victoria, *diffinis*, Moreton Bay, p. 110, (*B.*) *maculicollis*, Adelaide, *collaris*, Tasmania, p. 111, (*Scolopostethus*) *inornatus*, p. 112, N. Zealand, (*Beosus*) *erosus*, p. 113, locality not known: *id. l. c.*

Plociomerus seychellesus [!], *reductus*, p. 120, Seychelles: *id. l. c.*

Gastrodes terminalis, *id. l. c.* p. 122, Celebes.

Ischnodemus longus, p. 127, Orizaba, *velutinus*, p. 128, Petropolis, *strigatus*, S. Africa, *basalis*, Natal, p. 130, *multilinea*, Cape of G. Hope, *varipennis*, Cambodia, p. 131, *centralis*, Ceylon, *punctatus*, N. Hindostan, p. 132, *sulcatus*, *talpa*, p. 133, Mt. Ophir, *divisus*, p. 134, N. Australia: *id. l. c.*

Ophthalmicus cinerascens, p. 138, Hindostan, *cincticornis*, *ibid.*, *dispar*, *discifer*, p. 139, Ceylon: *id. l. c.*

Cymus truncatulus, *immunis*, *id. l. c.* p. 142, Madeira.

Thaumastopus (? g. n., characterized, but not named) *alacer*, Canaries, *alacris* [!], N. America: *id. l. c.* p. 147.

Heræus insignis, Uhler, *l. c.* p. 407, Utah, Canada, Minnesota.

Macropterna bicolor, Scott, Ent. M. M. viii. p. 193, Corsica.

Brachyplax linearis, *id. ibid.*, Corsica.

ANTHOCORIDÆ.

Anthocoris subcruciatus, p. 151, Cape of G. Hope, *proximus*, Hindostan, *pubescens*, Celebes, p. 152, *arctatus*, p. 153, Australia: Walker, Cat. Hem. Brit. Mus. pt. v., spp. nn.

Lycocoris (?) *albifer*, sp. n., *id. l. c.* p. 154, Madeira.

Xylocoris balteatus, *latus*, p. 159, Madeira, *fulvescens*, *fumipennis*, p. 160, Ceylon: *id. l. c.*, spp. nn.

CAPSIDÆ.

Thomson, Opusc. Ent. (iv.) pp. 410-452, revises the Swedish species, adopting various new characters. With *Capsus* he reunites *Phytocoris*, *Calocoris*, *Deræocoris*, *Megacælum*, *Pycnopterna*, *Oncotylus*, *Dichrooscytus*, *Plesiocoris*, *Lygus*, *Hadrodema*, *Orthops*, *Camptobrochus*, *Liocoris*, *Charagochilus*, *Systratiotus* [quoted as "Dallas and Scott"], *Pæciloscytus*, *Allæotomus*, *Rhopalotomus*, *Lopus*, *Pithanus*, *Myrmecoris*, *Labops*, *Orthocephalus*, *Stiphrosomu*, *Monalocoris*, *Bryocoris*, *Brachyceræa* and *Dicyphus* (*Idolocoris*), *Cyllocoris*, *Globiceps*, *Blepharidopterus*, *Chlamydatus*, *Cyrtorhinus*, *Orthotylus*, *Litocoris*, *Malacocoris*, *Heterocordylus*, *Halticus*, *Camaronotus*, *Systellonotus*, *Cremnocephalus*, *Eroticoris*, *Phylus*, *Harpocera*, *Brachyarthrum*, *Byrsoptera*, *Atractotomus*, *Apocremnus*, *Psallus*, *Plagiognathus*, *Criocoris*, *Sthenarus*, *Agalliastes*, *Placochilus*, *Oncotylus*, *Hoplomachus*, *Mermimerus*, *Macrotylus*, and *Conostethus*, mostly genera of Fieber's, and nearly the whole of which are universally recognized, thus associating no less than 121 species from his own country alone in one cumbersome genus—a strange arrangement coming from one who stands alone in Europe in splitting the Coleopterous genus *Homalota* into very many new genera. According to him, *Capsus divergens*,

Mey., = *ulmi*, L.; *C. ulmi*, Flor., = *varipes*, Boh.; *C. annulicornis*, Sahlb., = *4-punctatus*, F.; *C. flavivarius*, Fall., = *kalmii*, L.; *C. pastinacæ*, Fall., = *transversus*, F.; *Phytocoris puncticollis*, Fall., = *Lygæus resedæ* = *didymus*, Zett.; *P. pallens*, = *Anthocoris domestica*; *C. gothicus*, Fall., nec L., is renamed *pilipes*, p. 429 [but *marginipunctatus*, H.-S., seems available]; *C. fairmairii*, Sign., ? = *pilosus*, Boh.; *C. mutabilis*, Fall., = *coriaceus*, F.; *C. flavinervis*, Fieb., = *virens*, Fall.; *C. diaphanus*, Fieb., = *prasinus*, Fall.; *C. angustus*, Fieb., = *diaphanus*, Flor., = *tenellus*, Fall.; *C. viridipennis*, Dbm., = *flavisparsus*, Sahlb.; *C. geniculatus*, Stål., = *saliceticola*, St., ♀, = *roseri*, Scholtz; *C. signatus*, J. Sahlb., = *opacus*, Zett.

Myrmecophyes tricondyloides, Osch., = *Diplacus albiornatus*, Stål., apterous form: Oschanine, Bull. Mosc. xlv. 2, Séances, p. 3.

Teratocoris viridis, D. & S.: ♀ described, J. Buchanan White, Scot. Nat. i. p. 225.

Lygus redimitus and *diffusus*, Uhler, = *oblineatus*, Say, = *lineolaris*, Pal. de B.: Uhler, in Hayden's Geol. Surv. Montana, p. 413.

New genera and species:—

Myiomma, Puton, Pet. Nouv. no. 44, p. 177. Allied to *Isometopus*; eyes enormous, simulating certain *Diptera*. *M. fieberi*, id. *ibid.* Ste. Baume, Var.

Lopidea, Uhler, l. c. p. 411. *Capsus medius*, Say, of which *C. robiniaæ*, Uhler, is a var.

Hadronema, id. l. c. p. 412. Facies of *Lopus*. *H. militaris*, id. *ibid.*, Colorado, Cheyenne.

Dacota, Uhler, l. c. p. 413. Allied to *Polymerus*. *D. hesperia*, id. l. c. p. 414, Colorado, Dakota.

Megaloceræa debilis, p. 408, *rubicunda*, p. 409, Colorado: id. l. c.

Leptopterna amæna, id. l. c. p. 409, Idaho, Dakota.

Calocoris palmeri, id. l. c. p. 410, Arizona.

Resthenia confraterna, id. l. c. p. 411, Colorado, Maryland.

Lygus annexus, id. l. c. p. 413, Colorado.

Pæciloscytus venaticus, p. 414, Colorado, Massachusetts, *diffusus*, p. 415, Utah: id. l. c.

Rhopalotomus pacificus, p. 415, Montana, *brachycerus*, p. 416, Colorado: id. l. c.

Labops hesperius, id. l. c. p. 416, Colorado, British America.

Campptobrochis nebulosus, id. l. c. p. 417 (? Colorado).

Litosoma atricapillum, Scott, Ent. M. M. viii. p. 194, Corsica.

Timicephalus simplex, Uhler, l. c. p. 417, Colorado.

Plagiognathus obscurus, id. l. c. p. 418, Colorado, Maine, Maryland, Michigan, &c.

Agalliastes associatus, id. l. c. p. 419, Utah; *A. ochraceus* and *unicolor*, Scott, Ent. M. M. viii. p. 243, Corsica.

Macrocoleus hardii, Bold, Tr. North. Durh. iv. p. 358, Wooler, Cheviots.

Systellonotus alpinus, Frey-Gessner, MT. schw. ent. Ges. iv. (pub. in 1873), p. 21, pl. i. fig. 3, Valais.

TINGIDÆ.

Orthostira, Thomson, Opusc. Ent. (iv.) p. 398 *et seq.*, revises the Swedish species. According to him, *O. cervina*, Fieb., = *cassidea*, Fall.; *O. inter-*

media, Flor, = *platychila*, Fieb.; *O. pusilla*, Fieb., Fall., *cinerea*, Flor, = *nigrina*, Fall.; *O. obscura*, Fieb., = *parvula*, Fall.

Agramma femoralis, sp. n., *id. l. c.* p. 397, Sweden.

Monanthia ajugarum, sp. n., Frey-Gessner, MT. schw. ent. Ges. iv. (pub. in 1873) p. 21, pl. i. figs. 4 & 4a, Valais.

Orthostira cylindricornis, p. 401, *biseriata* and *recticosta*, p. 402, Thomson, *l. c.*, Sweden: spp. nn.

REDUVIIDÆ.

STÅL, Cefv. Ak. Förh. xxix. (1872) no. 6, pp. 43-48, revises the European genera, under the subfamilies *Reduviina*, *Piratina*, *Acanthaspidina*, *Stenopodina*, *Saicina*, *Pleariina*, and *Emesina*. The *Reduviina* consist of *Nagusta*, Stål (*N. gedeli*, Kol., = *rugulosa*, St.), *Coranus*, Curt., *Amphibolus*, Klug, *Vachiria*, St., *Cosmolestes*, St. (type *Reduvius pictus*, Klug), *Sphedanolestes*, St. (*Reduvius pulchellus*, Klug, *Harpactor lividigaster* and *curmifex*, Muls.), *Reduvius*, F. (*Harpactor*, Fieb., *nec* Lap., which is American only), with subgg. *Reduvius* (type *H. bipustulatus*, Fieb.), *Oncauchenius*, St. (*H. annulatus*, L., and *niger*, H.-S.), and *Rhinocoris*, Hahn; the *Piratina* of *Ectomocoris*, Mayr, and *Pirates*, Serv.; the *Acanthaspidina* of *Holotrichius*, Burm., *Pasira*, St. (*Aphleps*, Fieb.), and *Opsicætus*, Klug (*Reduvius*, Fieb., *nec* F.); the *Stenopodina* of *Pygolampis*, Germ., *Sastrapada*, Am. & S. (*Ctenocnemis*, Fieb.; *Harpagochares bærensprungi*, St., = *C. flavescens*, Fieb.), and *Oncocephalus*, Klug (*Centromelus*, Fieb., is American); the *Saicina* of *Acanthothorax*, Costa (*Saica*, Am. & S. [why not then adopt *Acanthothoracina*?]); the *Pleariina* of *Plearia*, Scop.; and the *Emesina* of *Metapterus*, Costa (*Carambis*, Stål; for *Emesa barbara*, Luc., and *caspica*, Dohrn), and *Cera[to]scopus*, Heinek. (*Emesodema*, Spin.).

Reviewed by Puton, Ann. Soc. Ent. Fr. (5) ii. p. 510.

Acanthiscium maculatum, A. & S., varr. nn. *flavipenne*, *maculicolle*, *plagiatum*, *fuscipictum*, *seminigrum*, *semiflavum*, *flaviceps*, *thoracicum*, *nigrum*, pp. 83 & 84; *Apiomerus flavipennis* and *ochropterus*, St., combined and renamed *proteus*; *A. hirtipes*, Hahn, renamed *nigrilobus*, p. 26; *A. guttativenosus*, *geniculatus*, *nigripes*, *rufipes*, Stål, = *rubricinctus*, H.-S., p. 98; *Conorhinus 8-tuberculatus*, *paulseni*, and *gracilipes*, Phil., are described from larvæ or pupæ, p. 112: Stål, Sv. Ak. Handl. x. no. 9. The author describes the following new genera and species, &c. :—

Lycimna, p. 70. Differs from *Sinea* and its allies in having the anterior acetabula closed behind. *L. annulosa*, New Granada.

Erbessus, subg. n. of *Harpactor*, Lap., p. 73. *E. validus* and *grossus*, St.

Ambastus, p. 87. Differs from *Pyrrhosphodrus*, St., in longer and unarmed head, thorax with a posterior median tubercle, structure of rostrum, non-produced scutellar apex, and more slender legs. *A. villosus*, p. 88, New Granada.

Spiniger, Burm. "Divisio prima," *Acidoparius*, p. 113, characterized, type *S. festivus*, St.; Div. secunda, *Micracidius*, p. 114, type *S. nitidiventris*, St.; Div. quinta, p. 117, also characterized, but not named, type *S. rubripictus*, H.-S.

Hoplogenus, p. 118. Nearest to *Spiniger*, but with head spinose beneath, longer anterior coxæ, and anterior tibiæ with no spongy fossa. *Reduvius obsoletus*, Blanch.

- Sinea denticulosa*, p. 71, New Granada.
Acholla ampliata, p. 72, Mexico.
Prionotus gallus, *ibid.*, New Granada.
Harpactor tuberculosus, p. 73, ? Brazil.
Plæogaster (Passalentus) longicornis, p. 75, N. Brazil.
Heza ventralis, p. 76, locality unknown, *annulicornis*, p. 77, Mexico.
Ricolla nigripes, p. 77, N. Brazil.
Phorobura fusca, p. 78, Cartagena, S. America.
Fitchia spinosula, p. 79, Texas.
Castolus multicoloratus, p. 81, New Granada.
Graptocleptes cingulatus, p. 81, New Granada.
Hiranetis atra, p. 82, New Granada.
Myocoris nugax, p. 83, Brazil.
Notocyrtus (Cystingonotus) depressus and *foveatus*, p. 85, N. (*Cælocyrtus*)
wallengreni, p. 86, New Granada.
Cosmoclopius annulosus, p. 87, St. Catharine's, Brazil.
Zelus cervicalis, p. 90, N. America, Mexico; *Z. (Diplodus) chamæleon*, and
varr. niger, marginellus, thoracicus, maculicollis, rubricosus, fasciativentris,
cingulatus, lemniscatus, p. 90, New Granada, *subimpressus*, p. 91, Cuba.
Amauroclopius bispinus, p. 95, Cayenne.
Apiomerus venosus, Mexico, *emarginatus*, New Granada, p. 97, *amazonus,*
lituratus, nitidicollis and *varr. nigripennis* and *discopterus*, p. 99, N. Brazil.
Homalocoris maculicollis, p. 101, Mexico.
Mindarus sanguinosus, p. 102, N. Brazil.
Ectrichodia cinctiventris, Texas, *crucifera*, Mexico, p. 103; *E. (Rhiginia)*
crudelis, St., renamed *ruficollis*, p. 103.
Pothea haglundii, p. 104, locality unknown.
Rasahus thoracicus, Mexico, *arcitenens*, Brazil, p. 106, *flavivittatus*, p. 107,
 New Granada.
Melanolestes picinus, p. 107, N. Brazil.
Rhodnius pictipes, p. 110, N. Brazil.
Meccus pallidipennis, p. 110, Mexico.
Conorhinus venosus, p. 111, New Granada.
Spiniger obscuripennis, S. America, *nigripennis*, Surinam, p. 113, *fulvicrus*,
 p. 115, ? S. Brazil, *formosus*, New Granada, *melanochrus*, locality unknown,
 p. 116, *ruficollis*, p. 117, ? Brazil.
Leogorrus pallipes, Brazil, *picturatus*, New Granada, p. 119.
Gnathobleda tumidula, p. 121, N. America, Cuba.
Ctenotrachelus macilentus, p. 122, N. Brazil.
Pnohirmus spinifer, p. 122, Surinam.
Rhyparoclopius annulirostris, p. 123, N. Brazil.
Spilalonijs geniculatus, p. 123, Texas.
Pindus socius, sp. n., Uhler, in Hayden's Geol. Surv. Montana, p. 420,
 Idaho, Arizona.

SALDIDÆ.

Salda. Thomson, Opusc. Ent. (iv) p. 403 *et seq.*, revises the 20 Swedish
 species. According to him, *S. litoralis*, Stål, *varr. b. & c.*, = *flavipes*, F.;
luteipes, Fieb., = *affinis*, Zett., = *riparia*, Fall.; *riparia*, Stål, *nec* Fall., is re-
 1872. [VOL. IX.]

named *bifasciata*, p. 404; *pulchella* and *bicolor*, Curt., = *lateralis*, Fall.; *marginella*, Fieb., = *opacula*, Zett.

Salda pilosella, id. l. c. p. 407, Sweden; *S. coriacea*, Uhler, l. c. p. 421, Utah, British America &c.; *S. venustula*, Scott, Ent. M. M. viii. p. 243, Corsica: spp. nn.

HYDROMETRIDÆ.

Macrovelia, g. n., Uhler, l. c. p. 422. General form of *Microvelia*, but much more elongated. *M. horni*, sp. n., id. *ibid.*, New Mexico, California, Arizona.

Hebrus ruficeps, sp. n., Thomson, Opusc. Ent. (iv.) p. 395, Sweden.

NOTONECTIDÆ.

Antipalocoris, g. n., Scott, Ent. M. M. viii. p. 244. Differs from *Anisops* in not having the crown elongated nor the eyes separate, and in the not decidedly different proportions of the various parts of the hind legs. *A. marshalli*, sp. n., id. l. c. p. 245, R. Gravone, Corsica.

CORIXIDÆ.

Sigara foveifrons, sp. n., Thomson, l. c. p. 396, Sweden.

HEMIPTERA HOMOPTERA.

FIEBER, F. X. Katalog der europäischen Cicadinen, nach Originalien mit Benützung der neuesten Literatur. Wien: 1872, 8vo, pp. 19.

This posthumous list contains the names of various new species which the author did not live to describe. He recognizes 107 genera and 823 species contained in the following families:—*Membracida*, *Cicadæa*, *Fulgorida*, *Cercopida*, *Ulopida*, *Paropida*, *Scarida*, *Iassida*.

FIEBER (Verh. z.-b. Wien, xxii. pp. 27–33) gives the results of his examination of the types of the species unknown to him, and described or referred to in Kirschbaum's 'Cicadinen der Gegend von Wiesbaden, Frankfurt a. M. und anderer Gegenden.' These results will be noticed *seriatim*, so far as they affect the validity or position of Kirschbaum's own species and genera; but the Recorder does not think it necessary to reproduce Fieber's corrections of Kirschbaum's erroneous views of species described by other authors. Fieber also (l. c. pp. 33 & 34) gives the results of his examination of some of Germar's types, which will be here discussed in like manner.

T. S. BOLD, Tr. North. Durh. iv. pp. 369 & 370, mentions localities &c. of species new to the Northumbrian fauna.

CICADIDÆ.

Cicada concinna, Germ., *exx. typ.*, = *C. atra*, Ol., and *Cicadetta megerlii*, Fieb. (*dimidiata*, Fab.): Fieber, Verh. z.-b. Wien, xxii. p. 34.

CERCOPIDÆ.

Cercopis distinguenda, Kirschb., = *Triecphora mactata*, Germ.; *C. intermedia* and *obliterata*, Kirschb., = *sanguinolenta*, L.: *id. l. c. p. 30.*

Aphrophora apicalis, Germ., *ex. typ.*, = *Philenus spumarius*, var.: *id. l. c. p. 33.*

CENTROTIDÆ.

Centrotus siculus, gallicus, italicus, turcicus, and abbreviatus, Kirschb., = *cornutus*, L., *varr. : id. l. c. p. 30.*

IASSIDÆ.

FIEBER, *l. c. pp. 30-34*, gives the following synonymy affecting species described by Kirschbaum:—*Acocephalus nigritus* = *interruptus*, Fieb., var.; *A. heydeni* = *Atractotypus cinctus*, Perr.; *Ac. confusus* = *polystolus*, Fieb., var.; *Eupelix zelleri* = *cuspidata*, Germ.; *Selenocephalus pallidus* = *obsoletus*, Germ.; *Iassus heydeni* = *Allygus atomarius*, Germ.; *I. atomarius* (Kb., *nec* Germ.) = *A. commutatus*, Fieb.; *I. mayri* is an *Allygus*; *I. zelleri* = *Athysanus prasinus*, Fall.; *I. longicornis* = *Thamnotettix frontalis*, H.-S.; *I. diminutus* = *Athys. interstitialis*, Germ.; *I. confusus* = *A. sordidus*, Zett.; *I. validinervis* = *A. grisescens*, Zett.; *I. guttulinervis* belongs to *Goniagnathus*, Fieb.; *I. sulphureus* = *Athys. impictifrons*, Boh.; *I. rubritinctus* and *opacus* belong to *Thamnotettix*; *I. badicellus* = *T. tenuis*, Germ.; *I. eximius* = *Parabolocratrus glaucescens*, Fieb.; *I. nigricans* = *Deltocephalus penthopittus*, Am.; *I. oxypterus* = *Thamnotettix crocea*, H.-S.; *I. croceus* = *T. attenuata*, Germ.; *I. breviceps* is of doubtful stability, being mostly *flavidus*, Fieb.; *I. pallipes* = *Deltocephalus languidus*, Flor; *I. pascuellus* and *luteolus* = *D. minki*, Fieb.; *I. striifrons*? = *D. mulsanti*, Fieb.; *I. obtusivalvis* = *D. picturatus* and *D. flori*, Fieb.; *Agallia homeyeri* = *sinuata*, Muls. & R.; *A. versicolor* (Flor) = *puncticeps*, Germ.; *Idiocerus distinguendus*? = *cognatus*, Fieb.; *Id. vittifrons* = *tibialis*, Fieb., ♂; *Id. ochroleucus* and *minki* = *fulgidus*, F.; *Id. mesopyrrhus* = *socialis*, Frey.; *Id. prasinus* = *ustulatus*, Muls. & R.; *Bythoscopus crenatus* = *scurra*, Germ., *B. scurra* = *crenatus*, Germ.; *B. trifasciatus* = *Id. nobilis*, Fieb.; *Macropsis punctuosus* = *microcephala*, H.-S.; *Pediopsis heydeni* = *Bythoscopus alni*, Schrk.; *P. diadema* = *scutellata*, Boh., var.; *P. hippophaes*? = *mulsanti*, Fieb.; *Typhlocyba 4-punctata* = *Notus stigmatipennis*, Muls. & R.; *T. flori* = *Notus molliculus*, Boh., and *N. facialis*, Flor; *T. manderstjerni* = *N. dilatatus*, Mus. Hal.; *T. candidula* = *Anomia nivea*, Muls. & R.; *T. heydeni* = *ornata*, Frey, ♂, and *binotata*, Fieb., ♀; *T. zelleri* = *melissæ*, Curt. Fieber indicates (p. 31) a new species of *Athysanus* (*Opsius*) under the name *heydeni*, founded on ♂ and ♀ examples in Heyden's collection, named *tamaricis* by Kirschbaum, other examples so named by the latter in Mayr and Mink's collections being *A. stactogalus*, Am. & S. He also (p. 32) names another new species (*Deltocephalus*) *heydeni*, from Mombach, erroneously named *Iassus striatus* by Kirschbaum in Von Heyden's collection.

Fieber (*l. c. p. 34*) gives the following synonymy referring to species described by Germar:—*Iassus scurra* is ♂ and *I. crenatus* ♀ of one and the same species, to be united as *Bythoscopus (Rhytidodus) germari*; *I. stigma* = *Idiocerus populi, laminatus, frontalis, and fasciatus* mixed, and must be abandoned; *Iassus subrusticus* = *Acocephalus albifrons*, L., *polystolus*, Fieb., and

bifasciatus; *I. frenatus* ♀ = *Athysanus striola*, Fall.; *I. albiger* ♂ = *Acoceph. polystolus*, Fieb., var.; *I. obliquus* = *Ac. ornatus*, Fieb., *bifasciatus* and *albifrons*, L.; *I. pectoralis* = *Athysanus subfuscus*, Fall.; *I. tenuis* and *attenuatus* are to be referred to *Thamnotettix* (*I. attenuatus*, H.-S., = *tenuis*, Kbm.).

Iassus (*Cicadula*) *salsolæ*, sp. n., Puton, Pet. Nouv. No. 44, p. 177, Thau.

Typhlocyba (*Zigyna*) *tamaricis*, sp. n., *id. ibid.*, Agde.

FULGORIDÆ.

Dictyophora heydeni, Kbm., = *Dictyophara multireticulata*, Muls. & R.; *D. italica*, Kbm., = *europæa*, L.: Fieber, *l. c.* p. 29.

FIEBER, *l. c.* pp. 28-30, gives the following synonymy affecting genera and species described by Kirschbaum:—*Pentastira* = *Oliarus*, Stål; *P. major* = *O. roridus*, var. *opalinus*, Fieb.; *Pentastiridius* = *Oliarus pallens*, Germ.; *Cixius eurypterus* = *cunicularius*; *C. distinguendus* = *simplex*, H.-S., and *stigmaticus*, Germ.; *Liorhinus* = *Hyalesthes*, Sign.; *L. albilimbatus* = *H. obsoletus*, Sign.; *Aræopus crassicornis* = *pulchellus*, Curt.; *Atropis latifrons* is a *Metropis*; *Delphax truncatipennis* = *Megamelus notulus*, Germ.; *D. major* and *coloratu* = *Stenocranus fuscivittatus*, Stål; *D. smaragdula* = *Chloriona prasina*, Fieb.; *D. longipes* = *Liburnia reyi*, Fieb.; *D. punctulum* = *Kelisia pallidula*, Boh.; *D. guttulifera* = *K. vittipennis*, J. Sahlb.; *D. dubia* and *herrichi* = *Liburnia pellucida*, F.; *D. sordidula* and *fuscipennis* are *Liburniæ*; *D. albilimbata* = *L. leptosoma*, Flor; *D. obsoleta* = *L. cognata*, Fieb.; *D. nitidula* = *L. venosa*, Ger.; *D. patens* = *L. discolor*, Boh.; *D. heydeni* = *L. leptosoma*, Flor; *D. hamulata* = *L. propinqua*, Fieb.; *D. ferruginea* = *spinosa*, Mk.; *D. 4-vittata* = *Eurysa vittata*, Perr.; *Dicranotropis basilinea* = *Euides speciosa*, Boh.; *Ditropis fasciata* = *Kelisia scotti*, Fieb., var.; *Ditr. atratula* = *Iassideus morio*, Fieb.; *Hysteropterum heydeni* = *apterum*, F.; *Tettigometra tumidifrons* = *brachycephala*, Fieb.; *T. piccola* and *leta* = *atra*, Hagb.; *T. sicula* = *virescens*, Latr., var.; *T. marginipunctata* = *picta*, M. Dür; *T. heydeni* = *costulata*, Fieb., var. *albifasciata*.

Delphax hemiptera, Germ., *ex. typ.*, = *Liburnia forcipata*, Boh., ♀; *Tettigometra umbrosa*, Germ., *ex. typ.*, = *T. obliqua*, var. *platytania*, Fieb., and *T. vulgaris*; *Issus discolor*, Germ., *ex. typ.*, belongs to *Hysteropterum*, Spin.: *id. l. c.* pp. 33 & 34.

APHIDIDÆ.

General observations by F. Walker, Ent. vi. p. 25 *et seq.* On reproduction in equably warm climates, *cf.* E. Blyth, *ibid.* p. 176.

P. M. FERRARI, Ann. Mus. Genov. ii. pp. 49-85, catalogues the Ligurian species, 109 in number, with synonymic and other references and notes of food-plants. He again, *l. c.* iii. pp. 209-236, discusses them, increasing their number to 134, redescribing many, and giving a fresh catalogue. *Siphonophora artemisiae*, Koch, *nec* Boy. de Fonsc., is named *kochi*, p. 212; *Phorodon inulae*, Pass., is queried as a form of *Rhopalosiphum hippophaes*, Koch; the winged form of *Myzus ribis*, L. (?), is described, p. 220; a var. of ? *Mizocallis quercus*, Kalt., is described and named *insignis*, p. 231, and another of *Chætophorus leucomelas*, Koch, under the name *lyratus*, p. 232; the peculiar motions of different species are recorded, p. 233, note; a var. of *Pemphigus spyrothecæ*, Pass., described and named *infaustus*, p. 235.

Phylloxera vastatrix. C. V. Riley, iv. Rep. Ins. Mo. pp. 55-71, fig. 28, describes and figures the earlier stages &c., under the earlier name of *P. vitifoliæ*, Fitch, which he thinks must give way to the more correct and better-known one of *vastatrix*, Planchon. The author gives further proofs of the identity of the American and European insects, and of the "leaf-gall louse" with that found in the root. The habits of the latter are fully discussed, and fresh facts as to its economy recorded; the susceptibility of many different vines to attack, and the means of contagion, being stated in detail. European vines are supposed to succumb more readily than American, because they are of a more highly improved and tender character, and, the disease being in Europe of recent introduction, are not descended from sturdy plants that have withstood or survived the infection in former years. Practical suggestions are given for preventing contagion; and various remedies are enumerated, of which carbolic acid seems the most satisfactory. A new species (*P. rileyi*, Lichtenstein, MS.), from leaves of American "post-oak," is indicated, p. 66, note.

A general account by Gervais, J. Zool. i. pp. 112-120, figs. 1-4.

Guérin-Méneville, R. Z. (2) xxiii. pp. 458-462, summarizes recent observations, adhering to his opinion that this insect is only a secondary agent, the consecutive phenomenon of a profound malady in the vine.

A. Müller, Canad. Ent. iv. p. 167, quoting the Report of Scientific Committee of Royal Horticultural Society as to loss occasioned by this species to vineyards in Portugal, considers national cooperation required in order to check its further progress.

Observations on its ravages in Swiss vineyards by Stierlin, MT. schw. ent. Ges. iii. p. 434.

Von Frauenfeld, Verh. z.-b. Wien, xxii. pp. 567-572, refers generally to this pest, and especially as to its occurrence in Germany.

Boisduvalia lataniæ, Sign., is an *Aphis* infested by gregarines: Leprieur, Bull. Soc. Ent. Fr. (5) ii. p. xxx.

Psylloptera, g. n., Ferrari, l. c. ii. p. 85. *Chermesinæ*: antennæ short, 4-jointed (winged ♀), last joint bisetulose; wings horizontal, anterior with a costa and stigma, the cubital and radial veins each with a single fork; no veins to posterior wings; no nectaries or tail; tarsi with 2 hooks. *P. quercina*, sp. n., id. *ibid.*, Stazzano, on *Quercus cerris*.

Siphonophora dubia, p. 55, Stazzano, on *Artemisia campestris*, *S. inulæ*, p. 57, Genoa, on *Inula viscosa*, *S. atra*, p. 58, on *Artemisia camphorata*, Genoa and Stazzano, Ferrari, l. c. ii.; *S. leucanthemi*, p. 214, Stazzano, on *Leucanthemum vulgare*, *S. lilacina*, p. 216, Serravalle, on *Tanacetum vulgare*, id. l. c. iii.: spp. nn.

Phorodon pruni, sp. n., id. l. c. ii. p. 69, Genoa, on *Prunus mahaleb*.

Aphis holci, p. 62, Genoa, on *Holcus mollis*, *A. spectabilis*, p. 64, Serravalle Scrivia, on *Salix*, *A. helianthemi*, p. 65, Stazzano, on *Helianthemum vulgare*, *A. convolvulicola*, p. 66, Stazzano, on *Convolvulus arvensis*, *A. vicitis*, p. 67, Genoa, on *Vicitis agnicasti*, *A. coronillæ*, p. 69, Stazzano, on *Coronilla pusilla*, *A. brunnea*, p. 70, Stazzano, on *Ononis natrix*, *A. silenea*, p. 72, Stazzano, on *Silene inflata*, *A. jani*, p. 73, Genoa: id. l. c. ii.; *A. vitalbæ*, p. 225, Stazzano, on *Clematis vitalba*, *A. cirsiina*, p. 226, Diano Marina, on *Cirsium arvense*, *A. (?) mimosæ*, p. 227, Genoa, on *Mimosa*, *A. arbuti*, p. 228, Genoa, on *Arbutus unedo*, id. l. c. iii.: spp. nn.

Pterocallis pictus, sp. n., *id. l. c. ii.* p. 77, Genoa.

Lachnus longitarsis, sp. n., *id. l. c. ii.* p. 80, Stazzano, on *Artemisia campestris*, *id. l. c. iii.* p. 233, on *Phaseolis vulgaris*.

Rhopalosiphum elegans, sp. n., *id. l. c. iii.* p. 217, Genoa, on *Salvia rectiflora*.

Myzus mali, p. 221, Terrazzi, on *Pyrus malus*, *M. pyrinus*, p. 222, Stazzano, on *P. communis*, *id. l. c. iii.* : spp. nn.

Pemphigus diani, sp. n., *id. l. c. iii.* p. 234, Diano Marina.

COCCIDÆ.

SIGNORET, Ann. Soc. Ent. Fr. (5) ii. pp. 33-46, pl. 7 (pt. ix. and pl. 9 of the treatise as a whole) continues his 'Essai sur les Cochinelles,' discussing the genera *Vinsonia* and *Ceroplastes*. One of the *Lecaniïdes*, found on a leaf of *Mangifera indica* with *V. pulchella*, Sign., is queried as possibly the ♂ of that species. *Ceroplastes radiatus*, *testudineus*, and *hydatis*, Costa, united rightly by Targioni as forms of one species, under the name *testudiniformis*, must retain the name of *rusci*, L., and *Lecanium artemisiæ*, Rossi, is possibly identical with it. Various stages of this insect are figured. A species of *Ceroplastes* from the Mauritius, living on *Eriobotrya japonica* and *Psidium*, is described as new (p. 38) under the name *vinsoni* (fig. 2), and is also queried as being a form of *C. psidii*, Chav., or *janeirensis*, Gray, or possibly of *C. myricæ*, L. Details of *C. ceriferus*, Anders. (fig. 3), and *psidii*, Chav. (fig. 6), are given, the latter being queried as a var. of *janeirensis* (fig. 4). *C. fairmairii*, Targ. (fig. 7), *cassiæ*, Chav., *chilensis*, Gray (fig. 5), *jamaicensis*, White (♀ = *janeirensis* and *psidii*), and a species from Egypt, occurring on *Mimosa nilotica*, and briefly described (p. 46) under the name *mimosæ*, are also noticed. The same author (*ibid.* Bull. p. xxxv *et seq.*), referring to species observed by him in S. France and Italy, incidentally mentions two supposed new species under the names *Antonia purpurea* and *Fairmairia bipartita*, and others to which no names are assigned. He also briefly re-describes *Lecanopsis rhyzophylla*, Targ., and mentions various species found on *Genista*, *Mesembrianthemum*, &c. *Coccus vitis*, according to his experience, does not hibernate at the roots of the plant. [The semicolloquial and unscientific treatment employed renders an analysis of this work extremely difficult.]

Ceroplastes mimosæ, Bois., and a new *Lecanium* from *Viburnum tinus* : *id. ibid.* pp. xlvii & xlvi.

Both sexes of *Aspidiotus visci*, Löw, = *Diaspis* (*Coccus*) *visci*, Schrank, from the mistletoe, Vienna, are fully described (with account of economy) and figured, with details of external anatomy, by Löw, Verh. z.-b. Wien, xxii. pp. 273-278, pl. iv. The subfamily *Diaspides* is briefly characterized, and *Aspidiotus*, *Diaspis*, *Chionaspis*, *Fiorinia*, *Parlatoria*, *Mytilaspis*, *Leucodiaspis*, *Aonidia*, and *Targionia* are referred to it.

Coccus vitis colonizing a gooseberry-bush in Northumberland : T. J. Bold, Tr. North. Durh. iv. p. 370.

Dorthisia characias, Latr. : egg-nidus (doubtfully referred to this species) described : *id. ibid.*

INDEX TO

GENERA AND SUBGENERA DESCRIBED AS NEW :

INCLUDING NAMES PROPOSED FOR GENERA ALREADY
CHARACTERIZED.

[The symbol || indicates that the name to which it is affixed has been used before in zoology.]

- Acanthodrilus*, *Perrier*, 426.
Acanthonotus ||, *Taczanowski*, 215 (*Bl. Schn.*, Pisces, 1801; *Koch*, Arachn., 1839; *Ross*, Crust., 1835; -thinotus, *Swains.*, Aves, 1831).
Acartus, *Fähræus*, 306 (-tia, *Dana*, Crust., 1846).
Acehartus, *Fähræus*, 301.
Acedax, *Bonvouloir*, 271.
Achalarus, *Scudder*, 352.
Acherres, *Pascoe*, 290.
Achriionota, *Pascoe*, 299.
Acidoparius, *Stål*, 412.
Acidosterna, *Stål*, 405.
Acolastus ||, *Scudder*, 352 (*Gerstæcker*, Col., 1855; -te, *Steph.*, Dipt., 1829).
Acrobothrium, *Olsson*, 432.
Acrolophitus, *Thomas*, 399.
Actæonidea, *Gabb*, 140.
Actenolepis, *Dybowski*, 88 (*Actin-*, *Agassiz*, Pisces, 1845).
Actinopteryx, *Matthews*, 260 (-ptera, *Rondani*, Dipt., 1871).
Actocharis ||, *Fauvel*, 255 (*Sharp*, Col., 1870).
Adeuoplura, *Macalister*, 220.
Adiaphorus ||, *Fähræus*, 301 (*Candèze*, Col., 1860).
Adrasteia [-tia], *Chambers*, 379.
Adrimus, *H. W. Bates*, 247.
Ædirodes, *Pascoe*, 289.
Æpyncnemis (*Strickland*, 1841), *Sundevall*, 50.
 1872. [VOL. IX.]
- Æschyntelus*, *Stål*, 407.
Aethorhynchus, *Sundevall*, 45.
Agenopus, *Pascoe*, 297.
Agnippe, *Chambers*, 379.
Agnoristus, *Fähræus*, 301.
Agraphopus, *Stål*, 406.
Agriochæta, *Pascoe*, 297.
Agriospiza, *Sundevall*, 51.
Aletornis, *Marsh*, 55.
Allocotus ||, *Loew*, 385 (*Mayr*, Hemipt., 1864; -ta, *Mots.*, Col., 1859).
Allodictya, *Ehrenberg*, 484.
Allophis, *Peters*, 73.
Alloporus, *Porath*, 222 (-ra, *Ehr.*, Pol., 1834).
Alobates [Halo- ||], *Motschoulsky*, 279 (*Esch.*, Hemipt., 1822).
Alompra, *Moore*, 361.
Amarotypus, *H. W. Bates*, 245.
Ambastus, *Stål*, 412.
Amblesthidus, *Fähræus*, 306.
Amblycoleus, *Chaudoir*, 240.
Amblyscirtes, *Scudder*, 352.
Amelus, *Chaudoir*, 242 (-les, *Burm.*, Orth., 1838).
Amphiopphis, *Bocage*, 75.
Amphipsocus, *M'Lachlan*, 392.
Amphipsyche, *M'Lachlan*, 391.
Amphodus, *Peters*, 81.
Anænomus, *Pascoe*, 295.
Analocus, *Stål*, 402.
Anisocoris, *Walker*, 409.
- Anemamomus*, *Fähræus*, 306.
Anoplorrhynchus, *Sundevall*, 40.
Anotis, *Bavay*, 68 (*Anotus*, *Humb.*, Mamm., 1811; *Anotia*, *Kirby*, Homopt., 1823).
Anthemodes, *Hückel*, 469.
Anthomaster, *Scudder*, 352.
Anthopodium, *Verrill*, 457.
Antimimus, *Sundevall*, 48.
Antipalocoris, *Scott*, 414.
Aperostoma ||, *Higgins*, 162 (*Troschel*, Moll., 1847).
Apheles, *Blessig*, 302 (-lia, *Hübner*, 1816, *Westw.*, 1849, Lep.; -la, *Pascoe*, Col., 1865).
Apchebantus, *Loew*, 384.
Aphtora, *F. Bates*, 278.
Aploactisoma, *Castelnau*, 90.
Aplysiella, *Fischer*, 141.
Aporus ||, *Fähræus*, 301 (*Spinola*, Hym., 1808).
Arrostus [Arrhos-], *Fähræus*, 305 (*Arrhostia*, *Hübner*, Lep., 1816).
Arrugia [Arrhu-], *Wallengren*, 350.
Arteurotia, *Butler & Druce*, 352.
Asiris, *Motschoulsky*, 279.
Aspicephalus, *Motschoulsky*, 279 (*Aspidocephalus*, *Motsch.*, Col., 1839; -la, *Burm.*, Crust., 1837).
Aspidodexia, *Ehrenberg*, 484.

- Assulina, *Ehrenberg*, 484.
 Astellium, *Giard*, 182.
 Asteroconida, *Lyman*, 449.
 Asturisca, *Sundevall*, 39.
 Astyage, *Pascoe*, 295 (-ges, *Steph.*, Lep., 1834).
 Astylis, *Boisduval*, 364 (-lus, *Lap.*, Col., 1836).
 Atalopedes, *Scudder*, 352.
 Athenes, *Fähræus*, 306 (-na, *Hüb.*, Lep., 1816; -ne, *Boie*, Aves, 1822).
 Atherinosoma, *Castelnau*, 93.
 Atractogaster, *Kriechbaumer*, 326.
 Atrertia, *Jeffreys*, 177 (-tium, *Cope*, Rept., 1861).
 Atropophis, *Peters*, 78.
 Atrytone, *Scudder*, 352.
 Aubeus [-bæus], *Desbrochers*, 294 (-bæa, *Desv.*, Dipt., 1863).
 Augolesthus, *Motschoulsky*, 279.
 Aulacotarsus, *Reiche*, 247.
 Balanophorus, *W. Macleay*, 274.
 Barbodon, *Dybowski*, 96.
 Basilarchia, *Scudder*, 342.
 Bathynerinus, *W. Thomson*, 450.
 Bathyptilum, *Kölliker*, 460.
 Bathysiphon, *Sars*, 483.
 Bebelatus, *Pascoe*, 298.
 Begoe, *Chambers*, 380.
 Belepharosteres, *Stoliczka*, 67.
 Belonopelta, *Mayr*, 323.
 Berdmorea[-ria], *Stoliczka*, 80.
 Berethia, *Pascoe*, 295.
 Biomorphus, *Motschoulsky*, 279.
 Blandus, *Stål*, 404 (*Bladus*, *Lec.*, Col., 1861).
 Blax, *Loew*, 385.
 Blysmia, *Pascoe*, 299.
 Bœckia ||, *Brady*, 201 (*Malm.*, Crust., 1870).
 Bolbodium, *Ehrenberg*, 484.
 Bothrocorbula, *Gabb*, 166.
 Bradya, *Böck*, 202.
 Brenthus||, *Sundevall*, 57 (*Schön.*, Col., 1826; -tus, *Fab.*, Col., 1787).
 Brochis, *Cope*, 95 (-chus, *Brown*, Moll., 1826).
 Bycanistes [Buc-], *Stål*, 408.
 Byrsodepsus, *Stål*, 406.
 Caccanemus, *Jekel*, 266.
 Caccophilus, *Jekel*, 266.
 Calathophora, *Kirchenspauer*, 468.
 Callimormus, *Scudder*, 352.
 Callinicus, *Loew*, 385.
 Callipareus, *Scudder*, 350 (-paræa, *Bonap.*, Aves, 1851).
 Calliptilus||, *Sundevall*, 40 ([*Agassiz*] *Haliday*, Hymenopt., 1833).
 Callistomimus, *Chaudoir*, 240.
 Calopetes, *Sundevall*, 58.
 Calophasis, *Elliot*, 54 (-phasia, *Steph.*, Lep., 1829).
 Calpenia, *Moore*, 357.
 Caluella, *Stoliczka*, 81.
 Calyculina, *Clessin*, 169.
 Cambridgia, *L. Koch*, 210.
 Camptolophus, *Sundevall*, 40.
 Caracia, *Stål*, 403.
 Carphina, *H. W. Bates*, 306.
 Cavifrons, *Zeller*, 374.
 Cechides, *Pascoe*, 292.
 Centrolene, *Espada*, 80.
 Ceratus, *Bonvouloir*, 270 (-rastus, *Albers*, Moll., 1860).
 Cerithium, *Monterosato*, 134.
 Ceroderes, *Boisduval*, 363.
 Ceropsis, *Dall*, 170.
 Chalanus, *Fähræus*, 306 (-rus, *Walk.*, Dipt., 1834).
 Chalcoela, *Zeller*, 374.
 Charidryas, *Scudder*, 345.
 Chlorochroa, *Stål*, 404.
 Chlorodyta, *Sundevall*, 49.
 Chontalia, *H. W. Bates*, 301.
 Choranthus, *Scudder*, 352.
 Chorizomma, *Simon*, 211.
 Chroantha, *Stål*, 402.
 Ciliella, *Mousson*, 151.
 Cinura, *Sundevall*, 49.
 Circinalium, *Giard*, 181.
 Circulus, *Monterosato*, 138.
 Cirrha, *Chambers*, 379 (Cirrha, *Hüb.*, Lep., 1816).
 Cirrhophanus, *Grote*, 366.
 Cistodyta, *Sundevall*, 49.
 Cithæron, *Cambridge*, 211 (Cithæronia, *Hüb.*, Lep., 1816).
 Cladactis, *Panceri*, 455.
 Cladorhiza, *Sars*, 478.
 Cladus, *Bonvouloir*, 270.
 Cleptimorpha, *Walker*, 328.
 Cletodes, *Böck*, 202.
 Cœlocentrum, *Crosse* & *Fischer*, 157.
 Coleops, *Lockwood*, 435.
 Colorhamphus, *Sundevall*, 46.
 Coptocnemia, *Zeller*, 374.
 Coriophilus [= Corythophilus, *Agassiz*, 1848], *Sundevall*, 40.
 Corolla, *Dall*, 126 (-rella, *Hancock*, Moll., 1870).
 Corticella, *Ehrenberg*, 484.
 Corydospiza, *Sundevall*, 52.
 Cosmius ||, *Fähræus*, 301 (*Dum.*, Dipt., 1806; -mia, *Ochs.*, Lep., 1816).
 Cosmopelia, *Sundevall*, 53.
 Cosmopleurus, *Stål*, 407.
 Craniophora, *Snellen*, 366.
 Crateromorpha, *Gray*, 480.
 Crossoglossa, *Chaudoir*, 243.
 Crossopyxis, *Ehrenberg*, 484.
 Cryptaspis, *Pascoe*, 296.
 Cryptolepas, *Dall*, 204.
 Cryptopora, *Jeffreys*, 177.
 Cyanolestes, *Sundevall*, 46.
 Cyclopicera, *Brady*, 201.
 Cycotida, *Pascoe*, 292.
 Cydmæa, *Pascoe*, 292.
 Cylichnella, *Gabb*, 140.
 Cylirogaster||, *Fauvel* 255 (*Stål*, Orthopt., 1855 *Rondani*, Dipt., 1861 *Lioy*, Dipt., 1864).
 Cyllognatha, *L. Koch*, 213.
 Cyloma, *Sharp*, 250 (Cylomus, *Halid.*, Hym., 1829).
 Cymænes, *Scudder*, 352.
 Cymba ||, *Seidlitz*, 265 (*Broderip*, Mollusca 1826; *Quoy* & *G.*, Acal. 1827; -bus, *Hahn*, Hymenopt., 1831).
 Cyrtocryptus, *Marshall*, 325.
 Cyrtomezia, *Pascoe*, 287.
 Cyrtostethus, *Bonvouloir*, 270.
 Dacota, *Uhler*, 411.

- Dæmon, *Motschoulsky*, 282.
 Danielssenia, *Böck*, 202.
 Demyrus, *Pascoe*, 292.
 Deriles, *Motschoulsky*, 279.
 Derotoma, *Reitter*, 264.
 Desmidocnemis, *Möschler*, 356.
 Dianema, *Cope*, 95.
 Diatylus, *Lacordaire*, 305.
 Diceromerus, *Chaudoir*, 246.
 Dieladus, *Bonvouloir*, 270
 (-dia, *Ehr.*, Polyg., 1844).
 Dicotylus, *Grube*, 427.
 Dicranoglossus, *Chaudoir*, 241.
 Dicrodontus, *Chaudoir*, 240
 (-don, *Dum. & Bibr.*, Rept., 1839).
 Dietis, *L. Koch*, 212.
 Dicymolomia, *Zeller*, 374.
 Digaster, *Perrier*, 426.
 Dimerella, *Zittel*, 177.
 Dimorphopterus, *Stål*, 408
 (-ra, *Smith*, Hymenopt., 1868).
 Dinolestes, *Klunzinger*, 89.
 Diochares ||, *Reitter*, 263
 (*Pascoe*, Col., 1866).
 Diosaccus, *Böck*, 202.
 Diphyrama, *H. W. Bates*, 302.
 Diplomphalus, *Crosse & Fischer*, 144.
 Diplonotus, *Stål*, 408.
 Diplopelycia, *Mörch*, 143.
 Diplotropis ||, *Günther*, 73
 (*Bohem.*, Col., 1857).
 Dis-acurus, *Gemminger*, 274.
 Dolophanes, *Gabb*, 133
 (-phones, *Walck.*, Arachn., 1833).
 Drassicus, *Pascoe*, 297.
 Dromæocnemis, *Bonvouloir*, 270.
 Dromornis, *Owen*, 60.
 Drucina, *Butler*, 348.
 Drymodyta, *Sundevall*, 49.
 Duvalius ||, *Abeille*, 248
 (*Delarouzeé*, Col., 1859).
 Dyscophus, *Grandidier*, 80.
 Dysenius, *Scudder*, 352.
 Oystinus, *Pascoe*, 288.
 Ectracheliza, *Gabb*, 128.
 Elaphodus, *A. Milne-Edwards*, 16
 (-des, *Suffrian*, Col., 1860).
 Elasmolomus, *Stål*, 408.
 Elaster [= Elater ||], *Grimm*, 483
 (*Linn.*, Col., 1748; -trus, *Cand.*, Col., 1860).
 Empidothera, *Sundevall*, 47.
 Enæmia, *Zeller*, 379.
 Endynomena, *Chaudoir*, 243.
 Engyptila, *Sundevall*, 53.
 Engystomops, *Espada*, 80.
 Enhydrosoma, *Böck*, 202.
 Ennothus, *Pascoe*, 290.
 Entomoletes, *Sundevall*, 46.
 Eutomophthalmus, *Bonvouloir*, 271.
 Eophrynus, *Woodward*, 217.
 Epipagus, *Haag*, 277 (-gis, *Hübner*, Lep., 1816).
 Erbessus, *Stål*, 412.
 Ercolanina, *Trinchese*, 142.
 Erebonaster, *Cope*, 219.
 Erethistes, *Pascoe*, 295.
 Erora, *Scudder*, 350.
 Ersilia, *Monterosato*, 135
 (*Hersilia*, *Dej.*, Col., 1834; *Savig.*, Arachn., *Philippi*, Crust., 1839).
 Eucadium, *Ehrenberg*, 484.
 Eucalodemas, *Bonvouloir*, 271.
 Eulachnesia, *H. W. Bates*, 306.
 Euleucophæus, *Packard*, 362.
 Eumimetes, *Lacordaire*, 305
 (-sis, *Bates*, same group, 1866).
 Euphydryas, *Scudder*, 345.
 Euphyes, *Scudder*, 352 (-ia, *Hübner*, Lep., 1816).
 Euplatia, *Chaudoir*, 242.
 Euryaulacus, *Bonvouloir*, 270.
 Eurypages, *Pascoe*, 298.
 Euryptilium, *Matthews*, 260.
 Euthymus, *Scudder*, 352.
 Eutoremma, *Grote*, 366.
 Evatya, *S. Smith*, 194.
 Evgenius [Eug-], *Fähræus*, 302
 (-nia, *Desv.*, Dipt., 1863).
 Evgoa [Eug-], *Fähræus*, 302.
 Evtactus [Eut-], *Fähræus*, 301
 (-tis, *Hübner*, Lep., 1816).
 Exassula, *Ehrenberg*, 484.
 Fannyella, *Gray*, 457 (Fannellia, *Gray*, same group, 1870; Fannya, *Gray*, Moll., 1857).
 Flustramorpha [Flustri-: vox hybr.], *Gray*, 183.
 Fragarium, *Giard*, 181.
 Frenula, *Dall*, 177.
 Fungiacyathus, *Sars*, 455.
 Gallerucida [Galerucoi-], *Chaudoir*, 244.
 Garypus, *L. Koch*, 218.
 Geobyrsa, *Pascoe*, 290.
 Geogale, *A. Milne-Edwards*, 10.
 Glaucopsyche, *Scudder*, 350.
 Gloveria, *Packard*, 363.
 Glyphostoma, *Gabb*, 133.
 Glyptopeltis, *Saussure*, 396.
 Glyptophysa, *Crosse*, 161.
 Gnopherus, *Stål*, 408.
 Gobiosoma ||, *Dybowski*, 96
 (*Girard*, Pisces, 1859).
 Gonicolis [Goniæ-], *Sars*, 142.
 Graculavus, *Marsh*, 58.
 Grallipes, *Sundevall*, 50.
 Grammateus, *Poey*, 90.
 Graptopeltus, *Stål*, 408.
 Guensteria, *Crosse*, 149.
 Gymnocystis, *Giard*, 180.
 Gypiscus, *Sundevall*, 38.
 Gyrodroma ||, *C. G. Thomson*, 320
 (*Klug*, Hym., 1807).
 Habronestes, *L. Koch*, 211.
 Hadronema, *Uhler*, 411.
 Hadropezus, *Sundevall*, 45.
 Hagno, *Chambers*, 379.
 Halilophus, *M. Sars*, 184.
 Halocordyle, *Allman*, 466.
 Halotractus, *Allman*, 466.
 Hamirostrum, *Sundevall*, 39.
 Haplopelia, *Sundevall*, 53.
 Haploprocta, *Stål*, 403.
 Harpagornis, *Haast*, 38.
 Hedone, *Scudder*, 352.
 Helliunidius, *Chaudoir*, 241.
 Hemicyclops, *Böck*, 201.
 Hemilepis, *Ljungman*, 448.
 Hemipsida, *W. Macleay*, 272.
 Hemipsocus, *Selys*, 393.

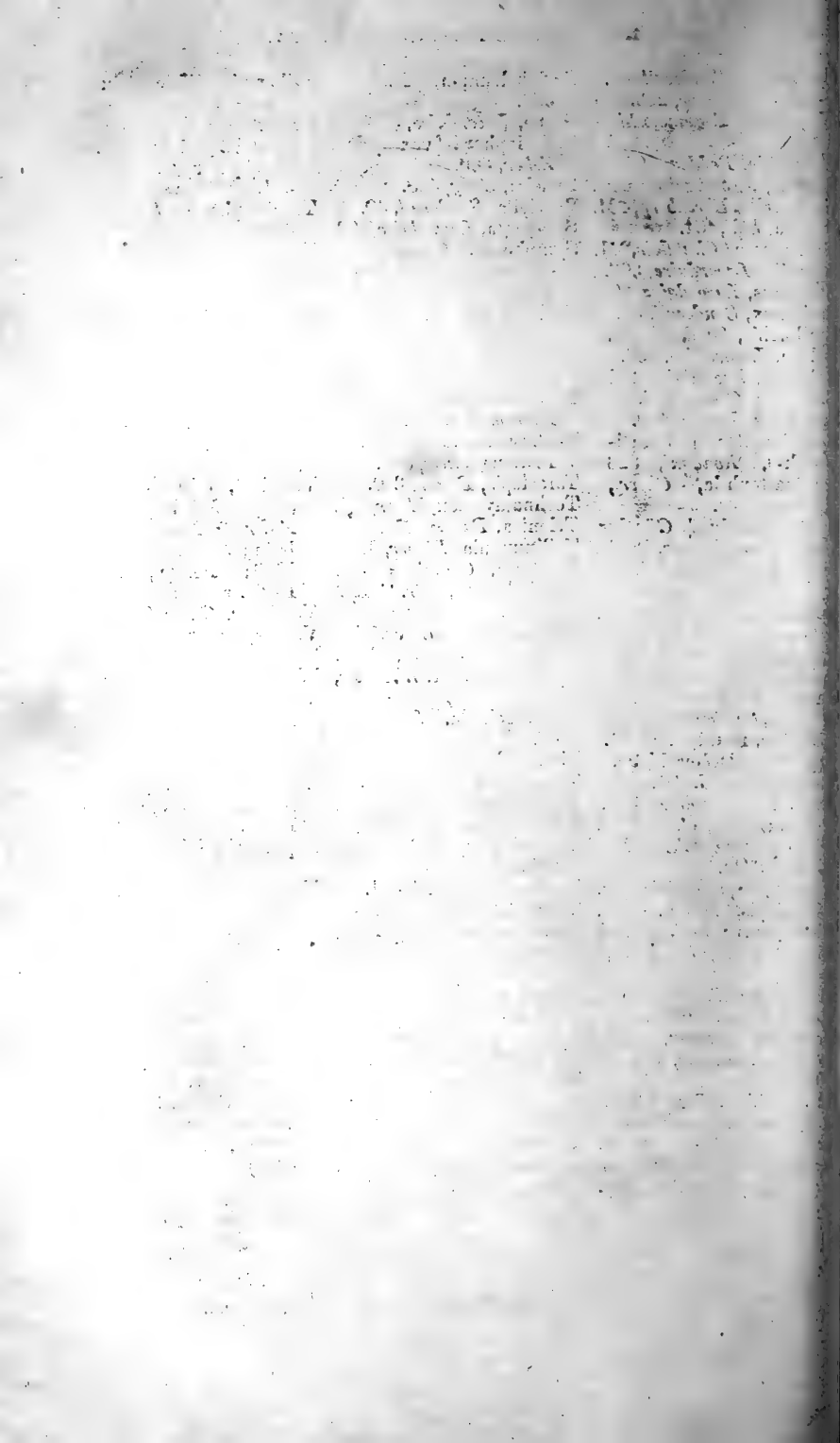
- Hemisterea, *Ehrenberg*, 484.
 Hemisticta, *Ehrenberg*, 484.
 Hemistomia, *Crosse*, 136 (-ma, *Swains.*, Pisces, 1839).
 Hemphillia, *Bland & Biney*, 148.
 Herpetophygas, *Fähræus*, 305.
 Herpystera, *Sundevall*, 49.
 Hesperornis, *Marsh*, 58.
 Heteroclinus, *Castelnau*, 92.
 Heterocosmia, *Ehrenberg*, 483.
 Heterocyclus, *Crosse*, 163.
 Heteroscarus, *Castelnau*, 93.
 Heterostephanus, *Allman*, 466.
 Heterovates, *Saussure*, 398.
 Hexabdella, *Verrill*, 426.
 Hodocerus, *Bonvouloir*, 270.
 Hologlypha, *Ehrenberg*, 484.
 Homœochlamys, *Ehrenberg*, 483.
 Homœodictya, *Ehlers*, 478.
 Homolampas, *A. Agassiz*, 442.
 Hoplizomenus, *Chaudoir*, 246.
 Hoplogenius||, *Stål*, 412 (*La Ferté*, Col., 1851).
 Horatomodes, *Haag*, 277.
 Hyboptera, *Chaudoir*, 242.
 Hydræthiops, *Günther*, 74.
 Hydrothelphusa, *A. Milne-Edwards*, 190.
 Hylobrotus, *Lacordaire*, 305.
 Hylcosmia, *Sundevall*, 44.
 Hylomantis, *Peters*, 81.
 Hyonetia, *Sundevall*, 57.
 Hypocilibe, *F. Bates*, 279.
 Hypocrites, *Fähræus*, 302 (-ta, *Saussure*, Orth., 1868).
 Hypsipus, *Sundevall*, 47.
 Ichthyornis, *Marsh*, 60.
 Iguanodectes, *Cope*, 97.
 Incisalia, *Scudder*, 350.
 Inozetes, *Pascoe*, 296.
 Iopsis, *Gabb*, 132.
 Ironeus, *H. W. Bates*, 301 (-nus, *Bastian*, Vermes, 1865).
 Ischnoderus, *Fauvel*, 256.
 Isopus||, *Taczanowski*, 215 (*Montrouze.*, Col., 1860).
 Ithone, *Solsky*, 314.
 Iulomorpha, *Porath*, 222.
 Ixodiscus, *Pascoe*, 289.
 Jukella, *Gray*, 458.
 Katelysia [Ca-], *Römer*, 168 (*Katelsea*, *id.*, 1857).
 Kodiosoma [Co-], *Stretch*, 359.
 Kowalewskaia, *Fol*, 183.
 Lachnaces, *H. W. Bates*, 245.
 Læmolyta, *Cope*, 97.
 Langia, *Moore*, 354.
 Lanioperca, *Günther*, 89.
 Lantzia, *Jousseau*, 162.
 Latychus, *Pascoe*, 298.
 Lemmophilus [Lemmatoph-], *Rye*, 299 (-phila, *Treitschke*, Lep., 1832).
 Leptarctia, *Stretch*, 359 (-tus, *Leidy*, Mamm., 1857).
 Leptarionta, *Fischer & Crosse*, 154.
 Leptocalamus, *Günther*, 72.
 Leptochilus||, *Loew*, 384 (*Saussure*, Hym., 1852).
 Leptogastrus, *W. Macleay*, 280 (-gaster, *Meigen*, Dipt., 1803; *Sign.*, Hemipt., 1861; *Selys*, Neuropt., 1861).
 Leptoleperus (-porus), *Desbrochers*, 286.
 Leptoneta, *Simon*, 209.
 Lerema, *Scudder*, 352.
 Lerodea, *Scudder*, 352.
 Leuchybris, *Sundevall*, 39.
 Leucoscirtes, *Scudder*, 352.
 Ligyrocoris, *Stål*, 408.
 Limnobænus, *Sundevall*, 55.
 Limnoecia, *Scudder*, 345 (*Limnoica* [-noeca], *Rond.*, Dipt., 1861).
 Limochores, *Scudder*, 352.
 Limosina, *Clessin*, 169.
 Liocyma, *Dall*, 168.
 Liphæmus, *Stål*, 405.
 Lipocentrus, *Sundevall*, 57.
 Lipostratia, *Chaudoir*, 242.
 Lirella, *Ehrenberg*, 484.
 Lissolepis, *Peters*, 68.
 Lithonephrya, *Giard*, 180.
 Lobetas, *Motschoulsky*, 267 (-tus, *Kies.*, Col., 1852).
 Lomatosticha, *Möschler*, 361.
 Lophocalotes, *Günther*, 70.
 Lophopsarus, *Sundevall*, 52.
 Lopidea, *Uhler*, 411.
 Lucasius||, *Dours*, 316 (*Kinahan*, Crust., 1859; -sia, *Desv.*, Dipt., 1863).
 Lumbrielymene [Lumbriococly-: vox hybr.], *Sars*, 424.
 Lycimna, *Stål*, 412.
 Lygrus, *Fähræus*, 301 (-gris, *Hübner*, Lep., 1816).
 Lyrall, *Mousson*, 149 (*Willugh.*, Pisces, 1686; *Lyrria*, *Gray*, Moll., 1847).
 Lytocarpia, *Kirchenpauer*, 468.
 Maclovina, *Grube*, 423.
 Macraulacus [rectius Macraulax||], *Bonvouloir*, 271 (*Dallas*, Hemipt., 1851).
 Macrobdella, *Philippi*, 427.
 Macrobdella, *Verrill*, 427.
 Macrochiron, *Brady*, 203 (-rus, *Schön.*, Col., 1838; *Swains.*, Pisces, 1839; -ra, *Zett.*, Dipt., 1840).
 Macromantis, *Saussure*, 397.
 Macroparius, *Stål*, 407.
 Macrohynchia, *Kirchenpauer*, 468 (-rrhyncha *Wtz.*, Dipt., 1846; -chus *Lacép.*, Pisces, 1800; *Dunker*, Rept., 1844).
 Macrovelia, *Uhler*, 414.
 Mallocois, *Stål*, 408.
 Mallocois, *Lacordaire*, 306.
 Marasmalus, *Grote*, 366.
 Marsipolæmus, *Peters*, 10.
 Matigramma, *Grote*, 366.
 Mecotetartus, *H. W. Bates*, 306.
 Mederis, *Motschoulsky*, 279.
 Megalobrama, *Dybowsky*, 97.
 Megathymus, *Scudder*, 352.
 Meglyphus, *Molschoulsky*, 279.
 Melandiscus, *Stål*, 408.
 Melanochila, *Stål*, 404.
 Melanocoleus, *Bonvouloir*, 71.

- Melanocoryphus, *Stål*, 407
 (-pha, *Boie*, Aves, 1822).
 Melanostoma||, *Stål*, 404
 (*Schiner*, Dipt., 1860).
 Melitograis, *Sundevall*, 44.
 Meloetyphus, *C. O. Waterhouse*, 284.
 Melonetta, *Sundevall*, 57.
 Menechides, *Motschoulsky*, 279.
 Menedrio, *Motschoulsky*, 279.
 Merizomena, *Chaudoir*, 242.
 Mesotretis, *F. Bates*, 278.
 Metaleptus, *H. W. Bates*, 302 (-pta, *Baly*, Col., 1861).
 Metallica, *Chaudoir*, 243.
 Methyorrhina, *Pascoe*, 298.
 Metranea, *Pascoe*, 296.
 Metyrus, *Pascoe*, 296.
 Meyerina (*Meyerella, olim*), *Gray*, 479 (*Meyeria*, *McCoy*, Crust., 1849).
 Micracidius, *Stål*, 412.
 Microdromus, *Günther*, 72.
 Microphyes, *W. Macleay*, 280.
 Microptilium, *Matthews*, 260.
 Microtrigonus, *Bonvouloir*, 271.
 Miltesthus, *H. W. Bates*, 301.
 Mimacrea, *Butler*, 350.
 Mimocoris, *Scott*, 409.
 Misophrice, *Pascoe*, 292.
 Mitoura [-tura], *Scudder*, 350.
 Mizotrechus, *H. W. Bates*, 245.
 Modicia, *Stål*, 404.
 Mœchius, *Pascoe*, 297.
 Molyetypus, *Fähræus*, 306.
 Monilearia, *Mousson*, 150.
 Morchellium, *Giard*, 181.
 Motschoulskium, *Matthews*, 260.
 Muricilla, *Gabb*, 127.
 Myiomma, *Puton*, 411.
 Myrmekioderma [*Myrmeci-*], *Ehlers*, 478.
 Nannoscincus, *Günther*, 68.
 Nannostomus, *Günther*, 97.
 Nannothera, *Sundevall*, 45.
 Nanoglossa, *Fauvel*, 251.
 Napta, *Guénée*, 363.
 Nautilinus, *Mousson*, 147
 (-na, *Stein*, Moll., 1850).
 Neædus, *Pascoe*, 296.
 Neæromyza, *Gabb*, 166.
 Neaspis, *Pascoe*, 262.
 Nedyleda, *Pascoe*, 292.
 Nemestra, *Pascoe*, 292.
 Neomarius, *Fairmaire*, 301.
 Neomordacia, *Castelnau*, 101.
 Neoplatycephalus, *Castelnau*, 91.
 Neosphyraena, *Castelnau*, 89.
 Nephelopsis, *Verrill*, 426.
 Nesopelia, *Sundevall*, 53.
 Norasuma, *Moore*, 363.
 Nothopsis, *Cope*, 75 (Nothops, *Mars.*, Col., 1868).
 Notiolesthus, *Motschoulsky*, 279.
 Notocyma, *Snellen*, 366.
 Notograptus||, *W. Macleay*, 268 (*Günther*, Pisces, 1867).
 Nototrachys, *Marshall*, 325.
 Nuptis, *Motschoulsky*, 279.
 Nychiomma, *Pascoe*, 292.
 Nyctalops||, *Cambridge*, 217 (*Wagl.*, Aves, 1832).
 Nycthierax, *Sundevall*, 39.
 Oarisma, *Scudder*, 352.
 Ochlodes, *Scudder*, 352.
 Ochrophœbe, *Pascoe*, 294.
 Ocyles, *Scudder*, 352.
 Oditesus, *Pascoe*, 290.
 Odontodictya, *Ehrenberg*, 484.
 Odontura||, *Fischer & Cross*, 153 (*Ramb.*, Orth., 1841).
 Œdechira [(Edi-)], *Motschoulsky*, 285 (*Burm.*, Col., 1855; -rus, *Erichs.*, Col., 1840; *Redt.*, Col., 1844).
 Œnochroma ||, *Pascoe*, 292 (*Guénée*, Lep., 1857).
 Olenosus, *H. W. Bates*, 306.
 Oligoria, *Scudder*, 352 (-rus, *Dej.*, Col., 1833).
 Oligotrochus, *Sars*, 441.
 Olistherus, *Seidlitz*, 261 (-thærus, *Erichs.*, Col., 1840).
 Olpium, *L. Koch*, 218.
 Ommatophorus, *W. Macleay*, 282 (-phora [Sect.], *Brandt*, Myriop., 1836; *Guén.*, Lep., 1852).
 Omoderisus, *Lacordaire*, 306.
 Onchauchenius [Onc-auch-], *Stål*, 412.
 Oncozygia, *Stål*, 402.
 Onota, *Chaudoir*, 242.
 Onychodon ||, *Dybowsky*, 96 (*Newm.*, Col., 1838; -dus, *Newberry*, Pisces, 1857).
 Onychopoma, *Pascoe*, 288.
 Oospira, *Blanford*, 157.
 Opetiophara, *Loew*, 389.
 Opetioptila, *Sundevall*, 53.
 Ophiarachnella, *Ljungman*, 447.
 Ophiaregma, *Sars*, 449.
 Ophielinus [Ophio-], *Castelnau*, 92.
 Ophiocnidella, *Ljungman*, 448.
 Ophiopæpale, *Ljungman*, 447.
 Ophiopezella, *Ljungman*, 447.
 Ophiothyreus, *Ljungman*, 447.
 Ophryota, *Pascoe*, 290.
 Opisthotropis, *Günther*, 72.
 Oreobates, *Espada*, 79 (Orob-, *Latr.*, Arachn., 1804).
 Ornitholepas, *Targioni-Tozzetti*, 204.
 Orthaulax, *Gabb*, 133.
 Orthæostethus, *H. W. Bates*, 300 (Orthost-, *Lac.*, Col., 1857).
 Ortholomus, *Stål*, 408 (-mia, *Felder*, Lep., 1861).
 Osseteris, *Pascoe*, 296.
 Othorene, *Boisduval*, 364.
 Otiocéphala, *Lefevre*, 311 (-lus, *Cheur.*, Col., 1832).
 Otocinclus, *Cope*, 95.
 Otoglossa, *Chaudoir*, 242.
 Otostomum, *Ehrenberg*, 484 (-mis, *Menke*, Moll., 1830; -mus, *Beck*, Moll., 1837).
 Ottistira, *Pascoe*, 286.
 Ozopherus, *Pascoe*, 296.
 Pachyglossa ||, *Fauvel*, 251 (*Hodgs.*, Aves, 1843).
 Pachyprora, *Sundevall*, 47.

- Pachyrhynchia, *Kirchpauer*, 468 (-chus, *Spix*, Aves, 1824; *Germ.*, Col., 1824; *Kirby*, Col., 1837; *Bocage*, Rept., 1867).
 Paictes, *Sundevall*, 43.
 Paidia [Pæd- ||], *Radoszkowsky*, 318 (*Hübner*, Lep., 1816).
 Paipalephorus [Pæpalo-], *Jekel*, 292.
 Palæodyptes, *Huxley*, 59.
 Palæotropus, *Lovén*, 446.
 Palæstina, *Cambridge*, 211.
 Pansydia, *Scudder*, 352.
 Paradules ||, *Klunzinger*, 89 (*Bleeker*, Pisces, 1863).
 Paraletindia, *Saussure*, 396.
 Paraloaptera, *Saussure*, 396.
 Paramphinome, *Sars*, 423.
 Paraxenos[-nus], *S. S. Saunders*, 284.
 Pariolius, *Cope*, 95.
 Pasatus, *Stål*, 480.
 Pasira, *Stål*, 412.
 Pediris, *Motschoulsky*, 279.
 Peliebia {
 Peliobia {, *Pascoe*, 292.
 Peliias, *F. Bates*, 278.
 Pelomyxa, *Greeff*, 483.
 Pentacomia, *H. W. Bates*, 237.
 Penthodyta, *Sundevall*, 48.
 Perichares, *Scudder*, 352.
 Periergates, *Lacordaire*, 306.
 Perma, *Lacordaire*, 306.
 Phacocerus, *Chaudoir*, 242.
 Phæa ||, *Chaudoir*, 242 (*Newman*, Col., 1840).
 Phantasis, *Saussure*, 398.
 Philometra, *Grote*, 371.
 Phocylides, *Pascoe*, 299.
 Pholisora, *Scudder*, 352.
 Phormosoma, *W. Thomson*, 443.
 Phosichthys [Phot-], *Hutton*, 99.
 Phrenozemia, *Pascoe*, 292.
 Phrixus, *Cope*, 219 (-xia, *Deyr.*, Col., 1863; *Phryxus*, *Hübner*, Lep., 1816; -xe, *Desv.*, Dipt., 1830).
 Phrynesthis, *Lacordaire*, 305.
 Phycanassa, *Scudder*, 352.
 Phygas ||, *Fähræus*, 305 (*Treitschke*, Lep. 1833; *Fieber*, Hemipt., 1836).
 Phyllaplysia, *Fischer*, 141.
 Phyllospongia, *Ehlers*, 477.
 Phyprosopus, *Grote*, 366.
 Physopyxis, *Cope*, 95.
 Piagetia, *C. Rütsema*, 322.
 Pinarochroa, *Sundevall*, 48.
 Plocoris, *Stål*, 408.
 Pithecomus, *Pascoe*, 298.
 Plagiognathus ||, *Dybowski*, 96 (*Fieber*, Hemipt., 1859).
 Planorbella ||, *Gabb*, 127 (*Haldem.*, Moll., 1844).
 Platychalina, *Ehlers*, 478.
 Pleonectyptera, *Grote*, 366.
 Plesiofornax ||, *Bonvouloir*, 271 (*Coquerel*, Col., 1866).
 Pleuromenus, *H. W. Bates*, 302.
 Plochelæa, *Gabb*, 129.
 Pnigohierax, *Cabanis*, 39.
 Poanes, *Scudder*, 352.
 Polites, *Scudder*, 352 (Polietes, *Rond.*, Dipt., 1865).
 Polydexia, *Ehrenberg*, 484.
 Polydus, *Pascoe*, 294.
 Porphyriola, *Sundevall*, 55.
 Porthidium, *Cope*, 78.
 Potanthus, *Scudder*, 352. [*? Poterion*, *Schlegel*, 479.]
 Præsus, *Stål*, 404.
 Prenes, *Scudder*, 352.
 Promecidus, *Fähræus*, 302.
 Promiba, *Riley*, 380.
 Prothesima, *L. Koch*, 209.
 Protoptilum, *Kölliker*, 459.
 Pseudaphritis, *Castelnau*, 91.
 Pseudocalanus, *Böck*, 200.
 Pseudocyclops, *Brady*, 201.
 Pseudocycnus ||, *Sundevall*, 57 (*Heller*, Crust., 1865).
 Pseudodidemnum, *Giard*, 182.
 Pseudomurex, *Monterosato*, 127.
 Pseudosmia, *Radoszkowsky*, 317.
 Pseudoxenos [-nus], *S. S. Saunders*, 283.
 Psidiopsis, *Pascoe*, 287.
 Psyllipsocus, *Selys*, 392.
 Psylloptera, *Ferrari*, 417.
 Pterastis, *Ehrenberg*, 484 (-ster, *Müll. & Tr.*, Echin., 1842).
 Pteronymia, *Butler & Druce*, 342.
 Ptinelloides, *Matthews*, 260.
 Purpurella ||, *Dall*, 127 (*Desv.*, Dipt., 1853).
 Putonia, *Stål*, 402.
 Pygomma, *Troschel*, 444.
 Raglius, *Stål*, 408.
 Reitteria, *Leder*, 264.
 Reticella ||, *Ehrenberg*, 484 (*Gray*, Actinozoa, 1870).
 Retilla, *Lacordaire*, 305.
 Rhabdammina, *Sars*, 483.
 Rhap[h]idophilus, *Ehlers*, 478.
 Rhinelaps, *Günther*, 77.
 Rhinodrilus, *Perrier*, 426.
 Rhodia ||, *Moore*, 362 (*Bell*, Crust., 1835; *Rhodea*, *Adams*, Moll. 1858; -dina, *Guén.*, Lep. 1854).
 Rhodopsammia, *Semper*, 455.
 Rhodurus, *Sundevall*, 40.
 Rhomphæa, *L. Koch*, 212.
 Rhopalothrix, *Mayr*, 323.
 Rhynobrius [Rhino-], *A. Agassiz*, 442.
 Rhytidolomia, *Stål*, 404.
 Richardsonia, *Castelnau*, 89.
 Rictaxis [Rhct-], *Dall*, 170.
 Rictocyma [Rhct-], *Dall*, 140.
 Roncus, *L. Koch*, 218.
 Rophobas, *Motschoulsky*, 279.
 Rossella, *Carter*, 479.
 Saccammia, *Sars*, 483.
 Saccophorus ||, *Haag*, 27 (*Kühl*, Mamm., 1820 -ra, *Gray*, Moll., 1821).
 Sagaritis ||, *Chambers*, 38 (*Holmgren*, Hym., 1858).
 Saginesis, *Pascoe*, 291.
 Saragodinus, *F. Bates*, 278.
 Satyrites, *Scudder*, 348.
 Scaptonyx, *A. Milne-Edwards*, 10.
 Schismatocera, *Des Cotte*, 267.
 Sclerobelemnon, *Kölliker*, 459.
 Scleropleura, *A. Milne-Edwards*, 14.
 Scombrocottus, *Peters*, 92.

- Scotocerca, *Sundevall*, 49.
 Semilima, *Pascoe*, 295.
 Senoculus, *Taczanowski*, 215.
 Sepsophis, *Beddome*, 69.
 Setenis, *Motschoulsky*, 279.
 Setigerella, *Ehrenberg*, 484.
 Sibaria, *Stål*, 404.
 Simoglossus, *Chaudoir*, 241.
 Singalia, *Lacordaire*, 306.
 Smermus, *Lacordaire*, 306.
 Smilonyx, *Sundevall*, 39.
 Smilorrhis, *Sundevall*, 42.
 Soluta, *Lacordaire*, 306.
 Solymus, *Lacordaire*, 305.
 Sorocelis, *Grube*, 427.
 Sosytelus, *Pascoe*, 290.
 Sparthiopilus [^p Spartioph-], *Rondani*, 328 (Spartophila, *Chevr.*, Col., 1834).
 Spathodaetylus ||, *Günther*, 69 (*Pictet*, Pisces, 1858).
 Spatulemys, *Gray*, 65.
 Speyeria, *Scudder*, 345.
 Sphragisticus, *Stål*, 408.
 Spilopelia, *Sundevall*, 53.
 Spiloptila, *Sundevall*, 49.
 Spizocorys, *Sundevall*, 52.
 Spongoloba, *Chaudoir*, 242.
 Spudæa, *Snellen*, 366 (-æus, *Dallas*, Hemipt., 1851).
 Squalidus, *Dybowsky*, 96.
 Staurocoryne, *Rotch*, 467.
 Stenolia, *Lacordaire*, 305.
 Stephanomma, *G. O. Sars*, 195 (-noma, *Wern.*, Polyg., 1841).
 Stereodema, *Chaudoir*, 244.
 Sticholepis, *Ehrenberg*, 483.
 Stictopleurus, *Stål*, 406.
 Stigmatopelia, *Sundevall*, 53.
 Stilbus, *Seidlitz*, 261 (-um, *Spir.*, Hym., 1808).
 Stomyles, *Scudder*, 352 (-lus, *Fähræus*, Col., 1871).
 Stratiorrhina, *Pascoe*, 299.
 Streblosoma, *Sars*, 425.
 Strigomerus, *Chaudoir*, 246.
 Stylactis ||, *Ehrenberg*, 484 (*Allman*, Cœlent., 1864).
 Styloblemmon, *Kölliker*, 459.
 Styne, *Lacordaire*, 306.
 Sudariophora [vox hybr.], *Zeller*, 369.
 Sydella, *Gray*, 458.
 Sylviella, *Sundevall*, 49.
 Symperga, *Lacordaire*, 306.
 Symphorus, *Günther*, 89 (-phora, *Lec.*, Col., 1866).
 Tachycnemis, *Bonvouloir*, 270.
 Tænobates, *Motschoulsky*, 279.
 Tainophthalmus [Tænio-], *Desbrochers*, 289.
 Taphropeltus, *Stål*, 408.
 Taracticus, *Loew*, 385.
 Tarsolepis, *Butler*, 360.
 Technomyrmex, *Mayr*, 323.
 Telenica, *Pascoe*, 288.
 Tellinungula, *Römer*, 167.
 Telphusa, *Chambers*, 379 (Thelphusa, *Latr.*, Crust., 1819).
 Temnoscelis ||, *Lacordaire*, 305 (*Chevr.*, Col., 1855).
 Tethlimmena, *H. W. Bates*, 302.
 Thamnocichla, *Sundevall*, 48.
 Thelepodopsis, *Sars*, 425.
 Therebus, *Pascoe*, 296.
 Thermocharis, *Fauvel*, 257.
 Thorybes, *Scudder*, 352.
 Throscidium, *Matthews*, 260.
 Thyonella, *Verrill*, 441.
 Timareta, *Pascoe*, 288.
 Timelia, *Sundevall*, 45.
 Tineomyza [vox hybr.], *Rondani*, 328.
 Titanus ||, *Perrier*, 426 (*Serv.*, Col., 1832).
 Tomocyclus, *Crosse & Fischer*, 163.
 Toxocorys, *Sundevall*, 52.
 Traquairia, *Carruthers*, 483.
 Trichostemma, *Sars*, 478.
 Trigonus, *Fauvel*, 296 (-nia, *Brug.*, Moll., 1791; *Guén.*, Lep., 1854).
 Trikenrion [Tricentrium], *Ehlers*, 478.
 Triporthesus, *Cope*, 98.
 Triptotricha, *Loew*, 384.
 Tristachycera, *H. W. Bates*, 301.
 Trochosphæra, *Semper*, 420.
 Tylauchenia, *H. Burmeister*, 268.
 Tylonyceteris, *Peters*, 10.
 Typhlocalamus, *Günther*, 72.
 Uintornis, *Marsh*, 41.
 Umbellisyllis, *Sars*, 424.
 Uropsilus, *A. Milne-Edwards*, 10.
 Venilia ||, *Chambers*, 380 (*Duponchel*, Lep., 1829; *Alder & Hancock*, Moll., 1844; *Sp. Bate*, Crust., 1846; *Bonap.*, Aves, 1849).
 Vexillifer, *Gasco*, 94.
 Vocula, *Lacordaire*, 305.
 Woerdenia, *Snellen*, 361.
 Wrightia ||, *Allman*, 465 (*Agassiz*, Cœlent., 1862).
 Xanthochilus, *Stål*, 408.
 Xenelaphus, *Gray*, 16 (-phis, *Günther*, Rept., 1864).
 Xiphocaris, *Martens*, 194.
 Yarra, *Castelnau*, 101.
 Zalattida [-toida], *Fähræus*, 305.
 Zamenophis, *Günther*, 73.
 Zathorax, *Cope*, 95.
 Zeopus, *Pascoe*, 295.
 Zoocosmius, *Fähræus*, 301.
 Zoolygrus, *Fähræus*, 301.
 Zosime, *Böck*, 202 (-mus, *Leach*, Crust., 1818).
 Zygocera, *Lacordaire*, 305 (-ceros, *Ehr.*, Polyg., 1840).

END OF THE NINTH VOLUME.



THE
ZOOLOGICAL RECORD

FOR 1873;

BEING

VOLUME TENTH

OF THE

RECORD OF ZOOLOGICAL LITERATURE.

EDITED BY

EDWARD CALDWELL RYE, F.Z.S.,

LIBRARIAN TO THE ROYAL GEOGRAPHICAL SOCIETY.

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P R E F A C E.

DEPRIVED in one year of the invaluable assistance afforded by the supervision of Professor NEWTON, and of the co-operation of Dr. GÜNTHER in so many and such important special groups as *Mammalia*, *Reptilia*, and *Pisces*—the record of which it has been absolutely impossible for him again to undertake, owing to the great increase of duties caused by his promotion to the office of Keeper of the Natural History Department of the British Museum—the task of editing the present volume has been no light one. I have, however, been fortunate enough to secure the assistance of Mr. ALSTON in the first of these groups; and of Mr. O'SHAUGHNESSY in the *Reptilia* and *Pisces*—the latter gentleman's work being the more valuable, as he has in its preparation been enabled, from his position in the British Museum, to consult Dr. Günther on various points. To these gentlemen and to Dr. Günther I desire to offer my best thanks, and I have also to thank the other Recorders for their continued co-operation.

Various circumstances have prevented me from bringing out the present volume within a less period than that occupied in the preparation of its predecessors; but I trust to be able to publish the next within a shorter interval.

It is at once a pleasure and a duty for me to acknowledge a further grant of £100 towards the expenses of this volume from the British Association for the Advancement of Science, and of a special contribution for the same purpose of £50 from the Council of the Zoological Society of London (the interest of the Davis Bequest, formerly applied in like manner on more than one occasion, having been appropriated for other Zoological purposes). I have also to acknowledge the grant (for the first time since the publication of this Record) by the Government Grant Committee of the Royal Society, of £100 out of the sum annually voted by Parlia-

ment for the promotion of Science. To that Committee, and to the guarantors of the fund of the Zoological Record Association who have, on the expiration of the original term, renewed their liability for the support of this undertaking, the best thanks of all Zoologists are most justly due.

There remains a great boon to Zoological students to be formally acknowledged—I refer to the publication in 1873, by Count August von Marschall, under the auspices of the Royal Zoological-Botanical Society of Vienna, of a “Nomenclator Zoologicus,” continuing the indispensable work of the same name by L. Agassiz, from the date at which the latter ended (1846) to 1868, inclusively. On the vast labour expended upon the 482 closely printed pages of this volume it would be superfluous to comment; and it may be safely asserted that no work of such general utility has appeared for very many years. Lists of the genera recorded during each year since 1870, inclusively, having been added to the volumes of the Zoological Record from that date, it has occurred to me that a similar table of the genera comprised in the volume (vi.) for 1869 of this publication would not be altogether useless, as connecting the Vienna “Nomenclator” with our own periodical series, and thus completing the record of genera to the present day. I have accordingly compiled such a list, which will be found on the eight pages following these remarks. Many genera can hardly fail to be omitted from such an undertaking; but a basis for a complete work will be by these means afforded.

EDWARD CALDWELL RYE.

Royal Geographical Society,
1, Savile Row, Burlington Gardens, London,
April, 1875.

* * * Communications, papers, and memoirs intended for this work should be addressed *solely* to “THE EDITOR of the Zoological Record, care of Mr. Van Voorst, 1, Paternoster Row, London.” It is earnestly requested that in the case of separately-printed copies of papers so forwarded the *original pagination* be indicated.

INDEX TO

GENERA AND SUBGENERA RECORDED AS NEW IN THE ZOOLOGICAL RECORD, VOL. VI. (1869), TO WHICH VOLUME THE PAGINATION REFERS :

INCLUDING NEW NAMES PROPOSED FOR GENERA ALREADY
CHARACTERIZED.

[The symbol || indicates that the name to which it is affixed has been used before in Zoology.]

- Abebæus, *Kirsch*, 279
 [-æa, *Hübner*, Lepidoptera, 1816].
 Abelus, *Stal*, 492.
 Abramocephalus, *Steindachner*, 137.
 Acanthacara, *Scudder*, 470.
 Acanthocardium, *Römer*, 586 [-dia, *Gray* & *Adams*, Mollusca, 1858].
 Acanthostethus, *Smith*, 316.
 Achalinus, *Peters*, 115.
 Achnocampa, *Rambur*, 396.
 Achora, *Pascoe*, 262.
 Achrestus, *Candèze*, 255.
 Acmella, *Blanford*, 581.
 Acrisius, *Des Loges*, 276 [-sis, *Förster*, Hymenoptera, 1862].
 Acrocampa, *Stal*, 494.
 Acrogonia, *Stal*, 494.
 Acropelta, *Mella*, 481 [-tis, *Agassiz*, Echinodermata, 1840].
 Acteella, *Motschoulsky*, 235.
 Acutalia, *Schaufuss*, 581.
 Acymba, *Rambur*, 388.
 Adieris, *Förster*, 329.
 Ælurops ||, *Thorell*, 150 [*Wagler*, Mammalia, *Michaëll*, Reptilia, 1830].
 Agaphelus, *Cope*, 23.
 Agenelopsis [Agelenopsis], *Giebel*, 157.
 Aglaotoma, *Förster*, 328.
 Agriogomphus, *Selys*, 454.
 Agroscopta, *Förster*, 327.
 Alexella, *J. E. Gray*, 665.
 Allostes, *Selys*, 456.
 Alloxyta, *Förster*, 324.
 Alobia, *Stal*, 485.
 Alphus ||, *Wallengren*, 397 [*Dejean*, Coleoptera, 1835].
 Altes, *Pascoe*, 266.
 Amblydisca, *Stal*, 496.
 Amblyopsis ||, *Sars*, 613 [*De Kay*, Pisces, 1842].
 Ameristus, *Förster*, 322.
 Amicella, *J. E. Gray*, 658.
 [H] Ammatocampa, *Wallengren*, 396.
 Ammobia ||, *V. d. Wulp*, 437 [*Desvoidy*, Diptera, 1830; -bius, *Guérin*, Coleoptera, 1846].
 Ammoplanus, *Giraud*, 316.
 Annemopsyche, *Butler*, 386.
 Amocella, *J. E. Gray*, 658.
 Amphitrema, *Archer*, 683.
 Amphoridium, *Häckel*, 674 [-roidea, *M.-Edwards*, Crustacea, 1840].
 Amphoriscus, *Häckel*, 674.
 Anectolis, *Förster*, 329.
 Anepsius ||, *Puton*, 480 [*Loew*, Diptera, 1857].
 Anolytus, *Förster*, 331.
 Anoplodipsas, *Peters*, 117.
 Anopsilus, *Kirsch*, 281.
 Apasis, *Pascoe*, 267.
 Aphiloptera, *Förster*, 327.
 Aphilothrix, *Förster*, 323.
 Aphyllax, *Lacordaire*, 292.
 Aphyoptera, *Förster*, 326.
 Apistophyza, *Förster*, 326.
 Arabriga, *Walker*, 402.
 Areocella, *J. E. Gray*, 658.
 Argenna, *Thorell*, 157.
 Arnissa, *Walker*, 408.
 Artanes, *Thorell*, 152.
 Artynella, *Häckel*, 675.
 Artynium, *Häckel*, 675.
 Artynophyllum, *Häckel*, 675.
 Arvaduca, *Walker*, 402.
 Asdidius, *Fairmaire*, 268.
 Asphaltus, *Pascoe*, 264 [-lius, *Roux*, Crustacea, 1831].
 Aspidiscus ||, *Norman*, 621 [*König*, Polygastrica, 1825; -ca, *Clemens*, Lepidoptera, 1860].
 Aspidispa, *Baly*, 299.
 Asteractis, *Verrill*, 667.
 Asterogomphus, *Lyman*, 645.
 Asterolecanium, *Signoret*, 502.
 Asteromorpha, *Lütken*, 646.
 Astrodisculus, *Greeff*, 681.
 Astropsammia, *Verrill*, 668.
 Atarba, *O.-Sacken*, 430.
 Atryphodes, *Pascoe*, 266.
 Aulacophilus, *Smith*, 316.
 Aulacostethus, *C. O. Walkerhouse*, 244.
 Aulacotropis, *Stal*, 485.
 Aulophlegma, *Häckel*, 675.

- Aulorrhiza, *Häckel*, 675.
 Autosphylla, *Rambur*, 396.
 Banareia, *A. M.-Edwards*, 606.
 Barytipha, *Pascoe*, 266.
 Bathyaspidis, *Förster*, 322.
 Bdelyrus, *Harold*, 247.
 Bellia ||, *J. E. Gray*, 110 [*M.-Edwards*, 1848, *Spence Bate*, 1851, *Crustacea*].
 Berendtia, *Crosse & Fischer*, 576.
 Bessida, *Walker*, 479 [*Bessida*, *Walker*, *Lepidoptera*, 1865 !].
 Blæna, *Walker*, 478.
 Boreomysis, *Sars*, 613.
 Brachichila [Brachy-], *Chaudoir*, 205.
 Brachyctis, *Chaudoir*, 207.
 Branchinecta, *Verrill*, 617.
 Brandella, *J. E. Gray*, 665.
 Brises, *Pascoe*, 264 [-sa, *Münster*, *Crustacea*, 1839].
 Brycopia, *Pascoe*, 267.
 Bryelica, *Walker*, 478.
 Bubalopa, *Stal*, 492.
 Buciarra, *Walker*, 402.
 Burdria, *Walker*, 402.
 Byallius, *Pascoe*, 267.
 Byrasba, *Harold*, 249.
 Byrrhidium, *Harold*, 247.
 Byzenia, *King*, 243 [-nus, *Rafinesque*, *Crustacea*, 1814].
 Cænopedina, *A. Agassiz*, 647.
 Caledoniella, *Souverbie*, 553.
 Calliactis, *Verrill*, 667.
 Callicentrus, *Stal*, 492.
 Callihapsis [see *Kaliapsis*].
 Callinema, *Verrill*, 657.
 Callinia, *J. E. Gray*, 110.
 Callipodium, *Verrill*, 665.
 Callirhytis, *Förster*, 322.
 Calliscarta, *Stal*, 497.
 Camariodes, *Fairmaire*, 266.
 Camptodium, *Motschoulsky*, 235.
 Campylenchia, *Stal*, 488.
 Campylocentrus, *Stal*, 492.
 Cantharidium ||, *Schaffuss*, 555 [*Linneus*, *Crustacea*, 1759].
 Capitaria, *Walker*, 402.
 Capnella, *J. E. Gray*, 658.
 Carchesiopsyche, *Wallengren*, 390.
 Carneades, *H. W. Bates*, 295.
 Carsidara, *Walker*, 500.
 Cellana, *H. Adams*, 557.
 Centropelma, *Sclater & Salvin*, 102.
 Centropilum, *Eaton*, 453.
 Ceradelium, *De Borre*, 267.
 Ceratoisidosis [see *Keratoisidosis*].
 Ceratolepis, *Chapuis*, 284.
 Cercidia, *Thorell*, 163.
 Cerithiolium, *Tiberi*, 547.
 Cesada, *Walker*, 478.
 Ceycopsis, *Salvadori*, 64.
 Chæridiona, *Baly*, 299.
 Chaunolæmus, *Peters*, 113.
 Chazena, *Walker*, 392.
 Chetostoma [Chæt-], *Rondani*, 441 [*Rondani*, 1856].
 Chionaspis, *Signoret*, 503.
 Chlamydopsis, *Westwood*, 237.
 Chleuastes, *Kirsch*, 279.
 Chlorochara, *Stal*, 483.
 Chlorozoa, *J. E. Gray*, 658.
 Choriaster, *Lütken*, 646.
 Chrestosema, *Förster*, 328.
 Chrysobia, *Boisduval*, 370.
 Cissophagus [see *Kisso-phagus*].
 Cladactis, *Verrill*, 667.
 Cladiella, *J. E. Gray*, 658.
 Clethrogyna, *Rambur*, 389.
 Climacia, *McLachlan*, 449.
 Cliotarsus, *Mivart*, 120.
 Clistolynthus, *Häckel*, 675.
 Clostes, *Menge*, 146.
 Coccosterphus, *Stal*, 492.
 Cochliotheca, *Rambur*, 390.
 Cœlopola, *Stal*, 494.
 Cœnostomella, *Häckel*, 675.
 Colopus, *Peters*, 113.
 Complutia, *Walker*, 403.
 Compsoptera, *Stal*, 483.
 Copidocephala, *Stal*, 483.
 Coptoglossus, *Chaudoir*, 205.
 Coptoneurus, *Puton*, 480.
 Coptonotus, *Chapuis*, 283.
 Coptopola, *Stal*, 483.
 Coriarachne, *Thorell*, 152.
 Cornicularia, *Menge*, 161.
 Corydon ||, *Hewitson*, 373 [*Lesson*, *Aves*, -1828; *Deyrolle*, *Coleoptera*, 1863].
 Corythophara, *Stal*, 485.
 Coxelinus, *Fairmaire*, 239.
 Crambessa, *Häckel*, 656.
 Crassivenus, *Perkins*, 585.
 Cratotrachus, *Lacordaire*, 295.
 Cremnoconchus, *Blanford*, 549.
 Cryphœca, *Thorell*, 157.
 Cryptacrus, *Kirsch*, 279.
 Cryptoptera, *Stal*, 485 [-rus, *Motschoulsky*, *Coleoptera*, 1861].
 Crystallodes, *Häckel*, 655.
 Ctenophorus ||, *Chapuis*, 284 [*Fitzinger*, *Reptilia*, 1843; -ra, *Meigen*, *Diptera*, 1803].
 Cyathiscus, *Häckel*, 674.
 Cyllopsis, *Felder*, 368.
 Cymbalophora, *Rambur*, 388.
 Cyrtauchenius, *Thorell*, 146.
 Cystophrys, *Archer*, 682.
 Dactylipalpus, *Chapuis*, 283.
 Danella, *J. E. Gray*, 658 [-nilia, *Brusina*, *Mollusca*, 1853].
 Decialma, *Pascoe*, 266.
 Delavallia, *Brady*, 621.
 Dendrosinus, *Chapuis*, 284.
 Denisonia, *Krefft*, 117.
 Deobriga, *Walker*, 402.
 Diæa, *Thorell*, 152.
 Diallytes, *Harold*, 248 [-ta, *Meigen*, *Diptera*, 1826].
 Diaphoropodon, *Archer*, 682.
 Diceræa, *Förster*, 331 [-æus, *Dallas*, *Hemiptera*, 1857; -ra, *Germar*, *Diptera*, 1817].
 Dichorr[h]agia, *Butler*, 364.
 Dichrophleps, *Stal*, 494.
 Dictamnia, *Pascoe*, 290.
 Dicyphus ||, *Menge*, 161 [*Fieber*, *Hemiptera*, 1858].

- Diglyphosema, Förster, 324.
 Dilyta, Förster, 324 [Dial-, Meigen, Diptera, 1826].
 Dinoria, Pascoe, 268.
 Diplocotes, Westwood, 260.
 Diplura, Rambur, 396.
 Dipcena, Thorell, 161.
 Diranchis, Förster, 330.
 Disceratus, Scudder, 469.
 Discodermia, Bocage, 679.
 Discorygma, Förster, 325.
 Ditropis ||, Blanford, 579 [Fieber, Homoptera, 1866].
 Dolichognatha, Cambridge, 162.
 Dorocidaris, A. Agassiz, 646.
 Drepanophora, H. Loew, 440.
 Drepanodus, Menge, 162 [-des, Guénié, Lepidoptera, 1857].
 Dryophanta, Förster, 323.
 Dryoteris, Förster, 321.
 Dryotomus ||, Chapuis, 284 [Swainson, Aves, 1831].
 Dyscinetus, Harold, 251.
 Dysiatus, Pascoe, 288.
 Dyslobus, Leconte, 273.
 Dysmachus, Kirsch, 279.
 Dyssiconella, Hüffel, 674.
 Dyssicum, Hüffel, 674.
 Dystalica, Pascoe, 268.
 Echinodes, Zimmermann, 237.
 Echinomuricea, Verrill, 666.
 Ectolyta, Förster, 325.
 Ectyche, Pascoe, 267.
 Elaphidion [-ium] ||, Menge, 161 [Serville, Coleoptera, 1834].
 Elathia, Issel, 588 [-thea, Stal, Hemiptera, 1867].
 Elezira, Pascoe, 291.
 Elydnus, Pascoe, 290.
 Empeda, O.-Sacken, 430.
 Enada, Walker, 479.
 Enchotypa, Stal, 487.
 Enoplotrupes, Lucas, 249.
 Entropha, Förster, 322.
 Eodalis, Pascoe, 291.
 Epherina, Pascoe, 274 [-ria, Leach, Mollusca, 1818].
 Ephidionius, Pascoe, 264.
 Epiactis, Verrill, 667.
 Epicnaptera, Rambur, 396.
 Episoda, Förster, 327.
 Epitritus, Emery, 319.
 Erga, Walker, 479.
 Erisphagia, Förster, 325.
 Erythropros, Sars, 613.
 Eubostrichus, Greeff, 637.
 Eubothrus, Förster, 323.
 Eubulus, Kirsch, 280 [-le, Stal, Hemiptera, 1867].
 Euchlanis ||, Pascoe, 291 [Ehrenberg, Rotatoria, 1830].
 Eucoryphus, Mik, 436.
 Eucratopsis, S. L. Smith, 608.
 Eudicrana, H. Loew, 423.
 Euglages, Gerstäcker, 311.
 Eunephthya, Verrill, 659.
 Euniceella, Verrill, 664.
 Eunsella, J. E. Gray, 657.
 Eurypylus, Brady, 620.
 Eusclerides, Gray & Carter, 665.
 Euthore, Selys, 455.
 Eutrias, Förster, 329.
 Euxestis, Lederer, 386.
 Evactis, Verrill, 667.
 Evibacus, S. L. Smith, 610.
 Examnes, Pascoe, 290.
 Exunguia, Norman, 615.
 Fauxulus, Schaufuss, 574.
 Ferus, Chaudoir, 205.
 Filellum, Hincks, 655.
 Fiorinia, Signoret, 502.
 Fordia, J. E. Gray, 110 [-da, Heyden, Homoptera, 1837].
 Gagrella, Stolickza, 165.
 Ganaspis, Förster, 328.
 Ganyme, Pascoe, 263.
 Garsauria, Walker, 478.
 Gaskoinia, Roberts, 543.
 Gastrosaccus, Norman, 613.
 Genocidaris, A. Agassiz, 647.
 Gerallus, Harold, 253.
 Gerdia, Menge, 161.
 Glenoclosterium, Carter, 680.
 Globiceps ||, Felder, 357 [Lepelletier & Serville, Hemiptera, 1825; Ayres, Coelenterata, 1851].
 Gluptodactylus [Glypt-], Des Cottes, 212.
 Gnathograpsus, A. M.-Edwards, 609.
 Goddefroyia, Kölliker, 661.
 Gomora, Walker, 402.
 Goniobarbus, Dybowski, 135.
 Goniodelphys, Buchholz, 621.
 Gonostomyxus, Macdonald, 132.
 Gozarta, Walker, 391.
 Grammia, Rambur, 388 [-ma, Poey, Pisces, 1867].
 Grayella, Carter, 680.
 Gronotoma, Förster, 325.
 Guppya, Tate, 563 [-pia, Mörch, Mollusca, 1867].
 Gynopeltis, Gerstäcker, 461.
 Gypsornis, M.-Edwards, 94.
 Gyriophilus, Cope, 122.
 Hæmatomyzus, Piaget, 504.
 Halipterus, Kölliker, 661.
 Halme, Pascoe, 291.
 Hammatocampa [see Ammatocampa].
 Hammatorhina, H. Loew, 430.
 Hebetica, Stal, 485.
 Hectus, Pascoe, 266.
 Heliochroma, Butler, 357.
 Hemicrisis, Förster, 324.
 Hemimysis, Sars, 613.
 Hemiphlebia, Selys, 455.
 Heptameris, Förster, 326 [Heptomera, Blanchard, Coleoptera, 1850].
 Hersiliola, Thorell, 156.
 Heterhydrus, Fairmaire, 219.
 Heterobranchipus, Verrill, 617.
 Heterophrys, Archer, 682.
 Heterosternus ||, Kirsch, 281 [Dupont, Coleoptera, 1831].
 Hexacola, Förster, 326.
 Hexaplasta, Förster, 330.
 Hiketes [Hic-], King, 239.
 Histiope, Peters, 14.
 Histopona, Thorell, 157.
 Holcoderus, Chaudoir, 206.
 Holobranchys, Fairmaire, 266.

- Hololexis, *Förster*, 322.
 Holtenia, *W. Thomson*, 678.
 Homalodisca, *Stal*, 494.
 Homodactylus [see *Omodactylus*].
 Homorus, *Förster*, 331.
 Hoplocnemis, *Harold*, 249.
 Hormiopteris, *Giraud*, 319.
 Hyalodepsa, *Stal*, 483.
 Hyalolampe, *Greeff*, 682.
 Hydissus, *Pascoe*, 264.
 Hydrallmania, *Hincks*, 655.
 Hydranthea, *Hincks*, 655.
 Hymæa, *Pascoe*, 267.
 Hypata, *Walker*, 411.
 Hyperchalca, *Pascoe*, 269.
 Hypogeomys, *Grandidier*, 18.
 Hypoethria, *Förster*, 328.
 Hypselotropis ||, *Stal*, 491 [Jekel, Coleoptera, 1855].
 Icosidesmus, *Humbert & Saussure*, 168.
 Idacantha, *Fairmaire*, 298.
 Idaspora, *Pascoe*, 274.
 Idiomorpha, *Förster*, 327 [-phus, *Doumet*, Lepidoptera, 1861].
 Idius, *Chaudoir*, 207.
 Ilyarachna, *Sars*, 616.
 Inliaculus, *Schaufuss*, 575.
 Interoecia, *Walker*, 497.
 Iphra, *Pascoe*, 291.
 Ischnocentrus, *Stal*, 492.
 Ischnorhina, *Stal*, 497.
 Isocolus, *Förster*, 322 [-culus, *Angelin*, Crustacea, 1854].
 Ixalidium, *Gerstäcker*, 471.
 Jagonia, *Récluz*, 587.
 Kaliapsis [Callihapsis], *Bowerbank*, 676.
 Keratoisis [Cer-], *Wright*, 664.
 Kissophagus [Ciss-], *Chapuis*, 284.
 Lachlania, *Hagen*, 453.
 Lachnocampa, *Wallengren*, 396.
 Ladislavia, *Dybowski*, 136.
 Lama ||, *Walker*, 386 [Cuvier, Mammalia, 1800].
 Lambertia ||, *Souwerbie*, 553 [Desvoidy, Diptera, 1863].
 Landemania, *J. E. Gray*, 110.
 Laodora, *Pascoe*, 290.
 Latrunculia, *Bocage*, 680 [-lus, *Gray*, Mollusca, 1847].
 Lebadia, *Walker*, 391.
 Lecanodiaspis, *T. Tozzetti*, 503.
 Lelis, *Chaudoir*, 207.
 Leptomysis, *Sars*, 613 [-za, *Macquart*, Diptera, 1835].
 Leptophara, *Stal*, 483.
 Leptopilina, *Förster*, 325.
 Leptorcheses, *Thorell*, 150.
 Leptosticta, *Stal*, 485.
 Leptostylis, *Sars*, 612 [-la, *Lioy*, Diptera, 1864].
 Leptothrix, *Menge*, 161.
 Lethobia, *Cope*, 114.
 Lethia ||, *Menge*, 162 [Hübner, Lepidoptera, 1816].
 Leucodiaspis, *Signoret*, 502.
 Leucosia ||, *Rambur*, 389 [Fabricius, Crustacea, 1798].
 Libunca, *Walker*, 402.
 Licinoma, *Pascoe*, 267.
 Lignodesia, *Rondani*, 441.
 Limulodes, *Mattheus*, 236.
 Liocyma, *Dall*, 585.
 Liodora, *Förster*, 322.
 Lioptera, *Chaudoir*, 207 [-rus, *Eschscholtz*, Coleoptera, 1833; -ron, *Perty*, Hymenoptera, 1830].
 Liposthenes, *Förster*, 323.
 Lipostomella, *Häckel*, 675.
 Lissonotus ||, *A. Agassiz*, 648 [Schönherr, Coleoptera, 1817].
 Lissoscarta, *Stal*, 494.
 Lithyphantes, *Thorell*, 161.
 Lobocampa, *Wallengren*, 396.
 Loganius, *Chapuis*, 284.
 Longurio, *H. Loew*, 430.
 Lophacris, *Scudder*, 471.
 Lophactis, *Verrill*, 666.
 Lophopelta, *Stal*, 487.
 Lophuca, *Stal*, 485.
 Lophyraspis, *Stal*, 485.
 Loricella, *J. E. Gray*, 658.
 Lovenella, *Hincks*, 655.
 Loxolomia, *Maassen*, 392.
 Loxopholis, *Cope*, 112.
 Lygæodon, *Puton*, 480.
 Lystris, *Cope*, 120 [-tra, *Fabricius*, Homoptera, 1803].
 Macheirocera [Machær-] ||, *Rondani*, 441 [Saussure, Orthoptera, 1859].
 Macrocentra, *Chaudoir*, 201.
 Macrothylacia, *Rambur*, 396.
 Massarella, *J. E. Gray*, 657.
 Mauremys, *J. E. Gray*, 110.
 Mauritia ||, *H. Adams*, 541 [Troschel, Mollusca, 1863].
 Megaglossa, *Rondani*, 441.
 Megalobrycon, *Günther*, 137.
 Megamphopus, *Norman*, 615.
 Melanochelys, *J. E. Gray*, 109.
 Melegena, *Pascoe*, 291.
 Mellissius, *Wollaston*, 251.
 Melytra, *Pascoe*, 267.
 Meneristes, *Pascoe*, 264.
 Mentisa, *Walker*, 478 [-issa, *Adams*, Mollusca, 1858].
 Mesistesoma, *Rambur*, 396.
 Mesophæa, *Pascoe*, 291.
 Metablax, *Candèze*, 255.
 Micraspius, *Dybowski*, 136 [-pis, *Chevrolat*, Coleoptera, 1834].
 Micrella, *Motschoulsky*, 235.
 Micridium, *Motschoulsky*, 235.
 Microcentrus, *Stal*, 492 [-um, *Scudder*, Orthoptera, 1862].
 Microcondylæa, *Vest*, 589.
 Micromystes, *Stal*, 500.
 Microneta, *Menge*, 161.
 Micropterogyna, *Rambur*, 389.
 Microschema, *Stal*, 487.
 Microstilba, *Förster*, 325.
 Miomæra, *Förster*, 327.

- Miscothyris ||, *Smith*, 317
 [*Shuckard*, Hymenoptera, 1840].
 Mithippia, *Pascoe*, 266.
 Monæses, *Thorell*, 152.
 Monosca, *Walker*, 402.
 Moreletia ||, *Folin*, 553
 [*Pfeiffer*, Mollusca, 1855].
 Muscanda, *Walker*, 479.
 Mychopoma, *Blanford*, 579.
 Mysideis, *Sars*, 613 [-dia, *Westwood*, Homoptera, 1840].
 Nanosella, *Motschoulsky*, 235.
 Nardopsis, *Häckel*, 675.
 Nedinoptera, *Förster*, 326.
 Nelus ||, *Kaup*, 245 [*Rafinesque*, Crustacea, 1814, Pisces, 1815].
 Nелеides, *Kaup*, 245.
 Nemobius, *Chapuis*, 284
 [-bia, *Serville*, Orthoptera, 1839].
 Nemophilus, *Chapuis*, 284.
 Neolampas, *A. Agassiz*, 649.
 Neophasia, *Behr*, 357.
 Neophlebia, *Selys*, 453.
 Neorhynchus, *Sclater*, 87.
 Nepharis, *Castelnau*, 239.
 Nephycta, *Förster*, 324.
 Nericonia, *Pascoe*, 291.
 Neritodryas, *Martens*, 554.
 Neritona, *Martens*, 554.
 Neritrema, *Récluz*, 549.
 Nesticus, *Thorell*, 161.
 Neuroctena, *Rondani*, 441
 [-nus, *Fieber*, Hemiptera, 1859].
 Neuronema. *M'Lachlan*, 449.
 Neurosigma, *Butler*, 365.
 Nilina, *Motschoulsky*, 240.
 Nisitra, *Walker*, 497.
 Norsia, *Walker*, 497.
 Nortonia, *Saussure*, 314.
 Nothomyia, *H. Loew*, 431.
 Nothopygus, *Lacordaire*, 291 [Notop-, *Holmgren*, Hymenoptera, 1855].
 Nototrachus [-chys, vel *Trachynotus* ||], *Rambur*, 388.
 Obdora, *Walker*, 403.
 Obila, *Walker*, 408.
 Ochrolomia, *Stal*, 485.
 Ochropepla, *Stal*, 492.
 Ochrostacta, *Stal*, 496.
 Octophthalmus, *Wood*, 165.
 Ocytasia, *Pascoe*, 291.
 Odontotropis, *Humbert & Saussure*, 168.
 Oetosis, *Pascoe*, 264.
 Oesymna, *Walker*, 408.
 Ogmius, *Cope*, 114.
 Oileus, *Kaup*, 244.
 Oligella, *Motschoulsky*, 235.
 Olina ||, *Walker*, 386 [*Desvoidy*, Diptera, 1850].
 Olynthium, *Häckel*, 674.
 Olynthus, *Häckel*, 674
 [-tha, *Gray*, Orthoptera, 1832].
 Omachthes, *Gerstäcker*, 312.
 Ommatomenus, *Higgins*, 288.
 Omochroa, *Rambur*, 388.
 [H] Omodactylus, *Des Cottes*, 215.
 Oncopygius, *Mik*, 436.
 Onychius, *Chapuis*, 284
 [-chia, *Hübner*, Lepidoptera, 1816; *Menke*, Mollusca, 1830; *Walker*, Hymenoptera, 1835].
 Oodimorphus, *Fairmaire*, 210.
 Opercularella, *Hincks*, 655.
 Ophiochæta, *Lütken*, 643.
 Ophiocondrus, *Lyman*, 644.
 Ophioconis, *Lütken*, 643.
 Ophiocreas, *Lyman*, 645.
 Ophiomitra, *Lyman*, 644.
 Ophiomusium, *Lyman*, 644.
 Ophiomyces, *Lyman*, 644.
 Ophionema, *Lütken*, 643.
 Ophionephthys, *Lütken*, 643.
 Ophiopsammus, *Lütken*, 643.
 Ophiothamnus, *Lyman*, 644.
 Ophryotrocha, *Clarapède*, 628.
 Opigenia, *Pascoe*, 266 [-na, *Boisduval*, Lepidoptera, 1840].
 Oreda, *Mulsant & Mayet*, 481 [*Oreda*, *White*, Coleoptera, 1846].
 Oreonympha, *Gould*, 67.
 Orimarga, *O.-Sacken*, 430.
 Ortonia, *Wood*, 165.
 Osphryon, *Pascoe*, 288.
 Othelosoma, *J. E. Gray*, 563.
 Oxydesmus, *Humbert & Saussure*, 168.
 Oxyodontus, *Chaudoir*, 207.
 Pachylischia, *Rambur*, 388.
 Pachyurus ||, *Humbert & Saussure*, 168 [*Agassiz*, Pisces, 1829; *Swainson*, Pisces, 1839; *Fitzinger*, Reptilia, 1843].
 Palæmonetes, *Heller*, 611.
 Panoplosceles, *Scudder*, 469.
 Paradolepas, *Macdonald*, 622.
 Paradoxus, *Stainton*, 416.
 Parajulus, *Humbert & Saussure*, 168.
 Paralonychurus, *Bocourt*, 130.
 Parapsammophila, *Taschenberg*, 316.
 Parapison, *Smith*, 317.
 Parapodium, *Taschenberg*, 316.
 Paratemnopteryx, *Saussure*, 460.
 Parerythropters, *Sars*, 613.
 Parlatoria, *Signoret*, 502.
 Paulia ||, *Stal*, 483 [*Gray*, Echinodermata, 1840].
 Pavonaria ||, *Kölliker*, 661
 [*Cuvier*, Polygastrica, 1817].
 Pediaphlœus, *Tournier*, 239.
 Pelidnopepla, *Stal*, 483.
 Pelochares, *Mulsant & Rey*, 243.
 Pentacrita, *Förster*, 326.
 Periclistus, *Förster*, 323.
 Peripristus, *Chaudoir*, 205.
 Perosuchus, *Cope*, 110.
 Pertinax, *Kaup*, 245.
 Pecten ||, *Crosse & Fischer*, 562 [*Günther*, 1862, Pisces].
 Petreius, *Kaup*, 246.
 Peuctetia, *Thorell*, 147.
 Pezophycta, *Förster*, 324.
 Phænoglyphis, *Förster*, 324.

- Pheronema, *Leidy*, 678.
 Phiarus, *Gerstacker*, 311
 [-ris, *Hübner*, Lepidoptera, 1816].
 Philæus, *Thorell*, 150.
 Philippia, *Signoret*, 502.
 Phlœosinus, *Chapuis*, 284.
 Phlœotherates, *H. W. Bates*, 204.
 Phlœoxena, *Chaudoir*, 206.
 Phlyda, *Pascoe*, 274.
 Phœoptera, *Boisduval*, 387.
 Phœnicus, *Lacordaire*, 292
 [-cia, *Desvoidy*, Diptera, 1863].
 Pholcomma, *Thorell*, 161.
 Phormophora, *Stal*, 492.
 Phoroneus ||, *Kaup*, 245
 [*Stal*, Hemiptera, 1865].
 Phrynidius, *Lacordaire*, 295.
 Phycodes, *A. M. Edwards*, 606.
 Phyllidiella, *Bergh*, 560.
 Phyllonethis, *Thorell*, 161.
 Phyllotropis, *Stal*, 488.
 Phylloxera ||, *Rambur*, 396
 [*Fonscolombe*, Homoptera, 1834].
 Phymatinus, *Leconte*, 274.
 Phymatopus, *Wallengren*, 397.
 Piana, *Walker*, 402.
 Piezobria, *Förster*, 329.
 Piezocnemus, *Chevrolat*, 272
 [*Piazocnemis*, *Lacordaire*, Coleoptera, 1866].
 Pilirothrix, *Förster*, 329.
 Pincia, *Walker*, 402.
 Pindis, *Felder*, 368.
 Platia, *Chaudoir*, 206.
 Platycotis, *Stal*, 484.
 Platypsyllus, *Ritsemā*, 179.
 Platypsyllus ||, *Westwood*, 179.
 Plectocerum, *Lacordaire*, 291.
 Plectromyia, *O.-Sacken*, 430.
 Podocidarid, *A. Agassiz*, 647.
 Podolasia, *Harold*, 249.
 Podospongia, *Bocage*, 679.
 Polycirrhus, *Bocourt*, 130.
 Polygyrella, *Bland*, 569.
 Polyphida, *Pascoe*, 291.
 Polyplocotes, *Westwood*, 260.
 Polyrrhyssa, *Stal*, 491.
 Pompholyxophrys [Pompholygo-], *Archer*, 682.
 Ponometia, *H.-Schaffer*, 402.
 Pourtalesia, *A. Agassiz*, 648.
 Pristacrus, *Chaudoir*, 205.
 Pristerophora, *Harold*, 249.
 Pristolomus, *Chaudoir*, 205.
 Procyrta, *Stal*, 492.
 Prolyctus, *Zimmermann*, 239.
 Promethis, *Pascoe*, 264.
 Pronopius, *Menge*, 162.
 Prosyncum, *Hekel*, 674.
 Protocystis, *Wallich*, 683.
 Psalanta, *Pascoe*, 291.
 Psammæchidius [Psammæcoïdus], *Fairmaire*, 240.
 Pseudacanthus, *Kaup*, 245.
 Pseudaspis, *Dybowskii*, 136
 [-pis, *Fitzinger*, Reptilia, 1843].
 Pseudectobia, *Saussure*, 459.
 Pseudhyperantha, *E. Saunders*, 253.
 Pseudino, *Fairmaire*, 240
 [-na, *Guénée*, Lepidoptera, 1852].
 Pseudocerva, *Schaufuss*, 573
 [-vus, *Hodgson*, Mammalia, 1841].
 Pseudopriacanthus, *Bleeker*, 128.
 Pseudospheg ||, *Taschenberg*, 316
 [*Hübner*, Lepidoptera, 1816].
 Psychacra, *Förster*, 328.
 Psilodora, *Förster*, 327
 [-dera, *Gray*, Diptera, 1832].
 Psychidea, *Rambur*, 390,
 [-dium, *Heer*, Coleoptera, 1841].
 Pterombrus, *Smith*, 318.
 Pterosagitta, *Costa*, 632.
 Ptichopus, *Kaup*, 245.
 Ptilocephala, *Rambur*, 390.
 Pucialia, *Walker*, 402.
 Purisiphonia, *Bowerbank*, 676.
 Pychnotrichia, *Förster*, 331.
 Pyrgidium, *Turnouer*, 550.
 Pyrgomantis, *Gerstacker*, 467.
 Raynerella, *J. E. Gray*, 665.
 Retihornera, *Kirchenspauer*, 597.
 Rhabdopleura, *Allman*, 597.
 Rhachianectes, *Cope*, 23.
 Rhaphidiophrys, *Archer*, 682.
 Rhaphidolabis, *O.-Sacken*, 430.
 Rhinops, *Hudson*, 624
 [-opsis, *Westwood*, Hymenoptera, 1843].
 Rhopalopleurus, *Chapuis*, 284.
 Rhoptromeris, *Förster*, 329.
 Rhoptropus, *Peters*, 113.
 Rhynchacis, *Förster*, 325.
 Rhyncholampas, *A. Agassiz*, 649.
 Rhynchonyx, *Peters*, 115.
 Rhyparoptera, *Stal*, 485.
 Robinsonia ||, *Nevill*, 553
 [*Grote*, Lepidoptera, 1866].
 Rupicilla, *Schaufuss*, 583.
 Sagora, *Walker*, 416.
 Salenocidarid, *A. Agassiz*, 646.
 Salica, *Walker*, 478.
 Salpinia, *Pascoe*, 291.
 Saltiga, *Walker*, 389.
 Sapholytus, *Förster*, 323.
 Sarbieria, *J. E. Gray*, 110.
 Sarcophyllum, *Kölliker*, 661
 [-la, *Stockhouse*, Polygastrica, 1795].
 Sarsielli, *Norman*, 619.
 Sarunga, *Walker*, 403
 [-ruga, *Walker*, Diptera, 1859].
 Saurites, *Peters*, 111.
 Scapteriscus, *Scudder*, 468.
 Sceptonidium, *Ricchiardi*, 660.
 Scytodopsis, *Stal*, 485.
 Selenephera, *Rambur*, 396.
 Semiope, *Pascoe*, 291.
 Serrimargo, *Chaudoir*, 205.
 Seuthes, *Pascoe*, 291.
 Silaon [Syl-], *Piccioli*, 317.
 Sinurus, *Chaudoir*, 205.

- [*-neura*, *Liroy*, Diptera, 1864].
Siphonella ||, *Issel*, 556 [*Macquart*, Diptera, 1835].
Smaragdia, *Issel*, 554 [*-dina*, *Chevrolat*, Coleoptera, 1834].
Soleniscus, *Häckel*, 674.
Sophonia, *Walker*, 497.
Souleyetia, *Récluz*, 583.
Spasalus, *Kaup*, 245.
Sperchia, *Walker*, 413 [*-chius*, *Rafinesque*, Crustacea, 1838].
Sphærella ||, *J. E. Gray*, 658 [*Conrad*, Mollusca, 1860].
Sphærocaulus, *Fairmaire*, 268.
Sphodroscarta, *Stal*, 497.
Stenocrobilus, *Gerstäcker*, 471.
Stephanocephalus, *Kaup*, 245.
Stephanopis, *Cambridge*, 152 [*-ops*, *Ehrenberg*, Rotatoria, 1830; *Newman*, Coleoptera, 1838].
Stereocyclops, *Cope*, 121.
Stibochiona, *Butler*, 364.
Stictocephala, *Stal*, 487.
Stictodepsa, *Stal*, 485.
Stictopelta, *Stal*, 485.
Stictoscarta, *Stal*, 496.
Stilbophora, *Stal*, 485.
Stratioceros [*-rus*], *Lacordaire*, 295.
Stychus, *Lacordaire*, 295.
Stylocordyla, *W. Thomson*, 677.
Stylomyia ||, *V. der Wulp*, 438 [*Westwood*, Diptera, 1850].
Sulcipalpus, *Harold*, 250.
Sycarium, *Häckel*, 674.
Sycidium, *Häckel*, 676.
Sycocystis, *Häckel*, 675.
Sycodendrum, *Häckel*, 675.
Sycolepis, *Häckel*, 675.
Sycometra, *Häckel*, 675.
Sycophyllum, *Häckel*, 675.
Sycorrhiza, *Häckel*, 675.
Sycothamnus, *Häckel*, 675.
Syloa [*see Silaon*].
Symphimus, *Cope*, 114.
Synaspis, *Förster*, 330.
Synlestes, *Selys*, 456.
Syntarsus, *Fairmaire*, 239.
Tafalla, *Walker*, 402.
Tamba, *Walker*, 403.
Tanaecia, *Butler*, 364.
Tantillus, *Chaudoir*, 205.
Tanylypa, *Pascoe*, 265.
Targionia, *Signoret*, 503.
Tarroma, *Häckel*, 675.
Tarrus, *Häckel*, 675.
Tautobriga, *Walker*, 402.
Tegteza, *Walker*, 403.
Teleolepis, *Cope*, 115.
Telescella, *J. E. Gray*, 665.
Temnorhinus, *Chevrolat*, 275.
Terametus, *Motschoulsky*, 265.
Teratolopis, *Günther*, 113.
Teredon, *Norton*, 332 [*-do*, *Linnaeus*, Mollusca, 1758].
Tethionea, *Pascoe*, 290.
Tetrarhoptra, *Förster*, 326.
Thalamitoides, *A. M. Edwards*, 607.
Thalma, *Walker*, 497.
Thecometra, *Häckel*, 675.
Thlaosoma, *Cambridge*, 152.
Thorius, *Cope*, 122.
Thylacigyna, *Rambur*, 389.
Tigriopus, *Norman*, 621.
Tinophyllus, *Fairmaire*, 266.
Tipra, *Walker*, 403.
Tisiphonia, *W. Thomson*, 677 [*-ne*, *Hübner*, Lepidoptera, 1816; *Fitzinger*, Reptilia, 1826].
Titanacris, *Scudder*, 471.
Titanocæa, *Thorell*, 157.
Titinia, *Pascoe*, 274.
Tomogonia, *Stal*, 492.
Tottenia }
Totteniana } *Perkins*, 585.
Trachyphlæosoma, *Wollaston*, 274.
Tradopia, *Baird*, 628.
Trichoderma ||, *Greeff*, 636 [*Stephens*, Coleoptera, 1835; *Swainson*, Pisces, 1839].
Tricholais, *Heuglin*, 84.
Trichopsyche, *Wallengren*, 390.
Trigonocidaris, *A. Agassiz*, 647.
Trigonogenium, *Harold*, 253.
Trimorphodon, *Cope*, 117.
Trischiza, *Förster*, 331.
Tritropidia, *Stal*, 484.
Trochobola, *O.-Sacken*, 430.
Trochonanina, *Mousson*, 563.
Tropidacris, *Scudder*, 471.
Tropidaspis, *Stal*, 485.
Tropidocardium, *Römer*, 586.
Tropidocera, *Stal*, 488.
Tropidolomia, *Stal*, 485.
Tropidoscyta, *Stal*, 485.
Trybliographa, *Förster*, 330.
Trypanus, *Rambur*, 397, [*-na*, *Guénée*, Lepidoptera, 1841].
Trypogeus, *Lacordaire*, 292.
Turbula, *Walker*, 402.
Turriga, *Walker*, 389.
Turuptiana, *Walker*, 391.
Tychocardia, *Römer*, 587.
Tyndarisus, *Pascoe*, 269.
Tynelia, *Stal*, 492.
Tyora, *Walker*, 500.
Typhlocharis, *Dieck*, 240.
Typhloteta, *Rambur*, 392.
Typhobia, *Pascoe*, 263.
Udana, *Walker*, 478.
Ulodica, *Pascoe*, 263.
Ulomorpha, *O.-Sacken*, 430.
Undulifer, *Kaup*, 245.
Urodeta, *Stainton*, 416.
Urophysalus, *Costa*, 632.
Uroxia, *Costa*, 649.
Urusa, *Walker*, 479.
Vasates, *Shimer*, 166.
Vasicola, *Tatem*, 681.
Vatinius ||, *Kaup*, 246 [*Stal*, Hemiptera, 1865].
Verrilliana, *J. E. Gray*, 659.
Verticaria, *Cope*, 111.
Vexillum, *Fol*, 668 [*-la*, *Swainson*, Mollusca, 1840].
Waldenia, *Sharpe*, 74.
Wardella, *J. E. Gray*, 658.
Xanthesthes, *Rambur*, 387 [*-tha*, *Dejean*, Coleoptera, 1833].
Xenopholis, *Peters*, 117.

Xestophanes, Förster, 323.	Xylechinus, Chapuis, 284.	Zelotypia, Scott, 397 [-pa Förster, Hymenoptera 1856].
Xinidium, Harold, 247.	Zacotus, Leconte, 211.	Zinna, Walker, 403.
Xiphopeneus, S. L. Smith, 611.	Zegriades, Pascoe, 290.	Zygosis, Förster, 331.

OMITTED FROM LISTS OF NEW GENERA, &c., IN FORMER
VOLUMES OF THE ZOOLOGICAL RECORD.

Buckleya, Higgins, ix. p. 162 [1872, Mollusca].
 Macruronus, Günther, viii. p. 103 [1873, Pisces].
 Psalistus, Gerstäcker, viii. p. 314 [1871, Coleoptera].
 Pyrrhosticta, Butler, ix. p. 339 [1872, Lepidoptera].

ADDENDA TO THE PRESENT VOLUME.

Page 425, in H. Loew's "Review of the North American *Trypetina*," Sm.
 Misc. Coll. No. 256, line 13 from bottom, add:—

Urophora scutellaris, Macq., nec Wied., is re-named *macquarti*, p. 267.

And to the list of new genera, *ibid.*, between lines 11 & 12 from bottom, add:—

Hexachæta, p. 219; type, *Trypeta eximia*, Wied.

Stenopa, p. 234, for [*Trypeta*] *vulnerata* (sp. n.).

Edicarena, provisionally adopted for [*Trypeta*] *tetanops* (sp. n.), p. 247.

Peronyma, p. 250, for *Trypeta sarcinata*, Lw.

Plagiotoma, p. 252: allied to *Acidia*. *Trypeta discolor* and *obliqua*, Say, and
 [*T.*] *biseriata* (sp. n.).

Blepharoneura, p. 272; ? = *Dasyneura*, Saund. Type, [*Trypeta*] *pæcilo-*
gastra (sp. n.).

Eurosta, p. 280, for *Trypeta solidaginis*, Fitch.

LIST OF THE
PRINCIPAL ABBREVIATED TITLES OF JOURNALS
QUOTED IN THIS VOLUME.

- Abh. Ak. Berl.*—Abhandlungen der k. Akademie der Wissenschaften zu Berlin.
- Abh. bayer. Ak.*—Abhandlungen der mathematisch-physikalischen Classe der k. bayerischen Akademie der Wissenschaften.
- Abh. Ges. Götting.*—Abhandlungen der k. Gesellschaft der Wissenschaften zu Göttingen.
- Abh. Ver. Hamb.*—Abhandlungen herausgegeben von dem naturwissenschaftlichen Verein zu Hamburg.
- Act. Soc. L. Bord.*—Actes de la Société Linnéenne de Bordeaux.
- Am. J. Conch.*—American Journal of Conchology.
- Am. J. Sci.* (3).—American Journal of Science and Art. Third series.
- Am. Nat.*—American Naturalist.
- An. Mus. B. Aires.*—Anales del Museo publico de Buenos Aires.
- Ann. Ent.*—Annuaire entomologique (Fauvel).
- Ann. Ent. Belg.*—Annales de la Société entomologique de Belgique.
- Ann. Lyc. N. York.*—Annals of the Lyceum of Natural History of New York.
- Ann. Mal. Belg.*—Annales de la Société malacologique de Belgique.
- Ann. Mus. Genov.*—Annali del Museo civico di Storia naturale di Genova.
- Ann. N. H.* (4).—Annals and Magazine of Natural History. Fourth series.
- Ann. Sci. Nat.*—Annales des Sciences Naturelles. 5me série.
- Ann. Soc. Agric. Lyon.*—Annales de la Société d'Agriculture, Histoire naturelle, &c., de Lyon. 4me série.
- Ann. Soc. Ent. Fr.* (5).—Annales de la Société entomologique de France. 5me série.
- Ann. Soc. L. Lyon (n. s.).*—Annales de la Société Linnéenne de Lyon. Nouvelle série.
- An. Soc. Esp.*—Anales de la Sociedad Española de Historia Natural.
- An. Univ. Chil.*—Anales de la Universidad di Chile.
- Arb. Inst. Würzb.*—Arbeiten aus dem zoologisch-zootomischen Institut in Würzburg.
- Arch. Anat. Phys.*—Archiv für pathologische Anatomie und Physiologie.

- Arch. f. Nat.* (2).—Archiv für Naturgeschichte. Neue Folge.
Arch. ges. Phys.—Archiv für die gesammte Physiologie des Menschen und der Thiere (Bonn).
Arch. Landesdurchf. Böhm.—Archiv für die naturwissenschaftliche Landesdurchforschung von Böhmen.
Arch. mikr. Anat.—Archiv für mikroskopische Anatomie.
Arch. Mus. Lyon.—Archives du Muséum d'histoire naturelle de Lyon.
Arch. Nat. Livl.—Archiv für die Naturkunde Liv- Ehst- und Kurlands.
Arch. Néerl. (and *Arch. sci. nat.*)—Archives Néerlandaises des Sciences exactes et naturelles.
Arch. Phys.—Archives de Physiologie normale et pathologique.
Arch. Ver. Mecklenb.—Archiv des Vereins der Freunde der Naturgeschichte in Mecklenburg.
Arch. Z. expér.—Archives de Zoologie expérimentale et générale.
Atti Acc. Nap.—Atti dell' Accademia di Scienze fisiche e matematiche di Napoli.
Atti Acc. Rom.—Atti della R. Accademia dei Lincei.
Atti Acc. Tor.—Atti della R. Accademia delle Scienze di Torino.
Atti Soc. Ital.—Atti della Società Italiana di Scienze naturali.
Atti Soc. Pad.—Atti della Società Veneto-Trentina di Scienze naturali.
- Ber. Ges. Chemn.*—Bericht der naturwissenschaftlichen Gesellschaft zu Chemnitz.
Ber. oberhess. Ges.—Sitzungsberichte der oberhessischen Gesellschaft für Natur- und Heilkunde.
Ber. senck. Ges.—Bericht der senckenbergischen naturforschenden Gesellschaft.
Ber. Univ. Warsch.—Warschauer Universitäts-berichte.
Ber. Vers. deutsch. Orn. Ges.—Bericht über die [] Versammlung der deutschen Ornithologen-Gesellschaft.
Ber. Vers. Natur.—Amtlich Bericht über die Versammlungen deutschen Naturforscher und Aertze.
Ber. St. Gal. Ges.—Bericht über die Thätigkeit der St. Gallischen naturwissenschaftlichen Gesellschaft.
B. E. Z.—Berliner entomologische Zeitschrift.
Bull. Ac. Belg. (2).—Bulletin de l'Académie Royale des Sciences de Belgique. 2me série.
Bull. Ass. Nat. Med. Nap.—Bulletino dell' Associazione dei naturaliste e Medici di Napoli.
Bull. Buff. Soc.—Bulletin of the Society of Natural Sciences, Buffalo.
Bull. Ent. Ital.—Buletino della Società Entomologica Italiana.
Bull. Ent. Ross.—Bulletin Societatis entomologicæ Rossicæ.
Bull. Mosc.—Bulletin de la Société impériale des Naturalistes de Moscou.
Bull. Mus. C. Z.—Bulletin of the Museum of Comparative Zoölogy (Cambridge, U. S. A.).
Bull. Pétersb.—Bulletin de la classe physico-mathématique de l'Académie impériale des Sciences de St. Pétersbourg.
Bull. Soc. Acclim. (2).—Bulletin de la Société d'Acclimatation. 2me série.
Bull. Soc. Angers.—Bulletin de la Société d'études scientifiques d'Angers.

- Bull. Soc. Ent. Fr.*—Bulletin des séances de la Société entomologique de France.
- Bull. Soc. Géogr.*—Bulletin de la Société de Géographie.
- Bull. Soc. Hortic. Var.*—Bulletin de la Société d'Horticulture et d'acclimatation du Var.
- Bull. Soc. L. N. Fr.*—Bulletin mensuel de la Société Linnéenne du Nord de la France.
- Bull. Soc. Moselle.*—Bulletin de la Société d'histoire naturelle du département de la Moselle.
- Bull. Soc. Neuch.*—Bulletin de la Société des sciences naturelles de Neuchâtel.
- Bull. Soc. Rouen.*—Bulletin de la Société des Amis des Sciences naturelles de Rouen.
- Bull. Soc. Vaud.*—Bulletin de la Société Vaudoise des Sciences Naturelles.
- Bull. Soc. Yonne.*—Bulletin de la Société des Sciences historiques et naturelles de l'Yonne.
- Canad. Ent.*—Canadian Entomologist.
- Canad. J. Sc. (n. s.).*—Canadian Journal of Science, Literature, and History. New series.
- Canad. Nat. (n. s.).*—Canadian Naturalist and Quarterly Journal of Science. New series.
- Cat. Mus. C. Z.*—Illustrated Catalogue of the Museum of Comparative Zoölogy (Cambridge, U. S. A.).
- CB. Ver. Regensb.*—Correspondenz-Blatt des zoologisch-mineralogischen Vereins in Regensburg.
- C. H.*—Coleopterologische Hefte.
- Cist. Ent.*—Cistula Entomologica.
- C. R.*—Comptes rendus hebdomadaires des séances de l'Académie des Sciences.
- CR. Ent. Belg.*—Comptes-rendus des séances de la Société entomologique de Belgique.
- Dan. Selskr. Skr.*—K. Danske Videnskabernes Selskabs Skrifter.
- Denk. Ak. Wien.*—Denkschriften der k. Akademie der Wissenschaften zu Wien.
- Ent.*—The Entomologist.
- Ent. M. M.*—Entomologist's Monthly Magazine.
- Fetschr. nat. Fr.*—Fetschrift zur Feier des hundertjährigen Bestehens der Gesellschaft naturforschender Freunde zu Berlin.
- Feuil. Nat.*—Feuilles des jeunes Naturalistes.
- Forh. Selsk. Chr.*—Forhandlinger i Videnskabs-Selskabet i Christiania.
- Gard. Chron.*—The Gardener's Chronicle.
- Geogr. MT.*—Mittheilungen aus Justus Perthes' geographischer Anstalt, &c
- Geol. Mag.*—Geological Magazine.
- Göteb. Handl.*—K. Vetenskaps och Vitterhets Samhälles Handlingar.
- Hor. Ent. Ross.*—Horæ Societatis Entomologicæ Rossicæ.

- Ibis*.—The Ibis.
- Izvest. Obsh. Iest. Mosk.*—Izvestia Imperatorskeio Obshtshestra Ljubiteloi Iestestvasnanija (Trans. Imp. Soc. Nat. Sci. Moscow).
- J. Anat. Phys.*—Journal of Anatomy and Physiology.
- J. A. S. B.*—Journal of the Asiatic Society of Bengal.
- JB. f. Mineral.*—Neues Jahrbuch für Mineralogie, Palæontologie und Geologie.
- J. Bot.*—Journal of Botany.
- JB. schles. Ges.*—Jahresbericht der schlesischen Gesellschaft für vaterländische Cultur.
- J. de Conch.*—Journal de Conchyliologie.
- J. de l'Anat. Phys.*—Journal de l'anatomie et de la physiologie.
- Jen. Z. Nat.*—Jenaische Zeitschrift für Medicin und Naturwissenschaft.
- J. f. O.*—Journal für Ornithologie.
- J. G. Soc.*—Quarterly Journal of the Geological Society.
- J. Geogr. Soc.*—Journal of the Royal Geographical Society.
- J. Hort. Soc. (n. s.)*—Journal of the Royal Horticultural Society. New series.
- J. L. S.*—Journal of the Linnean Society.
- J. Mus. Goddefr.*—Journal des Museum Goddefroy: Geographische, ethnographische und naturwissenschaftliche Mittheilungen.
- J. N. China Soc.*—Journal of the North-China Branch of the Royal Asiatic Society.
- J. Sc. Lisb.*—Jornal de Sciencias da Academia de Lisboa.
- J. Quek. Club.*—Journal of the Quekett Microscopical Club.
- J. Zool.*—Journal de Zoologie.
- L'Ab.*—L'Abeille.
- Mal. Bl.*—Malakozologische Blätter.
- MB. Ak. Berl.*—Monatsberichte der k. Akademie der Wissenschaften zu Berlin.
- Mél. Biol.*—Mélanges biologiques tirés du Bulletin de la classe physico-mathématique de l'Académie Impériale des Sciences de St. Pétersbourg.
- Mém. Ac. Belg.*—Mémoires de l'Académie Royale des Sciences de Belgique.
- Mem. Acc. Bologn.*—Memorie dell' Accademia di Scienze dell' Istituto di Bologna.
- Mem. Acc. Torin.*—Memorie della R. Accademia delle Scienze di Torino.
- Mém. Ac. Dijon (3)*.—Mémoires de l'Académie des Sciences, Arts, et Belles-lettres de Dijon. 3me série.
- Mém. Ac. Lyon.*—Mémoires de l'Académie des Sciences, Belle-lettres, et Arts de Lyon.
- Mem. Bost. Soc.*—Memoirs of the Boston Society of Natural History.
- Mém. Liége.*—Mémoires de la Société Royale des Sciences de Liége.
- Mém. Nat. Mosc.*—Mémoires de la Société impériale des Naturalistes de Moscou.
- Mém. Pétersb.*—Mémoires de l'Académie impériale des Sciences de St.-Petersbourg.

- Mém. Soc. Bord.*—Mémoires de la Société des sciences physiques et naturelles de Bordeaux.
- Mém. Soc. Cannes.*—Mémoires de la Société des sciences naturelles des Cannes.
- Mém. Soc. Cherb. (2).*—Mémoires de la Société des sciences naturelles de Cherbourg. 2me série.
- Mém. Soc. Hain. (3).*—Mémoires et publications de la Société des Sciences, &c., du Hainaut. 3me série.
- Mém. Soc. L. Norm.*—Mémoires de la Société Linnéenne de Normandie.
- Mém. Soc. Phys. Genève.*—Mémoires de la Société de physique et d'histoire naturelle de Genève.
- M. Micr. J.*—Monthly Microscopical Journal.
- MT. Ges. Ostas.*—Mittheilungen der deutschen Gesellschaft für Natur- und Völkerkunde Ostasiens (Yokohama).
- MT. schw. ent. Ges.*—Mittheilungen der schweizerischen entomologischen Gesellschaft.
- MT. Vorpomm.*—Mittheilungen aus dem naturwissenschaftlichen Verein von Neu-Pommern und Rügen.
- Nachr. Ges. Mosc.*—Nachrichten der k. Gesellschaft der Liebhaber der Naturkunde zu Moscau.
- Nachr. mal. Ges.*—Nachrichtsblatt der deutschen malako-zoologischen Gesellschaft.
- N. Arch. Mus.*—Nouvelles Archives du Muséum d'Histoire Naturelle.
- Nat. Mex.*—La Natureza.
- Nat. Tids.*—Naturhistorisk Tidsskrift.
- Nature.*—Nature.
- N. Denk. schw. Ges.*—Neue Denkschriften der allgemeinen schweizerischen Gesellschaft für die gesammten Naturwissenschaften.
- Ned. T. D.*—Nederlandsch Tijdschrift voor de Dierkunde.
- Niederl. Arch. Zool.*—Niederländisches Archiv für Zoologie.
- N. Mag. Naturv.*—Nyt Magazin for Naturvidenskaberne.
- Not. Fenn.*—Notiser ur Sällskapet pro Fauna et Flora Fennica Förhandlingar.
- Nouv. et Faits.*—Nouvelles et Faits divers.
- Nunq. Ot.*—Nunquam Otiosus.
- Œfvs. Ak. Förh.*—Œfversigt af K. Vetenskaps Akademiens Förhandlingar.
- Opusc. ent.*—Opuscula entomologica (Lund).
- Overs. Dan. Selsk.*—Oversigt over det K. Danske Videnskabernes Selskabs Forhandlingar.
- P. Ac. Philad.*—Proceedings of the Academy of Natural Sciences of Philadelphia.
- Pal. Soc.*—[Publications of the] Palæontographical Society.
- P. Am. Phil. Soc.*—Proceedings of the American Philosophical Society.
- P. Antiq. Scot.*—Proceedings of the Society of Antiquaries of Scotland.
- P. A. S. B.*—Proceedings of the Asiatic Society of Bengal.
- P. Berw. Club.*—Proceedings of the Berwickshire Naturalists' Field Club.

- P. Bost. Soc.*—Proceedings of the Boston Society of Natural History.
- P. Cal. Ac.*—Proceedings of the California Academy of Sciences.
- P. E. Soc.*—Proceedings of the Entomological Society of London.
- Pet. Nouv.*—Petites Nouvelles Entomologiques.
- Phil. Tr.*—Philosophical Transactions of the Royal Society.
- P. Liverp. Soc.*—Proceedings of the Literary and Philosophical Society and Natural History Society of Liverpool.
- Pop. Sc. Rev.*—Popular Science Review.
- P. R. Inst.*—Proceedings of the Royal Institution of Great Britain.
- P. R. Soc.*—Proceedings of the Royal Society.
- P. R. Soc. Edinb.*—Proceedings of the Royal Society of Edinburgh.
- P. Sc. Ass. Trinid.*—Proceedings of the Scientific Association of Trinidad.
- P.-v. Mal. Belg.*—Procès-verbaux des séances de la Société malacologique de Belgique.
- P. Z. S.*—Proceedings of the Zoological Society.
- P. Z. S. Vict.*—Proceedings of the Zoological and Acclimatization Society of Victoria.
- Q. J. Sc.*—Quarterly Journal of Science.
- Q. J. Micr. Sc.*—Quarterly Journal of Microscopical Science.
- Rec. Am. Ent.*—Record of American Entomology.
- Rend. Acc. Bologn.*—Rendiconto dell' Accademia di scienze dell' Istituto di Bologna.
- Rend. Acc. Nap.*—Rendiconti dell' Accademia di scienze fisiche e matematiche di Napoli.
- Rep. Br. Ass.*—Report of the British Association for the Advancement of Science.
- Rep. Ins. Illin.*—Annual Report on the noxious Insects of the State of Illinois.
- Rep. Ins. Mass.*—Annual Report on the injurious and beneficial Insects of Massachusetts, made to the State Board of Agriculture.
- Rep. Ins. Mo.*—Annual Report on the noxious, beneficial, and other Insects of the State of Missouri, made to the State Board of Agriculture.
- Rep. Ins. N. York.*—Report on the noxious, beneficial, and other Insects of the State of New York.
- Rep. Montrose Soc.*—Report of the Montrose Natural History and Antiquarian Society.
- Rep. Peab. Ac.*—Annual Report of the Trustees of the Peabody Academy of Arts and Sciences.
- Rev. Cours Sc.*—Revue des Cours scientifiques.
- Rev. d' Anthr.*—Revue d' Anthropologie.
- Rev. Montp.*—Revue des Sciences Naturelles (Montpellier).
- R. Z.*—Revue et Magasin de Zoologie pure et appliquée.
- SB. Ak. Wien.*—Sitzungsberichte der mathemat. naturwiss. Klasse der Akademie der Wissenschaften zu Wien.
- SB. Ges. Dorp.*—Sitzungsberichte der Dorpater Naturforscher Gesellschaft.

- SB. Ges. Isis.*—Sitzungsberichte der Naturwissenschaftlichen Gesellschaft 'Isis' zu Dresden.
- SB. Ges. Marb.*—Sitzungsberichte der Gesellschaft zur Beförderung der gesammten Naturwissenschaften zu Marburg.
- SB. nat. Fr.*—Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin.
- SB. Niederrhein. Ges.*—Sitzungsberichte der Niederrheinischen Gesellschaft für Natur- und Heilkunde zu Bonn.
- SB. Soc. Erlang.*—Sitzungsberichte der physicalish-medicinischen Societät zu Erlangen.
- SB. Ver. Rheinl.*—Sitzungsberichte des naturhistorischen Vereins der preussischen Rheinlande und Westphalens.
- Schr. Gesch. Bodens.*—Schriften für die Geschichte des Bodensees und seiner Umgebung (Lindau).
- Schr. Ges. Danz.*—Neueste Schriften des naturforschenden Gesellschaft zu Danzig.
- Schr. Ges. Königsb.*—Schriften der k. physikalisch-ökonomischen Gesellschaft in Preussen.
- Schr. Ver. Schlesw. Holst.*—Schriften des naturwissenschaftlichen Vereins für Schleswig-Holstein (Kiel).
- Sci. Goss.*—Science Gossip.
- Scot. Nat.*—The Scottish Naturalist.
- S. E. Z.*—Stettiner entomologische Zeitung.
- Sm. misc. Coll.*—Smithsonian miscellaneous Collections.
- Str. Feath.*—Stray Feathers.
- Sv. Ak. Handl.*—K. Svenska Vetenskaps Akademiens Handlingar.

Tijdschr. Ent.—Tijdschrift voor Entomologie.

Tr. Ac. St. Louis.—Transactions of the Academy of Sciences of St. Louis.

Tr. Am. Ent. Soc.—Transactions of the American Entomological Society.

Tr. Am. Phil. Soc. (n. s.).—Transactions of the American Philosophical Society. New series.

Tr. Conn. Ac.—Transactions of the Connecticut Academy of Sciences.

Tr. Ent. Soc. N. S. W.—Transactions of the Entomological Society of New South Wales.

Tr. E. Soc.—Transactions of the Entomological Society of London.

Tr. L. S.—Transactions of the Linnean Society.

Tr. N. H. Soc. Glasgow.—Transactions of the Glasgow Natural-History Society.

Tr. North. Dur.—Natural-History Transactions of Northumberland and Durham.

Tr. Norw. Soc.—Transactions of the Norfolk and Norwich Naturalists' Society.

Tr. N. York Agric. Soc.—Transactions of the New York State Agricultural Society.

Tr. N. Z. Inst.—Transactions and Proceedings of the New-Zealand Institute.

Tr. Odont. Soc.—Transactions of the Odontological Society.

Tr. R. Irish Ac.—Transactions of the Royal Irish Academy.

- Tr. R. Soc. Edinb.*—Transactions of the Royal Society of Edinburgh.
- Tr. R. Soc. Maur.*—Transactions of the Royal Society of Arts and Sciences of Mauritius.
- Tr. Wiscons. Ac.*—Transactions of the Wisconsin Academy of Sciences.
- Tr. Woolh. Club.*—Transactions of the Woolhope Naturalist's Field-Club.
- Tr. Z. S.*—Transactions of the Zoological Society.
- Verh. geol. Reichsanst.*—Verhandlungen der k. k. geologischen Reichsanstalt (Wien).
- Verh. Ges. Bas.*—Verhandlungen der naturforschenden Gesellschaft in Basel.
- Verh. Ges. Würzb. (2)*—Verhandlungen der physikalisch-medicinischen Gesellschaft in Würzburg. Neue Folge.
- Verh. Ver. Brünn.*—Verhandlungen des naturforschenden Vereins in Brünn.
- Verh. Ver. Regensb.*—Verhandlungen des zoologisch-mineralogischen Vereins in Regensburg.
- Verh. Ver. Rheinl.*—Verhandlungen des naturhistorischen Vereins der preussischen Rheinlande und Westphalens.
- Verh. z.-b. Wien.*—Verhandlungen der zoologisch-botanischen Gesellschaft in Wien.
- Versl. Ak. Amst.*—Verslagen en Mededeelingen der k. Akademie van Wetenschappen (Amsterdam).
- Vid. Medd.*—Videnskabelige Meddelelser fra den Naturhistoriske Forening.
- Viert. Ges. Zürich.*—Vierteljahrsschrift der naturforschenden Gesellschaft in Zürich.
- Würt. nat. JH.*—Württembergische naturwissenschaftliche Jahreshefte.
- Z. E. Vers. schles.*—Zeitschrift für Entomologie des Vereins für schlesische Insektenkunde.
- Z. geol. Ges.*—Zeitschrift der deutschen geologischen Gesellschaft.
- Z. ges. Naturw. (2)*—Zeitschrift für die gesammten Naturwissenschaften. Neue Folge.
- Zool. Gart.*—Der Zoologische Garten.
- Zool. Rec.*—Record of Zoological Literature (and Zoological Record).
- Zool. (s. s.)*—The Zoologist. Second series.
- Z. Parasit.*—Zeitschrift für Parasitenkunde (Jena).
- Z. wiss. Zool.*—Zeitschrift für wissenschaftliche Zoologie.

CONTENTS.



MAMMALIA. By EDWARD RICHARD ALSTON, F.Z.S.

	Page		Page
General Subject	1	Sirenia	13
Primates	6	Proboscidea	13
Chiroptera	7	Ungulata	14
Insectivora	9	Hyracoidea	17
Carnivora	9	Glires	17
Zeuglodontia	11	Edentata	19
Cetacea	11	Marsupialia	20

AVES. By R. B. SHARPE, F.L.S., F.Z.S., &c.

Bibliography and Criticism	21	Accipitres	44
General Subject	22	Psittaci	48
Palæarctic Region	24	Picariæ	49
Ethiopian Region	29	Passeres	53
Indian Region	30	Columbæ	66
Australian Region	34	Gallinæ	67
Nearctic Region	35	Grallæ	68
Neotropical Region	36	Anseres	70
Anatomy and Physiology	38	Struthiones	73
Oology	43	"Odontornithes"	74

REPTILIA. By A. W. E. O'SHAUGHNESSY.

General Subject	75	Ophidia	91
Chelonia	78	Pseudophidia	94
Crocodylia	85	Batrachia	94
Sauria	85		

PISCES. By A. W. E. O'SHAUGHNESSY.

General Subject:—		(Teleostei) Anacanthini	116
Classification, Anatomical and Physiological publications	99	" Pleuronectoidei	116
Piscatorial and Piscultural publications, and Faunæ	102	" Physostomi	117
Palæichthyes	105	" Lophobranchii	121
Teleostei, Acanthopterygii	105	" Plectognathi	121
" Acanthopterygii		Cyclostomata	122
Pharyngognathi	115	Leptocardii	122

MOLLUSCA. By PROF. EDUARD VON MARTENS, M.D., C.M.Z.S.

	Page		Page
General Subject	123	(Gastropoda) Cyclobranchia	150
Geographical Distribution	129	" Tectibranchia	151
Cephalopoda	140	" Nudibranchia	151
Heteropoda	141	Pulmonata	155
Gastropoda, Pectinibranchia	141	" Operculata	172
" Scutibranchia	148	Lamellibranchia	174

MOLLUSCOIDA. By PROF. EDUARD VON MARTENS, M.D., C.M.Z.S.

General Subject	179	Tunicata	180
Brachiopoda	179	Polyzoa	181

CRUSTACEA. By PROF. EDUARD VON MARTENS, M.D., C.M.Z.S.

General Subject, Morphology, Anatomy and Physiology	183	Phyllopoda	192
Contributions to Faunas	188	Ostracoda	193
Decapoda	189	Copepoda	193
Stomapoda	189	Siphonostoma	194
Amphipoda	189	Cirripedia	195
Isopoda	190	Araneiformia	196

ARACHNIDA. By the REV. O. P. CAMBRIDGE, M.A., C.M.Z.S.

General Subject	197	Solpugidea	210
Araneidea	197	Phalangidea	210
Thelyphonidea	209	Acaridea	211
Scorpionidea	210		

MYRIOPODA. By the REV. O. P. CAMBRIDGE, M.A., C.M.Z.S.

General Subject	212	Chilognatha	214
Chilopoda	213		

INSECTA. The General Subject. By E. C. RYE, F.Z.S. 215

COLEOPTERA. By E. C. RYE, F.Z.S.

	Page		Page		Page
General Subject	224	Phalacridæ	260	Heteroceridæ	268
Cicindelidæ	231	Nitidulidæ	260	Lucanidæ	268
Carabidæ	232	Trogositidæ	264	Scarabæidæ	269
Dytiscidæ	245	Colydiidæ	264	Buprestidæ	275
Gyrinidæ	248	Rhysodidæ	265	Eucnemidæ	278
Hydrophilidæ	248	Cucujidæ	266	Elateridæ	278
Paussidæ	250	Cryptophagidæ	266	Cebrionidæ	280
Staphylinidæ	250	Lathridiidæ	266	Dascillidæ	280
Pselaphidæ	257	Mycetophagidæ	267	Telephoridæ	280
Silphidæ	258	Thorictidæ	267	Cleridæ	283
Corylophidæ	258	Dermestidæ	267	Lymexylidæ	283
Trichopterygidæ	258	Byrrhidæ	267	Cupesidæ	283
Scaphidiidæ	258	Georyssidæ	267	Ptinidæ	283
Histeridæ	259	Parnidæ	267	Bostrychidæ	284

	Page		Page		Page
Cioidæ	284	Mordellidæ	292	Anthribidæ	319
Tenebrionidæ	284	Rhipidophoridæ	292	Bruchidæ	320
Cistelidæ	291	Stylopidæ	293	Cerambycidæ	322
Monommidæ	291	Cantharidæ	293	Chrysomelidæ	331
Pythidæ	292	Cedemeridæ	295	Erstyliidæ	339
Melandryidæ	292	Curculionidæ	295	Endomychidæ	341
Lagriidæ	292	Scolytidæ	319	Coccinellidæ	342
Anthicidæ	292	Brenthidæ	319		

HYMENOPTERA. By E. C. RYE, F.Z.S.

General Subject	344	Dorylidæ	357	Chalcididæ	366
Apidæ	346	Formicidæ	357	Proctotrypidæ	367
Vespidæ	351	Chrysididæ	359	Cynipidæ	368
Crabronidæ	352	Ichneumonidæ	359	Uroceridæ	368
Thynnidæ	356	Braconidæ	365	Tenthredinidæ	369
Mutillidæ	356	Evaniidæ	366		

LEPIDOPTERA. By W. F. KIRBY, M.E.S., &c.

General Notes	370	Sphingidæ	388	Saturniidæ	393
Papilionidæ	375	Ægeridæ	389	Bombycidæ	393
Pieridæ	376	Uraniidæ	389	Zeuzeridæ	395
Danaidæ	378	Castniidæ	389	Hepialidæ	395
Heliconiidæ	378	Zygaenidæ	390	Noctuidæ	395
Acræidæ	379	Nyctoolidæ	390	Deltoidæ	400
Nymphalidæ	379	Lithosiidæ	390	Geometridæ	401
Morphidæ	382	Arctiidæ	390	Pyralidæ	404
Brassolidæ	383	Liparidæ	392	Tortricidæ	406
Satyridæ	383	Psychidæ	392	Tineidæ	408
Erycinidæ	384	Notodontidæ	392	Pterophoridæ	413
Lycænidæ	385	Limacodidæ	392	Alucitidæ	413
Hesperiidæ	387	Siculodidæ	393		

DIPTERA. By E. C. RYE, F.Z.S.

General Subject	414	Tabanidæ	417	Dolichopodidæ	420
Cecidomyiidæ	415	Leptidæ	418	Syrphidæ	420
Mycetophilidæ	416	Therevidæ	418	Pipunculidæ	421
Bibionidæ	416	Scenopinidæ	418	Conopidæ	421
Chironomidæ	416	Acroceridæ	418	Muscidæ	421
Culicidæ	416	Bombyliidæ	418	Œstridæ	427
Limnobiidæ	416	Nemestrinidæ	419	Nycteribiidæ	427
Tipulidæ	417	Asilidæ	419	Pulicidæ	427
Stratiomyiidæ	417	Empidæ	420		

NEUROPTERA. By R. McLACHLAN, F.L.S.

General Subject	428	Pseudo-Neuroptera—		Psocidæ	434
Trichoptera	429	Thysanura	432	Perlidæ	435
Neuroptera-Planipennia	430	Mallophaga	433	Ephemeridæ	435
		Termitidæ	433	Odonata	435

ORTHOPTERA. By R. McLACHLAN, F.L.S.

General Subject	438	Mantidæ	439	Locustidæ	440
Forficulariæ	439	Phasmidæ	440	Acrydiidæ	442
Blattidæ	439	Gryllidæ	440		

RHYNCHOTA. By E. C. RYE, F.Z.S.

	Page		Page
Hemiptera—Heteroptera . . .	445	Hemiptera—Homoptera	460

VERMES. By C. F. LÜTKEN, Ph.D., F.R.D.A., &c.

	Page		Page		Page
Rotatoria	467	Turbellaria	478	Nematoda	490
Chætopoda	467	Trematoda	485	Acanthocephala	492
Discophora	478	Cestoida	487	Gephyrea	492

ECHINODERMATA. By C. F. LÜTKEN, Ph.D., F.R.D.A., &c.

General Subject	494	Echinidæ	497	Ophiuridæ	502
Holothuriidæ	496	Asteridæ	501	Crinoidæ	502

CELENTERATA. By C. F. LÜTKEN, Ph.D., F.R.D.A., &c.

Anthozoa	504	Octactinia	508	Ctenophora	515
Polyactinia	506	Hydrozoa	510		

PROTOZOA. By C. F. LÜTKEN, Ph.D., F.R.D.A., &c.

Spongozoa	517	Gregarinæ	528	Rhizopoda	529
Infusoria	521				

INDEX TO GENERA AND SUBGENERA DESCRIBED AS NEW, &c.	533
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INSECTA.

THE GENERAL SUBJECT

BY E. C. RYE, F.Z.S.

APPUN, K. F. Beiträge zur Insecten-Fauna von Venezuela und Britisch Guyana. Das Ausland, xlv. (1872) pp. 41-47, 67-70.

An account of the habits, &c., of the most conspicuous species of all Orders, from personal observation.

BAR, CONSTANT. Note controversive sur le sens de l'ouïe et sur l'organe de la voix chez les insectes. CR. Ent. Belg. xvi. pp. lxxxix.-cxii.

General observations, with (as the author admits) no definite conclusions, and only intended to keep the subject in view. Experiments on *Hymenoptera* are recorded, proving that humming can be produced artificially, after complete abstraction of the wings.

BAUDELLOT, E. Contributions à la physiologie du système nerveux des insectes. Rev. Montp. i. (1872).

Not seen by the Recorder.

BETHUNE, C. J. S., SAUNDERS, W., & REED, E. B. Report of the Entomological Society of Ontario, 1872, including a Report on some of the noxious, beneficial, and common insects of the province of Ontario, prepared for the Honourable the Commissioner of Agriculture on behalf of the Society. Printed by Order of the Legislative Assembly. Toronto: 1873, 4to, pp. 75, woodcuts.

Insects injurious to the grape, hop, maple, peach, and potato, and common and beneficial species, are discussed and illustrated by the usual (borrowed) cuts. Bethune gives introductory remarks on the *Insecta* generally, and briefly characterizes the chief groups of *Coleoptera*. Nothing novel is recorded.

DUNCAN, P. M. Insect Metamorphosis. Nature, vii. (1872) pp. 30-34, 50-53, figs. 1-8.

A lecture delivered at the meeting of the British Association, 1872

(not reported in Rep. Br. Ass.). The author enters at some length upon the structure of the stomach, cesophageal epithelium, &c. of insects in various stages.

EBELL, A. J. About Insects, and how to observe them. Salem, Mass.: 1873, 12mo, pp. 75, 36 woodcuts.

An elementary Treatise on structure and classification.

FITCH, ASA. Twelfth Report on the noxious, beneficial, and other insects of the State of New York; in Transactions of the New York States Agricultural Society, xxvii. (for 1867; 1868 on title), pp. 889-932.

Contains observations on the economy of *Ceresa bubalus*, F., *Gypona flavilineata*, Fitch, *G. octolineata*, Say (*Homoptera*); *Alaria florida*, Guen., *A. volupia*, sp. n., pp. 907 & 908, Indian Territory west of Arkansas (*Noctuidæ*; Lep.); *Pristophora rufipes* (?), St. F., and *Nematus 3-maculatus*, St. F. (*Tenthredinidæ*; Hym.), — on the last, at great length.

This and other reports by the same author have hitherto escaped record both in Zool. Rec. and in Rec. Am. Ent. The 13th Report, however, was published in 1869, *op. cit.* p. 494, and the 14th in 1870, *op. cit.* p. 355 [from notice in Bull. Soc. Ent. Fr. (5) iii. p. civ. There is no Report in the vol. of Trans. N. Y. Agric. Soc. for 1871].

GERSTAECKER, A. In 'Baron Carl Claus von der Decken's Reisen in Ost-Africa in den Jahren 1859-1865.' Dritter Band: Wissenschaftliche Ergebnisse. Zweite Abtheilung: Gliederthiere (Insekten, Arachniden, Myriopoden, und Isopoden). Leipzig & Heidelberg: 1873. 4to, pp. 542, pls. 18.

The *Insecta* occupy 460 pages, and 17 pls., discussing the *Orthoptera*, *Coleoptera*, *Hymenoptera*, *Lepidoptera*, *Diptera*, and *Hemiptera*, met with during the above-mentioned travels. Many species, and a few genera, are most improperly declared to be new, although they were characterized by the author in Arch. f. Nat. xxxvii. (1871). General observations are made (pp. 438-455) on the Insect-fauna of the Zanzibar district, and on the distribution of the *Insecta* in Africa, and (pp. 456-460) on the character of the Insect-fauna of Madagascar.

GIRARD, MAURICE. Les Insectes; Traité élémentaire d'entomologie, comprenant l'histoire des espèces utiles et de leurs produits, des espèces nuisibles et des moyens de les détruire, l'étude des métamorphoses et des mœurs, les procédés de chasse et de conservation. I. Introduction (pp. 1-240). Coléoptères (pp. 241-840). Paris: 1873, large 8vo, with atlas of 60 pls.

In addition to the points specified in the title, the first part contains accounts of the anatomy and physiology, nervous system, instinct and intelligence, geographical distribution, and classification of insects, and a chapter on insects considered palæontologically. There is also a supple-

mentary index of general citations referring to entomology. The *Coleoptera* are discussed in a general way, both European and Exotic genera and species being briefly described, especially if of noxious or useful habits. The plates, of which some are coloured, are chiefly from Guérin's edition of Cuvier's 'Iconographie.' Exhaustive summaries of the work are given in R. Z. (3) i. pp. xxv.-xxx. and (by F. Plateau) in CR. Ent. Belg. xvi. pp. xxxiii.-xxxvi. ; it is also well reviewed in Bull. Soc. Ent. Fr. (5) iii. p. cxcii., (by Kraatz) in B. E. Z. xvii. pp. 218 & 219, (by De Marseul) Nouv. et faits (2), p. 2, and (by Deyrolle) Pet. Nouv. pp. 288-290.

GLOVER, TOWNEND. Entomological Record, in Monthly Reports of the Department of Agriculture for the year 1873. Washington, 1873, 8vo, pp. 29-31, 164-166, 237-239, 345-351, 426-431, 496-499, 571-579 (*cf.* also p. 285), six woodcuts.

Practical observations on the spread of noxious species in N. America, and the means of destroying them.

GRABER, V. Ueber die Blutkörperchen der Insekten. SB. Ak. Wien, lxiv. (1871), pt. 1, pp. 9-44, pl.

The above is the reference to the paper on the subject mentioned in Zool. Rec. viii. p. 219.

— Vorläufiger Bericht über den propulsatorischen apparatus der Insekten. SB. Ak. Wien, lxxv. (1872) pt. 1, pp. 189-204, pl.

An anatomical and physiological outline of the circulatory system, with details of the structure of the cellular membrane and different component layers of the apparatus. Highly magnified figures of various parts of the blood-sinuses, &c., in *Apis mellifica*, *Anthophora*, *Locusta viridissima*, *Ædipoda cærulescens*, *Stethophyma grossum*, and *Chironomus plumosus* are given.

KALTENBACH, J. H. Die Pflanzenfeinde aus der Klasse der Insekten. II. Stuttgart: 1873, 8vo, pp. 289-848, woodcuts.

Completes the work mentioned in Zool. Rec. ix. p. 223 (*Daucus* to end of arrangement botanically). Lists are given of the vernacular and botanical names of the plants attacked; and of the Insects attacking them, arranged by Orders.

KIESENWETTER, H. VON. Entomologische Beiträge zur Beurtheilung der Darwin'schen Lehre von der Entstehung der Arten. B. E. Z. xvii. pp. 217-235.

Chiefly discusses the dimorphism of *Dytiscus*.

LE BARON, W. First Annual Report on the Noxious Insects of the State of Illinois, 1871. Second Report, 1872. Third Report, 1873 (76 pp.).

Not seen by the Recorder. From a notice in Canad. Inst. v. p. 235,

the last Report is of the usual American practical nature, discussing insects injurious to apple and cotton-wood, and containing also general 'Outlines of Entomology.'

LECONTE, J. L. Hints for the promotion of Economic Entomology in the United States. *Am. Nat.* vii. pp. 710-722.

This paper, read before the Portland meeting of the American Association, contains a historical review of American Entomological works, and many valuable suggestions for the further improvement of the practical works now published.

LOWNE, B. T. On the Structure of the Mouths of Insects. *Sci. Goss.* 1873, pp. 229-232, figs. 142-146.

The commencement of an illustrated explanatory series of observations, apparently intended for microscopists. Fig. 145, "The mandible of a predatory beetle," is an amalgamation of mandible, maxilla, 5-jointed maxillary palpus, and 3-jointed labial palpus.

LUBBOCK, Sir J. On the Origin and Metamorphoses of Insects. *Nature*, vii. pp. 446-449, 486-489, viii. pp. 31-33, 70-73, 107-109, 143-146, 167-169, 207-209, pls. i.-vi. & 63 figs. [also published separately, in "Nature Series," sm. 8vo, 1874].

After a general outline of the *Insecta*, and a comparison of the larvæ of various orders, the author comes to the conclusion that the form of the larva, whenever it departs from the hexapod *Campodea* type, has been modified by the conditions of its life; and, accordingly, that metamorphoses are either developmental or adaptive. The embryonic stage is compared with that of other *Articulata*. The ultimate conclusion is that the *Insecta* generally are descended from ancestors resembling *Campodea*, and that these have themselves arisen from others belonging to a type represented more or less closely by *Lindia* (*cf.* also a review by this author of A. S. Packard's 'Ancestry of Insects' in *Nature*, viii. pp. 249 & 250).

LUNGERSHAUSEN, LOUIS. Die Vertheidigungsmittel der Insectenwelt. *Das Ausland*, xliii. (1870), pp. 984-992.

An interesting general account of the means of self-defence possessed by insects.

MELDOLA, RAPHAEL. On a certain Class of Cases of Variable Protective Colouring in Insects. *P. Z. S.* 1873, pp. 153-162.

The author urges the adoption of Wallace's distinction between the terms "mimicry" and "protective resemblance," the former of which (the result of a "psychical mimetic adaptation," and not a *voluntary* imitation) is to be applied only to cases in which the object simulated is animate.

Instances of protective resemblance are classified under heads: 1, con-

stancy of characters both in imitator and imitated during life; 2, variation within small limits; 3, variation *once* during life; and 4, *periodic* change. Cases of variable protective colouring are given, chiefly in *Lepidoptera*.

MELDOLA, RAPHAEL. On the Amount of Substance-waste undergone by Insects in the Pupal State; with Remarks on *Papilio Ajax*. Ann. N. H. (4) xii. pp. 301-307.

Refers simply to experiments on *Bombyx quercus* and *Liparis dispar* (*Lepidoptera*).

MÜLLER, ALBERT. Contributions to Entomological Bibliography up to 1862. No. 1. Tr. E. Soc. 1843, pp. 207-217. Nos. 2 (pp. 15) & 3 (pp. 16) published separately, 8vo, London: 1873.

Additions (mostly unimportant) to Hagen's well known work.

MÜLLER, HERMANN. On the Fertilization of Flowers by Insects, and on the reciprocal adaptations of both. Nature, viii. pp. 187-189, 205 & 206, 433-435, ix. pp. 44-46, figs. 1-22.

Chiefly in connection with *Hymenoptera*. Highly magnified figures of the mouth organs in *Apis* and *Bombus* are given.

PAASCH, A. Von den Sinnesorgan der Insekten im Allgemeinen, von Gehör- und Geruchsorganen im Besonderen. Arch. f. Nat. xxxix. 1, pp. 248-275.

Contains a review of former publications on the senses of insects. No fresh discoveries or experiments are recorded.

PACKARD, JUNR., ALPHEUS S. Our Common Insects. Salem, Mass.: 1873. 12mo, pp. 220, 268 woodcuts.

A popular account of the more common Insects of the United States, with a calendar containing an account of injurious and beneficial species, their times of appearance, habits, &c. Chapter xiii. of this work, "The Ancestry of Insects," was printed in advance [see LUBBOCK, *suprà*], pp. 148-186, figs. 177-214. In it, the affinities of the *Insecta* to other Invertebrates are traced through the earlier stages, and the idea that the evolution hypothesis is opposed to a plan of creation is repudiated. The type of the *Articulata* is founded from similar development and structure between *Annelida* and *Crustacea* on the one hand, and *Annelida* and *Insecta* on the other.

— On the Cave Fauna of Indiana. Rep. Peab. Ac. v. p. 93.

Enumerates *Anthomyia* sp. ?, *Anophthalmus tenuis*, Horn, *Platymus marginatus*, with normal eyes (pupa also eyed), and *Ceuthophilus* (*Orthopt.*), sp. n.

— Record of American Entomology, for the year 1872. Salem, Mass.: 1873, 8vo, pp. 35.

(PACKARD, Junr., ALPHEUS S.) Third Annual Report on the Injurious and Beneficial Insects of Massachusetts, made to the State Board of Agriculture. Salem, Mass. : 1873, 8vo, pp. 27, 15 woodcuts.

Reprinted, with corrections, under the title 'Injurious and Beneficial Insects'; Am. Nat. vii. pp. 524-548. Insects injurious to the strawberry and bean, fruit and forest trees, and a few beneficial species are discussed, chiefly as to the larval state.

——. Directions for collecting and preserving Insects. Sm. Misc. Coll. No. 261 (Sept. 1873), pp. 60, 55 woodcuts.

Much of this is from the author's 'Guide to the Study of Insects.'

PERRIS, ÉDOUARD. Les Oiseaux et les Insectes. Mém. Liège (2) iii. [1873], pp. 673-730.

The above is the publication reference of this paper, noticed in Zool. Rec. ix. p. 227.

——. Résultats de quelques promenades entomologiques. Ann. Soc. Ent. Fr. (5) iii. pp. 61-98, 249-252.

These observations are the result of a week's stay early in July, 1872, near the Adour, in the Landes, and comprise interesting details of the habits, structure, and economy of insects of all orders. As a rule, the author is of opinion that no larva, under normal conditions, lives as such for more than 2 years: eggs of a *Cetonia*, laid in the spring of 1872, had hatched, and many of the larvæ assumed the pupal state in the middle of September of the same year, some few having even assumed the perfect state at that time. In a discussion of the subject of correcting evident errors in the construction of names of insects, the author states that the specific name of *Apion tamaricis* should be incontestably written *tamariscis*.

REED, E. B. [See BETHUNE.]

RILEY, C. V. Fifth Annual Report on the noxious, beneficial, and other Insects of the State of Missouri, made to the State Board of Agriculture, pursuant to an appropriation for this purpose from the Legislature of the State. Jefferson City, Mo. : 1873, 8vo, pp. 160 & viii., 73 woodcuts.

Contains a general introduction to Entomology, and instructions for collecting and preserving insects. The author continues his notices of various noxious species, especially as to their earlier stages and parasites.

RITZTEMA, J. Bijdrage tot de Kennis van de Entomologische Fauna der Noordzee-Eilanden. Tijdschr. Ent. (2) viii. pp. 248-256.

Enumerates species of *Orthoptera*, *Neuroptera*, *Coleoptera*, *Hymenoptera*, *Lepidoptera*, *Diptera*, and *Hemiptera* found in the islands Tessel, Terschelling, Ameland, Schiermonnikoog, and Rottum.

RONDANI, CAMILLO. Degli Insetti nocivi e dei loro Parassiti. Bull. Ent. Ital. v. pp. 3-30, 133-165, 206-232.

Completes the *Lepidoptera*, and in like manner discusses injurious *Coleoptera* and *Hymenoptera* and their various insect enemies.

SAUNDERS, H. [See BETHUNE.]

WEYENBERGH, H. Ueber ein zweiköpfiges monstrum (Larve von Chironomus) und über Insecten-monstra überhaupt. S. E. Z. xxxiv. pp. 452-458, fig.

After describing and figuring the double-headed larva above-mentioned, the author discusses various works on Insect monstrosities, coming to the conclusion that only one, a larva of *Bombyx mori*, can be considered a genuine monster, the others being mere deformities.

General observations on Insect instinct. Das Ausland, xliii. (1870) pp. 217 & 219.

Insect-music. Landois' observations (Nat. Ver. preuss. Rheinl. & Westph.) reproduced with comments; *op. cit.* pp. 429 & 430.

On the position of the centre of gravity in insects: a short statement of his theory by F. PLATEAU, Nature, v. (1872), p. 297. An abstract of the same author's observations on submersion, &c., of aquatic *Articulata* (Zool. Rec. ix. p. 226) is given by him in Ann. N. H. (4) xi. pp. 70-73.

A general account of the mouth-organs of insects by B. T. LOWNE, J. Quek. Club, iii. pp. 207-209.

Observations by P. PANCERI on the luminosity of the eyes of insects are discussed in Bull. Ent. Ital. pp. 57 & 58.

Hypermetamorphosis: general observations by J. LICHTENSTEIN, Bull. Soc. Ent. Fr. (5) iii. p. xxi.

Mimicry: *Salticus* and *Sima* (p. ix.), *Pentatoma* (p. xiv.); P. E. Soc. 1873.

On Insects useful to man, *cf.* GOUREAU, Bull. Soc. Yonne, xxvi. p. 3.

M. GIRARD'S 'Études sur les insectes carnassiers utiles,' Paris: 1873, 8vo, cut (extr. from Bull. Soc. Acclim.), and the same author's 'Rapport sur l'Exposition des Insectes de 1872 à Paris' (extr. from publications of Soc. des Agriculteurs de France), have not been seen by the Recorder.

Noxious and useful Insects. A paper by LETHIERRY, DESPRETZ, & others, entitled "Réponses à un questionnaire de la Société des Agriculteurs de France, sur les Insectes nuisibles ou utiles," extr. from the Archives du Comice agricole de Lille, is referred to in Bull. Ent. Fr. (5) iii. p. x.

In S. B. z.-b. Wien. xxiii. p. 9, is an abstract of a 'Bericht' of the Krakauer Landwirthschafts-gesellschaft, containing short notices of insects of all orders injurious to plants. A similar list in Bull. Soc. L. N. Fr. 1873, p. 151.

On destruction of insects injurious to vegetation, *cf.* YOL, C. R. lxxvi.

Insects used as food: general remarks by J. DE GAULLE, *Feuill. Nat.* iii. p. 125.

In ASA GRAY'S "Botany for Young People," Part II. (Salem, Mass.: 12mo, pp. 46, 40 cuts), is an account of the way in which insects are employed for the good of plants.

Fertilization of plants by insect agency [see H. MÜLLER, *suprà*]: W. E. HART, *Nature*, viii. pp. 49 & 50, 121, 244, figs. 1 & 2, F. E. KITCHENER, *l. c.* p. 143, A. T. MYERS, *l. c.* p. 202, A. W. BENNETT, *l. c.* p. 403, all in connection with *Viola*; W. A. FORBES, *l. c.*, Orchids; H. MÜLLER, *l. c.* p. 161, W. E. HART, *l. c.* p. 162, F. E. KITCHENER, *l. c.* p. 143, and an anonymous note, *l. c.* p. 121, all on *Nepeta glechoma*; T. H. FARRER, *l. c.* p. 162; *Lotus*. F. B. WHITE, *J. of Botany*, Jan. 1873, on distribution by insects, chiefly *Lepidoptera* (also *Am. Nat.* vii. p. 268); on insect fertilization of *Erica* and other plants with pulverulent pollen, *Ann. N. H.* (4) xii. p. 436 (abstr. of Kerner's paper, *Arch. Sci. Nat.* xlvii. p. 302).

For plan of an exhibition of the useful and noxious insects of North France, *cf. Bull. Soc. L. N. Fr.* 1872, p. 144, 1873, p. 187.

Economic entomology: note, *Nature*, vi. (1872) p. 197.

Insect-galls produced in Scotland are briefly described by J. W. H. TRAILL, *Scot. Nat.* ii. pp. 30-32, 78-80, 126-128, 170-173.

Fungoid growth. J. PEYRITSCH, *SB. Ak. Wien*, lxxviii. pt. i. pp. 227-254, pls. i.-iii., discusses the origin and growth of *Laboulbenia* in various insects, especially *Carabidae*; in continuation of a former notice by him, *op. cit.* lxiv. (1871) pt. 1, pp. 441-458, pls. 2, in which the same fungus is described in connection with *Diptera*.

The sea from Tunis to Italy covered with dead butterflies, moths, and dead dragonflies during a period of 5 days. J. S. Walker: *Ent.* vi. p. 457.

Geographical distribution. DE SÉLYS LONGCHAMPS (*Lepidoptera*), *CR. Ent. Belg.* xvi. pp. xxii.-xxv., advocates the adoption of an exact statistical local fauna, refusing to accept Staudinger's 60 per cent. as a definition of limit. ROELOFS, *op. cit.* pp. xxv.-xxix. discusses the theories of Koch & Murray. DE BORRE, *op. cit.* pp. xliii.-liii., generalizes, and advocates the formation of groups of faunas. General observations also by v. KIESENWETTER, *SB. Ges. Isis*, 1871-2, p. 171.

Captures:—In the Glenelg Valley, Inverness; P. CAMERON, *Scot. Nat.* ii. p. 61. East Berwickshire (*Coleoptera*, *Hymenoptera*, *Hemiptera*): J. HARDY gives a list in continuation of former accounts, with notes of localities, &c.; P. Berw. Club, vii. pp. 138-142. Cheviot Hills: a similar list, *id. op. cit.* pp. 152-156. Upper Carinthia: *Coleoptera* and *Hemiptera* observed by GÉHIN, PUTON, & TSCHAPECK; *Pet. Nouv.* p. 360. In A. BECKER'S 'Reise nach Baku, Lenkoran, Derbent, Madschalis, Kasum Kent, Achty,' *Bull. Mosc.* xlvi. 1, pp. 255-258, are lists of *Lepidoptera* and *Coleoptera* observed. Caucasus and eastern coast of the Caspian: J. FAUST, *Bull. Ent. Ross.* ix. pp. x.-xii. Results of excursions to the wood of Ficuzza and other places in Sicily recorded by G. P. MAROTT, *Bull. Ent. Ital.* v. pp. 180-197. Italy and S. France: F. WALKER continues his notes; *Ent.* vi. pp. 278, 403. California: G. R. CROTCH, *Pet. Nouv.* p. 311.

New Zealand. In R. TAYLOR'S 'Te Ika a Maui,' 2nd edn., London : 1870, 8vo, pp. 641-646, are brief notices of the most conspicuous indigenous species, with the native names. A coloured figure of *Diadema arge* is given. A sand-frequenting beetle, '*Mumutawa*,' is often entirely occupied by a fungus; dragon-flies frequent the sea-shore in great numbers, and are found dead on the wet sand, indicating the method by which fossil species have been imbedded; *Cicada* are found affected by *Sphaeria*; *Cynthia cardui* and *Sphinx convolvuli* occur; a striped Indian *Culex* has been imported, and no musquito is believed to be indigenous; the large blue flesh-fly has been introduced from England, *viâ* N. S. Wales; and it is noted that in a voyage from Sydney to London, 12 Australian species of insects arrived in sufficient numbers and good condition to propagate.

A list of 502 species of insects (of all orders except *Lepidoptera*) found previously to 1870, viz.:—*Coleoptera*, 265 species; *Hymenoptera*, 23; *Diptera*, 98; *Neuroptera*, 42; *Orthoptera*, 30; *Hemiptera-Heteroptera*, 22; *H.-Homoptera*, 22. F. W. Hutton, Tr. N. Z. Inst. vi. pp. 158-171.

Killing and Preserving. AUZOUX, Bull. Soc. Ent. Fr. (5) iii. p. clxxxi., recommends the use of a few drops of oil of bitter almonds in sawdust.

On collecting (chiefly as to the use of cyanide of potassium); T. L. MEAD, Canad. Ent. v. pp. 78-80.

To preserve insects in collections, P. STEFANELLI, Bull. Ent. Ital. v. pp. 53-56, woodcut, recommends the application of the essential oil of *Betula alba*, and mentions another mixture of essence of fennel, creosote, alcohol, camphor, and naphthaline as especially obnoxious to *Anthreni*. L. REYNAUD, Feuille. Nat. iii. pp. 107 & 121, advocates the use of patchouli. Carbolic acid in solution recommended, as a wash for boxes or card, to preserve specimens from attack: T. A. MARSHALL, Ent. M. M. x. p. 166.

On insect-mounting in hot climates: T. CURTIES & J. E. INGPEN, J. Quek. Club, iii., pp. 230-232 (immediate immersion in Canada balsam, without pressure, and exposure for a considerable time to rays of the sun, in the case of small species; slight pressure and drying in leaves of a book, immersion in spirits of turpentine, and mounting in balsam, for larger insects). Cf. R. C. R. Jordan, Ent. M. M. ix. p. 273.

Mounting insects on card advocated: T. J. BOLD, Ent. M. M. ix. p. 219.

On packing insects for transport: DOURS, Bull. Soc. L. N. Fr. 1872-73, p. 92.

On a cheap substitute for a cabinet: BELL, Canad. Ent. v. p. 136.

Stalks of *Typha latifolia* can be used instead of cork for insect boxes: H. B. MÖSCHLER, S. E. Z. xxxiv. p. 96.

Entomological desiderata: Bull. Soc. L. N. Fr. 1873, p. 183.

Nomenclature. D. SHARP, in a pamphlet on 'The Object and Method of Zoological Nomenclature,' London: 1873, 8vo, pp. 39, more particularly discusses the various opinions published on the subject of insect nomenclature. He considers that naturalists are at the present time justified in the attempt to establish a basis of permanent names; that genera are still so unsettled that their names cannot form a part of such permanent scheme; that the *first* generic and specific names together

form the (unalterable) specific name of any insect; and that such generic names as may be from time to time proposed should be used in addition to these two; thus reverting to a trinomial plan. H. VON KIESENWETTER, CR. Ent. Belg. xvi. pp. cxlvi.—cxlviii., denies that he invented or materially seconded the adoption of the principle of absolute priority. BREYER, *op. cit.* p. cxlviii., contradicts this denial. On the general question, *cf.* T. L. MEAD, Canad. Ent. v. pp. 18 & 108; W. H. EDWARDS, *op. cit.* pp. 21–36; H. K. MORRISON, *op. cit.* pp. 70 & 106; F. B. WHITE, Scot. Nat. ii. pp. 104–109; S. A. DE MARSEUL, Nouv. et faits. No. 40, and Bull. Soc. Ent. Fr. (5) iii. p. clix.

General observations on the definition of a species in entomology are given by C. P. DE LA BRÛLERIE (followed by A. FAUVEL & P. MABILLE) in Bull. Soc. Ent. Fr. (5) iii. pp. lviii.—lxii., lxxi.—lxxiv. No new opinion is advanced.

Hans Ström: Further account of his entomological works by HAGEN, S. E. Z. xxxiv. pp. 225–232, with list of species of all orders described by him.

COLEOPTERA.

BY

E. C. RYE, F.Z.S.

THE GENERAL SUBJECT.

BARGAGLI, P. Materiali per la Fauna Entomologica dell' Isola di Sardegna. Coleotteri. Bull. Ent. Ital. v. pp. 34–49, 88–97, 198–207, 244–256.

Cebrionidæ to end.

BATES, H. W. On the Geodephagous Coleoptera of Japan. Tr. E. Soc. 1873, pp. 219–322.

244 species of *Cicindelidæ*, and *Carabidæ* are now known from Japan, 120 of which are added in this paper, from the captures of Mr. G. Lewis. 9 genera out of the 84 in which these are contained are peculiar to the country, but no extensively endemic fauna is to be expected, as the islands are not geographically oceanic, the separation from Korea being narrow and shallow. In spite of the apparent similarity between Japanese species and those of Western Europe [see SHARP, *infra*], there is no identity between the two faunas; but there are distinct traces of affinity between the Eastern states of N. America and Japan.

——. Descriptions of new genera and species of Geodephagous Coleoptera, from China. *Tom. cit.* pp. 323–334.

BAUDI, FLAMINIO. Catalogo dei Dascillidi, Malacodermi e Teredili della Fauna europea e circummediterranea appartenenti alle collezioni del Museo Civico di Genova. Ann. Mus. Genov. iv. pp. 226-268.

Some new species are described, but many of them are not named. Varieties and localities are mentioned, with some synonymy.

— Coleopterorum messis in insulâ Cypro et Asia Minore ab Eugenio Truqui congregatæ recensitio: de Europæis notis quibusdam additis (Pars quinta). B. E. Z. xvii. pp. 317-338.

The author continues his remarks upon Coleoptera from the above specified localities (*Dasytides*—*Cioidæ*). New species are described.

BERTOLINI, S. DE. Catalogo sinonimico e topografico dei Coleotteri d'Italia. Firenze: 1873, pp. 45-92.

Published with Bull. Ent. Ital. v. This part includes from the *Staphylinidæ* to the *Cucujidæ*.

CROTCH, G. R. Check List of the Coleoptera of America, North of Mexico. Salem, Mass.: 1873 [on title: 1874 on cover]. 8vo, pp. 136.

Enumerates 7450 species, with alterations and synonyms. The *Coccinellidæ*, *Erotylidæ*, and *Endomychidæ* are treated as *Clavicornes*, and the system ends with the *Brenthidæ*: the *Bruchidæ*, under the name *Spermo-phagidæ*, immediately preceding the *Chrysomelidæ*.

— On the arrangement of the families of Coleoptera. P. Am. Phil. Soc. xiii. pp. 75-87.

Following Leconte in separating the *Rhynchophora* from the "*Coleoptera genuina*," on account of their anterior coxal cavities being closed by the junction of the epimera, and of their tarsal structure, the author divides the latter into *Heteromera* and *Isomera*, and the *Isomera* into *Tetramera* and *Pentamera*. The *Pentamera* are composed of *Lamellicornes*, *Clavicornes*, *Adephaga*, and *Serricornes*, thus respectively subdivided:—ADEPHAGA: *Cicindelidæ*, *Carabidæ*, *Pseudomorphidæ*, *Amphizoidæ*, *Haliplidæ*, and *Dytiscidæ* (all queried as sub-families of one group, chiefly on account of *Pelobius*, "a natatorial Amphizoid," which must either form a fresh family, or unite all the rest) *Rhyssodidæ* and *Gyrinidæ*. CLAVICORNES; *Hydrophilidæ*, *Leptinidæ* (anterior angles of thorax projecting under the head), *Platypsyllidæ*, *Sphæriidæ*, *Trichopterygidæ*, *Staphylinidæ* (*Piestides* queried as approaching the *Cucujidæ*), *Pselaphidæ*, *Silphidæ* ("*Clambus* is probably a family, and also *Leptoderus*"), *Brathinidæ* ("Form of *Scydmaenus*, but differing by the middle and posterior coxæ, and evidently forming a distinct family"), *Scydmaenida*, *Corylophidæ*, *Scaphidiidæ*, *Latridiidæ*, *Derodontidæ* (including *Peltastica* and *Phlæophilus*), *Dermestidæ*, *Endomychidæ*, *Triphyllidæ* (= *Mycetophagidæ*), *Cioidæ*, *Erotylidæ*, *Atomariidæ* (including *Telmatophilus*, *Silvanus*, *Psamm-*
1873. [VOL. X.]

æcus, *Biphyllus*, *Cucujus*, and *Scalidia*), *Monotomidæ*, *Bitomidæ*, *Colydiidæ* (including *Myrmecoxenus*, *Myrmidius*, and *Cossyphus*, — unless, as to the two latter, they should form separate families), *Rhizophagidæ*, *Trogositidæ*, *Nitidulidæ* (including *Byturus*, *Hesperobænus*, *Bactridium*, *Europs*, *Nomophæus*, and *Phyconomus*), *Micropeplidæ*, *Phalacridæ*, *Coccinellidæ*, *Cistelidæ* (= *Byrrhidæ*: *Anobium*, F., = *Byrrhus* proper, and *Byrrhus*, L., = *Anthrenus*, Geoffr.; “*Chelonarium* may form a separate family”), *Georyssidæ*, *Psephenidæ*, *Parnidæ*, *Elmidæ*, *Heteroceridæ*, *Histeridæ*. The LAMELLICORNES and SERRICORNES are not discussed. The *Tetramera* include *Cerambycidæ*, *Bruchidæ*, and *Chrysomelidæ*, “and their limits are hard to define.” In the *Heteromera*, possibly *Lagria* and *Allecula* (*Cistela*) should go in the *Tenebrionidæ*, and certainly *Nilo* in the *Pythidæ*. The *Rhynchophora* are still doubtful, probably being composed of *Anthribidæ*, *Curculionidæ*, and *Scolytidæ*.

A summary of Crotch's proposed arrangement is given in *Am. Nat.* vii. p. 432.

FAUVEL, A. *Annuaire Entomologique pour 1873*. Caen: 1873. 12mo, pp. 122.

Exclusively refers to *Coleoptera*, especially with reference to the ‘Gallo-rhénane’ district. It contains an almanac, a directory of living coleopterists (France, Belgium, Holland, Rhenish provinces, and Switzerland), an account of societies publishing entomological works, &c., bibliography (chiefly for the preceding year), a list of new species for the French fauna brought forward in 1872, synonymy (reproduced), a list of critical species, captures of interesting or rare beetles (including cave frequenters, specially), habits observed, hints on collecting and preserving, necrology, &c.

GEMMINGER, MAX, & HAROLD, E. VON. *Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus*. ix. pt. ii. pp. 2751–2988 [*Cerambycidæ*: *Prionini*, *Cerambycini*], x. pp. 2989–3232 [*Lamiini*; *Bruchidæ*]. Munich: 1873, 8vo.

For corrections and additions to vols. i.–iv., by Von Harold, *cf.* C. H. xi. pp. 106–109. Remarks on the whole work, and nomenclature, by Kraatz, B. E. Z. xvii. pp. 446–448.

GREDLER, V. *Dritte Nachlese zu den Käfern von Tirol*. C. H. xi. pp. 49–78.

Localities for and names of captors of various species found in the Tyrol, of which many are here so recorded for the first time. One new species is described, and some few synonymical observations, &c., are made.

HOCHHUTH, J. H. *Enumeration der in den russischen Gouvernements Kiew und Volhynien bisher aufgefundenen Käfer*. Art. iv. *Bull. Mosc.* xlvi. pp. 124–162.

This (posthumous) article comprises the *Scarabæidæ* and *Buprestidæ*.

JEKEL, H. *Coleoptera Jekeliana, adjecta Eleutheratorum Bibliotheca.* Énumération systématique & synonymique des Coléoptères européens & exotiques composant la collection de Henri Jekel; Observations critiques, descriptions d'espèces nouvelles, reproduction et traduction de genres et espèces publiés dans des ouvrages rares français et étrangers de manière à former insensiblement la Bibliothèque du Coléopteriste. Livrⁿ i. Paris: 1873. 8vo, pp. 96.

Pp. 1-7, plan of the work: pp. 9-18, '*Coleoptera Jekeliana, Staphilinides, Aleocharini.*' Pp. 19-28, observations on the author's collections, &c.; and on various *Aleocharides*, pp. 29-50, with descriptions of 11 new species of *Autalia*, *Falagria*, *Thiasophila*, *Aleochara*, *Tachyusa*, *Oxy-poda*, *Homalota*, and *Gyrophæna*, by the author; pp. 51-96, catalogue of *Coleoptera* collected in Sicily by T. Kotschy, with reproductions of descriptions by L. Redtenbacher and Klug [in error for Kollar], originally published in Joseph Russeger's '*Voyage en Europe, Asie, and Afrique, de 1835 et 1841.*' vol. i. The whole work is apparently lithographed *proprio manu* by the author (each species on a separate slip); and it is to be hoped that each entomologist will not take the hint and have a separate medium of publication of his own. In this instance, such a novelty as *cursing* a synonym not understood by the writer remains, for want of an editorial pen [p. 18]. For Reviews, *cf.* Bull. Soc. Ent. Fr. (5) iii. p. cxlvii.; Pet. Nouv. p. 326.

KIESENWETTER, H. VON. [See **KRAATZ.**]

KIRSCH, T. Beiträge zur Kenntniss der Peruanischen Käferfauna auf Dr. Abendroth's Sammlungen basirt. B. E. Z. xvii. pp. 121-152, 339-418.

General observations on the physical geography, &c., of the German colony of Pozuzu, in Peru (10° 2' S. Lat., 75° 3' W. Long.), by Abendroth; and descriptions of new genera and species, with references to others already known, as far as the *Anthribide*.

KRAATZ, G. Die Käfer Europa's. Nach der Natur beschrieben von Dr. G. Kraatz, im Anschluss an die Käfer Europa's von Dr. H. C. Küster. Heft xxix. Mit Beiträgen von H. v. Kiesenwetter. Nürnberg: March, 1873. 12mo, 101 separate numbered slips, with riders.

This continuation of a long dormant periodical is referred to in Zool. Rec. viii. p. 224. The present part contains full descriptions of South European *Dascillide*, *Malthinides*, *Malochiides*, and *Dasytides*, by Kiesenwetter, mostly of species whereof diagnoses were noticed in Zool. Rec. viii. [see p. 277], and a revision of *Dorcadion*, with upwards of 30 new species by Kraatz. The 30th Heft is to contain a general index for the last 10 parts, and any continuation of the work beyond that will depend on the material forthcoming from other entomologists: Kraatz, B. E. Z. xvii. p. 222. *Cf.* V. Harold, C. H. xi. p. 145.

(KRAATZ, G.) Deutungen einiger Käferarten 1817 beschrieben in Beck's Beiträgen zur bairischen Insekten-Fauna. B. E. Z. xvii. pp. 181-188.

The author endeavours to elucidate certain species described by Beck, *op. cit.*, and hitherto not noticed or misunderstood. These are:—*Pselaphus ruber*, = *Batrisus venustus*, Reich.; *Cryptophagus villosus*, ? = *Mycetea*, Marsh. (*C. villosus*, Heer, is a *Paramecosoma*, and *P. pilosulum*, Er., is identical with it); *Dorcatoma zumähusense*, ? = *affinis*, Sturm, and is prior in date; *Coccinella plagiata*, = *Scymnus discoideus*, Ill.; *C. decas*, = *bothnica*, Gyll., var., *d*; *Galeruca articulata*, ? = *Graptodera hippophaes*, Aubé, or *consobrina*, Duft. ; *Haltica chrysopygis*, = *Crepidodera modeeri*, L.; *Dircaea dorsalis*, = *Dryalia fusca*, Gyll.; *Elater fulvipes*, ? = *Agriotes gallicus*, Cast.; *Licus marginatus*, ? ? = *Erirhinus salicinus*; *Rhynchenus acanthion*, ? = *Trachodes hispidus*, L.; *R. teretifollis*, = *Bagous tempestivus*, Hbst.

——. Beschreibungen difformer oder sogenannter monströser Käfer. *Tom. cit.* pp. 429-434, pl. i.

Describes and figures deformities in the following species:—*Carabus scheidleri*, prothorax divided into 2 lateral and widely separated plates; *C. auratus*, entirely overgrown with *Acar*i; *C. roseri*, prothorax acuminate below the middle of left side, and another with basal joints of right antenna abbreviated; *C. sylvestris*, with left antenna 3-articulate; *C. arvensis*, with left antenna half the length of the right; *C. cancellatus*, with left elytron abbreviate, and bearing a process; *C. granulatus*, brachelytrous; *C. scheidleri*, var., with right fore-leg having a supplemental broad femur bearing two almost normal tibiae and tarsi; *C. cancellatus*, var., with left middle-leg bearing two incomplete supplemental limbs, starting from the coxa; *Calosoma investigator*, with left fore-leg inverted and the tibia almost invisible; *Nebria gyllenhali*, with the right maxillary palpus bearing two apical joints; *Hydaticus bilineatus*, with right middle-leg very minute; *H. cinereus*, with right hind-leg very short, and tarsi bi-articulate; *Geotrypes typhaeus*, with left side of prothorax undeveloped; *Hopatrum* sp., with prothorax amorphous; *Clytus liciatus*, with right hind tibia very minute, thickened, and bearing two tarsi, in one of which the claw-joint is split; *Lamia fairmairii*, with head perforated by a thorn (the work of *Enneoctonus collurio*); *Aphodius plagiatus*, with hard, thick filaments at apex of elytra.

LECONTE, J. L. Synonymical remarks upon North American Coleoptera. P. Ac. Philad. 1873, pp. 321-336.

The results of the author's further examination of European collections, extending to the commencement of the *Cerambycidae*. A few new species are briefly diagnosed.

MACLEAY, W. "Miscellanea Entomologica." Tr. Ent. Soc. N. S. W. ii. pp. 319-370.

Occupies the whole of part 5 of this volume, issued in 1873, and with the exception of an ant, relates exclusively to *Coleoptera*.

MARSEUL, S. A. DE. Répertoire des Coléoptères d'Europe décrits isolément depuis 1864. L'Ab. ix. (iii. 12^{me} sér.) pp. 1-60.

Commences the 2nd part ; *Pselaphidæ*—*Cryptophagidæ*.

MOTSCHOULSKY, VICTOR. Énumération des nouvelles espèces de Coléoptères rapportés de ses voyages. 12^{me} article, Bull. Mosc. xlv. pp. 466-482 [*Diaperidæ*]. 13^{me} article, *op. cit.* xlvii. pp. 203-252 [*Bruchidæ*].

The observations in Zool. Rec. ix. pp. 232 & 233, apply also to these posthumous papers.

NOWICKI, M. Beschreibung einer neuen Käferart nebst Ausweis der Literatur über die Käferfauna Galiziens. Krakau: 1872 & 1873. [Not seen by the Recorder.]

POUJADE, G. A. Note sur le vol de quelques Coléoptères. Ann. Soc. Ent. Fr. (5) iii. pp. 523 & 524, pl. xiv.

Describes and figures the various attitudes (especially as to the elytra) of *Staphylinus maxillosus*, *Necrophorus vespillo*, *Silpha sinuata*, *Onthophagus capra*, *Aphodius erraticus*, *Hister 4-maculatus*, and *Cetonia aurata*.

ROUGET, AUGUSTE. Sur les Coléoptères parasites des Vespides. Mém. Ac. Dijon (3) i. pp. 161-288.

After discussing the economy of the species of *Vespa* and *Polistes* occurring in France, the author gives in detail the history of *Quedius dilatatus*, *Rhipidophorus paradoxus*, and *Xenus vesparum*, mentioning also other insects accidentally found in wasps' nests.

SHARP, D. The Water Beetles of Japan. Tr. E. Soc. 1873, pp. 45-67.

Describes 49 species (included in 25 genera) of the *Dytiscidæ*, *Gyrinidæ*, and *Hydrophilidæ*, found by Mr. G. Lewis in Japan, and of which several are new. The number of species common to Europe and Japan is by no means inconsiderable ; and only 3 of the genera are unrepresented in the European or Mediterranean fauna.

———. The Coleoptera of Scotland. Scot. Nat. ii. pp. 44-48, 89-96, 137-144, 185-192.

Continues the former list, discussing *Trechus* to *Homalota* (pt.).

SCHREIDER, OSCAR. Käferfauna von Ramleh bei Alexandrien. SB. Ges. Isis, 1871-72, pp. 35-49.

A list of 175 species, contained in 111 genera, with localities, short references, and indications of novelties. 34 are new to Egypt, where *Steira*, Westw., and *Arthrostenus*, Sch., respectively recorded from the Cape of Good Hope and the Caucasus, also occur (p. 29).

———. Käfer des ägyptischen Binnenlandes. *Tom. cit.* pp. 49-52 (39 spp.).

———. Palästinensische Käfer. *Tom. cit.* pp. 52-54.

On the limits of the European fauna, as regards beetles: CR. Ent. Belg. xvi. p. xiv.

Island of Skye: Roelofs, *tom. cit.* p. cxiii., records some very common species.

Hamburg: Additions to the recorded species by H. Beuthin. S. E. Z. xxxiv. pp. 117-119.

A list of 164 species new to the Netherland fauna: J. Kinker, Tijdschr. Ent. (2) viii. Versl. pp. lxxvii.-lxxxiii.

Augsburg: G. Kittel, xx. J. B. Ver. Augsb. (1869), pp. 81-84, raises the recorded species to 2177 (B. E. Z. xvii. p. 223).

Département du Nord: De Norguet has published (Lille: 1873) a 2nd supplement to the Catalogue of *Coleoptera* of this district.

Maine-et-Loire: Gallois, Bull. Soc. Angers, ii. (1872) pp. 74, 76, & 83, commences an entomological fauna-list (*Coleoptera*).

Languedoc; Marquet, Bull. Soc. Toulouse, iii. (1869), pp. 84 & 135, commences a catalogue (confined to the *Carabidæ*), and gives notes on certain *Curculionidæ* of the district. These papers have not been seen by the Recorder.

A list of species (with observations) found during an excursion to Monte Pellegrino, near Palermo, by E. Ragusa, Bull. Ent. Ital. v. pp. 170-179.

Cuenca: a list of species taken by A. S. de Castro; Martinez y Saez, An. Soc. Esp. ii. pp. 70-75. Spanish localities for *Lagria glabrata*, *Dromius ramburi*, *Oodes hispanicus*, and *Meligethes elongatus* given by S. Uhagon, *tom. cit.* pp. 3 & 4.

St. Louis, Missouri: S. V. Summers, Canad. Ent. v. pp. 132-134, 145-147, 168-170, 190-192, commences a list of species found between St. Louis and Sedalia (omitting *Curculionidæ* and *Cerambycidæ*).

Short account of species from Osorno, Chili: T. Kirsch, SB. Ges. Isis, 1873, pp. 83 & 84.

Canterbury, New Zealand: A list of species, many new, and some genera new. *Aphodius granarius* is now common there. C. M. Wakefield, Tr. N. Z. Inst. vi. pp. 155-157.

Captures of rare or local species are recorded from various parts of England, by J. J. Walker, Ent. M. M. ix. p. 269, x. p. 83, J. Chappell, *op. cit.* ix. p. 270, G. C. Champion, *l. c.* p. 216, and *op. cit.* x. pp. 39 & 159, T. V. Wollaston, *l. c.* p. 112, (Holy Island) G. Johnston, P. Berw. Club, vii. p. 49, & J. J. Walker, Ent. M. M. x. p. 159; from Scotland, by G. C. Champion, *l. c.* p. 158; from Texel, Vlieland, and Schelling, in Tijdschr. Ent. (2) viii. Versl. pp. xix. & xx.; from Lek, Merwede, and Velzen, including some species new to the Dutch fauna, by Everts, *ibid.* pp. xxiii.-xxv. xxviii.-xxx.; from Calvados, by L. Bedel, Bull. Soc. Ent. Fr. (5) iii. p. cxciii.; from St. Quentin sand-hills, Bull. Soc. L. N. Fr. (1873) No. 15, p. 239; from the Paris district, by L. Bedel & Clair, Bull. Soc. Ent. Fr. (5) iii. p. lxxiv., and by H. & C. Brisout, *l. c.* pp. lxxxv. cix. cxxxix. clxii. & clxiii.; from Champagne, especially as to winter collecting and on use of cloth, by Le Brun, CR. Ent. Belg. xvi. pp. xix., xxxvi., lix.; from Cleves, by H. Fuss, B. E. Z., xvii. p. 445; from Provence, by Belon, Pet. Nouv. p. 215; from the French Alps, by

Ponson, Bull. Soc. Ent. Fr. (5) iii. p. clxx.; from Styria, by Kraatz, B. E. Z. xvii. p. 201; from the Grafschaft Glatz and Riesen Mountains, by W. Koltze, *op. cit.* pp. 206–210; from Gotha, by Kellner, *op. cit.* p. 211; and from the neighbourhood of Florence, by F. Piccioli, Bull. Ent. Ital. v. p. 52.

Monstrosities. *Rhagonycha melanura* with the left antenna bifurcate after an incrassate 6th joint, and *Carabus violaceus* with right posterior leg imperfectly developed: P. de Borre, CR. Ent. Belg. xvi. pp. xviii. & xix. figs. *Geotrypes vernalis* with aborted anterior tarsi, and the anterior tibiæ pointed: Mélise, *op. cit.* p. lxxxvi. *Hydrophilus piceus* with penultimate joint of one maxillary palpus produced internally, simulating the apical joint: Desquin, *op. cit.* p. cxliv. *Melolontha vulgaris*, hermaphrodite: Kraatz, B. E. Z. xvii. pp. 425–429, pl. i. figs. 21 & 21b. *Vesperus luridus*, with head abnormally elevated, the elevation perforated, and bearing a small 3rd eye: Kiesenwetter, *op. cit.* p. 435, pl. i. fig. 18. [See also KRAATZ, *suprà*.]

Notiophilus palustris, *Amara trivialis*, *Harpalus æneus*, and *Aleochara cuniculorum*; varieties in the Isle of Man, possibly the effects of isolation, E. C. Rye, Ent. M. M. ix. p. 243.

Cave-beetles. E. Abeille de Perrin, Bull. Soc. Ent. Fr. (5) iii. pp. xciv.–cxviii., replies to various criticisms by De la Brûlerie (Zool. Rec. ix. p. 235). The latter continues his account of explorations of the grottoes of Ariège; Pet. Nouv. pp. 267 & 271.

Observations on the typical importance of the *Carabidæ* and *Lamelli-cornia*, by Kiesenwetter, SB. Ges. Isis, 1873, pp. 81–83.

List of species injurious to the chestnut-tree: E. Perris, Pet. Nouv. p. 270.

Results of beating hornbeam hedges in the sunshine late in autumn recorded by Des Gozis, Feuill. Nat. iii. p. 134.

Collecting. Pet. Nouv. pp. 293–316; Le Brun, *l. c.*; Bauduer, CR. Ent. Belg. xvi. p. xxxviii.

Haury's fumigator recommended by T. Kirsch for disturbing beetles when hiding: SB. Ges. Isis, 1873, p. 35.

G. R. Crotch recommends sawdust, slightly alcoholized, or with a small quantity of carbolic acid, as packing for collecting or store-bottles: he also notices the practice of pouring plaster of Paris over cyanide of potassium in making "killing bottles." P. Bost. Soc. xv. p. 253.

Bethune, Canad. Ent. v. pp. 96–99, 115–117, 129–132, 193–196, 210–213. continues his reproductions of the descriptions of species from Kirby's 'Fauna Boreali-Americana,' with synonymic and other notes (*Galerucidæ*—*Cistelidæ*).

Seidlitz's 'Fauna Baltica' is reviewed by Suffrian, S. E. Z. xxxiv. pp. 65–69.

CICINDELIDÆ.

Tetracha euphratica: larva described by E. Mulsant & V. Mayet, Mém. Ac. Lyon, xix. (1871–72), pp. 314–318.

Cicindela maura: larva described; *id. l. c.* pp. 319–322.

Cicindela littoralis, F., var. *nemoralis*, OL., observed to be suddenly replaced by the more robust *C. hybrida*, L., on the latter arriving at the

perfect state: M. Girard, Bull. Soc. Ent. Fr. (5) iii. p. clxxxvi. A. Laboulbène, l. c. p. clxxxviii., notes the occurrence simultaneously of *C. hybrida* and the still more robust *C. sylvatica*.

Cicindela hybrida and *maritima* are quite distinct species, and full diagnostic characters are given for them. C. G. Thompson, Opusc. Ent. (v.) pp. 527 & 528.

Cicindela sturmi, Mén.: the lateral margins of elytra are lobed behind the shoulder in the ♀; S. Solsky, Hor. Ent. Ross. ix. p. 299.

Cicindela kaleea, Bates, occurs in China, and varr. of it are described: H. W. Bates, Tr. E. Soc. 1873, p. 323.

Cicindela lacerata, Chaud., = *hamata*; elytron of *C. pamphila*, Chaud. ("an undescribed species from Texas"), figured, with short diagnosis: J. L. Leconte, P. Ac. Philad. 1873, p. 321.

Cicindela argentata, F.; var. from Pozuzu (Peru), described by T. Kirsch, B. E. Z. xvii. p. 125.

Dromica (*Myrmecoptera*) *nobilitata*, Gerst., figured: V. d. Decken's Reisen, iii. pt. 2, pl. iv. fig. 1.

Omus lecontii, sp. n., Horn, Tr. Am. Ent. Soc. iv. p. 143, California.

Cicindela magdalene, Leconte, l. c. p. 321, ? N. Carolina; *C. lewisi*, H. W. Bates, l. c. p. 226, Japan: spp. nn.

CARABIDÆ.

Elaphrides.

Elaphrus punctatissimus, Lec., = *americanus*, Dej., *ex. typ.*; *Notiophilus aquaticus*, K., *nec L.*, = *semistriatus*, Say: Leconte, P. Ac. Philad. 1873, p. 321.

Notiophilus brevisculus, p. 299, E. Siberia, *sublævis*, p. 301, Samarcand, Solsky, Hor. Ent. Ross. ix.: spp. nn.

Carabides.

Nebria rubicunda: larva described by Mulsant and Mayet, Mém. Ac. Lyon, xix. pp. 322-325.

Nebria mæsta, Lec., = *castanipes*, K., = *sahlbergi*, Dej.; *Calosoma prominens*, Lec., = *peregrinator*, Guér.; *C. armatum*, Lap., = *alternans*, F.; *Carabus fulgidus*, Gebl., = *vietinghovii*, Adams, var.; *C. lapilayi*, Lap., *tatumi*, Mots., = *mæander*, Fisch. (*palustris*, Fisch., *teste* Crotch, Check List, p. 7); *C. ligatus*, K., *nec Germ.*, = *serriatus*, Say: J. L. Leconte, l. c. p. 322.

Nebria dehaani, Chaud., var. from Japan, named *punctatistriatus*; *C. multistriatus*, Mots., = *corvinus*, Mots., = *striatus*, Chaud., = *albrechti*, Moraw., = *japonicus*, Mots., but Morawitz's name to stand; *Nebria livida* occurs in Japan: H. W. Bates, Tr. E. Soc. 1873, p. 231 *et seq.*

Carabus deckeni, Gerst., figured; V. d. Decken's Reisen, iii. pt. 2, pl. iv. fig. 2.

Carabus fabricii and *depressus*: a hybrid suggested. Stierlin, MT. schw. Ent. Ges. iv. p. 152.

Carabus laticollis, Stm., = *illigeri*, Dej.; Kraatz, B. E. Z. xvii. p. 444.

Carabus variolatus, Costa, = *cavernosus*, Friv.; C. A. Dohrn, S. E. Z. xxxiv. p. 322.

Carabus elephas, Putz., = *riffensis*, Fairm. (described fully); L. Fairmaire, R. Z. (3) i. p. 331.

Carabus preysssleri, Duft. : Schaufuss, Nunq. Ot. ii. (1872), p. 278, names varieties of this species as *ambiguus*, *viridicinctus*, *improbatus*, *principatus*, and *superbus* : Harold, C.H. xi. p. 111.

Nebria macrogona, p. 235, *pulcherrima*, p. 236, spp. nn., H. W. Bates, l. c. Japan.

Leistus koziorowiczi, sp. n., C. P. de la Brûlerie, Ann. Soc. Ent. Fr. (5) iii. p. 252, Corsica.

Carabus yacoinus, p. 231, *maiyanus*, p. 232, H. W. Bates, l. c. Japan; *C. fausti*, Dohrn, S. E. Z. xxxiv. p. 781, Caucasus (? = *planipennis*, Chaud., *id. op. cit.* p. 322) : spp. nn.

Calosoma mikado, sp. n. (? = *cyanescens*, Mots.), H. W. Bates, l. c. p. 235, Japan.

Cythrines.

Damaster fortunii, Schaum, nec Adams, from Yokohama, is renamed *pandurus*; the dilated tarsi of ♂ *D. rugipennis* connect it with the *Coptolabrus* group of *Carabus* : H. W. Bates, l. c. p. 230.

Cychnus constrictus, Lec., = *interruptus*, Mén.; J. L. Leconte, l. c.

Cychnus rugiceps, sp. n., Horn, Tr. Am. Ent. Soc. iv. p. 143, Oregon.

Odontacanthides.

Casnonia ludoviciana, Sallé; re-described, and its habits in New Orleans noted, by S. V. Summers, Canad. Ent. v. pp. 61 & 62.

Casnonia flavicauda, sp. n., H. W. Bates, l. c. p. 303, Japan and China.

Galeritides.

Drypta lineola, Dej., var. from Japan named *japonica*; H. W. Bates, l. c. p. 303.

Planetes belongs here, and not to the *Helluonides* : *id. l. c.* p. 304.

Drypta setigera, Gerst., fig. 1, *Galerita procera*, G., fig. 2, *angustipennis*, G., fig. 3; V. d. Decken's Reisen, iii. pt. 2, pl. v.

Drypta formosana, sp. n., Bates, l. c. p. 333, Formosa.

Galerita japonica, sp. n., *id. l. c.* p. 304, Japan.

Helluonides.

The Australian genera and species reviewed by W. MacLeay, Tr. Ent. Soc. N. S. W. ii. p. 320.

Lachnoderma, g. n., *id. l. c.* p. 321. No differential characters given, and no affinities suggested. *L. cinctum*, *id. ibid.* Clarence River.

Helluosoma aterrimum, sp. n., *id. l. c.* p. 323, Cape York.

Gigadema dameli, sp. n., *id. ibid.* Cape York.

Ænigma parvulum, sp. n., *id. ibid.* "New Holland."

Brachynides.

Brachynus bicolor, Boh., occurs in Japan, and is a *Crepidogaster*; H. W. Bates, l. c. p. 307.

Pheropsophus kersteni, Gerst., figured; V. d. Decken's Reisen, iii. pt. 2, pl. iv. fig. 9.

Brachynus stenoderus (? = *longicornis*, Mots., 1860, nec Fairm., 1859), p. 305, *incomptus* and *lewisi*, p. 306, spp. nn., H. W. Bates, l. c. Japan.

Lebiides.

Cymindis reflexa, Lec., = *marginata*, K., = *cribricollis*, Dej.; *C. hudsonica*, Lec., = *unicolor*, K.: J. L. Leconte, P. Ae. Philad. 1873, p. 322.

Cymindis. Chaudoir, B. E. Z. xvii. pp. 53-120, monographs the species of this genus as restricted by him. *C. angusticollis* and *longicollis*, W. McL., are (dubiously) referred to *Xanthophæa*; *C. castanea*, Klug, to *Glycia*; *C. cayennensis*, Buq., *coriacea* and *pallidipes*, Chev., *gadelupensis* and *maculata*, Gory, *marginalis* and *variegata*, Dej., *pallipes* and *4-punctata*, Rche., to *Malisus*; *C. chevrolati*, Dej., and *nigrita*, Chaud., to *Pinacodera*; *C. deplanata*, Boh., and *tutelina*, Buq., to *Cymindoidea*; *C. inquinata*, Er., and *Lebia duponti*, Putz., to *benefica*, Newm.; *Dromius tridens*, Newm., and *Lebia civica*, Newm., to a new genus near *Sarothrocrepis*; *C. lineella*, Boh., (dubiously) to *Metaxymorphus*; *C. pusilla*, Dej., to *Axinopalpus*; *C. sulcicollis*, Duv., to *Apenes*. *Agonochila corticalis*, Chaud., = *curtula*, Er.; *Demetrida picea*, Chaud., = *dieffenbachi*, White; *C. servillii*, Sol., ? = *humeralis*, F., var.; *C. favieri*, Luc., ? = *axillaris*, F., local var.; a var. *armoricana* of *axillaris*, F., is described from Morbihan (p. 66); *C. seriepunctata*, Redt., = *palliata*, Fisch., var. *omiades*, Fald.; *C. designata*, Rche., = *marmoræ*, Géné, var.; *T. suturalis*, Mots., = *levistriata*, Luc.; *T. subovalis*, Mots., = *suturalis*, Dej., of which *setifensis*, Luc., is a var.; *C. discoidea*, Brullé, nec Dej., is renamed *discophora* (p. 72); *C. marginata*, Luc., nec Kby., is renamed *limbipennis* (p. 76); a var. *cyanoptera* of *C. miliaris*, F., is described from S. Europe (p. 88); a var. *impicta* of *C. repanda*, Zoubk., from the Baschkir district, is described (p. 93); *C. reflexa*, Lec., = *cribricollis*, Lec., = *marginata*, K.; Klug's types of *Trichis* have the tarsal claws simple, but Chaudoir's example has them distinctly pectinated on the anterior pair of legs.

Cymindis axillaris, F., var. *lineata*, Dej., from England; E. C. Rye. Ent. M. M. x. p. 83.

Synopsis of the French species: Des Gozis, Feuille. Nat. iii. pp. 128-131. The Mexican *Coptodera elevata*, Dej., is acclimatized at Marseilles.

Lebia bifenestrata, Mor., var. from Japan named *lucescens*, p. 319; *L. cruzminor* (near the var. *nigripes*) occurs in Japan, p. 320; *Scopodes*, Er., probably belongs to the *Pentagonicinae*, ibid. note; *Xenothorax*, Woll., = *Pentagonica*, S.-G., p. 321; H. W. Bates, Tr. E. Soc. 1873.

G. H. Horn, Tr. Am. Ent. Soc. iv. pp. 130-142, revises the species of *Lebia* found in the United States, upon the basis of Chaudoir's papers on the same genus in Bull. Mosc. *Dianchomena conjungens*, Lec., = *scapularis*, Dej., var.: *Lebia divisa*, Lec., is re-characterized; its exact generic affinities are uncertain, but it is not a *Singalis*, as Chaudoir surmised. Some of the latter author's species of *Lebia* are dubiously referred to known species.

Lebia deplanata, Gerst., fig. 4, *calycina*, G., fig. 5; V. d. Decken's Reisen, iii. pt. 2, pl. v.

Lebia poupillieri, Chev., = *maculata*, Dej., = *turcica*, F. var.; Raffray. R. Z. (3) i. p. 361.

Perigona, Cast. (*Nestra*, Mots., *Spathinus*, Nietn.), re-characterized, and *P. nigrifrons*, *ruficollis*, and *nigricollis*, Mots., and *pallida*, Cast., re-described: Putzeys, Ann. Mus. Genov. iv. pp. 218-224.

New genera and species :—

Paraphæa, H. W. Bates, *l. c.* p. 312 (*Callidinæ*): closely allied to *Endynomena*, from which it differs in the distinctly lobed base of the thorax. *P. signifera*, id. *ibid.* Japan.

Taicona, id. *l. c.* p. 314 (*Callidinæ*): nearest to *Bothynoptera*, but with a strongly toothed mentum. *T. aurata*, id. *l. c.* p. 315, Japan.

Mimodromius, Chaudoir, *l. c.* p. 55, note. Not characterized, but *Dromius cyanipennis*, Brullé (*Callida cyanoptera*, Sol.), *D. bicolor* and *aptinoides*, Brullé, *Callida chilensis*, Sol., and *Cymindis picta*, Dej., = *lepida*, Brullé, are referred to it.

Mnuphorus, id. *l. c.* *Tetragonoderides*: not characterized, but *Cymindis sellata*, Gebl., is stated to be its type, and a second species, from E. India, named *discophorus*, but not described, is also referred to it.

Sphalera, id. *l. c.* Separated from *Apenes* from its wanting a tooth in the emargination of the mentum. *Cymindis postica*, Dej.

Psammoxenus, id. *l. c.* p. 56. Differs from *Cymindis* in its labial palpi not being dilated, even in the ♂; its simple tarsal claws, and strong pubescence. *Tarus sabulosus*, Mots.

Trymosternus, id. *l. c.* p. 106. Differs from *Cymindis* chiefly in its excavated metasternum. *Cymindis onychina*, Dej., *C. minima*, Vuill., *C. cordata* and *truncata*, Ramb., *C. dilaticollis*, Luc.; and *T. plicipennis*, p. 109, Escorial Mountains, and *refleximargo*, p. 110, Sierra Nevada, Chaudoir, *l. c.* spp. nn.

Callida onoha, H. W. Bates, *l. c.* p. 317, Hiogo.

Stenonotum chalceum, Kirsch, B. E. Z. xvii. p. 125, Peru.

Cymindis africana, Tangiers, *distinguenda*, ? Greece, p. 63, *intermedia*, p. 78, Transcaucasia, *acutangula* [ta], p. 80, Basses Alpes, *limbatella*, p. 81, Eastern Pyrenees, *ruficeps*, p. 84, Sierra de Guadarrama, *violacea*, p. 88, no locality given (? = *Tarus perforatus*, Mots.), *villigera*, p. 96, Texas, Chaudoir, *l. c.*; *C. pictula* and *daimio*, Bates, *l. c.* p. 310, Japan; *C. ænea*, Cooma, N. S. Wales, *illawarræ*, Illawarra, W. MacLeay, Tr. Ent. Soc. N. S. W. ii. p. 320.

Singilis hirsutus, Bates, *l. c.* p. 333, Hongkong.

Dromius lateplagiatus, Fairmaire, R. Z. (3) i. p. 332, Algiers; *D. vectensis*, E. C. Rye, Ent. M. M. x. p. 73, English coast; *D. optimus*, Bates, *l. c.* p. 308, Japan; *D. (Lionychus) accentifer*, Raffray, *l. c.* p. 360, Boghari.

Apristus rufiscapis, *secticollis*, and *cuprascens*, Bates, *l. c.* p. 309, Japan.

Endynomena lewisi, id. *l. c.* p. 311, Japan.

Bothynoptera perforata, p. 313, *tripunctata*, p. 314, id. *l. c.* Japan.

Crossoglossa laticincta (also China), p. 315, *monostigma*, *cavipennis*, p. 316, *læsipennis*, p. 317, id. *l. c.* Japan.

Aphelogenia spraguii, Horn, *l. c.* p. 139, fig., Texas.

Dianchomena miranda, id. *ibid.* fig., Arizona.

Lebia idæ, p. 318, *sandaligera*, *comitata*, p. 319, Bates, *l. c.* Japan; *L. exigua* and *jucunda*, Kirsch, *l. c.* p. 126, Peru.

Lia exarata and *mesoxantha*, Kirsch, *l. c.* p. 127, Peru.

Tetragonoderus eximius, *id. l. c.* p. 128, Peru.

Pentagonica nigripennis, p. 320, *subcordicollis*, p. 321, Bates, *l. c.* Japan.

Perigona basalis, p. 223, Queensland, *livens*, p. 225, ? Coromandel, Putzeys, Ann. Mus. Genov. iv.

Pericalides.

Amphimenes, g. n., H. W. Bates, Tr. E. Soc, 1873, p. 322. (*Coptoderinæ*) Facies of *Stenognathus*, but with a bisetose ligula. *A. piceolus*, sp. n., *id. ibid.* Nagasaki.

Ozænides.

Eustra plagiata, Schm. G., occurs in Japan; *id. l. c.* p. 237.

Ditomides.

C. P. DE LA BRÛLERIE monographs this group; L'Ab. ix. (1873: sep. paging, 1-100. In the introduction, pp. i.-viii., are some synonymical rectifications in *Bembidium* and *Pristonychus*, quite out of place, and, as to the latter, already published by the author). The *Ditomides* are graminivorous, and very closely allied to the *Harpalides*, from which the author hesitates, indeed, to consider them quite distinct. *Melenus*, *Coscinia*, and *Apotomus* are not admitted as members of the group, which, as restricted, is especially found in the Mediterranean part of the old world. *Aristus haagi*, Heyd., = *capito*, Dej.; *A. perforatus*, Rche. & S., *nitidula*, Dej., and ? *talpa*, Redt., = *eremita*, Dej.; *A. trogositoides*, Duf., = *sphærocephalus*, Ol.; *A. subopacus*, Woll., ? = *clypeatus*, Brullé, nec Rossi. *A. elegans*, Coye, = *Ditomus modestus*, Schaum; *D. libanicola*, Mars., *bucidus*, Rche. & S., = *asiaticus*, Chaud.; *D. spinicollis*, Chaud., *frioli*, Sol., *calydonius*, Germ., = *3-cuspidatus*, F.; *Carterus* (a sub-genus only) *mandibularis*, *strigosus*, and *lucasi*, Reiche, = *interceptus*, Dej.; *D. affinis*, Ramb., = *rotundicollis*, Ramb., ♀; *D. cribratus*, Rche. & S., = *longipennis*, Chaud. *Chilotomus solitarius*, Peyr., is a *Penthus*. *Dregus* and *Graniger*, Mots., must be considered non-existent, as *D. nitidus* = *Pangus glebalis*, Coq., & *G. alginus* = *Coscinia semelederi*, Chaud. He characterizes the following new genus and species:—

Eriotomus, p. 72. Differs from *Carterus* in its villosity, simply cordiform thorax, variable ♂ anterior tarsi, &c. *Ophonus tomentosus*, Dej., *Ditomus caucasicus*, Dej., *D. rubens*, Fairm., = *Ophonus villosulus*, Rche., and *E. palæstinus*, sp. n., p. 78, Jaffa.

Aristus semicylindricus, p. 24, Dzoungaria, Chodshent, Erzeroum, *moloch*, p. 26, Syria.

Ditomus (Carterus) gilvipes, p. 59, Syria, Cyprus, Bône, and *validiusculus*, p. 66, Syria, Galilee.

Penthus peyroni, p. 96, Lebanon.

Anthiides.

Anthia hexasticta, Gerst., fig. 3, *cavernosa*, G., fig. 4, *Polyhirma spatulata*, G., fig. 5, *bihamata*, G., fig. 6, *lagenula*, G., fig. 7, *4-plagiata*, G., fig. 8; V. d. Decken's Reisen, iii. pt. 2, pl. iv.

Morionides.

Morio walkeri, p. 216, Ceylon, *brevior* and *doriæ*, p. 217, Borneo, *acuticollis*, p. 218, Bogos; Putzeys, Ann. Mus. Genov. iv. spp. nn.

Scaritides.

J. Putzeys, Ann. Ent. Belg. xvi. pp. 10-18, publishes a 2nd supplement to his general revision of the *Clivinides*. *Dyschirius binotatus*, Belta, = *substriatus*, Dft.

Scarites arenarius: larva described by Mulsant & Mayet, Mém. Ac. Lyon, xix. pp. 325-329.

Philoscaphus costalis, Nicol Bay, *lateralis*, S. Australia, spp. nn., W. MacLeay, Tr. Ent. Soc. N. S. W. ii. p. 324.

Carenum parvulum, Murrurundi, *foveipenne*, Gawler, p. 325, *digglesi*, Brisbane, *planipenne*, ? Port Wakefield, *lacustre*, Wagga Wagga, p. 326, *id. l. c.* spp. nn.

Scarites pacificus, sp. n., H. W. Bates, Tr. E. Soc. 1873, p. 238, Japan (? = *arenarius*, local race).

Gnathoxys punctipennis, sp. n., W. MacLeay, *l. c.* p. 327, S. Australia.

Scolyptus oblongus, p. 10, Sydney, *abbreviatus*, p. 11, Queensland, Putzeys, *l. c.* spp. nn.

Coryza beccarii, sp. n., *id. l. c.* p. 17, Bogos.

Dyschirius cheloscelis, p. 239, *steno*, *ordinatus*, p. 240, *hiogoensis*, *daimiellus* (also China), p. 241, *spherulifer*, p. 242, H. W. Bates, *l. c.*; *D. liguriensis*, Spezzia, *samharicus*, Massowah, p. 12, *stenoderus*, p. 13, Shanghai, *ovicollis*, Shanghai, *doriæ*, Sarawak, p. 14, Putzeys, *l. c.*: spp. nn.

Clivina niponensis, H. W. Bates, *l. c.* p. 239, Japan and China; *C. dolens* and *mærens*, p. 15, Shanghai, *curticollis*, p. 16, Bogos, *coronata*, p. 17, K. George's Sound, Putzeys, *l. c.*: spp. nn.

Schizogenius putzeysi, sp. n., Kirsch, B. E. Z. xvii. p. 129, Peru.

Panagæides.

Craspedophorus eustalactus, Gerst., figured; V. d. Decken's Reisen, iii. pt. 2, pl. v. fig. 6.

Platylytron [*Platel-*], g. n., W. MacLeay, *l. c.* p. 327, allied to *Craspedophorus*. *P. amplipenne*, sp. n., *id. l. c.* p. 328, King George's Sound.

Dischissus, g. n., H. W. Bates, *l. c.* p. 243. Facies of *Eudema*, but with bilobed 4th joint to all the tarsi in both sexes; differs from *Euschizomerus* in the lobes on hind feet being not so fully developed, and in the broadly toothed mentum. *D. mirandus*, sp. n., *id. l. c.* p. 244, Nagasaki, also *Peronomerus 4-notatus*, Mots.

Peronomerus nigrinus, sp. n., Bates, *l. c.* p. 245, Japan (= *fumatus*, local race).

Panagæus singularis, sp. n., *id. ibid.* Japan.

Chlæniides.

Chlænius chlorophanus, Dej., = *solitarius*, Say; *C. chlorophanus*, Lec., nec Dej., = *lecontii*, Dej., = *cordicollis*, K.; *C. quadricollis*, K., = *tricolor*, Dej., var.; J. L. Leconte, P. Ac. Philad. 1873, p. 325. *C. nicanus*, Mots., = *spoliatus*, Rossi; H. W. Bates, *l. c.* p. 249. *C. (Dinodes)*

azureus, Duft., var. n. *algericus*, Raffray, R. Z. (3) i. p. 361, Algeria. *C. soricinus*, Gerst., figured; V. d. Decken's Reisen, iii. pt. 2, pl. v. fig. 7.

Pristomachærus, g. n., H. W. Bates, l. c. p. 323. "Facies, colours, and punctuation of the *Chlenii*"; "Pedes *Chleniorum*." Maxillæ projecting as slender straight shafts far beyond the tip of the long and acute mandibles, and hooked at apex, before which they are armed with a few horny teeth: exterior lobe seems simple, as in *Callistus*. Type, *P. messi*, sp. n., *id. l. c.* p. 324, Hong Kong.

Chlenius abstersus, p. 247, *aspericollis*, *deliciolus*, p. 248, *callichloris*, p. 250, *C. (Epomis) culminatus* (also China), *noguchii*, p. 251, *ocreatus*, p. 252, *præfectus*, p. 253, Japan, *C. (Vertagus) spathulifer*, p. 324, *C. cyaniceps*, *prostenus*, p. 325, *postscriptus*, p. 326, China, *id. l. c.*; *C. proximus*, F. Martinez y Saez, An. Soc. Esp. ii. p. 54, Cuenca: spp. nn.

Oodes vicarius and *protixus*, spp. nn., Bates, l. c. p. 254, Hiogo.

Lachnocrepis japonicus, sp. n., *id. l. c.* p. 255, Japan and China.

Coptocarpus chauldoyi, Clarence River, *riverine*, Murrumbidgee, p. 329. *nitidus*, p. 330, Cape York, spp. nn., W. MacLeay, l. c.

Licinides.

Licinus silphoides: larva described by Mulsant and Mayet, Mém. Ac. Lyon, xix. pp. 329-333.

Dicælus intricatus, Chaud., = *sculptilis*, Say, northern race; *D. reflexus*, Lec., *opacus*, Ferté, = *ambiguus*, Fer.; *Badister peltatus*, Dej., nec Pz., = *flavipes*, Lec.; *Licinus silphoides* is certainly now American: J. L. Leconte, l. c. p. 324.

Rembus gigas, Japan, China, and I. Formosa (? = *zeelandicus*, Redt.), *elongatus*, China and Japan (connects *Eccoctogenius*, Chaud., with *Rembus*), spp. nn., H. W. Bates, l. c. p. 256.

Badister pictus, p. 257, *vittatus*, *marginellus*, p. 258, Japan, spp. nn., *id. l. c.*

Cnemacanthides.

J. PUTZEYS, Ann. Mus. Genov. iv. pp. 307-343, revises the Australian *Brosides*, in accordance with the collection of Castelnau now in the Municipal Museum of Genoa. The following synonymy is given:—*Merodema rectilineatum*, Putz., = *howitti*, Cast.; *Maoria*, C., = *Metaglymma*, Bates; *Promecoderus morosus*, P., = *brunneicornis*, Dj.; *P. concolor*, P., = *ovicollis*, C.; *P. puella*, P., = *neglectus*, C.; *P. lucidus*, P., = *suturalis*, C.; *P. minutus*, C., = *clivinoides*, Guérin; *Parroa*, C., P., = *Adotela*, C.

Mecynognathus, g. n., W. MacLeay, Tr. Ent. Soc. N. S. W. ii. p. 335. Allied to *Diocetes*, and considered to be as much out of place here or in the *Stomida*, as near *Acinopus*. An approach to *Luperca*, Cast., is suggested. Head and mandibles near equally the rest of the body: maxillary palpi as long as the mandibles. *N. dameli*, sp. n., *id. l. c.* p. 336, Cape York.

Brithy sternum, g. n., *id. l. c.* p. 366. In some respects resembles *Parroa*, Cast., but of very elongate form, with slight legs and largely produced sternum. *B. calcaratum*, sp. n., *id. l. c.* p. 367, Peak Downs, Australia.

Promecoderus parvulus, *riverinæ*, *interruptus*, p. 331, *hunterensis*, *mastersi*, p. 332, *inornatus*, *puncticollis*, *dorsalis*, p. 333, *anthracinus*, *olivaceus*, p. 334, spp. nn., *id. l. c.* Australia.

Adotela striolata, Roebuck Bay, *carenoides*, Port Denison, Putzeys, *l. c.* p. 341; *A. nigerrima*, W. MacLeay, *l. c.* p. 335, Percy Islands: spp. nn.

Cratocerides.

Trechus similis, K., = *Agonoderus comma*, F.; J. L. Leconte, *l. c.* p. 325.

Anisodactylides.

Harpalus laticollis, K., = *Anisodactylus nigerrimus*, Dej., and not *harrisi*, Lec.; *A. nigrita*, Lec., nec Dej., = *leontii*, Chaud., = *Harpalus interpunctatus*, K.; *id. l. c.* p. 325.

Dichirotrichus barbarus, Leder, = *præustus*, Dieck; V. Harold, C. H. xi. p. 146.

Maraga, Walker (re-characterized; and another species indicated), undoubtedly = *Orthogonius*: C. O. Waterhouse, Ent. M. M. x. p. 17.

Dichirotrichus tenuimanus, p. 259, Japan, *amplipennis*, p. 326, Shanghai; H. W. Bates, Tr. E. Soc. 1873, spp. nn.

Harpalides.

Acinopus revised by C. P. de la Brûlerie, Ann. Soc. Ent. Fr. (5) iii. pp. 255-266. 12 species are recognized (one new). *A. spinipes*, Fisch., = *amophilus*, Mén.; *A. lepeletieri* and *mauritanicus*, Luc., = *sabulosus*, F.; *A. rufitarsis* and *clypeatus*, Fisch., *eurycephalus*, Chaud., *tenebrioides*, Duft., *pasticus*, Germ., = *megacephalus*, Ill., nec Rossi, = *picipes*, Ol.; *A. lavipennis*, Fairm., = *grassator*, Coq.; *A. cylindræus*, Fairm., = *elongatus*, Luc.; *A. medius*, Reche., *emarginatus*, Chaud., = *megacephalus*, Rossi.

Isopleurus macleayi, K., is a *Selenophorus*; *Harpalus desertus*, Lec., = *ochropus*, K.; *Amara extensa*, Walker, = *H. obesulus*, Lec., = *H. basilaris*, K.; *Trechus flavipes*, K., = *Bradycellus rupestris*, Say; *T. immunis*, K., = *Stenolophus conjunctus*, Say: J. L. Leconte, *l. c.* pp. 324 & 325.

Harpalus ruficornis and *griseus* occur in Japan; *H. capito*, Mor., is to stand for *cephalotes*, Mots., pre-occupied; a var. of *Stenolophus proximus*, Dej., from Japan, is named *fulvicornis* (p. 269); Gemminger & V. Harold are wrong in placing *Platymetopus thunbergi*, Dej., as a syn. of *Dioryche torta*, Macl., and in separating the former from Quensel's species of that name: H. W. Bates, Tr. E. Soc. 1873, p. 260, *et seq.*

Harpalus 4-punctatus, Dej., new to Britain; T. Blackburn, Ent. M. M. x. p. 68. Note on its synonymy; E. C. Rye, *ibid.*

Harpalus tenebrosus, new to the Belgian fauna [erroneously stated to have been described as *H. atricornis* and *nigricornis* by Stephens, whose insect of those names is an *Anisodactylus*]; Putzeys, CR. Ent. Belg. xvi. p. cxiii.

Daptus vittiger, Böber, re-described: Käf. Europa's, xxix. 1.

Selenophorus scaritoides, Ziegl., re-described: *op. cit.* 2.

Acinopus mniszewski, sp. n., Brûlerie, *l. c.* p. 259, Tripoli.

Harpalus roninus, p. 260, *argutoroides*. p. 261, *platynotus*, p. 262, *chal-*

centus and *tinctulus* (both also from China), p. 263, *relucens* (also China), *rubefactus*, p. 264, spp. nn., H. W. Bates, *l. c.* Japan.

Selenophorus dorsalis and *punctiger*, spp. nn. Kirsch, B. E. Z. xvii. p. 130, Peru.

Ophonus planiusculus, sp. n., Kraatz, B. E. Z. xvii. p. 197, Thuringia.

Tachycellus anchomenoides, p. 265, *grandiceps*, p. 266, spp. nn., Bates, *l. c.* Japan.

Bradycellus læticolor and *fimbriatus*, p. 267, Japan, *sinicus*, p. 328, China, *id. l. c.* spp. nn.

Acupalpus inornatus, sp. n., *id. l. c.* p. 268, Japan and China.

Stenolophus castaneipennis, p. 269, *chalceus* (also China), p. 270, Japan, *connotatus*, p. 327, China, *id. l. c.* spp. nn.

Platymetopus corrosus, sp. n., *id. l. c.* p. 270, China and Japan.

Amblystomus (Megaristerus) guttatus, sp. n., *id. l. c.* p. 327, Foochow.

Trigonotomides.

Abarys. Chaudoir, Bull. Mosc. xlvii. p. 96, *et seq.*, restricts this genus to species having the hooks of the tarsi distinctly finely serrate, an exceptional character in the 'Féroniens *sensu stricto*,' with which he associates it.

Abar [*eo*] *idius*, g. n., Chaudoir, *l. c.* p. 97, differs from *Abarys* in the tooth of its mentum being simple, and its abdominal segments transversely furrowed; type, *Abarys tachypoides*, H. W. Bates.

Abarys basistriatus, sp. n., Chaudoir, *l. c.* p. 98, Brazil, Venezuela.

Oxycrepis dimidiata, sp. n., *id. l. c.*, p. 91, no locality mentioned.

Abacetus leucotelus, sp. n., H. W. Bates, Tr. E. Soc. 1873, p. 283, Japan and China.

Stomonaxys platynotus, sp. n., *id. ibid.* Japan.

Trigonotoma lewisi, p. 284, Japan, *chalceola*, p. 328, Hong Kong, *id. l. c.* spp. nn.

Feroniides.

Melanotus, Dej., *nec* Esch., = *Polpochila*, Sol.; J. Leconte, *l. c.* p. 324.

J. L. Leconte, P. Ac. Philad. 1873, pp. 302-320, revises the *Pterostichus* of the United States, chiefly with regard to his former Synopsis, of which he modifies the generic table by sinking *Pacilus* as a minor group, and elevating *Piesmus* to generic rank on account of the absolutely simple tooth of its mentum. A table is given of the 85 species of *Pterostichus* noticed, in which some synonymy is indicated. *P. castaneus* and *brunneus*, Dej., are practically identical; *P. protensus*, Lec., = *relictus*, Newm.; *P. muticus* and *simplex*, Lec., and *Brachystylus amplicollis*, Mots.; = *P. californicus*, Dej.; *P. subarcuatus* and *rejectus*, Lec., = *adoxus*, Say; *P. adjunctus*, Lec., and *flebilis*, Lec. (= *merens*, Newm.), = *coracinus*, Newm.; *Argutor brevicornis*, K., *fastidiosus* and *ochoticus*, Mann., = *mandibularis*, K. A list of unidentified species is given (p. 317), and a table of the species of *Evarthrus* (pp. 318 & 319). For observations on this revision, with a discussion of the sub-divisions of *Feronia*, see De Borre, CR. Ent. Belg. xvi. pp. cxxx.-cxxxii.

Feronia brunii, Crist., is a good species, and not a var. of *F. metallica*; Gredler, C. H. xi. p. 52.

Feronia (*Tapinopterus*) *martinezi*, Vuill., re-described and figured, from Cuenca: Martinez y Saez, An. Soc. Esp. ii. p. 56, pl. i. fig. 1.

Pæcilus cupreus and its allies: S. Solsky, Hor. Ent. Ross. ix. p. 303. *P. reflexicollis*, Gebl., from Eastern Siberia, must be held as a good species, if *P. cursorius*, Dej., be entitled to similar rank; both, however, in Solsky's opinion are local forms of *versicolor*, Stm.: *P. nitidicollis*, Mots., from E. Siberia, is a good species; and *P. cupreus*, Morawitz, from Jesso, and ? also *planicollis*, Mots., from Japan, must be referred to it.

Platyderus canaliculatus, Rott., = *Feronia sicula*, Levr.; G. Dieck, B. E. Z. xvii. p. 422.

Orthomus. Chaudoir, l. c. pp. 103-110, revises the species of this group. *O. longulus*, Woll., nec Reiche, is re-named *longior* (p. 105). *O. monogrammus*, Chaud., = *rubicundus*, Coq.; *O. numida*, Chaud., = *aquila*, Coq.

Phorticosomus minutus and *lateralis*, Cast., are to be referred to *Simodontus*; other species described by Castlenau should be placed near *Heteracantha*: Chaudoir, l. c. p. 113.

Stereocerus similis, K., = *Feronia* (*Amara*) *hæmatopus*, Dej.; *Cyrtognotus brevilabris*, K., and ? *Amara lacustris*, Lec., = *rufimanus*, K.; *C. convexiusculus*, K., nec Msh., = *laticollis*, Lec.; *Amara libera*, Lec., = *lævistriata*, Putz., = *C. (Bradytus) latior*, K.; *A. vulgaris*, K. nec Pz., = *lævipennis*, Lec., nec K., and requires re-naming; *A. discors*, K., = *chalcea*, Dej.; *A. erratica*, Lec., = *lævipennis*, K.; *Isopleurus nitidus*, K., = *A. subænea*, Lec.; Leconte, l. c. pp. 323 & 324.

Zabrus gibbus. Observations on habits, especially of the larva, at Essen, near Borbeck. Das Ausland, xlii. (1869), pp. 260 & 261.

Harpalus despectus, Sahlb., is not *Amara municipalis*, Dfts., as Mäklin avers [Zool. Rec. ix. p. 246], but = *A. quenseli*, Sch., and *litorea*, Thoms.: J. Sahlberg, S. E. Z. xxxiv. p. 62.

Stolonis. Chaudoir, Bull. Mosc. xlvii. pp. 85-90, supplements H. W. Bates's observations [Zool. Rec. viii. p. 238]. *Anchonemus dimidiaticornis*, Dej., belongs to this genus.

Cynthidia, g. n., Chaudoir, l. c. p. 91. Differs from *Feronia* in its convex thick labrum, which is always metallic in front, its eyes converging in front obliquely, and its deep frontal sulci. *Feronia cancellata*, Brullé, = *Pæcilus croceipes*, Pty., *F. depressa*, Wat., = *subsulcata*, Brullé, = *P. planodiscus*, Pty. (of which a var. *pampicola* is described, p. 95), and *C. octocola*, pp. 95, interior of Brazil, and Ega, and *C. foveata*, p. 96, Amazons spp. nn.

Pseudabarys, subg. n. of *Feronia*, Chaudoir, l. c. p. 99. Facies of certain *Selenophori*, but allied to *Orthomus* and *Simodontus*, differing in the much shorter antennæ, the unipunctate 3rd interstice of the elytra, and metallic colouring. Type, *Abarys robustus*, H. W. Bates, and *P. brasiliensis*, Brazil, *mexicanus*, Mexico, p. 101, *columbicus*, Venezuela, *lebasi*, Carthagena, p. 102, *substriatus*, p. 103, Cuernavaca, Chaudoir, l. c. spp. nn.

Ophryosternus, sub-g. n. of *Feronia*: *id.* l. c. p. 115. Intermediate between *Simodontus* and *Ceneus*. *O. sulcatulus*, sp. n., *id. ibid.*, Moreton Bay.

Stolonis intercepta, sp. n., *id.* l. c. p. 87, Yucatan.

Pterostichus tarsalis, Sierra Nevada, *crenicollis*, Washington Territory and Vancouver, p. 311. *longulus*, Colorado, *scutellaris*, California, p. 312, *spraguii*, Nevada, *horni*, S. E. California, p. 313, *obesulus*, Georgia, *pennsylvanicus*, Pennsylvania, *corrusculus*, Massachusetts, p. 315; Leconte, l. c. spp. nn.

Pæcilis encopoleus, sp. n., Solsky, l. c. p. 306, E. Siberia.

Abax (?) *sulcipennis*, sp. n., W. MacLeay, Tr. Ent. Soc. N. S. W. ii. p. 368, Richmond River, Australia.

Pterostichus (*Lagarus*) *procephalus*, p. 285, *P.* (*Argutor*) *longinquus* (also China), *P.* (*Lyperus*) *neguchii*, p. 286, *P.* (*Omasus*) *thorectes*, p. 287, *P.* (*Steropus*) *tropidurus*, p. 288, *P.* *sphodriformis*, p. 289, *yoritonus*, p. 290, spp. nn., H. W. Bates, Tr. E. Soc. 1873, Japan.

Lophoglossus gravis, sp. n., Leconte, l. c. p. 316, ? Pennsylvania.

Orthomus maroccanus, p. 108, Tangiers, *sidonicus*, p. 110, Syria, Chaudoir, l. c.; *O.* (*Feronia*) *perezi*, Martinez y Saez, An. Soc. Esp. ii. p. 57, pl. i. fig. 2, Cuenca: spp. nn.

Evarthrus nonmitens, sp. n., Leconte, l. c. p. 320, Louisiana.

Simodontus orthomoides, Melbourne, *elongatus*, S. Australia, p. 111, *transfuga* and *convexus*, p. 112, *curtulus*, p. 113, Melbourne, *picescens*, p. 114 ?, Philippine Isles, Chaudoir, l. c. spp. nn.

Zabrus castroi, p. 60, pl. i. fig. 3, Cuenca, *notabilis*, p. 407, pl. xiii. fig. 1, Burgos, Martinez y Saez, l. c. spp. nn.

Amara continua, C. G. Thomson, Opusc. Ent. (v.) p. 529, Sweden; *A.* (*Celia*) *nitidiuscula*, J. Putzeys, An. Soc. Esp. ii. p. 51, Aranjuez; *A.* (*C.*) *chalcophæa*, p. 292, *laticarpus*, p. 293, *A. obscuripes*, p. 294, Bates, l. c. Japan: spp. nn.

Cyrtotonus hiogoensis, sp. n., Bates, l. c. p. 291, Hiogo.

Bradytus ampliatus, sp. n., *id. ibid.* Japan.

Antarctiides.

J. PUTZEYS, Mém. Liège (2) v. ['Novembre, 1873,' on title; received January, 1875: vol. iii. having been issued in 1873, containing articles circulated in anticipation quite two years earlier; vol. iv. from a notice on wrapper of vol. v. 'paraître dans quelques mois'], pp. 1-32, recharacterizes *Antarctia*, Dej., which he considers to belong to the *Feroniides*, near *Amara*, as the front tarsi of the male, though ciliated at the margins, are very distinctly squamose beneath. There are always traces of a tooth in the emargination of the mentum, and in many instances a very distinct tooth. *Habropus splendidus*, Guér., = *carnifex*, F., *nec* Dej. (which is a true *Antarctia*). 32 species are described, of which the following (and a var. *latior* of *A. marginata*, Dej., from Montevideo, p. 23) are new:—

A. leucoscelis, p. 9, no locality given, *nitens*, p. 10, Malouin Isles, *foveolata*, p. 14, Brazil, *brevicornis*, p. 15, *puncticollis*, p. 31, Chili, *striata*, p. 16, *incerta*, p. 18, Peru, *cordata*, p. 17, *obscura*, p. 20, *caudata*, p. 22, *parvicollis*, p. 24, *punctulata*, p. 25, Montevideo, *bonariensis*, p. 21, Buenos Ayres, Bolivia, *euryptera*, p. 25, Juan Fernandez, *crassiuscula*, p. 28, *laevigata*, p. 29, Patagonia.

Trechichides.

H. W. Bates, Tr. E. Soc. 1873, p. 282, finds this sub-family for the reception of *Trechichus* and *Mizotrechus* (and possibly *Pentoplogenius*), forming an additional link between the *Anchomenides* and *Truncatipennes*, from the former of which they are removed by the adherent paraglossæ, and from the latter by their broadly rounded, not truncate, elytra.

Trechichus japonicus, sp. n., *id. l. c.* p. 281, Japan.

Anchomenides.

J. PUTZEYS, Ann. Ent. Belg. xvi. pp. 19-96, monographs the group *Calathides*, re-characterizing *Calathus*. *Calathus barbatus*, Woll., = *angularis*, Brullé; *C. lugens*, Vuillef., *hispanicus*, *uhagoni*, *vuillefroyi*, Gaut., = *luctuosus*, Dej.; *C. subsimilis* and *intermedius*, Gaut., = *cisteloïdes*, Ill.; *C. algirus*, Gaut., = *punctipennis*, Germ.; *C. liotrachelus*, Vuill., *angularis*, Chevr., = *uniseriatus*, Vuill.; *C. lasserrii*, Heer, *marginicollis*, Chaud., = *fulvipes*, Gyll., varr.; *C. bipunctatus*, Gaut., = *asturiensis*, Vuill.; *C. depressus* and *tappesi*, Gaut., = *granatensis*, Vuill.; *C. dilutus*, Chaud., *chevolati*, Gaut., = *fuscus*, F.; *C. angustatus*, Koll., nec Rambur, is re-named *kollari* (p. 72); *C. parisiensis*, Gaut., *alpinus*, Dej., *obscuricollis*, Chaud., = *melanocephalus*, L. [no mention is made of *nubigena*, Hal., though it is referred to in the index]; *C. mollis*, Msh., is a good species; *C. incommodus*, Mann., = *ingratus*, Dej.; *C. advena*, Lec., = *dulcis*, Mann., = *lenis*, Mann., var.; *C. rubrimarginatus*, Blanch., ? = *zelandicus*, Redt. *Amphigynus*, Haliday (*Calathus piceus*, Marsh.), is re-characterized, and proposed to be retained as a genus at p. 23, and as a sub-genus of *Calathus* at p. 88.

Loxocrepis cælestinus, Mots., = *Dicranoncus femoralis*, Chaud.; *Limodromus*, *Platynus*, &c., should be retained; H. W. Bates, Tr. E. Soc. 1873, p. 278.

Anchomenus angusticollis, K., nec F., is not *stygius*, Lec. [Zool. Rec. vii. p. 260], but = *Platynus sinuatus*, Dej.; *Agonum harrisi*, Lec., = *affine*, K.; *A. lutulentum*, Lec., ? = *picipenne*, K.; *A. fuscescens*, Chaud., ? = *sordens*, K.: J. L. Leconte, P. Ac. Philad. 1873, p. 323.

Olisthopus anomalus, Perris, is to be considered non-existent: E. Perris, Nouv. et faits (2) p. 6.

Calathidius, g. n., Putzeys, *l. c.* p. 24. Differs from *Calathus* in the paraglossæ being much more elevated than the ligula, &c. *Calathus sphaeroides* and *acuminatus*, Woll.

Thermoscelis, g. n., *id. l. c.* p. 89. Paraglossæ as in preceding; post-tibiæ of ♂ emarginate in the inner posterior half. *Pristonychus insignis*, Chaud.

Onycholabis, g. n., H. W. Bates, *l. c.* p. 329. Facies of *Anchomenus*: closely related to *Cardiomeria*, joints 3-11 of antennæ having woolly pubescence, but with claw-like and elongate mandibles and maxillæ. Type, *O. sinensis*, sp. n., *id. ibid.*, banks of the Yangtze-kiang.

Pristonychus aeneolus, sp. n., *id. l. c.* p. 272, Japan.

Calathus pirazzolii, p. 43, Central Italy, *zabroides*, p. 44, Persia, *lissoderus*, Anatolia, *lavicollis*, Armenia, p. 46, *heydeni*, p. 52, Portugal.

acuticollis, p. 54, Lebanon, *thessalus*, Salonica, *libanensis*, Lebanon, p. 59, *pluriseriatus*, p. 60, Persia, *rugicollis*, p. 68, Kurdistan, *aneus*, p. 70, Turkey, *leptodactylus*, p. 75, Syria, *melanotus*, Asturias, *extensicollis*, Azores, p. 76, *coptopsophus*, p. 81, N. China, *crenatus*, p. 82, *pectiniger*, p. 86, N. India, *ovipennis*, p. 87, Mexico: Putzeys, *l. c.* spp. nn.

Dolichus callitheres, sp. n., Bates, *l. c.* p. 272, Japan.

Pristodactyla cyclodera, Japan and China, *dulcigrada*, Japan, p. 273, *cathaica*, p. 330, Foochow, *id. l. c.* spp. nn.

Taphria crassipalpis, sp. n., *id. l. c.* p. 274, Hiogo.

Colpodes atricomes, *lampros*, p. 275, *modestior*, p. 276, *sylphis*, p. 277, Japan, *olivius*, p. 330, Hong Kong, spp. nn., *id. l. c.*

Anchomenus (? g. n.) *astur*, Sharp, An. Soc. Esp. i. p. 259, Reinoso; *A. (Limodromus) magnus*, p. 278, Japan and China, *leucopus*, Japan, *A. (Agonum) daimio*, Japan and China, p. 279, *A. (Ag.) chalcomus*, Japan, p. 280, *A. (Ag.) irideus*, p. 329, Hong Kong, *aneotinctus*, p. 330, Foochow, Bates, *l. c.*: spp. nn.

Pogonides.

Platidius, Chaud., should be merged in *Diplous*: the widely dilated mesothoracic epimera afford a good generic character. H. W. Bates, *l. c.* p. 295.

Diplous caligatus, sp. n., *id. l. c.* p. 294, Japan.

Pogonus dilutus, sp. n., Fairmaire, R. Z. (3) i. p. 323, Bouksoul.

Trechides.

Anophthalmus leschenaulti: habits of the living beetle in confinement recorded, especially with regard to its insensibility to light. E. Deyrolle, Pet. Nouv. p. 280.

Trechus postilenatus and *ephippiatus* (and var. *agrotus*) spp. nn., H. W. Bates, *l. c.* p. 295, Japan.

Perileptus japonicus, sp. n., *id. l. c.* p. 296, Hiogo.

Bembidiides.

Bembidium atriceps, W. Macl., = *Tachys triangularis*, Nietn.; Bates, *l. c.* p. 298; *B. niloticum*, Dej., and *lunatum*, Duft., occur in Japan, *id. l. c.* p. 301.

Bembidium salebratum, Lec., = *Peryphus concolor*, K.; *B. gelidum*, Lec., = *P. scopulinus*, K.; *Notaphus variegatus*, K., nec Say, = *B. pictum*, Lec.; *B. rapidum*, Lec., = *N. intermedius*, K.: J. L. Leconte, *l. c.* pp. 325 & 326.

Bembidium moschatum, Peyr., *nordmanni*, Chaud., = *elongatum*, Dej.; *B. monticulum*, Stm., = *nitidulum*, Msh., var.; *B. corpulentum*, Mots., = *ustulatum*, L.; *B. xanthopum* and *basale*, Chaud., *chaudoiri*, Mots., *persicum*, Mén., *petrosomum*, Gebl., = *andreae*, F.; *B. pictum*, Fald., *fraxator*, Mén., = *femoratum*, Stm.; *B. caucasicum*, Mots., = *bruxellense*, Westm.; *B. fuscimaculatum*, Mots., *lucidum*, Fald., = *testaceum*, Duft.; *B. dimidiatum*, Mén., = *tricolor*, F.; *B. tibiale*, Duft., *atricaruleum*, Steph., *conforme*, Dej., *cyaneum* and *gotschi*, Chaud., *planipenne*, Duv., = *fasciolatum*, Duft., varr.; *B. caelestinum* and *litigiosum*, Mots., = *prasinum*, Duft.;

B. ceruginosum, Gebl., = *fellmanni*, Man.; *B. milleri* and *cordicolle*, Duv., = *brunnicorne*, Dej.; *B. lafertii*, Duv., is quite distinct from *siculum*, Dej.; De la Brûlerie, in Monogr. des Ditomides, L'Ab ix. preface, pp. iii. & iv.

Bembidium lætum, Brullé. On its geographical distribution, and occurrence in Spain: Perez Arcas, Act. Soc. Esp. ii. p. 22.

Bembidium mannerheimi, Sahlb., is not synonymous with *obtusum*, but a good species, for which differential characters are given. The exponents of *B. grapii* in the Sahlbergian collection (= *schuppeli*, Dej.) were taken in 1830, three years after publication of Sahlberg's species. J. Sahlberg, S. E. Z. xxxiv. pp. 63 & 64.

Bembidium riparium, Ol., and *biguttatum*, F.: differences fully discussed by Kraatz. B. E. Z. xvii. p. 215. Cf. also pp. 441 & 442, for notes on communication by Seidlitz on this subject.

Tachys exaratus, p. 296, *pallescens*, *sericans*, p. 297, *lætificus*, *fuscicauda*, p. 298, *perlutus*, p. 299, Japan, *gradatus*, *pecilopterus*, *vixstriatus*, p. 331, China, spp. nn., H. W. Bates, l. c.

Tachyta microscopica, sp. n., *id. l. c.* p. 299, Japan.

Bembidium stenoderum, p. 300, *B. (Peryphus) consummatum*, p. 301, *hiogoense*, *lissonotum*, p. 302, Japan, *chloreum*, *collutum*, p. 332, China, spp. nn., *id. l. c.*

DYTISCIDÆ.

G. R. CROUCH, Tr. Am. Ent. Soc. iv. pp. 383-424, gives a "Revision of the Dytiscidæ of the United States." Several American forms are inseparable from European, and the number of species common to both continents will probably be increased. Dimorphous females occur, as in Europe; in *Dytiscus*, nearly all ♀ are permanently smooth [as in Russia; cf. Zool. Rec. vi. p. 230], whilst in *Agabus* and *Acilius* smooth and rough females are equally common. The *Amphizoidæ* and *Pseudomorphidæ* lead the author to suppose that this family is not separable from the *Carabidæ*: a tribe *Eretini* is proposed (p. 386) for the reception of *Eunectes*, Erichs., *nec* Wagl., for which *Eretes*, Lap., is adopted; this heads the *Dytiscidæ*, coming between *Cnemidotus* in the *Haliplidæ* and *Celina* in the *Hydroporini*: *Hydrocanthus*, *Suphis*, and *Colpius* are included in the *Noterini*; a new tribe, *Agabinini*, is proposed (p. 397), for the reception of a new genus allied to *Noterus*; and the *Colymbetides* are merged in the *Dytiscidæ*.

H. v. Kiesenwetter, C. H. xi. pp. 79-86, in some remarks upon the nomenclature of the *Dytiscidæ*, criticizes G. R. Crouch's alterations, &c., (C. H. x.), in the names of *Haliplus obliquus*, *Hydroporus granularis*, *reticulatus*, and *unistriatus*, *Noterus semipunctatus*, *Itybius ater* and *fenestratus*, *Agabus didymus*, *Cybister costalis* and *Hydaticus stagnalis*.

Haliplidæ.

Haliplus nitens, Lec., = *cribrarius*, Lec., var.; *H. immaculicollis*, Harr., = *ruficollis*, Deg.; *Cnemidotus simplex*, Lec., = *callosus*, Lec., ♀: G. R. Crouch, Tr. Am. Ent. Soc. iv. pp. 384 & 385.

Haliplus japonicus, D. Sharp, Tr. E. Soc. 1873, p. 55, Japan; *H. lewisi*,

p. 384, Texas, *longulus*, p. 385, Lake Superior, Boston, Crotch, *l. c.*, spp. nn.

Brychius horni, sp. n., Crotch, *l. c.* p. 383, California.

Cnemidotus intermedius, sp. n., D. Sharp, *l. c.* p. 55, Japan.

Hydroporides.

Hydroporus punctatus, Say, = *inaequalis*, F.; *H. similis*, K., = *impressopunctatus*, Schall., of which *10-lineatus* and *4-lineatus*, Mann., are varr.; *H. discoideus*, Lec., = *patruelis*, Lec., ♂; *H. venustus*, Lec., = *hybridus*, Aubé; *H. erythrostomus*, Mann., = *obscurellus*, Lec.; *H. 12-lineatus*, Lec., = *alpinus*, Payk.; *H. hirtellus*, Lec., = *subpubescens*, Lec.; *H. lutulentus*, Lec., = *tenebrosus*, Lec.; *H. nigellus*, Mann., = *tartaricus*, Lec.; *H. puberulus*, Lec., = *caliginosus*, Lec.; *H. ruficapillaris*, Mann., *varians*, Lec., = *tristis*, Payk.; *H. pulcher*, Lec., = *concinus*, Lec.: G. R. Crotch, *l. c.* p. 387, et seq.

Hydroporus geminus occurs at Warmbrunn, Silesia, at a temperature of 28° Réaumur: v. Kiesenwetter, SB. Ges. Isis, 1873, p. 34.

Hyphydrus japonicus, sp. n., D. Sharp, *l. c.* p. 54, Japan.

Hydroporus japonicus, id. *ibid.* Japan; *H. alienus*, id. An. Soc. Esp. i. p. 261, La Granja; *H. dispersus*, Lower California, Texas, *plicipennis*, California, p. 388, *fuscatus*, p. 391, Lake Superior to Florida, *funereus*, p. 392, *addendus*, p. 393, Lower California, *persimilis*, p. 395, Canada, Crotch, *l. c.* spp. nn.

Hydrovatus horni, sp. n., Crotch, *l. c.* p. 387, Texas.

Colymbetides.

The generic name *Suphisellus* [*Syph-*] is proposed for *Suphis bicolor*, Say, *lineatus*, Horn, and a new species, in case *Suphis cimicoides* and *Colpius inflatus*, Lec., prove generically identical: G. R. Crotch, *l. c.* p. 397. The latter insect and *Suphis doubledayi*, B. M. Cat., are identical: J. L. Leconte, P. Ac. Philad. 1873, p. 326.

Laccophilus californicus, Mots., *truncatus*, Mann., = *decipiens*, Lec.; *Scutopterus coriaceus*, Horn, nec Hoffm., is re-named *horni* (p. 405); *Colymbetes densus*, Lec., = *sculptilis*, Harr., of which *exaratus*, Lec., may be a dimorphous form; *C. strigosus*, Lec., = *strigatus*, Lec.; *C. drewseni*, Lec., = *greenlandicus*, Aubé; *Cymatopterus longulus*, Lec., ? = *paykulli* Er.; *Rhantus suturellus*, Harris, = *agilis*, Aubé, nec F., = *bistriatus*, Berg.; *Ilybius unguaris*, Lec., = *ater*, Deg.; *I. pleuriticus*, Lec., = *confusus*, Aubé; *I. laramæus*, Lec. = *biguttulus*, Germ., var.; *Coptotomus difficilis*, Lec., = *interrogatus*, F.; *Agabus oblongus*, Ill., is a *Copelatus* with striate elytra; *Copelatus punctulatus*, Aubé, = *glyphicus*, Say; *Gaurodytes spilotus*, Lec. = *semivittatus*, Lec.; *G. discolor*, Lec., nec Harris, is re-named *lecontei* (p. 417); *G. anthracinus*, Mann., = *scapularis*, Mann.; *G. nitidus*, Say, nec F., = *obtusatus*, Say; *G. dubius*, Mann., = *tristis*, Aubé, var.; *G. subfasciatus*, Lec., = *reticulatus*, K., = *arcticus*, Payk.; *G. irregularis*, Mann., = *hypomelas*, Mann. G. R. Crotch, *l. c.* pp. 400-423.

Colymbetes pulverosus, Steph., and *Laccophilus flexuosus*, Aubé, occur in Japan; D. Sharp, Tr. E. Soc. 1873, pp. 48 & 53.

Agabus desertorum, Mor., = *lineatus*, Gebl. ; S. Solsky, Hor. Ent. Ross. ix. p. 307.

Gaurodytes angusticollis, J. Sahlb., is not synonymous with *adpressus*, Aubé ; *G. hæffneri*, Thoms., nec Aubé, = *wasastjernæ*, Sahlb. ; J. Sahlberg, S. E. Z. xxxiv. pp. 63 & 64.

Agabinus, g. n., Crotch, *l. c.* p. 397. Allied to *Noterus* by form of its coxal process, but with 2 joints of the 4 anterior tarsi dilated in the ♂, and the mesothoracic side-pieces distinct. Type of a tribe, *Agabinini*, between the *Noterini* and *Dytiscini*. *A. morulus*, Lec., = *glabrellus*, Mots.

Agabetes, g. n., Crotch, *l. c.* p. 401. Lacinia linear, episterna hardly reaching coxæ. *A. aceductus*, Harr.

Ilybiosoma, g. n., Crotch, *l. c.* p. 413. Differs from *Ilybius* in the 4 anterior tarsi of ♂ being compressed, narrowly dilated, with simple claws, and from *Agabus* in its narrow lacinia. *I. regularis*, Lec. (of which *I. oblongus*, Mots., is apparently a var.), and ? *I. bifarius*, K.

Noterus japonicus, sp. n., D. Sharp, *l. c.* p. 52, Japan.

Hydrocanthus politus, sp. n., *id. ibid.* Japan.

Suphis puncticollis, sp. n., Crotch, *l. c.* p. 397, United States.

Laccophilus lewisi[an]us, p. 52, *difficilis* and *kobensis*, p. 53, Japan, Sharp, *l. c.* ; *L. apicalis*, *id.* Ent. M. M. x. p. 53, Chontales ; *L. atri-sternalis*, Crotch, *l. c.* p. 400, California : spp. nn.

Rhantus anisonychus and *flavigriseus*, spp. nn., Crotch, *l. c.* p. 409, United States.

Ilybius suffusus, Indian Territory, *viridiæneus*, Kansas, *id. l. c.* p. 411 ; *I. hispanicus*, Sharp, An. Soc. Esp. i. p. 260, Escorial ; *I. apicalis*, *id.* Tr. E. Soc. 1873, p. 51, Japan : spp. nn.

Agabus conspicuus, p. 48, *pictipennis*, p. 49, *japonicus* and *dissimilis*, p. 50, Japan, Sharp, *l. c.* ; *A. eminens*, Kirsch, B. E. Z. xvii. p. 131, Peru : spp. nn.

Gaurodytes disintegratus, p. 416, Kansas, Canada, *æneolus*, p. 417, Pennsylvania, Newfoundland, *ovoideus*, p. 418, Kansas, L. Superior, *lutosus*, Slave Lake, *walsinghami*, Oregon, *intersectus*, California, Oregon, p. 419, *inscriptus*, Labrador, *strigulosus*, California, p. 422, *suturalis*, p. 423, Nevada, Crotch, *l. c.*, spp. nn.

Copelatus externus and *substriatus*, Kirsch, *l. c.* p. 132, Peru ; *C. signatus*, Sharp, Ent. M. M. x. p. 53, Chontales : spp. nn.

Dytiscides.

On the habit of certain *Dytiscides* : Delabby, Bull. Soc. L. N. Fr. 1872-73, p. 67.

Cybister. Stridulating organs, confined to the ♂, consist of 3-5 deep ridges in the hollow behind the posterior coxæ, which are rubbed by a ridge on the underside of the femora : Crotch, *l. c.* p. 398.

Cybister bimaculatus, Aubé, *binotutus*, Boh., and *ovas*, Lap., = *immarginatus*, F., varr. ; A. Gerstäcker, V. d. Decken's Reisen, iii. pt. 2, p. 75.

Cybister tripunctatus, Ol., common in Japan, cannot be considered specifically identical with *C. africanus* (Gerstäcker, *l. c.* p. 74, unites

these); *C. brevis*, Aubé, also abundant in Japan, has the punctuation of head and thorax alike in both sexes; other species are probably confused under the name of *Hydaticus vittatus*; *H. rufulus*, Aubé, is queried as not conspecific with *H. leander*; *H. grammicus*, Germ., occurs in Japan: D. Sharp, Tr. E. Soc. 1873, p. 47 *et seq.*

Dytiscus marginalis, E. A. Schäfer, Phil. Trans. clxiii. pp. 429-443, pl. xxxiii. fully discusses the minute structure of the leg-muscles, regarding the less strongly refracting intermediate substance which pervades the whole fibre, as the contractile, irritable, and essential part of the muscle; and considering the more refracting substance to have merely a passive function. A review is given of the recent literature of the subject of striped muscular fibre. Highly magnified portions of the muscle are figured in rest and contraction.

Dytiscus latissimus and *marginalis* infested by *Hydrachna geographica*, Müll.; V. Frauenfeld, Verh. z.-b. Wien, xxiii. p. 7.

Acilius simplex and *latiusculus*, Lec., and *abbreviatus*, Aubé, = *sevisulcatus*, Aubé, varr., and a var. *oregonensis* is described; *Thermonectes laticinctus*, Lec., = *basilaris*, Harr., var., and a var. *intermedius* is described from California; *T. nigrifasciatus*, Aubé, = *ornaticollis*, Aubé, var.; *Graphoderes fasciicollis*, Harr., = *cinereus*, L., not *zonatus*, F.; *Hydaticus cinctipennis*, Aubé, = *bimarginatus*, Say; *Dytiscus latissimus*, L., occurs (? accidentally) in Canada; *D. diffinis*, Lec., and *parvulus*, Mots., = *confluens*, Say; *D. sublimbatus*, Lec., = *cordieri*, Aubé; G. R. Crotch, *l. c.* pp. 401-408. *Acilius maccullochi*, K., = *mediatus*, Say; J. L. Leconte, P. Ac. Philad. 1873, p. 326.

Hydaticus piciventris, Thoms., occurs in Germany; Kraatz, B. E. Z. xvii. p. 225.

Hydaticus austriacus and *cinereus*. Buddeberg, *op. cit.* pp. 423 & 424, notes the occurrence together of the first of these and a middle form between *zonatus* and *cinereus*, and gives sexual and other characters.

Cybister japonicus, p. 45, *lewisianus*, p. 46, spp. nn., Japan, D. Sharp, *l. c.*

Hydaticus japonicus, sp. n., *id. l. c.* p. 48, Japan.

GYRINIDÆ.

Dineutes subspinosus, Klug (?), recorded from Syria and Palestine; Leprieur, Bull. Soc. Ent. Fr. (5) iii. p. cxxvii.

Orectochilus schistazeus, Gerst., figured; V. d. Decken's Reisen, iii. pt. 2, pl. v. fig. 8.

Gyrinus japonicus, sp. n., D. Sharp, *l. c.* p. 55, Japan.

Dineutes marginatus, *id. l. c.* p. 56, Japan, Mantchuria, *D. truncatus*, *id. Ent. M. M. x.* p. 54, Chontales: spp. nn.

HYDROPHILIDÆ.

Hydrocharès flavipes, Stev., and *Laccobius minutus*, L., occur (with slight modifications) in Japan; and the structure of the abdomen of *Amphiops* is described: D. Sharp, Tr. E. Soc. 1873, p. 59, *et seq.*

G. H. HORN, P. Am. Phil. Soc. xiii. pp. 118-137, gives "a revision of the genera and species of the tribe *Hydrobiini*" found in the United

States. This 'tribe' comprises all the genera of *Hydrophilide* in which the middle and hind tarsi have the first joint very short, with all the joints cylindrical, or not compressed: the thorax is always as wide as the elytra at the base; and there is no metasternal spine. It is divided into sub-tribes *Hydrobiini* (*Berosus*, *Chatarthria*, *Limnocharis*, *Laccobius*, *Hydrobius*, *Philhydrus*), with head in front of eyes narrow, and labrum visible, and *Helopeltini* (new: for one new genus), with clypeus broadly dilated at sides, and labrum concealed. *Berosus immaculatus*, Zimm., *auritus*, Mels. (= *peregrinus*, Hbst.), and *pantherinus*, Lec., are possibly all one species, for which Herbst's name should be used; *B. pallescens*, Lec., = *exiguus*, Say; *B. californicus*, Mots., *punctulatus*, Lec., = *infuscatus*, Lec.; *B. fraternus* and *ordinatus*, Lec., = *striatus*, Say. *Chatarthria nigriceps*, Lec., = *pallida*, Lec. *Philhydrus maculifrons*, Mots., = *pectoralis*, Lec.; *P. simplex*, Lec., = *ochraceus*, Mels.; *P. limbalis*, Mels., = *cinctus*, Say; *P. imbellis*, Lec., ? = *dorsalis*, Mots.; *P. semistriatus*, Zimm., = *fimbriatus*, Mels.; *P. nitens*, Zimm., = *rotundus*, Say. *Sperchopsis*, Lec., and *Paracymus*, Thoms., are not generically distinct from *Hydrobius*. *H. seriatus*, *insculptus*, and *regularis*, Lec., = *fuscipes*, L.

Schwarz's paper, "Zur Kenntniss der europäischen Philhydrus-Arten," Breslau, 1872 (extr. from Z. E. Ver. schles.) has not been seen by the Recorder.

Berosus: observations on a species with spined elytra only in ♂, from Bône, by Leprieur, Bull. Soc. Ent. Fr. (5) iii. p. cxxvi.

Helopeltis, g. n., Horn, l. c. p. 137. Type of a distinct sub-tribe, with genæ at the sides broadly dilated, and labrum entirely concealed beneath the clypeus in front. But for these characters, a true *Philhydrus*, with the last tarsal joint more elongate than usual. *H. larvalis*, sp. n., *id. ibid.* Louisiana and Sonora (facies of *Peltis*, or an *Elmis* larva); a closely allied Cuban species is also mentioned, *ibid.*

Limnocharis, g. n., *id.* Tr. Am. Ent. Soc. iv. p. 144, fig., allied to *Limnebius*, but abdomen with 8 joints: hind legs not ciliate, outer edge finely spinulose. *L. piceus*, sp. n., *id. ibid.*, California.

Cyprimorphus, g. n., (? Fairmaire) R. Z. (3) i. p. 334. Allied to *Volvulus*, but more convex; shorter, with divided eyes and slender tarsi. Facies of *Cypris* (*Crustacea*) or of a small bivalve shell. *C. compressus*, sp. n., Fairmaire, l. c. Morocco.

Hydrophilus cognatus and *japonicus*, spp. nn., D. Sharp, l. c. p. 57, Japan.

Hydrochares affinis, sp. n., *id.* l. c. p. 58, Japan.

Hydrobius scabrosus, N. California, Oregon, Vancouver I., and *latus*, California, p. 133, *rufiventris*, p. 135, S. Oregon, *dissimilis*, p. 136, San Francisco, Horn, P. Am. Phil. Soc. xiii.; *H. solstitialis*, p. 133, *punctatus*, p. 134, Peru, Kirsch, B. E. Z. xvii.: spp. nn.

Philhydrus fucatus, p. 127, Utah, Arizona, *P.* (*Helochares*) *punctatistriatus*, p. 131, California, Horn, l. c.; *P. japonicus* and *simulans*, Sharp, Tr. E. Soc. 1873, p. 59, Japan; *P. nigritus*, *id.* An. Soc. Esp. i. p. 262, Reinosa, Escorial: spp. nn.

Helochares striatus and *lewisi[an]us*, spp. nn., *id.* Tr. E. Soc. 1873, p. 60, Japan.

Berosus japonicus, and *B. (Enoplurus) lewisi[an]us*, id. l. c. p. 61, Japan; *B. emarginatus*, p. 120, Texas, *styliiferus*, p. 121, Colorado, *rugulosus*, p. 124, Lower California, Horn, l. c.; *B. sculptus*, Solsky, Hor. Ent. Ross, ix. p. 308, Astracan: spp. nn.

Volvulus profundus, sp. n., Sharp, l. c. p. 62, Japan.

Amphiops mater, sp. n., id. *ibid.* Japan.

Hydrochus japonicus, sp. n., id. l. c. p. 64, Japan.

Cyclonotum latum, id. *ibid.* Japan; *C. minor*, id. An. Soc. Esp. i. p. 262, Escorial: spp. nn.

Cercyon brunneum [-eus], Kirsch, l. c. p. 134, Peru; *C. dux*, *algarum*, *aptus*, p. 65, *laminatus*, p. 66, Sharp, l. c. Japan: spp. nn.

Megasternum distinctum, sp. n., id. l. c. p. 66, Japan.

PAUSSIDÆ.

The Australian species tabulated: some are nocturnal, and *Arthropterus brevis*, Westw., is gregarious. W. MacLeay, Tr. Ent. Soc. N. S. W. ii. pp. 337-340.

Arthropterus cylindricollis, p. 340, *waterhousii*, *bisinuatus*, p. 341, *angulicornis*, *riverinæ*, p. 342, *nigricornis*, *picipes*, *montanus*, p. 343, *subampliatu*, *humeralis*, p. 344, *ovicollis*, *wyanamattæ*, p. 345, *angulatus*, *subcylindricus*, p. 346, *adelaidæ*, *puncticollis*, *foveicollis*, p. 347, *odevahni*, *scutellaris*, p. 348, *turneri*, *hirtus*, *darlingensis*, p. 349, *depressus*, *rockhamptonensis*, p. 350, *howitti*, *brevicollis*, p. 351, *politus*, *latipennis*, p. 352, spp. nn., id. l. c. various parts of Australia.

STAPHYLINIDÆ.

The 4th livraison of vol. iii. of A. Fauvel's "Faune Gallo-Rhénane" (Zool. Rec. ix. p. 231) has been published, containing pp. 315-390, and supplement i. pp. 1-24. It includes from *Oxyporus* to *Xantholinus* (the usual method of classification being inverted), and the supplement enumerates additions and corrections for all the part hitherto published. New genera and species are characterized, and much synonymy (including many obviously random guesses) is given. References are made to pl. iii. not published with the above-mentioned portion.

D. Sharp, R. Z. (3) i. pp. 410-414, enumerates the species taken in Asia Minor, by T. Deyrolle.

H. Jekel, Col. Jek. pp. 21-23, proposes to exclude the abdomen from measurement in this family, and reverts to the Erichsonian enumeration of 6 segments for that portion of the body.

Aleocharides.

E. MULSANT & C. REY, Mém. Ac. Lyon, xix. (1871-72) [published in February, 1873; *sec.* Jekel, Col. Jek. i. p. 6], pp. 75 & 76, commence a descriptive revision of the French species of the 'famille Aléochariens,' 'Tribu des Coléoptères brévipennes,' which they divide into 8 'branches,' Bolitocharaires, Myrmédoniaires, Aléocharaires, Oligotaires, Hygronomaires, Diglossaires, Gymnusaires, and Dinardaires. They give a (methodical) list of the genera and species of the first of these, pp. 73

& 74, and then proceed to discuss it in detail, under the 'rameaux' Autalates, Phytosates, Bolitocharates, Placusates, Diestotates, and Gyrophénates, describing the members of the first three, pp. 78-123. The following new genus is characterized:—

Actosus, p. 234. Chiefly distinguished from *Phytosus* by its very short metasternum. *Phytosus nigriventris*, Chev., and *balticus*, Ktz.

The same authors, Ann. Soc. L. Lyon (n. s.), xix. (1872), pp. 91-411, pls. i.-v. undertake a similar revision of their 'Bolitocharaires,' subdividing that 'branche' into the same 'rameaux,' but inverting their order and discussing all of them. Another list (alphabetical, this time) is given of the genera and species; and the plates contain a figure of *Bolitochara elongata*, and much detail of structure of various species. The insects comprised in the above notice are again fully described, *Actosus* being again brought forward as a new genus with no reference to the Mém. Ac. Lyon! [for observations on the elasticity of characters relied on in this group, see H. Jekel, *l. c.*] The following new genera, &c., are characterized:—

Brachida, p. 94, to receive *Homalota notha*, considered as a member of the Gyrophénates.

Phenogyra, subg. of *Gyrophæna*, p. 166, for *G. polita* and allies.

Calpusa, subg. of *Placusa*, pp. 198 & 217, for *P. adscita*, Er. (with which *Homalota granulata*, Baudi, is queried as identical).

Epipeda, p. 226; intermediate tarsi 4-jointed, labial palpi 2-jointed: allied to *Placusa*. *Homalota plana*, Gyll., and *H. arcana*, Er.

Tachyusida, p. 278, near *Leptusa*, for *Oxypoda gracilis*, Er.

Pasilia, p. 316, subg. of *Sipalia*, for *Leptusa testacea* and *bonvouloiri*, Bris., and *Homalota nubigena*, Kies.

Pisalia, p. 325, another subg. of *Sipalia*, for *Homalota globulicollis*, Muls., and *Leptusa pallida*, Scriba.

Placusa subdepressa, p. 207, *similata*, p. 214, France.

These authors again revert to the Mém. Ac. Lyon, xx. (1873-74), pp. 23-175, pls. i. & ii., and once more expound their views as to the subdivision of their Aléochariens (numbered as the 15th family of the 'Brévipennes'), the 8 branches above named being inverted in position. They discuss the 5 last of these, describing fully various species as new, with no reference to Ann. Soc. L. Lyon (n. s.) xx., in which some of these species are also brought forward as new, and under which heading they will here be noticed. The plates contain details of various species of these 5 subdivisions.

Alternating again with a paper in Ann. Soc. L. Lyon (n. s.) xx. (1873; 1874 on title), they describe the following new species (with indications of more new subgenera), all, except *Oligota aliena*, from France.

Myllæna incisa, p. 1.

Oligota ('*Logiota*') *picescens*, *O. picipennis*, p. 2, *convexa*, p. 3, *australis*, *fuscipes*, p. 4, *pilosa*, *misella*, p. 5; *O. aliena*, p. 3, ? Senegal.

Myrmedonia ('*Myrmelia*') *excepta*, p. 6.

Kraatzia lævicollis, *ibid.*

Thamiaræa australis, p. 7.

Colpodota parens, p. 7, *piceorufa*, p. 8, *subgrisescens*, p. 9, *lacertosa* and *C. (Acrotona) negligens*, p. 10, *laticornis*, p. 11, *navicula*, and *C. (Solenia) simulans*, p. 12.

Dadura nudicornis, p. 13.

Microdota (Hilara) fulva, *M. (Philhygra) perdubia*, p. 14, *obscura*, and *M. brunnipes*, p. 15, *parvicornis*, p. 16, *asperana*, *sericea*, p. 17.

Ceritaxa spissata, p. 18.

Homalota (Dimetrota) lætipes, *tristicula*, p. 19, *H. (Alaobia) nutans*, p. 20, *tedula*, and *H. (Atheta) decepta*, p. 21, *fulvipennis*, p. 22, *H. ebenina*, *interrupta*, p. 23, *foliorum*, p. 24, *robusta*, p. 25.

Dinarea (Aglypha) melanocornis [-*nocera*], p. 25, *D. (Glaphya) pubes*, p. 26.

Plataræa geniculata, p. 27.

Halobrechta halensis, p. 27.

Ouralia picicornis, p. 28.

Meotica parasita, p. 28, *parilis*, p. 29, *misera*, and *M. (Cryptusa) capitatis*, p. 30.

Amischa arata, p. 31, *forcipata*, *flum*, p. 32, *minima*, p. 33.

Bessobia nebulosa and *B. (Trichiota) gibbera*, p. 34.

Metaxyia apricans, p. 35, *marina*, p. 36.

Disopora immatura, p. 36, *D. (Aloconota) latusulcata*, p. 37.

Thinecia libitina, *hesitana*, p. 38, *merita*, and *T. (Hydrosmecta) callida*, p. 39, *T. (H.) amara*, p. 40, *T. simillima*, p. 41.

Hygræcia parva, p. 41.

Taxicera perfoliata, p. 42, *indigna*, p. 43.

The 6th division, Aléocharaires, is described in Ann. Soc. L. Lyon (n. s.) xx. pp. 285-447, divided into Homéusates, Aléocharates, Oxy-podates, Ocyusates, Phléoporates, and Calodérates; of which the two first only are discussed in the part as yet published. *Aleochara nitida*, Grav., is not only considered distinct from *bilineata*, but varr. of it are named and described as *fuscinotata*, *transita*, and *lætippennis*. Thomson's genus *Baryodma*, itself a mere sub-genus of *Aleochara*, is divided into 6 sub-genera, whereof *Xenochara*, p. 344, *Polychara*, p. 348, *Homæochara*, p. 414, *Dyschara*, p. 425, and *Coprochara*, p. 430, are new. The following new species are described from France:—*Baryodma (Polychara) hæmatica*, p. 368, *alutacea*, p. 390, *B. (Homæochara) latipalpis*, p. 415, *B. (Coprochara) pauxilla*, p. 443, (? = *Aleochara longula*, Heer).

Errors in localities, &c., in the above papers are corrected by Ch. Brisout, Bull. Soc. Ent. Fr. (5) iii. p. lxvi.

H. Jekel, Col. Jek. i. pp. 9-18, gives a catalogue of species known to him, with localities, and some synonymy. A var. of *Aleochara discipennis*, Muls., from S. France, is named *basicornis*, p. 25. *A. atra*, Sol., and *lata*, Grav., are distinct from each other and from *fuscipes*.

Leptusa nigra, Baudi, ex. typ., = *lapidicola*, C. Bris.; *L. simplex*, Baudi, is distinct from *curtipennis*, Aubé: C. Brisout, l. c.

Aleochara grisea, Ktz., *obscurella*, Gr., and *algarum*, Fauv. [= *kirbyi*,

Steph.] ; on synonymy and diagnostic characters, cf. J. Weise, B. E. Z. xvii. pp. 443 & 444 ; H. Jekel, Col. Jek. i. p. 18.

Homalota basicornis, Muls., is distinct from *autumnalis*, Er., and both sexes are described, from Austria ; Kraatz, B. E. Z. xvii. p. 213.

Autalia conura, p. 29, Sicily, *longula*, p. 31, Corfu, spp. nn., H. Jekel, Col. Jek. i.

Falagria sicula, sp. n., *id. l. c.* p. 33, Sicily.

Leptusa (Sipalia) lativentris, sp. n., Sharp, An. Soc. Esp. i. p. 265, Reinosa.

Thiasophila brunnicornis, sp. n., Jekel, *l. c.* p. 35, Corfu.

Aleochara aurivillosa, p. 27, Malta, *brachialis*, p. 39, N. S. Wales, *erectisetosa*, p. 41, Sicily, *id. l. c.* spp. nn.

Apteranillus convexifrons, sp. n., Fairmaire, R. Z. (3) i. p. 325, Dély-Ibrahim, N. Africa.

Tachyusa cingulata, sp. n., Jekel, *l. c.* p. 43, Malta.

Oxyptoda quadricuspidata, sp. n., *id. l. c.* p. 45, Sicily.

Homalota procedens, p. 83, *assimilis*, p. 84, Tyrol, E. Eppelsheim, S. E. Z. xxxiv. ; *H. australis*, Jekel, *l. c.* p. 47, N. S. Wales : spp. nn.

Gyrophæna flavicincta, sp. n., Jekel, *l. c.* p. 49, N. America.

Oligota femoralis, sp. n., C. G. Thomson, Opusc. Ent. (v.) p. 520, Lund.

Tachyporides.

Tachyporus acuductus, K., = *ventriculus*, Say ; J. L. Leconte, P. Ac. Philad. 1873, p. 327.

Erchomus (Coproporus) gallicus, Perris, = *colchicus*, Kr., found abundantly on poplar, near Sos, by Bauduer ; Fauvel, Ann. Ent. 1873, p. 94.

Tachinus deyrollii, sp. n., Sharp, R. Z. (3) i. p. 411, Trebizond.

Quediides.

Quedius dilatatus. Economy in connection with *Vespa crabro* very fully discussed by A. Rouget, who has taken the perfect insect and bred it from the larva in considerable numbers. Mém. Ac. Dijon (3) i. pp. 201-229.

Staphylinides.

Staphylinus armeniacus, sp. n., Sharp, R. Z. (3) i. p. 412, Asia Minor.

Ocytus rheticus, sp. n., Eppelsheim, S. E. Z. xxxiv. p. 85, Tyrol.

Xantholinides.

Othius angustatus, Sol., is a *Philonthus*, *O. californicus*, Mann., probably a *Baptolinus*, *O. pulchellus*, Perr., a *Metoponcus* ; *O. crassus* and *suturalis*, Mots., and ? *piceus*, Heyd., and *longicornis*, Thoms., = *lapidicola*, Kies. ; *O. dilutus*, Mots., = *myrmecophilus*, Kies. ; *O. bovinus*, Coq., = *leviusculus*, Steph. ; *O. brevipennis*, Ktz., = *melanocephalus*, Grav., var. ; *Baptolinus frigidus*, Duf., and ? *dimidiatus*, Mots., = *alternans*, Gr. ; *Leptacinus amissus*, Coq., *radiosus*, Peyr., = *parumpunctatus*, Gyll. ; *L. triangulum*, *berytensis*, and *jebuseus*, Saulcy, *apicalis*, Kol., *linearis*, Grav., = *batychnus*, Gyll. ; *Leptolinus sareptanus*, Stierl., *cephalotes*, Ktz., and ? *versicolor*, Solsky, = *nothus*, Er. ; *Xantholinus ruficollis*, Luc., = *collaris*,

Er.; *X. melanarius*, Fauv., *picipes*, Thoms. (*thomsoni*, Schw.), *atratus*, Heer, *ochraceus*, Gyll., = *punctulatus*, Payk. [!]; *X. tenuipes*, Baudi, ? = *gracilipes*, Duv.; *X. flavicinctus*, Hoch., = *relucens*, Gr.; Fauvel, Faune Gallo-Rhénane, iii. pp. 368-386.

Xantholinus morio, Reitter, nec Woll., is re-named *haroldi* by the author, C. H. xi. p. 146 [already re-named *melanarius* by Fauvel: Zool. Rec. ix. p. 253.]

Typhlodes, g. n., D. Sharp, Ent. M. M. x. p. 1 (1st June, 1873). Eyeless: between *Leptacinus* and *Leptolinus*, differing from the former in the elongate basal joints of its antennæ, its less distinct frontal grooves, and the absence of the upper side-line of the thorax; and from the latter by its undilated anterior tarsi, shorter palpi, and more distinct frontal furrows. *T. italicus*, sp. n., *id. l. c.* p. 2, Florence. The genus is not separable from *Xantholinus*, and the species = *X. myops*, Fauvel, for which priority is claimed: Fauvel, Faune Gallo-Rhénane, iii. suppl. 1, p. 24 [the 4th livraison of vol. iii. of the Faune Gallo-Rhénane, in which *X. myops* was first published, bears date July, 1873].

Xantholinus myops, p. 389, Maritime Alps, *cribripennis*, p. 390, Aubé, Italy, Caucasus; Fauvel, *l. c.* spp. nn.

Baptolinus longiceps, sp. n., *id. l. c.* p. 374, Nancy, Alps.

Pæderides.

Sunius humeralis, Rott., = *anguinus*, Baudi; *S. latus*, Fairm., nec Rosen., is re-named *collaris* (p. 294, note); *S. serpentinus*, Mots., = *filiformis*, Latr.; *S. diversus*, Aubé, = *pulchellus*, Heer; *S. immaculatus*, Mots., *biguttatus*, Baudi, = *bimaculatus*, Er.; *S. æmulus*, Rott., *apicalis*, Mots., = *melanurus*, Küst.; *S. neglectus*, Märk., *angustatus*, Payk., = *gracilis*, Payk.; *Mecognathus ammonita*, Saulcy, ? = *pulcher*, Aubé, and the genus is only a *Sunius* with short elytra, *sec. typ.*; *Scopæus apicalis*, Muls. & R., *erichsoni*, Kol., = *gracilis*, Sperk; *S. pusillus*, Kies., *minutus*, Er., = *sulcicollis*, Steph., to which *S. ryei*, Woll., is also attributed [the 2 species differ *toto cælo*]; *Lithocharis aterrima* and *dido*, Saulcy, *obscurælla*, Er., = *obsoleta*, Nordm.; *L. gracilis*, Muls. & R., = *aveyronensis*, Mathan; *Pæderus cephalotes*, Mots., *geniculatus*, Peyr., *moses*, Saulcy, *strictus*, Baudi, = *littoralis*, Gr.; *P. longicollis*, Gaut., = *riparius*, L.; *P. corsicus*, Gaut., = *fuscipes*, Curt.; *P. ruficollis*, F., and *sanguinicollis*, Mots., are races of one species, to which *longicornis*, Aubé, *algericus*, Mots., *gemellus*, Kr. and ? *albipilis*, Solsky, are referred; *Dolicoon truquii*, Saulcy, = *biguttulus*, Lac.; *Lathrobium lineaticolle*, Scriba, = *castaneipenne*, Kol.; *L. alpestre*, Heer, *letzneri*, Gerh., = *fulvipenne*, Gr.; *L. maurianense*, Fauv., = *dilutum*, Er., ♀; *L. solskii*, Stein, *gracile*, Solsky, nec Hampe, = *scutellare*, Nord.; *L. longipenne*, Fairm., = *longulum*, Gr.; *L. striatipunctatum*, Kies., = *multipunctum*, Gr.; *L. punctulatum* and *nigrum*, Lec., and ? *posticum*, Muls. & R., = *terminatum*, Gr., = *quadratum*, Payk.; *Glyptomerus etruscus*, Picc., *appeninum*, Baudi, is a race of *G. cavicola*, Müll.; *Scimbalium saintpierrii*, All., *longicolle*, Muls. & R., *grandiceps*, Duv., = *testaceum*, Er. (which is immature); *S. longipenne*, C. Bris., = *pubipenne*, Fairm.; *Achenium hæmorrhoidale* and *distinctum*, Luc., = *striatum*, Latr.: Fauvel, *l. c.* pp. 293-362.

Pæderus tumidicollis, Gerst., figured: V. d. Decken's Reisen, iii. pt. 2, pl. v. fig. 9.

Micrillus, g. n., Raffray, R. Z. (3) i. p. 362. Near *Achenium*, but with elongate posterior tarsi. Eyes almost invisible, smooth. *M. subterraneus*, sp. n., *id. ibid.* pl. xvi. figs. 6, 6a-f, Algiers.

Nazeris, g. n., Fauvel, l. c. p. 298, note. Allied to *Sunius*, but not rugose, with 4-toothed labrum, and different tarsi. *Mecognathus cribellatus*, Fairm., = *pulcher*, Aubé.

Cephisus, g. n., *id. ibid.* Facies of *Lithocharis* and *Stilicus*, differing in the lobed 4th joint of its tarsi; differs from *Sunius* in its short antennæ, small eyes, short bidentate mandibles, &c. *C. orientis*, sp. n., *id. l. c.* p. 300, note, Syria.

Domene, g. n., *id. l. c.* p. 305. Facies of *Stilicus*, but with labrum neither toothed nor spined; differs from *Lathrobium* in the 4-dentate mandibles, the structure of the ligula and posterior tarsi. *Lathrobium scabricolle* and *stilicinum (arabicum and galileum, Saulcy, punctatissimum, Scriba)*, Er., and *D. scopæella*, sp. n., l. c. p. 306, note, Syria.

Scotonomus, g. n., *id. l. c.* p. 327, note. Allied to *Dolicaon*: eyeless, 4th joint of maxillary palpi very wide, tarsi simple. *S. raymondi*, sp. n., *id. l. c.* p. 328, note, Tuscany.

Lathrobium luteipes, sp. n., *id. l. c.* p. 342, Breda, Scotland, Piedmont.

Scopeus longicollis, p. 311, Limoges, *micropterus*, p. 313, note, Tuscany, Fauvel, l. c. spp. nn.

Pinophilides.

Ædichirus stilicinus, Gerst., figured: V. d. Decken's Reisen, iii. pt. 2, pl. v. fig. 10.

Tænodema africanum, sp. n., Gestro, Ann. Mus. Genov. iv. p. 357, Bogos (the genus hitherto only recorded from S. America).

Procirrus saulcii, sp. n., Fauvel, l. c. p. 291, note, Palestine.

Stenides.

Evæsthetus dissimilis, Aubé, is referred to the N. American genus *Edaphus*, Lec. (re-characterized); *Ev. fungicola*, Mots., probably = *Gyrophæna boleti*, L.; *E. marie*, Bethe, and ? *ruficollis*, Mots., = *scaber*, Gr., = *bipunctatus*, Ljungh; *E. fulvus*, Mots., ? = *ruficapillus*, Lac.; *Dianous chalybæus*, Lec., ? = *cærulescens*, Gyl.; *Stenus tylocephalus*, Ktz., ? = *gynemeri*, Duv., ♀; *S. pygmæus*, Perris, = *incanus*, Er.; *S. pumilio*, Baudi, = *declaratus*, Er., = *nanus*, Steph.; *S. novator*, Duv., *rogeri*, Ktz., *obscurus*, Luc., = *providus*, Er.; *S. coniciventris*, Fairm., = *pusillus*, Steph.; *S. argentellus*, Thoms., *carbonarius*, Er., Ktz., *nec* Gyl.; = *palposus*, Zett.; *S. sulcatulus*, Muls. & R., = *buphthalmus*, Gr.; *S. inæqualis*, Muls., *gracilentus*, Fairm., *cinerascens*, Er., = *melanarius*, Steph.; *S. congener*, Mäkl., = *canaliculatus*, Gyll.; *S. trivialis*, Ktz., *æqualis*, Muls. & R., = *morio*, Gr.; *S. minutus*, Hoch., ? = *crassus*, Steph.; *S. sublobatus*, Muls., = *carbonarius*, Gyll.; *S. roscidus*, Snellen, = *tarsalis*, Ljung.; *S. viridans*, Baudi, is from tropical America; *S. arabicus*, Saulcy, *major*, Muls., = *canescens*, Rosenh.; *S. salinus*, C. Bris. ? = *binotatus*, Ljungh; *S. cavifrons*, Muls. & R., *plantaris*, Er., = *pallitarsis*, Steph.; *S. pulchripes*, Solsky, *longicornis*, Saulcy, = *hospes*, Er.; *S. gracilicornis*,

Baudi, serpentinus, Fauv., = *politus*, Aubé; *S. fauveli*, Ch. Bris., *ochropus*, Kies., = *elegans*, Rosenh.; *S. annulatus*, Crotch, *elegans*, Fairm., *aceris*, Steph., = *aerosus*, Er.; *S. carinifrons* and *gilvipes*, Mots., *angustulus*, Heer, *aceris*, Lac., = *impressus*, Germ.; *S. impressipennis*, Duv., = *ossium*, Steph.; *S. bituberculatus*, Mots., ? = *italicus*, Baudi [erroneously sunk for the author's *scaber*, to which it is long antecedent in publication]: Fauvel, *l. c.* p. 218, *et seq.*

Octavius, g. n., Fauvel, *l. c.* p. 220. Differs from *Evæsthetus* in its transverse, finely crenulated labrum, its maxillary palpi having the 3rd joint pyriform, and scarcely longer than the 2nd; the 5-jointed club of its antennæ, and its microscopic eyes. *O. pyrenæus*, *ibid.* Pyrenees, and *O. insularis*, *ibid.*, note, Corsica and Sardinia, spp. nn., and possibly *Sipalia grandiceps*, Muls. & R., [which is also stated, *l. c.*, to be rather allied to the *Aleocharides*!]

Stenus alpicola, p. 236, Alps, Pyrenees, *strigosus*, p. 239, note, Corsica, *gallicus*, p. 248, Metz, *explorator*, p. 254, France, Spain, *speculifer*, p. 288, Pyrenees, Fauvel, *l. c.* spp. nn.

Oxytelides.

Thinobius minor, Muls. & R., ? = *delicatulus*, Ktz.; *Trogophlæus tarsalis*, Hoch., = *memnonius*, Er.; *T. brevipennis*, Hoch., ? = *elongatulus*, Er.; *T. aberrans*, Ros., *atomus*, Saulcy, = *exiguus*, Er.; *Oxytelus eppelsheimi*, Bethé, = *rugifrons*, Hoch.; *O. scaber*, Ros., = *intricatus*, Er.; the larva of *Bledius atricapillus* described (p. 18); *B. crenulatus*, Stierl., = *unicornis*, Germ.; *B. fuscipes*, Rye, now considered a sex of *pallipes*, Gr. [!]. Fauvel, *l. c.* suppl. 1, pp. 14-21.

Syntomium aneum makes galleries in friable earth, and occurs in great quantities at Calvados: L. Bedel, Bull. Soc. Ent. Fr. (5) iii. p. clxx.

Acidota ferruginea, Er., occurs in England, and = *cruentata*, Mann., brachypterous form: observations are made on the various opinions of authors with regard to it. *A. rufa*, Grav., is apparently a like form of *A. crenata*. E. C. Rye, Ent. M. M. ix. p. 190.

Thinobius minutissimus, sp. n., Flavel, *l. c.* p. 14, R. Loire (indicated by V. Pyot under the name of *T. ligeris*, Bull. Soc. Ent. Fr. 5, iii. p. ccxxvi.).

Homaliides.

Homalium pineti, Thoms., = *planipenne*, Mäkl.; *H. marginatum*, K., is an *Olophrum*; J. L. Leconte, P. Ac. Philad. 1873, p. 327. *H. marinum*, Rag., = *rufulum*, Er.; E. Ragusa, Bull. Ent. Ital. v. p. 266.

Homalium rugulipenne, Rye, on the Scotch Coast near Aberdeen; J. W. H. Traill, Scot. Nat. ii. p. 20. *H. allardi*, Fairm., in a bird-cage: T. Morley, Ent. M. M. ix. p. 268.

Anthobium pumilio, Ros., *adustum*, Kies., = *torquatum*, Msh., from which *hispanicum*, Bris., is distinct; *Homalium sulculum*, Steph., is adopted for *striatum*, Lac., *nec* Grav.; *H. hiemale*, Fuss, = *gracilicorne*, Fairm.; *H. lagopinum*, Sahlb., *clavicorne*, Mots., ? *littorale*, Thoms., = *laticolle*, Kr.; *Arpedium gyllenhali*, Sahlb., = *brachypterum*, Grav.; *A. brunnescens*, Sahlb., = *gyllenhali*, Zett.; *Acidota quadrata*, Zett., is a good species. Fauvel, *l. c.* Supplement i. pp. 4-11.

Anthophagus aneicollis, sp. n., *id. l. c.* p. 13, Gap.

Lathrimæum macrocephalum, Eppelsheim, S. E. Z. xxxiv. p. 86, Tyrol ;
L. prolongatum, Rottenberg, B. E. Z. xvii. p. 203, Silesia: spp. nn.

Boreaphilus guadarramus [= *velox*, Heer; Fauvel, *l. c.*], Sierra de
 Guadarrama, *astur*, Asturias, Sharp, An. Soc. Esp. i. p. 266: spp. nn.

Phlæocharides.

Phlæocharis cæca, Fauv., = *Scotodytes paradoxus*, Sauley; and a new
 species, *P. corsica*, affords a passage between true *Phlæocharis* with
 developed eyes and the eyeless *Thermocharis*, identified with *Scotodytes*
 (heretofore placed among the *Scydmenidæ*). Fauvel, *l. c.* Supplement i.
 pp. 1 & 2.

Phlæocharis brachyptera, sp. n., Sharp, *l. c.* p. 267, Reinosa.

PSELAPHIDÆ.

L. W. Schaufuss, Nunq. Ot. ii. (1872), pp. 243-248, tabulates the known
 genera, according to the number of antennal joints, in the following
 groups:—*Articerides* (1), *Adranides* (2), *Goniastides* (5), *Clavigerides* (6),
Cyathigerides (7), *Pselaphides* (10 or 11).

Sintectus, Westw., = *Tmesiphorus*, Lec.; J. L. Leconte, P. Ac. Philad.
 1873, p. 327. *Batrisus puncticollis*, Tournier, *nec* Mots., re-named
punctideres [*vox hybr.*]; De Marseul, L'Ab. ix. p. 8. *Bryaxis tristis*,
 Hampe, ? = *nigricans*, Gredl. (which has priority); Gredler, C. H. xi.
 p. 58, note. *Bryaxis nigricans*, Gredl., *nec* Leach, re-named *nigrescens*;
 Marseul, *op. cit.* p. 16. *Bythinus armatus*, Hampe, *nec* Schauf., re-named
armifer; *id. op. cit.* p. 28.

Trimium siculum, Sauley: notes on habits by E. Ragusa, Bull. Ent.
 Ital. v. p. 264.

Ctenistes parvialpis, sp. n., Raffray, R. Z. (3) i. p. 363, pl. xv. figs. 4
 & 4a, Boghari.

Tmesiphorus formicinus, sp. n., W. MacLeay, Tr. Ent. Soc. N. S. W. ii.
 p. 370, Murrumbidgee, Australia.

Metopias elongatus, *traberculatus* [? *tuberculatus* vel *traberculatus*],
 p. 266, *reichii*, p. 267, Amazons, *longipennis*, p. 268, *subcarinatus*, p. 269,
 Santarem; Schaufuss, *l. c.* spp. nn.

Batrisus trifoveolatus, p. 269, Bogota, *rugiceps*, p. 271, New Granada,
peniculus, *orion*, *ibid.*, *honestus*, p. 272, *macrocephalus*, p. 273, New
 Friburg, *4-punctatus*, p. 273, Yucatan, *5-foveolatus*, p. 274, Rio Janeiro;
id. l. c. spp. nn.

Trichonyx lapidicola, sp. n., *id. l. c.* p. 367, *ibid.* figs. 7 & 7a, Algiers.

Rhexius brasiliensis, p. 259, *majorinus*, *insignis*, p. 260, Amazons, *id. l. c.*
 spp. nn.

Panaphantus militaris, Brazil, *gracilis*, Amazons, *id. l. c.* p. 261, spp. nn.

Bryaxis kabyliana, p. 364, pl. xv. figs. 3 & 3a, Kabyliya, *tuberiventris*,
 p. 365, *ibid.* fig. 2, Algiers, Raffray, *l. c.*; *B. pilosella*, Cumana, *sub-*
foveolata, Venezuela, p. 262, *curticornis*, p. 263, Yutacan, *binodula*, *reichii*,
 p. 264, Columbia, Schaufuss, *l. c.*: spp. nn.

Machærites procerus, sp. n., Gredler, *l. c.* p. 59, Condino, Tyrol.

Bythinus algericus, *ibid.* fig. 6, Boghari, *diversicornis*, fig. 5, Algiers,
 Raffray, *l. c.* p. 366, spp. nn.

SILPHIDÆ.

Necrophorus defodiens, Mann., = *melsheimeri*, K.; *N. halli*, K., = *orbicollis*, Say; *N. hebes*, K., = *vespilloides*, Hb., var.; J. L. Leconte, P. Ac. Philad. 1873, pp. 326 & 327.

Necrophorus and *Necrodes* feeding on *Musca* larvæ; Bell, Canad. Ent. v. p. 94.

Silpha subrotundata with a *Filaria* several inches long protruding from the anus: E. Newman, Ent. vi. p. 432.

Liodes punctistriatus, K., is an *Anisotoma*, and not a *Hydnobius*: Leconte, l. c. p. 327.

Anisotoma pallens, Stm., new to Britain; *A. grandis*, Fairm.?, re-described from England, and provisionally named *anglica*; *A. puncticollis*, Thoms., ? = *hybrida*, Er.; and observations on habits of various species: E. C. Rye, Ent. M. M. x. pp. 135 & 136.

Choleva ovalis, sp. n., Kirsch, B. E. Z. xvii. p. 134, Peru.

Adelops piochardi and *hermensis*, Abeille de Perrin, Bull. Soc. Ent. Fr. (5) iii. p. xxviii. Ariège; *A. triangulum*, p. 268, *perezi*, p. 269, Caves of Cuanes and Cuasande, Labra, *crotchi*, *rugosus*, p. 270, Alsasua, *uhagoni*, p. 271, Reinosa, Sharp, An. Soc. Esp. i. (cf. *Uhagon*, *ibid.* p. 272): spp. nn.

Leptinus validus, sp. n., Horn, Tr. Am. Ent. Soc. iv. p. 145, fig., Hudson's Bay.

Anisotoma multipunctata, p. 131, *circinipes*, p. 132, Japan, *macropus*, p. 133, England, E. C. Rye, l. c. spp. nn.

CORYLOPHIDÆ.

Aphanocephalus, g. n., T. V. Wollaston, Ent. M. M. ix. p. 278. Dubiously referred to this family, as a gigantic and aberrant member. Tarsi 3-, antennæ 10-jointed; thorax almost entirely concealing the head. *A. hemisphæricus*, id. l. c. p. 280; *A. wollastoni*, E. C. Rye, op. cit. x. p. 167; Japan, spp. nn.

Phænocephalus, g. n., Wollaston, op. cit. x. p. 167, antennæ 11-jointed; differs from *Sacium* and *Microstagetus* in its prothorax being deeply excavated in front. *P. castaneus*, sp. n., id. l. c. p. 168, Japan.

TRICHOPTERYGIDÆ.

Matthew's "Trichopterygia illustrata et descripta" reviewed by Dohrn. S. E. Z. xxxiv. pp. 398-403.

Millidium trisulcatum, Aubé, var.; A. Matthews, Ent. M. M. ix. p. 178.

Trichopteryx carbonaria, p. 179, England, *latitiæ*, p. 180, Belgium, id. l. c. spp. nn.

Ptenidium lawsoni, sp. n., id. Cist. Ent. (vi.) p. 123, Auckland, New Zealand.

SCAPHIDIIDÆ.

Cyparium inclinans, sp. n., Kirsch, B. E. Z. xvii. p. 135, Peru.

Scaphisoma tropicum, sp. n., id. l. c. p. 136, Peru.

HISTERIDÆ.

G. H. HORN'S "Synopsis of the Histeridæ of the United States" (P. Am. Phil. Soc. xiii. No. 91, pp. 273-360, pl. v.), is practically a re-revision of Leconte's paper on the same subject. The author divides the genera into two tribes: *Hololeptini*, with head porrected and mandibles very prominent, and *Histrini*, with head retracted and deflexed, and not very prominent mandibles. *Lionota* is united to *Hololepta*. The *Histrini* are again divided into *Histrini* and *Saprinini*[ni], *Bacanius* being removed from the former and placed near *Acritus*. *Psiloscelis*, *Margarinotus*, *Hister*, *Phelister*, *Platysoma*, and *Cylistic*, are dubiously treated as subgenera, the species of *Hister* being grouped under the names of typical and common forms; *Gnathoncus* and *Pachylopus* are merged in *Saprinus*. *Heterius morsus*, Lec., pl. v. fig. 3, *Echinodes setiger*, Lec., fig. 4, *Saprinus interstitialis*, Lec., fig. 6, *S. equipunctatus*, Horn, fig. 8, are figured; and the following observations occur:—*Hololepta princeps*, Lec., = *yucateca*, Mars.; *Hister senevillii*, Mars., = *sellatus*, Lec.; *H. arizonæ*, Horn, = *ulkii*, Horn; *H. memnonius*, Say, = *merdarius*, Hoffm.; *H. obtusatus*, Harr., = *interruptus*, Beauv.; *H. decisus* and *repletus*, Lec., = *cænosus*, Er.; *H. hospitus*, Lec., = *dispar*, Lec.; *H. spretus*, Lec., *paykulli*, K., = *depurator*, Say; *H. permixtus*, Zimm., = *defectus*, Lec.; *Epiurus vicinus*, Lec., = *nigrellus*, Say, = *regularis*, Beauv.; *E. minor*, Lec., = *pulicarius*, Er.; *E. decipiens*, Lec., = *planulus*, Er.; *Onthophilus pluricostatus* and *nodatus*, Lec., = *alternatus*, Say, varr.; *Paromalus affinis*, Lec., = *æqualis*, Say; *P. nanus*, Lec., = *14-striatus*, Steph.; *P. corticalis*, Lec., = *tenellus*, Er., from which *gilensis*, Lec., is different; *Saprinus deletus* and *interceptus*, Lec., and *communis*, Mars., = *rotundatus*, Kugel.; *S. consimilis*, Walk., = *californicus*, Mann., = *lugens*, Er.; *S. sejunctus* and *distinguendus*, Mars., *spurcus*, Lec., = *oregonensis*, Lec.; *S. latubris*, Lec., = *placidus*, Er.; *S. obductus* and *vinctus*, Lec., = *insertus*, Lec.; *S. rotundifrons*, Mars., *ex. typ.*, = *lubricus*, Lec.; *S. olidus* and *pratensis*, Lec., = *plenus*, Lec., from which *minutus*, Lec., is quite distinct; *S. desertorum* and *orbiculatus*, Mars., = *fimbriatus*, Lec.; *S. bigener*, Lec., = *spheroides*, Lec.; *S. javeti*, Mars., = *patruelis*, Lec.; *S. barbipes*, Mars., = *lucidulus*, Lec.; *S. desertorum* and *deserticola*, Mars., = *dimidiatipennis*, Lec.; *Plegaderus pusillus*, Lec., *erichsoni*, Lec., = *barbelini*, Mars.; *Acritus aciculatus* and *obliquus*, Lec., *cribripennis* and *natchez*, Mars., = *exiguus*, Er.; *A. conformis*, Lec., *lateralis*, Mars., = *strigosus*, Lec.

A list of 19 species (11 known, some common in Europe) found by G. Lewis in Japan, is given by S. A. de Marseul, Ann. Soc. Ent. Fr. (5) iii. pp. 220 & 221.

All *Histeridæ* are probably carnivorous. *Hister helluo* attacks larvæ of *Agelastica*, *H. pustulosus* those of *Agrotis*. E. Revelière, Nouv. et faits, 1872, p. clxiii.

Hister marseuli, Desbr., = *tropicus*, Mars.; *H. berhardi*, Desbr., = *gehini*, Mars.; *H. compressus*, Desbr., = *striolatus*, Mars.: S. A. de Marseul, Bull. Ent. Fr. (5) iii. p. xix.

Syntelia mexicana, Westw., re-described and figured, and its analogy to *Lioderma* suggested (*cf.* also V. Harold, C. H. xi. p. 138), though

Westwood placed it in the *Trogositidæ*. A. Sallé, R. Z. (3) i. pp. 11 & 12, pl. ix. figs. 2, 2a-d.

Tribalister, g. n., Horn, l. c. p. 299. Differs from *Heterius* and *Scapicælis* in its solid antennal club being pubescent and not truncate, and from the latter also in its normal first joint: legs like those of *Phelister*, and form of the body resembling *Tribalus*. *T. marginellus*, Lec.; pl. v. fig. 2.

Anapleus, g. n., id. l. c. p. 311. Differs from *Dendrophilus* in its slender middle and hind tibiæ, shorter prosternal lobe, mesosternum rounded in front, &c.; from *Bacanius* in having a scutellum; and from *Sphaerosoma* in its antennæ and their cavity. *A. marginatus*, Lec.

Teretriosoma, g. n., id. l. c. p. 347. Intermediate between *Teretrius* and *Xiphonotus*. *T. chalybæum*, sp. n., id. *ibid.* pl. v. fig. 9, Texas.

Æletes, g. n., id. l. c. p. 356. Differs from *Acritus* in its want of a scutellum. *Acritus politus*, *basalis* and *simplex* (*acupictus*, Mars.), Lec., and *A. brevisternus*, Mars.

Syntelia westwoodi, sp. n., Sallé, l. c. p. 13, pl. ix. figs. 3 & 3a, Oaxaca.

Platysoma lewisi, p. 222, *lineicolle*, p. 223, spp. nn., De Marseul, l. c. Japan.

Hister pirithous and *depistor*, id. l. c. p. 224, Japan; *H. lucanus*, p. 283, Lower California; *H. (Phelister) æneomicans*, p. 295, pl. v. fig. 1, Columbia; *H. (Platysoma) aurelianus*, p. 297, New Orleans, Horn, l. c.: spp. nn.

Epierus nasutus, Horn, l. c. p. 301, Fort Yuma, Arizona; *E. marseuli*, p. 136, *ferrugineus*, p. 137, Kirsch, B. E. Z. xvii. Peru: spp. nn.

Carcinops peruvianus, sp. n., Kirsch, l. c. p. 138, Peru.

Paromalus mimeticus, p. 308, pl. v. fig. 5, Arizona; *tejonicus*, p. 309, California, Horn, l. c.; *P. musculus*, De Marseul, l. c. p. 225, Japan: spp. nn.

Dendrophilus xavieri, sp. n., id. l. c. p. 226, Japan (? = *sulcatus*, Mots.).

Saprinus behrensi, p. 315, California, *florida*, p. 318, Florida, *copii*, p. 320, pl. v. fig. 7, Wyoming Territory, *wacoensis*, p. 331, Texas, Horn, l. c. spp. nn.

Plegaderus consors, sp. n., id. l. c. p. 350, Colorado.

Abraeus bonzicus, sp. n., De Marseul, l. c. p. 226, Japan.

Acritus arizonæ, p. 353, Arizona, *sallei*, p. 355, Georgia, Louisiana, Horn, l. c. spp. nn.

PHALACRIDÆ.

Phalacrus acutangulus, p. 138, *sericeus*, p. 139, spp. nn., Kirsch, B. E. Z. xvii. Peru.

Olibrus versicolor, sp. n., id. l. c., p. 139, Peru.

NITIDULIDÆ.

E. REITTER, Verh. Ver. Brünn, xii. pp. 5-194, gives a systematic arrangement of the group "*Nitidulariæ*," discussing the *Nitidulidæ*, *Strongyliidæ*, and *Ipidæ*, in continuation of Murray's treatment of the *Brachypteridæ* and *Carpophilidæ* (of both of which divisions Reitter describes new forms in an appendix). *Cybocephalus* has 4-jointed tarsi,

and must therefore be eliminated. *Thireosoma*, Chevr., belongs to the *Trogositidæ*. *Stelidota nigrivaria*, Fairm., = *8-maculata*, Say, of which *alternans*, Er., is a var.; *Epuræa adumbrata*, Mann., ? = *corticina*, Er., var.; *E. nigra*, Mkl., *ex. typ.*, = *truncatella*, Mann., var.; *E. convexiuscula*, Mann., *ex. typ.*, = *æstiva*, L.; *E. infuscata*, Mkl., *ex. typ.*, = *immunda*, Stm.; *E. vulpecula*, Redt., *ex. typ.*, = *Haptoncus testaceus*, Murr.; *E. incompleta*, Mots., *ex. typ.*, = *obsoleta*, L.; *E. parallelopipeda*, Mots., belongs to a new genus near *Trimenus* (*Carpophilinæ*); *E. angustula*, Mots., *nec* Stm., is re-named *motschulskii* (p. 29); *Nitidula picea*, Boh., is an *Azyra*; *N. lateralis*, White, *nec* Sahlb., is re-named *mayendorfi* (p. 44); *Phenolia* and *Lobiopa*, Er., can only be considered as subgenera of *Soronia*; *Meligethes rubripennis*, Reitt., *cæruleus*, Msh., Reitt., and *californicus*, Reitt., = *æneus*, F.; *M. ventralis*, Baudi, = *corvinus*, Er.; *M. substrigosus*, Er., = *subrugosus*, Gyll., var.; *M. calvus*, *meridianus*, and *durus*, Reitt., = *maurus*, Stm., *varr.*; *M. natricis*, Bris., = *opacus*, Rosenh.; *M. minutus*, Bris., = *distinctus*, Stm.; *M. glauci*, Kolen., = *discoideus*, Er.; *M. solitarius*, Reitt., = *hypocrita*, Bris.; *M. brucki*, Reitt., = *punctatus*, Bris.; *M. carbonarius*, Först., = *erythropus*, Gyll., var.; *M. politus*, Mots., is not a *Meligethes*. *Amphicrossus discolor*, Er.; abd. segments figured, p. 99, fig. 2. *Camptodes thoracicus*, Er., *nec* Cast., is re-named *transversus*, p. 107; *C. phaleratus*, Er., ? = *vittatus*, Er., var.; *C. difficilis*, Kirsch, ? = *turpis*, K.; *C. lætus*, K., ? = *rubens*, Er.; *Aparomia*, Redt., = *Lioschema*, Fairm., which has (but is not allowed) priority. *A. bifasciata*, Redt., = (*Ips*) *xacarillus*, Thoms. A var. *6-pustulatus* of *Ips 4-signatus*, Say, from Florida, p. 161.

Epuræa. The same author, *op. cit.* xi. (1872) pp. 1-26, pl. i. revises the European species, of which he recognizes 28, giving a synoptical table, and figuring the thoracic outline. *E. diffusa*, Bris., = *10-guttata*, F., var.

Nitidula ossium, K., = *obscura*, K.; *Omosita inversa*, Lec. = *N. discoidea*, F.; *Nomophleus*, Lec. = *Europs*, Woll.; *Hesperobænus testaceus*, Mots., is a *Bactridium*: J. L. Leconte, P. Ac. Philad. 1873, p. 328.

E. REITTER, *op. cit.* xi. (1872), pp. 27-48, pl. i. monographs *Rhizophagus* and its allies, of which he constitutes a new family, *Rhizophagidæ*, forming a transition to the *Trogositidæ*, distinguished from the *Ipidæ* by the 10-jointed antennæ, of which the club is solid, round, and distinctly ringed at the apex, and also by the tarsi being heteromerous either in one sex or both sexes. Their double maxillary lobe removes them from the *Nitidulidæ*. The genera so associated are *Rhizophagus*, *Europs*, Woll. (with which *Mimema*, Woll., should probably be united), and a new genus [the author, *op. cit.* xii. p. 8, remarks further on this family; and, p. 140, mentions (without characterizing them) *Tisiphore* and *Histeroschema*, as two new genera to be included in it]. *Rhizophagus punctiventris*, Baudi, = *bipustulatus*, auctt.

New genera and species :

Priops, Reitter, *op. cit.* xii. p. 167, *Brachypterides*. Near *Cercus*, but with longer maxillary and incrassate labial palpi, of which the last joint is oval, mandibles simple at apex, longer antennæ, &c. Facies of narrow

Pria, but with 3-jointed club in ♂. *P. mexicanus*, id. l. c. p. 168, Takubaya.

Cryptoræa, id. l. c. p. 57. Facies of *Epuræa*, but with apex of prosternum projecting; club of antennæ 3-jointed in both sexes, simple; allied to *Pria*. *C. americana*, id. l. c. p. 58, Columbia, Bogota.

Epuræanella, sub-g. of *Epuræa*; type, *Epuræa helvola*, Er., = *rufa*, Say; G. R. Crotch, Check-List N. A. Col. p. 48.

Perthalyera murrayi, g. & sp. nn. (names only), id. *ibid.*

Nitidulora, Reitter, l. c. p. 42 (-*osa* in table, p. 10). Between *Epuræa* and *Nitidula*; labial palpi filiform, tibiæ sub-depressed, spinulose, mandibles simple at apex, elytra almost covering abdomen. Type, *Epuræa ephippium*, Er.

Ithyra, id. l. c. p. 78. Allied to *Meligaethes*; claws slender, with a strong spine at the base. *I. hirsutula*, id. *ibid.* Cape of Good Hope.

Circopes, id. l. c. p. 79. Differs from *Pocadius* in its dilated tarsi and claws slightly toothed at the base. Allied to the next genus, but semi-circular, with labrum not emarginate, elytra not truncate, &c. *C. subquadratus* and *indicus*, Mots., and ? *Pocadius pilistriatus*, MacLeay.

Macroura [*Macrura*: Latr. *Crust.* 1802], id. l. c. p. 80. Allied to *Æthina*, but with an emarginate labrum, simple mesosternum, toothed claws, and the shape of a large *Meligaethes*. *M. nigra*, p. 81, Australia, *meligaethoides*, Himalaya, *nigritula*, ? Ceylon, p. 82, *punctata*, p. 83, Bintang, id. l. c., and ? *Brachypterus subaneus* and *picinus*, Boh.

Apallodes, id. l. c. p. 130. Facies of *Pallodes*, but with a simple labrum, elongate palpi, dentate claws, &c. *A. palpalis*, id. l. c. p. 132, Parahyba, Columbia.

Paromidia, id. l. c. p. 158. Near *Ips*, but with emarginate frons, posterior tibiæ spinulose, &c. *P. nigerrima*, id. *ibid.* locality unknown.

Cnips, id. l. c. p. 163. Allied to *Cryptarcha*, but with simple mandibles. *C. marginatus*, id. l. c. p. 164, Chili.

Ipsimorpha [*Ipom.*], id. l. c. p. 165. Facies of *Ips*, thorax contracted behind as in certain *Carabidæ*, antennal club 3-jointed, joints globose. *I. striatipunctata*, id. *ibid.* Mexico.

Cychrocephalus, id. l. c. p. 180. *Mystropides*. Differs from *Mystrops* in its elongate head, strongly toothed mandibles, simple antennæ (♂ & ♀), and 2 exposed abdominal segments. *C. corvinus*, Mexico, *luctuosus*, Columbia, p. 181, id. l. c.

Lucion, id. *op. cit.* xi. p. 44. Facies of *Heterocerus*. *I. mandibularis*, id. l. c. p. 45, figs. 28 & 29, Cape of Good Hope.

Cercus (*Heterhelus*) *politus*, id. *op. cit.* xii. p. 167, Columbia.

Brachypterus (*Brachyleptus*) *aurisericeus*, id. l. c. p. 169, Greece and Asia Minor.

Colastus major, p. 169, Mexico, *flaveolus*, p. 170, Surinam, id. l. c.

Brachypeplus dilutus, p. 170, Columbia, *badeni*, p. 171, Cape of Good Hope, *B. (Liopeplus) fulgidus*, *ibid.*, ? Caraccas; id. l. c.

Cilleus simplex, p. 172, *sulcicollis*, p. 173, Columbia, *murrayi*, p. 172, S. Brazil, id. l. c.

Macrostola costulata, id. l. c. p. 173, Brazil.

Carpophilus luteipennis, *limbipennis*, p. 174, *mexicanus*, *obtusicollis*, p. 175,

Mexico, *humerosus*, p. 176, Japan, *C. (Myothorax) punctipennis*, p. 176, Brazil, *pauculus*, p. 177, Cape of Good Hope, *C. (Nitops) crassicollis, distinctus*, p. 177, Columbia, *id. l. c.*

Haptoncus piceus, remotus, p. 178, Moulmein, *pauperculus*, p. 179, S. Domingo, *id. l. c.*

Mystrops basalis, *id. l. c.* p. 179, Brazil.

Ecnomæus haroldi, *id. l. c.* p. 182, Himalaya.

Perilopa flava, *id. l. c.* p. 11, Chili.

Epureæa silesiaca, p. 9, Silesia, *binotata*, p. 15, Switzerland, (considered a var., the type-form of which is from Silesia, and is named *nana*; *id. op. cit.* xii. p. 19, note), *excisicollis*, p. 18, Hanover, *marseuli*, Sicily, *rubrimarginata*, Tyrol and South Germany, p. 21, *id. op. cit.* xi.; *E. sericata*, p. 21, Tyrol, *suturalis*, p. 22, Silesia, *ruficollis*, p. 29, Chili, *terminata*, p. 30, Madagascar, E. India, *domina*, p. 31, *obnoxia, similis*, p. 32, *pellax, foveicollis*, p. 33, *paulula*, p. 36, *parilis, rubrinotata*, p. 37, *mandibularis*, p. 38, *japonica*, p. 39, *thiemii*, p. 41, Japan, *obtusicollis*, p. 32, *rotundicollis*, p. 34, *erichsoni*, p. 35, *macrophthalma*, p. 38, N. America, *flavicans*, p. 34, Chicago, *nitida*, p. 35, Madagascar, *minuta*, Java, and *mellitula*, Moulmein, p. 40, *id. op. cit.* xii.

Nitidula mollicella, Egypt, *rufidens*, Columbia, *id. op. cit.* xii. p. 44.

Soronia japonica, p. 47, Japan, *superba*, p. 48, Australia, *chilensis*, p. 49, Chili, *id. l. c.*

Lobiopa lineola, Kirsch, B. E. Z. xvii. p. 140, Peru.

Halepopeplus dimidiatus, *id. ibid.*, Peru.

Omosita funesta, Reitter, *op. cit.* xii. p. 45, Mexico.

Prometopia dohrniana, p. 50, Brazil, *cryptarchoides*, p. 51, Mexico, *id. l. c.*

Axyra perplexa, *id. l. c.* p. 53, ? Java or Africa.

Stelidota ferruginea, p. 14, "America," *biseriata*, p. 15, Baltimore, Cuba, Brazil, *rubripes*, p. 16, Orizaba, *id. l. c.*; *S. metabola*, p. 141, *thoracica*, p. 142, Kirsch, *l. c.* Peru.

Æthina major, Madagascar, *villosa*, Mexico, p. 84, *æneipennis*, p. 85, Japan, *obscura*, p. 86, Himalaya, Reitter, *l. c.*

Pria magna and *argenteola*, p. 65, Cape of Good Hope, *nigritula*, p. 66, Madagascar, *deplanata*, p. 67, New Caledonia, *id. l. c.*

Meligethes tener, Illyria, and *nitidicollis*, Sungaria, p. 49, *splendidulus*, Cape of Good Hope, and *niesslii*, Sydney, p. 50, *ferrugineus*, p. 51, Himalaya, *id. op. cit.* xi.; *M. violaceus*, p. 71, *japonicus*, p. 73, *lewisi*, p. 74, *flavicollis*, p. 76, Japan, *luminosus*, Ceylon, *gredleri*, Tyrol, p. 72, *letzneri*, p. 74, Germany, *luteolus*, Ceylon, *krueperi*, Smyrna, p. 75, *id. op. cit.* xii.

Hebascus vestitus, Kirsch, *l. c.* p. 142, Peru; *H. discoideus*, Reitter, *op. cit.* xii. p. 97, Mexico.

Pocadius brevis, p. 94, Cuba, *infuscatus*, *ibid.*, *limbatus*, p. 95, N. America, *japonicus*, p. 94, *nobilis*, p. 95, Japan, Reitter, *l. c.*

Strongylus camptoides, p. 128, Mexico, *coccinelloides*, Java, *notatus*, Ceylon, p. 129, *pallodoides*, p. 130, Parahyba; *id. l. c.*

Lasiodactylus tuberculifer, p. 87, Japan, *testudinarius*, *ibid.*, *caliginosus*, p. 90, Madagascar, *substriatus*, p. 89, Senegambia, *elongatus*, *ibid.*, *cethinoides*, p. 91, locality unknown, *chevrolati*, p. 90, ? E. Indies, *americanus*, Brazil, *marginatus*, Australia, p. 92, *id. l. c.*

Camptodes ventralis, p. 103, *viridescens*, p. 112, *luteus*, p. 113, *auctus*, p. 115, *glaberrimus*, p. 116, *corallinus*, p. 117, *jekeli*, p. 119, *angustipennis*, p. 120, *erichsoni*, p. 124, Brazil, *brevis*, p. 104, *nigricyaneus*, p. 105, *collaris*, p. 109, *metallicus*, p. 110, *discoideus*, p. 125, Mexico, *nigriviridis*, p. 105, Mexico, Brazil, *splendens*, p. 107, *languidus*, *signaticollis*, p. 108, *atripennis*, p. 127, Columbia, *nitidipennis*, p. 126, Columbia, Brazil (? = *melanarius*, Blanch.), *rubrivittatus*, p. 111, Bolivia, *laevicollis*, p. 113, Bogota, *umbripennis*, p. 120, *distinctus*, p. 122, *nitidicollis*, p. 123, Peru, *nitidus*, p. 105, *limbipennis*, p. 109, *politus*, p. 116, *apicipennis*, p. 118, *fuscipennis*, p. 125, localities unknown, *id. l. c.*; *C. dichrous*, *difficilis*, p. 143, *irritans*, *turpis*, p. 144, *pygidialis*, *obsoletus*, p. 145, *laetus*, *opacus*, p. 146, *molestus*, p. 147, Kirsch, *l. c.* Peru.

Amphicrossus immaculatus, p. 99, fig. 1, locality unknown, *japonicus*, fig. 3, *lewisi*, fig. 4, p. 100, Japan, Reitter, *l. c.*

Pallodes brunnipennis and *gracilipes*, Kirsch, *l. c.* p. 148, Peru; *P. umbratilis*, p. 134, Japan, *jucundus*, Mexico, *ruficollis*, Cuba, p. 135, Reitter, *l. c.*

Oxycnemus rostratus, locality unknown, *nigriceps*, *annulipes*, p. 137, *aterrimus*, p. 138, Brazil, *id. l. c.*

Triacanus nigripennis, *id. l. c.* p. 139, Ceylon.

Cryptarcha fuscipennis, Kirsch, *l. c.* p. 148, Peru; *C. aclypta*, p. 142, *elongata*, p. 143, *clavata*, p. 144, *thalycroides*, p. 146, *omositoides*, p. 151, Mexico, *apicipennis*, p. 144, Caraccas, *camptoides*, p. 146, Senegambia, *striatipunctata*, *ephippiger*, p. 147, *nanula*, p. 155, Columbia, *australis*, p. 148, *nitidissima*, p. 156, Australia, *ovata*, p. 148, Para, *bella*, p. 150, N. America, *lewisi*, p. 152, Japan, *senegalensis*, p. 153, Senegal, *badeni*, *foveicollis*, *polita*, p. 154, *pallodoides*, p. 156, Brazil, *trucidata*, p. 145, *maculata*, p. 151, localities unknown, Reitter, *l. c.* spp. nn.

Ips chinensis, p. 160, China, Japan, *rubrimaculatus*, p. 161, Florida, *id. l. c.*

Pityophagus rufipennis, Horn, Tr. Am. Ent. Soc. iv. p. 146, Oregon, Vancouver I.

Rhizophagus brucki, p. 30, Crefeld, Rhenish Prussia, *corpulentus*, p. 35, *adustus*, p. 39, N. America, *angulicollis*, *quadricollis*, p. 36, *subtilis*, p. 39, Columbia, *heydeni*, p. 37, Cuba, *striolatus*, *orientalis*, p. 38, localities unknown; Reitter, *op. cit.* xi.

Europs wollastoni, p. 41, Venezuela, *lineellus*, p. 42, ? N. America, *rhizophagoides*, Columbia, Mexico (and var. *apicalis*, Jamaica), p. 43, *id. l. c.*

TROGOSITIDÆ.

Thireosoma circulare, Chev., belongs here, and not to the *Nitidulida*: Reitter, *op. cit.* xii. p. 8, note.

Thireosoma cassideum, sp. n., *id. l. c.* Mexico.

Temnochila chalcea and *rugulosa*, spp. nn., Kirsch, B. E. Z. xvii. p. 149, Peru.

COLYDIDÆ.

Tarphius humerosus, Fairm., nec Woll., re-named *wollastoni* by Fairmaire, re-re-named *fairmairii* by De Marseul, L'Ab. ix. p. 134.

Tarphisoma, Mots., ? = *Tarphiosoma*, Woll.; T. V. Wollaston, Tr. E. Soc. 1873, p. 3, note.

Ditoma, Er., nec Latr., is re-named *Synchyttodes*: G. R. Crotch, Check List N. A. Col. p. 45.

Endectus, Lec., = *Penthelispa*, Pasc.; J. L. Leconte, P. Ac. Philad. 1873, p. 328.

Cerylon forticorne, Muls. & Rey, = *fagi*, Bris.; *C. attenuatum*, Fairm., = *semistriatum*, Perris: L. Bedel, Bull. Soc. Ent. Fr. (5) iii. p. lxxxvi.

Pseudotarphius, g. n., T. V. Wollaston, l. c. p. 1. Differs from *Tarphius* in its 10-jointed antennæ, of which the club is solid, and from *Paryphus* in wanting thoracic antennal grooves, and in its maxillary palpi not having the apical joint securiform. *P. lewisi*, sp. n., id. l. c. p. 4, Japan.

Tarphiomimetes, g. n., id. Ent. M. M. x. p. 9. Differs from *Tarphius* in its 3-jointed club, conspicuous scutellum, and sub-approximated coxæ: allied also to *Endophleus*. *T. lawsoni* and *viridipicta*, spp. nn., id. l. c. p. 11, New Zealand.

Tarphiomimus, g. n., id. l. c. p. 12. Differs from *Endophleus* in its distinctly 3-jointed club, its laterally 4-lobed thorax, asperate femora, &c.; and from *Tarphiomimetes* in sculpture and outline, and in the basal joints of the tarsi being much wider and more produced beneath. *T. indentatus*, sp. n., id. l. c. p. 13, New Zealand.

Tarphiosoma echinatum, sp. n., id. Tr. E. Soc. 1873, p. 3, note, Ceylon.

Eusarcus letourneuxi, sp. n., Raffray, R. Z. (3) i. p. 368, Dellys, Algeria.

Deretaphrus oregonensis, sp. n., Horn, Tr. Am. Ent. Soc. iv. p. 146, Oregon and ? California (genus hitherto Australian).

RHYSODIDÆ.

G. R. CROTCH, P. Am. Phil. Soc. xiii. p. 77, considers this family allied to the *Scaritidæ*, laying stress upon the moniliform antennæ, and the small, sub-triangular, prominent, and separate posterior coxæ. [Cf. Lacordaire, Gen. Col. ii. p. 386. Crotch adopts the alteration '*Rhysodes*' unnecessarily made by Agassiz; *Rhysodes*, as originally proposed by Dalman, being clearly $\rho\upsilon\sigma\acute{\omega}\delta\eta\varsigma$, not requiring the doubled σ after the long υ : cf. Liddell & Scott, edn. 2].

A. CHEVROLAT, Ann. Soc. Ent. Fr. (5) iii. pp. 207-218, discusses the group generally [using '*Rhysodes*,' '*Rhyzodes*,' and '*Rhizodides*' indiscriminately]. *R. piceus*, Germ., probably = *aratus*, Newm.; *R. trisulcatus*, Germ., is referred to *Clinidium*, and adopted for (the prior) *canaliculatus*, Costa, a name preoccupied in 1836 by Castelnau, but not mentioned in Gemm. & v. Harold's Cat. *Ips monilis*, Ol., referred to *Rhysodes* by Germar, is apparently a *Læmophleus*. *R. sculptilis*, Newm. [as Lacordaire suggested], and *conjungens*, Germ., are referred to *Clinidium*; *R. planus*, Chev., = *C. guildingi*, Kirby. *Stemm* [at] *oderus*, Spin., is persistently misquoted as *Stemnatoderus*. In a supplement, l. c. pp. 387 & 388, *R. canaliculatus*, Cast., is redescribed, and *R. tubericeps*, Fairm., identified with it; and the Brazilian *R. livatus*, Newm., is recorded from Honolulu.

Fairmaire, op. cit. p. 389, adds his own *R. parumcostatus* to Chevrolat's

list, and (p. 390) describes a new species from Brazil as "*Clinidium liratus*, Newm.," remarking that in *Clinidium* the eyes are as developed as in *Rhysodes*, only hidden. He appears to have suppressed his own specific name on Chevrolat's identifying his insect with *R. liratus*, Newm., which he refers to *Clinidium*.

Rhizodina [*Rhysodina*, correctly, *l. c.* Bull. p. xlix.], *g. n.*, Chevrolat, *l. c.* p. 208. Placed at the head of the family, but no differential characters are given. *R. mniszzechi*, *sp. n.*, *id. l. c.* p. 209, Abyssinia.

Rhysodes aterrimus, p. 209, E. India, Malacca, *quadristriatus*, Cayenne, *maderiensis*, Madereo, p. 211, *id. l. c.*; *R. taprobanæ*, Fairmaire, *op. cit.* p. 389, Ceylon: *spp. nn.*

Clinidium mexicanum, Orizaba, *rojasi*, Venezuela, p. 214, *curvicosta* and *humeralidens*, p. 215, *granatensis* [*sic*], "Nova-Grenata," *arcuatum*, New Zealand, p. 216, *cavicole*, New Granada, Bogota, *simplex*, New Granada, p. 388, Chevrolat, *l. c.* *spp. nn.*

CUCUJIDÆ.

Ochrosanis dohrni, Pasc., = *Hemipeplus marginipennis*, Lec.; J. L. Leconte, *l. c.* p. 328.

Diochares, Reitter, = *Xenoscelis*, Woll.; *X. deplanatus*, Woll., = *costipennis*, Fairm.; *Cryptamorpha musæ*, Woll., = (*Psammæcus*) *desjardinsi*, Guér.; L. Fairmaire, Bull. Soc. Ent. Fr. (5) iii. p. ccxxxv.

Ino 4-notata, H. S. Gorham, Ent. M. M. ix. p. 258, Japan; *I. melano-leuca*, p. 361, *venusta*, p. 362, R. Gestro, Ann. Mus. Genov. iv. Sarawak: *spp. nn.*

Ochrosanis klematanica, *sp. n.*, Gestro, *l. c.* p. 364, fig., Sarawak.

Psammæcus longicornis, *sp. n.*, Schaufuss, Nunq. Ot. ii. (1872), p. 277, Caffraria.

CRYPTOPHAGIDÆ.

Cryptophagus, Gyll., *nec* Hbst., is re-named *Cryptophagistes*: G. R. Crotch, Check List N. A. Col. p. 44.

Cryptophagus crenulatus, Er., ? = *crenatus*, Gyll., with which *bicolor*, Sturm, is certainly not, as Thomson states, identical: *crenatus*, Gyll., is proposed to be dropped. D. Sharp, Ent. M. M. ix. p. 244.

Atomaria atra, K., *nec* Hbst., ? = *latula*, Lec., var.; J. L. Leconte, P. Ac. Philad. 1873, p. 328.

Telmatophilus tropicus, *sp. n.*, Kirsch, B. E. Z. xvii. p. 150, Peru.

Cryptophagus bifasciatus, *id. l. c.* p. 151, Peru; *C. subtilis*, C. G. Thomson, Opusc. Ent. (v.) p. 530, Lund (in *Cannabis* seeds): *spp. nn.*

LATHRIDIIDÆ.

Reitteria lucifuga, Led., is certainly not a *Merophysia*, as Schaufuss opines; Reitter, C. H. xi. p. 113, note.

Derotoma, Reitt., ? = *Astilpnus*, Perris; L. Fairmaire, Bull. Soc. Ent. Fr. (5) iii. p. ccxxxv.

Lygeus subterraneus occurs with *Adelops aubæi* under bark of wood buried in the ground at St. Maximin, Var. E. A. de Perrin, Pet. Nouv. p. 359.

MYCETOPHAGIDÆ.

Myrmecozenus latridioides, sp. n., Crotch, Tr. Am. Ent. Soc. iv. p. 363, United States.

Litargus 4-maculatus, sp. n., Kirsch, B. E. Z. xvii. p. 151, Peru.

THORICTIDÆ.

Thorictus fairmairii, sp. n., Raffray, R. Z. (3) i. p. 369, pl. xvi. fig. 5, Boghari.

DERMESTIDÆ.

Dermestes lardarius at Canterbury, New Zealand; C. M. Wakefield, Tr. N. Z. Inst. vi. p. 153: in America (larvæ, &c., described and figured); W. Saunders, Canad. Ent. v. p. 171.

Cryptorhopalum heydeni, sp. n., Kirsch, l. c. p. 152, Peru.

BYRRHIDÆ.

Byrrhus tuscanus, Dohrn, = *aureivittatus*, Rche.; C. A. Dohrn, S. E. Z. xxxiv. p. 321.

Chelonarium. Kirsch, l. c. p. 152, corrects some of Lacordaire's characters (antennæ, prothoracic furrows, and metasternal projection).

Dendrodipnis, g. n., T. V. Wollaston, Ent. M. M. x. p. 33. Doubtfully distinct from *Nosodendron*; body not fasciculated; all the tarsi received in the dilated tibiæ; club abruptly 3-jointed, the joint preceding it narrow and lenticular. *D. cænosus*, sp. n., *id.* l. c. p. 34, Japan.

Chelonarium emys, sp. n., Kirsch, l. c. p. 339, Peru.

GEORYSSIDÆ.

Mulsant, Ann. Soc. Agric. Lyon (4) iv. (1871), pp. 61-78, pl. i., under the title 'Tribu des Improsternés,' revises the French species.

Georyssus siculus, sp. n., Ragusa, Bull. Ent. Ital. v. p. 233, Palermo.

PARNIDÆ.

Mulsant, l. c. pp. 137-176, pl. ii., under the title 'Tribu des Diversicornes,' revises the French species of *Potamophilus*, *Potaminus* [as usual, written *Pomatinus*], and *Parnus*.

Parnus striatipunctatus, Heer, *pilosellus*, Er., and *striatellus*, Fairm., have 10-jointed antennæ, of which the club occupies 7 joints: all others have an 8-jointed club, and 11 joints in all. C. Brisout, Bull. Soc. Ent. Fr. (5) iii. p. cviii.

Mulsant, l. c. p. 79-135, pls. i. & ii., under the title 'Tribu des Uncifères,' revises the French species of *Elmidæ*.

Riolus, g. n., Mulsant (& Rey), l. c. p. 107. Prothorax not laterally keeled. *Elmis cupreus*, *subriolaceus*, and *nitens*, Müll., and *sodalis*, Er.

Esolus, g. n., *id.* l. c. p. 114. Differs from *Lareynia* (= *Elmis æneus* and allies) in its non-sulcate frons, from *Elmis* in its elevated 7th

interstice, from *Riolus* in its keeled thorax, and from *Limnius* in its narrow scutellum. *Elmis parallelipipedus*, *angustatus*, and *pygmaeus*, Müll.

Dupophilus [? *Dyptophilus*], g. n., *id. l. c.* p. 119. Connects the preceding with *Limnius*, having the scutellum as wide as long. *D. brevis*, sp. n., *id. l. c.* p. 120, Rhone.

Elmis subcarinatus, sp. n., Sharp, An. Soc. Esp. i. p. 263, Reinosa.

Limnius gigas, p. 263, *perezi*, p. 264, Escorial, *brevis*, *ibid.*, Argel, Sinai, *id. l. c.* spp. nn.

HETEROCERIDÆ.

Mulsant, *l. c.* pp. 117–234, pl. ii., under the title ‘Tribu des Spinipèdes,’ revises the French species.

Heterocerus murinus, Kies., has 10 joints to the antennæ, and a small oval club; *H. hispidulus*, *marmota*, and *minutus*, Kies., and *curtulus*, Fairm., have also 10 joints, with a 6-jointed club, and the abdominal plates quite closed. *H. maritimus*, Guér., *pruinosis*, *intermedius*, *crinitus*, and *senescens* (*punctatus*, C. Bris.), Kies., and *curtus*, Ros., have 11-jointed antennæ, and the plates closed. All these occur in France. All the other species have 11 joints, and the plates not closed on the inner side. C. Brisout, Bull. Soc. Ent. Fr. (5) iii. pp. cvii. & cviii.

Heterocerus albipennis, Fairmaire, R. Z. (3) i. p. 336, Boghari; *H. pictus*, Mulsant & Rey, Ann. Soc. L. Lyon (n. s.), xix. (1872), p. 433, Sicily: spp. nn.

LUCANIDÆ.

Mulsant, Ann. Soc. Agric. Lyon (4) iii. (1870), pp. 481–522, pl. iii., revises the French species of the ‘Tribu des Pectinicornes.’ *Lucanus pontbrianti*, *Ceruchus tarandus*, and *Æsalus scarabæoides* are figured, with various details of other species.

Dorcus punctatus, Pontopp., = *parallelipipedus*, L., ♀; Von Harold, C. H. xi. p. 107.

Lissotes; general observations and table of species, p. 340: *Nigidius bubalus*, Swed., (dubious) synonymic arrangement, p. 342, table of species, p. 343; *Figulus sublevis*, Palis., synonymy; *F. trilobus*, Westw., is a *Nigidius*. F. J. S. Parry, Tr. E. Soc. 1873.

Nicagus, Lec., cannot be separated from the *Lucanidæ*; its characters are pointed out, and *N. obscurus*, Lec., figured in detail: H. Deyrolle & F. J. S. Parry, *l. c.* pp. 344 & 345, pl. v. fig. 8, a, b.

(The late) F. Stoliczka, in ‘A contribution towards a Monograph of the Indian Passalidæ,’ J. A. S. B. (n. s.) xlii. pt. 2, pp. 149–162 (abstracted, P. A. S. B. 1873, pp. 112–118, with account of discussion on Kaup’s classification, to which Phear and Blanford object, *l. c.*), follows Kaup “without prejudice.” In India, species of this group only occur where there is a Malayan fauna, none being known from the Himalayas west of Nepal, or from any part of Central India, or the Punjaub. 23 species are enumerated.

Chiusognathus pubescens, sp. n., C. O. Waterhouse, Ent. M. M. x. p. 110, Venezuela.

Lucanus dybowski[i], sp. n., F. J. S. Parry, *l. c.* p. 335, R. Amur, E. Thibet.

Odontolabis lowii, sp. n., *id. l. c.* p. 336, pl. v. fig. 1, Borneo.

Metopodontus blanchardi, sp. n., *id. l. c.* p. 337, fig. 2, Mongolia.

Prosopocælus mohniki[i], sp. n., *id. l. c.* p. 338, fig. 3, Java.

Dorcus semisulcatus, sp. n., Mulsant & Rey, Ann. Soc. L. Lyon (n. s.), xx. p. 52, Bone (? = *oblongus*, Charp.) : = *musimon*, Géné, var.; Desbr. des Loges, MT. schw. ent. Ges. iv. p. 196.

Ægus subnitidus, sp. n., C. O. Waterhouse, Ent. M. M. ix. p. 277, Japan.

Lissotes capito, sp. n., H. Deyrolle, Tr. E. Soc. 1873, p. 339, pl. v. fig. 4, ♂, Chatham Islands; ♀, F. J. S. Parry, *ibid.* fig. 5.

Nigidius cribricollis, p. 340, fig. 6, W. Africa, *distinctus*, p. 341, fig. 7, Cambodia, spp. nn., F. J. S. Parry, *l. c.*

Figulus binodulus, p. 277, *punctatus*, p. 278, spp. nn., C. O. Waterhouse, *op. cit.* ix. Japan.

Ceracupes austeni, sp. n., Stoliczka, *l. c.* p. 151, N. E. Bengal.

Comacupes masoni, *ibid.*, Johore, *felderi*, p. 152, note, "Bras." (? Philippine Islands), *id. l. c.* spp. nn.

Pleurarius brachyphyllus, sp. n., *id. l. c.* p. 152, Nilgheries and Malabar.

Semicyclus redtenbacheri, sp. n., *id. ibid.* Ceylon.

Laches gracilis, sp. n., *id. l. c.* p. 156, note, Batchian.

Ceteius australiensis, sp. n., *id. l. c.* p. 157, note, Australia.

Basilianus indicus, p. 159, Nilgheries and Malabar, *andamanensis*, p. 160, Port Blair and Nicobar Group, *sikkimensis*, p. 161, Sikkim, *id. l. c.* spp. nn.

SCARABÆIDÆ.

Mulsant, Ann. Soc. Agric. Lyon (4) iii. (1870), pp. 155-480, completes his revision of the French species of the 'Tribu des Lamellicornes' [Zool. Rec. viii. p. 260], with his accustomed prolixity. Various supposed new species are indicated in a conversational manner—in some instances only to be immediately deposited at the suggestion of the author himself. The whole work has been subsequently re-issued as Hist. Nat. Col. France, Lamellicornes, 2nd edn., 1871, and is quoted as such by Von Harold. *Scarabæus sacer*, *Onitis ion*, *Alphodius alpinus*, *Bolboceras gallicus* (pl. i.), and *Hybosorus arator*, *Hybalus dorcas*, and *Gnorimus nobilis*, with many details of various other species (pl. ii.), are figured.

Coprides.

H. Burmeister, S. E. Z. xxxiv. pp. 403-417, under the heading "Lamellicornia Argentina," commences a revision of the *Coprides* of the La Plata district, divided into 4 groups:—*Ateuchidæ*, *Coprididæ*, *Onitididæ*, and *Onthophagidæ*. The first of these only is discussed, under the divisions *Eucraniidæ* and *Coprobiidæ*.

Ateuchus æratus, Gerst., fig. 5, *catenatus*, G., fig. 4, *Gymnopleurus umbrinus*, G., fig. 6, *Sisyphus nodifer*, G., fig. 7, *Anachalcus procerus*, G., figs. 3 & 3a, *Onthophagus picticollis*, G., fig. 8, *O. aterrimus*, G., fig. 10, *O. laceratus*, G., fig. 9, figured by Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2, pl. vii.

Gymnopleurus obtusus, Muls., = *geoffroyi*; Von Harold, C. H. xi. p. 118 : = *mopsus*, Pall., var., Desbr. des Loges, MT. schw. ent. Ges. iv. p. 196. *Cheridium capistratum*, F., = *histeroides*, Weber; *Phanæus lar*, Jabl., is not recognizable, and "*Ligiceps niger occidentalis*," Voet, quoted by him, is a true *Copris*, ? *incertus*, Say; *Onitis apelles*, F., 1781, = *scabrosus*, F., 1777; *Onthophagus meleager*, F., = *Oniticellus marsyas*, Ol., and Cayenne is erroneously quoted as its locality; *Onthophagus variegatus*, Roth, nec F., is re-named *filicornis*: Von Harold, C. H. xi. pp. 107-109. *O. mastersi*, M'L., = *thoreyi*, Harold: *id. l. c.* p. 146. *O. centrimaculatus*, Redt., = *cruciatus*, Mén.: J. Faust, Hor. Ent. Ross. ix. p. 310.

Labroma, g. n., D. Sharp, R. Z. (3) i. p. 262. *Ateuchides*: of evident affinities to *Menthophilus* and *Cephalodesmius*. *L. horrens*, sp. n., *id. l. c.* p. 263, W. Australia.

Homodesmius, g. n., *id. l. c.* p. 264. *Ateuchides*: very near *Cephalodesmius*. *H. haroldi*, sp. n., *id. l. c.* p. 265, Rockhampton.

Saphobius, g. n., *id. l. c.* p. 265. *Ateuchides*: near *Tessarodon*. *S. edwardsi*, sp. n., *id. l. c.* p. 266, New Zealand.

Disphysema, g. n., Von Harold, C. H. xi. p. 102. Near *Macroderes*, but with epipleuræ almost absent, triangular and un-narrowed metathoracic parapleuræ, and non-dilated first joint of labial palpi. *D. candezii*, sp. n., *id. ibid.*, Malabar.

Parachorius, g. n., *id. l. c.* p. 103. Near *Canthidium*, but with dilated first joint to the labial palpi, and the posterior tibiæ only slightly widened towards the apex. *P. thomsoni*, sp. n., *id. ibid.*, East India.

Eucranium pulvinatum, sp. n., Burmeister, *l. c.* p. 405, Cordova.

Glyphoderus centralis, sp. n., *id. l. c.* p. 407, La Plata.

Megathopa candezii, sp. n., Harold, *l. c.* p. 102, Nicaragua.

Canthon pinopterus, sp. n., Kirsch, B. E. Z. xvii. p. 340, Peru.

Deltochilum variolosum, Catamarca, *valgum*, Tucuman, spp. nn., Burmeister, *l. c.* p. 409.

Coprobium principalis, p. 411, *atramentarius*, p. 415, Tucuman, Catamarca, *bipunctatus*, p. 412, Cordova, *badius*, *ibid.* note, Bolivia, *semicupreus*, p. 413, Buenos Aires, *id. l. c.* spp. nn.

Menthophilus subsulcatus, sp. n., Sharp, *l. c.* p. 264, W. Australia.

Onthophagus forcipatus, p. 103, Mangalore, E. India, *anthracinus*, Guatemala, *tristis*, Brazil, *scabriusculus*, Kiachta, p. 104, Harold, *l. c.*; *O. mniszcecki*, Hochhuth, Bull. Mosc. xlvi. 1, p. 127, S. Russia: spp. nn.

Oniticellus sumptuosus, p. 104, Madagascar, *triangularis*, S. W. Africa, *africanus*, Cape of Good Hope, p. 105, Harold, *l. c.*; *O. revelieri*, Mulsant & Rey, Ann. Soc. Agric. Lyon (4) iii. (1870) p. 469 (*O. revelierei*, *id.* Ann. Soc. L. Lyon, n. s., xix. 1872, p. 430: in each case treated as new!), Corsica (= *concinus*, Géné; Harold, *l. c.* p. 118): spp. nn.

Aphodiides.

Aphodius plagiatus, L., var. n., *elegantulus*; Hochhuth, Bull. Mosc. xlvi. p. 131, S. Russia, *A. atramentarius*, Er., is considered as specifically distinct from *depressus*, Kugel.; *id. l. c.* p. 134. *Aphodius biguttatus*, Muls., = *sanguinolentus*, Pz.; Harold, *l. c.* p. 120. *A. prævustus*, Ballion,

is a *Plagiogonus*; *A. barbarus*, Fairm., = *limbatus*, Germ.; *Ammæcius obscurus*, M^L., is an *Atenius*: id. l. c. p. 147. *A. barbarus*, Fairm., is not only distinct from *limbatus*, but belongs to a widely different group of the genus: Reiche, Bull. Soc. Ent. Fr. (5) iii. p. clx.

Aphodius. The following sub-genera are apparently intended as new by Mulsant, Hist. Nat. Col. de France, *Lamellicornes*, 2nd edn., 1871 [cf. Zool. Rec. viii. p. 263]:—*Agrilinus* (type, *ater*), *Planolinus* (*piceus*), *Oromus* (*alpinus*), *Orodalus* (*pusillus*), *Emadus* (*4-maculatus*), *Nialus* (*varians*), *Mecynodes* (*parallelus*), *Eudolus* (*4-guttatus*), *Biralus* (*satellitius*), *Agolius* (*mixtus*), *Amidorus* (*obscurus*), *Sigorus* (*porcus*), *Pubinus* (*lutarius*), *Limarus* (*zenkeri*), *Anomius* (*unicolor*), *Subrinus* (*sturmi*), *Erytus* (*brunneus*), *Labarrus* (*lividus*), *Bodilus* (*sordidus*), *Esymus* (*merdarius*), *Volinus* (*inquinatus*), *Nobius* (*consputus*), *Nimbus* (*contaminatus*), *Loraspis* (*sulcatus*). The latter is an *Ammæcius*, teste Von Harold (C. H. xi. p. 117), who hints that in a 3rd edn. of the author's work every French *Aphodius* will have its separate genus, and (p. 119) criticizes the adoption of the author's names *rubens* for *alpinus*, Scop., and *vernus* for *constans*, Duft.

Aphodius baticus, sp. n., Mulsant, l. c. p. 270, Spain.

Orophnides.

Hybalus doursi, Luc.: Dours, Pet. Nouv. p. 299, states that the larva feeds in roots of *Rumex patientia* and *Beta vulgaris* in Algiers.

Hybalus gazella, sp. n., Raffray, R. Z. (3) i. p. 370, pl. xvi. fig. 7. Boghari.

Geotrupidæ.

Odontæus mobilicornis: 9 specimens disgorged by lizards (*Lacerta viridis*). Hochhuth, Bull. Mosc. xlvi. 1, p. 137.

Geotrupes stercorarius and allies. Von Harold, C. H. xi. pp. 87-101, recognizes three species, for two of which he employs Marshamian names: 1, *stercorarius*, L.; 2, *mesolius*, Thoms., = *stercorarius*, Er., nec L., = *sublevigatus*, Steph., = *puncticollis*, Malin., = *spiniger*, Msh.; 3, *putridarius*, Muls., nec Er., = *intermedius*, Ferr., = *punctatistriatus*, Steph., = *foveatus*, Msh. These are differentiated, with copious bibliographical references.

Geotrupes polycerus, Pall. (*dispar*, F.). Three forms described and named *pallasi*, *menetriesi*, and *perroudi*: Mulsant, Col. Fr. *Lamellic.* 2nd edn. 1871 (cf. Von Harold, C. H. xi. p. 118).

Silotrupes, g. n., Mulsant (& Rey), Ann. Soc. Agric. Lyon (4) iii. (1870) p. 194. Anterior tooth of front tibia simple in both sexes. Connects *Trypocopsis* and *Thorectes*. *S. epistomalis*, sp. n., *id. ibid.* ? S. France.

Bolboceras andicola, Philippi, S. E. Z. xxxiv. p. 312, Santiago; *B. armigerum*, p. 360, *puncticolle*, *laticorne*, p. 361, *angulicorne*, p. 362, *cavicolle*, *cornigerum*, p. 363, *carpentaria*, *denticolle*, p. 364, *lacunosum*, *planiceps*, *sweeri*, p. 365, W. MacLeay, Tr. Ent. Soc. N. S. W. ii., Australia: spp. nn.

Trogides.

Antiochrus, g. n., D. Sharp, R. Z. (3) i. p. 266. Very near *Liparochrus*, but with the 4 posterior tibiæ compressed and dilated, as in *Acanthocercus*. *A. brunneus*, sp. n., *id. l. c.* p. 267, W. New Holland.

Trox græcus (Perroud), Mulsant & Rey, Ann. Soc. Agric. Lyon (4) iii. (1870) p. 223, Greece (= *transversus*, Rche.; Von Harold, C. H. xi. p. 118); *T. (Omorgus) larvatus*, Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2, p. 309, Zanzibar: spp. n.

Liparochrus oblongus, sp. n., Von Harold, *l. c.* p. 105, North Australia.

Melolonthides.

Dichelonycha subvittata, Lec., = *virescens*, K.; *Rhipidandrus flabellicornis*, Stm. (*Tenebrionidæ*), = "*Melolontha*" *paradoxa*, Beauv.; *Diplo-taxis maesta*, Blanch., = *subcostata*, Blanch.; *D. harperi*, *frondicola*, and *punctatirugosa*, Blanch., ? = *excavata*, Lec.; *Lachnosterna rugosa*, Lec., = *Ancylonycha profunda*, Blanch.; *A. consimilis*, Lec. (= *brevicollis*, Blanch.), and *puncticollis*, Blanch., = *fusca*, Fröhl.; *A. fervida*, Blanch., *nec* F., = *obesa*, Lec.; *A. fervens*, Blanch., *nec* Gyll., = *congrua*, Lec.; *A. uniformis*, Blanch., = *ephelida*, Say; *A. pruinosa*, Blanch., *nec* Melsh., = *futilis*, Lec.; *A. crenulata*, Blanch., = *hirticula*, Knoch.; *A. obesa*, Lec., = *crassissima*, Blanch.; *A. micans*, Blanch., *nec* Knoch, ? = *cerasina*, Lec.; *A. pilosicollis*, Knoch, = *tristis*, F.: J. L. Leconte, P. Ac. Philad. 1873, p. 328, *et seq.*

Diphydactylus, J. Thoms., = *Hoplia*; *Brachymys*, J. Thoms. (*B. rubens*, ex. typ.) = *Camenta*, Er.; E. Candèze, CR. Ent. Belg. xvi. p. cxliv.

Hoplia cærulea and *Rhizotrogus rufescens*. The sexes of these species couple in the air, and then fall to the ground together, the former about noon, the latter after sunset. E. Perris, Ann. Soc. Ent. Fr. (5) iii. pp. 90 & 91. Péragallo has found females of the *Hoplia* and of *Amphimallus ater* common at daybreak, on the ground, each beneath a small swarm of males: *l. c.* p. 250.

Coniopholis elephas, Gerst., pl. vi. fig. 9, *C. melolonthoides*, G., fig. 8, *Empycastes coronatus*, G., pl. vii. figs. 1, 1a, figured; V. d. Decken's Reisen, iii. pt. 2.

Rhizotrogus numidicus, Buq.; Algerian varieties described, one named *pallidicinctus*, Atlas, Kabylia. Raffray, R. Z. (3) i. pp. 371 & 372.

Polyphylla, Lac., *nec* Harris, is re-named *Macranoxia*; G. R. Crotch, Check-List N. A. Col. p. 61.

Melolontha vulgaris. The experiences of 36 years briefly recorded by Hochhuth, Bull. Mosc. xvi. 1, p. 142. There is no periodicity of appearance in S. Russia as in Germany and elsewhere.

Pachypus casus, Er., is distinct from *candidæ*, Petag., *cornutus*, Ol., and *impressus*, Er., though these three may all be one species, as Mulsant & Rey (who collocate all four) state. Desbrochers des Loges, Bull. Soc. Ent. Fr. (5) iii. p. xl.

Maladera, g. n., Mulsant & Rey, Ann. Soc. Agric. Lyon (4) iii. (1870) p. 343. Differs from *Serica* in its 10-jointed antennæ and invariably denticulated claws in both sexes. *Serica holosericea*, Scop.

Flatipalpus, g. n., Fairmaire, Ann. Soc. Ent. Fr. (5) iii. p. 391. "Extremely near" *Pachydemia*, from which it differs in the enormous development of its maxillary palpi; the ventral segments seem also to be soldered together, at least for their greater part. *F. albilosus*, sp. n., *id. ibid.*, Souf (Algeria).

Hymenoplia chevrolati, sp. n., Mulsant, *l. c.* p. 355, Lyons.

Serica ariasi, sp. n., Mulsant & Rey, *l. c.* p. 343, Escorial.

Calodactylus abendrothi, sp. n., Kirsch, B. E. Z. xvii. p. 341, Peru.

Philochlœnia molesta, sp. n., *id. ibid.* Peru.

Pachydemia lanata [-tum], sp. n., A. Chevrolat, Ann. Soc. Ent. Fr. (5) iii. p. 203, Syria.

Rhizotrogus cariosicollis, Fairmaire, R. Z. (3) i. p. 336, Morocco; *R. eburneicollis*, Raffray, *l. c.* p. 370, Bône; *R. zapateri*, p. 62, pl. i. fig. 4, Cuenca, *bolivari*, pp. 64 & 409, pl. xiii. fig. 2, Cuenca, Valencia, Martinez y Saez, An. Soc. Esp. ii.; *R. reichii*, Mulsant & Rey, *l. c.* p. 330, Allier: spp. nn.

Schizonycha capito, p. 308, *aberrans*, p. 309, Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2, Zanzibar, spp. nn.

Anoxia derelicta, sp. n., Desbrochers des Loges, Bull. Soc. Ent. Fr. (5) iii. p. xli. Morocco, Oran: = *emarginata*, Coq., with which *A. lucasi*, Coq., is also apparently identical; L. Reiche, *l. c.* p. clx.

Rutelides.

Anisoplia villosa, Fourcr., *nec* Feld., is re-named *villica*; Mulsant & Rey, Ann. Soc. Agric. Lyon (4) iii. (1870) p. 386.

Anomala rugulosa, Fairm., = *junii*, var.; *id. l. c.* p. 472.

Antichira teniata, Pty., re-described; *A. pantochloris*, Blanch., from Peru: Kirsch, B. E. Z. xvii. pp. 342 & 343.

Paranonca, Castelnau (*ex. typ.*), re-characterized. It is a Rutelid, very near *Anoplognathus*, and has nothing to do with *Stethaspis suturalis*, F.: G. van Lansberge, Ann. Ent. Belg. xvi. pp. 195 & 196. The two insects are surprisingly alike, superficially; *id. op. cit.* CR. p. lxxxvii.

Anoplognathus. Australian species reviewed by W. MacLeay, Tr. Ent. Soc. N. S. W. ii. pp. 353-356.

Anoplognathus parvulus, C. O. Waterhouse, Ent. M. M. x. p. 75, E. Australia; *A. longipennis*, *montanus*, p. 356, *viridicollis*, *dispar*, p. 357, *rubiginosus*, *odewahni*, p. 358, *abnormis*, p. 359, W. MacLeay, *l. c.* Australia: spp. nn.

Calloodes prasinus, p. 359, N. Australia, *mastersi*, p. 360, Port Denison, spp. nn., W. MacLeay, *l. c.*

Macropnus mniszehi, sp. n., Sallé, R. Z. (3) i. p. 14, pl. x. figs. 1, 1a-e, Mexico.

Dynastides.

Ligyryus scarabæinus, Pty.: Burmeister & Lacordaire probably only knew the ♀; the ♂ has thickened front tarsi. Kirsch, B. E. Z. xvii. p. 345. *Theogenes neptunus*, Sch., with deformed thorax; *id.* SB. Ges. Isis, 1873, p. 34.

Xylotrypes dichotomus and *Phileurus chinensis*: on habits in Japan, cf. G. Lewis, Ent. M. M. ix. p. 289.

Syrichthus clathratus, Gerst., pl. vi. fig. 7, *Rhizoplatys ambiguus*, G., pl. vii. fig. 2, figured; V. d. Decken's Reisen, iii. p. 2.

Pseudoryctes, g. n., D. Sharp, R. Z. (3) i. p. 267. *Pimelopides*: type, *Oryctes muellerianus*, White.

Nephrodopus, g. n., Sharp, l. c. p. 268. Mentum compressed and prolonged into a straight descending plate, on each side of which is a leaflet representing the dilated apical joint of the maxillary palpi. Elytra of ♂ cornuted behind the scutellum. Most nearly allied to the preceding, but will probably form part of a group between the *Pimelopides* and *Oryctomorphides*. *N. enigma*, sp. n., id. l. c. p. 269, Cape York, N. Australia.

Teinogenys, g. n., id. l. c. p. 271. *Oryctomorphides*: resembles *Corynophyllus* in general form, but with the clypeus rounded in front, and the mentum flattened and porrect. *T. nitidus*, id. *ibid.*, W. Australia, *T. brevis*, id. l. c. p. 272, S. Australia, spp. nn.

Cyclocephala contraria, p. 343, *nodicollis*, p. 344, spp. nn., Kirsch, l. c. Peru.

Dyscinetus curtus, sp. n., id. l. c. p. 345, Peru.

Horonotus lacordairii, Arracan, *deiphobus*, ? East India, spp. nn., D. Sharp, l. c. p. 270.

Corynophyllus major, sp. n., id. l. c. p. 273, ? Australia.

Oryctes landbecki, sp. n., Philippi, S. E. Z. xxxiv. p. 309, pl. ii. figs. 2a-c, Andes, Talcaregue.

Cetoniides.

O. Mohnike, Arch. f. Nat. xxxix. 1, pp. 109-247, pls. vi.-xi., describes the Philippine species. Corrections are made in Wallace's Catalogue, and observations on geographical distribution (table, p. 247) and synonymy; *Protetia*, Burm., is not considered separable from *Cetonia*, nor *Mycteristes* from *Phædimus*. Besides new species, the author figures *Phædimus jagori*, Gerst., pl. vi. fig. 1, *Macronota vidua*, Wall., pl. vi. fig. 6, *M. guttulata*, Wall., pl. vii. fig. 9, and *Glycyphana æthiessida*, White, pl. viii. fig. 4.

Plasiorrhina specularis, Gerst., fig. 1, *Trymodera aterrima*, G., figs. 2, 2a, *Heteroclitia corpulenta*, G., figs., 3, 3a, *Discopeltis lateralis*, G., fig. 4, *Pachnoda ephippiata*, G., fig. 5, *Cenochilus appendiculatus*, G., fig. 6, figured in V. d. Decken's Reisen, iii. pt. 2, pl. vi.

Tropi[do]nota lethierryi, Rche., = *squalida*, L., var.; *Oxythyrea niveipicta*, Fairm., ex. typ., = *T. fatima*, Coq., ex. typ., and is not *Enoplotarsus costatus*, Luc., as De Marseul states, but the latter may be a sex of *deserticola*, Luc.; L. Bedel, Bull. Soc. Ent. Fr. (5) iii. p. lxxxvi.

Cetonia floricola and *metallica*. Hochhuth, Bull. Mosc. xlvi. 1, p. 151, gives his reasons for considering these as distinct species.

Pantodinus klugi, Burm. Both sexes, from Guatemala, are now known. The insect should be placed at the head of the *Trichiides*. E. Candèze, CR. Ent. Belg. xvi. p. xl.

Westwoodia, g. n., F. de Castelnau, R. Z. (3) i. p. 397. *Goliathides*: intermediate between *Mycteristes* and *Phædimus*, differing from both in

the horns and front tibiæ. *W. howitti*, sp. n., *id. l. c.* p. 398, pl. xvii., Borneo.

Astræa, g. n., Mohnike, *l. c.* p. 166. True Cetonid: differs from *Macronota* and *Glycyphana* in its small thorax, which is narrow soon after the base and still more contracted in front. *Cetonia francolina*, Burm. (pl. viii. fig. 8), and *A. margaritacea*, p. 170, fig. 9, Mindanao, *biguttulata*, p. 171, pl. ix. fig. 1, Luzon, *tigrina*, p. 172, fig. 2, Luzon and Samar, *id. l. c.* spp. nn.

Euglypta, g. n., *id. l. c.* p. 174, allied to *Cetonia*. *C. megaspilota*, Wall. (pl. ix. fig. 3), and *E. attenuata*, p. 177, fig. 4, Luzon, *biplagiata*, p. 179, fig. 5, Sulu Archipelago, *multiguttata*, p. 181, Mindanao, *id. l. c.* spp. nn.

Potosia, for *C. speriosissima*, Scop., *Melanosa*, for *C. morio*, F., subgg. nn. of *Cetonia*; Mulsant, Col. Fr. Lamellic., 2nd edn. 1871, p. 669.

Coryphocera simillima, p. 122, pl. vi. figs. 2 & 2a, *paupera*, p. 124, fig. 3, sp. nn., Mohnike, *l. c.* Mindanao.

Gymnetis pelochroma, sp. n., Kirsch, B. E. Z. xvii. p. 346, Peru.

Clinteria formosa, sp. n., Mohnike, *l. c.* p. 125, pl. vi. fig. 5, Mindanao.

Agestrata semperi, sp. n., *id. l. c.* p. 127, pl. vi. fig. 5, Mindanao.

Macronota propinqua, p. 139, pl. viii. fig. 1, *mindanoensis*, p. 140, fig. 2, *abdominalis*, p. 142, fig. 3, *tricolor*, p. 143, fig. 4, *jucunda*, p. 145, fig. 5, *sponsa*, p. 146, fig. 6, *pilosa*, p. 148, fig. 7, Mindanao, *gratiosa*, p. 149, fig. 8, Luzon, *lugubris*, p. 152, pl. viii. figs. 1 & 2, Panaon, Leyte, Luzon, *id. l. c.* spp. nn.

Hemipharis castanea, p. 133, *speciosa*, p. 134, Nicol Bay, O. E. Janson, Cist. Ent. (vi.), spp. nn.

Schizorrhina concinna, sp. n., *id. l. c.* p. 134, Nicol Bay.

Diaphonia parrii, p. 135, S. Australia, *gulosa*, p. 136, Victoria, *luteola*, p. 137, *vicina*, p. 138, *breweri*, p. 139, W. Australia, *id. l. c.*; *D. mniszewski*, p. 179, Esperance Bay, *id. l. c.* (vii.): spp. nn.

Eupæcila pullata, (vi.) p. 140, Lizard Island, *inscripta*, (vii.) p. 180, Nicol Bay, *id. l. c.* spp. nn.

Glycyphana rubrimarginata, p. 154, pl. viii. fig. 3, *pulcherrima*, p. 157, fig. 5, Mindanao, *rubriscutellaris*, p. 159, fig. 6, Bohol and Mindanao, *robusta*, p. 164, fig. 7, Samar, Leyte, Mindanao; Mohnike, *l. c.* spp. nn.

Cetonia multiguttulata, p. 185, pl. ix. fig. 6, Luzon, *cœruleisignata*, p. 186, fig. 7, *lineata*, p. 204, fig. 5, *mærens*, p. 237, pl. xi. fig. 7, *incerta*, p. 239, fig. 8, Mindanao, *ducalis*, p. 196, pl. x. fig. 1, *leucogramma*, p. 201, fig. 3, *plebeia*, p. 202, fig. 4, *flavivariegata*, p. 205, fig. 6, Luzon, *papalis*, p. 198, fig. 2, Panaon and other islands, *purpurissata*, p. 211, pl. xi. fig. 1, Babuynes, *satrapa*, p. 222, fig. 2, *compacta*, p. 234, fig. 5, *tenuicollis*, p. 236, fig. 6, Camiguin, *venerabilis*, p. 229, fig. 3, Luzon, *boholica*, p. 231, fig. 4, Bohol; Mohnike, *l. c.* spp. nn.

Callynomes niveisparsa (Westwood), sp. n., *id. l. c.* p. 241, Mindanao.

BUPRESTIDÆ.

G. R. Crotch, P. Ac. Philad. 1873, pp. 84-96, publishes "Notes on the species of Buprestidæ found in the United States," tabulating the species of *Agrilus* and *Dicerca*, and giving or indicating in a more or less doubtful

way, the following (amongst other) synonymic corrections:—*Chalcophora lacustris*, Lec., and *angulicollis*, Lec., = *virginiensis*, Dr.; *C. langeri*, Lec., = *campestris*, Say; *Psiloptera webbi*, Lec., and *woodhousii*, Lec., = *drummondi*, Gory; *Dicerca prolongata*, Lec., ? = *Stenura tenebrica*, Kirby; *D. caudata*, Lec., = *divaricata*, Say; *D. baltimorensis*, Hbst., *soror*, Lec., and *lurida*, F., = *obscura*, F.; *D. spreta*, Lec., = *asperata*, Gory, *ex. typ.*; *D. asperata*, Lec., = *spreti*, Gory, *ex. typ.*; *D. tenebrosa*, Lec., is Kirby's species of that name, and not *distinguenda*, Lap.; *D. hilaris*, Lec., = *manca*, Lec., ♀; *D. lacustris*, Lec., = *lugubris*, Lec., ♀; *D. chrysea*, Melsh., = *tenebrosa*, K., of which *bifoveata*, Lec., and the ♀ of *crassicollis*, are ♀ ♀; *D. lecontei*, Gory, belongs to *Trachycele*, Mars., and *T. blondeli*, Mars., is perhaps identical with it; *Pæcilonota erecta*, Gory, = *cyanipes*, Say; *Buprestis*, L., is to be used for the group containing *Ancylochira rustica*; *B. fasciata*, F., *6-plagiata*, Lec., and *langi*, Mann., form one species, the 2 first being merely sexes; *B. alternans*, Lec., = *nuttalli*, K.; *B. maculiventris*, Say, comprised several immaculate forms now regarded as species; *B. radians*, Lec., = *lauta*, Lec., ♂; *Melanophila opaca*, Lec., = *notata*, Lap.; the 6 species of Leconte's group A in *Anthaxia* are not separable; *A. subænea*, Lec., = *viridifrons*, Gory, ♀; *A. quercata*, F., = *cuneiformis*, Gory, ♀; *Polycesta elata*, *cavata*, *californica*, and *obtusa*, Lec., form one variable species; *Ptosima gibbicollis*, Say, is not now pre-occupied, and must be used for *luctuosa*, Gory; *Chrysobothris soror*, Lec., *lesueuri*, Gory, *obscura*, Lec., *semisculpta*, Lec., *misella*, Lec., = *femorata*, Lec.; *C. vulcanica*, Lec., ? = *trinervia*, K., ♀; *C. debilis* and *disjuncta*, Lec., are not separable; *C. analis*, Lec., = *6-signata*, Say, var.; *C. purpurata*, Bland, = *æneola*, Lec., var.; the claws are not bifid in any American species of *Agilus*; *A. obliquus*, Lec., ? = *fulgens*, Lec., ♀; *A. geminatus*, Say, = *otiosus*, Say, of which *defectus* and *pusillus*, Lec., are ♀ ♀; *A. 4-guttatus* and *zemes*, Gory, = *granulatus*, Say; *Brachys lugubris*, Lec., = *tessellata*, F.; *B. ærosa*, Melsh., must be restored for *terminans*, Lap., *nec* F.

Buprestis lurida and *consimilis*, Lap. & G., = *Dicerca obscura*, F.; *D. hilaris* and *manca*, Lec., = *tuberculata*, L. & G.; *D. distinguenda*, L. & G., ? = *tenebrosa*, K.; *D. soror*, Lec., = *pruinosa*, L. & G.; *D. obscura*, Gory, = *baltimorensis*, Hbst.; *D. molitor*, Mels., *asperata*, L. & G., = *scobina*, Chevr.; *D. impressifrons*, Mels., = *spreti*, L. & G.; *D. dumoulini*, Gory, = *tuberculata*, Chevr.; *D. coryphæa*, Dej., = *spreti*, L. & G.; *D. maculosa*, Gory, = *lepida*, Lec.; *D. erecta*, L. & G., = *Pæcilonota cyanipes*, Say; *Ancylochira dilatata*, Mots., = *leviventris*, Lec.; *A. crenata*, Mots., = *langi*, Mann.; *Melanophila luteisignata*, Dej., = *notata*, Lap., var.; *Anthaxia expansa* and *foveicollis*, Lec., = *æneigaster*, L. & G.; *Crysobothris difficilis*, Gory, = *rugosiceps*, Mels.; *C. ignipes*, G., = *6-signata*, Say; *C. germari*, G., = *solieri*, var.; *C. viridiceps*, Mels., = *femorata*, F.; *C. viridipunctata*, G., = *hybernata*, F., var.; *C. floricola*, G., = *calcarata*, Mels.; *C. rugosula*, G., = *Actenodes acornis*, Say; *Actenodes bella*, Lec., = *aureinotata*, G.; *C. basalis*, Lec., = *atabalipa*, G.; *C. soror*, Lec., = *lesueuri*, Gory; *C. lesueuri*, Lec., = *fastidiosa*, G.; *C. misella*, Lec., = *quadriimpressa*, Gory; *C. nigrifasciata*, Lec., erroneously referred, is re-named *atrifasciata*; *Polycesta obtusa*, Lec., = *velasco*, L. & G.; *Acmeodera semivittata*, Lec., = *mima*, Gory; *A. variegata* and *mixta*,

Lec., = *dispar*, Gory, = *pulchella*, Hbst.; *A. fasciatipunctata*, Chev., = *hæmorrhœa*, Lec., = *rubrinotata*, Gory, = *stellaris*, Chev.; *A. croceinotata*, Lec., = *flavisticta*, Stm.; *Haplostethus*, Lec., = *Mastogenius*, Sol.; *Agrilus couesi*, Lec., = *aureus*, Chev., = *perlucidus*, Gory; *A. 4-guttatus*, G., = *zemes*, ♀; *Brachys lugubris*, Lec., = *corvina*, G.; *B. lævicauda*, Lec., = *tessellata*, F.; J. L. Leconte, P. Ac. Philad. 1873, p. 331, et seq.

E. C. Reed, An. Univ. Chili, xxxviii. pp. 405-429, briefly describes the Chilean species, 65 in number. *Latipalpis dufouri*, Sol., = *Psiloptera buqueti*, Spin.; *L. metallica*, Fairm., = *P. speciosa*, Germ.; *P. verrucifera*, Fairm., = *prolongata*, Cast.; *Anthaxia marginicollis*, Sol., = *verecunda*, Er.; *A. subequalis*, *ruginosa*, and *rugifera*, Fairm., = *angulosa*, Sol.; *Conognatha splendidicollis*, Fairm., = *Stigmodera costipennis*, Germ.; *Pithiscus sagittarius*, Fairm., = *S. hastaria*, Fairm.; *S. monozona*, Fairm., = *azaræ*, Phil.; *Polycesta rubripicta*, Fairm., = *P. costata*, Sol. *Zemina vittata*, Fairm., nec Cast. & G., is re-named *deyrollii* (p. 416).

E. Saunders tabulates the species hitherto found in Japan, as compared with representatives of the same genera in other parts of the world. J. L. S. xi. p. 509.

Julodis variolaris, Pall., *faldermanni*, Mann., *zablodskii*, Mots.: observations by C. A. Dohrn, S. E. Z. xxxiv. pp. 317-321.

Catoxantha gigantea, var. *brunnea*, E. Saund.; ♀ from Cochin China described by H. Lucas, Bull. Soc. Ent. Fr. (5) iii. pp. vii. & viii.

Steraspis fastuosa, Gerst., figs. 1 & 1a, *Chrysobothris empyrea*, G., fig. 2, and *Aphanisticus nodosus*, G., fig. 3, figured; V. d. Decken's Reisen, iii. pt. 2, pl. viii.

Chrysobothris spuria, Mars., and *Pterotis composita*, Pall., new to the Algerian fauna: Raffray, R. Z. (3) i. p. 373.

Anthaxia viminalis, Cast., = *cræsus*, Villers; Kiesenwetter, B. E. Z. xvii. p. 440.

Anthaxia candens and *lucens*, and *Coræbus undatus*: larvæ and habits described; J. Erné, MT. schw. ent. Ges. iv. pp. 138-143.

Coræbus: larva described by Mulsant & Mayet, Mém. Ac. Lyon, xix. pp. 333-335.

Paratrachys, g. n., E. Saunders, l. c. p. 523. Differs from *Trachys* in the shoulders of its elytra not being raised and prominent, the straight base of its thorax, its short and hairy antennæ, of which the 6 apical joints are dentate; its flat, non-excavate head, and small antennary cavities. *P. hederæ*, sp. n., id. *ibid.*, Japan.

New species:—

Chalcophora doriana, C. A. Dohrn, S. E. Z. xxxiv. p. 76, Labuan; *C. querceti*, Saunders, l. c. p. 510, Japan.

Chrysodema lewisi, Saunders, l. c. p. 510, Japan.

Halecia simplex, Kirsch, B. E. Z. xvii. p. 347, Peru.

Dicerca horni, p. 86, *sexualis* and *californica*, p. 87, California, *Crotch*, l. c.

Buprestis japonensis [sic], Saunders, l. c. p. 511, Japan.

Ancylochira villosa, Leconte, l. c. p. 331, California.

Anthacia proteus, Saunders, *l. c.* p. 511, Japan; *A. obscurata*, Reed, *l. c.* p. 411, Chili.

Zemina maculiventris and *pæciloastra*, Reed, *l. c.* p. 417, Chili.

Acmaeodera philippii [script. "Phil."], p. 425, *asperata* and *vittipennis*, p. 426, *id. l. c.* Chili; *A. montilloti*, Raffray, *R. Z.* (3) i. p. 372, Algeria.

Chrysobothris succedanea, Saunders, *l. c.* p. 512, Japan.

Colobogaster bella, Kirsch, *l. c.* p. 348, Peru.

Coræbus ignotus, Saunders, *l. c.* p. 512, Japan.

Sambus quadricolor, *id. l. c.* p. 513, Japan.

Cryptodactylus auriceps, *id. ibid.* Japan.

Stenogaster tenuis, Kirsch, *l. c.* p. 349, Peru.

Agrilus cordillerae, *id. l. c.* p. 350, Peru; *A. sperkii*, (Hockhuth) Solsky, *Bull. Mosc.* xlv. i. p. 159, Kiew; *A. teicanus*, p. 94, Florida, *valsinghami*, p. 95, Oregon, Crotch, *l. c.*; *A. trinotatus*, p. 513, *maculifer*, *discalis*, p. 514, *cyaneiniger*, *pilosivittatus*, *viridiobscurus*, p. 515, *marginicollis*, *subrobustus*, p. 516, *auriventris*, *mærens*, *rotundicollis*, p. 517, Saunders, *l. c.* Japan.

Aphanisticus collaris, *antennatus*, and *congener*, Saunders, *l. c.* p. 518, Japan.

Cylindromorphus japonensis [sic], *id. l. c.* p. 519, Japan.

Trachys lewisi, p. 519, *griseinigra*, *elegantula*, *auricollis*, p. 520, *griseifasciata*, *robusta*, *cupricolor*, *variolaris*, p. 521, *inedita*, *inconspicua*, p. 552, *id. l. c.* Japan.

Brachys tenuis, p. 351, *carinicollis*, p. 352, *nobilis*, p. 353, *ignobilis*, *aratus*, p. 354, *tristis*, p. 355, *inornatus*, *obversans*, p. 356, *bicolor*, *emarginatus*, p. 357, *brevis*, p. 358, *viridescens*, p. 359, *æneicollis*, p. 360, *jucundus*, p. 361, *austerus*, *viridulus*, p. 362, *virens*, *latus*, p. 363, *planifrons*, *cognatus*, p. 364, *compar*, p. 365, *manus*, p. 366; Kirsch, *l. c.* Peru.

Taphrocerus agriloides, Crotch, *l. c.* p. 96, Texas.

EUCNEMIDÆ.

Phanocerus americanus, sp. n., Horn, *Tr. Am. Ent. Soc.* iv. p. 147, Vancouver Island.

ELATERIDÆ.

E. Candèze, *Mém. Liège* (2) v. pp. 1-32 [see *Antarctiides*, supra, p. 242], describes 58 species found by G. Lewis in Japan, chiefly in the southern islands.

Adelocera cavicollis, Lec., = *profusa*, Cand.; *Alaus gorgops*, Lec., = *lusciosus*, Hope; J. L. Leconte, *P. Ac. Philad.* 1873, p. 333.

Allaus atropos, Gerst., fig. 5, and *Ludius penicillatus*, G., fig. 6, figured: V. d. Decken's *Reisen*, iii. pt. 2, pl. viii.

Elater coccinatus, Rye, probably = *præustus*, F., with entirely immaculate elytra; L. Bedel, *Bull. Soc. Ent. Fr.* (5) iii. p. lxxxvii. [No *præustus* has hitherto been found in England, from different places in which country *E. coccinatus* is recorded].

Elater pomonæ, Steph.; differential characters noted. Candèze's description does not accord with Stephen's. E. C. Rye, *Ent. M. M.* ix. p. 268.

Megapenthes divaricatus, Desbr., = *tibialis*, Lac. var.; E. Perris, Nouv. et faits (2), p. 4.

Heteroderes tessellatus, Mor., = *rossii*, Stev.; J. Faust, Hor. Ent. Ross. ix. p. 311.

Pyrophorus noctilucus. The Marquis De dos Hermanas gives particulars of the economy of the "Cucuyo" of Cuba; CR. Ac. Sci. lxxvii. p. 333. C. Robin & A. Laboulbène, l. c. pp. 511-517, & Ann. Soc. Ent. Fr. (5) iii. pp. 529-536, describe the structure of the luminous parts of this insect, viz., two spots near the posterior angles of the prothorax, and a triangular plate between it and the abdomen. See also Baron, Bull. Soc. Ent. Fr. (5) iii. pp. cxlix. & cl.

Cryptotarsus, g. n., Philippi, S. E. Z. xxxiv. p. 308. Differs from *Agrypnus* and allies in its antennary sulci being closed behind; from *Lacon* in its tarsi being lamellate beneath; and from *Tylotarsus* in its penultimate tarsal joints being not cordiform, &c. *C. ater*, sp. n., id. *ibid.* pl. ii. figs. 3a-c, Rancagua, Chili.

New species :—

Lacon tumens and *scrofa*, Candèze, Mém. Liège (2) v. p. 4, Japan.

Calais nietoi, Sallé, R. Z. (3) i. p. 15, pl. ix. figs. 4 & 4a, Orizaba.

Campso sternus candezii, C. A. Dohrn, S. E. Z. xxxiv. p. 77, Sarawak.

Tetrigus (nearly allied to *Ludius*) *lewisii*, Candèze, l. c. p. 6, Japan,

Pectocera fortunii, id. *ibid.* Japan.

Psephus desertor, id. l. c. p. 7, Japan.

Monocrepidius intermissus, Kirsch, B. E. Z. xvii. p. 367, Peru.

Æolus bivittatus, id. *ibid.* Peru; *Æ. agnatus*, Candèze, l. c. p. 8, Japan.

Anchastus aquilus, Candèze, *ibid.* Japan.

Eudactylus boucardi, Sallé, l. c. p. 16, pl. ix. figs. 5 & 5a, Oaxaca.

Elater hypogastricus and *bicarinatus*, Candèze, l. c. p. 9, Japan.

Megapenthes opacus and *gracilis*, id. l. c. p. 10, Japan.

Cryptohypnus cruciatus, *quadrillum*, p. 11, *albipilis*, *curatus*, p. 12, *insulsus*, *humeralis*, p. 13, *ellipticus*, p. 14, *ovalis*, *luteipes*, p. 15; id. l. c. Japan.

Cardiophorus mimeticus, Horn, Tr. Am. Ent. Soc. iv. p. 147, California; *C. pullatus* and *sequens*, p. 16, *pauper* and *adjutor*, p. 17, Candèze, l. c. Japan.

Melanotus amussitatus, p. 19, *erythropygus*, p. 20, *spernendus*, *seniculus*, p. 21, Candèze, l. c. Japan.

Limonius vittatus, id. l. c. p. 22, Japan; *L. crotchi*, Horn, l. c. p. 148, Oregon.

Athous secessus, *suturalis*, p. 23, *virens*, p. 24, Candèze, l. c. Japan.

Pyrophorus alychnus, Kirsch, l. c. p. 368, Peru.

Cosmesus gracilis, id. l. c. p. 369, Peru.

Corymbites notabilis, *serrifer*, p. 25, *puerilis*, p. 26, Candèze, l. c. Japan; *C. putonis*, Cantal, *paulinoi*, Coimbra, Desbrochers des Loges, Bull. Soc. Ent. Fr. (5) iii. p. cxviii.

Ludius sieboldi, junior, p. 27, *plebeius*, *luteatus*, p. 28, Candèze, l. c. Japan.

- Agriotes exulatus*, p. 29, *leucophaæatus*, *helvolus*, p. 30, *id. l. c.* Japan.
Agriotes theveneti, sp. n., Horn, *l. c.* p. 148, California.
Glyphonyx illepidus, Candèze, *l. c.* p. 31, Japan.
Silesis musculus, *id. ibid.* Japan.

CEBRIONIDÆ.

- Cebrio collaris*, p. 337, Algeria, *nigriceps*, *filicornis*, p. 338, *luteolus*, p. 339, Boghari, *angusticornis*, p. 338, N. Africa, Fairmaire, R. Z. (3) i.; *C. fairmairii*, Raffray, *l. c.* p. 373, Boghari : spp. nn.

DASCILLIDÆ.

Dascillus parallelus, Dohrn, = *sicanus*, Fairm. ; C. A. Dohrn, S. E. Z. xxxiv. p. 321.

Cyphon nigriceps, Thoms., Kies. ; observations by Kraatz, B. E. Z. xvii. pp. 200 & 201.

Carcinognathus, g. n., T. Kirsch, B. E. Z. xvii. p. 369. Differs from *Artematopus* especially in its wider head, free eyes, long falciform mandibles, the equal 2nd and 3rd joints of its antennæ, &c. *C. sulcifrons*, sp. n. *id. l. c.* p. 370, Peru.

Artematopus variegatus, sp. n., *id. l. c.* p. 371, Peru.

Helodes signaticornis, sp. n., Baudi, Ann. Mus. Genov. iv. p. 227, Præchia.

Ptilodactyla cisteloides, *præcellens*, p. 372, *lamellifera*, p. 373, *scutellaris*, p. 374, *angusta*, *probanda*, p. 375, *simulans*, *obscura*, p. 376, *vilis*, p. 377, *heterophya*, *omospila*, p. 378, *minuta*, *secedens*, p. 379, *nigra*, p. 380, spp. nn. (all with antennal appendages starting from the 4th joint, not the 3rd), Kirsch, *l. c.* Peru.

Hydrocyphon pallidicollis, sp. n., Raffray, R. Z. (3) i. p. 374, Algiers.

TELEPHORIDÆ.

Lycides.

Lycus congener, Gerst, fig. 8, *gravidulus*, G., fig. 9; Gerstäcker, in V. d. Decken's Reisen, iii. p. 2, pl. viii.

Lycus vallatus, sp. n., *id. l. c.* p. 310, Zanzibar.

Calopterum infirmum, p. 381, *acrocirrhum*, *humerale*, p. 382, *fatigans*, *acroleucum*, p. 383, spp. nn., Kirsch, B. E. Z. xvii., Peru,

Cœnia peruviana, p. 384, *mirifica*, p. 385, spp. nn., *id. l. c.* Peru.

Eros bimaculatus, *patruelis*, p. 386, *parvulus*, p. 387, spp. nn., *id. l. c.* Peru.

Lampyrides.

Lampyris amplicollis, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. viii. fig. 4.

Cladoceras peruvianus [-um], sp. n., Kirsch, *l. c.* p. 387, Peru.

Lucidota bicolor, p. 388, *funerea*, p. 389, spp. nn., *id. l. c.* Peru.

Photinus pectoralis, p. 389, *leontii*, *fuscicornis*, p. 390, *maculicollis*, p. 391, spp. nn., *id. l. c.* Peru.

Aspidosoma sinuaticolle and *angustum*, spp. nn., *id. l. c.* p. 392, Peru.

Drilides.

Drilus flavescens. Habits of the female in connection with apparently empty snail-shells; G. Lewis, Ent. M. M. x. p. 68.

Cosmocerus, Sol., nec Guér., re-named *Cerocosmus*; Gemminger, C. H. xi. p. 146.

Telephorides.

Telephorus picciolii, Rag., = *puncticollis*, Levrat, = *hæmorrhoidalis*, F., var.; *T. rufifrons*, Mars., = *fuscipennis*, Muls., var.; E. Ragusa, Bull. Ent. Ital. v. pp. 236 & 237.

Ichthyurus. Sexual characters of ♀ of *I. scripticollis*, *dohrni*, *inermis*, and *discoidalis* figured by R. Gestro, Ann. Mus. Genov. iv. p. 360.

Chauliognathus ? *longicornis*, sp. n., Kirsch, B. E. Z. xvii. p. 393, Peru.

Telephorus erythrocephalus, p. 394, *carinatus*, *lugens*, p. 395, *turidus*, p. 396, spp. nn., *id. l. c.* Peru.

Silis apicalis, sp. n., C. O. Waterhouse, Ent. M. M. x. p. 157, Angola, and var. ? W. Africa.

Ichthyurus doriæ, sp. n., Gestro, *l. c.* p. 359, fig. 2 (p. 360), Pulo Pinang.

Malthinides.

Malthinus armipes, sp. n., Kiesenwetter, Käf. Europa's, xxix. Sardinia.

Malthodes picticollis, sp. n., *id. ibid.* Sicily.

Malachiides.

G. H. Horn, Tr. Am. Ent. Soc. iv. pp. 109-127, gives a synopsis of the species found in the United States. The tarsi of ♂ *Attalus* and *Ebæus* are figured, p. 110; *Malachius ænæus*, L., is now found in America. *Cephalistes unicolor* and *apicalis*, Mots., = *Tanaops longiceps*, Lec.; *Charopus uniformis*, Mots., ? = *Microlipus laticeps*, Lec., ♀; *Acletus*, Lec., *Scalopterus*, Mots., = *Attalus*, Er.; *Attalus elegans*, Horn, = *3-maculatus*, Mots.

Baudi, Ann. Mus. Genov. iv., describes, without naming, new species of *Malachius* from N. Persia, p. 236, Caucasus, p. 239; and describes a var. *dissimilis* of *M. viridis*, F., from the Caucasus, p. 241, and a var. *calabrus* of *M. parilis*, Er., from Catanzaro, p. 244.

Malachius pulicarius, var. *truncatellus*, Thunb., = *Axinotarsus pulicarius*, Payk., ♂; Kraatz, B. E. Z. xvii. p. 214.

Troglops corsicus, Perris, is found to come from Algeria, and is re-named *algericus*; E. Perris, Nouv. et faits (2) p. 6.

Oogines signicollis, Muls., = *bicolor*, Perris, which possibly is a var. of *saginatus*, Kies.; *Antholinus posticus*, Muls. & R., = *apicalis*, Perr.; *id. l. c.* p. 7.

Temnosophus, g. n., Horn, *l. c.* p. 111, fig. Antennæ very long, 11-jointed; tarsi 4-jointed in ♂. Represents European *Colotes*, but with basal joint long, stout, very slender and with a short inwardly projecting process at base; 2nd joint of maxillary palpi globular and emarginate for reception of triangular 3rd joint. *T. bimaculatus*, sp. n., *id. ibid.*, Louisiana.

Pseudebæus, g. n., *id. l. c.* p. 118. Tarsi simple in both sexes: apical

elytral prolongations obtusely hooked on the upper sides. *Ebæus apicalis* and *pusillus*, Say, *bicolor* and *oblitus*, Lec.

Collops velutinus, sp. n., Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2, p. 311, Zanzibar.

Malachius securiclatus, p. 239, Balbeck, *carinifrons*, p. 241, Caucasus, *flexicornis*, p. 242, St. Jean D'Acre, *tricolor*, p. 244, N. Persia, Baudi, *l. c.*; *M. nitidicollis*, A. Chevrolat, Ann. Soc. Ent. Fr. (5) iii. p. 204, Syria; *M. mixtus*, p. 113, California, *ulkii*, p. 114, Dakota, Horn, *l. c.*: spp. nn.

Attalus rostratus, p. 121, California, *oregonensis*, p. 122, S. Oregon, *varians*, p. 123, Texas, Louisiana, *parallelus*, Texas, *pettiti*, p. 124, Canada, *rufiventris*, p. 125, Ohio to Texas, spp. nn., Horn, *l. c.*

Anthocomus ventralis, Horn, *l. c.* p. 118, Arizona; *A. doriæ*, Baudi, *l. c.* p. 245, Teheran: spp. nn.

Microlipus levicollis, sp. n., Horn, *l. c.* p. 116, Nebraska.

Dasytides.

F. Baudi, B. E. Z. xvii. pp. 293-316, records the result of his examination of the exponents in Dejean's collection at Turin of the European and circum-Mediterranean species of this group contained in the 3rd edition of that author's catalogue [Zool. Rec. viii. p. 277], adding descriptions and observations referring to other species in the notes. He also describes various species taken by Truqui, chiefly in Cyprus; *l. c.* p. 316, *et seq.* A var. of *D. xanthocnemus*? Kol. (*moniliatus*, Kies.; Kiesenwetter, *l. c.* p. 317, note), is described as *cyprius*, p. 317.

Dasytes nobilis: larva described by Mulsant & Mayet, Mém. Ac. Lyons, xix. pp. 335-338.

Melyris nobilis, Gerst., fig. 7, *Prionocerus dimidiatus*, G., fig. 11; V. d. Decken's Reisen, iii. pt. 2, pl. viii.

Haplocnemus koziorowiczi, Desbr., *marginatus*, Rott., = *rufimarginatus*, Perris; E. Ragusa, Bull. Ent. Ital. v. p. 235.

Haplocnemus xanthopus, Kies., ? = *marginatus*, Rott., var.; *Danacæa montivaga*, Muls., = *denticollis*, Baudi; *D. aurichalcea*, Küst., = *ambigua*, Muls.: Baudi, Ann. Mus. Genov. iv. p. 250.

Phleceophilus edwardsi found in plenty near Düsseldorf in winter: Kiesenwetter, B. E. Z. xvii. p. 212.

Henicopus dentipes, sp. n., Raffray, R. Z. (3) i. p. 375, pl. xvi. figs. 3, 3a-c, Boghari.

Dasytes acutipennis, Baudi, *l. c.* Ann. Mus. Genov. iv. p. 248, Algeria; *D. rufitarsis*, p. 295, Oran, *amplipennis*, *ibid.* note, Algeria, *flavipennis*, p. 296, note, Sicily, *subalpinus*, p. 304, Austria, *dalmatinus*, p. 305, Dalmatia (? = *striatulus*, Brul., var.; Kiesenwetter, *l. c.* p. 306, note), *variolosus*, p. 307, Spain, *acutipennis*, *ibid.* note, Algeria, *timidus*, p. 318, Cyprus, *id.* B. E. Z. xvii.: spp. nn.

Lobonyx ruficollis, sp. n., Raffray, *l. c.* p. 376, pl. xv. figs. 9, 9a-c, Boghari.

Julistus curtus, sp. n., Baudi, B. E. Z. xvii. p. 297, Dalmatia, Ragusa.

Aphyctus saginatus, p. 31, *muelleri*, p. 32, spp. nn., Kiesenwetter, B. E. Z. xvii. Greece.

Dasytiscus analis, sp. n. (?), p. 313, Tartary, *virescens*, sp. n., p. 319, Cyprus; Baudi, *l. c.*

Haplocnemus tingitanus, p. 300, Tangiers, *integer*, p. 302, note, Upper Italy, *palæstinus*, p. 319, note, Jerusalem; Baudi, *l. c.* spp. nn.

Danacæa olivacea (sp. n. ?), W. Persia, Tauria, *taurica*, sp. n., Tauria, *id. l. c.* p. 311.

Cerallus marginatus, p. 298, Syria, *tartaricus*, p. 299, Tartary, *id. l. c.* spp. nn.

Acanthocnemus (allied to *Phlæophilus*) *truquii*, sp. n., *id. l. c.* p. 321, Cyprus.

Astylus ambages, sp. n., Kirsch, *l. c.* p. 396, Peru.

Zygia klugi, sp. n., Baudi, *l. c.* p. 315, Arabia.

CLERIDÆ.

Tillus picipennis, White, = *Tarsostenus univittatus*, Rossi; *Lebasiella nigripennis*, Lec., = *pallipes*, Klug; J. L. Leconte, P. Ac. Philad. 1873, p. 334.

Trichodes sipylus, F., 4-guttatus, Stév., *affinis*, Chevr. (distinct from *favarius*), *olivieri*, Klug, &c.: observations, especially as to synonymy, by Kraatz, B. E. Z. xvii. pp. 240-242.

Opilus mollis recorded from Missouri, U. S. A.; *Trichodes olivieri*, Chevr., var. n. *dorie*, N. Persia; Baudi, B. E. Z. xvii. pp. 322 & 333, note.

Phlæocopus vinctus, Gerst., figured in V. d. Decken's *Reisen*, iii. pt. 2, pl. viii. fig. 10.

Corynetes pexicollis, Fairm., ? = *geniculatus*, Klug.; Desbrochers, MT. schw. ent. Ges. iv. p. 196.

Trichodes armeniacus, Baudi, Ann. Mus. Genov. iv. p. 254, Armenia, N. Persia; *T. subfasciatus*, Kraatz, B. E. Z. xvii. p. 239, Nazareth: spp. nn.

Axina fasciata, sp. n., Kirsch, B. E. Z. xvii. p. 398, Peru.

Pelonium ? 6-punctatum, sp. n., *id. ibid.* Peru.

Corynetes (*Agonolia* ?) *hybridus*, sp. n., Baudi, B. E. Z. xvii. p. 324, note, Spain.

LYMEXYLIDÆ.

A new species from Peru briefly described (not named), for which a new genus next *Atractocerus* is apparently required: T. Kirsch, B. E. Z. xvii. p. 399.

CUPESIDÆ.

Omma, Newm., is allied to *Cupes*, and especially to *C. serrata*, Lec.; a Japanese *Cupes* resembles *C. concolor* from the Atlantic States: J. L. Leconte, P. Ac. Philad. 1873, p. 334.

PTINIDÆ.

Anobium paniceum eating *Capsicum annuum*: G. v. Frauenfeld, Verh. z.-b. Wien. xxiii. p. 192.

Anobium denticolle: larva described by Mulsant & Rey, Ann. Soc. L. Lyon (n. s.) xix. (1872), pp. 427-429.

Stagetus, Woll., should be compared with *Protheca*, Lec., and resem-

blance between the Coleopterous faunas of N. America and the Atlantic Islands is pointed out : J. L. Leconte, P. Ac. Philad. 1873, p. 334.

Ptinus testaceus, Ol., occurs in England, D. Sharp, Ent. M. M. ix. p. 268.

Rhadine, g. n., Baudi, l. c. p. 331. *Anobiides*: no differential characters given, but the under-side is stated to be constructed as in the *Dorcatomini* of Mulsant, and the facies to be that of a very small *Anobium striatum*. *R. parmata*, sp. n., id. l. c. p. 332, Cyprus.

Phoberus, g. n., Kirsch, B. E. Z. xvii. p. 400. *Anobiides*: compared with *Dorcatoma*. *P. byrrhoides*, sp. n., id. l. c. p. 401, Peru.

Anobium disruptum, sp. n., Baudi, l. c. p. 329, note, Sardinia.

Dorcatoma lanuginosa, sp. n., id. l. c. p. 263, Sardinia.

Xyletinus byssinus, sp. n., Kirsch, l. c. p. 399, Peru.

Catorama peruviana and *humeralis*, spp. nn., id. l. c. p. 401, Peru.

Hedobia tricostata, sp. n., Baudi, l. c. p. 325, Cyprus.

Ptinus obsoletus, p. 326, Cyprus, *P. (Eurostus) quisquiliarum*, p. 327, note, Piedmontese Alps, *P. (E.) apenninus*, p. 328, Tuscan Apennines, id. l. c.; *P. (Eutaphrus) damascenus*, id. Ann. Mus. Genov. iv. p. 256, Damascus; *P. comptus*, Chevrolat, Ann. Soc. Ent. Fr. (5) iii. p. 204, Syria: spp. nn.

BOSTRYCHIDÆ.

Apate ornifrons, sp. n., Baudi, B. E. Z. xvii. p. 334, Cyprus.

Rhizopertha sicula, sp. n., id. l. c. p. 336, note, Sicily.

CIOIDÆ.

Cis coriaceus, p. 337, *C. (Hadraule) pumilio* and *clavicornis*, p. 338, spp. nn., id. l. c. Cyprus.

TENEBRIONIDÆ.

F. BATES, Ann. N. H. (4) xii. pp. 472-474, in the commencement of an article on new genera and species of *Heteromera*, chiefly from New Zealand and New Caledonia (of which only some species of *Cilibe*, in the *Helaides*, were published in 1873), refers to *Astathmetus* (allied to *Hypaulax*), *Artystona* (allied to *Titena*), and *Callismilax*, as new genera, but does not characterize them. *Titena erichsoni*, White, is not a *Titena*; *Hopatrinus convexus*, Fairm., occurs in New Zealand, and is removed from its former genus to the vicinity of *Scotoderus*, Perroud, with which *Dechius*, Pasc., is identical; *Selenopalpus chalybeus*, White, = *cyaneus*, F.

Erodiides.

Diodontes areolatus, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. ix. fig. 6.

Erodius. E. Allard, R. Z. (3) i. pp. 122-234, monographs this genus, protesting against Kraatz's sinking many of Solier's species. *E. olivieri*, Sol., = *levigatus*, Ol., ♂; *E. opacus*, Ktz. ? = *bilineatus*, Ol., ♀; *E. rugosus*, All., is re-named *rugicollis* (p. 145); *E. granulatus*, All., nec Sol.

is re-named *henoni* (p. 147); a var. *semicostatus* of *E. elegans*, Kr., is described, p. 160; *E. longus*, Sol., = *orientalis*, Brullé; *E. africanus*, *tangerianus*, and *nitidiventris*, Sol., = *lusitanicus*, Sol.; *E. latus*, Sol., = *carinatus*, Sol. ♀; *E. neapolitanus*, Kr., var. (*nec* Sol.), = *siculus*, Sol.; a var. (? sp. n.) *pulverulentus* of *E. nitidicollis*, Sol., is described, p. 209; *E. subcostatus*, Sol., = *subparallelus*, Sol., var.; *E. affinis*, Sol., = *lævis*, Sol., ♀; *E. puncticollis*, Rosenh., *nec* Sol., = *rugosus*, Ktz.; *E. pellucidus*, Muls., *ex descr.*, = *Leptonychus rufipennis*, Guér.

Erodius reichii, p. 164, Syria, *pyriformis*, p. 203, Sicily, *maximus*, p. 206, Morocco, *solieri*, p. 212, *nitidicostis*, p. 220, Algeria, *obtusus*, p. 221, Spain, *id. l. c.* spp. nn.

Adesmiides.

Adesmia baccata, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. ix. fig. 1.

Tentyriides.

Eremæcus (?) *cordicollis*, sp. n., Kirsch, B. E. Z. xvii. p. 402, Peru.

Megalophrys waterhousii, sp. n., F. Bates, Ent. M. M. x. p. 47, Valdivia.

Epitragides.

Nyctipetus. Leconte, P. Ac. Philad. 1873, p. 334, notes the extraordinary resemblance between a Chilian species of this genus and the Carabideous *Amphizoa lecontii*, Matth.

Scaurides.

Emeax sculpturatus, Pasc., is a *Nyctoporis*, barely differing from *N. galzata*, Lec.; Leconte, *l. c.*

Blaptides.

Eleodes viator, Lec., = *tuberculata*, Mann.; *E. subtuberculata*, Walk., = *granulata*, Lec.; *E. latiuscula*, Walk., = *humeralis*, Lec.; *E. binotata*, Walk., = *sponsa*, Lec.; *E. conjuncta* and *convexicollis*, Walk., = *obscura*, Say; Leconte, *l. c.*

Blaps gigas: larva described by Mulsant & Mayet, Mém. Ac. Lyon, xix. pp. 340-344.

Asidides.

Machla hamaticollis, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. ix. fig. 7.

Cardigenius granulatus and *crinifer*, spp. nn., Fairmaire, Ann. Mus. Génov. iv. p. 532, Montevideo.

Asida alonensis, p. 409, pl. xiii. fig. 3, Alicante, *ricoi*, p. 412, fig. 4, spp. nn., Martinez y Saez, Ann. Soc. Esp. ii.

Nycteliides.

Gyriosomus kingi, p. 207, *affinis*, p. 208, spp. nn., E. C. Reed, Ent. M. M. ix. N. Chili.

Pimeliides.

Leucolæphus perrisi, Luc., = *nigripunctatus*, Luc., ♀, with which *lipu-*

tanus, Luc., should probably also be united; S. A. de Marseul, Bull. Soc. Ent. Fr. (5) iii. pp. lxii.-lxiv., cxx. Lucas, *l. c.* p. lxiv., demurs to this opinion; but subsequently, p. xciii., admits its correctness as to the two first insects, maintaining the specific value of the third. Leprieur, *l. c.* pp. xciv. & clxi., gives particulars of captures (*cf.* also De Marseul, p. clxx.). G. Allard, *l. c.* p. cxx., from fresh material, maintains the specific value of *L. liliputanus*.

Polpogenia laglaizii, sp. n., F. Bates, Ent. M. M. x. p. 47, Cape Verde.

Pimelia puberula, sp. n., A. Chevrolat, Ann. Soc. Ent. Fr. (5) iii. p. 203, Syria.

Molyridæ.

Phynocolus petrosus, Gerst., fig. 4, *frondosus*, G., fig. 5, *Sepidium muscosum*, G., fig. 2, figured in V. d. Decken's Reisen, iii. pt. 2, pl. ix.

Trachynotus. Haag-Rutenberg, C. H. xi. pp. 1-43, monographs this genus, with which he unites *Somaticus* and *Trachelæum*, Hope, considering the rounded form of the eyes to be the only real point of difference between it and *Psammodes*, and that *Clinocranium*, Sol., is a highly developed form of it. *Pimelia leucophrys*, Hbst., = *Sepidium rugosum*, F. (Von Harold, *l. c.* p. 9, note, points out that *P. leucophrys* must be attributed to Lichtenstein, 1795, prior to Herbst); *Trachynotus elongatus*, Ol., *T. proximus*, Cast., and *T. testudinarius*, Dej. Cat., = *reticulatus*, Deg., varr.; *T. lacunosus*, Sol., *ex. typ.*, = *plicatus*, Wied. *Psammodes hirtipennis*, Haag, being preoccupied, is re-named *vulpinus* (p. 45, note).

Ethmus, g. n., *id. l. c.* p. 44. Allied to *Psammodes* and *Trachynotus*: antennæ dilated, thorax very wide behind, flat, strigilate, trisinate at the base, elytra narrow, head large and free. *E. maculatus*, Angola, *latus*, N'Gami, *id. l. c.* p. 45, spp. nn.

Trachynotus wahlbegi, Svakop, *badeni*, Caffraria, p. 11, *bohemani*, p. 11, N'Gami, Svakop, *cinctus*, p. 12, Central Africa, *brucki*, p. 13, *tentyrioides*, p. 24, *frontalis*, p. 42, N'Gami, *punctiger*, *scaber*, p. 15, *gracilipes*, p. 19, *tibialis*, p. 20, *tricostatus*, *licinoides*, p. 23, *dilatatus*, p. 25, *contractus*, p. 27, *setulosus*, p. 31, *crinitus*, p. 32, *kraatzi*, p. 33, *similis*, *chevrolati*, p. 35, *recurvus*, *plicipennis*, p. 38, *ornatus*, p. 40, Cape of Good Hope, *stali*, p. 18, Svakop, *bipunctatus*, p. 20, *albimaculatus*, p. 42, Caffraria, *geniculatus*, p. 21, *vittiger*, p. 22, Diamond Fields, S. Africa, *vestitus*, p. 30, S. Africa; *id. l. c.* spp. nn.

Hopatrides.

Hopatum. Kraatz, B. E. Z. xvii. pp. 436-439, discusses various unknown species. *H. patrule*, *famelicum*, and *setulosum*, Küst., = *rusticum*, Ol.; *H. lineare*, Küst., = *costatum*, Brullé; *H. pedestre*, Ros., and *sturmi*, Küst., = *pesthiense*, Küst.; *H. graniger* and *hispidosum*, Brullé, = *verrucosum*, Germ.; *H. gibbum*, Küst., and *elevatum*, Brullé, = *dardanum*, Stern.

Phylax littoralis; larva described by Mulsant & Mayet, Mém. Ac. Lyon, xix. pp. 338-340.

Anomalipus heraldicus, Gerst., pl. ix. fig. 3, *Cyptus scabrosus*, G., pl. x. fig. i.: V. d. Decken's Reisen, iii. pt. 2.

Gonocephalum angustatum, sp. n., A. Chevrolat, Ann. Soc. Ent. Fr. (5) iii. p. 204, Syria.

Brachyesthes approximans, p. 391, *gastonis*, p. 392, spp. nn., Fairmaire, Ann. Soc. Ent. Fr. (5) iii. Souf (Algeria).

Trachyscelides.

Phaleria, Leach, nec Latr., is re-named *Halophalerus*: G. R. Crotch, Check List N. A. Col. p. 107.

Diaperides.

Hoplocephala (*Neomida*) *striata*, Montrouze, is a *Platydema*, and *P. oriticum*, Pasc., is apparently synonymous with it. F. Bates, Ent. M. M. ix. p. 204.

Evoplus, Lec., placed by Horn in the *Ulomidés*, has the mesocoxal cavities open externally, and the trochantin distinct: it must, therefore, be placed in this group, and is queried as distinct from *Hoplocephala*. *Liodema*, Horn, additionally characterized. *Id. l. c.* pp. 234 & 235.

The following genus and species are contained in the 12th article of the late Victor Motschoulsky's "Énumération des nouvelles espèces," &c., Bull. Mosc. xlv.; but with no other indication of novelty.

Basides, p. 471. No differential characters given. *B. bifasciatus*, *plagiatus*, p. 472, *rufipiceus*, *ruficollis*, p. 473, *picicollis*, *crassicornis*, *8-maculatus*, p. 474, *ziczac*, p. 475, East Indies, *lunatus*, p. 474, *flavimaculatus*, p. 475, Natal, also *Alphitophagus 6-maculatus*, Mots., and *Diaperis bifasciata*, Say.

Diaperis fungi, p. 466, Caucasus and Siberia.

Hoplocephala quadricornis, p. 466, Georgia, *gracilis*, Ohio, *ferruginea*, East Indies, *castanea*, New Orleans, p. 467, *rufitestacea*, *testacea*, p. 468, East Indies, *spadicea*, p. 468, *atra*, p. 469, Madagascar, *callistomonis*, p. 469, New Holland.

Platydema nigratum, New Orleans and Atlanta, *novicum*, New Holland, *oblongulum*, Florida, p. 470, *ochraceum*, p. 471, East India.

Ceropria femorata and *posticalis*, p. 476, Java.

Neomida atra, Spain, *discolor*, Brazil to Texas, *subquadrata*, Central America, p. 477, *texana*, Texas, *subsericea*, Syria, *nigrata*, California, p. 478, *flavicornis*, New Orleans and Mobile, *tricuspis*, East Indies, p. 479, *rufula*, p. 480, Egypt, *bicuspis*, p. 481, Surinam.

Pentaphyllus barbarus, p. 481, Algeria, *americanus*, p. 482, Georgia.

Heterophyllus natalis, p. 482, Natal.

Liodema, g. n., Horn, Tr. Am. Phil. Soc. xiv. (n. s.) pt. ii. (1870) p. 385 [omitted from Zool. Rec. viii.]. Differs from *Platydema* in its unemarginate prominent mesosternum, beneath which the prosternum is received, &c. *Platydema leve*, Hald.; also *L. kirschi*, Bogota, *obydense*, Obydos, p. 235, *horni*, Santarem, *fulvum*, Cumana, *connexum*, Colombia, *serricornis*, Cayenne, p. 236, F. Bates, Ent. M. M. ix. spp. nn.

Spiloscapa, g. n., F. Bates, *l. c.* p. 202. With a broad, truncated, intercoxal process: near *Scaphidema*. *Sp. crassicornis*, sp. n., *id. l. c.* p. 203, N. S. Wales (? = *Platydema thallioides*, Pasc.).

Stenoscapa, g. n., *id. l. c.* p. 237. Differs from *Liodema* in its narrowly

oval form, the tibiæ with 2 unequal and much longer apical spines, &c. *S. tibialis*, sp. n., *id. ibid.* Ega.

Hoplocephala amazonica, p. 203, Santarem, *castanea*, New Granada, *lateralis*, Colombia, p. 204, *id. l. c.* spp. nn.

Allophasia marseuli, sp. n., *id. l. c.* p. 237, no locality mentioned.

Diaperis lewisi, Japan, *sanguineipennis*, Ceylon, spp. nn., *id. op. cit.* x. p. 14.

Apsida (re-characterized) *chrysomelina*, p. 15, *belti*, p. 16, Chontales, *purpureimicans*, p. 16, New Granada, *æneomicans*, p. 16, *boucardi*, p. 17, Mexico, *id. op. cit.* x. spp. nn.

Anæmia ? *submetallica*, sp. n., Raffray, R. Z. (3)-i. p. 377, pl. xv. fig. 8, Bouksoul, Boghari.

Evoplus lecontii, sp. n., F. Bates, *op. cit.* ix. p. 233, Colombia.

Phrenapatides.

Delognatha brevicornis, p. 48, Espirito Santo, *puncticollis*, Brazils, *buckleyi*, Ecuador, p. 49, spp. nn., *id. op. cit.* x.

Ulomides.

Tribolium confusum, Duv., occurs in England: D. Sharp, Ent. M. M. ix. p. 268.

Tribolium ferrugineum destroying *Arachis hypogæa* (ground-nut): A. Müller, P. E. Soc. 1873, p. x.

Uloma perroudi, Muls., occurs in Germany; *Uloma læviuscula*, Curt., ? = *Gnathoncus* [-*ocerus*] *cornutus*, var.; Kraatz, B. E. Z. xvii. p. 196.

Alphitobius (*Heterophaga*) *lateralis*, Boh., belongs to *Eutochia*, Lec.; F. Bates, Ent. M. M. ix. p. 202.

Hypophlæus ratzeburgi, Wism., is probably not *Tribolium bifoveolatum*, Duft., since the latter is a *Palorus*; L. Bedel, Bull. Soc. Ent. Fr. (5) iii. p. lxxxvii.

Toxicum and *Anthracias* must be united; Australian species of the former having both 3 and 4 joints to the club; the eye, moreover, is undivided in these, and completely divided in species from Africa and elsewhere. F. Bates, *op. cit.* x. p. 45.

Ulomi [*mi*] *mus*, g. n., *id. op. cit.* ix. p. 201. Intermediate between *Alegoria* and the true *Ulomides*; distinguished from *Antimachus* and *Uloma* by the anterior tarsi being dilated and villose beneath, with the penultimate joint much smaller than the preceding, and by the anterior tibiæ being much dilated and furrowed above. *U. indicus*, sp. n., *id. l. c.* p. 202, E. India.

Metabolocerus, g. n., *id. l. c.* p. 259. Near *Ulosonia*, Cast., and *Antimachus*, Gistel. *M. pilosus*, *ibid.*, New Granada, *clypeatus* (and var. ? *brevicornis*), Cumana, *frii*, Colombia, p. 260, spp. nn., *id. l. c.*

Metulosonia, g. n., *id. l. c.* p. 261. Near *Peltoides*; prosternal process penetrating deeply into the mesosternum. *M. horni*, Panama, *egaensis*, Ega, *id. l. c.* p. 262, spp. nn.

Epitoxicum, g. n., *id. op. cit.* x. p. 46. Eyes contiguous to prothorax, epipleural fold abruptly expanded at the shoulders, antennæ long and thin, femora very elongate. *E. haplandroides*, sp. n., *id. ibid.* E. India.

Peneta cervus, sp. n., *id. l. c.* p. 50, Peru.

Alegoria sallæi, p. 181, Mexico, *quadraticollis*, p. 182, Venezuela, *parallela*, p. 183, Brazils, *id. op. cit.* ix. spp. nn.

Uloma cypræa, Kraatz, B. E. Z. xvii. p. 196, Cyprus; *U. bicolor*, Kirsch, *op. cit.* p. 403, Peru: spp. nn.

Peltoides capensis, Dej. Cat., described: F. Bates, *op. cit.* ix. p. 262.

Toxicum picticolle, sp. n., *id. op. cit.* x. p. 45, New Guinea (? = *chevrolati*, Montr., re-characterized: *id. l. c.* p. 52).

Helæides.

Mimopeus amaroides, Pascoe (*ex descr.*), and *Cilibe phosphugoides*, White, = *C. elongata*, Brême, of which a var. *granulipennis* is described from New Zealand; F. Bates, Ann. N. H. (4) xii. pp. 474 & 478.

Æthalides, g. n., *id. Ent. M. M.* x. p. 50, *Nyctozoilides*: intermediate between the typical genus and *Onosterrhus*. *Æ. punctipennis*, sp. n., *id. l. c.* p. 51, West Australia.

Styrus, g. n., *id. Tr. E. Soc.* 1873, p. 348. Near *Nyctozoilus*, but without its facies. *S. elongatulus*, sp. n., *id. l. c.* p. 350, Queensland (? = *N. elongatulus*, W. Macleay).

Amphianax, g. n., *id. l. c.* p. 350. General form of *Cilibe*, but allied to the *Onosterrhus* group: metasternum longer than in any of the related genera. *A. subcoriaceus*, sp. n., *id. l. c.* p. 351, Australia.

Agasthenes, g. n., *id. l. c.* p. 352. Facies of the *Cœlometopides*, but with majority of characters decidedly leading to *Onosterrhus*, from which the form of its head, and its thorax being strongly constricted near the base, at once distinguish it. *A. westwoodi*, sp. n., *id. l. c.* p. 353, S. Australia.

Nyctozoilus deyrollii, sp. n., *id. l. c.* p. 348, (? W.) Australia.

Cilibe opacula, p. 474, *nitidula* and *otagensis* (and var. ? *grandis*), p. 476, *humeralis*, p. 480, *thoracica*, p. 481, *brevipennis*, p. 482, *rugosa*, p. 483, *tibialis*, p. 484, *impressifrons*, p. 485, New Zealand, *pascoii*, p. 479, Pitt's Island, *id. Ann. N. H.* (4) xii. spp. nn.

Onosterrhus punctulatus, sp. n., *id. Ent. M. M.* x. p. 51, W. Australia.

Cossyphides.

Cossyphus dentiventris, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. x. fig. 2. Sexual characters of the genus referred to; Gerstäcker, *ibid.* p. 187, note.

Tenebrionides.

Tenebrio, F., *nec* L., is re-named *Tenebrionellus*, to include *obscurus*, *molitor*, and allies: G. R. Crotch, Check-List N. A. Col. p. 105 [*Mene-drio*, Motsch., Bull. Mosc. xlv. 2; type, *T. obscurus*].

Encyalesthus brevicornis, Mots., = *Pachyurgus areus*, Melsh.; J. L. Leconte, P. Ac. Philad. 1873, p. 335.

Proderops, g. n., Fairmaire, Ann. Soc. Ent. Fr. (5) iii. p. 393. Very near *Zophobas*, but with very large head and small elytra, eyes widely separated from thorax, equidistant legs, &c. *P. foraminosus*, sp. n., *id. l. c.* p. 394, S. America.

Calcar raffrayi, sp. n., *id. R. Z.* (3) i. p. 340, Algiers.

Goniadera cariosa and *parvula*, spp. nn., *id. Ann. Mus. Genov.* iv. p. 533, Montevideo.

Heterotarsides.

Dichastops subaneus, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. x. figs. 3 & 3a.

Phobelius metallicus, sp. n., Kirsch, B. E. Z. xvii. p. 404, Peru.

Anædus [? *Lypros*] *angusticollis*, sp. n., *id. l. c.* p. 405, Peru.

Cyphaleides.

F. Bates, Tr. E. Soc. 1873, identifies *Cyphaleus chalybeipennis*, W. Macl., with *C. mastersi*, Pasc., and describes as new:—

Amaryg [mo] *mimus*, p. 354. Facies of the oblong species of *Amaryg*-*mus*. *A. duboulayi*, p. 355, Champion Bay.

Anausis, p. 355. Near *Prophanes*, Westw. *A. macleayi*, p. 356, Champion Bay, and ? *P. metallescens*, Westw.

Apomestris, p. 357. Near *Altes*, Pasc., but with dentate pro- and meta-tibiæ. *A. westwoodi*, p. 358, Victoria.

Ctimene, p. 359. *C. breweri*, p. 360, Albany, West Australia.

Oremasis haagi, p. 356, ? Queensland.

Decialma ? *pascoii*, p. 358, Queensland.

Mithippia jansoni, p. 359, W. Australia.

Helopides.

Hoplocephala (*Neomida*) *baladica*, Montr., = *Strongylium viridipenne*, Montr., which belongs to this group; *H. (N.) elongata* (= *sulcata*), Montr., is allied to *Isopus*. F. Bates, Ent. M. M. ix. p. 204.

Misolampus goudoti, Br., described from Tangiers, occurs also in Andalusia. Perez Arcas, Act. Soc. Esp. ii. p. 15.

Parablops, Rott., nec Schön., is re-named *Gerandryus*: Rottenberg, B. E. Z. xvii. p. 217.

F. Bates, Tr. E. Soc. 1873, re-characterizes *Isopus*, Montr., from typical specimens (its position is undoubtedly in Sect. i. of Lacordaire's *Misolampides*, and not in the *Strongyliides*, where Gemminger & Von Harold place it), re-describing *I. blanchardi* and (? *I. oxygaster*, Montr., and describing as new:—

Micrectyche, p. 362 (*Amphidorides*). Very near *Ectyche*, Pasc., but with short, compact non-perfoliate antennæ. *M. intermedia*, p. 363, Champion Bay, *ferruginea*, Swan River, and var. ? *dubia*, Champion Bay (both ? = *intermedia*, sex), *ryii*, Champion Bay, p. 364.

Metisopus, p. 370 (*Misolampides*). Near *Isopus*, but with a scutellum, of much less convex and oblong oval-form, &c.; distinguished from *Pseudhelops* by its longer epistoma and head, and concealed labrum, &c. *M. purpureipennis*, p. 371, Norfolk Island.

Chlorocamma, p. 371 (*Misolampides*). Near *Isopus*, but scutellum very distinct. *C. carenipennis*, p. 372, New Caledonia, and *Neomida sulcata*, Montr.

Episopus, p. 372 (*Misolampides*). Very near *Isopus*, but with a scutellum and a convex prosternal process. *E. politus*, p. 373, New Caledonia, and *I. convexus*, Montr.

Ectyche scabripennis, p. 360, *sculpturata*, *tuberculipennis*, p. 361, W. Australia.

Adelium (Seirotiana) strigipenne, p. 365, Australia, *nigroæneum*, *fairmairii*, p. 366, *marginatum*, p. 367, *externecostatatum*, p. 368, New Caledonia.

Dystalica subpubescens, p. 369, N. S. Wales.

Isopus robustus, p. 375, *allardi*, p. 376, *cyaneus*, *caledonicus*, p. 377, New Caledonia.

Omolipus oblongus & parvus, p. 379, W. Australia.

Helops maroccanus, sp. n., Fairmaire, R. Z. (3) i. p. 341, Morocco.

Helopinides.

Micrantereus variolosus, Gerst., fig. 9, *femoratus*, G., fig. 8; V. d. Decken's Reisen, iii. pt. 2, pl. ix.

Micrantereus gerstaeckeri, sp. n., Gestro, Ann. Mus. Genov. iv. p. 354, (detail figured, p. 356), Keren, Abyssinia.

Megacanthides.

Gonocnemis brevicollis, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. x. fig. 5.

Strongyliides.

Aspidosternum festivum, Gerst., fig. 4, and *Miltoprepes latus*, G., fig. 6; V. d. Decken's Reisen, iii. pt. 2, pl. x.

Strongylium ruficorne, p. 406, *axillare*, p. 407, spp. nn., Kirsch, B. E. Z. xvii. Peru.

CISTELIDÆ.

Cistela, F., nec Geoffr. (= *Byrrhus*, auctt.), is re-named *Pseudocistela*: G. R. Crotch, Check-List N. A. Col. p. 108.

Homophlus fallaciosus, Rott., = *longicornis*, Bertol.; E. Ragusa, Bull. Ent. Ital. v. p. 236.

Podonta, Muls., revised by H. v. Kiesenwetter, B. E. Z. xvii. pp. 9-22.

P. oblonga, Mill., nec F., is re-named *milleri*; p. 19.

Xystropus pilosus, Dej., re-described from Peru: Kirsch, B. E. Z. xvii. p. 408.

Cistela impressicollis, sp. n., Chevrolat, Ann. Soc. Ent. Fr. (5) iii. p. 205, Syria.

Podonta ambigua, p. 11, Magnesia, *turcica*, p. 14, Turkey in Asia, *atrata*, p. 15, Turkey, *carbonaria*, p. 16, Mesopotamia, *heydeni*, p. 19, Asia Minor, *corvina*, Salonica, *morio*, Mt. Olympus and Asia Minor, p. 21; Kiesenwetter, l. c. spp. nn.

Heliotaurus (Gastrhæma) janthinus, sp. n., Raffray, R. Z. (3) i. p. 378, Boghari.

MONOMMATIDÆ.

Hyporhagus gilensis and *opuntiae*, spp. nn., Horn, Tr. Am. Ent. Soc. iv. p. 149, Arizona.

PYTHIDÆ.

Eupleurida, Lec., = *Ischalia*, Pasc.; J. L. Leconte, P. Ac. Philad. 1873, p. 335.

Sphalma, g. n., Horn, l. c. p. 150. Allied to *Pytho*, *Crymodes*, &c., but with a sub-quadrate, acutely margined thorax. *S. quadricollis*, sp. n., *id.* l. c. p. 151, California.

MELANDRYIDÆ.

Serropalpus striatus recorded as causing an escape of gas by perforating a leaden pipe running up a pine log containing its larvæ. E. A. de Perrin, Pet. Nouv. p. 359.

Conopalpus testaceus: habits of larvæ. J. Ern , MT. schw. ent. Ges. iv. p. 143.

LAGRIIDÆ.

Entypodera anthicoides, Gerst., figured in V. d. Deeken's Reisen, iii. pt. 2, pl. x. fig. 7.

Lagriola, g. n., Kirsch, B. E. Z. xvii. p. 409. The heteromerous tarsi and subglobose anterior coxæ point to the *Tenebrionidæ*; the simple penultimate tarsal joint and non-elongate apical joint of the antennæ approach *Trachelostenus*. *L. operosa* and *denticulata*, spp. nn., *id.* l. c. 411, Peru.

Statira sculpta, p. 411, *anthicoides*, p. 412, spp. nn., *id.* l. c. Peru.

ANTHICIDÆ.

Ictistygma, Pasc., ? = *Eurygenius*, Fert ; Leconte, P. Ac. Philad. 1873, p. 335.

Neogonus, g. n., C. Hampe, Verh. z.-b. Wien, xxiii. p. 165 (not characterized). *N. plasoni*, sp. n., *id.* *ibid.* pl. iiA, Athens.

Anthicoxenus ovallii, sp. n., Philippi, S. E. Z. xxxiv. p. 310, pl. 2, figs. 4 a & b, Chili (the tarsal claws are cleft in this genus).

Steropes (?) *hungaricus*, sp. n., Hampe, l. c. Hungary.

MORDELLIDÆ.

Mordellistena brevis, *diagonalis*, p. 413, *curvicauda*, p. 414, *dolobrata*, p. 415, spp. nn., Kirsch, B. E. Z. xvii. Peru.

RHIPIDOPHORIDÆ.

Rhipidophorus paradoxus. Economy very fully recapitulated, in connection with *Vespa germanica* and *vulgaris*: A. Rouget, M m. Ac. Dijon (3), i. pp. 229-264. The dark var. appears to occur with the latter species; *id.* Pet. Nouv. p. 336. The varieties very fully discussed; *id.* l. c. pp. 351-353.

Clinops spectabilis, sp. n., Schaufuss, Nunq. Ot. ii. (1872) p. 276, Antioch.

Rhipidophorus raffrayi, sp. n., Fairmaire, R. Z. (3) i. p. 342, Boghari.

Emenadia inferna, sp. n., Schaufuss, l. c. p. 277, Caffraria.

STYLOPIDÆ.

Xenus vesparum. Economy in connection with *Polistes gallicus* and *diadema* fully discussed: A. Rouget, *l. c.* pp. 265-276.

CANTHARIDÆ.

The larva of a supposed Vesicant, found attached to *Anthia cavernosa*, is described and figured in detail by Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2, pp. 211-217, pl. xi. figs. i.-i.d. It probably belongs to an unknown genus, and its affinities with the larvæ of *Sitaris*, *Meloe*, and *Lytta* are discussed.

Mylabrides.

DE MARSEUL, Mém. Liège (2), iii. pp. 363-662, pls. i.-vi., monographs this group. In addition to the sub-genera *Lydoceras* and *Ceroctis* (both treated as new, but established by the author in L'Ab. vii. 1870 [cf. Zool. Rec. vii. p. 302], and the latter of which now comprises 9 known and 5 new species), a new sub-genus, *Mimesthes*, is established, pp. 548 & 566, in which the thorax is transverse-quadrangle, with no constriction, the elytra are flattened on the back and truncate at apex, with a projecting sutural angle, and the 3 apical joints of the antennæ coalesce, as in *Coryna*. *M. maculicollis*, sp. n., p. 567, pl. ii. fig. 76i, Cape of Good Hope. The author figures *Mylabris* (*Lydoceras*) *fasciata*, F., pl. i. figs. 1-16, *M. zonata*, Klug, pl. i. fig. 5, *M. lactea*, Mars., pl. i. fig. 93, *M. audouini*, Mars., pl. i. fig. 94, *M. litigiosa*, Chev., pl. ii. fig. 16, *M. baulnii*, Mars., pl. ii. fig. 19, *M. dejeani*, Gyll., pl. ii. fig. 63, *M. myrmidon*, Mars., pl. ii. fig. 107, *Decatoma cæruleomaculata*, Redt., pl. ii. (ii. 18), *Coryna confluens*, Rche., pl. i. (iii. 18), *C. lata*, Rche., pl. ii. (iii. 17), giving also figures of details (chiefly elytral patterns) of upwards of 200 species. Some species are treated as new, although already characterized by the author in L'Ab. vii.

Mylabris prestans, Gerst., fig. 8, *amplectens*, G., fig. 9, *callicera*, G., fig. 10, *kersteni*, G., fig. 11, *deckeni*, G., fig. 12, *dorsalis*, G., fig. 13, *ambigua*, G., fig. 14, *parenthesis*, G., fig. 15; Gerstäcker, V. d. Decken's Reisen, iii. pt. 2, pl. x.

Mylabris jugatoria, Rche., new to the Algerian fauna: Raffray, R. Z. (3) i. p. 381.

Mylabris euphratica, Mars., = *scabiosæ*, Ol., *ex. typ.*; Desbrochers, MT. schw. ent. Ges. iv. p. 196.

Mylabris transversalis, p. 400, Caffraria, Egypt, *scalaris*, p. 407, S. Africa, *hybrida*, p. 418, N'Gami, Natal, *abyssinica*, p. 424, Abyssinia, *bipartita*, p. 427, Mauritius, Caffraria, *palliata*, p. 433, Caffraria, *dispar*, p. 435, S. Africa, *gamicola*, p. 436, N'Gami, *nubica*, p. 439, Senegal, Nubia, *vicinalis*, p. 441, Chartum, *bihumerosa*, p. 442, Senegal, *orientalis*, p. 451, E. India, *rajah*, p. 452, Moradabad, *rutilipubis*, p. 453, Dinapore, *batesi*, p. 455, pl. i. fig. 36i, E. India, *trifolia*, p. 461, *testudo*, p. 462, *zigzaga*, p. 466, Caffraria, *svakopina*, p. 477, Svakop, *picteti*, p. 480, Interior of S. Africa, *macilenta*, p. 489, Himalaya, *basibicineta*, p. 497, N'Gami, *tibialis*, p. 499, Senegal, *spuria*, p. 500, *bohemanni*, p. 558, Caffraria, *holosericea*,

p. 502, Senegal, *conneza*, p. 505, Cape of Good Hope, *dohrni*, p. 506, Bombay, *bicincta*, p. 521, N'Gami, *bella*, p. 539, Senegal, *amphibia*, p. 559, *exclamationis*, p. 562, Angola, *bivittata*, p. 560, S. W. Africa, De Marseul, *l. c.*; *M. aperta*, Gerstäcker, *l. c.* p. 311, Dafeta, Dschagga Land; *M. gemmula* and *plurivulnera*, N. Persia, C. A. Dohrn, S. E. Z. xxxiv. p. 73 (*M. gemmula* = *pallasi*, Gebl.; *id. op. cit.* p. 322); *M. hirtipennis*, p. 379, *boghariensis*, p. 380, pl. xv. fig. 1, Boghari, Raffray, *l. c.*; *M. uhagoni*, Martinez y Saez, An. Soc. Esp. ii. p. 66, pl. i. fig. 6, Cuenca, Escorial: spp. nn.

Decotoma decipiens, p. 574, *nigricornis*, p. 577, *histrio*, p. 581, Cape of Good Hope, *omega*, p. 585, Caffraria, Marseul, *l. c.* spp. nn.

Coryna guine[e]nsis, p. 599, Guinea, *cinctuta*, p. 600, *apicipustulata*, p. 602, *mixta*, p. 605, *wahlbergi*, p. 612, Caffraria, *posthuma*, p. 603, *tergemina*, p. 613, Angola, *mauritica*[na], p. 610, Mauritius, *id. l. c.*, spp. nn.

Actenodia amœna, p. 621, pl. i. (iv. 1), *villosa*, p. 625, Cape of Good Hope, *rufinigra*, p. 628, Caffraria, *id. l. c.* spp. nn.

Cantharides.

G. H. Horn, P. Am. Phil. Soc. xiii. pp. 88-117, revises the species of *Macrobasis* (with which he unites *Apteropasta*, Lec.), *Epicauta*, *Cantharis*, and *Pomphopœa* found in the United States. *M. luteicornis*, Lec., = *albida*, Say, ♂; *M. debilis* and *murina*, Lec., = *cinerea*, F. (*nec* Forst.), varr., and *unicolor*, K., is adopted instead of *fabricii*, Lec., for it; *M. fulvescens*, Lec., = *articularis*, Say, = *immaculata*, Say; *M. valida*, Lec., = *segmentata*, Say. *E. nigricornis*, Mels., = *strigosa*, Sch.; *E. immerita*, Walk., ? = *sericans*, Lec.; *E. conspersa*, Lec., = *maculata*, Say; *E. morio*, Lec., = *pennsylvanica*, Deg. *C. cooperi*, Lec., = *vulnerata*, Lec., var.; *C. fulgifer*, Lec., = *nuttali*, Say; *C. salicis*, Lec., = *cyanipennis*, Lec.; *C. fulvipennis*, Lec., = *cardinalis*, Chevr.; *C. dolosa*, Lec., = *smaragdula*, Lec., = *stygica*, Lec.; *C. chalybea*, Lec., = *sphaericollis*, Say. *P. femoralis*, Lec., = *polita*, Say; *P. tarsalis*, Bland, = *filiformis*, Lec., = *nigricornis*, Lec., = *ænea*, Say.

Cantharis vesicatoria. In the early stages, the individuals contain no cantharidine. Gazette médicale de Bordeaux, ii. (1873), No. 12.

Cantharis suturella, Mots., described from the Amur, occurs also in Japan. S. A. de Marseul, Ann. Soc. Ent. Fr. (5) iii. p. 221 (re-described. p. 229).

Eletica gigantea, sp. n., C. A. Dohrn, S. E. Z. xxxiv. p. 70, Assam, Bengal.

Epicauta caviceps, p. 99, Arizona, *funebri*, p. 102, Texas, Horn, *l. c.*; *E. wheeleri*, Ulke, "Explorations in Nevada and Arizona Expedition of 1871" (Horn, *l. c.* pp. 101 & 107, note), Arizona; *E. gorhami* [*gorhami*], Marseul, *l. c.* p. 227, Japan: spp. nn.

Cantharis lugubris, Ulke, *l. c.* (Horn, *l. c.* p. 107), California; *C. frontalis*, ? Chili, *griseinigra*, Tucuman, *luctifera*, Monte Video, Fairmaire, Ann. Mus. Genov. iv. p. 534; *C. antennalis*, Marseul, *l. c.* p. 230, E. India; *C. (?) philippii*, E. C. Reed, Ent. M. M. ix. p. 208, N. Chili: spp. nn.

Zonitis cothurnata, sp. n., Marseul, *l. c.* p. 228, Japan.

Sitarides.

Sitaris colletis, sp. n., V. Mayet, Bull. Soc. Ent. Fr. (5) iii. p. cxviii. Montpellier, parasitic on *Colletes* sp. n. (cf. Lichtenstein, *l. c.* pp. xx. & xxi.).

CEDEMERIDÆ.

Nacerdes saundersi, sp. n., E. C. Reed, Ent. M. M. ix. p. 208, N. Chili (= *N. servillii*, Fairm. & G., nec Sol.).

Anoncodes versicolor, sp. n., Chevrolat. Ann. Soc. Ent. Fr. (5) iii. p. 205, Syria.

Mecopselaphus lycoides, sp. n., Kirsch, B. E. Z. xvii. p. 416, Peru.

Stenaxis vittata, sp. n., *id. ibid.* Peru.

CURCULIONIDÆ.

G. H. HORN'S "Contributions to a Knowledge of the Curculionidæ of the United States" (P. Am. Phil. Soc. xiii. No. 91, pp. 407-469) are intended as a commencement of a systematic study of the indigenous species, the genera being left to Leconte. The first part contains the *Calandrides* and *Cossonides* (the remainder being devoted to isolated genera of other groups); in which, as in all the "*Brachyrhynques*" examined, the author finds a departure from the sexual rule, prevailing in most "*Mecorhynques*," that the ♂ should have 8 and the ♀ 7 dorsal abdominal segments. In *Ithycerus noveboracensis*, the ♂ has apparently 6 segments and the ♀ 5; and the pygidium projects markedly.

W. ROELOFS, Ann. Ent. Belg. xvi. pp. 154-193, pls. ii. & iii., commences to describe the species found in Japan by G. Lewis (except the *Cossonides*).

VAN SEGVELT, CR. Ent. Belg. xvi. pp. cxlv. & cxlvi., notes various species new (or rare) for the Belgian fauna.

Brachyderides.

Cneorhinus viridimetallicus, Mots., is a *Catapionus* (generic characters amended); Roelofs, *l. c.* p. 155.

Liophlæus maroccanus, Fairm., is a *Barynotus*; *B. maculatus*, Boh., = *margaritaceus*, Germ., var.; Desbrochers, MT. schw. ent. Ges. iv. p. 196 (Stierlin, *ibid.* note, contradicts the latter statement). *Brachyderes quercus*, Chavign., *ex. typ.*, = *pubescens*, Boh.; *id. l. c.* p. 197.

Sitones. L. Bedel, Bull. Soc. Ent. Fr. (5) iii. pp. l.-lii., indicates food plants of various common species, and gives differential characters for *S. ononidis*, Sharp, and *S. suturalis*. He mentions the interocular setæ as assisting in diagnosis. *S. punctiger*, Thoms., 1868, = *puncticollis*, Steph.; *id. l. c.* p. lxxxvii. [this identification already made by Thomson, Opusc. Ent. iv. p. 390, Zool. Rec. ix. p. 285; the synonymy is also indicated by the Recorder, *op. cit.* vii. p. 304]. *S. punctiger*, Woll., 1863, = *bituberculatus*, Mots.; *id. ibid.* *S. ocellatus*, Küst., has nothing to do with *gemellatus*, Gyll., as Kraatz has stated, but also = *bituberculatus*, Mots.; *S. niger*, All., is distinct from *ellipticus*, All.; *S. cinerascens*, Fahr., = *cambricus*, Steph., var.; larvæ supposed to belong to *S. cambricus* and *water-*

housii are recorded from old roots of *Lotus corniculatus*; and observations are made on the food plants of *S. regensteiniensis*, *tibialis*, *cambricus*, *griseus*, and *gressorius*: *id. l. c.* pp. ccxxviii. & ccxxix.

Thylacites congener, Desbr., has nothing to do with *persulcatus*, Fairm.; Desbrochers, Bull. Soc. Ent. Fr. (5) iii. p. ccxvi.

Amomphus dissimilis, Desbr., = *westringi*, Küst. (*nec* Schön., which is *concinus*, Küst.); Harold, C. H. xi. p. 135.

Syntapoplus cervinus, Gerst., fig. 2, *Siderodactylus falciger*, G., fig. 3; V. d. Decken's Reisen, iii. pt. 2, pl. xi.

Ottistira, Pasc., should be placed near *Psolidium*, but is still more aberrant. Its members are very variable. H. Jekel, Ann. Soc. Ent. Fr. (5) iii. p. 272.

Rhinognathus, g. n., (? Fairmaire) R. Z. (3) i. p. 343. Very near *Strophosomus*, but with highly developed mandibles, the joints of the funiculus short, compact, almost merging in the club, the suture of 1st abdominal segment slightly angulated, scrobes shorter, and eyes less round and less prominent. *R. globulatus*, sp. n., Fairmaire, *l. c.* p. 344, Bône.

Scepticus, g. n., Roelofs, *l. c.* p. 158. True *Brachyderides*: near *Eury-metopus* and *Prosayleus*. *S. insularis*, sp. n., *id. l. c.* p. 159, pl. ii. figs. 1, 1a, Japan.

Amystax, g. n., *id. l. c.* p. 159. Facies of *Piazomias*; next *Prosayleus*. *A. fasciatus*, sp. n., *id. l. c.* p. 160, pl. ii. figs. 2, 2 a & b, Japan.

Catapionus modestus, p. 156, *clathratus* and *gracilicornis*, p. 157, *id. l. c.* Japan, spp. nn.

Strophosomus (Neliocarus) elongatus, sp. n., Martinez y Saez, An. Soc. Esp. ii. p. 414, pl. xiii. fig. 5, La Palma.

Sitones japonicus, sp. n., Roelofs, *l. c.* p. 160, Japan.

Piazomias tigrinus, p. 161, Japan and Formosa, *griseus*, p. 162, Japan, *id. l. c.* spp. nn. (possibly forming a new genus).

Chlorophanus grandis, sp. n., *id. l. c.* p. 162, Japan.

Geonomus olcesii, sp. n., Tournier, MT. schw. ent. Ges. iv. p. 170, Tangiers.

Evas lineatus, sp. n., Pascoe, Ann. N. H. (4) xi. p. 179, Queensland.

Otiorhynchides.

DE MARSEUL, L'Ab. pp. 105-452 (separate pagination), continues his compiled monograph of this group [Zool. Rec. ix. p. 286], completing the first part, including all the genus *Otiorhynchus*. This first part is supposed to form vol. x. of 'L'Abeille' (vol. iv. of the 2nd series), which bears 1872 on the title and separate sheets, the concluding one of which was issued in 1874. *O. montanus*, Chevr., *nec* Schön., is re-named *montigena* (p. 173); *O. affinis*, Stierl., *nec* Dej., is re-named *assimilis* (p. 201); *O. rudis*, Stierl., *nec* Sch., is re-named *rodus* (p. 220); *O. squamifer*, Boh., *nec* F., is re-named *squamulifer* (p. 244); and other changes in nomenclature are made, which are not noticed here for the reason stated in Zool. Rec. viii. p. 299.

Diatmetus premorsus, Gerst., fig. 4, *Chaunoderus stupidus*, G., fig. 5, *Sphrigodes margaritaceus*, G., fig. 6, *Systates pollinosus*, G., fig. 7, *S.*

amplicollis, G., fig. 8, *Peribrotus pustulosus*, G., fig. 9; Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2, pl. xi.

Otiorhynchus. Stierlin, B. E. Z. xvii. pp. 261-292, gives an analytical table of the known species. *O. jovis*, Mill., ? = *prolongatus*, Stier.; *O. decussatus*, Hoch., ? = *tomentifer*, Boh. *O. tenebricosus* doubtful as British: E. C. Rye, Ent. M. M. ix. p. 269. *O. blandus*, Sch., nec *monticola*, Germ., occurs in Britain: D. Sharp, *op. cit.* p. 290.

Omius lepidotus, Perris, is a *Foucartia*; Perris, Nouv. et faits, 1873, p. clxv.

Trachyphlœus maculatus, Perris, = *setiger*, Seidl.; Marseul, Nouv. et faits, 1873, p. clxv. *T. alternans* occurs at roots of *Helianthemum vulgare*: W. Tylden, Ent. M. M. ix. p. 290.

Arrhaptogaster, g. n., Roelofs, Ann. Soc. Ent. Belg. xvi. p. 163. *Celeuthetides*: near *Celeuthetes*, but with different antennæ, elytra, and abdomen, and the metasternum like that of *Siteytes*. *A. pilosus*, sp. n., *id. l. c.* p. 164, pl. ii. figs. 3, 3a & b, Japan.

Myosides, g. n., *id. l. c.* p. 164. *Trachyphlœides*: near *Scoliocerus*, but with different rostrum and scrobes. *M. seriehispidus*, sp. n., *id. l. c.* p. 165, pl. ii., figs. 4, 4a, Japan.

Trachyphlœops, g. n., *id. l. c.* p. 165. No differential remarks made. *T. setosus*, sp. n., *id. l. c.* p. 166, pl. ii. fig. 5, Japan.

Hyperstylus, g. n., *id. l. c.* p. 171. *Phyllobiides*: differs from *Myllocerus* in the form of the scape and rostrum, and in its non-dentate femora. *H. pallipes*, sp. n., *id. l. c.* p. 172, pl. ii. figs. 6, 6a, Japan.

Otiorhynchus jaenensis, p. 268, note, Andalusia, *brucki*, p. 281, note, Greece, *ledereri*, p. 286, note, Asia Minor, Stierlin, *l. c.*; *O. amputatus*, Chevrolat, in De Marseul's Monogr. pt. 1, p. 174, Spain; *O. tenuicornis* (Miller), De Marseul, *op. cit.* p. 383, Styria; *marseuli* (Stierlin), *id. l. c.* p. 400, locality unknown; *paradoxus* (Stierlin), *id. l. c.* p. 401, Syria; *allardi* (Stierlin), *id. l. c.* p. 405, Algeria: spp. nn.

Holcorhinus otiorhynchoides, sp. n., Fairmaire, R. Z. (3) i. p. 344, Bône.

Phyllobius longicornis, p. 166 (? = *prolongatus*, Mots.), *rotundicollis*, p. 167, Roelofs, *l. c.* Japan, spp. nn.

Myllocerus variabilis, *castaneus*, p. 168, *nigrimaculatus*, p. 169, *griseus*, *elegantulus*, p. 170, *viridulus*, p. 171, Japan, *id. l. c.* spp. nn.

Arhinus [*Arrhines*] *callizonatus*, sp. n., Fairmaire, Ann. Soc. Ent. Fr. (5) iii. p. 392, Algeria.

Systates conspersus, sp. n., Gerstäcker, *l. c.* p. 232, note, Tette, Mosambique.

Eremnides.

Canoxus, g. n., Roelofs, Ann. Ent. Belg. xvi. p. 172. *Cyphicerides*: allied to *Cyphicerus*, differing in the form of the rostrum, especially of the scrobes, and in the posterior corbels being open. *C. japonicus*, sp. n., *id. ibid.* pl. iii. figs. 7, 7a, Japan (and various species usually referred to *Cyphicerus*).

Anosimus, g. n., *id. l. c.* Nearer *Cyphicerus* than the preceding: lobes of prothorax very weak. *A. decoratus* (pl. iii. figs. 8, 8a) and *pallidus*, spp. nn., *id. l. c.* p. 174, Japan.

Calomycterus, g. n., *id. l. c.* p. 175. Placed in the *Cyphicerides* from the width of its rostrum; but with the facies of the true *Eremnides*. *C. setarius*, sp. n., *id. ibid.* pl. iii. figs. 9, 9a, Japan.

Phytoscaphus ciliatus, sp. n., *id. l. c.* p. 176, Japan.

Leptopides.

Curculio clavus, F., is a *Leptops*; *L. hopii*, Fahr., = *squalidus*: F. P. Pascoe, Ann. N. H. (4) xii. p. 231.

Cyphometopus, Blanch., belongs to the *Strangalioidides*: H. Jekel, Bull. Soc. Ent. Fr. (5) iii. p. cxxxviii.

Pseudocneorhinus, g. n., Roelofs, *l. c.* p. 177. Scrobes touching lower angle of eye at their hinder edge; tarsi soldered, as in *Tropidophorus*. *P. obesus*, sp. n., *id. ibid.* pl. iii. figs. 10, 10a, Japan.

Leptops argillaceus, Queensland, and *musimon*, Rockhampton, p. 231, *muricatus*, Nicol Bay, p. 232, Pascoe, *l. c.* spp. nn.

Brachycerides.

Brachycerus atrox, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. xi. fig. 10.

Byrsopides.

Entomoderus [*Entomoderes*, Sol.], sub-g. n. of *Rhytidorhinus*; Raffray, R. Z. (3) i. p. 383. Anterior tibiae deeply incised, with two large apical spines, the outer one very robust, &c. *R. sabulicola*, sp. n., *id. l. c.* p. 382, Boghari.

Rhytidorhinus kirschi, p. 170, Upper Egypt, *similaris*, p. 171, Tangiers, spp. nn., Tournier, MT. schw. ent. Ges. iv.

Gronops pretiosus, sp. n., *id. l. c.* p. 172, Morocco, Portugal.

Rhyparosomides.

Dysostines cellaris, sp. n., Pascoe, *l. c.* p. 232, Sydney.

Dichotrachelus koziorowiczi, sp. n., Desbrochers, Bull. Soc. Ent. Fr. (5) iii. p. cxix., Corsica.

Cylindrorhinides.

Ocyнома, g. n., Pascoe, Ann. N. H. (4) xii. p. 233. Differs from *Perperus* in having no ocular lobes, and in the greater length of the scape. *O. antennata* and *cordipennis*, spp. nn., *id. l. c.* p. 234, Swan River.

Decienus, g. n., *id. l. c.* p. 234. Facies of *Prosayleus*, but phanerognathous. *D. sphasodes*, sp. n., *id. l. c.* p. 235, W. Australia.

Perperus urticarum, p. 232, Queensland, *variegatus*, p. 233, Rockhampton, *id. l. c.* spp. nn.

Listroderes superbus, sp. n., Reed, An. Univ. Chil. xli. p. 354 (May, 1872), and Ent. M. M. ix. p. 209 (Feb. 1873), South Chili.

Molytides.

Aphela, *Emphyastes*, and *Psaldus*, should form a separate sub-family near the present one. Pascoe, *op. cit.* xi. p. 179.

Liosomus oblongulus, Boh., and var. n. *collaris* of *L. ovatulus* described, both from England; E. C. Rye, Ent. M. M. ix. p. 242, x. p. 138.

Molytes lewisi, sp. n., Roelofs, Ann. Ent. Belg. xvi. p. 178, Japan.

Liosomus troglodytes, sp. n., E. C. Rye, *op. cit.* x. p. 136, England.

Trachodes ægypticus, sp. n., Tournier, MT. schw. ent. Ges. iv. p. 173, Upper Egypt.

Psaldus ammodytes, sp. n., Pascoe, *l. c.* Champion Bay.

Scythropides.

Eugnathus distinctus, sp. n., Roelofs, *l. c.* p. 179, Japan.

Scythropus desbrochersi, Raffray, R. Z. (3) i. p. 382, Boghari; *S. scutellaris*, Roelofs, *l. c.* Japan: spp. nn.

Gonipterides.

Oxyops mastersi, N. S. Wales, *memnonius*, Champion Bay, p. 235, *calidus* and *pruinus*, p. 236, Nicol Bay, *meles*, p. 236, *sparsutus* and *rutilus*, p. 237, Champion Bay, *floreus*, p. 237, W. Australia, Pascoe, *op. cit.* xii. spp. nn.

Syarbis semilineatus, W. Australia, *nervosus*, Queensland, *id. l. c.* p. 238, spp. nn.

Pantorites cretatus, Champion Bay, *breweri*, Swan River, *id. l. c.* p. 239, spp. nn.

Hyperides.

Hypera (Phytonomus) subcostatus, Cap., occurs in Japan; Roelofs, *l. c.* p. 180.

Phæopholus, g. n., *id. l. c.* Very close to *Chloropholus*, but smaller. Allies the species of Madagascar and Cochin China with the European *Hypera*. *P. ornatus*, sp. n., *id. l. c.* p. 181, pl. iii. figs. 11, 11a, Japan.

Hypera acaciæ, sp. n., Pascoe, *op. cit.* xi. p. 180, Queensland.

Prophæsia confusa, sp. n., *id. ibid.* Tasmania.

Aterpides.

Rhinaria perdix, Victoria, *fasciata*, interior of Australia, Pascoe, *op. cit.* xii. p. 278, spp. nn.

Æsiotes (removed from vicinity of *Leptops*, as the maxillæ are not covered by the mentum) *leucurus*, p. 278, Sydney, *morosus*, p. 279, Victoria, *id. l. c.* spp. nn.

Cleonides.

Capiomont's monograph of part of this family is commenced after his death, under the supervision of C. E. Leprieur, Ann. Soc. Ent. Fr. (5) iii. pp. 273-296. A group named *Rhinocyllides* is discussed, composed of *Rhinocyllus* and a new genus [it is very doubtful, from the preliminary observations, whether the novelties must not be considered as published solely by Leprieur]. *R. olivieri*, Gyll., and *latirostris*, Latr., = *antiodontalgicus*, Gerbi, varr.

Cleonus mitis, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. xi. fig. 11.

Cælostethus [Dej., Col.], g. n., Capiomont, *l. c.* p. 275. Pectus considerably excavated in front of the anterior coxæ; the sides of the excavation projecting, auriculate, the bottom smooth. *Rhinocyllus plani-*

frons, Dej., and *provincialis*, Fairm.; also *C. villosus*, p. 279, Algeria, and var. *hispanicus*, p. 280, Spain, *siculus*, Sicily, *diecki*, S. Spain, p. 282, *orientalis*, p. 283, Austria and Turkey, and var. *smyrnensis*, p. 284, Smyrna, *id. l. c.* spp. nn.

Stolatus, g. n., Mulsant and Godart, Ann. Soc. L. Lyon (n. s.) xx. p. 44. Aspect of *Tychius*; allied to *Larinus* and *Rhinocyllus*. *S. nicolasi*, sp. n., *id. l. c.* p. 46, Beaucaire [is a *Larinus*; ? *crinitus*, Boh.: Desbrochers, MT. schw. ent. Ges. iv. p. 197].

Cleonus bisignatus, p. 181, *acutipennis*, p. 182, spp. nn., Roelofs, Ann. Ent. Belg. xvi. Japan.

Rhinocyllus schœnherri, p. 288, Caucasus, *oblongus*, p. 290, Greece, Turkey, Algeria, Spain, Capiomont, *l. c.* spp. nn.

Microlarinus humeralis, sp. n., Tournier, MT. schw. ent. Ges. iv. p. 174, Upper Egypt.

Larinus crassus, C. A. Dohrn, S. E. Z. xxxiv. p. 74, N. Persia; *L. griseipilosus*, p. 182, *latissimus*, *ovalis*, p. 183, Roelofs, *l. c.* Japan: sp. nn.

Lixus depressipennis, p. 184, *impressiventris*, *maculatus*, p. 185, spp. nn., Roelofs, *l. c.* Japan.

A. CHEVROLAT, Mém. Liège (2) v. pp. i.–viii., 1–118 [see *Antarctiides*, *suprà*, as to date of publication], in a memoir upon the *Cleonides*, not intended as a monograph, divides the species into 'Faux Cléonides' (*Epirhynchus*, *Leucochromus*, and *Hypsosternus*), with simple detached claws, and *Bothynoderides*, *Conorhynchides*, *Cossinoderides*, and true *Cléonides*, in which the claws are approximate at the base or connate. *Cleonus dehaani*, Sch., is a *Peribleptus*; *C. ornatus*, Reiche, = *Lixus pulvisculosus*, Boh.; *C. soricinus*, Mars., is also a *Lixus*. *Bothynoderes conicicollis*, Gyll., *nec* Ol., is re-named *meridionalis*, p. 13 [Olivier's insect is a *Temnorhinus*, teste Chevrolat; Gyllenhal's species, therefore, apparently does not require re-naming]; Fahræus's var. of *B. vexatus*, Sch., from W. Siberia, is named *lugens*, p. 14. *Stephanocleonus marginatus*, Fisch., *pruinus* and *hexastictus*, Sch., given as distinct in the catalogue, are considered conspecific in the text, p. 26; *S. rubrifrons* and *fossulatus*, Fisch., are specifically distinct, as are *Cyphocleonus adumbratus*, Sch., and *trisulcatus*, Hbst. All Motschoulsky's genera are adopted, and 17 more characterized as new; but the author unconsciously anticipates the instability of these groups by renaming various well-known species, because of others of prior date, though the latter are referred by him to different genera. He gives a Catalogue, with localities, bibliographical references, and much synonymy, pp. 99–113; a table of doubtful species, and a table of geographical distribution.

The following new genera and species are characterized:—

Exochus, p. 2. *Bothynoderides*: eyes straight in front, rounded behind; joints 1 & 2 of posterior tarsi triangular, rather wide. Type, *Leucochromus gigas*, Mars., also *Cleonus ellipticus* and *basigranatus*, Fairm., *C. anxius*, Sch., and *E. latus*, p. 3, Siberia, *simplicirostris* and *persicus*, p. 4, Persia, spp. nn.

Plagiographus, p. 21. *Bothynoderides*: no differential characters given. Type, *Cleonus fastigiatus*, Er. (according to Catalogue), *nebulosus*, L., and many other known species; also *P. albirostris*, Egypt, *podolicus*,

Podolia, p. 23, *lethierrii*, p. 24, Reinosa, *graellsii*, p. 25, Spain, France, spp. nn.

Stephanophorus, p. 39. *Conorhynchides*: no differential characters given (? = *Entymetopus*, Mots.). Type, *Cleonus roridus*, Pall.

Temnorhinus, p. 41. *Conorhynchides*: rostrum longitudinally keeled in the middle, deeply emarginate at apex. Type, *Cleonus mimosa*, Ol.; also *C. jekeli*, Woll., = *orbitalis*, Fhs., = *conicicollis*, Ol., and other known species; and *T. pilosus*, p. 42, *kirguisicus*, p. 43, Kirguise Steppes, *rufulus*, p. 43, Kordofan, *saucerottii*, Sennaar, *albifimbriatus*, Algeria, p. 44, *egyptius*, p. 45, Egypt, spp. nn.

Cossinoderus, p. 49. No rostral keel; a small pit between the eyes. Type, *Lixus candidus*, Ol.

Pycnodactylus, p. 50. Allied to *Leucomigus* and *Conorhynchus*, but with different rostrum and tarsi. Type, *C. pacificus*, Ol.; also *tomentosus*, Sch., *cretosus*, Fairm., and *P. fuscoirroratus*, sp. n., p. 51, Persia (the 3 last all one species, and queried as not distinct from the first; Desbrochers, MT. schw. ent. Ges. iv. p. 197).

Cylindropterus, p. 57. True *Cleonides*. *C. luxerii*, sp. n., p. 58, Egypt, Syria.

Trachydemus, p. 59. Type, *Pachycerus rugosus*, Luc.

Centrocleonus, p. 62. Type, *Cleonus fallax*, Sch.

Tetragonothorax, *ibid.* Type, *C. retusus*, F.

Gonocleonus (Jekel, MS.), p. 63. Type, *C. helferi*, Chevr., and *C. angulatus*, sp. n., p. 64, Oran.

Neocleonus, p. 66. Type, *C. mucidus*, Germ., and other African species; also *N. frater*, p. 67, *hypocrita*, p. 75, Pondicherry, *consimilis*, p. 68, Benguela (? = *C. velatus*, Gyll., var.), *coquereli*, Madagascar, *costulatus*, ? Senegal, p. 69, *pudendus*, p. 70, Senegal, Kordofan, *thibetanus*, p. 71, Thibet, *bimaculatus*, Siam, *orientalis*, China, E. India, p. 72, *zebra*, p. 73, E. India, Ceylon, *rufirostris*, p. 74, Senegal, *sordidus*, Amboina, *trifasciatus*, White Nile, p. 76, spp. nn.

Apleurus, p. 78. *A. fossus*, *ibid.*, *boucardi*, p. 79, Mexico, *quadri-lineatus*, p. 80, Texas.

Pseudocleonus, p. 88 (= *Oosomus*, Mots., nec Sch.). Type, *C. cinereus*, F., = *costatus*, F.

Priorhinus (script. *Prionorhinus*, p. 112), p. 91. Type, *Lixus canus*, Wied.

Cnemodontus, p. 92. Type, *C. limpidus*, Gyll.; also *Pachycerus sparsus*, Sch., re-named *denominandus*, p. 92, because of *C. sparsus*, Gyll. [which the author himself states to be a *Cyphocleonus*], and *Cn. gypsatus* and *oblongus*, spp. nn., p. 93, Cape of Good Hope.

Xanthochelus, p. 94. Winged, with floescence as in *Lixus*; form of certain *Larini*. Type, *X. canescens*, p. 95, Egypt (*C. cinerascens*, Dej. Cat.), *longus*, ? Syria, *niloticus*, Upper Egypt, p. 96, *montivagus*, Siberia, *caelestis*, China, p. 97, spp. nn., and, among other known species, *Cleonus mixtus*, Sch. [re-named *sulphurifer*, p. 95, because of *C. mixtus*, F., which the author states, *l. c.*, to be a *Pachycerus*, and at p. 110 places in *Rhabdorhynchus*, Mots.].

Bothynoderes sareptensis, Sarepta, *nigricinctus*, S. Russia, p. 8, *menetriesi*, Turcomania, *betavorus* [*betiv.*], Crimea, Caucasus (larva very injurious to

beetroot ; imago devours other larvæ on that plant, p. 6), p. 9, *caucasicus*, p. 10, Caucasus, *crotchi*, p. 11, Carthage, *uniformis*, *hispanus*, p. 12, Spain, *fissirostris*, p. 14, N. Persia, *maculicollis*, p. 15, Malta, *genæi*, p. 18, *mus*, p. 20, Sardinia, *peregrinus*, p. 19, Montpellier, *angulicollis*, p. 20, Turkey.

Stephanocleonus anceps, p. 27, *marginiguttatus*, (? præc. var.), p. 28, *loratus*, p. 31, *foveifrons*, p. 34, *indutus*, p. 35, Mongolia, *deportatus*, p. 29, E. Siberia, *lineirostris*, p. 30, Dauria, *mannerheimi*, p. 32, Kiakhta, *semicostatus*, *niveus*, p. 33, Siberia.

Conorhynchus plumbeicollis, S. E. Russia, *lacerta*, Caucasus, p. 46, *gibbirostris*, N. Persia, *pistor*, Syria, p. 47, *fahræi*, p. 49, Tartary.

Eumecops spicatus, p. 52, Siberia.

Leucomigus lucasi, p. 53, Algeria, *cristatus*, p. 98, S. W. Africa.

Lioecleonus umbrosus, p. 57, E. India.

Porocleonus insidiosus, p. 61, Sarepta (? = *scrobicollis*, Mots.).

Leucosomus heros, p. 66, S. Algeria.

Pachycerus echii, p. 81, France (= *albarius*, Gyll., var.; Desbrochers, l. c.), *abeillii*, p. 82, Marseilles.

Rhabdorhynchus seriegranosus, p. 86, Oran.

Mecaspis albivirgatus, p. 87, Algeria.

Cyphocleonus achatesides, p. 90, Sarepta.

Hylobiides.

Hylobius abietis, L., var., occurs in Japan ; Roelofs, Ann. Ent. Belg. xvi. p. 187.

Scaphostethus, g. n., *id. l. c.* p. 191. Differs from *Hylobius* in its prosternum being excavated, with projecting borders ; hooks of tarsi appendiculated, as in *Niphades*, Pasc. *S. variegatus*, sp. n., *id. l. c.* p. 192, pl. iii. figs. 12, 12a-c, Japan.

Lepyrus japonicus, sp. n., *id. l. c.* p. 186, Japan.

Hylobius signatipennis, p. 187, *rectirostris*, *perforatus*, p. 188, *cribratus*, *elongatus*, p. 190, *id. l. c.* Japan ; *H. sparsutus*, p. 175, *longicollis*, p. 176, Morocco, Tournier, MT. schw. ent. Ges. iv. : spp. nn.

Orthorhinus tenellus, p. 180, Champion Bay, *infidus*, Richmond River, *carinatus*, Wide Bay, p. 181, Pascoe, *op. cit.* xi. spp. nn.

Erirhinides.

Pascoe, l. c. pp. 182 & 182, tabulates the known Australian genera, following Lacordaire, but considers that the *Cryptoplides* and *Storeides* of that author should be united with his true *Erirhinides*. The New Zealand genera *Hoplocneme* and *Stephanorhynchus* are widely separated from all Australian forms. *Bagous* occurs in Australia.

Auchmeresthes, Ktz., does not belong to the *Brachyderides*, but to this group, near *Eugnomus*. *Metacinops*, Ktz., does not belong to the *Otioryhynchides*, but should also be placed near the *Eugnomides*, to which *Eutecheus*, Sch., and *Macropoda*, Montr., are also to be referred. H. Jekel, Bull. Soc. Ent. Fr. (5) iii. p. cxxxviii.

Bagous brevis, Sch., from England ; E. C. Rye, Ent. M. M. ix. p. 242.

Sharpia, g. n., Tournier, CR. Ent. Belg. xvi. p. cxxxvii. Represents

Spermologus, but with the facies of *Dorytomus*; scrobes confluent beneath, eyes meeting beneath, tarsi moderately dilated. *S. heydeni*, Syria, and *grandis*, Persia, indicated as new, but not described, and *Erirhinus rubidus*, Rosenh.

Endaliscus, Kirsch, B. E. Z. xvii. p. 419. *Cryptoplides*: near the N. American *Endalus*, Cast., on account of its 6-jointed funiculus, and to be placed next *Tanysphyrus* in European lists. *E. skalitzkii*, sp. n., *id. l. c.* p. 421, Bohemia.

Pascoe, *l. c.*, describes the following new genera and species:—

Agestra, p. 183. More allied to *Dorytomus* than to any other genus. Femora toothed beneath; 2 basal abdominal segments very short and indistinctly limited. *A. suturalis*, p. 184, Fremantle.

Eniopea, p. 184. Placed provisionally near *Erirhinus*. Antennal club large, loose jointed; 2 basal abdominal segments short, the last one large, forming a pygidium. *E. amœna*, *ibid.*, Fremantle.

Diethusa, p. 185. Rostrum short, suddenly narrowed towards the apex; breast channelled, abdominal segments normal. *D. fervida*, *ibid.*, S. Australia.

Lybæba, p. 186. Rostrum cylindrical, sutures of abdominal segments slightly curved. *L. subfasciata*, *ibid.*, *repanda*, p. 187, Swan River.

Enide, p. 187. Differs from *Lybæba* in its rostrum being bent and narrowed towards the apex. *E. porphyrea*, *ibid.*, W. Australia, *æstuans*, Swan River, *saniosa*, Fremantle, p. 188.

Hedyopsis, p. 188. Allied to *Erytenna*, but with no ocular lobes, and the anterior and intermediate tibiæ with two apical spurs. *H. selligera*, p. 189, Champion Bay.

Gerynassa, p. 189. Also allied to *Erytenna*, but with coarsely faceted eyes and subtruncated base to the prothorax. *G. nodulosa*, *ibid.*, W. & S. Australia, *basalis*, p. 190, Gawler.

Dicomada, p. 190. Allied to *Cydmea*, but with rostrum broader at apex. *D. litigiosa*, *ibid.*, Fremantle, *ovalis*, Swan River, *terrea*, Champion Bay, p. 191.

Paryzeta, p. 191. Differs from *Xeda* in its rostrum being slender and broader at apex, and its elytra narrower. *P. musiva*, p. 192, Champion Bay.

Xeda, p. 192. Differs from *Cydmea* in its scape impinging on the eye, in the absence of ocular lobes, and in the approximation of the intermediate coxæ. *X. amplipennis*, Swan River, *bilineata*, Champion Bay, *ibid.*

Olanæa, p. 193. Of doubtful affinities. Antennal scrobes præmedian, oblique, abruptly running beneath rostrum; no scales, except beneath. *O. nigricollis*, *ibid.*, Swan River.

Atyllis, *ibid.* General appearance of *Xeda*, but with a 6-jointed funiculus. *A. setosa*, *ibid.*, S. Australia, *griseola*, Swan River, *aurulenta*, Champion Bay, p. 194.

Cyrtalia, p. 194. Agrees with *Phrenozemia* in its narrow head gradually passing into the rostrum, but pubescent or pilose, not scaly, and only the hind femora toothed. *C. griseipila*, p. 195, Sydney.

Emplexis filirostris, p. 185, Champion Bay, *storeoides*, p. 186, Queensland.

Phrenozemia lunata, p. 195, W. Australia.

Meriphus coronatus, *ibid.*, W. Australia.

Mecinus læviceps, Sarepta, *reichii*, Algeria, *nasutus*, Calabria, p. lxxxv., *humeralis*, Sicily, *fairmairii*, Tangiers, p. lxxxvi. spp. nn., Tournier, CR. Ent. Belg. xvi.

Bagous curtirostris, sp. n., Fairmaire, B. Z. (3) i. p. 349, Tangiers.

Amalactides.

Brexius lineatus, sp. n., Pascoe, *l. c.* p. 196, Melbourne.

Belides.

Belus cinereus, Blanch., is a *Pachyura*; *P. papulosa*, Pasc., is an *Isacantha*, and all 3 genera are distinct: F. P. Pascoe, *op. cit.* xii. p. 280.

Pachyura vestita, sp. n., *id. l. c.* p. 279, N. S. Wales.

Belus ganglionicus, sp. n., *id. l. c.* p. 280, Sydney.

Isacantha exigua, sp. n., *id. ibid.*, Queensland.

Eurhynchides.

Eurhynchus maculatus, sp. n., Pascoe, *l. c.* p. 281, Swan River.

Apionides.

Apion. Diagnostic characters in the underside of the rostrum and the scutellum are pointed out by Desbrochers, Bull. Soc. Ent. Fr. (5) iii. pp. cxxxv. & cxxxvi.

Apion pavidum and *flavifemoratum*, ♂, have a sharp tubercle between the posterior coxæ: C. Brisout, *op. cit.* p. clxxx.

Apion gautardi, Tourn., is quite distinct specifically from *A. tamarisci*: H. Tournier, MT. schw. ent. Ges. iv. p. 134.

Apion fagi. A loss of £180 in value of clover seed caused in one year by this beetle, in a field of 14¼ acres: W. H. Herbert, Ent. vi. p. 388.

Otidocephalides.

Otidocephalus americanus, Chevr., = *myrmecodes*, Say, = *myrmex*, Hbst.; *O. myrmecodes*, Chevr., *nec* Say, is re-named *chevrolati*: G. H. Horn., P. Am. Phil. Soc. xiii. p. 450.

Otidocephalus vittatus, p. 448, *ulki*, p. 449, California, *laevicollis*, Georgia, *perforatus*, Maryland, p. 451; *id. l. c.* spp. nn.

Magdalinides.

Magdalis. The species are all more or less pubescent when recently captured: *id. l. c.* p. 457.

Magdalis perforata, Georgia, *cuneiformis*, Nebraska, p. 453, *lecontii*, p. 454, Kansas, California, *salicis*, p. 455, Middle States, *inconspicua*, p. 456, Pennsylvania; *id. l. c.* spp. nn.

Balaninides.

Say's species can only be determined from Gyllenhal's descriptions of types sent by him; *Balaninus sayi* and *rectirostris*, Gyll., = *rectus*, Say; *B. nasutus*, Say, *rostratus* and *sparsus*, Gyll., = *nasicus*, Say; *B. porrectus*, Boh., is queried as a *Balaninus*: *id. l. c.* p. 459 *et seq.*

Balaninus brassicæ: parasitic habits in connection with galls of *Nematus gallicola* described by P. Cameron, Scot. Nat. ii. p. 117. The larva spins a thread to assist itself in dropping to the ground: A. Müller, Ent. M. M. ix. p. 192.

Balaninus sericus, Desbr., ? = *pellitus*, Boh., var., and occurs in Switzerland, on oak; Tournier, MT. schw. ent. Ges. iv. p. 178.

Balaninus quercus, p. 458, Texas, N. York, *caryæ*, p. 460, Brooklyn, Horn, l. c.; *B. deyrollii*, Tournier, MT. schw. ent. Ges. iv. p. 177, *Imerithia*: spp. nn.

Anthonomides.

Orchestes 5-maculatus, Chevr., = *semirufus*, Gyll., var.; Des Loges, Bull. Soc. Ent. Fr. (5) iii. p. cxxi.: De Marseul, *ibid.*, affirms its distinctness: H. Brisout, l. c. p. cxxvii., supports Des Loges's view. *O. 5-maculatus*, Chevr., is a var. of *pubescens*, Stev., with which possibly *O. semirufus*, Gyll., is identical: H. Tournier, MT. schw. ent. Ges. iv. p. 181.

Orchestes 5-maculatus, Chevr., = *enipontanus*, Gredler, = *semirufus*, Gyll., var.; Kirsch, B. E. Z. xvii. p. 216. *O. semirufus*, Gyll., = *scutellaris*, var., from England; *O. melanocephalus*, Ol., = *alni*, L., var.; E. C. Rye, Ent. M. M. x. p. 18.

Anthonomus discoidalis, sp. n., Tournier, l. c. p. 179, Upper Egypt.

Aubæus strangulatus, sp. n., *id.* l. c. p. 180, Upper Egypt.

Bradybatus sharpi, sp. n., *id.* *ibid.* E. Siberia.

Orchestes niger, Nova Scotia, Illinois, *subhirtus*, Illinois, p. 462, Horn, l. c.; *O. sericeus*, Taurus, *astracanicus*, Astracan, Tournier, l. c. p. 183: spp. nn.

Coryssomerides.

Zygopsides berytensis, Mars., should probably be referred to *Euryomatus*; Kirsch, B. E. Z. xvii. p. 217.

Tychiides.

J. DESBROCHERS DES LOGES, C. R. Ent. Belg. xvi. pp. v.-ix., publishes short diagnoses of 25 new species, subsequently fully described by him (Ann. Ent. Belg. vi. pp. 97-126), with various synonymical remarks, &c. The group is nearer *Balaninus* than *Orchestes*; *Sibynes* and *Miccotrogus* are treated as subgenera of *Tychius*; *T. decoratus*, Ros., = *fuscilineatus*, Luc., which should follow *striatulus*; *Sibynes schaumii*, Stierl., = *Tychius (Micotrogus) nigricollis*, Chevr.; *T. dohrni*, Stierl., = *zebrasch*, Strl.; *T. obesus*, Sch., = *sparsutus*, Ol., var.*; *T. pernix*, Gyll., ? = *hematocephalus*, Gyll.; *T. genistæ*, Boh., and *genisticola*, Chevr., = *venustus*, F., var.; *T. flavicollis*, Bris., = *squamulatus*, Sch.*; *T. curtus*, Bris., = *flavicollis*, Gyll.; *T. schneidleri* [sic], Bris., = *lineatulus*, Sch.*; *T. lineatulus*, Bris., = *schneidleri* [sic], Sch.*; *T. elephas*, Ktz., = *strumarius*, Gyll.*; *T. curvirostris*, Bris., and *pygmæus*, Wat., are not to be referred to *Barytychius*; *Micotrogus monachus*, Chevr., *ex. typ.*, = *capucinus*, Sch.; *T. sublineatus*, Chevr., *nec* Schön., is re-described as a new species (pp. viii. & 111) under the name *niveivittis*, Mars., ined. [so named by De Marseul, Cat. 1863]; *T. glycyrrhizæ*, Beck., is re-described; *T. staticis*, Beck., is a *Sibynes*, and, as it confused two species, is proposed to

be dropped. In the synonymic remarks marked *, the author is followed by Tournier (*infra*).

H. TOURNIER, Ann. Soc. Ent. Fr. (5) iii. [not published until April 22, 1874], pp. 450-522, in 'Observations sur les espèces européennes et circumeuropéennes de la Tribu des Tychiides,' is of opinion that this group will eventually have to be united to the *Eriirhinides*, and that the material acquired since Lacordaire's establishment of it is already sufficient to disintegrate it. *Pachytychius* and *Barytychius*, Jekel, have their abdominal segments almost as in *Eriirhinus*, and a new form approaches the *Molytides*. *Aubaenymus picteti*, Tourn., is a *Pachytychius*. *Tychius elongatus*, Gyll., does not occur in Europe. A var. of *Styphlotychius scabricollis*, Ros., from Algeria, is described as *S. fairmairii* (p. 458); and *Tychius ancora*, *auricollis*, and *pērnix*, Gyll., *pachyderus*, Fairm., and *rubriceps* and *3-maculatus*, Ros., are provisionally referred to that subgenus. *T. 3-virgatus*, Desbr., = *astragali*, Becker; *T. mitratus*, Costa, *schaumi* and *bicolor*, Stierl., *ex. typ.*, = *nigricollis*, Chev.; *T. suavis*, Bris., = *laticollis*, Perris; *T. obductus*, Hoch., has 7-jointed funiculus; *T. "kyrbyi,"* Wat., = *squamulatus*, Gyl.; *T. cretaceus*, Kies., is distinct from *cinnamomeus*, Kies.; *T. confusus*, Desbr., = *morawitzi*, Becker; *T. bellus*, Kirsch, *ex. typ.*, = *fuscilineatus*, Lnc. ? *T. glycyrrhizæ*, Beck., = *rufirostris*, Sch.; *T. albivittatus*, Bris., *albivittis*, Gemm., = *aureolus*, Kies.; *T. hæmatopus*, Gyll., = *junceus*, Rech.; a var. from S. Europe of *T. meliloti*, Steph., is named *litigiosus* (p. 492); *T. junceus* and *meliloti*, when found on *Melilotus officinalis*, which has a yellow flower, are almost always dark, but light when found on *M. alba*; *T. brevicornis*, Wat., = *pygmæus*, Bris., = *pusillus*, Germ. *Miccotrogus signaticollis*, Chev., = *capucinus*, Boh., var.; *M. suturellus*, Mots., *nec* Gyll., is re-named *motschulskii* (p. 509); *Sibynes parallelus*, Kies., seems to be a *Miccotrogus*, possibly *cuprifer*, Pz., var.; *S. staticis*, Beck., preoccupied, is re-named *tournieri* (Becker, *in litt.*: p. 512); *S. arenariæ*, Steph., *phaleratus*, Stev., *seriatus*, *bohemanii*, and *algericus*, Desbr., = *primitus*, Hbst.; *S. gallicola*, Giraud, *ex. typ.*, and ? *S. formosus*, Aubé, = *femoralis*, Germ.; *Tychius dohrni*, Beck., *zebra*, Gyl., = *S. vittatus*, Germ.; *S. rælofsi*, Desbr., = *canus*, Hbst., var.

Tychius hæmatocephalus apparently lives on *Lotus corniculatus* in England: H. Moncreaff, Ent. M. M. x. p. 157.

Miccotrogus monachus, Chev., = *capucinus*, Boh.; É. Perris, Nouv. et faits (2) p. 6.

New genera and species :—

Apeltarius, Desbrochers, *l. c.* p. 125. Facies of *Sibynes canus*, but with 7-jointed funiculus, and no scutellum. *A. multilineatus*, sp. n., *id. l. c.* p. 126, Oran.

Jekelia, Tournier, *l. c.* p. 459. Facies of *Pachytychius*, which it resembles in the abdominal segments; tibiæ unguiculate, with a distinct dentate mucronal plate; tarsi not spongy beneath, with simple claws. *Tychius ephippiatus*, Fairm., and *J. depressipennis*, *ibid.*, Hungary, Algeria.

Ectatotyichius, subg. of *Tychius*, *id. l. c.* p. 461. Of short form, with

strictly filiform rostrum. *T. amplicolis*, Aubé, and *E. similis*, id. *ibid.*, Sicily, Algeria.

Pachytychius sobrinus, p. 454, Syria, *indicus*, *ibid.* note, Bombay, *trapezicollis*, p. 455, Algeria, Morocco; *id. l. c.*

Styphlotychius lacordairii, p. 456, *hypocrita*, p. 457, *kirschi*, p. 458, Algeria; *id. l. c.*

Barytychius globipennis, sp. n., *id. l. c.* p. 460, Caucasus.

Tychius 3-virgatus, Sarepta, *globithorax*, France, pp. v. & 99, *lineolatus*, pp. v. & 100, Pyrenees, France, *grandicollis*, pp. v. & 101, Algeria, *sericeus*, pp. vi. & 102, Bone, *longulus* and *confusus*, pp. vi. & 103, Sarepta, *longitubus*, pp. vi. & 104, *parallelipennis*, pp. vi. & 105, *breviusculus* and *dimidiatipennis* (? = *fuscipes*, Chev., var.; p. 98), pp. vi. & 106, *depressus*, pp. vii. & 108, Algeria, *curtirostris*, pp. vii. & 107, Corsica, *deplanatus*, pp. vii. & 109, Spain, *discithorax*, Algeria, *undulatus*, locality not given, p. 119, *mixtus*, p. 120, Morocco, DESBROCHERS, *l. c.*; *T. modestus*, p. 462, Greece, *tessellatus*, p. 464, Andalusia, *arietatus*, Geneva, *aureimicans*, Malaga, p. 465, *tenuirostris*, p. 466, Jerusalem, *seriepilosus*, Egypt, *depressicollis*, Algeria, p. 468, *hypætrus*, Sicily, Sardinia, Algeria, *raffrayi*, Algeria (? = *longitubus*, Desbr.), p. 469, *pauperculus*, Algeria, *subsulcatus*, Hungary, p. 470, *brisouti*, p. 471, Jura, *hueti*, p. 472, *terebrosus*, p. 475, Calabria, *longiusculus*, p. 474, *acosmus*, p. 486, *beckeri*, p. 487, Sarepta, *heydeni*, p. 476, Upper Egypt, *carinicollis*, Astracan, *italicus*, Tuscany, p. 479, *olcesii*, p. 483, Portugal, N. Africa, *chevrolati*, p. 484, Portugal, *kiesenwetteri*, p. 485, Servia, *sericatus*, p. 488, *sharpi*, p. 506, Geneva, *difficilis*, p. 490, Carinthia, *dentipes*, p. 493, *decretus*, p. 496, *sericatus*, p. 498, *rufipes*, p. 508, *similaris*, p. 504, Algeria, *obscurus*, p. 494, *reduncus*, p. 499, Tangiers, *armatus*, p. 495, *comptus*, p. 497, Italy, N. Africa, *hirtellus*, Crete, *ruficornis*, Syria, p. 500, *neapolitanus*, p. 502, Naples, *perpendus*, p. 504, Lebanon, *ochraceus*, p. 505, Syria: TOURNIER, *l. c.*

Sibynes heydeni, p. 511, Greece, Algeria, Syria, S. Spain, *minutissimus*, Astracan, *fuscus*, Egypt, p. 513, *reichii*, Calabria, *hopffgarteni*, Hungary, p. 514, *grisescens*, p. 515, Swiss Alps, *abdominalis*, Hungary, *rudipilosus*, p. 520, Turkey, *beckeri*, Sarepta, *curtirostris*, Switzerland, France, p. 521, *perrisi*, p. 522, Aix, Tuscany, TOURNIER, *l. c.*; *S. nigrivittatus*, *inclusus*, pp. 7 & 110, *amplithorax*, pp. viii. & 112, *auricollis*, pp. viii. & 113, *algericus*, pp. viii. & 116, Algeria, *velutifer*, pp. viii. & 114, France, *seriatus*, pp. viii. & 115, Corsica, *bohemanni*, pp. viii. & 115, France, Pyrenees, *rælofsi*, pp. viii. & 116, Portugal, *beckeri* and *zuberi*, p. 123, *planiusculus*, p. 124, no localities given, *subellipticus*, p. 124, Marseilles, and ? Alsace, DESBROCHERS, *l. c.*

Miccotrogus discoideus, sp. n., Desbrochers, *l. c.* pp. ix. & 117, Algeria (= *signaticollis*, Chev., of which *molitor*, Chev., is also a var., p. 98).

Cionides.

Cionus olens: larva mines leaves of *Verbascum pulverulentum*, É. Perris, Ann. Soc. Ent. Fr. (5) iii. p. 87.

Nanophyes duricæi, Luc., makes galls on *Umbilicus pendulinus* in Algeria; H. Lucas, Bull. Soc. Ent. Fr. (5) iii. p. cvi.

Nanophyes dorie, sp. n., H. Brisout, Bull. Soc. Ent. Fr. (5) iii. p. lxxxv. Genoa.

Gymnetrides.

Gymnetron [-netrum] *mixtum*, Mulsant & Godart, Ann. Soc. L. Lyon, (n. s.) xx. p. 49, Narbonne; *G. schwarzi*, V. Rottenberg, B. E. Z. xvii. p. 204, Silesia: spp. nn.

Læmosaccides.

Læmosaccus ocellaris, p. 281, *semiustus*, *gibbosus*, p. 282, *tarsalis*, *magdaloides*, p. 283, *fulvirostris*, p. 284, Champion Bay, *longiceps*, p. 281, *funereus*, p. 282, Queensland, *querulus*, p. 283, W. Australia and Victoria, Pascoe, Ann. N. H. (4) xii. spp. nn.

Cryptorhynchides.

Alcides (*Cionus*, Fischer) *trinotatus*, Mots., = *Ocladius salicorniæ*, Ol.; J. Faust, Hor. Ent. Ross. ix. p. 313.

Cryptorhynchus lapathi, L.: destruction caused by its larvæ to *Populus alba* noted by Boisduval; Bull. Soc. Ent. Fr. (5) iii. p. cxxxvii. J. Grouvelle has found the insect in the Isère Mountains, at 1500-1800 metres: l. c. p. cxlix. Larva described: J. Erné, MT. schw. ent. Ges. iv. p. 138.

Crypharis robusta and *tingitana*, Dieck, re-described; Fairmaire, R. Z. (3) i. pp. 345 & 348. *C. rosaliæ*, Rott., very probably = *Typhloporus deplanatus*, Hampe (the two genera are certainly identical); G. Dieck, B. E. Z. xvii. p. 422: = *C. planidorsis*, Fairm., ex. typ.; Desbrochers, MT. schw. ent. Ges. iv. p. 196.

Pterygomus, g. n., H. Jekel, Ann. Soc. Ent. Fr. (5) iii. p. 267. *Sophrorhinides*, Lac.: eyes finely reticulated, claws bifid; somewhat of the facies of *Cydianerus*. Connected with *Panolcus*, Gerst., by *Metrania palliata*, Pasc. *P. sellatus*, sp. n., id. l. c. p. 269, Cayenne.

Graphicotera, g. n., H. Tournier, MT. schw. ent. Ges. iv. p. 183. *Sophrorhinides*: near *Corynephorus*, and next before *Camptorhinus* in European lists. *G. excelsa*, sp. n., id. l. c. p. 184, Caucasus.

Tentegia, g. n., F. P. Pascoe, Ann. N. H. (4) xii. p. 284. Like *Acalles*, but with linear tarsi and a broad truncated intercoxal process. Differs from *Myrtesis* in its pectoral channel not extending to the middle coxæ. *T. favosa*, sp. n., id. *ibid.* W. Australia.

Axides, g. n., id. l. c. p. 285. Has many characters of *Chimades*; allied to *Chætectetorus*. *A. dorsalis*, sp. n., id. l. c. p. 286, Sydney, N. Australia.

Rhyssematus æqualis, p. 464, Pennsylvania, Kansas, *pubescens*, p. 465, California; Horn, P. Am. Phil. Soc. viii. spp. nn.

Chalcodermus inæquicollis, p. 466, Georgia, *collaris*, p. 467, Texas, id. l. c. spp. nn.

Psepholax mastersi and *egerius*, p. 196, Queensland, (*P.?*) *latirostris*, p. 197, Illawarra, Pascoe, *op. cit.* xi. spp. nn.

Poropterus satyrus, Tasmania, *innominatus*, Queensland, p. 197, *varicosus*, Illawarra, *oniscus*, Queensland, *tumulosus*, S. Australia, Tasmania, p. 198, id. l. c.; *P. prodigus*, id. *op. cit.* xii. p. 285, Eclipse Island: spp. nn.

Tychreus sellatus, sp. n., id. *op. cit.* xii. p. 286, N. S. Wales.

Camptorhinus fasciatus, sp. n., Schaufuss, Nunq. Ot. ii. (1872) p. 275, Greece.

Analcis variegatus, sp. n., Horn, l. c. p. 468, Illinois to Gulf States.

Acalles carinicolis, p. 185, Egypt, *olcesii*, p. 186, *brevis*, p. 187, Tangiers, Tournier, l. c.; *A. graellsii*, Martínez y Saez, An. Soc. Esp. ii. p. 416, pl. xiii. fig. 6, Puerto del Pico; *A. giraudi*, Mulsant & Godart, Ann. Soc. L. Lyon (n. s.) xx. p. 265, France (under bark of *Eucalyptus globulus*); *A. sophieæ*, H. Tschapeck, S. E. Z. xxxiv. p. 245, Styria: spp. nn.

Crypharis strigirostris, p. 346, Tangiers, *convexiuscula*, Dely-Ibrahim, *subterranea*, Boghari, p. 347, Fairmaire, R. Z. (3) i., spp. nn.

Ramphides.

Ramphus kiesewetteri, sp. n., Tournier, MT. schw. ent. Ges. iv. p. 188, Sicily.

Ceuthorhynchides.

Ceuthorhynchideus chevrolati, Bris. (? M. S.), = *troglodytes*, var. *d.* Gyll.; *Ceuthorhynchus crassidentatus*, Marshall, is non-existent, and not described: E. C. Rye, Ent. M. M. x. p. 18.

Ceuthorhynchus maschelli, sp. n., (Hochhuth) Solsky, Bull. Mosc. xlvi. p. 162, Kiew.

Poophagus hopffgarteni, sp. n., Tournier, l. c. p. 189, Hungary.

Rhinoncus nigriventris, sp. n., Pascoe, Ann. N. H. (4) xi. p. 199, Queensland.

Baridiides.

Baridius speciosus, Gerst., figured in V. d. Decken's Reisen, iii. pt 2, pl. xi. fig. 13; *B. analis*, var. from Prague, Kirsch, B. E. Z. xvii. p. 211.

Baridius granulipennis, Egypt, *stierlini*, Sicily, spp. nn., Tournier, l. c. p. 190.

Centrinus vergarae, sp. n., Reed, An. Univ. Chil. xli. p. 354, Llanquihue, Chili.

Calandrines.

Rhynchophorus zimmermanni, Fahrs. (chief stages described; the larva bores roots and stocks of palmetto: S. V. Summers, Canad. Ent. v. p. 123), = *cruentatus*, F., var.; *Scyphophorus asperulus*, Lec., = *acupunctatus*, Gyll.; a var. *baridioides* of *Sphenophorus vomerinus*, Lec., is described (p. 413); *S. procerus*, Lec., = *validus*, Lec.; *S. ochreus*, Lec., ? = *æqualis*, Gyll.; *S. compressirostris*, Germ., nec Say, is renamed *germari*: Horn, P. Am. Phil. Soc. xiii. p. 408 et seq.

Metamasius, g. n., Horn, l. c. p. 410. Differs from *Sphenophorus* in its very widely separated anterior coxæ. *S. sericeus*, Humb. & B., *S. carbonarius*, Chev., &c.

Scyphophorus robustior, p. 409, no locality given, *yuccæ*, p. 410, California, Horn, l. c. spp. nn.

Sphenophorus ulkii, p. 413, Nebraska, Colorado, &c., *robustus*, p. 419, North America, *costipennis*, p. 420, Georgia, Illinois, &c., *latinasus*, p. 421, Georgia, *scoparius*, p. 424, Wisconsin, Kansas, *arizonensis*, p. 428, Arizona, *cultellatus*, p. 429, Kansas, Texas, *id.* l. c. spp. nn.

Cossonides.

T. V. WOLLASTON, 'On the Cossonidæ of Japan' (Tr. E. Soc. 1873, pp. 5-43), describes 18 species (embodied in 15 genera, and all new) taken by G. Lewis, in Kiushiu and the southern division of Nipon. The ordinary European types do not prevail, and there is no dominant type. The following new genera and species are described:—

Tetratemnus, p. 9. Closely allied to *Dryophthorus*, but with shorter rostrum and legs, the anterior coxæ comparatively wide apart, the posterior coxæ more approximated, &c. Also allied to *Charorhinus*, Fairm., but with transverse depressed eyes, and distinctly pentamerous tarsi. *T. sculpturatus*, p. 11 (also found dead in tea, Jersey).

Pentacoptus, p. 12. Facies of *Gronops*: allied to *Pentarthrum*. *P. gronopiformis*, p. 13.

Tychiodes, pp. 16, 449, & 518. Somewhat of the facies of one of the *Erirehinidæ*, with an elongate linear slender rostrum, short transverse thorax, flattish wide oblong-elliptic body, small head, &c.: allied to *Microxylobius*. *T. adamsi*, p. 17, I. Awasima, near Nipon.

Pholidoforus, pp. 18, 465, & 546. With densely scaled surface. *P. squamosus*, p. 19.

Coprodema, pp. 20, 465, & 546. Facies of *Calandra*, but a true Cossonid, allied to the preceding genus. *C. calandriforme*, p. 21.

Exodema, pp. 22, 466, & 547. Closely allied to *Coprodema*, but with longer tarsi, of which the 3rd joint is widened and bilobed. *E. sublutosum*, p. 23.

Phlæophagosoma, pp. 23, 465, 545, & 609-614. Allied to *Phlæophagus* and *Rhyncolus*, but narrower, more fusiform, and less convex, with more elongate prothorax and rostrum and shorter tarsi, the 1st joint of which is sub-equal with 2nd and 3rd. Type, *P. minutum*, p. 25; also *P. (?) curvirostre*, p. 26 (see also other spp. and sub-g. n. *Amorphorhynchus* *infra*).

Pseudocossonus, pp. 27, 478, 562, & 621. Facies of *Cossonus*, but with extremely robust legs, and abnormally short and incrassated tarsi, the apical joint of which is conical. *P. brevitarsis*, p. 28, *brachypus*, p. 29 (see also *infra*).

Heterarthrus, p. 29. Of narrow elongate-fusiform outline, with rather short and thick rostrum, somewhat slender and elongate legs and elongate tarsi, the apical joint whereof is ordinary and clavate in the ♂, and fusiform-conical in the ♀. *H. lewisi*, p. 31, *pallidipennis*, p. 32 (and see *infra*).

Macrorhyncolus, pp. 33, 489, 576, & 635. Allied to *Rhyncolus*, but larger, more parallel, with the rostrum short and incrassate, but conspicuously parallel throughout, and the scrobes short, deep, wide, and suddenly narrowed, and angularly deflexed beneath the eyes. *M. crassiusculus* p. 34 (and see *infra*).

Xenomimetes, p. 35. Facies of *Hylurgus*: allied to *Syntomocerus* (*Eremotes*) and *Stenoseleis*, but with a conspicuously longer, less incrassate, and linear rostrum, less thickened antennæ, and the elytra sub-divaricate at the apex. *X. destructor*, p. 36.

Spharocorynes, pp. 38, 495, & 582, somewhat the facies of *Hylastes*: with

very short and thick parallel rostrum, stout antennæ (of which the funiculus is short, and the club extremely large rounded and abrupt), and legs sub-equally distant at the base. *S. lewisianus*, p. 39.

Pentarthrum (re-characterized) *angustissimum*, p. 14.

Hexarthrum (re-characterized) *brevicornis*, p. 38.

Stenoscelis (re-characterized) *gracilitarsis*, p. 42.

T. V. WOLLASTON. 'On the genera of the Cossonidæ.' *Tom. cit.* pp. 427-657.

An exhaustive analysis of the genera now known (122 in number, 75 of which are new), comprising 253 species (139 described as new), and arranged as follows:—1, a tabulated list of the groups; 2, full generic diagnoses; 3, observations (diagnostic and geographical) on each genus; 4, descriptions of the new species; 5, a list of all the species examined. Five sub-families are adopted:—*Notiomimetides*, *Dryophthorides*, *Pentarthrides*, *Onycholipides*, and *Cossonides*; Lacordaire's *Lymanthides* being rejected, on account of the instability of its supposed distinguishing feature of shortness in the metasternum, and *Phenomerus* considered as not related to the *Cossonidæ* but to the *Sphadasmides* and *Mecopus*. *Chærorrhinus*, Fairm., having 5 joints (not 4) to the funiculus, is not a *Dryophthorid*, but a *Pentarthrid*. *Rhyncolus* [!] *herveei*, Allard, = *Pentarthrum huttoni*, Woll. The species are principally of insular habits, and peculiar for the instability in the number of the joints of the funiculus, and the occasionally whole or partial obliteration of the eyes. *Mesoxenus*, Woll., = *Amaurorhinus*, Fairm. (imperfectly diagnosed). *Georhynchus*, Roelofs, is placed (with some reservation) near *Onycholips*, the type of a new sub-family, as there are other undoubted *Cossonids* in which the 1st and 2nd segments of the abdomen are not absolutely confluent, and others in which the intermediate coxæ are almost completely in contact: Lacordaire is wrong in assigning a 7-jointed funiculus to the latter genus. *Raymondia*, Aubé, nec Frauenfeld (*Dipt.*), is re-named *Raymondionymus* (p. 531). *R. delarouzei*, Bris., is an *Alaocyba*. *Caulotrupsis*, Woll., is generically distinct from *Phlæophagus*; *Mesites* is restricted to *pallidipennis* and *cunipes*, Boh., and *aquitanus*, Fairm.,—convex, cylindrical, shining species. *Rhyncolus ater*, Mots., nec Linn., is removed to *Macrorhyncolus*, Woll., and re-named *crassitarsis* [apparently unnecessarily]. The name *Syntomocerus*, proposed by the author for his *Eremotes*, on account of *Eretmotes*, Mars., is withdrawn; it is characterized by the 2nd funicular joint being almost hidden in the apex of the enlarged basal joint, and *R. strangulatus*, Perris, is referred to it. *Hexarthrum capitulum*, Woll., = *Rhyncolus culinaris*, Germ.; *R. submuricatus*, Boh., is to be referred to this genus.

The following new genera and species are characterized:—

Notiomimetides (subf. n.).

Notiomimetes, pp. 440 & 504. Agrees with *Dryophthorus* in having a 4-jointed funiculus, fusiform outline, and obsolete scutellum; but with no terminal hook to the tibiæ, widely separated coxæ (more so than any other *Cossonid*), pseudo-tetramerous tarsi, an immersed head, obsolete eyes, and bald surface. *N. pascoii*, p. 594, S. Australia.

Dryophthorides.

Psilodryophthorus, pp. 441 & 505. Surface slightly shining, almost bald; prothorax nearly even, elytra with porrect shoulders, not cariniform at apex, rostrum not roughened. *P. costatus*, p. 595, New Guinea.

Stenommatius, pp. 441 & 506. Differs from *Dryophthorus* in its longer, more slender and arched rostrum, nearly confluent eyes, and more widely separated coxæ. *S. fryi*, p. 595, Mexico.

Pentarthrides.

Synommatius, pp. 443 & 508. Eyes entirely confluent beneath. *S. confluens*, p. 596, Sarawak.

Lyprodes, pp. 444 & 511. Of narrow cylindrical shape, with opaque surface, thick abbreviated feet, long slender rostrum, 2nd funicular joint longer than following joints, &c. *L. cylindricus*, p. 596, Sula.

Phlecephagomorphus, pp. 445 & 511. Of somewhat convex build, with rostrum pinched in at base, depressed eyes, and 4 anterior legs approximated at base. *P. angusticollis*, p. 596, New Granada.

Pseudopentarthrum, pp. 445 & 512. Intermediate between the preceding and *Pentarthrum*. *P. phlecephagoïdes*, p. 597, Mexico.

Xenosomatium, pp. 446 & 513. Tibiæ short, broad, triangular; terminal hook to 4 posterior legs spiniform, short; obsolete in front pair, replaced by an outwardly curved pubescent spine arising from inner angle. *X. tibiale*, p. 597, Malay Islands.

Sericotrogus, pp. 446 & 515. Allied to *Pentarthrum* in its scutellum and eyes, but smaller, more slender, fusiform, brassy, with widely bilobed 3rd tarsal joint. *S. subænescens*, p. 602, Auckland.

Stenotrupis, pp. 447 & 515. Allied to *Pentarthrum*, but narrower, more depressed, with completely sunken eyes, shorter legs, equally separated coxæ, &c. *S. crassifrons*, p. 602, Makian, *acicula*, p. 603, Cuba.

Microcossonus, pp. 447 & 517. Allied to *Stenotrupis*, but with shorter and wider rostrum, more developed and less flattened eyes, coxæ more remote, &c. *M. wallacii*; p. 603, Saylee.

Cossonideus, pp. 448 & 517. Pale, depressed, deeply sculptured, parallel-fusiform, with very large and prominent eyes, elongate tarsi, &c. *C. pascoii*, p. 603, W. Australia.

Tychiosoma, pp. 449 & 604. Larger and flatter than *Tychiodes*, with more triangular thorax, more medially inserted antennæ, &c. *T. gracilirostre*, p. 604, Philippine Islands.

Leptomimus, pp. 449 & 519. Very narrow, parallel, opaque, and closely sculptured, with very long, slender rostrum: differs from *Stenotrupis* in the head not being exserted, and the eyes not depressed. *L. fragilis* and *delicatulus*, p. 604, Gilolo.

Lamprochrus, pp. 450 & 520. Rostrum very elongate and slender (in ♂ slightly dilated as in *Mesites*), antennæ, legs, and tarsi very long. Type, *Microxylobius cossonoides*, Woll.

Microtribus, pp. 451 & 522. Allied to *Microxylobius*, but with rather narrow, elongate, parallel rostrum, small, prominent, and less separated eyes, largely developed thorax, lengthened funicular joint, widened and deeply bilobed 3rd tarsal joint. *M. huttoni*, p. 605, New Zealand.

Mesoxenomorphus, pp. 451 & 522. Allied to *Mesoxenus*, but with eyes. *M. africanus*, p. 605, Caffraria.

Heteropsis, pp. 452 & 523. Near *Amaurorhinus*, but with a developed scutellum. *H. lawsoni*, p. 606, New Zealand.

Pseudomesoxenus, pp. 453 & 525. Differs from *Amaurorhinus* in its more elongate metasternum, thicker and subtriangular rostrum, shorter and more slender limbs, simple 3rd tarsal joint, convex underside, &c. Type, *Pentarthrum subcœcum*, Woll.

Halorhynchus, pp. 454 & 526. Entirely eyeless, tibiæ with a distinct spinule inside, apical hook of 2 hinder legs almost spiniform, 4 anterior tarsi narrow, hinder pair more robust, unguis rudimentary. *H. cæcus*, p. 606, W. Australia.

Pentarthrum zealandicum, New Zealand, *nitidum*, Chili, p. 598, *affine*, Chili, *longirostre*, New Zealand, p. 599, *subsericatum*, New Zealand, *rugosum*, Saylee, *sublævigatum*, Sula, p. 600, *grayi*, Brazil, *nigrum*, Tasmania, p. 601.

Onycholipides (subf. n., p. 435; funiculus 6-jointed, tibiæ fossorial, not hooked at apex, tarsi tetramerous). Includes *Georhynchus*, *Onycholips*, *Raymondionymus*, and *Alaocyba*.

Cossonides.

Styphloderes, pp. 457 & 535. Differs from *Cotaster*, Mots., in its more flattened, nude body, longer and more slender rostrum, antennæ, and legs, smaller eyes, uneven thorax, longer 2nd joint of the looser funiculus, smaller apical hook, wider and more distinctly bilobed 3rd tarsal joint, and much larger claws. Type, *C. littoralis*, Mots., = *exsculptus*, Boh.

Pseudophlæophagus, pp. 460 & 540. Combines the parallel, less inflated shape and conspicuous scutellum of *Rhyncolus* with the abbreviated metasternum and slender antennæ and tarsi of *Phlæophagus*. *Phl. tenax*, Woll. (*Phl. æneopiceus*, Boh., also seems possibly a member of this genus).

Thaumastophasis, pp. 460 & 541. Tibial hook obsolete, front coxæ contiguous, intermediate pair barely separated, eyes enormous, club of antennæ slender and acuminate, thorax narrow, small, and uneven: allied to preceding. *T. oculus*, p. 606, S. Australia.

Himatium, pp. 461 & 542. Narrow, parallel, cylindric, not very convex, sparingly set with elongate, partially erect, fulvescent hairs. *H. pubescens*, p. 607, Malabar.

Pholidonotus, pp. 461 & 542. Surface scaled: allied to *Himatium*, but with antennæ more medially inserted, setose and thicker legs, &c. *P. squamosus*, p. 607, Sarawak.

Coptorhamphus, pp. 462 & 543. Funiculus gradually enlarged, front coxæ nearly contiguous, femora toothed, tibiæ tufted at outer apex, thorax foveated. *C. subfasciatus*, Java, *strangulatus*, Sarawak, p. 608.

Aphanommata, pp. 463 & 544. Black, shining, bald, with a somewhat elongate-triangular rostrum, transverse scutellum, small and simple 3rd tarsal joint. Combines some characters of *Phlæophagus* and *Rhyncolus*. *R. euphorbiarum*, Woll.

Brachyscapus, pp. 463 & 544. With an enlarged scutellum, ample wings, short triangular rostrum, sub-approximate eyes, and a very short scape. *B. crassirostris*, p. 609, Natal.

Amorphorhynchus, pp. 464 & 546, note. A subgenus of *Phlæopha-*

gosoma (cf. *tom. cit.* p. 23), differing in the rostrum being slightly thickened behind the middle or at the base. *P. (A.) sinuaticolle*, p. 609, Malay Archipelago, *glaberrimum*, Java, *rotundicolle*, Amboina, *fusirostre*, Saylee, p. 610, *vicinum*, Sarawak, *angustum*, Batchian, p. 611, *opaculum*, Batchian, p. 612.

Melarhinus, pp. 466 & 547. Rostrum broad, depressed, medially channeled, eyes very prominent, thorax constricted before apex, funiculus compact, club narrow, not abrupt. *M. nigritus*, p. 614, Madagascar.

Psilosomus, pp. 466 & 548. Somewhat Calandriiform, opaque, bald, densely punctured, segments 1 and 2 of abdomen abnormally divided, rostrum thick, sub-cylindrical, thorax large and elongate, elytra coarsely sulcate. *P. opacus*, p. 614, Ceylon and Malayan peninsula (? = *Cossonus* ? *hebes*, Walker).

Lipancylus, pp. 468 & 550. Tibial hook obsolete, rostrum very long, slender and cylindrical, body narrow and parallel, thorax unconstricted, feet wide, much developed, claws minute, legs long and thickened, and approximated at base. Differs from *Aorus*, Sch., in segments 1 and 2 of abdomen being less elongate, 3 and 4 being considerably more so. *L. inarmatus*, p. 615, Amazons.

Homaloxenus, pp. 469 & 552. Suggestive of the *Eriirhinides*; club annulated, rostrum long, straight, strigose, antennæ apically inserted, femora uni-dentate, body very flat. *H. dentipes*, p. 615, S. Domingo.

Eucoptus, pp. 470 & 553. Size and facies of *Pentarthrum* and *Stenotrupis*, but funiculus 7-jointed; real affinities with *Stenotis*; segments 1 & 2 of abdomen separated by a bi-arcuated line. *E. depressus*, p. 616, Amazons, Brazil.

Rhopalomesites, pp. 472 & 555. Differs from *Mesites* proper in the male rostrum being longer and more slender, more widened at insertion (at or before the middle) of the thinner and longer antennæ, of which the club is longer and more abrupt; in the less incrassate head and more approximated eyes; in the 3rd tarsal joint being appreciably bilobed, &c. *M. tardii*, Curt., *complanatus*, *maderensis*, *persimilis*, *euphorbiae*, and *proximus*, Woll.

Odontomesites, pp. 472 & 555. In male, femora sub-dentate beneath, and rostrum fringed with hairs at apex. More fusiform and depressed than *Mesites*. *M. fusiformis*, *pubipennis*, and *hesperus*, Woll.

Megalocorynus, pp. 473 & 557. Club of antennæ enormously developed, and clothed with short pubescence, scape twisted and sub-compressed; rostrum flattened and gradually contracted towards the base in the female, long and dilated in front in the male. *Cossonus depressus* and *conicirostris*, Boh.

Stenotribus, pp. 474 & 558. Differs from *Catolethrus* in its medially inserted antennæ, more parallel and cylindric rostrum, which is more divided from the forehead, very sunken eyes, very long and even thorax, simple 3rd tarsal joint, sub-equally separated coxæ, &c. *S. longicollis*, p. 619, Bahia.

Phacegaster, pp. 475 & 559. Differs from *Catolethrus* in its larger size, very much broader rostrum, which is gradually widened from base to apex, with the antennæ inserted nearer the middle, its hinder femora and

tibiæ fringed beneath, and segments 1 & 2 of its abdomen having each 2 granulated ocellate spaces. Type, *Catolethrus nasalis*, Boh.

Glæodema, pp. 476 & 560. Variegated with red and black; large, fusiform, highly polished, almost unsculptured, thorax even, more or less concave beneath, &c. *G. spatula*, p. 619, Dorey, *ruficollis*, p. 620, Saylee.

Glæoxenus, pp. 477 & 561. Facies of a gigantic *Rhyncolus*, but allied to the preceding; 3rd tarsal joint greatly thickened but simple; spine at inner apex of front tibiæ enormously lengthened and developed. *G. armatus*, p. 620, Madagascar.

Exonotus, pp. 477 and 561. Elongate, narrow, parallel, rather large, shining, convex, legs very robust, front tibiæ biflexuous, with very large and open apical cavities. *E. basalis*, p. 620, Tondano, Celebes.

Catolethromorphus, pp. 479 & 563. Asiatic representative of the *Catolethrus* group, with thicker and more parallel rostrum, which is undivided from the largely developed head, and rounded, rather prominent, and more separated eyes. *C. nigripes*, p. 621, East Indies.

Brachychænus, pp. 479 & 563. Allied to preceding, but much smaller, with rostrum not so elongate, antennæ inserted behind the middle, 2nd joint of funiculus almost hidden, and 3rd joint of tarsi simple. *B. pallidulus*, p. 622, Sarawak.

Stenomimus, pp. 480 & 564. Allied to the following, but with medial antennæ, longer, more slender, and parallel rostrum, very prominent eyes, narrower outline, &c. *S. fryi*, p. 622, Brazil.

Micromimus, pp. 480 & 564. Pale, shining, deeply sculptured, depressed; with very large transverse sunken eyes, very short and suddenly clavate scape, widely separated coxæ, and simple 3rd tarsal joint. *M. batesi*, p. 622, Amazons, *pumilio*, Trinidad, *nigrescens*, Mexico, p. 623.

Glæotrogus, pp. 481 & 565. Highly polished, almost unsculptured, extremely flat, with a greatly exerted elongate-quadrate head, large, sunken eyes, approximate beneath, short broad almost parallel rostrum, very large club, even thorax, which is a little scooped-out behind, &c. *G. politissimus*, p. 623, Morty and Gilolo.

Homalotrogus, pp. 482 & 565. Close to the preceding, but with an oval head, eyes more approximate above, much longer, less slender, and not parallel rostrum, &c. *H. angustifrons*, p. 624, Ceram and Batchian.

Isotrogus, pp. 483 & 566. Allied to the two preceding, but approaching *Cossonus*: 2nd joint of funiculus not longer than the following joints. *I. tabellatus*, p. 624, *maurus*, p. 625, Batchian.

Heterophasis, pp. 483 & 567. More elegantly coloured than *Cossonus*, of more fusiform shape, very depressed, with the thorax almost unsculptured, and segments 1 & 2 of abdomen more completely fused. *H. ruficollis*, p. 625, *concolor*, p. 626, Dorey.

Hyponotus, pp. 484 & 568. Facies of *Tenebrio*: opaque, set with short setæ, with uniformly punctured but unimpressed thorax; differs from *Cossonus* in its broader head, more separated eyes, wider, shorter, and more parallel rostrum, larger legs, &c. *H. subpubescens*, p. 626, Singapore.

Borophlæus, pp. 484 & 569. Allied to *Cossonus*, with shorter, broader, and nearly parallel rostrum, larger, rounder, and more prominent eyes,

which are more widely separated, more equally and closely punctured thorax, longer metasternum, more approximate coxæ, and 3rd joint of tarsi sub-bilobed. *B. puncticollis*, Mexico, *minor*, N. America, p. 627.

Pachytrogus, pp. 484 & 569. Suggestive of *Stereoborus* and *Stereotribus*, but with thicker and broader rostrum, depressed and less widely separated eyes, very coarsely and equally punctured thorax, &c. *P. crassirostris*, p. 627, Chili.

Stereoborus, pp. 485 & 570. With very robust thick legs, tibiæ very short and broad, with terminal hook powerfully developed, front pair with a lamelliform triangular plate on the inner edge, head wider than in *Cossonus*, with more prominent eyes, longer thorax and more approximate coxæ. *S. robustus*, New Guinea, *affinis*, *punctirostris* (& var. *obliteratus*, New Guinea), Malay Archipelago, p. 628.

Stereotribus, pp. 486 & 571. Head narrower than in the preceding, rostrum slit behind and bearded beneath, eyes more prominent, lamelliform process of tibiæ armed inside at the base with a robust spine. *S. scabrifrons* and *fissifrons*, Malay Archipelago, p. 629.

Stereotrogus, pp. 572 & 630: sub-g. n. of *Stereotribus*, with rather longer rostrum, which is perceptibly narrowed towards the base, and a larger and longer club to the antennæ. *S. incisus* and *tuberculifrons*, Ceylon, p. 630.

Stereomimetes, pp. 486 & 572. Approaching *Phacegaster* in the spine of its posterior tibiæ, but more allied to *Stereotribus*, from which it differs in its basally unsinuated thorax, more parallel elytra, &c. *S. crassicornis*, p. 630, Champion Bay.

Stereoderus, pp. 486 & 573. Parallel, cylindric, shining, convex, black, rostrum tuberculated above, barbed beneath, or with 3 slits at apex, limbs very robust, eyes large, very wide apart, and somewhat anterior. *S. barbatus* and *simplex*, p. 631, Malay Archipelago, *pacificus*, p. 632, Fiji Islands.

Oxydema, pp. 487 & 574. Of elongate narrow fusiform outline, attenuate before and behind; with long slender rostrum, broadest in the anterior half, round prominent eyes, prothorax even, and constricted in front, anterior coxæ very remote, &c. *O. fusiforme*, Ceylon, *attenuatum*, Dorey, p. 632, *puncticolle*, p. 633, Batchian.

Notiosomus, pp. 488 & 574. Allied to the preceding, but less narrowed, especially behind, and with other small comparative differences. *N. major*, S. Australia, *australis*, Australia, p. 633, *congener*, p. 634, W. Australia.

Aphanocorynes, pp. 488 & 575. Flatter than *Oxydema*, with quite parallel rostrum, much less developed club, and 3rd tarsal joint more evidently bilobed. *A. depressus*, p. 634, King George's Sound.

Orthotennus, pp. 489 & 575. Differs from the preceding in its elongate triangular thorax, which is very straightly truncated at the base, quite parallel elytra, which are separately recurved at the apex, posterior coxæ not so distant as the others, &c. *O. reflexus*, p. 634, Malay Archipelago.

Conarthrus, pp. 491 & 577. Last joint of tarsi conical, not abbreviated, club of antennæ short, unacuminate; of elongate linear outline, densely punctured in front, with sloping scutellum, very flexuous front

tibiæ and wide head and rostrum. *C. tarsalis*, p. 636, Makian, *cylindricus*, Batchian, *vicinus*, Cochin China, p. 637.

Eutornus, pp. 491 & 578. Differs from the preceding in its more fusiform outline, more lightly sculptured surface, rufo-ferruginous colour, linear rostrum, scutellum not tilted, &c. *E. jansoni*, p. 637, Ceylon, *ferrugineus*, Malay Archipelago, and (? *E.*) *dubius*, New Zealand, p. 638.

Coptus, pp. 492 & 578. Eyes enormously developed and very prominent, antennæ basal, with very short 2nd funicular joint and abrupt club, rostrum almost as wide as head, straightly truncate in front, all coxæ widely separated. *C. oculatus* and *minor*, p. 639, Malay Archipelago.

Pachyops, pp. 492 & 579. Narrow, parallel, cylindrical, closely sculptured; head broad, thick, greatly exerted, thorax long, sub-conical, scape elongate, club largely developed, coxæ not widely separated. *P. cylindricus*, p. 639, Sarawak.

Pentamimus, pp. 493 & 579. Resembles a large *Rhyncolus*, but with 5-jointed funiculus. *P. rhyncoliformis*, *suffusus*, Australia, *canaliculatus*, Tasmania, p. 640.

Tetracoptus, pp. 493 & 580. With 4-jointed funiculus. *T. reductus*, p. 641, New Guinea.

Xestoderma, pp. 694 & 580. Shining, deep black, cylindrical, with short, broad, thick rostrum, excurved scape, abrupt compressed club, and segments 1 & 2 of abdomen divided by a conspicuous line. *X. wallacii*, *atra*, p. 641, Malay Archipelago.

Xestosoma, pp. 494 & 581. Differs from the preceding in its longer scape, larger club, very small transverse scutellum, and cordate 3rd tarsal joint. *X. grandicolle*, *subopacum*, p. 642, Malay Archipelago.

Xestomorphus, p. 642. Sub-g. n. of the preceding, having the thorax obsoletely subsinuate at base and the scutellum larger and more rounded. *X. costipenne*, *ibid.*, Sula.

Lissopsis, pp. 495 & 581. Sub-Hylastideous, with very short rostrum, which is polished and unsculptured at base, very prominent eyes, elytra asperated behind, coxæ widely separated. *L. speculifrons*, p. 643, Saylee.

Xenotrupsis, pp. 496 & 582. Fusiform, with longer and less thickened rostrum and less incrassated head than the preceding; eyes exceedingly large and prominent, thorax concave beneath. *X. fusiformis*, p. 643, Malay Archipelago.

Pachystylus, pp. 496 & 583. Scutellum nearly obsolete, limbs incrassate, first tarsal and 2nd funicular joints short, scape robust throughout, metasternum concave in both sexes and keeled in female. *P. dimidiatus*, p. 644, Chili.

Xenocnema, pp. 499 & 587. Very anomalous, being allied to the *Hylastide* in the absence of an apical external tibial hook, and in its deeply divided 1st and 2nd abdominal segments. Tibiæ spined externally before apex, and with an internal robust spur; rostrum divided from head, antennæ medial, interstices of elytra costiform. *X. spinipes*, p. 648, New Zealand.

Stereocorynes, pp. 500 & 588. Rostrum short and sub-parallel in the male, shorter and sub-triangular in the female, antennæ post-median,

short, glabrous, with solid compressed club, very sunken eyes, and 4 anterior coxæ very close. Type, *Rhyncholus truncorum*, Germ.

Tomolips, pp. 501 & 590. Funiculus 5-jointed, but osculant between *Hexarthrum* and the strictly sub-Hylastideous genera. *T. bicalcaratus*, p. 648, *asperatus*, p. 649, Mexico.

Dendroctonomorphus, pp. 501 & 591. With conspicuous scutellum, quite simple 3rd tarsal joint, asperate elytra, very elongate feet, sunken eyes, triangular rostrum, &c. *D. muricatus*, Ceylon, *parallelus*, Mexico, p. 649.

Brachytemnus, pp. 502 & 591. Differs from *Rhyncholus* in its much shorter and more triangular rostrum, larger and more sunken eyes, which are less lateral, more cylindrical and developed thorax, very much shorter antennæ with abrupt club, more slender legs, more approximated coxæ. *Rhyncholus porcatus*, Müll., and *R. pinipotens* (*crassirostris* olim), Woll.

Calyciforus, pp. 502 & 592. Antennæ very short, with cup-shaped club; scutellum greatly developed, thorax excavated behind, elytra very coarsely sulcate and costate, 3rd tarsal joint quite simple. *C. excavatus* and *erosus*, p. 650, Brazil.

Eurycorynes, pp. 503 & 593. Antennæ greatly abbreviated, with joints of funiculus gradually more transverse and lamelliform, and club enormously enlarged; scutellum almost obsolete. *E. jansonianus*, p. 651, Rio Janeiro, Minas Geraes.

Phlæophagosoma morio (? = *Phlæophagus cossonoides*, Mots.), *atratum* (? = *P. linearis*, Mots.), Ceylon, p. 612, *corvinum*, New Zealand, *puncticolle*, Malacca, p. 613, *proximum*, p. 614, Makian.

Catolethrus leviusculus, *grayi*, p. 617, *productus*, *parvus*, *basalis*, p. 618, Brazil.

Pseudocossonus dimidiatus, p. 621, Dorey.

Heterarthrus pictus, p. 636, Japan.

Eremotes gravidicornis, p. 644, ? Pyrenees.

Rhyncholus cylindricollis, *californicus*, p. 645, *protensus*, p. 647, California, *punctatus*, *similis*, *leviusculus*, p. 646, *fusiformis*, p. 667, Brazil.

Stenoscelis crassifrons, p. 651, Cape of Good Hope.

This tribe, as restricted by Lacordaire, appears to be entitled to higher rank. *Cossonus platatea*, Boh., nec Say, is re-named *bohemanni* (p. 438); *C. scrobiculatus*, Lec., & ? *californicus*, Mots., = *piniphilus*, Boh.; *C. concinnus*, Boh., ? = *corticicola*, Say; *Rhyncholus brevis*, Boh., is ? a *Stenoscelis*: G. H. Horn, P. Am. Phil. Soc. xiii. p. 431 *et seq.*

Dryotribus, g. n., *id. l. c.* p. 432. *Pentarthrides*: eyes small, rounded, very coarsely granulated, situated on the rostrum, elytra oval: facies of *Dryophthorus*. *Dryotr. mimeticus*, sp. n., *id. l. c.* p. 433, Florida (*cf.* p. 435 on possible relations with *Lymantes*, Sch.).

Wollastonia, g. n., *id. l. c.* p. 433. Closely allied to *Pentarthrum*, but with more narrowly separated anterior and middle coxæ, and with the antennal scrobes passing entirely beneath the eyes, and distant from their lower edge. *W. quercicola* (? *Rhyncholus quercicolus*, Boh.).

Ellasoptes, g. n., *id. l. c.* p. 436. Closely allied to *Lipommata*, Woll.,

but has eyes, and more slender antennæ and tarsi. Facies of *Mesoxenus*.

E. marinus, sp. n., *id. ibid.*, S. Francisco.

Amaurorhinus ? *nitens*, sp. n., *id. l. c.* p. 435, Florida.

Cossonus crenatus, p. 400, N. Oregon and California, *C.* ? *subcylindricus*, p. 441, Delaware, *pinguis*, Georgia, Florida, *dubius*, Illinois or Missouri, *id. l. c.* spp. nn.

Phleophagus apionoides and *minor*, spp. nn., Pennsylvania, *id. l. c.* p. 443.

Rhyncolus protractus, p. 444, California, *oregonensis*, p. 445, Oregon, *id. l. c.* spp. nn.

Hexarthrum ulkii, sp. n., *id. l. c.* p. 446, Columbia.

Phenomerus leucogrammus, Gerst., figured in V. d. Decken's *Reisen*, iii. pt. 2, pl. xi. fig. 12.

Cossonus ferrugineus, Clairv., occurs in England; *C. linearis* does not. T. V. Wollaston, *Ent. M. M.* ix. p. 243.

SCOLYTIIDÆ.

F. Chapuis's 'Synopsis des Scolytides,' *Mém. Liège* (2) iii. (1873), pp. 213-269, consists of very concise Latin diagnoses, with no differential characters, of all of the family but the *Tomicides* which are left to Eichhoff. This treatise was published separately in 1869, and is exhaustively discussed in *Zool. Rec.* vi. pp. 282-285.

Apate (*Lepisomus*) *rufipennis* and *nigriceps*, Kirby, are to be referred to *Polygraphus*: J. L. Leconte, *P. Ac. Philad.* 1873, p. 336.

Scotylus ratzeburgi, Jans., destroying birch: T. Kirsch, *SB. Ges. Isis*, 1871-2, p. 169.

Scolytus caryæ, Riley. Habits and ♂ described, and chief stages figured; C. V. Riley, *Rep. Ins. Mo.* v. pp. 103-108, fig. 38.

Tomicus cembrae. Economy in the Grisons described and figured, with comparison of its mines with those of *T. chalcographus*, *typographus*, and *laricis*. Bischoff-Ehinger, *MT. schw. ent. Ges.* iv. pp. 160-162, 2 pls.

BRENTHIDÆ.

Brenthus peninsularis, p. 128, *lucanus*, p. 129, Lower California, Horn, *Tr. Am. Ent. Soc.* iv. spp. nn.

ANTHRIBIDÆ.

Phleobius pustulosus, Gerst., figured in V. d. Decken's *Reisen*, iii. pt. 2, pl. xii. fig. 1.

Straboscopus planipennis, Jekel, re-described from Peru; Kirsch, *B. E. Z.* xvii. p. 417.

Aræocerus coffeæ acclimatized at Basle: A. Müller, *P. E. Soc.* 1873, p. ix.

Lawsonia, g. n., D. Sharp, *Ent. M. M.* x. p. 30. *Proscoporphinides*: differing from the typical genus in its head being simple in both sexes, and its very short rostrum. *L. longicornis*, *ibid.*, *variabilis*, p. 31, spp. nn., New Zealand.

Etnalis, g. n., *id. l. c.* p. 32. *Eugonides*: with transverse line of thorax projecting outwardly as a strong spine. *E. spinicollis*, sp. n., *ibid.*, New Zealand.

Stenocerus (?) *vidali*, sp. n., E. Reed, An. Univ. Chil. xli. p. 354, and Ent. M. M. ix. p. 209, Llanquihue, Chili.

BRUCHIDÆ.

V. Motschoulsky, in the (posthumous) Article 13 of his 'Énumération des nouvelles espèces, &c.,' contained in Bull. Mosc. xlvi. pp. 203-252, describes a genus expressly stated to be new, and many species not so specified, but which in the majority of cases are apparently meant to be considered new. A table of species of *Bruchus*, with localities, characters, and various authors names, is given at pp. 211-244, and the species therein attributed to the author with no references to prior descriptions are:—*B. delicatulus*, Tiflis, *lanceolatus*, Egypt, p. 211, *myobromæ*, Tauria, *maculosus*, Georgia, p. 212, *diversicornis* and *ruficornis*, Caucasus, *nigri-lineatus*, Tauris, p. 213, *tesserulus*, Sarepta, *vitticollis*, Russian Georgia, *æstuosus*, S. W. Russia, *basifasciatus*, Egypt, p. 214, *albiguttis*, Mobile, *nugarius*, Tauria, *fulvicornis* (apparently *flavicornis*, Dahl., re-named), Italy, p. 215, *implicitus*, Styria, *planeticus*, Tauris, *incanescens*, Crete, p. 216, *ovalis*, Smyrna, *niveus*, Cape of Good Hope, *forticornis*, S. W. Russia, *rubrimanus*, Georgia, p. 217, *sardous* and *angustulus*, Sardinia, *atratus*, Siberia, *pulverulentus*, Austria, p. 218, *conicus*, S. Russia, *tardus*, S. Georgia, *griseus*, Transcaucasia, p. 219, *glæucus*, E. Siberia, *simplex*, California, *præcanus*, Chili, p. 220, *inops*, Egypt, *subalbivittis*, Derbent, p. 221, *rufimaculatus*, Panama, *ruficollis*, Chili, *rufescens*, Columbia, p. 222, *rufisignatus*, Para, *rufus*, California, *transversiguttatus* (no locality), p. 223, *cinereivarius*, E. India, *conspersus*, N. America, *kamtschaticus*, Kamtschatka, p. 224, *lineolatus*, E. India, *subrufus*, Columbia, *fusci-sparsus*, Brazil, p. 225, *silacialis*, Caucasus, *nugax*, Smyrna, *autumnalis*, Transcaucasia, p. 226, *virgilia* and *subroseus*, Brazil, *punctatistriatus*, Panama, p. 227, *scutulatus*, Brazil, *adustus*, Japan, p. 228, *paracentesis*, p. 229, Sardinia, *niveiguttatus*, Cape of Good Hope, *7-guttatus*, Kurdistan, *5-punctatus*, Crete, p. 230, *9-guttatus*, Syria, *canescens*, Mesopotamia, p. 231, *rostratus*, Turkey, *antennarius*, Austria, *abutilionis* and *corallipes*, N. America, p. 232, *maurus*, Algeria, *pulicarius*, California, *suratus*, Turkey, p. 233, *infectus*, Crete, *senex*, Brazil, p. 234, *lapsanæ*, Panama, *probator*, E. Indies, p. 235, *commodus*, *cribricollis*, Algeria, *aculeatus*, Valparaiso, p. 236, *nubigena*, Brazil, *divisus*, Algeria, p. 237, *gilvipes*, S. Spain, *rugicollis*, Persia, p. 238, *cavicollis*, Egypt, *varicornis*, N. America, *clavatus*, Algeria, p. 239, *varipictus*, Algeria, *pinetorum*, Siberia, *septentrionalis*, St. Petersburg, p. 240, *nictitans*, N. America, *insitivus*, Daghestan, p. 241, *latiusculus*, Kirghese Steppes, *calamitosus*, E. Siberia, *pachycerus*, Transcaucasia, *campanulatus*, Caucasus, p. 242, *venustulus*, Russian Georgia, *elegans*, Baschkiria, *incurvatus*, Caucasus, *rufipygalis*, Mongolia, *obscuritarsis*, S. Russia, *intermedius*, Georgia, p. 244. In all these cases, the descriptions are very curt and superficial.

G. H. Horn, Tr. Am. Ent. Soc. iv. pp. 311-342, revises the species

found in the United States, considering that they should be placed immediately after the *Chrysomelidæ*, if really entitled to rank as a distinct family from the latter. They certainly are not *Rhynchophora*. The species of *Bruchus* are grouped upon the basis of the denticulation of thorax and femur. *Bruchus fabæ*, Riley, = *obtectus*, Say, = *obsoletus*, Say.

G. R. Crotch, Check List N. A. Col. p. 93, sinks *Bruchus*, L., for *Mylabris*, Geoffr., and adopts the above position for the group, under the name *Spermophugidæ*.

Bruchus. The superficial sexual characters of the 9 British species noticed: H. S. Gorham, Ent. M. M. ix. p. 191.

Bruchus rufimanus swarming near a wrecked ship: R. Lawson, Ent. M. M. ix. p. 217.

Urodoplatus [-*tys*, vel *Platyurodon*], g. n., Motschoulsky, l. c. p. 203, closely allied to *Urodon*. *U. ventric[u]losus*, sp. n., id. l. c. p. 204, Cape of Good Hope.

Kytorhinus [*Cy-*] (Fischer de Waldheim, Mém. Nat. Mosc. ii. 1809) *semi-griseus*, E. Indies, *ipomeæ*, Brazil, p. 204, *quadratus*, Brazil, *rubiginosus*, Mexico, p. 205, *nigrirufus*, Trieste, *bifloccosus*, Venezuela, *cubicus*, Brazil, Mexico, p. 206, *pygidialis*, Brazil, *umbraculatus*, Panama, p. 207, *thermopsis*, Daouria, *aridus*, Kirghese Steppes, *immixtus*, Caucasus, p. 208, *K. (?) cassivorus*, p. 207, Chili, Motschoulsky, l. c. spp. nn.

Bruchus halimodendri, Gouriev, *croceipennis* and *dilutus*, Egypt, p. 209, *ochreatus*, E. India, *pallidipennis*, California, p. 210, *lanccolatus*, p. 211, Egypt, Motschoulsky, l. c.; *B. sordidus*, p. 319, Lower California, *impiger*, p. 323, Owen's Valley, *ulkii*, p. 324, Arizona, *bivulneratus*, Southern and Western States, *cruentatus*, Georgia to Dacota, p. 325, *limbatus*, Lower California and Arizona, *discolor*, Texas, p. 326, *nigrinus*, Middle States, *pruininus*, Arizona, p. 327, *aureolus*, p. 329, California, *floridæ*, Florida, *protractus*, Lower California, p. 332, *inornatus*, Middle States, *pectoralis*, Texas, p. 333, *bisignatus*, Kansas, *albiscutellatus*, Georgia, p. 334, *perforatus*, p. 335, Arizona, *distinguendus*, Georgia, *calvus*, Massachusetts and Tennessee, *fraterculus*, Kansas, Colorado, p. 336, *amicus*, Texas, Arizona, p. 337, *longistilus*, Columbia, *schranksiæ*, Missouri, p. 339, *mixtus*, p. 340, Utah, *placidus*, Arizona, Texas, *exiguus*, Kansas, p. 341, *seminulum*, Pennsylvania to California, *macrocerus*, Columbia, Tennessee, p. 342, Horn, l. c. : spp. nn.

Pachymerus fuscicrus and *tuberculatus*, Panama, p. 244, *triquetrus*, Brazil, *helvinus*, Venezuela, p. 245, *P. (?) clandestinus*, p. 246, Aspinwall, Motschoulsky, l. c. spp. nn.

Caryoborus testaceus, p. 246, Nicaragua, *amplicollis*, Birma, *lagonychii*, Caspian Sea, p. 247, *capicola*, p. 248, Cape of Good Hope, id. l. c.; *C. veseyi*, Horn, l. c. p. 313, Lower California: spp. nn.

Spermophagus affinis, Antilles, *lineolatus*, Nicaragua, p. 248, *nigrimarginatus*, tropical America, Surinam, *dilatatus*, Syria, p. 249, *albipunctatus*, Cape of Good Hope, *bifasciolatus*, Agra, p. 250, *capensis*, Cape of Good Hope, *subdenudatus*, Songaria, p. 251, Motschoulsky, l. c. spp. nn.

Xenorchestes americanus, sp. n., id. l. c. p. 251, Mobile.

CERAMBYCIDÆ.

J. L. LECONTE, Sm. misc. Coll. No. 265, pp. 279–348 (May & June, 1873), in the 2nd part of his 'Classification of the Coleoptera of North America' (of which Part i. formed No. 136 of Sm. misc. Coll., and was published in 1862), discusses the characters and affinities of the following families:—SPONDYLIDÆ, with sub-families Parandridæ and Spondylidæ: CERAMBYCIDÆ, subf. 1, Prionidæ, tribes *Ergatini*, *Mallodontini*, *Derobrachini*, *Prionini*, *Tragosomini*, *Solenopterini* (also called *Pæcilosomini*); 2, Cerambycidæ (genuinæ), containing—a, *Callidioides*, tribes *Asemi* (groups *Asemi*, *Opsimi*, *Smodici*), *Callidiini*; b, *Cerambycoides*, tribes *Cerambycini* (groups *Æmes*, with sub-groups *Æmes*, *Achrysones*, and *Graciliæ*, *Cerambyci*, *Ibidiones*, *Curii*), *Obrini* (groups *Obria* and *Stenopteri*), *Rhopalophorini*, *Ancylocerini*, *Paristemiini*, *Rosaliini* (treated as a group; accidentally, it is presumed), *Callichromini*, *Trachyderini* (groups *Megaderi*, *Trachyderes*, *Stenaspes*, *Tyloses*), *Stenosphenini*, *Clytini* (groups *Cyllenes*, *Clyti*, *Anaglypti*), *Agallissini*; c, *Atimioides*, tribe *Atimiini*; d, *Lepturoides*, tribes *Disteniini*, *Desmocerini*, *Necydalini*, *Encylopinini*, *Lepturini*; 3, Lamiidæ, containing—a, *Dorcadoides*, tribes *Dorcadini*, *Monilemini*, *Michthysomini*; b, *Cyrtinoides*, tribes *Cyrtinini*, *Psenocerini*; c, *Lamioides*, tribe *Monohammini* (groups *Monohammi*, *Ptychodes*, *Goes*); d, *Mesosoides*, tribe *Mesosini*; e, *Acanthoderoides*, tribe *Acanthoderini*, sub-tribes *Acanthoderini* and *Acanthocini* (groups *Lagochiri*, *Liopi*, *Acanthocini*, *Dectes*); f, *Pogonocheroides*, tribes *Pogonocherini* (groups *Estolæ*, *Pognocheri*, *Eupogonii*), *Desmiphorini*; g, *Oncideroides*, tribes *Onciderini*, *Antaxiini*, *Hippopsini*; h, *Saperdoides*, tribes *Saperdini*, *Phytectiini*; i, *Methioides*, tribe *Methiini*. Mention is made of various new genera and species, simultaneously described in Sm. misc. Coll. No. 264 (Part ii.; part i. being No. 167, *op. cit.*, 1866), and which will be hereunder recorded under the usual headings. It will be observed that the author departs considerably in some instances from Lacordaire's arrangement; and his union of such widely different groups as the *Parandridæ* and *Spondylidæ*, and his attributing to them when so united a rank equivalent to the whole of the other *Longicornia*, will probably receive but little support.

H. W. Bates, Ann. N. H. (4) xii. pp. 148–156, 193–201, 308–318, 380–390, describes the Longicorn Coleoptera of Japan collected by George Lewis (62 new), whose captures have raised the number to 107 species. The nature and relations of these confirm the author's opinion that the Japanese fauna forms no part of the Palæartic province.

The pagination of the paper by Blessig & Solsky on the *Longicornia* of S. E. Siberia and the Amur district in Hor. Ent. Ross. ix. is erroneously given in Zool. Rec. x. p. 300; and should be referred to pp. 161–260 of the former work. Owing also to a confusion between the expressed dates and actual periods of publication, a portion of vol. ix. of the Hor. Ent. Ross. was included in Zool. Rec. x.

Prionides.

Prionus tetanicus, Pasc., and ? *fossatus*, Pasc., = *insularis*, Mots.; *Ægosoma sinicum*, White, ♂ described. H. W. Bates, l. c. p. 151.

Cantharoctenus insignis, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. xii. fig. 2.

Homæsthesis, g. n., Leconte, *op. cit.* (265), p. 288. Differs from *Prionus* in having the sensitive surface of the antennæ uniform in the ♂, and the sides of the thorax unidentate. *P. integer*, Lec., and *emarginatus*, Say (of which *innocuus*, Lec., is probably the ♀).

Cerambycides.

H. W. BATES, Ann. N. H. (4) xi. pp. 21-45, 117-132, recapitulates the characteristics of the *Rhinotragides*, describing the genera and species of that group occurring in tropical America. He considers the triangular shape of the metasternal episterna to be essential. *Rhinotragus marginatus*, Perty, = *dorsiger*, Germ., var. *Æchmutes*, Bates, = *Ornistomus*, Thoms., which, though three years prior, is not accepted, as its name may, when the faulty grammatical construction is corrected, prove to be already employed in Zoology (Von Harold, C. H. xi. p. 122, rightly observes that Thomson's genus must stand, whether corrected or not. The obvious alteration to *Ornithostomus* he thinks could stand, not being used in *Coleoptera*; if it had been, *Orneostomus* could have been employed [there is no *Ornithostomus* in any branch of Zoology]). *Agaone*, Pasc., is considered untenable, or at most applicable to its type species, *A. notabilis*. *Acyphoderes brachialis*, Pasc., = *femoratus*, Klug.; *A. sericinus*, White, = *aurulentus*, Kby. *Phygopoda fugax*, Thoms., ? = *albitarsis*, Klug. *Pandrosos*, Bates, must be removed from the *Rhinotragides*; its proper place seems near *Coremia*. *Isthmiade hephæstionides*, Thoms., = *braconides*, Pty.; *Epimelitta*, Bates, = *Charis*, Newm., and *C. acede*, Newm., = *barbicrus*, Kby.; *Molorchus laticornis*, Klug., is a *Tomopterus*; *Sphecgaster biplagiatus*, Lac., = *Sphecomorpha chalybea*, Newm., and *Stenopterus murinus*, Klug., is also a *Sphecomorpha*, which does not belong to the *Necydalides*.

Criocephalus rusticus, L., and *Gracilia pygmaea*, F., occur in Japan; *Stenocorus vittatus*, F., = *Xystrocera globosa*, Ol.; *Leptura aterrima*, Mots., = *atra*, Laich., common in E. Siberia; *L. ochraceifasciata*, Mots., ♂ characterized, and var. n. *ochrotela*, from Nagasaki, described (p. 196); *Anthoboscus alphabeticus*, Chev., = *Clytanthus notabilis*, Pasc.; *C. japonicus*, Chev., ? = *oppositus*, Chev.; *Purpuricenus japonus* (and ? *P. spectabilis*), Mots., *sinensis*, White, = *temmincki*, Guér., for which *Sternoplistes*, Guér., need not be retained. *Id. op. cit.* xii. pp. 151-201.

Arhopalus eurysthethus, Lec., = *Clytus antennatus*, White; *Stenaspis unicolor*, Dup., = *solitarius*, Say; *Elaphidion pruinosum*, Dej., Guér., = *villosum*, F. [*cf.* also Zool. Rec. viii. p. 319]: J. L. Leconte, P. Ac. Philad. 1873, p. 336. *Elaphidion operarium*, White, = *procerum* or *simplicolle*, Hald.; *Thersalus bispinus*, Pasc., ? = *E. atomarium*, Dru., and *Phacodes* is a geographical var. of *Elaphidion*: *id.*, Sm. misc. Coll. 264, p. 183.

Neomarius gandolphii, Fairmaire, re-described as g. & sp. nn. by the author. R. Z. (3) i. pp. 350 & 351 [*cf.* Zool. Rec. ix. p. 301].

Cerambyx heros: on its claims to be considered British, *cf.* F. Smith, Ent. M. M. x. p. jii.

Cerambyx velutinus, Brullé, with truncate elytra, from Valencia : Perez Arcas, Act. Soc. Esp. ii. p. 7.

Stromatium unicolor : larva described by Mulsant & Mayet, Mém. Ac. Lyon, xix. pp. 344-346.

Phoracantha recurva at Canterbury, New Zealand : C. M. Wakefield, Tr. N. Z. Inst. vi. p. 154.

Compsomera fenestrata, Gerst., fig. 3, *Rhopalizus sansibaricus*, fig. 4 ; V. d. Decken's Reisen, iii. pt. 2, pl. xii.

Aromia moschata. Figured, and general description of habits, by E. Lefroy, Sci. Goss. 1873, p. 266, figs. 170 & 171. It apparently feeds on sycamore in the Vosges and near the Grande-Chartreuse : *Callidium hungaricum* occurs with it. V. Mayet, Bull. Soc. Ent. Fr. (5) iii. p. cxcix. Thévenet, *ibid.*, states that willows are to be found in the latter locality.

Toxotus, *Anthophylax*, *Pachyta*, and *Acmaeops* generically differentiated, with observations on the value attributed to them by different authors. *P. bicuneata*, Mots., = *An. 4-maculatus*, L., var. ; varieties are described of *P. variabilis*, Gebl., and *interrogationis*, L. ; *P. ustulata*, Mots., = *Ac. strigilatus*, F. ; *Stenura sedakovii*, Mann., ? = *Strangalia bifasciata*, Schr., ♀ var. ; Blessig, Hor. Ent. Ross. ix. p. 229 *et seq.*

Acmaeops nigripennis, *varians*, and *fusciceps*, Lec., = *bivittata*, Say ; *A. lugens*, *mollipilosa*, *fusca*, *californica*, and *subcyanea*, Lec., = *tumida*, Lec., *A. dorsalis* and *lupina*, Lec., = *subpilosa*, Lec. ; *A. marginalis*, Lec., = *longicornis*, Kby. ; *A. gibbula*, Lec., = *proteus*, Kby. ; *A. fulvipennis*, Mann., *longiceps*, Kby., *strigilata*, F., = *pratensis*, Laich. ; Leconte, *l. c.* (264) pp. 209 & 210.

Callidium pilicolle, Thoms., ? = *macropus*, Kryn. ; *Clytus auboueri*, Desbr., = *sterni*, Ktz. : L. Bedel, Bull. Soc. Ent. Fr. (5) iii. pp. lxxxvii. & lxxxviii. Desbrochers, *l. c.* p. ccxvi., objects to the latter collocation, which, however, Bedel, p. ccxvii. corroborates. E. Olivier, *l. c.* p. ccxxvii. confirms Bedel, and states that *Clytus sterni*, Ktz., = *duponti*, Muls., = *cinereus*, Gory (found also in the United States, doubtless imported : Chevrolat, *ibid.*).

Clytus perspicillum, Fisch., = *comptus*, Mann., ♀ ; J. Faust, Hor. Ent. Ross. ix. p. 315.

Clytus erythrocephalus, F., taken in the middle of England. E. C. Rye, Ent. M. M. ix. p. 215. It has occurred at Epping, doubtless imported from N. America : H. Doubleday, *tom. cit.* p. 268.

Vesperus. Sanz's notes, in 'Resumen de los Trabajos del Ateneo propagador de las Ciencias naturales' for 1872-73, p. 8, have not been seen by the Recorder.

Vesperus xatarti. Transformations described from Aragonese individuals. The young larva is very agile, and has eyes and long hairs : the adult is blind, very slow, and almost glabrous (described, p. 119). J. Lichtenstein and V. Mayet, Ann. Soc. Ent. Fr. (5) iii. pp. 116-122, pl. v. No. ii. figs. 1-12. An instance of the larva, after making its cell, not changing to pupa, but coming out again to feed, is given by Lichtenstein, *l. c.* Bull. p. xxi. This species is injurious to vines in the Roussillon district : P. Pellet, Nouv. et faits, 1873, p. clxx.

New genera and species :—

H. W. BATES, Ann. N. H. (4) xii., characterizes—

Mallambyx, p. 152. Agrees with Australian *Pachydissus* in its unarmed antennæ and thorax, and finely pubescent surface, but differs in facies and in the very slight nodosity of 3rd and 4th antennal joints. Central groove of head extends behind to neck. *M. japonicus*, *ibid.*, Japan, and ? *Pachydissus fulvidus*, Pasc.

Stenodryas, p. 153. Between the *Callidiopsides* and *Graciliides*. Resembles *Ceresium*, except in the long slender legs and abruptly clubbed femora. *S. clavigera*, p. 154, Hiogo.

Stenygrinum, p. 154. Facies of *Stenygra*, but closely allied to *Ceresium*, and more so to the Australian *Bethelium*, from which it differs in its cylindrical thorax and less hirsute antennæ. *S. quadrinotatum*, *ibid.*, Ipongi.

The same author, *op. cit.* xi., characterizes—

Phænissa, sub-g. of *Ommata*: elytra entire or nearly so. *Oregostoma nigripes*, and (?) *discoideum*, Serv., *Rhinotragus puniceus*, Newm., and *O. (P.) bipartita*, Paraná, p. 26.

Chrysaethe, sub-g. of *Ommata*: elytra scarcely abbreviated, apex truncated. *O. atrata*, Bates, &c. p. 27.

Rhopalessa, sub-g. of *Ommata*: elytra opaque. *O. (R.) clavicornis*, New Friburg, p. 28, and *Rhinotragus tenuis*, Burm.

Eclipta, sub-g. of *Ommata*, p. 29: legs slender, middle femora abruptly but not very broadly clavate, elytra with sides sub-parallel, apex truncated. *Odontocera irene* and *eunomia*, Newm., *ægrotæ*, Bates, *Agæone monostigma*, *malthinoides*, and *ruficollis*, Bates, *Oregostoma fenestratum*, Luc., and *O. (E.) castanea*, p. 29, *brachialis* and *liturifera*, p. 31, *lanuginosa*, p. 32, Rio Janeiro, *thoracica* and *flavicollis*, p. 30, *prolixa*, p. 32, *cribripennis*, p. 33, *vitticollis*, p. 34, *aniguttata*, *xantho*, and *pæcila*, p. 35, Paraná, *erythrodera*, p. 33, New Friburg.

Acorethra, p. 126. Closely allied to *Charis* and *Phygopoda*, differing from the former in its elongate hind legs and abdomen, and from the latter in its simple hind tibiæ and obtuse cuneiform elytra. *A. chrysaëpis*, *ibid.*, New Friburg.

Phespia, p. 127. Closely allied to *Tomopterus*: enlarged antennal joints forming a thick cylinder, elytra subuliform. Facies of *Cerceris* (*Hymenoptera*). *Odontocera cercerina*, Bates, *Charis corinna*, Pasc., and *P. simulans*, *ibid.*, Rio Janeiro and Paraná.

Apostropha, p. 130. Allied to *Ommata*, but differing in the widely separated eyes from all the typical *Rhinotragides*. *A. curvipennis*, *ibid.*, Paraná.

Stenopseustes, p. 131. Facies of *Ommata*. *S. æger*, *ibid.*, Paraná.

Xenocrasis, *ibid.* Unites characters of true *Necydalides* and *Rhinotragides*, being most nearly allied to the latter, though with distant and not enlarged eyes and laterally carinated forehead. *X. badeni*, p. 132, New Friburg.

Leconte, Sm. misc. Coll. 264, characterizes—

Gonocallus, p. 171. Male antennæ 12-jointed; eyes more inclined to

embrace the base of the antennæ than in any other Callidoid genus. *Callidium collare*, Kby.

Ganimus, p. 173. Differs from *Æme* in its prothorax being lobed at the base: a well defined angle near the tip of mandibles. *G. vittatus*, p. 174, California.

Eucrossus, p. 174, differs from *Dryobius* in its uniformly pubescent body. *E. villicornis*, p. 175, Arizona, California.

Haplidus, p. 175. Differs from *Æme* and allies in its short, equal, slender palpi; front coxæ contiguous, hardly prominent, middle coxæ distant. *H. testaceus*, p. 176, California, Nevada, Utah.

Axestinus, p. 177. Differs from *Hammaticerus* in its 12-jointed, silky, serrate antennæ. *A. obscurus*, *ibid.*, Rio Grande Valley.

Osmidus, *ibid.* Differs from *Hesperophanes* in its more elongate form and the absence of a deep frontal suture. *O. guttatus*, p. 178, Cape St. Lucas.

Aneflus, p. 185. Allied to *Elaphidion*; antennæ with apical joints flattened and distinctly carinated, legs coarsely punctured and pubescent, &c. *E. protensum*, *lineare*, and *tenuë*, Lec., and *A. volitans*, p. 186, *prolixus*, p. 203, note, Lower California.

Eustroma, p. 186. Antennæ shorter and stouter than in *Elaphidion*, joints excavated beneath. *Elaphidion validum*, Lec.

Zamodes, p. 187. Differs from *Tylonotus* in its non-sulcate antennæ, the want of callosities on the thorax, and its long erect hairs (? = *Zamium*, Pascoe). *Z. obscurus*, p. 188, Pennsylvania.

Plectomerus, p. 189. Differs from *Curius* in its cylindrical polished body, pedunculated and suddenly clavate femora, &c. *Callidium dentipes*, Ol.

Eumichthus, p. 190. Allied to preceding, but palpi slightly dilated, and tarsi tumid. *E. ædipus*, *ibid.*, Vancouver Island.

Hyboderæ, p. 191. Allied to *Cartallum*, thorax with 4 discoidal tubercles and a small median one. *H. tuberculata*, *ibid.*, Oregon, Vancouver I.

Pilema, *ibid.* Differs from *Cartallum* in its slender palpi, with cylindrical last joint, and in its wide truncate mesosternum. *P. ruficolle* and *cyanipenne*, p. 192, California.

Megobrium, p. 192. Intermediate between *Cartallum* and *Pilema*. *M. edwardsi*, p. 193, California.

Holopleura, p. 193. Allied to *Pteroplatus*; antennæ long, slender, with simple 11th joint. *H. marginata* and *helena*, p. 194, California.

Schizax, p. 195. Allied to *Tylosis*, but with divided eyes. *S. sener*, p. 196, Arizona.

Zagymnus, p. 203. Differs from *Agallissus*, Dalm., in its short, vertical front, parallel elytra with small sutural spine, &c. *Z. clerinus*, *ibid.*, Florida.

Leptalia, p. 204. Allied to *Encyclops*. *Anoploclera macilenta*, Mann. (with varr. *frankenheuseri*, Mann., and *Leptura fuscicollis*, Lec.).

The same author, *op. cit.* 265, characterizes—

Xylocrius, p. 296. Mesonotum punctured and pubescent at the sides, with a median stridulating surface. *Callidium agassizi*, Lec. (and *X. cribratus*, *op. cit.* 264, p. 172, Nevada).

Callimus, p. 305, allied to *Obrium*: palpi with last joint broadly triangular (*C. chalybæus*, op. cit. 264, p. 189, California).

Glycobius, p. 319. Allied to *Cyllene*; antennæ compressed, subserrate. *Cyllene speciosa*, Say.

Calloides, ibid. Antennæ filiform, mesosternum declivous; allied also to *Arhophalus*. *Cyllene nobilis*, Harris, and *lorquini*, Buq.

Microclytus, p. 320. Antennæ not spinose, 2nd and 4th joints equal; elytra without ivory spots; facies of *Anaglyptus*. *Clytus gazellula*, Hald.

Bellamira, p. 328. Allied to *Strangalia*; elytra strongly sinuate on the sides, antennæ without poriferous spaces. *Toxotus coarctatus*, Hald., = *Leptura scalaris*, Say.

Omphalodera, Blessig, Hor. Ent. Ross. ix. p. 244. Facies of a small *Acmaeops*, but with 4 posterior tibiæ curved, head and antennæ differently formed, &c. *O. puziloi*, id. l. c. p. 245, pl. viii. fig. 5, Siberia.

Strangal[i]omorpha, id. l. c. p. 253. Like a very narrow *Strangalia* or *Leptura*; near the former and *Ædicnema*, but with shorter head, antennæ inserted between the eyes, very long and slender hind legs, &c. *S. tenuis*, id. l. c. p. 254, S. E. Siberia.

BATES, op. cit. xii., describes—

Neocerambyx [?] *chrysothrix*, p. 152, Nagasaki.

Ceresium holophæum, p. 153, Hiogo.

Obrium longicorne, p. 155, Japan.

Stenhomalus cleroides, ibid. Ipongi.

Distenia japonica, ibid. Hiogo.

Toxotus cæruleipennis, p. 193, Japan or N. China.

Acmaeops criocerinus, p. 194, Awomori, Nipon (? = *Pachyta minuta*, Gebl.).

Leptura scotodes, p. 194, Nagasaki, *dimorpha*, *xanthoma*, p. 195, *anaspidioides*, p. 196, Japan.

Thranium variegatus, p. 196, Nagasaki.

Callichroma (*Chloridolum*) *tenuatum*, p. 197, Kobe, Nipon.

Phymatodes albicinctus, p. 198, Omura.

Clytanthus muscosus, p. 198, Hiogo, *diminutus*, p. 199, Nagasaki.

Xylotrechus pyrrhoderus, p. 200, Nagasaki, Yokohama.

Clytus caproides, ibid. Ipongi.

The same author, op. cit. xi., describes—

Oxylymma gibbicollis, p. 23, Bahia.

Odontocera vittipennis, p. 37, Brazil, *clara*, p. 38, Chontales, *crocata* and *sanguinolenta*, p. 40, Rio Janeiro, *flavicauda*, p. 40, Paraná, *nigriclavis*, p. 41, Rio Janeiro and Paraná, *auricincta*, Mexico, *leucothea*, New Friburg, Minas, and Paraná, p. 42, *hilaris*, p. 43, Amazons, *petiolata*, p. 44, New Friburg, Rio Janeiro.

Acyphoderes mæstus, p. 117, Paraná, *carinicollis*, p. 119, Rio Janeiro.

Isthmiade rubra, p. 121, Rio Janeiro, *macilenta*, p. 122, S. Brazil.

Charis mimica, p. 123, New Friburg, *bicolor*, p. 124, no locality given.

Tomopterus quadratipennis, p. 128, Rio Janeiro.

LECONTE, *op. cit.* 264, describes—

- Asemum niividum*, p. 169, Oregon.
Criocephalus montanus, p. 170, Colorado.
Gracilia fasciata, p. 171, Lower California.
Callidium vile, California, *hirtellum*, Nevada, p. 172.
Eme costata, p. 174, California.
Achryson concolor, p. 176, Texas.
Eburia perforata, *ovicollis*, p. 180, *tumida*, p. 181, Texas.
Elaphidion aculeatum, p. 184, Texas, *punctatum*, p. 185, Lower California.
Compso puncticollis, p. 188, *4-plagiata*, p. 189, Lower California.
Phyton discoideum, p. 190, Lower California.
Molorchus longicollis, p. 193, California.
Rhopalophorus laevicollis, *ibid.*, Texas, N. Mexico.
Callichroma cobaltinum, p. 195, Lower California.
Crossidius punctatus, p. 197, Oregon, California.
Cyllene brevipennis, p. 197, Utah.
Clytus lanifer, p. 198, California.
Xylotrechus convergens, p. 198, Ohio, *insignis*, California, *obliteratus*, Colorado, p. 199.
Neoclytus torquatus, p. 200, Texas, *balteatus*, Oregon, *interruptus*, California, p. 201.
Euderes reichii, Texas, *parallelus*, Lower California, p. 202.
Necydalis cavipennis, p. 204, S. Francisco.
Centrodera (not distinct from *Xylosteus*) *nevadica*, p. 205, Nevada.
Xylosteus ornatus, *ibid.*, Oregon.
Toxotus obtusus, p. 206, Yellowstone Basin.
Pachyta armata, Oregon, *rugipennis*, Canada, p. 207.
Anthophylax tenebrosus, p. 208, California.
Acmaeops pinguis, p. 210, California, *ligata*, Montana, *basalis*, California, p. 211.
Strangalia virilis, p. 212, Texas.
Typocerus brunnicornis, p. 214, Texas.
Leptura gigas, p. 223, Texas, *soror*, p. 223, *plagifera*, *rubida*, *tribalteata*, p. 224, *grossa*, p. 225, *coccinea*, p. 226, *crassicornis*, *behrensi*, p. 227, California, *quadrata*, p. 225, Saskatchewan, *brevicornis*, Nevada, *hirtella*, Labrador, p. 226, *gnathoides*, *spuria*, Oregon, *aspera*, Vancouver I., p. 228.
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- Cerambyx elegans*, C. A. Dohrn, S. E. Z. xxxiv. p. 74, Astrabad (= *multiplicatus*, Motsch. : *id. op. cit.* p. 322).
Xylosteus gracilis, Kraatz, B. E. Z. xvii. p. 202, Illyria.
Leptura (Anoplodera) gibbicollis, Blessig, l. c. p. 258, Siberia.
Gaurotes ? (Acmaeops) ussuriensis, *id. l. c.* p. 247, Ussuri, Siberia.
Callidium (Rhopalopus) caucasicum, Des Loges, Bull. Soc. Ent. Fr. (5) ii. p. cxxxvii. Caucasus.
Clytus favieri, Fairmaire, R. Z. (3) i. p. 351, Morocco.
- Lamiides.*
Dorcadion. A revision by Kraatz., Käf. Europa's, xxix. 33-101a. D.

pallasi, Gebl., nec Fisch., is re-named *gebleri*, and is probably only a var. of *glycyrrhizæ*, Pall., of which *olivieri*, Thoms. (*politum*, Fisch., nec Dalm.) is probably a local race; *D. abakumovii*, Thoms., = *politum*, Dalm., var.; *D. suturatum*, Ferrari, = *nitidum*, Mots.; a var. of *D. femoratum*, Brullé, from Salonica, is named *lineaticolle*; a var. of *D. molitor*, F., from Embrun, is named *brisouti*; varr. of *D. saulcii*, Thoms., named *halepense* [? *aleppense*], *atticum*, and *parnassi*.

Dorcadion uhagoni, Per., re-described and figured, from Cuenca; Martinez y Saez, An. Soc. Esp. ii. p. 69, pl. i. fig. 5. *D. annulicornia*, Chev., varies in colour, and ? = *handschuchi*, Küst.; Perez Arcas, Act. Soc. Esp. ii. p. 11.

Listroptera perforata, Burm., nec Klug, is re-named *parana* [? *-næ*]; *Tapina coronata*, Thoms., nec Serv., re-named *diadema*; *Phantasia crispa*, Gmel., nec F., re-named *gmellini*: Gemminger, C. H. xi. p. 146.

Monohammus dentator. Transformations and habits fully described: F. C. Bowditch, Am. Nat. vii. pp. 498-500.

Monohammus impluviatus, Mots., = *saltuarius*, Esch.; Blessig, Hor. Ent. Ross. ix. p. 198 (it is specifically distinct; Solsky, *ibid.*, note). *M. 4-maculatus*, Mots., = *sartor*, F.; *Agapanthia angusticollis* and *lineaticollis* are not distinct; *A. fasciculosa*, Mots., = *pilicornis*, F.; *Saperda rudolphi*, Cederh., *seydlii*, Fröh., = *perforata*, Pall.: *id. l. c.* pp. 200-219.

Mesosa nubila: larvæ in branches from lower parts of oaks. G. Tappes, Bull. Soc. Ent. Fr. (5) iii. p. exciii.

Xylorhiza venosa, Latr., destructive to *Callicarpa macrophylla* in China, described and figured in its chief stages by H. Lucas, Ann. Soc. Ent. Fr. (5) iii. pp. 375-386, pl. xi.

Melanauster macularius, Thoms., = *punctator*, F., var., = *chinensis*, Forst.; *M. championi*, White, = *ruber*, Dalm.; *Batocera chinensis*, Thoms., = *lineolata*, Chev.; *Yochostyla japonica*, Thoms., = *Bumetopia oscitans*, Pasc.; *Thyestes pubescens*, Thoms., = *gebleri*, Fald.; H. W. Bates, Ann. N. H. (4) xii. pp. 311-386.

Frea marmorata, Gerst., fig. 5, *Phoryctus mucoreus*, G., fig. 6, *Hippoposicon virgatum*, G., fig. 7, *Tetraglenes phantoma*, G., fig. 8; V. d. Decken's Reisen, iii. pt. 2, pl. xii.

Amphionycha subarmata, Lec., is a *Eupogonius*; Leconte, Sm. misc. Coll. No. 264, p. 236.

Agapanthia asphodeli: larva described by Mulsant & Mayet, Mém. Ac. Lyon, xix. pp. 346-348.

Agapanthia micans, Payk., recorded (doubtfully) from Gt. Britain. E. C. Rye, Ent. M. M. ix. p. 190.

Saperda populnea very injurious to aspens in the forest of Sènant; J. Fallou, Bull. Soc. Ent. Fr. (5) iii. p. exciii.

Saperda phoca. On its habits in the Grenoble Alps, cf. A. Ponson, Bull. Soc. Ent. Fr. (5) iii. pp. clxii. & clxxxv. Larva and economy described by J. Erné, MT. schw. ent. Ges. iv. pp. 135-137.

New genera and species:—

Microlera, H. W. Bates, l. c. p. 380. Facies of *Ptinus*. Apparently belongs to the *Apomecyninae*, except for its short metathorax; also sug-

gestive of *Mesolita* (*Parmeninae*), but with non-divaricate claws, middle tibiae grooved outwardly, &c. *M. ptinoides*, id. l. c. p. 381, Hiogo.

Lasiaphes, id. l. c. p. 382. *Apodasyinae*: but with the middle acetabula open outwardly. Facies of a large *Obrium*. *L. obrioides*, id. *ibid.*, Nagasaki.

Asaperda, id. l. c. p. 385. Facies of the *Saperdae*, but with diverging, simple claws. Agrees best with the *Apomecyninae*, but perhaps forming a distinct group, near the *Agapanthinae*. *A. rufipes*, Hiogo, *agapanthina*, Awomori, Yokohama, id. l. c. p. 386.

Sternidius, Leconte, *op. cit.* (264) p. 234, = Div. C of Leconte's *Liopus*, differing from *Leptostylus* in the longer 1st joint of its hind tarsi, and from *Liopus* in its broad truncate mesosternum. *Liopus alpha*, Say (*L. misellus* and *rusticus*, Lec. are varr. of this), and allies; and *S. crassulus*, id. l. c. p. 235, Lower California.

Eutassus, id. l. c. p. 235. *Acanthocininae*: antennae with joints 5-11 shorter than 4th joint (= *Mecotartarus*, H. W. Bates; Rec. Am. Ent. 1873, p. 96, note). *E. (granosus)*, *op. cit.* No. 265, p. 339, (=) *asper*, id. *op. cit.* (264) p. 236, Lower California.

Styloxus, id. *op. cit.* (264), p. 239. Allied to *Methia* (see *op. cit.* No. 265, p. 348). *S. lucanus*, id. *op. cit.* (264), p. 240, Lower California.

Rhopaloscelis, Blessig, Hor. Ent. Ross. ix. p. 205. Facies of *Astynomus*, but allied to *Stenidea* and *Pogonocherus*; differing from the latter in its much narrower build, longer antennae (of which the 5th joint is only slightly shorter than the 4th), and want of tufts on the elytra; and from the former in the strongly clavate femora, laterally tuberculate thorax, &c. *R. unifasciatus*, id. l. c. p. 206, pl. viii. fig. 3, Amur.

Eurycotyle, id. l. c. p. 210. Facies of *Liopus*, but with differently built antennae, the front acetabula angulated outwards, the thorax with simple sides, &c. *E. maacki*, id. l. c. p. 211, pl. viii. fig. 4, S. E. Siberia.

Tylophorus, id. l. c. p. 213. Near *Niphona*, but with the facies of *Coptops*, and doubtfully distinct from *Hecyrida*, Thoms. *T. wulffiusi*, id. l. c. p. 215, pl. viii. fig. 3, Port Bruce.

Echthistatus gibber, Bates, l. c. p. 308, Maiyasan.

Monilema gigas, forte, Arizona, *obtusum*, Utah, Leconte, *op. cit.* (264), p. 230.

Dorcadion brunneicolle, 37, *spectabile*, 38, *biforme*, 53, Persia, *mniszehi*, 39, *seminudum*, 83, *striolatum*, 93, *sericatum*, 98, Caucasus, *lugubre*, 41, Salonica, Macedonia, *impressicolle*, 47, Syria, *pilosellum*, 58, Mytilene, *minutum*, 76, Greece, *forcipiferum*, 60, Palestine, *insulare*, 62, Naxos, *lativittatum*, 66, *aurivittatum*, 81, *semivelutinum*, 82, *piochardi*, 85, *scrobicolle*, 97, Asia Minor, *javeti*, 91, Greece and Asia Minor, *beckeri*, 71, Derbent, *elegans*, 73, *sareptanum*, 74, Sarepta, *semilucens*, 84, Mongolia, *basale*, 86, Armenia, *kollari*, 87, *macropus*, 99, Amasia, *4-pustulatum*, 88, Dardanelles, *fallax*, 89, Roumelia, *heldreichi*, 90, Athens, *libanoticum*, 100, Mt. Lebanon, Kraatz, l. c.; *D. apicale*, Chevrolat, Ann. Soc. Ent. Fr. (5) iii. p. 205, Syria.

Monohammus subfasciatus, p. 308, Nagasaki, *luxuriosus*, Japan and N. China, *fraudator*, Nagasaki, p. 309, *sejunctus* (? = *Oroides sobrius*, Pasc.), *degener*, p. 310, Japan, Bates, l. c.: *M. guttatus*, Blessig, l. c. p. 196,

pl. vii. fig. 2, S. E. Siberia; *M. minor* (? = *titillator*, Ol., var.; Rec. Am. Ent. 1873, p. 96), Georgia, *oregonensis* (= *scutellatus*, Say; Rec. Am. Ent. 1873, p. 96), Oregon, Leconte, *op. cit.* (264), p. 231.

Mesosa japonica, p. 312, Nagasaki, *longipennis*, p. 313, Hiogo, Bates, *l. c.* *Rhodopis lewisi*, *id. ibid.*, Hiogo.

Olenecamptus cretaceus, *id. l. c.* p. 314, Japan.

Ælara furcata, *id. ibid.*, Hiogo and Formosa.

Praonetha caudata, *zonata*, *jugosa*, p. 315, *rigida*, p. 316, *angusta*, *liopodina*, p. 317, Japan, *id. l. c.*

Apomecyna nævia, *id. l. c.* p. 317, Japan.

Sybra ordinata and *cribrella*, *id. l. c.* p. 318, Japan.

Atimura japonica, *id. l. c.* p. 381, Hiogo.

Lophopœum volitans, Leconte, *op. cit.* (264), p. 232, Lower California.

Leptostylus palmeri, Arizona, *planidorsus*, Louisiana, p. 233, *parvus*, p. 234, Western States, *id. l. c.*

Eupogonius pubescens, *id. l. c.* p. 236, Ohio.

Mecas marginella, *id. l. c.* p. 239, W. States & Texas.

Dysphaga lævis, *id. l. c.* p. 240, Illinois.

Methia punctata, *id. l. c.* p. 240, note, San Domingo, Cuba.

Pogonocherus seminiveus, Bates, *l. c.* p. 382, Japan; *P. dimidiatus*, Blessig, *l. c.* p. 208, S. E. Siberia; *P. crinitus*, *simplex*, and *P. (?) sordidus*, Leconte, *l. c.* p. 237, California.

Smermus (?) *bimaculatus*, Bates, *l. c.* p. 383, Maiyasan.

Calamobius japonicus, *id. ibid.*, Nagasaki.

Liopus guttatus, *id. l. c.* p. 384, Hiogo.

Exocentrus fasciolatus and *lineatus*, *ibid.*, *tonsus* and *guttulatus*, p. 385, Japan, *id. l. c.*

Glenea ocelota, *id. l. c.* p. 387, Hiogo.

Saperda carinata, p. 219, *8-maculata*, p. 221, Blessig, *l. c.* S. E. Siberia.

Phytœcia simulans, Osaka, *ventralis* (Chevr., ? MS.), Nagasaki, Formosa, and China, Bates, *l. c.* p. 388; *P. punctigera*, Blessig, *l. c.* p. 226, Upper Amur.

Conizonia coquereli, Fairmaire, R. Z. (3) i. p. 352, Mers-el-Kebir.

Oberia vittata, Blessig, *l. c.* p. 223, S. E. Siberia; *O. japonica*, p. 388, *hebescens* (? = *japonica*, var.), *mixta*, and *nigriventris*, p. 389, *marginella* and *fulveola*, p. 390, Japan, Bates, *l. c.*

CHRYSOMELIDÆ.

J. S. Baly's 'Catalogue of the Phytophagous Coleoptera of Japan, with descriptions of the species new to Science,' Tr. E. Soc. 1873, pp. 69-99, refers chiefly to species found by G. Lewis in Japan.

G. R. Crotch's 'Materials for the Study of the Phytophaga of the United States', P. Ac. Philad. 1873, pp. 19-83, although not intended as a monograph, will probably form the starting point for such a work, as regards North American representatives of the group. It contains tables of characters, diagnoses of new genera and species, short descriptions of most known species, and much synonymy.

Sagrides.

Sagra splendida, F. Economy and metamorphoses very fully described

and figured by H. Lucas, Ann. Soc. Ent. Fr. (5) iii. pp. 231-248, pl. vii. The insect is very common at Whampo, and near Canton and Hong Kong, feeding in stems of *Dioscorea batatas*, without injuring the tubers. A var. from Kian-Si; p. 247, note.

Donaciides.

Donacia. A tabulated list of North-American species given by Crotch, *l. c.* pp. 20 & 21. According to him, *D. rufescens*, Lac., & *pulchella*, Lec., = *lucida*, Lac.; *D. congener* and *alutacea*, Lec., = *piscatrix*, Lac.; *D. confluens*, Say, *fulgens*, Lec., = *subtilis*, Knz.; *D. aurifer* and *dives*, Lec., *pusilla*, Say, = *cuprea*, K.; *D. gentilis*, Lec., = *metallica*, Ahr.; *D. sulcicollis*, Lac., = *kirbii*, Lac.; *D. californica*, Lec., = *proxima*, K.; *D. junci*, Coup., = *emarginata*, K.

Donacia araria, Baly, occurs in Japan, and ? = *javana*, Wied.; J. S. Baly, Tr. E. Soc. 1873, p. 69.

Donacia pubicollis, p. 21, Illinois, *texana*, p. 22, Texas, Crotch, *l. c.* spp. nn.

Orsodachnides.

Crotch, *l. c.* p. 22, associates *Orsodachna*, Latr., *Zeugophora*, Kunze, and *Syneta*, Esch., under this name. *O. hepatica* and *vittata*, Say, *bivittata*, Lac., *ruficollis* and *inconstans*, Newm., *armeniaca*, Germ., = *atra*, Ahr.; *S. costata*, Newm., = *ferruginea*, Germ.; *S. seriata* and *suturalis*, Lec., = *albida*, Lec., ♂.

Zeugophora puberula, *varians*, *consanguinea*, spp. nn., Crotch, *l. c.* p. 23, Illinois.

Criocerides.

Lema trivirgata, Lec., = *trilineata*, Ol., var.; *L. ephippiata* and *albini*, Lac., = *6-punctata*, Ol., varr.: Crotch, *l. c.* p. 26.

Lema concinnipennis, *fortunii*, and *downesi*, Baly, *puncticollis*, Curt., *flavipes*, Suffr., var., *10-punctata*, Gebl. (not a *Crioceris*, as Lacordaire suspects), and *Crioceris 14-punctata*, F., occur in Japan; *L. 4-punctata*, Swartz, nec Ol., = *adamsi*, Baly, var.; *Crioceris lateritia*, Baly, = *subpolita*, Mots.; J. S. Baly, Tr. E. Soc. 1873, p. 70 *et seq.*

Lema diversa, p. 71, *lewisi* and *coronata*, p. 72, *honolata*, p. 73, *dilecta*, p. 74, *delicatula*, p. 75, Japan, *id. l. c.*; *L. texana*, Texas, *peninsula*, Lower California, p. 25, *sayi*, Southern States, p. 26, Crotch, *l. c.*: spp. nn.

Crioceris parvicollis, sp. n., Baly, *l. c.* p. 76, Nagasaki.

Megalopides.

Temnaspis japonicus, sp. n., *id. l. c.* p. 78, Nagasaki.

Pedrillia annulata, sp. n., *id. l. c.* p. 19, Japan.

Clithrides.

Crotch, *l. c.* p. 27 *et seq.*, under the name "*Melolonthides*," gives the following synonymy:—*Anomæa mutabilis*, Lac., = *laticlavata*, Forst.; *Babia pulla*, Lac., and *B. tetraspilota*, Lec., = *biguttata*, Ol.; *Clithra bisignata*, Walk., = *Saxinis saucia*, Lec.; *Euryscopa scapularis*, Lec., nec

Lac., is re-named *leontii*; *Coscinoptera franciscana*, Lec., = *dominicana*, F.

H. Lucas, Ann. Soc. Ent. Fr. (5) iii. p. 240, note, gives a list of 8 species described by himself in his Hist. nat. des Anim. Artic. de l'Algérie, ii. (1849), and omitted by Lefèvre from his monograph.

Clithra læviuscula, Ratz., *Gynandrophthalma cyanea* and *aurita*, F., occur in Japan; Baly, l. c. pp. 80 & 81.

Clithra (*Diapromorpha*) *hemorrhagica*, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. xii. fig. 9.

Clithra japonica, sp. n., Baly, l. c. p. 79, Nagasaki.

Coptocephala orientalis, sp. n., id. l. c. p. 81, Hiogo.

Coscinoptera ænescens, Southern States, *major*, Texas, spp. nn., Crotch, l. c. p. 29.

Otiocephala warioni, sp. n., Lefèvre, Bull. Soc. Ent. Fr. (5) iii. p. ccx. Oran.

Lamprosomides.

Lamprosoma cupreatum, p. 82, *nigricæruleum*, p. 83, spp. nn., Baly, l. c. Nagasaki.

Chlamydides.

Chlamys assimilis, Klug, *polycocca*, Lac., = *plicata*, Ol.; *Exema dispar*, Lac., = *conspersa*, Mann.: Crotch, l. c. p. 30.

Chlamys lewisi, p. 83, *interjecta*, p. 84, *spilota*, p. 85, spp. nn., Baly, l. c. Japan.

Eumolpides.

Fidia viticola, Uhler, = *longipes*, Melsh.; *Chrysochus californicus*, Marshall, and ? *tenebricosus*, Marsh., = *cobaltinus*, Lec.; *Paria 6-guttata*, Lec., and *gilvipes*, Dej., = *6-notata*, Say; *Metachroma suturale*, Lec., = *dubiosum*, Say; *M. puncticolle*, Lec., = *quercatum*, F.; *Colaspis humeralis*, Lec., = *tristis*, Ol.: Crotch, l. c. p. 34 et seq.

Bromius (Redt., 1848). E. Lefèvre, Bull. Soc. Ent. Fr. (5) iii. p. cxcv. points out Baly's correct reference of this genus to *Adoxus* (Kirby, 1837).

Eumolpus vitis. Larva (which feeds on root of the vine, and makes no sack) described and figured with details: Geyza v. Horváth, Verh. z.-b. Wien, xxiii. pp. 36-40, pl. 1 B, figs. 1-5.

Chalcoparia, g. n., Crotch, l. c. p. 39. Thorax not margined behind; head deeply immersed, antennæ distant, eyes not emarginate, no ocular sulci; thorax hardly lobed behind eyes, antennæ with joints 2-4 equal, short; tibiæ not produced at apex; claws appendiculate. *C. globosa*, Ol.

Metaparia, g. n., Crotch, l. c. p. 40. Head broad, eyes emarginate, thorax not lobed, tibiæ dentate at tip. *M. elytroides*, sp. n., id. *ibid.*, Texas.

Fidia murina, sp. n., id. l. c. p. 33, Middle and S. States.

Heteraspis marcassita, sp. n., id. l. c. p. 35, Middle and S. States.

Glyptoscelis illustris, p. 35, *squamulatus* and *alternatus*, p. 36, California, id. l. c. spp. nn.

Typophorus metasternalis, Illinois, *oregonensis*, Oregon, id. l. c. p. 38, spp. nn.

Paria levicollis, Pennsylvania, *viridicyanea*, M. and S. States, Illinois, Mexico, *id. l. c.* p. 40, spp. nn.

Metachroma angustulum, Missouri, &c., *californicum*, California, p. 41, *peninsulare*, California, p. 42, *vicinum*, S. Carolina, *marginale*, *levicolle*, *pellucidum*, N. Carolina, *floridanum*, Florida, p. 43, *laterale*, N. Carolina, Kansas, p. 44, *id. l. c.* spp. nn.

Colaspis arizonæ and *nigricyanea*, Arizona, *id. l. c.* p. 45, spp. nn.

Pseudocolaspis cyanea, Raffray, R. Z. (3) i. p. 384, Boghari; *P. cereinigra*, Fairmaire, Ann. Soc. Ent. Fr. (5) iii. p. 392, Algeria: spp. nn.

Nodostoma bimaculatum, sp. n., Raffray, *l. c.* p. 385, Boghari.

Cryptocephalides.

E. von Harold, B. E. Z. xvii. pp. 161-180, discusses the nomenclature of this group, especially with reference to the non-adoption by Suffrian of names earlier than Fabricius (1792). *Griburius*, Hald. (with a protest against its barbarity), is older than, and must be adopted for, *Scolochrus*, Suffr.; *C. apicalis*, Gebl., is adopted for *flaviguttatus*, Suffr., *nec* Schr., which is *morei*, L.; and *Ochrosopsis apicalis*, Saund., may require re-naming. *C. vittula*, Suffr., = *amænus*, Drap.; *C. huebneri*, F., = *hæmorrhoidalis*, Schn., = *chrysopus*, Gmel., = *biguttatus*, Schall.; *C. lineola*, F., = *limbatus*, Laich.; *C. boehmi*, Germ., = *bohemi*, Drap.; *C. brunripes*, Ol., is adopted, as older, for *congestus*, F.; *C. cerulescens*, Suffr., *nec* Sahlb., requires re-naming; *C. distensus*, Chev., is adopted for *5-punctatus*, Suffr., *nec* Harrer; *C. tessellatus*, Germ., = *elongatulus*, Ol., = *elegantulus*, Grav.; *C. flavescens*, Schn., = *frenatus*, Laich.; *C. minutus*, F., = *fulvus*, Goeze; *C. geminus*, Gyll., = *ocellatus*, Drap.; *C. bistrispunctatus*, Germ., = *imperialis*, Laich.; *C. mariæ*, Muls., is adopted for *signatus*, Ol., *nec* Laich.; *C. dispersus*, Hald., = *mutabilis*, Melsh.; *C. fulcratus*, Germ., = *violaceus*, Fourcr., = *livens*, Gmel., = *nigricæruleus*, Goeze; *C. nitida*, L., is adopted instead of *nitens*, L.; *C. variabilis*, Schneid., = *8-punctatus*, Scop.; *C. flavilabris*, F., = *parvulus*, Müll.; *C. coloratus*, F., = *14-maculatus*, Schn.; *C. 12-punctatus*, F., = *5-punctatus*, Harrer; *C. gracilis*, F., = *rufipes*, Goeze; *C. lobatus*, F., = *schæfferi*, Schr.; *C. hypsilon*, Parreyss, = *maculipes*, Zoubk., = *sesquistriatus*, Kryn.; *C. interruptus*, Suffr., = *signatus*, Laich.; *C. 14-pustulatus*, Suffr., = *tesseratus*, Chev.; *C. florentinus*, Ol., = *tricolor*, Rossi; *C. salicis*, F., = *3-maculatus*, Rossi; *C. consobrinus*, Suffr., *nec* L., is re-named *patruelis* (p. 175); *Griburius fallax*, Suffr., = *humeralis*, Stål; *Pachybrachys morosus*, Hald., is adopted for *pubescens*, Ol., *nec* F.; *P. histrio*, Ol., = *tessellatus*, Ol.; *P. fimbriolatus*, Suffr., = *tristis*, Laich. Other alterations are suggested, by which names of authors, not of species, are changed. A list of species not quoted by Suffrian is given, and a table of the European species, as altered, with synonyms.

Monachus affinis, Hald., = *auritus*, Hald., ♀; Crotch, *l. c.* p. 30.

Cryptocephalus. Crotch, *l. c.* p. 31, uses the ♂ characters in grouping the N. American species, in preference to following Suffrian. He unites *C. aneolus*, Lec., *chalconotus*, Mann., and *viridis*, Hald., with *auratus*, F., and suggests other synonymy.

Cryptocephalus apertus, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. xii. fig. 10,

Cryptocephalus stragula, Rossi (♂ unknown), occurs at Sainte-Baume; *C. perrieri*, Fairm., is a good species: G. Tappes, Bull. Soc. Ent. Fr. (5) iii. p. cxxxvii. *C. gamma*, H. Sch. (1829) should be adopted for *sesquistriatus*, Kryn.: *id. l. c. p. ccxviii.*

Pachybrachys albescens, Suffr., = *bivittatus*, Say, which is not synonymous with *P. viduatus*, F. Suffrian, S. E. Z. xxxiv. p. 153.

Monachus thoracicus, sp. n., Crotch, *l. c. p. 31*, S. Carolina, Florida.

Cryptocephalus perelegans, p. 88, *tetradecaspilotus*, *scitulus*, p. 89, *pilosus* (also China), p. 90, *signaticeps* (also Tartary), *instabilis*, p. 91, *japanus*, p. 92, *approximatus*, p. 93, *fortunatus*, p. 94, *permodestus*, p. 95, *amatus*, p. 96, *discretus*, p. 97, *amiculus*, p. 98 (also E. Siberia), Japan, Baly, *l. c.*; *C. fulgurans*, p. 353, pl. xvi. figs. 1, 1a, *acupunctatus*, p. 354, *ibid.* figs. 2, 2a, Fairmaire, R. Z. (3) i. Boghari: spp. nn.

Griburius lecontii, sp. n., Crotch, *l. c. p. 32*, Texas.

Pachybrachys xanti, Crotch, *l. c. p. 32*, Lower California; *P. eruditus*, Baly, *l. c. p. 98*, Japan; *P. prasinus*, Fairmaire, *l. c. p. 355*, Boghari: spp. nn.

Cenobius sulcicollis and *piceus*, spp. nn., Baly, *l. c. p. 86*, Nagasaki.

Dioryctus lewisi, sp. n., *id. l. c. p. 87*, Nagasaki.

Chrysomelides.

Colaspidema, Lap. (*Colaphus*, Redt.), is certainly not to be ranked among the *Eumolpides*, but in this group, joining it to the *Galerucides*. A list of the known species is given. E. Lefèvre, Bull. Soc. Ent. Fr. (5) iii. p. cxevi.

Timarcha intertexta, Hald., = *intricata*, Hald., var.; *Chrysomela rogersi*, Lec., = *clivicollis*, K., var.; *C. defecta*, St., = *juncta*, Germ., var.; *C. stolata*, Suffr., *pallida*, Bland, = *conjuncta*, Rogers; *C. casta*, Rog., = *suturalis*, F., var.; *C. hybrida*, Say, = *lunata*, F.; *C. multiguttis*, Stål, is to be used for *scalaris*, Lec., preoccupied; *C. bigsbiana*, K., and *verrucosa*, Suffr., = *multipunctata*, Say, and ? = *philadelphica*, L., of which *spiræa*, Say, is a var.; *C. basilaris*, Say, ? = *flavimarginata*, Say, var.; *C. cribraria*, Rog., = *auripennis*, Say; *Gastrophysa formosa*, Say, ? = *raphani*, auctt.; *Gonioctena rufipes*, Rog., *simplex*, Suffr., = *pallida*, L.; *Plagioderma interrupta*, F., = *lapponica*, L.; *P. confluens*, Rog., = *scripta*, F., var.; *P. æruginosa*, Suffr., ? = *viridis*, Melsh., var.: Crotch, *l. c. p. 46 et seq.*

Timarcha. The European and Mediterranean species revised by L. Fairmaire (using E. Allard's notes); Ann. Soc. Ent. Fr. (5) iii. pp. 143-202 (Supplement, *l. c. pp. 525-528*). *T. punctatella*, Mars., = *turbida*, Er., var.; *T. semipolita*, Chev., and *T. subcyanea* and *iberica*, Mots., = *tenebricosa*, F., varr.; *T. chalcosoma*, Fairm., = *gravis*, Ros. (this collocation withdrawn, and *chalcosoma* re-described, from Tunis ?, as distinct, p. 525); *T. levigata*, H. Sch., nec L., is re-named *gallica* (p. 182); *T. cyanescens* and *reticollis*, Fairm., = *monticola*, Duf. *T. lomnickii*, Mill., = *rugulosa*, H. Sch.; *T. galliciana*, Chev., = *chloropus*, Germ.

Doryphora 10-lineata noticed as a new [!] potato-foe in America;

G. v. Frauenfeld, Verh. z.-b. Wien, xxiii. p. 183. It will eat many other plants besides *Solanaceæ*: H. Gillman, Am. Nat. vii. p. 430.

Chrysomela cærulescens, Suffr., = *carnifex*, F., var.; C. Brisout, Bull. Soc. Ent. Fr. (5) iii. p. cxxi.

Phratora tibialis, Suffr., probably = *vulgatissima*, L., var.; Kellner, B. E. Z. xvii. p. 217.

Colaspidema maculicollis, sp. n., Lefèvre, l. c. p. cxviii. Barbary.

Timarcha coarcticollis, p. 147, Andalusia, *sericea*, p. 153, Sierra Nevada, Murcia, *brulerii* (re-named *piochardi*, p. 525, on account of *T. brulerii*, Bellier de la Chavign., 1870, which Fairmaire states to be not specifically separable from *T. gallica* [if this be so, the name *brulerii* will stand for the latter, which is only proposed in 1873 for *lævigata*, H. S., nec L.], p. 154, Barcelona, *erosa*, p. 157, Portalègre, *tingitana*, p. 159, Tangiers, *brachydera*, p. 165, Biskra, Batna, *crassaticollis*, p. 166, Kabylia, *henonii*, p. 167, Constantine, *camoensi*, p. 171, *validicornis*, p. 172, Portugal, *montana*, Macedonia, *sublevis*, Corsica, p. 174, *globata*, p. 177, Bannat, *elliptica*, p. 180, Balearic Isles, *dubitabilis*, p. 183, ? Italy (Algerian Sahara, p. 527), *globipennis*, p. 186, Madrid, *corallipes*, p. 191, Atlas, *sphæroptera*, p. 192, Spain, *trapezicollis*, p. 196, Portugal, *corinthia*, p. 197, Dalmatia, Fairmaire, l. c.; *T. amethystipes*, Chevrolat, op. cit. p. 206, Syria (= *pimeloides*, Schäf., and the locality is doubtful: Fairmaire, l. c. p. 525); *T. globulata*, Fairm., l. c. p. 526, Armenia: spp. nn.

Chrysomela ruginosa, p. 356, *edoughensis*, p. 357, Bône, *semiopaca*, p. 357, Algiers, spp. nn., *bicolor*, Fab., var. n., *dolorosa*, p. 359, Algerian Sahara, Fairmaire, R. Z. (3) i.

Prasocuris varipes, p. 51, Middle States, *obliquata*, p. 52, Illinois, Crotch, l. c. spp. nn.

Plagioderia arizonæ, sp. n., id. l. c. p. 53, Arizona.

Galerucides.

Phyllec [h] *thrus atripennis*, Say, = *dorsalis*, Ol.; *P. nigripennis*, Lec., = *gentilis*, Lec.; *Lyperus rufipes*, Lec., nec F., is re-named *lecontii*; *Galeruca cribrata*, Lec., = *americana*, F., var.; *G. hæmatica*, Lec., = *cavicornis*, Lec.; *G. marginella*, K., and ? *punctipennis*, Mann., = *nymphææ*, L.; *Monoxia obtusa*, *guttulata*, and *debilis*, Lec., are not separable; *Tri-rhabda* (= *Pyrrhalta*, Joannis, 1866) *tomentosa*, L., *canadensis*, K., and *virgata*, Lec., are one variable species, as are *T. flavilimbata*, Mann., and *luteicincta*, Lec. (and ? *T. attenuata*, Say), and *T. nitidicollis* and *brevicollis*, Lec.: Crotch, l. c. p. 54 et seq.

Adorium palliatum, Gerst., fig. 11, *Apophyllia nobilitata*, G., fig. 12, *Xenarthra* (?) *calcarata*, G., fig. 13; V. d. Decken's Reisen, iii. pt. 2, pl. xii.

Adimonia villæ, Com., = *fontinalis*, Boh.; *A. pallida*, Joann., = *sanguinea*, F., ♂; and observations on various doubtful species are made. Kraatz, B. E. Z. xvii. pp. 198 & 199.

Lyperus. H. v. Kiesenwetter, B. E. Z. xvii. pp. 23-31, makes various remarks as to localities, food-plants, and synonymy of the species described by Joannis (L'Ab. iii.). *L. (Calomicrus) costalis*, Joann., = *cyaneus*, Joann., var.; *L. rufipes*, Goetze, = *niger*, Geoffr.; *L. rufipes*, Joann.,

Redt., Duft., Pz., ? Fab., = *xanthopoda*, Schrank; *L. betulinus*, Joann., = *rufipes*, Thoms., Kies., Gyl., = *longicornis*, Fab.; *L. megalophthalmus*, Joann., = *flavipes*, L., ♂ (all re-described); *L. geniculatus*, Joann., = *nigripes*, Kies.

Andrector, g. n., Horn, Tr. Am. Ent. Soc. iv. p. 152. Allied to *Cerotoma*, but with a vertical and deeply excavated frons, and joints 3 & 4 of antennæ deformed (♂). *A. searpunctatus*, sp. n., *id. ibid.* Texas.

Androlyperus, g. n., Crotch, l. c. p. 55. Near *Lyperus*, but with apical joint of palpi rather longer than penultimate, and acute, and the prosternum distinctly visible between the coxæ; posterior femora not dilated. Male characters strongly shown in ventral segments, elytra, and antennæ. *A. fulvus*, sp. n., *id. ibid.* San Francisco.

Galerucella, g. n., *id. ibid.* Differs from *Galeruca* in its open coxal cavities. *G. tuberculata*, Say, *nymphææ*, and *sagittariæ*, auctt., &c.

Adimonia tripoliana, sp. n., Chevrolat, Ann. Soc. Ent. Fr. (5) iii. p. 206, Syria.

Tirrhabda lewisi, sp. n., *id. l. c.* p. 56, New Mexico (? = *nitidicollis*, var.).

Calomicrus rottenbergi, Ragusa, Bull. Ent. Ital. v. p. 234, Sicily; *C. sordidus*, Kiesenwetter, l. c. p. 24, Jaen, spp. nn.

Lyperus brunneus, Crotch, l. c. p. 54, N. Carolina; *L. lewis*, Kiesenwetter, l. c. p. 30, Corsica: spp. nn.

Halticides.

Hypolampsis pilosa, Clk., *nec* Ill., is re-named *clarki*; *Pachyonychus paradoxus*, Clk., is both generically and specifically distinct from Melsheimer's insect of that name, which stands, and the generic name *Hamletia* is proposed for the former, for which Dejean's specific name *dimidiaticornis* can be retained; *Ædionychus scripticollis*, Say, *discicollis*, Dej., *concinna*, F., = *vians*, Ill., varr.; *Batophila lissotorques*, Lec., = *spuria*, Lec., var.; *Systema ligata* and ? *ochracea*, Lec., = *miles*, Lec.; *S. oblonga*, Lec., = *marginalis*, Ill.; *S. biteniata*, Lec., = *blanda*, Mels.; *Crepidodera erythropus*, Mels., = *rufipes*, L.; *C. nana*, Say, *violacea*, Mels., *æreola* and *opulenta*, Lec., = *helxines*, L.; *C. mancula*, Lec., = *modeeri*, L., var.; *Epitrix seminulum*, Lec., = *cucumeris*, Harr.; *Psylliodes interstitialis*, Lec., = *convexior*, Lec.; *P. parvicollis*, Lec., = *punctulata*, Mels.; *Blepharida* must be retained as a separate group with bifid claws: Crotch, l. c. pp. 57-76.

E. Mulsant & C. Rey, Ann. Soc. L. Lyon (n. s.) xx. pp. 215-258, publish a supplement to Foudras's work, giving descriptions of new species and references to others.

Graptozona oleracea, *pusilla*, and *ericeti*, occur near Marly, together, on the same plant, "which tends to prove that they form distinct species:" C. Brisout, Bull. Soc. Ent. Fr. (5) iii. p. clxxix.

Aphthona herbigrada: varr. from S. France named *lavicollis* and *dimidiata*. Mulsant & Rey, l. c. pp. 257 & 258.

Plectroscelis chlorophana lives on *Calamagrostis epigeios*; C. Brisout, l. c. p. ccxi.

Longitarsus atricillus, Foudr., *nec* Gyl., is re-named *senecionis*; it is distinct from *piciceps*, Steph., and *atriceps*, Kuts.; *id. l. c.* p. ccxviii.

New genera and species :—

Orthaltica, Crotch, *l. c.* p. 69. Allied to *Systema*, but very distinct by the long antennæ, parallel form, short tarsi, and irregularly striate elytra; the antennæ are closely approximate. The frontal tubercles very distinct; the prosternum rather broad, anterior coxæ distant. *O. copalina* (F.), and *O. recticornis* (Lec.).

Lyperaltica, Crotch, *l. c.* p. 70. Facies of *Lyperis*, but with incrassate femora, entire epipleuræ and separated anterior coxæ. Form of *Orthaltica*, but elytra not striate, first joint of posterior tarsi elongate, &c. *L. fuscula* (Lec.), and *L. tincta* (Lec.), = *senilis* (Say).

Cerataltica, Crotch, *l. c.* p. 73. Between *Mantura* and *Chatocnema*. Antennæ stout, 2nd joint shorter than 3rd, 5–11 stout subquadrate, longer than broad, 11th suddenly constricted at base and acuminate; thorax not margined at base, impunctate, posterior tarsi short, elytra striate. *Sphæroderma insolitum*, Mels.

Euplectroscelis, Crotch, *l. c.* p. 75. Allied to *Chatocnema*, but with posterior tibie sulcate throughout. Facies of a Eumolpid. *E. xanti*, *id. l. c.* Lower California.

Hypolampsis mellii, *id. l. c.* p. 58, Kansas.

Edionychis opacior, *lustrans*, 8-*maculata*, p. 60, *interjectionis*, p. 61, *flavicyanea*, p. 62, *texana*, p. 63, Texas, *circumcincta*, p. 62, Southern States, *thyamoides*, p. 63, Western States; *id. l. c.*

Batophila cyanipennis, *id. l. c.* p. 65, Texas.

Orchestrus zimmermanni, Missouri, *oregonensis*, Oregon, *lewisi*, Colorado, Illinois, p. 66, *aneicollis*, Texas, M. & S. States, *chalybeipennis*, New Jersey, p. 67, *id. l. c.*

Aphthona texana, *id. l. c.* p. 67, Texas; *A. punctiventris*, p. 250, *punctigera*, p. 252, *subimpressa*, p. 255, Provence, *orientalis*, p. 253, Caramania, *subaptera*, p. 256, Languedoc, Mulsant & Rey, *l. c.*

Systema collaris, Crotch, *l. c.* p. 68, Texas.

Haltica burgessi, *id. l. c.* p. 71, Key West, Florida; *H. splendens*, Mulsant & Rey, *l. c.* p. 244, Pyrenees.

Crepidodera scabricula, p. 71, Texas, *C. ? nana*, p. 72, S. Carolina; Crotch, *l. c.*

Epitrix fuscula, N. & S. Carolina, *lobata*, S. Carolina, Crotch, *l. c.* p. 72.

Mantura floridana, *id. l. c.* p. 73, Florida, Louisiana.

Balanomorpha suturata, Fairmaire, R. Z. (3) i. p. 359, Boghari.

Phyllotreta foudrasi, C. Brisout, Bull. Soc. Ent. Fr. (5) iii. p. lxxv. Paris, Hyères.

Chatocnema crenulata, N. Carolina, *alutacea*, Florida, *parcepunctata*, Pennsylvania, Lake Superior, *texana*, Texas, p. 74, *confinis*, S. Carolina, *elongatula*, Colorado, p. 75, Crotch, *l. c.*; *C. punctatula*, Mulsant & Rey, *l. c.* p. 222, France.

Thyamis australis, p. 227, *obsoleta*, p. 230, *scutellaris*, p. 231, *funerea*, p. 232, *sternalis*, p. 233, *livens*, p. 235, *paleacea*, p. 236 (? = *albinea*, Foudr., var.), *gracilicornis*, p. 238, Mulsant & Rey, *l. c.* France.

Psylliodes sicana, *id. l. c.* p. 217, Sicily.

Dibolia foudrasi, *id. l. c.* p. 219, Cluny.

Hispides.

Hispa pachycera, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. xiii. fig. 1.

Languria brevicollis, Rand., = *Stenispa metallica*, F.; *Odontota bacchus*, Newm., = *bicolor*, Ol.; *O. philemon* and *baucis*, Newm., = *rosea*, Web.; *Microrhopala interrupta*, Couper, = *xerene*, Newm., var.; *M. hecate*, Newm., = *cyanea*, Say; *M. erebus* and *pluto*, Newm., = *excavata*, Ol.; Crotch, l. c. p. 80 et seq.

Odontota omogera, p. 80, Tampico, walshī, p. 81, Illinois, id. l. c. spp. nn.

Microrhopala melsheimeri, sp. n., id. l. c. p. 83, Pennsylvania.

Cassidides.

Cassida. The species are exclusively attached to Composite plants; *C. filaginis*, Perr., = *seladonia*, Gyll.; L. Bedel, Bull. Soc. Ent. Fr. (5) iii. p. lxxxviii. *C. margaritacea* lives on *Gnaphalium stœchas*: Bauduer, l. c. p. ccxv. Puton, l. c. p. ccxxvii., differs from Bedel's opinion, giving various food-plants of *C. equestris*, *azurea* (? = *lucida*), *austriaca*, *thoracica*, *nobilis*, *nebulosa*, *obsoleta*, *oblonga*, *filaginis*, and *hemispherica*.

Cassida 5-punctata, Walsh, = *Physonota helianthi*, Rand., = *P. uni-punctata*, Say; *C. ellipsis*, Lec., = *nigripes*, Ol., var.; *Coptocyclus auri-splendens*, Boh., = *aurichalcea*, F.; *C. trabeata* and *lucidula*, Boh., = *guttata*, Ol., varr.; Crotch, l. c. pp. 77 & 78.

Chelymorpha lewisi, New Mexico, *phytophagica*, Arizona, id. l. c. p. 77, spp. nn.

Cassida texana, sp. n., id. l. c. p. 78, Texas.

Coptocyclus arizone, p. 78, *lecontii*, p. 79, id. l. c. Arizona, spp. nn.

EROTYLIDÆ.

G. R. CROTCH, Tr. Am. Ent. Soc. iv. pp. 349-358, gives a "Synopsis of the Erotylidæ of Boreal America." *Dacne*, Latr., 1796 (*Engis*, Payk., 1798), and *Languria* are added to the group (as probably intended by Lacordaire), which is to be placed in the Clavicorn series immediately after the *Cryptophagide*. *Dacne*, Lac., nec Latr., is re-named *Megalodacne* (p. 352). *Languria puncticollis*, Say, = *bicolor*, F., var.; *L. pulchra*, Lec., *trifasciata*, Say, = *uhleri*, Horn, varr., = *angustata*, Beauv.; *L. nigriceps* and *obscura*, Mots., = *L. latreillii*, Lec., = *bicolor*, Latr., nec F., = *gracilis*, Newm., of which *inornata*, Rand., is a var.; *L. apicalis*, Mots., = *mozardi*, Latr., var. minor; *L. rufiventris*, Mots., = *tœdata*, Lec.; *Mycotretus dimidiatus*, Lac., = *pulcher*, Say, var.; *Cyrtotriplax brunnea*, Lac., = *angulata*, Say, immat.; *C. livida*, Lac., ? = *affinis*, Lac., immat.; *C. ruficeps* and *vittata*, Lec., *ulica*, Horn, = *humeralis*, F., varr.; *Triplax thoracica*, Say, ? = the European *scutellaris* (*bicolor*, Gyll.).

The same author, Cist. Ent. (vi.) pp. 141-150, gives a list of 28 species from Nicaragua. *Dacne multifida* and *brasiliensis*, Lac., = *Megalodacne 4-guttata*, Ol., varr.; *Pselaphacus signatipennis*, Lac., = *signatus*, Guér., *Oocyclus*, Hope, = *Epytus*, Dej.; *Ægithus clathratus*, Lac., = *4-notatus*, Chev.; *Æ. rufipennis*, Chev., = *cardinalis*, Chev., var., of which a var.

n. meridionalis is described, p. 146; *Coccinella surinamensis*, L., = *Æ. clavicornis*, L.; *Brachysphænus irroratus* and *multinotatus* should be referred to *Priotelus*.

Crotch also gives a descriptive list of the species (mostly new) found by G. Lewis in Japan: Ent. M. M. ix. pp. 184–189. *Tritoma*, F., nec Geoffr., is re-named *Cyrtotriplax*, p. 189. Additions are made by E. W. Janson & C. O. Waterhouse, *ibid.*

Languria puncticollis, Say; habits and larva described, and larva and pupa figured; A. S. Packard, Rep. Ins. Mass. iii. pp. 23 & 24, figs. 148 & 149.

Dacne heros, larva and pupa figured; *id. l. c.* p. 24, fig. 150.

Episcapha scenica, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. xiii. fig. 2.

New genera and species:—

Megischyrus, Crotch, Cist. Ent. (vi.) p. 143. Prosternum strongly keeled; antennal club loosely jointed. *M. nicaraguæ*, *id. ibid.*, Nicaragua, and *Ischyrus sanguinolentus* and *discipennis*, Lac.

Cypherotylus, Crotch, *l. c.* p. 148. The colour (uniformly black, with pale elytra, irregularly black spotted), margined base of thorax, hardly apparent interstitial punctuation, and "sexual differences" [not specified] combine to separate this at once. Type, *Chrysomela gibbosa*, L., also *C. sphacelatus* (indirectly attributed to *C. gorii*, as a var.), *Erotylus dromedarius*, Lac. [stated, however, not to differ sufficiently to entitle it to specific distinction:—from what other species, is not mentioned], and *C. impressipunctatus*, p. 148, and *jansoni* (? = *gorii*, var., *teste* Crotch), p. 149, Nicaragua, spp. nn. This genus is also characterized as new by the author in Tr. Am. Ent. Soc. iv. p. 358, where it is stated to have the head produced in front into a rostrum which is narrowed for the insertion of the antennæ; the elytra with irregular deep punctures; the thorax unevenly impressed, base margined; anterior femora globose; 1st ventral segment with pilose dot in ♂. *C. boisduvali* (Chevr.) is added to its species.

Languria lecontii, Crotch, Tr. Am. Ent. Soc. iv. p. 351, Illinois; *L. lewisi*, *nigripes*, p. 184, *præusta*, *atriceps*, *ruficeps*, and (*L.* ?) *jansoni*, p. 185, *id.* Ent. M. M. ix.; *L. prætermissa*, E. W. Janson, *op. cit.* p. 186, *L. nigritarsis*, p. 186, *pectoralis* and *convexicollis*, p. 187, C. O. Waterhouse, *op. cit.*, Japan.

Dacne japonica and *picta*, Crotch, Ent. M. M. ix. p. 188, Japan.

Episcapha fortunii, *id. ibid.*, Japan, China.

Melagodacne ulkii, *id.* Tr. Am. Ent. Soc. iv. p. 353, Kentucky.

Pselaphacus distortus, Mexico, *vitticollis*, New Granada, *nicaraguæ*, Nicaragua, *id.* Cist. Ent. vi. p. 142.

Ischyrus nigrans, Florida, *extricatus*, Middle States, *id.* Tr. Am. Ent. Soc. iv. p. 354; *I. tripunctatus*, *id.* Cist. Ent. vi. p. 144, San Domingo.

Mycotretus chontalesi, *id.* Cist. Ent. vi. p. 145, Chontales; *M. dissimulator*, *id.* Tr. Am. Ent. Soc. iv. p. 355, Illinois.

Cyrtotriplax mimetica, *id.* Tr. Am. Ent. Soc. iv. p. 355, Illinois, Georgia; *C. lewisi*, *id.* Ent. M. M. ix. p. 189, Japan.

Triplax japonica, id. Ent. M. M. ix. p. 189, Japan.

Aulacochilus japonicus, id. *ibid.*, Japan.

Ægithus jansoni, id. Cist. Ent. vi. p. 146, San Domingo.

Brachysphænus zonula, id. l. c. p. 147, Ecuador.

Erotylus nicaraguæ, id. l. c. p. 148, Nicaragua.

Zonarius jansoni, id. l. c. p. 149, San Domingo.

Scaphidomorphus xanthomelas, id. l. c. p. 150, San Domingo.

Homæotelus confusus, Chontales, Guatemala, Costa Rica, Venezuela, *jansoni*, San Domingo, id. l. c. p. 150.

ENDOMYCHIDÆ.

H. S. GORHAM, under the title '*Endomyc[h]ici recitati*' (London: 1873, 8vo, pp. 64, pl.), catalogues the species of this group, raised to 302, contained in 46 genera. After bibliographical remarks, geographical distribution is discussed, the tropics being considered as the present home (and probably the original birthplace) of the family. *Stenotarsus* illustrates the theory of a former land connection between S. America and Madagascar; and its antennæ betray an ancient and unsettled form. Where hairy elytra are found, a primitive type is suggested. Some synonymy is given, from the types of Guérin & Deyrolle, and notes are given on various species and synonyms. The new family names *Palæomorphidæ*, for *Stenotarsus* and allies, and *Paussoideidæ*, for *Trochoideus*, Westw., are proposed. New genera and species are described. The following synonymical observations are made, amongst others:—*Eumorphus dehaani*, Guér., = *tetraspilotus*, Hope, var.; *E. 4-verrucosus*, Guér., = *coloratus*, Gerst.; *Encymon gerstæckeri*, Dohrn, = *E. (Haplomorphus) immaculatus*, Montr.; *Corynomalus angulicollis*, Bates, = *ferrugineus*, Gerst., = *marginatus*, F., var.; *C. circumcinctus* and *robustus*, Bates, = *æneipennis*, Guér., = *discoideus*, F.; *C. gerstæckeri*, Bates, ? = *perforatus*, Gerst., var.; *Lycoperdina glabrata*, Walk., has no resemblance to *Lycoperdina*, and probably (if in the group) will form a new genus near *Cremnodes*; *Stenotarsus lombardeaui*, Perr., is briefly re-described, and doubtfully referred to the genus; *Eucteanus celestinus*, Gerst., = *hardwicki*, Hope.

The same author, Ent. M. M. ix. pp. 205–207, enumerates the species (mostly new) found by G. Lewis in Japan.

G. R. CROUCH, Tr. Am. Ent. Soc. iv. pp. 359–363, gives a "Synopsis of the Endomychidæ of the United States." The family should follow the *Mycetophagidæ* in systematic position. *Mycetea hirta* occurs in N. America.

New genera and species :—

Coniopoda, Gorham, Ent. M. M. ix. p. 205. Like *Lycoperdina*, but with a 3-jointed antennal club, the anterior coxæ separated from the prosteronum, and pilose elytra. *C. orientalis*, id. *ibid.*, Japan.

Panamomus, id. l. c. p. 207. Near *Leiestes*, but with more ample thorax and more convex body; more of the form of *Hylæa*. *P. lewisi*, id. *ibid.*, Japan.

Rhabduchus, id. l. c. p. 257. *Dapsini*: allied to *Ædiarthrus*, Gerst.; 9th joint of antennæ incrassate, toothed internally; legs long and thin. *R. denticornis*, id. *ibid.*, Nagasaki.

Heliobletus, id. Endom. recit. p. 41. Tropical representative of *Dapsa*, but with prosternum visible between the anterior coxæ. *H. servilis*, id. l. c. p. 42, Borneo.

Aphorista, id. l. c. p. 45. Apparently near *Mycetina*, but more allied to *Epipocus*, though with the penultimate joints of antennæ not acuminate internally. *Mycetina lata*, Lec., *A. humeralis*, *ibid.*, California, and ? *Epipocus discoidalis*, Lec.

Spathomeles darwinista, C. A. Dohrn, S. E. Z. xxxiv. p. 322, Philippines; *S. insuspectus*, Borneo, *pyramidalis*, Philippines, p. 31, *elegans*, p. 32, Penang, Gorham, Endom. recit.

Trycherus hydroporoides, Gorham, l. c. p. 33, Senegal.

Eumorphus guerini, p. 34, *costatus*, p. 34, fig. 6, Celebes, *expatriatus*, no locality known, *thomsoni*, Manilla, p. 35, *westwoodi*, p. 36, Tenasserim, *E. (Pedanus?) gerstaeckeri*, p. 37, fig. 5, Malacca, id. l. c.

Encymon bipustulatus, p. 38, Aru, *angulatus*, p. 39, Moluccas, *resinatus*, p. 40, Borneo, id. l. c.

Indalmus insularum, id. l. c. p. 40, Timor.

Ancylopus graphicus, id. l. c. p. 41, Gambia.

Dapsa inornata, id. l. c. p. 43, Beyrouth.

Lycoperdina dux, id. Ent. M. M. ix. p. 205, Japan.

Phalantha variegata, id. Endom. recit. p. 43, fig. 4, R. Amazon.

Mycetina obliquisignata, id. l. c. p. 44, Amoor.

Mycetina horni, Crotch, l. c. p. 360, California, Oregon; *M. amabilis* and *ancoriger*, Gorham, Ent. M. M. ix. p. 206, Japan.

Anidrytus amazonicus, p. 46, fig. 8, R. Amazon, *fallaciosus*, Cayenne, *liquefactus*, Columbia, p. 47, *humilis*, p. 48, Nicaragua, Gorham, Endom. recit.

Epopterus testudinarius, p. 48, fig. 7, *cucullinus*, p. 49, *ryei*, p. 50, fig. 3, *quæsitus*, p. 51, R. Amazon, id. l. c.

Stenotarsus grandis, Columbia, *flavicornis*, Brazil, p. 52, *pilatii*, Yucatan, *flavago*, New Friburg, p. 53, *nigricollis*, New Friburg, *brunneus*, New Granada, p. 54, *æquatatus*, p. 55, Senegal, *sallæi* (? Guérin), p. 62, id. l. c.; *S. nigriclavis*, id. Ent. M. M. ix. p. 206, Japan.

Rhymbus seminulum, New Friburg, Guiana, *minutus*, N. America, p. 56, *limbatus* (? Guérin), p. 63, Mexico, id. Endom. recit.

Eucteanus marseuli, id. l. c. p. 56, "India."

Alexia ulkii and *minor* (? = *Hygrotophila testacea*, Mots.), Crotch, l. c. p. 362, Washington.

COCCINELLIDÆ.

G. R. Crotch, Tr. Am. Ent. Soc. iv. pp. 363-382, publishes a "Revision of the Coccinellidæ of the United States." *Coccinella menetriesi*, Muls., = *11-punctata*, geographical form; *Hippodamia leporina* and *extensa*, Muls., = *11-punctata*, geographical form; *H. punctulata*, Lec., = *ambigua*, Lec.; *H. læstus*, Lec., = *leontii*, Muls., var.; *H. interrogans*, Muls., = *sinuata*, M.; *Adonia mutabilis*, Scriba, = *constellata*, Laich.; *Anisosticta multi-*

guttata, Rand., *bitriangularis*, Say, = *strigata*, Thunb.; *A. litigiosa*, Muls., = *seriata*, Melsh.; *Coccinella venusta*, Melsh., = *affinis*, Rand.; *C. barda*, Lec., = *juliana*, Muls.; *C. eugenii*, Muls., and *subversa*, Lec., = *trifasciata*, L., varr.; *C. transversalis*, Muls., *californica*, Mann., = *5-notata*, K., varr.; *C. lacustris*, Lec., = *monticola*, Muls., and ? = the Siberian *C. nivicola*; *C. monticola*, Lec., *nec* Muls., is re-named *prolongata* (p. 371); *C. franciscana*, Muls., = *9-notata*, Hbst., varr.; *Daulis*, Muls., *nec* Er., is re-named *Cylonedæ* (p. 371); *Cylonedæ munda*, Say, = *sanguinea*, L.; *C. binotata*, Muls., = *oculata*, F., of which *abdominalis*, Say, is a var.; *Adalia barda* and *melanopleura*, Lec., *ophthalmica*, Muls., *hyperborea*, Payk., = *frigida*, Schn.; *A. humeralis*, Say, = *bipunctata*, L., var.; *Anisocalvia*, Crotch [Zool. Rec. viii. p. 329], is characterized, p. 373; *A. cardisce* and *similis*, Rand., = *14-guttata*, L., of which a var. (?) *hesperica*, from Arizona, is noted, p. 374; *Psyllobora 20-signata*, Boh., Tahiti, and *P. interspersa*, Boh., Sydney, = *20-maculata*, Say, Atlantic region, of which *tædæta*, Lec., is queried as a var.; *Chilocorus fraternus*, Lec., = *bivulnerus*, Muls., var.; *Exochomus texanus* and *pleuralis*, Lec., = *pilatii*, Muls., ? = *plagiatus*, Ol., var.; *E. æthiops*, Bland, = *marginipennis*, Lec., var.; *E. guezi*, Lec., *childreni*, Muls., = *contristatus*, Muls.; *Eneis puncticollis*, Lec., = *pusilla*, Lec., ♀; *Brachyacantha tau* and *quadrillum*, Lec., = *dentipes*, F., varr.; *B. 10-pustulata* and *basalis*, Melsh., *flavifrons*, Muls., *albifrons*, Say, = *ursina*, F., varr.; *B. diversa*, Muls., = *4-punctata*, Melsh.; *Hyperaspis floridana*, Muls., = *Scymnus amabilis*, Lec.; *H. cincta*, Lec., = *fimbriolata*, Melsh.; *H. binotata* and *normata*, Say, = *signata*, Ol.; *H. jucunda*, Lec., *venustula*, Muls., = *lugubris*, Rand.; *H. elegans*, Muls., = *undulata*, Say; *Oxy[o]nychus consimilis*, Lec., = *H. mærens*, Lec., and the genus does not stand; *H. 4-vittata*, Lec., = *annæa*, Lec.

A list of Japanese species, determined by G. R. Crotch, is given by G. Lewis, Ent. M. M. x. pp. 54-56. The fauna is more Indian than Siberian; exclusively Japanese forms are few, and 7 species are common to western Europe, 6 being British. Variations of *Coccinella axyridis*, Pall., referred by Mulsant to 5 of his 'genera,' and of *Propylea conglobata*, L., are mentioned, and new species indicated.

Alesia aurora, Gerst., fig. 3, *Chilomenes* (?) *pardalina*, G., fig. 4, *Epilachna tetracycla*, G., fig. 5, *proserpina*, G., fig. 6, *callipepla*, G., fig. 7, *macropis*, G., fig. 8, *scalaris*, G., fig. 9; V. d. Decken's Reisen, iii. p. 2, pl. xiii.

Exochomus. Kraatz, B. E. Z. xvii. pp. 189-195, revises the European species, 6 in number (one new). *E. unicolor*, Schauf., = *distinctus*, Brullé, and *oblongus*, Wied., = *4-punctulatus*, L., varr., of which a var. n. from Andalusia is described (*6-pustulatus*, p. 192); *E. collaris*, Küst., ? = *auritus*, Scriba, ♂, and a Pyrenean var. ? is named *pyreneus* (p. 194). *E. pubescens*, Küst., is not a *Platynaspis* (p. 422).

Ceratomegilla, g. n., Crotch, l. c. p. 365. Shape and form of *Hippodamia*; claws dentate at base, coxal lines obsolete, thorax sinuate and margined at base; antennæ with 3rd joint longer than 2nd, broadly dilated at apex, with inner apical angle ciliate. *C. ulkii*, sp. n., *id. ibid.*, Hudson's Bay.

Hyperaspidius, g. n., *id. l. c.* p. 382. Differs from *Hyperaspis* in having the elytral epipleuræ not foveolate for reception of the femora. *H. vittiger* (= *3-maculatus*, L.), *arcuatus*, and *militaris*, Lec.

Cephaloscymnus, g. n., Crotch, *ibid.* No differential characters given. *C. zimmermanni*, sp. n. *id. ibid.*, no locality given.

Hippodamia oregonensis, p. 367, Oregon, *falcigera*, Hudson's Bay, *americana*, Kansas, p. 368, *id. l. c.* spp. nn.

Coccinella difficilis, p. 370, Utah, *annectens*, p. 371, Colorado, *id. l. c.* spp. nn.

Mysia horni, sp. n., *id. l. c.* p. 375, Oregon.

Brachyacantha indubitabilis, Illinois, *bolli*, Texas, spp. nn., *id. l. c.* p. 379.

Hyperaspis dissoluta, p. 379, California, Lake Superior, *lewisi*, p. 380, United States, *horni*, p. 381, California, *id. l. c.* spp. nn.

Exochomus minutus, sp. n., Kraatz, *l. c.* p. 195, Thuringia.

HYMENOPTERA.

BY

E. C. RYE, F.Z.S.

THE GENERAL SUBJECT.

CRESSON, E. T. Hymenoptera Texana. Tr. Am. Ent. Soc. iv. pp. 153-292.

A list of over 600 species (nearly 300 of which are treated as new) of all families (except the *Chrysididæ*, *Formicidæ*, and smaller *Chalcididæ*) known to occur in Texas.

GRIBODO, GIOVANNI. Contribuzioni alla Fauna imenotterologica Italiana. Bull. Ent. Ital. v. pp. 73-87.

Observations on *Apidæ* and *Sphegides*: 4 new species are described.

KRÄPELIN, C. Untersuchungen über den Bau, Mechanismus, und Entwicklungsgeschichte des Stachels der bienenartigen Thiere. Z. wiss. Zool. xxiii. pp. 289-330, pls. xv. & xvi.

An elaborate discussion on the structure, mechanical action, and morphology of the sting, ovipositor, saws, and other abdominal appendages of the *Aculeata*, *Entomophaga*, and *Phytophaga*, and especially of *Apis mellifica*. Figures (magnified) are given of these organs in *Apis*, *Vespa*, *Anmophila*, *Pompilus*, *Mutilla*, *Myrmica*, *Formica*, *Cynips*, *Tenthredo*, *Cimbec. Sirex*, *Banchus*, *Cryptus*, and *Pimpla*, with much detail.

LOWNE, B. T. On the characteristics of certain of the Hymenoptera. *J. Quek. Club*, iii. pp. 187-191.

A recapitulation of Ganin's paper on embryonic development of *Platygaster*, &c. [*Zool. Rec.* vi. p. 174].

MARSHALL, T. A. A Catalogue of British Hymenoptera; *Oxyura*. London: 1873. 8vo, pp. viii. & 27.

The 4th part of the proposed Catalogue of British Insects referred to in *Zool. Rec.* ix. p. 314. Of the *Proctotrypidæ*, 3 genera and 17 species are enumerated; *Ceraphronidæ*, 6 genera, 39 species; *Bethylidæ*, 5 genera, 6 species; *Dryinidæ*, 6 genera, 27 species; *Embolimidæ*, 2 genera, 2 species; *Heloridæ*, 1 genus, 3 species; *Belytidæ*, 10 genera, 26 species; *Diapriidæ*, 13 genera, 52 species; *Scelionidæ*, 10 genera, 61 species; *Platygastriidæ*, 15 genera, 111 species; *Mymaridæ*, 12 genera, 36 species: in all, 83 genera, 373 species. Complete synonymical and bibliographical references are given. Eight of the species are new to Britain [*cf.* *Ent. Ann.* 1874, pp. 131 & 146].

For review by J. W. Dunning of part 2 of this Catalogue, see *Ent. M. M.* ix. pp. 221-224.

RADOSZKOWSKY, O. DE BOURMEISTER. Supplément indispensable à l'article publié par M. Gerstæcker en 1869, sur quelques genres d'Hyménoptères. *Bull. Mosc.* xlvii. pp. 133-151, pl. i.

Observations on various genera of *Apides*, especially drawing attention to the structure of the maxillary palpi [*cf.* *Zool. Rec.* ix. p. 317]. The author severely criticizes various changes proposed by Gerstæcker.

SAUNDERS, [SIR] SYDNEY SMITH. On the habits and economy of certain Hymenopterous Insects which nidificate in briars; and their parasites. *Tr. E. Soc.* 1873, pp. 407-414, woodcuts.

Describes the habits of certain *Eumenides*, a new genus of *Crabronidæ*, and 2 new species of *Chrysididæ* and *Chalcididæ*, all from the Albanian district.

SICHEL, J. Considérations zoologiques sur la détermination de l'espèce et sur la fixation des limites entre elle et la variété, tirées principalement de l'étude de l'ordre des Insectes hyménoptères. *Mém. Liège* (2) iii. pp. 1-19.

A posthumous work. The author's propositions are:—1 & 2, that the characters of a species should be established on great numbers of individuals; 3, habits may serve as auxiliary specific diagnostics; 4, the study of the larva is expedient; 5, parasites, varying in different species, also assist the determination; 6, geological formation has more influence than vegetation upon the degree of rarity of species and genera; 7, climatic influences are the most powerful in the development of varieties; and 8, a species is permanent, but subject to indefinite modification as regards varieties.

SMITH, FREDERICK. Descriptions of Aculeate Hymenoptera of Japan, collected by Mr. George Lewis at Nagasaki and Hiogo. Tr. E. Soc. 1873, pp. 181-206.

Refers only to the *Aculeata*, out of 80 species of which, 52 were undescribed, the rest being known from N. China, India, Borneo, and islands in the Indian and Australian regions of the Archipelago: 3 were identical with European and 2 with N. American species.

VOLLENHOVEN, S. C. SNELLEN VAN. Nieuwe Naamlijst van Nederlandsche vliesvleugelige Insecten (Hymenoptera). Tweede Stuk. Tijdschr. Ent. (2) viii. pp. 147-203.

Continues the work mentioned in Zool. Rec. vi. p. 305, by enumerating the "*Ichneumonidea*," "*Braconidea*," and "*Chalcididea*;" the total number (including the 1st part) being 1072. Some new species are described at the end.

WALSH, B. D. Descriptions of North American Hymenoptera. Tr. Ac. St. Louis, iii. pp. 65-166.

Observations on *Tenthredinide*, and new genera and species of *Ichneumonida*, with valuable comparative and other remarks. These are reproduced from the deceased author's MS., and notes are added by E. T. Cresson, who has examined the types. No specific localities are mentioned; but, from a remark in Rec. Am. Ent. for 1873, p. 67, it seems that the species probably come for the most part from Northern Illinois.

In "Jottings during the Cruise of H. M. S. Curaçoa among the South Sea Islands in 1865" (Julius L. Brenchley. London: 1873, 8vo, pls. xliii.-l.), are descriptions by F. Smith of 7 new species of Aculeate Hymenoptera, with notices and figures of a few other known species.

Captures at Velzen, by Everts; Tijdschr. Ent. (2) viii. Versl. p. xxx.

APIDÆ.

H. MÜLLER'S 'Anwendung der Darwin'schen Lehre auf Bienen' (Lippstadt: 1873, 8vo, 96 pp. 2 pls.), has not been seen by the Recorder. It is exhaustively reviewed by A. Hensel in B. E. Z. xvii. pp. 153-158.

Dours, R. Z. (3)i. pp. 274-325, pl. xiv., continues his "Hyménoptères du Bassin Méditerranéen," describing new genera and species (many by Sichel & Dufour, not before published), and figuring the abdominal segments of some of them.

Andrenides.

Halictus subopacus, Sm., from Japan, = *H. opacus*, from N. China; F. Smith, Tr. E. Soc. 1873, p. 200.

Andrena and *Halictus*: diagnostic observations and suggestions as to synonymy of various allied species. Schenck, B. E. Z. xvii. pp. 254-259.

Andrena doursana, Duf.: ♀ from Algiers described; Dours, R. Z. (3) i.

p. 281; abdomen figured (as *doursella*) pl. xiv. figs. 9 & 10. *A. hemipyrrha* and *circiliata*: abdomens figured, *id. ibid.*, figs. 3, 4, & 5.

Nomia amœnula, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. xiii. fig. 11.

Stenotritus smaragdinus, Sm., Champion Bay, ♀ figured by Smith, Cruise of Curaçoa, pl. xlv. fig. 6.

Steganomus, g. n., C. Ritsema, Tijdschr. Ent. (2) viii. p. 224. Apical joint of antennæ compresso-dilatate, tegulæ large. Allied to *Nomia*, but with only 2 cubital cells. *S. javanus*, sp. n., *id. l. c.* p. 226, pl. x. fig. 4, Soerabaija.

Campylogaster, subg. n. of *Andrena*, Dours, *l. c.* p. 286. Unites *Systropha* and *Andrena*: abdomen very convex, recurved inwardly, set with stiff hairs at the sides. *C. fulvicrustatus*, *ibid.*, pl. xiv. figs. 12 & 13, *subglobosa*, p. 287, fig. 11, *abbreviata*, p. 288, spp. nn., *id. l. c.*, Grecian Archipelago.

Biareolina, g. n., *id. l. c.* p. 288. Facies of *Halictus*, "differt præcipue 5° segmento rimâ denudato." *B. neglecta*, p. 289, Algeria, France, Spain, *perezella*, p. 290, Bordeaux, *id. l. c.* spp. nn.

Colletes texana, sp. n., Cresson, Tr. Am. Ent. Soc. iv. p. 249, Texas.

Prosopis floralis, *perforata*, spp. nn., F. Smith, Tr. E. Soc. 1873, p. 199, Japan.

Sphecodes simillima, Smith, *l. c.* p. 199, Hiogo; *S. texana*, p. 249, *mandibularis*, p. 250, Cresson, *l. c.* Texas: spp. nn.

Halictus costulatus, p. 59, Tyrol, Rosenheim, Munich, *morbillosus*, p. 61, Bozen, Turin, Padua, *gribodi*, p. 62, Turin, Kriechbaumer, *l. c.*; *H. occidentens*, *scitulus*, p. 200, *tarsatus*, *ararius*, p. 201, Japan, F. Smith, Tr. E. Soc. 1873; *H. occidentalis*, *armaticeps*, p. 250, *texanus*, *bardus*, p. 251, *ornatipes*, *impurus*, *lusorius*, p. 252, *connexus*, *disparilis*, p. 253, *coactus*, *stultus*, *albitalarsis*, p. 254, Texas, Cresson, *l. c.*; *H. griseascens*, Schenck, B. E. Z. xviii. p. 259, Löwenzahn: spp. nn.

Agapostemon texanus, sp. n., Cresson, *l. c.* p. 255, Texas.

Nomia japonica, sp. n., F. Smith, *l. c.* p. 201, Japan.

Dufourea putoniana, sp. n., Dours, *l. c.* p. 291, Hospenthal, Lantaret.

Ancyla brevis, sp. n., *id. l. c.* p. 292, Algeria.

Andrena reflexa, *belfragii*, p. 256, *permitis*, *melliventris*, *verecunda*, p. 257, *imitatrix*, *brunneiventris*, *texana*, p. 258, *miserabilis*, *bipunctata*, p. 259, Texas, Cresson, *l. c.*; *A. vulcana*, p. 274, *circinata*, p. 275 (also in S. France), pl. xiv. fig. 5, ♂, *rubiginosa*, p. 276, figs. 7 & 8, *giraudi*, p. 280, figs. 1 & 2, *albivirescens*, p. 282, *ariniifrons* [*ari-*], p. 283, *nigriviridula* and *flavipicta* (also at Montpellier), p. 284, Algeria, *miegiella*, p. 276, Spain, *ventricosa*, Grecian Archipelago, *nigriolivacea*, Bordeaux, p. 278, Dours, *l. c.*; *A. pyropygia*, Jerusalem, *macularis*, Lesina, Sicily, p. 52, *rhodia*, Rhodes, *apiformis*, p. 54, *punctatissima*, p. 59, Lesina, *parviceps*, p. 55, Chur, and var. *basalis*, p. 56, Trieste, *mucida*, p. 56, *basilinea*, p. 57, Turin, *vulpecula*, p. 58, Veglia, Kriechbaumer, Verh. z.-b. Wien, xxiii.: spp. nn.

Apides.

Megachile, *Chalicodoma*, *Osmia*, *Diphysis*, *Anthocopa*, *Lithurgus*, *Chelostoma*, *Heriades*, *Anthidium*. Discrepancies in the number of joints of the

maxillary palpi attributed to these genera by various authors are pointed out by Radoszkowsky, Bull. Mosc. xlvii. p. 137, who lays great stress upon the structure of these and other minute organs. He objects to Gerstäcker's definition of *Chalcicodoma*, for which he proposes fresh characters (p. 142), figuring the maxillary palpi of *C. murarium* and *siculum*, pl. i. figs. 1 & 2, the only species contained in it as restricted by him. *Megachile* is re-characterized in like manner (p. 148), the mandibles, tarsal hooks, and ♂ abdominal peculiarities being figured, pl. i. figs. 3-7. A table of the species, following both ♂ & ♀ characters, is given. The author criticises Gerstäcker severely upon various points.

Anthophora canescens, Brullé, = *nigricincta*, Lep., ♀, *certe*, of which the prior *Megilla subterranea*, Germ., is the ♂. *Anthophora*, grounded only on *Anthocopa papaveris*, is proposed to be adopted for *Megilla*, or to be dropped entirely. *Apis papaveris*, F., was apparently mixed with *Megachile argentata* by Fabricius. *Apis grisea*, Chr., is a ♂ *Bombus* or *Psithyrus*. *Osmia platycera*, Gerst., = *villosa*, Schenck, *ex. typ.*; *O. montivaga*, Mor., is a good species, and occurs at Chur and Turin. Morawitz is wrong in referring the ♂ of *O. cylindrica*, Ger., to *leucomelena* instead of *tuberculata*, Nyl.; but right in considering *O. quadricornis*, Kriechb., to be *latreillii*, Spin. Kriechbaumer, *l. c.* pp. 67 & 68.

Osmia leucomelena, Smith, *nec* K., = *interrupta*, Schenck, *nec* Latr., and the latter species is re-named *foveolata* [already re-named *claviventris*, by Thomson : Zool. Rec. ix. p. 317]; *O. platycera*, Gerst., = *villosa*, Sch.; Schenck, B. E. Z. xvii. p. 249.

Nests of two species of *Osmia*, separated by a nest of *Anthidium*, found in one reed-stem : J. Lichtenstein, Bull. Soc. Ent. Fr. (5) iii. p. xvi.

Megachile monstrosa, Sm., Champion Bay, W. Australia, ♀, figured by Smith, Cruise of Curaçoa, pl. xlv. fig. 5.

Anthidium curvipes, Imhoff, occurs from Andermatt to the Oberalpsee : A. Müller, S. E. Z. xxxiv. pp. 154-156 (with critical remarks upon W. Schmid's paper on the genus in MT. schw. ent. Ges. iii.).

Anthidium strigatum, Pz., and *contractum*, Latr.; Kriechbaumer, MT. schw. ent. Ges. iv. p. 199, suggests the specific distinctness of these insects, and remarks on Swiss examples.

Heriades truncorum. Note on its nidification and parasite (*Anthrax ethiops*, F., *Diptera*) : A. Laboulbène, Ann. Soc. Ent. Fr. (5) iii. pp. 57-60.

Nomada lateralis, Pz., = *ochrostoma*, K.; *N. borealis*, Zett., *flava*, F., *signata*, Jur., = *ruficornis*, L., varr., of which *hillana*, K., with varr. *leucophthalma*, K., ? *conjungens*, H. S., and *affinis*, H. S. (pt.), is the male. *N. germanica*, Pz., and *nigrita*, Sch., = *fabriciana*, L., varr. *N. xanthostica*, K., = *flaviguttata*, K., ♀. Schenck, *l. c.* pp. 252 & 253.

Epeoloides, *Tiphia*, *Pasites*, *Phileremus*, *Ammobatoides*. Schenck, S. E. Z. xxxiv. pp. 141-152, defends himself against Gerstäcker's attacks with respect to various species of these genera.

Pasites punctata, Schck., and *Phileremus punctatus*, F. : Schenck, B. E. Z. xvii. pp. 250-252, again discusses the question as to these much vexed species, endorsing Radoszkowsky's opinions. *Ph. punctatus*, Gerst., = *Nomada truncata*, Nyl.; *P. punctata*, Sch., must remain in *Pasites*, or be placed in a new genus, for which the name *Biustoides* is suggested.

Phileremus, Gerst., is re-characterized as a new genus, under the name *Melittoxena*, for the reception of *Nomada truncata*, Nyl. (*P. punctatus*, Gerst.). The maxillary palpi are 4-jointed, not 2-jointed, as Gerstacker states, and differences are pointed out between *N. truncata*, Nyl., and *Epeolus punctatus*, F. *Ammobates*, Latr., has 6-jointed maxillary palpi, and comprises *muticus*, Spin. (= *rufiventris*, Latr.), *vinctus*, Gerst., and *setosus*, Mor. *Phileremus*, Latr. (*Ammobatoides*, Schenck), has 3-jointed max. palpi, and contains one species, *bicolor*, Lep., = *kirbianus*, Latr., = *punctatus*, F.; [? gen.] *carinatus*, Mor., has 2-jointed max. palpi. Morawitz, Hor. Ent. Ross. ix. pp. 154-159.

Crocisa histrio, F., and *Anthophora nidulans*, F., are recorded from Japan, and the queen of *Apis nigricincta*, Sm., is described: F. Smith, Tr. E. Soc. 1873; p. 204 *et seq.*

Megilla caligata, Gerst., from Mombas, figured in V. d. Decken's *Reisen*, iii. pt. 2, pl. xiii. fig. 10.

Anthophora retusa, L. & Kirby, and *A. estivalis*, Pz.: Schenck, *l. c.* p. 248, discusses the confusion of nomenclature attending these species, and gives various sexual diagnostic characters.

Anthophora borealis, Mor., occurs in N. Germany, and is distinct from *A. 4-maculata*, F.; errors in Dours's monograph of the genus are pointed out. F. Morawitz, Hor. Ent. Ross. ix. pp. 152 & 153.

Xylocopa mesoxantha, Lep., ? = *perversa*, Wied. (from Java), the ♂ of the latter and ♀ of the former being figured. C. Ritsema, *Tijdschr. Ent.* (2) viii. pp. 221-223, pl. x. figs. 1-3.

Baltimore orioles decapitate carpenter-bees, and take the honey from their abdomens; Campbell (from "American Artizan"), *Nature*, viii. p. 253.

Psithyrus lugubris, Kriechb. The author describes a ♂ from South Tyrol, dubiously referred by him to this species. *Verh. z.-b. Wien.* xxiii. pp. 65 & 66.

Bombi in the Swiss Alps: MT. schw. ent. Ges. iv. pp. 151 & 152.

Bombus fragrans, *distinguendus*, *mesomelas*, and *equestris*: observations on their affinities by Kriechbaumer, S. E. Z. xxxiv. pp. 335-338. *B. montanus*, Gerst., *nec* Lep., is re-named *alticola*: *id. l. c.* p. 339.

Bombus soroensis, Panz. (? F.), has 3 forms, the 2nd of which is *proteus*, Gerst., the 3rd not named; its confused synonymy is discussed, and diagnostic characters given: Schenck, B. E. Z. xvii. pp. 243-246. Variations in colour, &c., in other species are noticed; *B. lucorum* and *terrestris* are not specifically separable; *B. tristis* and *feberanus*, Seidl., = *muscorum*, F., varr.; *B. mniorum*, Schi., = *agrorum*, F., var.; *B. equestris*, Schi., *arenicola*, Thoms., = *sylvarum*, var.; *id. l. c.* pp. 246-248.

Trigona. A small species is supposed to suck the secretions of a *Membracis* (? : *Homoptera*) found on *Cassia multijuga* at St. Catharina, Brazil; it has also been seen sucking putrefying pieces of a toad and a hen, and juice flowing from trees. H. Muller, *Nature*, viii. p. 201, figs. 1-3: *cf.* W. E. Hart, *op. cit.* p. 263.

Apis mellifica. Bees in the San Joaquin Valley, California, collect and fill their comb-cells with honey-dew and manna, though these substances are never mixed in the same cell. The 'manna' is supposed not to be an insect secretion. J. Applegarth, P. Cal. Ac. v. p. 42.

'Annals of Bee-culture for 1872'; a Bee-keeper's year-book, Louisville, Kentucky, 1872, 8vo, pp. 64, edited by D. L. Adair, appears to be a new annual of more than usually scientific character, judging from notice in *Am. Nat.* vii. p. 43.

A hive constructed by L. Ridolfi is referred to in *Bull. Ent. Ital.* v. p. 67, as described and figured in the "Effemeridi del Comizio agrario di Firenze," v. p. 93.

M. Girard records Lance's experiments, by which he obtains honey from any particular flowers; *Bull. Soc. Ent. Fr.* (5) iii. p. cxxii. He records circular combs; *l. c.* p. cxxxvii.

Hive-bees 'recognizing individuals': J. Potts, *Ent.* vi. p. 415.

The queen-bee does not and cannot sting; she inserts her sting into one of the spiracles of her adversary: W. A. Munn, *Sci. Goss*, 1873, p. 251. W. Carr, *op. cit.* p. 273, adopts this opinion, and gives personal observation on impregnation of the queen-bee, and on unusual phenomena in swarming.

Elaborate observations upon barren bee-eggs, in connection with the doctrine of parthenogenesis, are made by C. Claus & C. v. Siebold, *Z. wiss. Zool.* xxiii. pp. 198-210, figs. 1 & 2.

C. T. von Siebold's "Mittheilung über die Speichelorgane der Biene" (Nördlingen, 1872) has not been seen by the Recorder: it is translated in *P. E. Soc.* 1873, p. v.

New species :—

Panurgus aethiops, p. 259, *albitarsis*, *ornatipes*, p. 260, *picipes*, p. 261, Texas, Cresson, *Tr. Am. Ent. Soc.* iv.

Osmia tricuspidata, p. 293, *ruficollis*, *microgramma*, p. 297, Grecian Archipelago, *cincta*, p. 295, *cinctella*, p. 296, G. Archipelago and Algeria, *mucida*, p. 293, *pseudaurulenta*, p. 294, Algeria, Dours, *R. Z.* (3) i.; *O. taurus*, F. Smith, *l. c.* p. 201, Hiogo; *O. texana* and *subfasciata*, Cresson, *l. c.* p. 261, Texas.

Lithurgus collaris, F. Smith, *l. c.* p. 202, Hakodadi.

Chalicodoma nobilis [-le], p. 298, S. France, Algeria, *luctuosa* [-sum], p. 299, *leuco-pogonata* [rectius *albibarbatum*], p. 300, Grecian Archipelago, Dours, *l. c.*

Megachile fortis, *comata*, p. 262, *albitarsis*, p. 263, *disparilis*, p. 264, *amica*, *exilis*, p. 265, *facunda*, *frugalis*, p. 266, *gentilis*, *inimica*, *lucrosa*, p. 267, *grandis*, *optiva*, *nupta*, p. 268, *studiosa*, *osmioides*, p. 269, *variolora*, p. 270, Texas, Cresson, *l. c.*; *M. dimidiativentris*, p. 300, Algeria, *montenegrensensis*, p. 301, Grecian Archipelago and Algeria, *clavicrus*, p. 302, Grecian Archipelago, Dours, *l. c.*

Anthidium leviventre, p. 303, Spain, Montpellier, *undulatum*, p. 304, Montpellier, *stigmaticorne*, p. 305, Algeria, Dours, *l. c.*; *A. 4-seriatum*, and var. *circumcinctum*, Kriechbaumer, *Verh. z.-b. Wien*, xxiii. p. 63, Corfu, Syra, Bozen; *A. zebraatum* and *concinnum*, Cresson, *l. c.* p. 270, Texas.

Nomada pyrosoma, p. 308, *tridentirostris*, p. 309, Algiers, Dours, *l. c.*; *N. japonica* and *ferrens*, Smith, *l. c.* p. 203, Hiogo; *N. texana*, Cresson, *l. c.* p. 271, Texas.

- Epeolus aurivestitus*, Dours, *l. c.* p. 306, Algeria.
- Cælixys fenestrata*, Smith, *l. c.* p. 203, Hahodadi, N. China, *C. texana edita*, p. 272, *insita*, *scitula*, p. 273, Cresson, *l. c.* Texas.
- Stelis costalis*, Cresson, *l. c.* p. 274, Texas.
- Melecta interrupta*, id. *l. c.* p. 275, Texas; *M. rugosa*, Dours, *l. c.* p. 307, Grecian Archipelago, Algeria.
- Eucera canescens*, *tomentosa*, p. 311, *nigrithoracica*, p. 313, *trizona* (? = *bicincta*, Lep.), *dizona*, p. 316, *tenuimarginata*, *collaris*, p. 319, *obesa*, p. 320, *brevicornis*, p. 322, Algeria, *consimilis*, p. 311, Algeria, Spain, *pulveracea*, p. 312, Spain, *albipunctulata*, p. 313, Constantinople, *bibalteata*, p. 314, *pedata*, p. 315, *semistrigosa*, p. 318, Algeria, Grecian Archipelago, *ephippia* [ta], p. 317, Grecian Archipelago, *eucnemidea*, p. 321; Algeria; S. France, Dours, *l. c.*; *E. concinna*, Gribodo, *l. c.* p. 82, Susa; *E. sociabilis*, F. Smith, *l. c.* p. 204, Hiogo, N. China, Siberia.
- Tetralonia* (*Macrocera*) *nigrifacies*, p. 323, Algeria, S. France, *cælebs*, Algeria, *subaurata*, Spain, S. France, *inequidistans*, Spain, Algeria, S. France, p. 324, *coangustata*, Algeria, Spain, *canescens*, Algeria, Spain, S. France, p. 325, Dours, *l. c.*
- Melissodes atripes*, p. 275, *comanche*, *texana*, p. 276, *rivalis*, p. 277, *intorta*, *belfragii*, *intermedia*, p. 278, *honesta* (? = *intermedia*, ♂), *pyymæa*, p. 279, *enavata*, *spissa*, p. 280, *brevicornis*, *albata*, and *M.* (?) *ursina*, p. 281, *M.* (?) *densa* and *marginella*, p. 282, Texas, Cresson, *l. c.*
- Anthophora segusina*, p. 79, *mucida*, p. 80, Susa, Gribodo, Bull. Ent. Ital. v.; *A. texana*, Cresson, *l. c.* p. 282, Texas.
- Xylocopa circumvolans*, Smith, *l. c.* p. 205, Hiogo; *X. texana*, p. 283, *purpurea*, p. 284, Cresson, *l. c.* Texas.
- Centris lanosa*, Cresson, *l. c.* p. 284, Texas.
- Apathus variabilis*, id. *ibid.*, Texas.
- Bombus speciosus*, p. 205, *terminalis*, *ignitus*, p. 206, Smith, *l. c.* Japan; *B. senex*, Vollenhoven, Tijdschr. Ent. (2) viii. p. 229, pl. x. figs. A & B, Sumatra.

VESPIDÆ.

- Paragia vespiformis*, Sm., Champion Bay, figured by Smith, Cruise of Curaçoa, pl. xlv. fig. 2.
- Masaris occidentalis*, Cresson, ♀, from Texas, described by Cresson, Tr. Am. Ent. Soc. iv. p. 231.
- R[h]aphi[do]glossa eumenoides*, Saund., and *Psiliglossa* [*Psilo-*] *odyneroides*, Saund.: adult larvæ figured (p. 408), and the segmental analogies discussed, with habits of the imago: Sir S. S. Saunders, Tr. E. Soc. 1873, pp. 407-410.
- Eumenes coarctatus*, L., var. ♀, and *E. dimidiatus*, Brullé, var. *baeri*, Rad., from Krasnowodsk: F. Morawitz, Hor. Ent. Ross. ix. pp. 294 & 295.
- Discalius insignis*, Sauss., New Holland, fig. 1, and *Rhynchium magnificentum*, Sm., Nicol Bay, fig. 4, figured by Smith, *l. c.*
- Puton, Pet. Nouv. p. 344, gives an analytical table of the social wasps found in France.

On the preservation and examination of wasps' nests: A. Rouget, *Pet. Nouv.* p. 348.

Habits of wasps: J. Anderson & J. Hardy, *P. Berw. Club*, vii. p. 127.

Polistes gallicus and *diadema* nest in old domestic utensils on rubbish heaps at Dijon: Rouget, *Pet. Nouv.* p. 269.

Polistes. Aggregation of clay nests in Maryland: P. R. Uhler, *Am. Nat.* vii. p. 678.

Polistes canadensis, L.: nidification, H. Lucas, *Ann. Soc. Ent. Fr.* (5) iii. pp. 106-108, pl. iii. figs. 10, *a* & *b*.

Polistes badia, Gerst., figured in V. d. Decken's *Reisen*, iii. pt. 2, pl. xiv. fig. 1.

Vespa japonica, Radosz., *nec* Sm., = *mandarinia*, Smith; *V. similima*, Sm., = *auraria*, Sm., worker; *Polistes chinensis*, F., = *biglumis* (*diadema*); vars. of *P. hebreus*, F., and *novaræ*, Sauss., are described: F. Smith, *Tr. E. Soc.* 1873, pp. 197 & 198.

Vespa crabo, *media*, *sylvestris*, *rufa*, *germanica*, and *vulgaris*, *Polistes gallicus* and *diadema*: economy fully discussed, and the specific distinctness of the two latter affirmed in opposition to Sichel, by A. Rouget, *Mém. Ac. Dijon* (3) i. pp. 164-200. *V. germanica* occurs in Texas: E. T. Cresson, *Tr. Am. Ent. Soc.* iv. p. 248.

Vespa sylvestris nests in the ground at Dijon: Rouget, *Pet. Nouv.* p. 268. On *V. germanica* and *vulgaris* and parasites, *id. l. c.* p. 335.

Masaris edwardsi, sp. n., Cresson, *l. c.* p. 87, California.

Eumenes sinensis, Smith, *Cruise of Curaçoa*, p. 462, pl. xlv. fig. 3, ♀, N. China; *E. fraternæ*, *id. Tr. E. Soc.* 1873, p. 195, Hiogo; *E. belfragii* and *bolli*, Cresson, *Tr. Am. Ent. Soc.* iv. p. 232, Texas: spp. nn.

Rhynchium ardens, sp. n., F. Smith, *Tr. E. Soc.* 1873, p. 196, Nagasaki.

Odynerus texanus, *clusinus*, p. 234, *evectus*, *designatus*, p. 235, *delicatus*, *cultus*, p. 236, *verus*, p. 237, *ductus*, *fuscus*, p. 238, *firmus*, p. 239, *geminus*, p. 240 (? = *firmus*, var.), *manifestus*, *colon*, p. 241, *fundatus*, p. 242, *austrianus*, *bellulus*, *electus*, p. 243, Cresson, *l. c.* Texas; *O. (Symmorphus) captivus*, F. Smith, *Tr. E. Soc.* 1873, p. 197, Hiogo: spp. nn.

Lionotus caspicus, sp. n., Morawitz, *l. c.* p. 295, Krasnowodsk.

Pterochilus fausti, *id. l. c.* p. 296, Krasnowodsk; *P. texanus* and *laticeps*, Cresson, *l. c.* p. 244, Texas: spp. nn.

Polistes perplexus (? = *rubiginosus*, St. F., var.), p. 245, *generosus* (? = *perplexus*, var. [!]), *texanus*, p. 246, *bellicosus*, *variatus*, p. 247, spp. nn. *id. l. c.* Texas.

CRABRONIDÆ.

Scolides.

Myzine and *Plesia*: general observations by Gerstæcker, in V. d. Decken's *Reisen*, iii. pt. 2, pp. 336 & 339. *Elis (Dielis) soleata*, Gerst., fig. 4, *Myzine xanthocera*, G., fig. 5, figured, *tom. cit.* pl. xiv. *M. hamata*, Say, = *costata*, Say, ♀; Cresson, *Tr. Am. Ent. Soc.* iv. p. 200.

Elis regina, Cress., = *xantiana*, Sauss.; *id. l. c.* p. 202.

Typhia fuscipennis, *punctata*, p. 183, *rufimandibulata*, *ordinaria*, *agilis*, p. 184, spp. nn., F. Smith, *Tr. E. Soc.* 1873, Japan.

Myzine dubiosa and *texana*, p. 200, *rufiventris*, p. 201, Cresson, *l. c.* Texas, spp. nn.

Scolia fascinata, *japonica*, p. 185, *ventralis*, p. 186, spp. nn., Smith, *l. c.* Japan.

Elis lupina, sp. n. Cresson, *l. c.* p. 202, Texas.

Pompilides.

Pompilus atrox, Dahlb.; this N. American species occurs also in Japan. Smith, *l. c.* p. 188.

Pompilus philadelphicus, St. F.; var. n. *sericatus* from Texas; Cresson, *l. c.* p. 202.

Pompilus pictipennis, Sm., Moreton Bay, figured by Smith, Cruise of Curaçoa, pl. xliii. fig. 5.

Priocnemis polydorus, Sm., Moreton Bay, pl. xliii. fig. 6, *affectatus*, Sm., pl. xliv. fig. 1, *ephippiatus*, Sm., *ibid.* fig. 2: *id. l. c.*

Hemipepsis, Dahlb. (1845), = *Mygnumia*, Shuckard (Hist. and Nat. Arrangement of Insects in Lardner's Cabinet Cyclopaedia, 1840, p. 179), Smith (1855): F. Smith, Ann. N. H. (4) xii. p. 256.

Hemipepsis prodigiosa, Gerst., pl. xiii. fig. 12, *H. contumax*, G., pl. xiv. fig. 2; V. d. Decken's Reisen, iii. pt. 2.

Pepsis formosa, Say, ? = *cærulea*, L.; a var. of *P. marginata*, Beauv., is described from Texas as *P. sericata*; Cresson, *l. c.* p. 209.

Pompilus fragilis, *maculifrons*, p. 186, *arrogans*, *consanguineus*, p. 187, *bilunatus*, *exortivus* (also India and N. China), *erebus*, p. 188, *reflexus*, p. 189, F. Smith, Tr. E. Soc. 1873, Japan; *P. fervidus*, p. 441, *decedens*, *diversa*, p. 442, *varietatis*, p. 443, *vitabilis*, *exclusus*, *iratus*, p. 444, *conterminus*, p. 445, Pará, *vividus*, p. 443, *detectus*, p. 444, Santarem, *id.* Ann. N. H. (4) xi.: spp. nn.

Priocnemis heiligbrodti and *texanus*, p. 204, *facetus*, p. 205, Cresson, *l. c.* Texas; *P. irritabilis*, *atropos*, F. Smith, Tr. E. Soc. 1873, p. 189, Japan: spp. nn.

Agenia constructor, F. Smith, *l. c.* p. 190, Japan; *A. agitata*, p. 445, *multipicta*, *gloriosa*, *comparata*, p. 446, *cæruleocephala*, *deceptor* [-*trix*], *timida*, p. 447, *reversa*, *gracilentata*, *modesta*, p. 448, *ordinaria*, *aureicornis*, *gratiosa*, p. 449, *tarsata*, *lætabilis*, *fortipes*, *conspicua*, p. 450, *cursor*, p. 451, Amazons, *id.* Ann. N. H. (4) xi.; *A. belfragii* and *longa*, Cresson, *l. c.* p. 205, Texas: spp. nn.

Parapompilus vicinus, *texanus*, *contiguus*, spp. nn., Cresson, *l. c.* p. 206, Texas.

Notocyphus dorsalis and *texanus*, *id. l. c.* p. 207, Texas; *N. maculifrons*, Smith, Ann. N. H. (4) xii. p. 49, Pará: spp. nn.

Pepsis eximius, p. 49, Santarem, *tinctipennis*, *fuscipennis*, *optimatis*, p. 50, *purpureus*, p. 51, Pará, Smith, *l. c.* spp. nn.

Ceropales crassicornis, p. 51, *pedestris*, *irregularis*, p. 52, Pará, *lugubris*, p. 52, Santarem, *id. l. c.*; *C. texana*, *elegans*, *fulvipes*, Cresson, *l. c.* p. 208, Texas: spp. nn.

Planiceps feralis, sp. n., Cresson, *l. c.* p. 207, Texas.

Aporus minimus and *rufiventris*, *id. l. c.* p. 207, Texas; *A. quadrimaculatus*, *canescens*, *minutus*, Smith, Ann. N. H. (4) xii. p. 53, Pará: spp. nn.

Salix bipunctatus, p. 254, Tuscany, *dorsalis*, p. 255, Angara, Siberia, spp. nn. Smith, *l. c.*

Chirodamus distinctus, sp. n., *id. l. c.* p. 255, Coquimbo.

Mygymia bellicosa, Bengal, *savissima*, Bombay Presidency, p. 256, *lata*, Birmah, *intermedia*, N. India, Ceylon, *vitripennis*, Sumatra, p. 257, *purpureipennis*, Java, *momentosa*, Borneo, *pulchripennis*, Philippine Islands, p. 258, *australasiæ*, N. W. Australia, *id. l. c.* spp. nn.

Sphegides.

Ammophila ponderosa, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. xiv. fig. 3. *Parapsammophila miles*, Taschen, = *A. cyanipennis*, Lep.; Gerstäcker, *ibid.* p. 332, note.

? *Pelopæus*. Observations on a nest made of very friable earth, from Melbourne; H. Lucas, Bull. Ent. Soc. Fr. (5) iii. p. cxxviii.

Sphex argentata, Dahlb., known in Africa, India, and N. America, occurs also in Japan; F. Smith, Tr. E. Soc. 1873, p. 191.

Ampulex novaræ, Sauss., ♀ described, from Japan; F. Smith, *l. c.* p. 191; *A. europæa*, Gir., recorded from Italy: Gribodo, Bull. Ent. Ital. v. p. 85.

Ammophila infesta, Smith, *l. c.* p. 190, Hiogo; *A. spinosa*, Hong Kong, *laviceps*, Santiago, p. 259, *barbata*, p. 260, Mexico, *id.* Ann. N. H. (4) xii.; *A. grossa* and *inepta*, Cresson, Tr. Am. Ent. Soc. iv. p. 209, Texas: spp. nn.

Trigonopsis cyclocephalus and *plesiosaurus*, spp. nn., Smith, Ann. N. H. (4) xii. p. 53, Ega.

Pelopæus texanus, sp. n., Cresson, *l. c.* 210, Texas.

Chlorion regalis, sp. n., Smith, Ann. N. H. (4) xii. p. 291, Beluchistan, Afghanistan, Scinde.

Sphex torrida, Madagascar, *tuberculata*, Sierra Leone, *id. ibid.*; *S. aurifex*, p. 460, fig. 3, and *decorata*, p. 461, fig. 4, N. W. Coast of Australia, *prætexta*, p. 461, fig. 5, Moreton Bay, *id.* Cruise of Curaçoa, pl. xlv.; *S. sellæ*, Gribodo, *l. c.* p. 86, Sicily; *S. abdominalis* and *rufiventris*, p. 211, *texana*, *belfragii*, *lauta*, p. 212, *dubitata*, p. 213, Cresson, *l. c.* Texas: spp. nn.

Priononyx brunnipes, sp. n., Cresson, *l. c.* p. 213, Texas.

Ampulex trigonopsis, p. 53, Ega, *apicalis*, p. 292, S. Africa, Smith, Ann. N. H. (4) xii., spp. nn.

Dolichurus levis, sp. n., *id. l. c.* p. 292, Brazil.

Larrides.

Tachytes pompiliformis, Pz., stores its galleries with grasshoppers (*Chortipus*). J. Lichtenstein, Bull. Soc. Ent. Fr. (5) iii. p. cxxii.

Pison jurinii, Spin.: pseudo-pupa from briar-stems, shores of the Ambracian Gulf, described. Sir S. S. Saunders, Tr. S. Soc. 1873, p. 413.

Larrada docilis, *nigricans*, *tisiphone*, p. 192, *amplipennis*, *erebus*, p. 193, F. Smith, Tr. E. Soc. 1873, Japan; *L. fasciata*, p. 55, *facilis*, *tenebrosa*, *pruinosa*, *æthiops*, p. 56, *limpidipennis*, p. 57, Amazons, *vestita*, N. India, *calestina*, Hong Kong, p. 293, *ferox*, Africa, *diabolica*, Sierra Leone, Natal, *clypeata*, New Caledonia, *crassipes*, S. Australia, p. 294, *id.* Ann.

N. H. (4) xii.; *L. americana, texana*, p. 214, *belfragii*, p. 215, Texas, Cresson, Tr. Am. Ent. Soc. iv.; spp. nn.

Tachytes elongatus, p. 215, *validus* (and var. *breviventris*), *sericatus*, p. 216, *obscurus, texanus, rufifasciatus* (? = *abdominalis*, Say, ♂), p. 217, Cresson, l. c., Texas; *T. iridipennis, fervens*, p. 57, *simulans, frontalis, aurivestitus*, p. 58, Amazons, Smith, Ann. N. H. (4) xii.: spp. nn.

Astata rufiventris and *terminata*, spp. nn., Cresson, l. c. p. 218, Texas.

Pison maculipennis and *pilosus*, spp. nn., Smith, l. c. p. 295, Ega.

Bembicides.

Bembex albifasciata, Zulu Country, *crabroniformis*, Port Essington, p. 296, *diversipennis*, Angola, *severa*, Australia, p. 297, *palmata*, N. Australia, *tridentifera*, Queensland, p. 298, *flaviventris*, Swan River, *flavilabris*, W. Australia, p. 299, *multipicta, pallidipicta*, Mexico, p. 300, Smith, l. c.; *B. niponica*, id. Tr. E. Soc. 1873, p. 194, Hiogo; *B. nubilipennis*, p. 218, *texana*, p. 219, *belfragii*, p. 220, Cresson, l. c.: spp. nn.

Monedula formosa, p. 221, *neglecta*, p. 222, spp. nn., Cresson, l. c. Texas.

Nyssonides.

Stizus pectoralis, Sm., Australia, figured by Smith, Cruise of Curaçoa pl. xliv. fig. 6.

Megalomma [*Megalommus*, name only, Swainson & Shuckard, Lardner's Cab. Cyclop., Hist and Nat. Arrangement of Ins., 1840, p. 181; *Megalomma*, Westwood, *Coleoptera*, 1841], g. n., Smith, Ann. N. H. (4) xii. p. 405. Section of *Gorytes*, with a petiolated abdomen. *M. politum* and *elegans*, p. 406, *nigriceps*, p. 407, Brazil, id. l. c. spp. nn., and *Gorytes natalensis*, Smith.

Stizus texanus, p. 222, *fervidus*, p. 223, spp. nn., Cresson, l. c. Texas.

Larra agilis, p. 402, Ega, *cornuta*, Bombay Presidency, *magnifica*, Egypt, p. 403, *flavimaculata*, p. 404, S. Africa, Smith, Ann. N. H. (4) xii. spp. nn.

Nysson pilosus, id. l. c. p. 404, Pará; *N. texanus*, p. 223, *N. (?) inermis*, p. 224, Cresson, l. c. Texas: spp. nn.

Sericophorus bicolor, sp. n., Smith, l. c. p. 405, Swan River.

Gorytes specialis, vespoides, p. 407, *triangularis, facilis*, p. 408, Amazons, id. l. c.; *G. belfragii*, p. 224, *costalis, bolli*, p. 225, Cresson, l. c. Texas: spp. nn.

Alyson texanus, sp. n., Cresson, l. c. p. 226, Texas.

Crabronides.

Psen: note on a swarm. J. Weir, P. E. Soc. 1873, p. xxviii.

Niteliopsis [*Nitelopsis*], g. n., S. S. Saunders, Tr. E. Soc. 1873, pp. 410-412. Unites *Pison* and *Nitela*, having the wing-neuration approximating to that of the former, and the antennæ and entire eyes of the latter. Type, *N. pisonoides*, sp. n., id. *ibid.*, figured with detail, p. 411, Ionian Islands.

Trypoxylon obsonator, F. Smith, Tr. E. Soc. 1873, p. 194, Hiogo; *T. vagum*, p. 99, *superbum, rugifrons*, p. 100, *levifrons, fabricator*, p. 101, Amazons, id. Ann. N. H. (4) xii.: spp. nn.

Crabro nasicornis, *pugnans*, *megacephala*, p. 102, *carinatus*, *sculpturatus*, p. 103, *dentalis*, *verticalis*, p. 104, Amazons, *id.* Ann. N. H. (4) xii.; *C. texanus*, Cresson, *l. c.* p. 227, Texas: spp. nn.

Mimesa tibialis, sp. n., Cresson, *ibid.*, Texas.

Philanthides.

Cerceris mimica, p. 228, *gnara*, *firma*, p. 229, *morata*, *fasciola*, p. 230, *jucunda*, p. 231, Cresson, *l. c.* Texas; *C. navitatis*, F. Smith, Tr. E. Soc. 1873, p. 195, Hakodadi; *C. reversus* [-sa], *pullatus* [-ta], p. 105, *modestus* [-ta], *nigriceps*, p. 106, *ruficeps*, p. 107, Amazons, *striata*, Pará, *rostrata*, Mexico, p. 409, *exsecta*, *graphica*, p. 410, Mexico, *multipicta*, Angola, *fervens*, N. India, p. 411, *albipicta*, India, *fluvialis*, Swan River, p. 412, *varipes*, Adelaide, *venusta*, Queensland, *opposita*, Victoria, p. 413, *sæva*, Victoria, *aurantiaca*, S. Australia, p. 414, *id.* Ann. N. H. (4) xii.: spp. nn.

Philanthus niloticus, White Nile, *elegans*, N. India, *id.* Ann. N. H. (4) xii. p. 415, spp. nn.

Trachypus disjunctus, p. 107, *basalis*, p. 108, St. Paulo, *id. l. c.* spp. nn.

THYNNIDÆ.

Thynnus pulchralis, Sm., Adelaide, figured by Smith, Cruise of Curaçoa, pl. xliii. fig. 4, ♂.

Thynnus brenchleyi, p. 456, fig. 2, Champion Bay, *conspicuus*, p. 457, fig. 3, N. W. Coast of Australia, *unifasciatus*, p. 458, fig. 1, Queensland, *id. ibid.* spp. nn.

MUTILLIDÆ.

BLAKE, C. A. Synopsis of North American Mutillidæ, Tr. Am. Ent. Soc. iii. pp. 217-265. [This vol. not having yet come to England, the quotations from it are taken from Rec. Am. Ent. 1872.]

— Additions to the Synopsis of N. Am. Mutillidæ, *op. cit.* iv. pp. 71-76.

Mutilla bilunata, Gerst., *nec* Burm., is re-named *stupidia*; Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2, p. 340, note. *M. straba*, G., fig. 6, *pygidialis*, G., fig. 7, figured, *ibid.* pl. xiv.

Psammotherma ajax. Blake, *l. c.* iii. Florida.

Mutilla briarux, Philadelphia, *grotii*, p. 228, Colorado, *oajaca*, Mexico, *promethea* and *sayi*, p. 229, Texas, *leona*, *cinaloa*, *yucatanica*, Mexico, *copano* and *sæva*, p. 232, *auripilis* and *gorgon*, p. 233, *zelaya* and *comanche*, p. 234, Texas, *coccineihirta*, California, *sumichrasti*, Mexico, *hector*, Kansas, *castor*, p. 237, Texas, *bexar* and *waco*, p. 238, Texas, *apicalata*, Mexico, *canella* and *macilenta*, p. 239, Texas, *obscura*, Massachusetts, *azteca*, Mexico, *melanosoma*, Panama, *3-signata*, Florida, *cressoni*, *nortoni*, *toluca*, *ariadne*, *formosa*, *balopilus*, *altimicæ*, *xalisco*, Mexico, *floridana*, Florida, *tolteca*, Mexico, *cypris*, Guatemala, *mutata* and *sævola*, p. 247, *balteola*, p. 248, Texas, *oceola*, Florida, *sanborni*, Massachusetts, *flavida*, p. 249, Texas, *laticeps*, *xalapa*, *hapoteca*, Mexico, *gila*, p. 250, Texas, *robinsoni*, *lerma*, *bisignata*, *gothica*, *izucar*, *chiapa*, *petricola*, *auripes*, *minutissima*, *psammodroma*, Mexico, *canadensis*, Canada, *brazoria*, p. 255,

Texas, Blake, *l. c.* iii. ; *M. clotho*, *leda*, *chiron*, p. 72, *creon*, p. 73, *admetus* (? = *wacò*, Blake, ♂), *albipilosa*, *grandiceps*, p. 74, *electra*, p. 75, Texas, *id. l. c.* iv. ; *M. pustulata*, *insidiator*, *ardescens*, and *pungens*, F. Smith, Tr. E. Soc. 1873, p. 182, Japan ; *M. suavis*, p. 341, pl. xiv. fig. 8, Mombas and Cape of Good Hope, *porphyrea*, p. 437, See Jipe, Gerstäcker, *l. c.* : spp. nn.

Agama mendica, Nevada, *imperialis* and *nokomis*, p. 260, Texas, *danaus* and *melicausa*, p. 261, *tapajos*, p. 262, Texas, *triangularis*, Nevada, *pal-lida*, *hyalina*, and *belfragii*, p. 263, Texas, *alcanor*, Arizona, Blake, *l. c.* iii. ; *A. aulus*, p. 75, *minuta*, *juxta* [!], *attenuata*, p. 76, Texas, *id. l. c.* iv. spp. nn.

DORYLIDÆ.

Dorylus. Affinities fully discussed by Gerstäcker in V. d. Decken's Reisen, iii. pt. 2, pp. 347-357.

Labidus nigrescens, p. 194, *minor*, p. 195, spp. nn., E. T. Cresson, Tr. Am. Ent. Soc. iv. Texas.

Iswara fasciata, sp. n., F. Smith, Ann. N. H. (4) xii. p. 252, Scind.

FORMICIDÆ.

J. TRAHERNE MOGGRIDGE, in "Harvesting Ants and Trap-door Spiders" (London: 1873, pt. i. ; pp. 1-69, pls. i.-vi.), after recapitulating biblical and classical notices of the habit of storing grain by ants, usually considered by modern authors to be attributed to those insects in error (the grain being thought to be represented by their pupæ), proves from his own observations at Mentone the possession of such a habit by *Atta barbara*, *A. structor*, and *Phidole megacephala*, and mentions other species (stated to be 19 in number, at p. 59, but which, as named, are only 9, viz., the 3 above-named and *Myrmica barbata*, *Ecodoma cephalotes*, *providens*, and *diffusa*, *Atta rufa*, and *Pseudomyrma rufinigra*) in which a similar custom prevails. Other species are elsewhere noted as occasionally carrying seeds. Rejected portions of seeds, &c., are heaped outside the nests (pl. i. A). Granaries are described and figured, with galleries, pls. ii.-vi. D. and woodcuts. Seeds in the granaries do not germinate, though they readily do so when taken out and sown. The ants probably allow seeds to be softened by damp, and the young sprout or radicle is certainly gnawed off (see pl. vi.) Nests are noted as designedly constructed by ants near a cornchandler's shop and close to a bird's-cage. The ants work by night, and combats of long duration occur between rival colonies, originating in attempts to plunder the stores. The probable influence of this storing habit on dissemination of plants is discussed. In an appendix, 16 species of ants observed on the Riviera are briefly described, and instructions as to collecting and studying the *Formicidæ* are given. The observations of Jerdon, Buchanan, White, and Horn (chiefly on East Indian species) are also reproduced. In a posthumous supplement (1874: but continuing the pagination of the original work, and partly issued with it), the author, pp. 157-179, records the fact of *Atta barbara* and *structor* storing grain at Cadenabbia, Lake Como, and Montpellier, and

adds many details from his own observation. The nests are not habitually abandoned every year; and it is reckoned that one pound weight (avoirdupois) of seeds was contained in one nest. Wakefield's original observations on the habit of *Formica nigra* collecting seeds of *Viola odorata* are reproduced from P. L. S. ii.

Ants instinctively realize danger, on seeing for the first time the dead bodies of their fellows, and they seem to dislike the taint of a track drawn by the human hand: C. Darwin (quoting Traherne-Moggridge and J. D. Hague), *Nature*, viii. p. 244. As to the latter point, *cf. l. c.* p. 303.

Thirty species of ants from Calcutta, including some new (not described) named by F. Smith, P. E. Soc. 1873, p. viii. One of these, *Sima rufinigrum*, Jerdon, is simulated by a *Salticus*.

A list of 19 species occurring in Voigtland (Saxony) is given by Köhler, with dates, localities, &c.: SB. Ges. Isis, 1873, pp. 32-34.

Swarming of a brood of winged ants: C. C. Abbott, *Am. Nat.* vii. pp. 369-371.

Formica sanguinea. Observations on the habits of its neuters by T. G. Gentry, P. Ac. Philad, 1873, pp. 298 & 299, who comes to the conclusions—1, that there are 2 sets of neuters, respectively caring for the able and helpless members of the community; 2, that the more vigorous are confined to superficial cavities; and 3, that the young are conveyed to deep seated chambers.

Formica gracilescens, Nyl., = *Prenolepis longicornis*, Latr., and occurs both in the old and new worlds: H. Lucas, *Bull. Soc. Ent. Fr.* (5) iii. p. lxvii.

Camponotus chrysurus, Gerst., fig. 9, *erinaceus*, G., fig. 10, *Phidole talpa*, G., fig. 11; Gerstäcker, in V. d. Decken's *Reisen*, iii. pt. 2, pl. xiv.

Camponotus ligniperdus. J. Labhardt's observations on destruction caused by this insect (*Vierteljahrsschr. Zürich. Naturf. Ges.*) are reproduced in *Das Ausland*, xlv. (1872), p. 600.

Myrmecocystus mexicanus, Westw. Its economy fully noted, and a diagram of the exterior of its nest given, by H. Edwards, P. Cal. Ac. v. pp. 72-75 (also in *Am. Nat.* vii. pp. 722-726). The community consists of 3 distinct kinds of ants, "probably of two separate genera," viz.:—1, yellow workers, nurses and feeders; 2, yellow workers, honey-makers; 3, black workers, guards and purveyors. The honey-makers secrete the food of the entire population: the abdomen in this class is distended to the size of a pea. The honey is used by Mexicans as food, and they ascribe great healing properties to it.

J. Blake, *op. cit.* p. 93, states that the intestine of the honey-maker is not continued beyond the thorax, so that the food-remains can only be expelled by the mouth. The honey-bag is formed by the expansion of the abdominal segments, which is greater on the dorsal than the ventral surface.

Ectatomma (?) *sociale*, spp. nn., W. MacLeay, *Tr. Ent. Soc. N. S. W.* iii. p. 369, Murrumbidgee, Australia.

Phidole scabriuscula, sp. n., Gerstäcker, *l. c.* p. 360, Endara.

CHRYSIDIDÆ.

Stilbum calens is parasitic on *Chalicodoma murarium*, and another (blue) species devours the larva of a *Pelopæus*. *Chrysis cyanea* is parasitic on *Trypoxylon figulus*. J. Lichtenstein, Bull. Soc. Ent. Fr. (5) iii. pp. xv. & xvi.

Homalus nanus, sp. n., S. S. Saunders, Tr. E. Soc. 1873, p. 411, Ionian Islands, parasitic on *Nitelopsis pisonoides*.

ICHNEUMONIDÆ.

E. T. CRESSON, in his "Descriptions of Mexican Ichneumonidæ," P. Ac. Philad. 1873, pp. 104-176, 374-413, enumerates or describes as new a large number of species, mostly taken by F. Sumichrast near Orizaba and Cordova. Some new sub-genera are characterized.

The following North American species are stated in Tr. Ac. St. Louis, iii. p. 114 *et seq.*, to have been described in Tr. Am. Ent. Soc. iii.; and are given here instead of under their several sub-families, as that vol. of the Tr. Am. Ent. Soc. has not been seen by the Recorder, and there may be many other species described in it [N.B.; these species are not given in Rec. Am. Ent. 1870-1873]:—*Cylloceria occidentalis*, Cresson, p. 160, *Lampronota scutellaris*, Cresson, p. 161, *L. tegularis*, Cresson, p. 163, *L. varia*, Cresson, p. 164, *L. rubrica*, Cresson, p. 165, *L. nigrita*, Walsh, p. 159 (an *Arenetra*; Cresson, Tr. Ac. St. Louis, iii. p. 123), *Glypta simplicipes*, Walsh, p. 156, *G. tuberculifrons*, Walsh, p. 152, *G. rufiscutellaris*, Walsh, p. 163, *G. longiventris*, Walsh, p. 154, *G. scitula*, Cresson, p. 155, *Pimpla annulicornis*, Walsh, p. 147, *P. scriptifrons*, Walsh, p. 148, *P. (?) indagatrix*, Walsh, p. 146, *P. alboricta*, Cresson, p. 147, *Acenites rupinsulensis*, Walsh, p. 152, *Phytodiatius vulgaris* and *distinctus*, Cresson, p. 166, *Tryphon (?) submarginatus*, Cresson, p. 274, *Xylonomus albipictus*, Cresson, p. 168.

Woldstedt's "Materialier till en Ichneumonologia Fennica," Helsingfors: 1873, 8vo, has not been seen by the Recorder.

F. Walker, Ent. vi. p. 431, gives a list of species occurring in the Isle of Man.

Ichneumonides.

Tischbein, S. E. Z. xxxiv. pp. 345-356, 417-444, commences a synopsis of the European species of *Ichneumon*, Wesm., with an account of those occurring at Birkenfeld, and descriptions of new species. *Ichneumon multiguttatus*, Gr., = *centummaculatus*, Christ.; *I. stramentarius*, W., is distinct from *suspiciosus*, W. The sexes of various species are carefully distinguished.

Patroclus, subg. n., Cresson, P. Ac. Philad. 1873, p. 104. Distinguished from typical *Ichneumon* by the unguis being pectinate. *P. nigriceruleus*, sp. n., *id. ibid.* Orizaba, and *Ichneumon lectus* and *toltecus*, Cress.

Ortezia, subg. n. of *Ichneumon*, *id. l. c.* p. 130. Abdomen longitudinally rugose or aciculated, with the segments more or less constricted at the base. *Joppa (?) egregia* and *aciculata*, Cresson.

Ichneumon mayri, p. 350, Vienna, *falcatus*, p. 352, Birkenfeld, *holsaticus*, p. 418, Holstein, *retractus*, p. 419, Birkenfeld, *retractus*, Stettin, *crassicornis*, Holstein, p. 421, *flavifemur*, p. 422, Saxony, *vivacior* and *majusculus*, (? = *horridator*, Ziegl., ♀), p. 424, *ochraceus*, p. 426, *rarus*, p. 427, *similans* and *perhiematus*, p. 428, *oblongatus*, p. 434, *rugosus*, p. 435, *guttatus*, p. 436, *perfidus*, p. 439, Birkenfeld, *flavipetiolus*, p. 436, Vienna, *brevis*, p. 437, Austria (parasitic on *Thecla ilicis*); Tischbein, l. c.; *I. chiapus*, *curiatus*, *dilucidus*, p. 112, *ablutus*, *passivus*, p. 113, *additus*, *citrinus*, *izucarus*, p. 114, *arrogans*, *cupidus*, *opaculus*, p. 115, *junceus*, *zacatecus*, p. 116, *actuosus*, p. 117, *solitarius*, *prolixus*, p. 118, *zaptlanus*, *excuratus*, p. 119, *inoratus*, *mendicus*, p. 120, *ignarus*, *placitus*, *epicus*, p. 121, *nigri-femoratus*, *abjectus*, p. 122, *cephalotes*, *amecus*, p. 123, *parandus*, *abaculus*, p. 124, *abitus*, *durus*, p. 125, *virescens*, p. 126, *abactus*, p. 127, *similans*, p. 128, E. T. Cresson, P. Ac. Philad. 1873, Mexico; *I. belfragii* and *propitius*, Texas, *id.* Tr. Am. Ent. Soc. iv. p. 156: spp. nn.

Edicephalus vicinus, sp. n., Cresson, P. Ac. Philad. 1873, p. 130, Orizaba.

Joppa incerta, sp. n., *id.* l. c. p. 131, Orizaba (? = *decorata*, Cress., ♀). *Trogus latipennis* and *blandita*, spp. nn., *id.* l. c. p. 132, Orizaba.

Cryptides.

C. G. THOMSON, Opusc. Ent. (v.) pp. 455-527, pl., commences an arrangement and description of the Swedish *Crypti*, entering at great length upon the terminology (details figured). He comprises *Ichneumon* and *Cryptus*, Grav., under the term *Ichneumones pentagoni*, having the areola regularly pentagonal or quadrate; and *Pimpla*, *Ophion*, and *Tryphon*, Grav., under the term *I. deltoidei*, having the areola deltoid or absent. The *Cryptidæ* are subdivided into *Cryptina*, *Phygadeuonina*, *Hemitelina*, and *Stilpnina*. In the CRYPTINA the following new genera and species are described:—

Iocryptus, p. 472; *Phygadeuon regius*, Tasch.

Macrocryptus, p. 486; *Echthrus lancifer*, Grav.

Brachycryptus, p. 487; *B. erythrocerus* and *sordidulus*, p. 488, *fusiventris*, p. 489, Scandinavia: spp. nn.

Liocryptus, p. 489; *C. analis*, Grav.

Gonicryptus, p. 490; *G. glabriculus*, p. 491, *annulitarsis*, p. 492, Scandinavia, *macrurus*, p. 492, Denmark, *pictus*, Scandinavia, *clypearis*, Sweden and Denmark, p. 494, spp. nn., and *Cryptus titillator*, L.

Cenocryptus, p. 494; *Cryptus rufiventris*, Grav., and *bimaculatus*, Ratz. (re-named *apum*, p. 497), also *Cæn. tener*, p. 496, *inflatus*, *pubiventris*, p. 497, Scandinavia, Seland, spp. nn.

Habrocryptus, p. 498; *Cryptus assertorius*, *brachyurus*, and *alternator*, Grav., and *C. minorius*, F.

Pycnocryptus, p. 500; *C. peregrinator*, Gr.

Spilocryptus, p. 501; *C. incubitor*, L., *migrator*, *fumipennis*, *ornatus*, *tricolor*, *adustus*, and *grossus*, Grav., and *S. tibialis*, p. 503, *zygænarum*, *dispar*, p. 504, *nasutus*, p. 505, *ornatulus*, p. 507, Scandinavia, spp. nn.

Hoplocryptus, p. 508; *H. pulcher*, *mesoxanthus*, p. 509, *elegans*, p. 511, *binotatulus*, p. 512, spp. nn., Scandinavia, and *Cryptus dubius*, Tasch., *confector*, *fugitivus*, and *occisor*, Grav.

Hygrocryptus, p. 513; *Cryptus carnifex*, Grav. (♂, *varicoxis*, Tasch.), and *H. drewseni* and *palustris*, spp. nn., p. 514, Scandinavia.

Cryptus serratus, *subquadratus*, p. 478, *infumatus*, p. 481, *latitarsis*, p. 483, *borealis*, *arenicola*, p. 484, Scandinavia.

Mesostenus subovalis, p. 516, Sweden.

In the PHYGADEUONINA the following new genera are briefly characterized in the table: *Mesocryptus*, *Calocryptus*, *Cælocryptus*, *Plectocryptus*, p. 519, *Cratocryptus*, *Stenocryptus*, *Mecocryptus*, *Trichocryptus*, *Microcryptus*, *Acanthocryptus*, *Stylocryptus*, *Gnathocryptus*, p. 520, *Leptocryptus*, p. 521.

Cratocryptus is described at length, p. 521, and contains *Cryptus furcator*, *anatorius*, *subpetiolatus*, and *parvulus*, Grav., and *Crat. sternocerus*, *opacus*, p. 523, *ruficoxis*, p. 525, *pleuralis*, *annulitarsis*, p. 526, *femoralis*, p. 527, spp. nn., Scandinavia.

Ischnus albitarsis, Cress., re-described, and dubiously referred to *Cryptus*; if correctly so referred, it will require re-naming: B. D. Walsh, Tr. Ac. St. Louis, iii. pp. 76 & 81. Cresson, *op. cit.*, states his insect, p. 77, to be *C. americanus*, Cress., ♂, and p. 81, to be *C. similis*, Cress., ♂.

Joppidium, g. n., Walsh, *l. c.* iii. p. 69. Differs from *Joppa* by the ♂ antennæ not being submoniliform, and by the long and slender first abdominal joint, long ovipositor, and entire 4th tarsal joint. Also distinguished by the author from *Barycerus*, *Helwigia*, and *Eucerus* (Cresson, *ibid.*, gives a wood-cut illustrating "bullæ" on the nerves of the wings referred to by Walsh in this and other descriptions). *J. ruficeps*, sp. n., Walsh, *l. c.* p. 70, N. America (of which *Banchus æquatus*, Say, is queried as the ♂); also *J. dubiosum*, p. 138, *ardens*, *donabile*, p. 139, Cordova, Cresson, P. Ac. Philad. 1873; *J. rubriceps* and *apicale*, *id.* Tr. Am. Ent. Soc. iv. p. 160, Texas: spp. nn.

Polyænus, sub-g. of *Mesostenus*, differing from *Polycyrtus* in having two short nearly contiguous spines on the front. *P. ectypus* and *ablutus*, spp. nn., Orizaba: Cresson, P. Ac. Philad. 1873, p. 149.

Cryptus atricollaris, p. 72, *rhomboidalis*, *cinctipes*, p. 74, *rufifrons*, p. 75, *nigricalceatus*, p. 77, *albisoletus*, p. 80, *albicaligatus* (= *albitarsis*, Cress., var.; E. T. Cresson, *ibid.*), *picticoxus*, p. 82, sp. (= *iridescens*, Cress.) p. 77, sp. (= *limatus*, Cress.), p. 81, Walsh, *l. c.*; *C. aztecus*, p. 133, *tantillus*, *tenuiventris*, p. 134, *celaya*, *arcuatus*, p. 135, *transversus*, *angulatus*, p. 136, *citus*, *pulchripennis*, p. 137, Mexico, Cresson, P. Ac. Philad. 1873; *C. laticeps* and *exulans*, p. 157, *albicollaris*, p. 158, *sororius*, *buccatus*, and *comalensis*, p. 159, *id.* Tr. Am. Ent. Soc. iv. p. 160, Texas; *C. longicauda* and var. *obscurata*, Kriechbaumer, Verh. z.-b. Wien, xxiii. p. 49, Fiume, Volosca, Trieste: spp. nn.

Phygadeuon satageus, Cordova, *zapotecus*, Orizaba, Cresson, P. Ac. Philad. 1873, p. 140; *P. texanus* and *intermedius*, p. 160, *timidus*, p. 161, Texas, *id.* Tr. Am. Ent. Soc. iv.: spp. nn.

Polycyrtus ferox, *major*, p. 143, *acerbus*, *macer*, p. 144, *mancus*, *paululus*, *junceus*, p. 145, *reliquus*, *copiosus*, p. 146, *accuratus*, *fervus*, p. 147, *univittatus*, *pallidus*, *atriceps*, Mexico, *id.* P. Ac. Philad. 1873, spp. nn.

Mesostenus maurus, T. A. Marshall, Ent. M. M. ix. p. 241, England; *M. aztecus*, *propinquus*, p. 152, *compactus*, *discus*, *facilis*, p. 153, *acceptus*, *modicus*, *communis*, p. 154, *chichimecus*, *admirandus*, p. 155, *arcuatus*, *admotus*, p. 156, *mexicanus*, *lassatus*, p. 157, *moratus*, *absolutus*, p. 158, *accolens*, *novatus*, *stupidus*, p. 159, *abactus*, *admonitus*, p. 160, *incertus*, *animatus*, p. 161, *pertenuis*, *collaris*, *arctus*, p. 162, Mexico, Cresson, P. Ac. Philad. 1873; *M. introitus*, *discoidalis*, *paludatus*, p. 162, *dejectus*, *pertinax*, *arvalis*, p. 163, *longicaudis*, p. 164, Texas, *id.* Tr. Am. Ent. Soc. iv.: spp. nn.

Christolia nubecula, p. 163, *calcarata*, *zapoteca*, p. 164, *mirabilis*, *miranda*, *abdominalis*, p. 165, Orizaba, Cresson, P. Ac. Philad. 1873: spp. nn.

Cryptanura sumichrasti, p. 166, *delecta*, *acolhua*, p. 167, *C. ? pachymene*, p. 168, Mexico, *id. l. c.* spp. nn.

Hemiteles lascivus, *patruelis*, p. 170, *exilis*, *rarus*, *irritatus*, p. 171, *ingenuus*, *adjicialis*, p. 172, *adultus*, *bimaculatus*, p. 173, *centralis*, *junctus*, *scitulus*, *monilis*, p. 174, *admirabilis*, *sulsus*, *transilis*, p. 175, *servilis*, p. 176, Mexico, Cresson, P. Ac. Philad. 1873; *H. conspicuus*, *id.* Tr. Am. Ent. Soc. iv. p. 161, Texas: spp. nn.

Agrothereutes batavus, sp. n., Vollenhoven, Tijdschr. Ent. (2) viii. p. 209, pl. ix. fig. 1, Holland.

Aptesis longicauda, sp. n., *id. l. c.* p. 210, Gelderland.

Ophionides.

Labena, Cresson, re-characterized, and both sexes of *L. grillator*, Say, described: Walsh, Tr. Ac. St. Louis, iii. pp. 160-163.

New genera and species:—

Nonnus, Cresson, P. Ac. Philad. 1873, p. 386. Between *Limneria* and *Mesochorus*. *N. atratus* and *antennatus*, p. 387, Mexico.

Pharsalia, *id.* Tr. Am. Ent. Soc. iv. p. 177, wing figured. Facies of *Iphosoma*, sculpture of *Trachynotus*. *P. texana*, Texas, *virginiensis*, West Virginia, *id. ibid.*

Cryptocentrus, Walsh, *l. c.* p. 156 (? = *Cryptocentrum*, Kby.). Ovipositor very short, cubito-discoidal cell receiving only one recurrent vein, 6th ventral segment in ♀ not prolonged, areolet obsolete. *Tryphon* (?) *submarginatus*, Cresson.

Ophion mexicanus and *atriventris*, Cresson, P. Ac. Philad. 1873, p. 374, Mexico.

Thyreodon niger, *maculipennis*, p. 375, *laticinctus*, *ornatipennis*, p. 376, *id. l. c.* Mexico.

Anomalon mexicanum, p. 376, *vitticolle*, *magnum*, *peritum*, p. 377, *residuum*, *scelerosum*, p. 378, *fumipenne*, *agnatum*, and *A. ? elegans*, p. 379, *id. l. c.* Mexico; *A. magniceps*, *pallitarse*, *orbitale*, p. 170, *melleum*, p. 171, *id.* Tr. Am. Ent. Soc. iv. Texas; *A. fasciatum*, T. A. Marshall, Ent. M. M. ix. p. 240, England.

Paniscus ornatus, Vollenhoven, Tijdschr. Ent. (2) viii. p. 218, Groningen.

Ophiopterus ferrugineus, Cresson, P. Ac. Philad. 1873, p. 380, Mexico.

Trachynotus texanus, id. Tr. Am. Ent. Soc. iv. p. 169, Texas.

Charops tibialis, id. l. c. p. 173, Texas.

Porizon audax, *orbitalis*, *hyalinipennis*, *stigmaterus*, p. 174, *facilis* and *macer*, and *P. (?) agilis*, p. 175, *P. (?) delicatus*, p. 176, id. l. c. Texas.

Cremastus piceus, id. l. c. p. 176, Texas.

Iphosoma texanum, id. *ibid.* Texas; *I. mexicanum*, p. 380, *azteca*, p. 381, Mexico, id. P. Ac. Philad. 1873.

Campoplex opimus, *tepanecus*, p. 382, *lacivius* [sic], *aurifer*, *flavipennis*, *melliventris*, p. 383, *lectus*, *gnarus*, *calcaratus*, *macilentus*, p. 384, *divisus*, *maceratus*, *nefastus*, *legalis*, p. 385, *inequalipes*, p. 386, id. P. Ac. Philad. 1873, Mexico; *C. expertus*, p. 171, *bellus*, p. 172, id. Tr. Am. Ent. Soc. iv. Texas.

Limneria (?) insolens, id. P. Ac. Philad. 1873, p. 386, Mexico; *L. corrupta*, *illepida*, *infesta*, p. 172, *fura* and *rivalis*, p. 173, id. Tr. Am. Ent. Soc. iv. Texas.

Mesochorus totanacus, id. P. Ac. Philad. 1873, p. 388, Mexico; *M. uniformis* and *electilis*, id. Tr. Am. Ent. Soc. iv. p. 171, Texas.

Pristomerus mexicanus, id. P. Ac. Philad. 1873, p. 388, Mexico.

Exetastes vittatipes, *tarsalis*, *mexicanus*, id. P. Ac. Philad. 1873, p. 389, Mexico; *E. bioculatus* (? = *decoloratus*, Cress., ♂) id. Tr. Am. Ent. Soc. iv. p. 169, Texas; *E. suaveolens*, Walsh, Tr. Ac. St. Louis, iii. p. 146, N. America.

Tryphonides.

Ceratosoma, Cress. : the mouth is rostriform, and in the ♂ the claw has 7 or 8 long pectinations. *C. apicale* and *fasciatum*, Cress., are re-described; they differ solely in wing-coloration, and occur together: Walsh, Tr. Ac. St. Louis, iii. pp. 101-103. *Exenteron flavicoxus*, Cress., ♂ described: id. l. c. p. 105.

Metopius pinatorius and *cordiger*, Brullé, = *pollinatorius*, Say; id. l. c. p. 91.

Catocentrus, g. n., id. l. c. p. 89. Allied to *Metopius*, but with facial swelling not scutiform, scutellum rounded, areola small, &c.; also allied to *Exochus* and *Orthocentrus*, but with non-inflated cheeks, constricted abdomen, &c. *Metopius philanthoides*, Walsh.

Exochiscus, g. n., id. l. c. p. 96. Differs from *Exochus* by its large pentagonal areolet, long claws, and long and coarsely sculptured 1st and 2nd abdominal joints; from *Periope*, by its sessile abdomen; from *Orthocentrus*, by its simple claws. *E. pusillus*, sp. n., id. l. c. p. 97, N. America.

Polyrhabdus, g. n., id. l. c. p. 98. Differs from *Exochus* by its carinated abdomen, excavated venter, and short wings, and from *Alomyia* by its sessile abdomen, obsolete areolet, &c. *P. cariniger*, sp. n., id. l. c. p. 98, N. America.

Pachyonyx, g. n., id. l. c. p. 99 & 100 (= *Orthocentrus*, Grav.; Cresson, op. cit. p. 100). *P. trifasciatus*, p. 100, *stigmatias*, p. 101, spp. nn., Walsh, l. c. N. America.

Mesoleptus aztecus, p. 390, *M. ? anguina*, p. 391, Mexico, Cresson, P. Ac. Philad. 1873; *M. bicoloratus* and *delicatus*, p. 166, *M. ? strigosus*, *rotundiceps*, and *stigmaterus*, p. 167, Texas, id. Tr. Am. Ent. Soc. iv. spp. nn.

Tryphon mexicanus, p. 391, *T. ? maculipennis*, p. 392, Mexico, *id.* P. Ac. Philad. 1873; *T. atricoxus*, Walsh, *l. c.* p. 104, N. America (? = *dimidiatus*, var.; Cresson, *ibid.*): spp. nn.

Exenteron ornatus, sp. n., Walsh, *l. c.* p. 105, N. America.

Cteniscus albilineatus, sp. n., *id.* *l. c.* p. 107, N. America.

Exochodes texana, sp. n., Cresson, Tr. Am. Ent. Soc. iv. p. 167, Texas.

Exochus evectus and *texanus*, *id. op. cit.* p. 168, Texas; *E. annulicrus* and *atriceps*, p. 95, *albiceps*, p. 96, N. America, Walsh, *l. c.*: spp. nn.

Bassus sp. (= *scutellaris*, Cress.), p. 84, *tripicticus*, p. 85 (? = *syco-phanta*, Walsh, var.; Cresson, *op. cit.* p. 86), *ruficrus*, p. 86, *semifasciatus*, p. 87, *bicapillaris*, p. 88, Walsh, *l. c.* N. America; *B. 4-guttatus*, Vollenhoven, Tijdschr. Ent. (2) viii. p. 211, Leyden: spp. nn.

Scolobates corallinus, sp. n., Vollenhoven, *l. c.* p. 211, Holland.

Metopius femoratus, *scutatifrons*, p. 393, Mexico, Cresson, P. Ac. Philad. 1873; *M. hageni*, *id.* Tr. Am. Ent. Soc. iv. p. 168, Texas: spp. nn.

Pimplides.

Thalessa clavata: the ♀ captured, and observations on its economy, &c., made by V. Ghiliani, Bull. Ent. Ital. v. pp. 237-243.

Pimpla rufata, parasitic on *Phyllæcus* (?), in the Landes: larva described: E. Perris, Ann. Soc. Ent. Fr. (5) iii. p. 83.

Pimpla eating a small Lepidopterous larva; P. Cameron, Scot. Nat. ii. p. 161.

Pimpla annulipes, Br., figured: parasitic on *Carpocapsa*. C. V. Riley, Rep. Ins. Mo. v. p. 49, fig. 26.

Cylloceria. An American type described as new (= *occidentalis*, Cress.; Cresson, *ibid.*), and the generic characters discussed: Walsh, *l. c.* pp. 113 & 114.

Odontomerus and *Xylonomus* re-characterized; *id. l. c.* pp. 163 & 164.

Pararhyssa, sub-g. n. of *Rhyssa*, *id. l. c.* p. 109, with rhomboido-triangular areolet, for *R. persuasoria*, L., *albimaculata*, Cress., and *humida*, Say (these species belong to *Rhyssa* proper, and Walsh's other species are to be referred to *Thalessa*, Holmgr.: E. T. Cresson, *ibid.*).

New species:—

Coleocentrus abiae, p. 215, pl. ix. fig. 3, Holland, *sivi*, p. 216, fig. 4, Utrecht, Vollenhoven, Tijdschr. Ent. (2) viii.

Rhyssa fractinervis, p. 67, pl. iv. fig. 1, Auckland, N. Zealand, *lanitaria*, p. 68, pl. iv. fig. 2, Amboina, *doreica*, p. 69, pl. iv. fig. 3, Dorey, New Guinea (? = *maculipennis*, Sm., var.); *id. l. c.*

Epirhyssa mexicana, Cresson, P. Ac. Philad. 1873, p. 394, Mexico.

Ephialtes atriceps, *id. l. c.* p. 394, Mexico; *E. gigas*, p. 110 (? = *manifestator*, L.), *pygmaeus*, *pusio*, p. 111, Walsh, *l. c.* N. America.

Epimecis ? thoracicus, Cresson, *l. c.* p. 395, Mexico.

Theronia montezuma, p. 395, *tolteca*, *mellosa*, p. 396, *tacubaya*, p. 397, *id. l. c.* Mexico.

Pimpla cæruleata, p. 397 (? = *cærulea*, Brullé), *croceipes*, *puniceipes*, p. 398, *feralis*, *crassicauda*, *albipes*, p. 399, *semisanguinea*, *sumichrasti*, p. 400, *azteca*, *marginipennis*, *zonata*, p. 401, *zapoteca*, and *P. ? chichimeca*,

p. 402, *P. ichneumoniformis*, p. 403, *P. ? pulcherrima*, *P. braconoides*, *atriceps*, p. 404, *id. l. c.* Mexico; *P. sanguinipes*, *petulca*, *animosa*, p. 165, *id. Tr. Am. Ent. Soc. iv.* Texas; *P. sp.*, p. 153 (= *ptelas*, Say; Cresson, *ibid.*), *pictipes*, p. 135, *vidua*, p. 140, *celebs*, p. 141 (= *inquisitor*, Say, ♂; Cresson, *ibid.*), *investigatrix*, p. 142, sp., p. 143 (= *albiricta*, Cress.; Cresson, *ibid.*), Walsh, *l. c.* N. America; *P. vincta*, p. 212, *laevadorsum*, p. 213, Vollenhoven, *l. c.* Holland.

Glypta diversipes, *rufipl[e]uralis*, p. 125, *albiscutellaris*, p. 127, *ruficornis*, p. 129, Walsh, *l. c.* N. America; *G. longula*, *albipicta*, p. 405, *decolorata*, p. 406, Cresson, P. Ac. Philad. 1873, Mexico; *G. elegans*, Vollenhoven, *l. c.* p. 214, pl. ix. fig. 2, Holland.

Lycorina ? (? g. n., described as *Toxophoroides*, p. 406) *apicalis*, Cresson, *l. c.* p. 407, Mexico.

Lampronota mexicana, p. 407, *azteca*, *bella*, *orbitalis*, p. 408, *L. ? jucunda*, p. 409, *id. l. c.* Mexico: *L. spp.*, p. 116 (= *scutellaris* and *tegaris*, Cress.; Cresson, *ibid.*), *amphimelana*, p. 117 (? = *varia*, Cress., var.; Cresson, *ibid.*), sp. (= *frigida*, Cress.; Cresson, *ibid.*), and *interpellata*, p. 118, *pictiventris*, p. 119, *breviventris*, p. 120, sp. (= *americana*, Cress.; Cresson, *ibid.*), and *imitatrix*, p. 121, sp., p. 122 (= *rubrica*, Cress.; Cresson, *ibid.*), Walsh, *l. c.* N. America.

Meniscus crassitarsus, p. 409, *mexicanus* and *M. ? alternatus*, p. 410, *M. ? orbitalis*, p. 411, Cresson, P. Ac. Philad. 1873, Mexico.

Phytodietus gracilicornis, p. 411, *mexicanus*, p. 412, *id. l. c.* Mexico.

Labena gloriosa, p. 412, *id. l. c.* Mexico.

Grotea mexicana, p. 413, *id. l. c.* Mexico.

Polysphincta nigriceps and *nigrita*, p. 144, *P. (?) pimploides*, p. 145, spp. nn., Walsh, *l. c.* (the first of the genus in) N. America.

Echthrus annulicornis, *id. l. c.* p. 159, N. America.

BRACONIDÆ.

Bracon kersteni, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. xiv. fig. 12.

Bracon denigrator, F.: habits in connection with *Hesperophanes* and *Saperda*. J. Lichtenstein, Bull. Soc. Ent. Fr. (5) iii. p. xxii.

Toxoneuron (Tenthredooides) re-characterized, and the species tabulated. E. T. Cresson, Canad. Ent. v. p. 66.

Bracon scolytivorus, sp. n., (Cresson, MS.) Riley, Rep. Ins. Mo. v. p. 106, Missouri, parasitic on *Scolytus caryæ*.

Spathius 3-fasciatus, sp. n., *id. ibid.*, Missouri, parasitic on *Scolytus caryæ*.

Vipio insularis, sp. n., Vollenhoven, Tijdschr. Ent. (2) viii. p. 218, pl. ix. figs. 5 & 5a, Zeeland.

Polemon albimanus, sp. n., *id. l. c.* p. 219, Holland.

Ascogaster ? rufiventris, sp. n., Philippi, S. E. Z. xxxiv. p. 300, pl. i. fig. 3, Chili.

Microdus imitatus, *simillimus*, *calcaratus*, p. 51, *divisus*, *agilis*, *discolor*, p. 52, *pallens*, *laticinctus*, *cinctus*, *annulipes*, p. 53, *earinoides*, p. 54, spp. nn., Cresson, Canad. Ent. v., various States of N. America.

Toxoneuron æthiops, *minutum*, *orizabæ*, *mexicanum*, p. 67, *apicale*, *thoracicum*, *abdominale*, p. 68, *ornatum*, p. 69, spp. nn., *id. l. c.* U. S. America and Mexico.

Proterops californicus, sp. n., *id. l. c.* p. 69, California.

Helcon borealis, *albitarsis* (? = *dentipes*, Brullé, ♂), p. 83, *frigidus americanus*, p. 84, *pedalis*, p. 85, spp. nn., *id. l. c.* N. America.

Cresson, Tr. Am. Ent. Soc. iv., describes the following new species from Texas:—

Opius brunneiventris, p. 178.

Eubadizon maculiventris, *ibid.*

Phylax melleus, *ibid.*

Macrocentrus nuperus and *delicatus* (redescribed and figured, from Missouri; C. V. Riley, Rep. Ins. Mo. v. p. 50, fig. 27), *ibid.*

Helcon texanus, p. 179.

Ichneutes abdominalis, *ibid.*

Sigalphus texanus, *ibid.*

Chelonus texanus, *ibid.*, *electus*, *connectens*, *cautus*, *laticinctus*, p. 180
minimus, p. 181.

Microdus thoracicus and *texanus*, p. 181, *nigriceps*, *verticalis*, *pygmæus*, p. 182.

Ischius læviventris, p. 182.

Agathis exoratus, *ibid.*, *meabilis* and *rubripes*, p. 183.

Microgaster croceipes and *maculipennis*, p. 183.

Bracon epicus, p. 183, *rugiceps*, *simplex*, *orbitalis*, p. 184, *radiatus*, *faustus*, p. 185, *disjunctus*, *mavoritus*, *belfragii*, *novitus*, p. 186, *texanus*, *nuperus*, *minimus*, p. 187.

Rhogas molestus, *graphicus*, *mandibularis*, *atricornis*, p. 188, *delicatus*, *pilosus*, p. 189.

Exothecus atriventris, p. 189, *rugulosus*, p. 190.

Hormius (?) *aciculatus*, p. 190.

Megischus texanus, *ibid.*

Dacnusa læviceps and *minima*, p. 191.

EVANIIDÆ.

Plumarius, g. n., Philippi, S. E. Z. xxxiv. p. 299. Type, *P. niger*, sp. n., *id. ibid.* pl. i., fig. 2, Santiago. [The author calls this "eine neue Evaniade?" and the ? would seem well deserved, judging by the figure.]

Aulacostethus, g. n., *id. op. cit.* p. 302. Type, *A. rubriventer*, sp. n., *id. ibid.* pl. i., fig. 4, Santiago.

CHALCIDIDÆ.

F. Walker, Canad. Ent. v. pp. 16–18, 43–44, briefly refers to the names and salient features of species of *Perilampus*, *Callimome*, *Isosoma*, *Pteromalus*, and *Megastigmus*, occurring in N. America. The same author, Ent. vi. p. 273, &c., continues the rambling notes, with reproductions of Haliday's figures and Förster's tables, mentioned in Zool. Rec. ix. p. 327.

Leucaspis (" *Leucospis*" and "*Leucopsis*"), *Smicra*, and *Chalcis*. E. T. Cresson, Tr. Am. Ent. Soc. iv. pp. 29-60, gives a synopsis of the N. American species. *Leucaspis canadensis*, Walk., *basalis* and *subnotata*, Westw., *fraterna*, Say, = *affinis*, Say, of which a var., *floridana* is described, pp. 32 & 33. *L. integra*, Hald., ? = *Chalcis ovata*, Say; p. 35. A ♂ var. of *Smicra braccata*, Samb. (? = *nigricornis*, F., or *maculata*, F.), is described from Massachusetts, under the name *coequalis*: id. l. c. p. 46. *Chalcis incerta*, Cresson, *annulipes*, Walk., = *ovata*, Say; p. 59.

Exurus, g. n., R. A. Philippi, S. E. Z. xxxiv. p. 296. *Pteromalides*. Type, *E. colliguayæ*, sp. n., id. *ibid.* pl. i. figs. 1 a-c, from galls on *Colliguaya odorifero* (*Euphorbiaceæ*), Chili.

Leucaspis bulbiventris, p. 29, *apicalis*, p. 30, *sumichrasti*, p. 31, *azteca*, p. 33, *dubiosa* (? = *azteca*, var.) and *tolteca*, p. 34, Mexico, *texana*, p. 31, Texas; Cresson, l. c. spp. nn.

Smicra canadensis, p. 39, Canada; *flexilis*, p. 39, *delumbis* and *torvina*, p. 40, Massachusetts; *rufifemorata*, p. 39, *delira*, p. 41, *subobsoleta*, p. 42, *sanguiniventris* and *bioculata*, p. 43, *barbara*, p. 47, *dorsata*, p. 49, *delicata*, p. 54, Texas; *mendica*, p. 41, *toluca* and *mexicana*, p. 42, *lecta* and *ambigua*, p. 44, *lauta*, p. 45, *coccinata* and *flammeola*, p. 48, *miranda*, p. 49, *exornata* and *compactilis*, p. 50, *montezuma*, and *azteca*, p. 51, *lenta*, p. 52, *tolteca*, p. 53, *juxta* [!], p. 54, Mexico; *arcana*, p. 44, *coxalis*, p. 45, Delaware; *nortoni*, p. 45, Columbia; *encausta*, p. 46, Colorado; *mirabilis*, p. 53, Georgia, Texas; id. l. c. spp. nn.

Chalcis tegularis and *pedalis*, Texas, *coloradensis*, Colorado, id. l. c. p. 60, spp. nn.

Isosoma romana [-um], p. 395, *semilutea* [-eum], p. 396, *luteicollis* [-le], *insolita* [-tum], p. 397, (presumably) spp. nn., Walker, Ent. vi. Italy.

Eurytoma æqualis, Italy, *japonica*, Japan, id. l. c. p. 398, (presumably) spp. nn.

Haltichella includens, (presumably) sp. n., id. l. c. p. 399, Japan; *H. osmi* [i] *cida*, sp. n., S. S. Saunders, Tr. E. Soc. 1873, p. 414, parasitic on *Osmia tridentata*, Epirus.

Misocampus letus, sp. n., Philippi, l. c. p. 298, parasitic on *Exurus colliguayæ*, Chili.

Chirolophus halidayi, (presumably) sp. n., Walker, l. c. p. 399, Lucca.

PROCTOTRYPIDÆ.

S. C. Snellen van Vollenhoven, in the 4th of his "Schetsen ten Gebruike bij de Studie der Hymenoptera" ('s Gravenhage: 1873, oblong folio), pls. xi.-xiv., gives (copied) outlines, sometimes of the whole insect, sometimes of details only, of the types of the following genera: Pl. xi., *Olynæ*, *Sympiesis*, *Rhopalotus*, *Astichus*, *Holcopelte*, *Secodes*, *Pleurotropis*, *Chrysocharis*, *Poropœa* and *Centrobia*, Först.; *Cirrospilus*, *Melittobia*, *Pleuropachys*, *Derostenus*, *Pterothrix*, and *Trichogramma*, Westw.; *Eulophus*, Geoffr.; *Epicleris*, *Omphale*, and *Tetrastichus*, Halid.; *Entedon*, Dalm.; *Thysanus*, *Ceranisius*, and *Chatosticha*, Walk.: Pl. xii., *Dryinus* (and *D. formicarius* from nature), *Bethylus*, and *Proctotrypes*, Latr.; *Gonatopus*, Ljung.; *Labeo*, *Chelogyne*, *Thoron*, and *Bæus*, Hal.; *Anteon* and

Ceraphron, Jur.; *Aphelopus*, Dalm.; *Embolemus*, *Cephalonomia*, *Epyris*, and *Megaspilus*, Westw.; *Scleroderma*, Klg.; *Ateleopterus*, *Perisemus*, *Goniozus*, *Isobrachium*, *Lagynodes*, *Trichosteresis*, *Lygocerus*, and *Acolus*, Först.; *Xenomerus*, Walk.: Pl. xiii., *Teleas*, *Sparasion*, *Scelio*, and *Platygaster*, Latr.; *Prosacantha*, Nees; *Telenomus*, *Gryon*, *Iphitrachelus*, *Inostemma*, and *Ooctonus*, Hal.; *Anteris*, *Allotropa*, *Metaclisis*, *Isostasius*, *Catillus*, *Xestonotus*, *Amblyaspis*, *Leptacis*, *Sactogaster*, *Synopeas*, *Isocybus*, *Polygnotus*, *Camptoptera*, and *Limacis*, Först.: Pl. xiv., *Gonatocerus*, Nees; *Polynema*, *Mymar*, *Anaphes*, *Labolips*, and *Ismarus*, Hal.; *Entomacis*, *Hemilexis*, *Loxotropa*, *Oxylabis*, *Pantolyta*, *Zygota*, *Acropiesta*, *Xenotoma* and *Leptorhaptus*, Först.; *Platymischus*, *Aneurhynchus*, *Paramesius*, *Spilomicrus*, and *Basalys*, Westw.; *Diapria* and *Helorus*, Latr.; *Belyta* and *Cinetus*, Jur. [These figures, judging from their inaccuracy in points of essential detail, are of little use to the student.]

Dryinus atriventris, sp. n., E. T. Cresson, Tr. Am. Ent. Soc. iv. p. 193, Texas.

Gonatopus (?) *alatus*, sp. n., *id. ibid.* Texas.

Epyris leviventris and *analisis*, spp. nn., *id. ibid.* Texas.

CYNIPIDÆ.

Cynips quercûs-operator, O. S., is almost certainly double-brooded; its habits, and those of *C. quercûs-botatus*?, Bassett, and *C. q.-futilis*, O. S., are recorded, with the suggestion that all N. American *Cynips* proper are double-, and *Diastrophus* and *Rhodites* single-brooded. Galls produced from leaf-buds are recorded, and the weights of individual insects given. H. F. Bassett, Canad. Ent. v. pp. 91-94, and P. E. Soc. 1873, p. xv.

E. Newman, Ent. vi. pp. 275-278, suggests the adoption of the theory that galls are 'pseudo-balani' or false acorns; adducing the globular gall of *Cynips kollari* as an instance. Cf. E. Parfitt, quoted, *op. cit.* p. 338.

"Flea seeds," or jumping galls, made by *Cynips* on oak in California, briefly described: R. H. Stretch & C. D. Gibbs, P. Cal. Ac. iv. pp. 265 & 266.

Cynips ferruginea in Scotland: P. Cameron, Ent. M. M. x. p. 85.

Biorhiza aptera bred from galls at roots of a conifer (*Deodara*); A. Müller, P. E. Soc. 1873, p. xxvii.

Trigonaspis megaptera, Pz., in Scotland: P. Cameron, Scot. Nat. ii. p. 15.

Synergus larvæ feeding on juices of gall of *Cynips divisa*: P. Cameron, Scot. Nat. ii. p. 62. As they reach maturity they form woody partitions, thus making the gall polythalamous: *id. op. cit.* p. 161.

Andricus amenti, Gir., and *A. 4-lineatus*, Htg., new to Britain: J. W. H. Traill, Scot. Nat. ii. p. 128. Galls described, p. 171; also Ent. M. M. x. pp. 39 & 85.

Spathogaster vesicatrix, Schl.; galls from Scotland described. J. W. Traill, Ent. M. M. x. p. 85.

URO CERIDÆ.

Sirex. Brief notes on geographical distribution by F. Walker, Canad. Ent. v. p. 78, and Ent. vi. p. 359.

Oryssus dentifrons, sp. n., Philippi, S. E. Z. xxxiv. p. 303, pl. i. figs. 5 a-e, from fragments in a spider's web, Valdivia.

TENTHREDINIDÆ.

NORTON, E. "Notes on North American Tenthredinidæ, with descriptions of new species." Tr. Am. Ent. Soc. iv. pp. 77-86. A var. of *Abia kennicotti*, N., is described from Texas, p. 77; larva of *Hylotoma macleayi* described, p. 78; *Pristiphora idiota*, Norton, = *P. identidem* [!], *id.* p. 79; larva of *Nematus trilineatus*, N., described, *ibid.*; of *Emphytus maculatus*, N., p. 80; var. *yukonensis* of *Doleris similis* from Alaska, p. 82; *Selandria caryæ*, Norton (in Packard's 'Guide,' p. 224; 1868), re-described, and its habits referred to, p. 83; *S. q-album*, N., re-described, p. 85; and varieties of other species briefly noted.

Tenthredinidæ in the Glenelg valley, Inverness-shire, including *Trichiosoma lucorum*, very small var., at an elevation of 1100 feet. P. Cameron, Scot. Nat. ii. p. 61.

Nematus gallicola, Steph.; habits described, and ♀ and larva figured, with details; *id. op. cit.* pp. 11-15, pl. i. *N. degeeri*, Kl., habits and principal stages described; pp. 113-116. Parasites on *N. gallicola* described; pp. 116-119, 160 & 161.

Blennocampa pusilla, Htg., *Hoplocampa rutilicornis*, Klug, *Taxonus coxalis*, Htg., and ? *T. sticticus*, Klg.; R. McLachlan, Ent. M. M. x. p. 113; *Tenthredo moniliata*, Klug, and *Nematus quercûs*, Htg.; P. Cameron, *l. c.* p. 160; *Strongylogaster filicis*, Klug; T. J. Bold, Ent. M. M. x. p. 69; *Pæcilosoma pulveratum*, Retz.; P. Cameron, *ibid.*: *Cænoneura dahlbomi*, Thoms.; P. Cameron, *l. c.* p. 85; *Lophyrus pallipes*, Fall., and *L. virens*, Klug; P. Cameron, Scot. Nat. ii. p. 15: new to Britain.

In *Hylotoma scutellata*, Say, *dulciaria*, Say, and *H. calcarea*, Say (*sapularis*, Klg.), of which both sexes are described, the 2nd recurrent vein sometimes coincides with the 2nd submarginal cross-vein, with intermediate grades between that and the normal structure; *Scobina*, St. F. & S., must therefore apparently be suppressed. *H. coccinea* (?), F., with differently coloured head in ♂ & ♀, described. B. D. Walsh, Tr. Ac. St. Louis, iii. pp. 65-69.

Lophyrus virens, Klug, pp. 1-5, pl. i. figs. 1-7; *Lyda clypeata*, Klug, pp. 6-12, pl. ii. figs. 1-9, pl. iii. figs. 10-13; economy fully described by S. C. S. v. Vollenhoven, Tijdschr. Ent. (2) viii.

Leptocercus, Htg. (1837), = *Hemichroa*, Steph. (1835); *Camponiscus healei* [sic], Newm., = *Nematus (Leptocercus) hypogastricus*, Htg., = *luridiventris*, Fall.; P. Cameron, *l. c.* x. p. 84. Habits, larva, and imago described (one specimen with only 3 sub-marginal cellules, as in *Cryptocampus*); *id.* Scot. Nat. ii. pp. 158-160.

Selandria rubi, Harr.: economy fully described by W. Saunders, Canad. Ent. v. pp. 101-103.

Allantus consobrinus, Klug (*nec* Rudow), var. n. *zwickoviensis*; Von Schlechtendal, S. E. Z. xxxiv. pp. 88-92, Zwickaus.

Tenthredo nimbipennis, Nton.: ♀ from Texas described by E. T. Cresson, Tr. Am. Ent. Soc. iv. p. 155.

- Ptenos*, g. n., Norton, l. c. p. 77 (*Ptilia*, section 2, Norton, op. cit. ii. p. 367). *Ptilia texana*, Nt., and *P. niger* and *nigripectus*, spp. nn., id. l. c. iv. p. 77, Texas.
- Hylotoma consobrina*, sp. n., id. l. c. p. 78, Mexico.
- Cladius æqualis*, sp. n., id. *ibid.* Connecticut.
- Pachylota varicolor*, sp. n., id. l. c. p. 79, Mexico.
- Emphytus bolli*, sp. n., id. l. c. p. 80, Texas.
- Dictynna cordovensis* and *polita*, spp. nn., id. l. c. p. 81, Mexico.
- Hemichroa albidivariata* and *fraternalis*, spp. nn., id. *ibid.* Texas.
- Dolerus distinctus* and *coccinifer*, spp. nn., id. l. c. p. 82, California.
- Selandria sumichrasti*, p. 82, *longipennis* and *fasciipennis*, p. 84, *coccinata*, p. 85, Mexico, *inæquidens*, p. 84, *albicollis*, p. 85, Texas, id. l. c.; *S. cereipes*, Vollenhoven, l. c. pp. 13-15, pl. iii. figs. 1-7, Gelderland, on *Polystichum filix-mas*: spp. nn.
- Lophyrus fulvus*, sp. n., Norton, l. c. p. 86, Texas.
- Cephus cinctus*, sp. n., id. *ibid.* Colorado.
- Xyela cænea* (? = *tricolor*, var.), sp. n., id. *ibid.* Texas.
- Phyllæcus* (?) *rubi*, sp. n., Perris, Ann. Soc. Ent. Fr. (5) iii. p. 83, Landes, larva and pupa described, pp. 81 & 82.

LEPIDOPTERA.

BY

W. F. KIRBY, M.E.S., &c.

GENERAL NOTES.

P. MILLIÈRE has published the 25th and 26th livraisons of his "Iconographie et Description des Chenilles et Lépidoptères inédits;" Ann. Soc. Lyon (2) xix. pp. 1-90, pls. cix.-cxvi.

Parts 85-88 of W. C. HEWITSON'S "Exotic Butterflies," parts 15-18 of A. G. BUTLER'S "Lepidoptera Exotica," and parts 2-7 of H. STRECKER'S "Lepidoptera," have appeared within the year.

A. G. BUTLER has also published "Tropical Butterflies and Moths, with descriptions." London: 1873, sm. 4to; a series of 10 cards, printed in colours, containing a selection of showy species.

On Scudder's determination of the generic types of butterflies, cf. Grote, Canad. Ent. v. pp. 62 & 63, 143-145.

On the affinity of the *Papilionidae* with the *Heterocera*; R. Trimen, P. E. Soc. 1873, pp. xxii. & xxiii.

Snellen reviews Staudinger and Wocke's Catalogue, discussing the question of priority, and adding a series of valuable notes on individual species. Tijdschr. Ent. (2) viii. pp. 36-60.

Grote criticises the classification proposed in Wallengren's 'Lepidoptera Scandinaviæ Heterocera'; Bull. Buff. Soc. i. pp. 183 & 184.

Mary Trent asserts that if larvæ are supplied with plenty of food, the perfect insects will be nearly all females; and that if the larvæ are half starved, nearly all are males: Am. Nat. vii. pp. 129-132. C. V. Riley details experiments opposed to these results: *op. cit.* pp. 513-521.

On rearing larvæ; E. Lelièvre, *Pet. Nouv.* 1873, p. 275.

On venomous caterpillars: A. Murray and others, *Nature*, viii. pp. 7, 8, 44, 45, 101, 102, 303, 466, 467, 487.

On cannibalism (designated 'Autophagy' and 'Campephagy') in the larvæ of *Scopelosoma satellitia*, *Cosmia trapezina*, and *Crocallis elinguaris*, cf. E. Delessert, *Bull. Soc. Vaud.* xi. pp. 366-369. A larva of *S. satellitia* seemed to feel no pain while being devoured alive by one of *C. trapezina*; and when the protruding intestines of the former were presented to its own mouth, it began to devour itself until there were only 3 segments left [! ?]. The larva most relished by *Cosmia trapezina* is that of the destructive *Chimatobia brumata*.

Kalender thinks that the hibernation of larvæ which usually pass the winter in that state is not indispensable to their development: *S. E. Z.* xxxiv. pp. 366 & 367.

Floods and hibernating larva; G. B. Corbin, *Ent.* vi. pp. 414 & 415.

R. MELDOLA (*suprà*, p. 219) records the result of experiments on the loss of weight in pupæ of *Bombyx quercus*, and in the pupæ and perfect insects of *Liparis dispar* during definite periods. The loss of substance in the pupa state differs in amount in different individuals of the same species, when exposed to the same temperature; and is less in amount than that occurring in the perfect state of the same species, or in a dead pupa by desiccation. The variation in the loss is sufficient to make it probable that the size, or at least the specific gravity of the imago will be influenced by it. In the case of *Papilio ajax*, the size of the variety is directly instead of inversely proportioned to the ratio of the pupal to the larval period, and *vice versâ*, though *a priori* we should expect the contrary. He adds suggestions for the management of future observations, and for the elimination of disturbing factors likely to interfere with the accuracy of the results.

On larvæ injurious to crops in Germany, with special reference to *Pieris*: Pabst, *Ber. Ges. Chemn.* xi. (abridged, *Verh. Ver. Regensb.* xxvi. pp. 104-106.

On damage caused by the larvæ of various *Lepidoptera* in forests of Livonia and Courland: M. Willkomm, *SB. Ges. Dorp.* iii. pp. 238 & 239, 242 & 243.

On butterflies flying against the wind in Ceylon: E. W. H. Holdsworth, *Ent.* vi. pp. 330-332.

On the different modes of flight of New England butterflies, and on their positions when at rest: C. S. Minot, *P. Bost. Soc.* xiv. pp. 55 & 56.

On the influence of heat on the development of chrysalides: V. Ghiliani, *Bull. Ent. Ital.* v. pp. 69-72.

De Borre gives an abridged translation of the Recorder's paper on the

geographical distribution of butterflies (Zool. Rec. ix. pp. 336 & 337) with additional comments. C. R. Ent. Belg. xvi. pp. 138-163.

MIMICRY. R. Meldola (*suprà*, p. 218) discusses mimicry and allied phenomena in all stages of *Lepidoptera*.

On mimicry in butterflies: G. Seidlitz, SB. Ges. Dorp. iii. pp. 215-217.

The chief object of warty or hairy dermal appendages of larvæ or pupæ is protective: T. Goossens, Ann. Soc. Ent. Fr. (5) iii. pp. 123-128.

COLLECTING. W. Couper, Canad. Ent. v. pp. 18-20. *Micro-Lepidoptera*; H. de Peyerimhoff, Pet. Nouv. 1873, pp. 294, 298, 300-302. On use of sugar and cyanide bottle; T. L. Mead & W. V. Andrews, Canad. Ent. pp. 78-80, 208-210. On attracting by nitric ether; Pet. Nouv. 1873, p. 292. New sugaring lamp; G. Norman & F. B. White, Ent. M. M. ix. pp. 199, 220, 250. E. L. RAGONOT publishes a series of notes on the collection and preservation of *Micro-Lepidoptera*; Pet. Nouv. 1873, pp. 273, 274, 277, 278, 290: on the collection of larvæ, *l. c.* pp. 302, 306, 338, 345, 349, 350, 353.

On preserving the skins of caterpillars for collections; Sanborn, P. Bost. Soc. xiv. pp. 55 & 56.

On arranging collections; Pet. Nouv. 1873, pp. 291 & 292.

Great Britain.

A re-issue of the second edition of Doubleday's Synonymic List of British *Lepidoptera*. with an additional supplement of 4 pages, has been published within the year.

On the origin and distribution of the insects of the British Isles [chiefly *Lepidoptera*]; E. Birchall, Ent. vi. pp. 349-351.

Lists of captures are published by E. N. Bloomfield, at Guestling (Ent. M. M. ix. pp. 218, 249, 250); C. W. Dale, at Glanville's Wootton (*op. cit.* x. p. 118, 140); C. S. Gregson, in Wales, and at Delamere Forest (Ent. vi. pp. 404-406, 452, 453); J. B. Hodgkinson, at Grange-over-Sands Ent. M. M. x. pp. 39, 40); J. A. Jenner, in Sussex (*op. cit.* ix. p. 249); W. Machin, at Epping Forest (Ent. vi. p. 335); W. Maling, at Newcastle (*op. cit.* p. 283); G. T. Porritt, in the Isle of Man and at Huddersfield (*op. cit.* pp. 454, 455; Ent. M. M. ix. p. 248); J. M. Simpkinson, in Ayrshire (Ent. vi. pp. 313, 314); W. Slade, near Buckingham (*op. cit.* pp. 379-385); W. H. Tugwell, in the New Forest and Isle of Wight (*op. cit.* pp. 476-479); J. Jenner Weir, at Lewes (*op. cit.* p. 455); J. W. H. Traill, in Aberdeenshire and Sutherland, Scot. Nat. ii. pp. 20, 163; and by T. Moncreiffe, at the Bridge of Earn in 1873, *op. cit.* p. 120.

List of *Lepidoptera* first discovered by the late J. C. Dale, in Britain; C. W. Dale, Ent. M. M. ix. p. 271.

List of insects reared during 1872; W. Machin, Ent. vi. pp. 282 & 283.

On the occurrence of *Lepidoptera* in Northumberland and Durham in 1872; T. J. Bold, Tr. North. Durh. v. pp. 37-41.

F. B. White continues his list of the *Lepidoptera* of Scotland, from the *Cossidae* to the genus *Xanthia*, Scot. Nat. ii. pp. 34-45, 81-88, 128-136, 177-184.

E. Birchall publishes a list of 60 species recorded as new to Ireland since 1866 (Ent. M. M. x. pp. 153-156). 16 species formerly included are now regarded as doubtful.

List of Macro-Lepidoptera of Guernsey and Sark; W. A. Luff, Ent. vi. pp. 322-324, 351-357, 375-379.

List of butterflies of Jersey; F. G. Piquet, *op. cit.* pp. 399-401.

France.

P. MILLIÈRE, 'Catalogue raisonné des Lépidoptères du Département des Alpes Maritimes,' Pts. 1 & 2, Cannes: 1871 & 1873, 8vo, pp. 1-135 & 136-247 (extr. Mém. Soc. Cannes, Jan. 1871; March, 1873) gives notes on habits, transformations, &c., chiefly of local interest, to the end of the *Pyrales*. Several larvæ, described years ago by various entomologists, are noticed as unknown (e.g., *Lycæna semiargus* and *dorylas*; *Hesperia actæon*, &c.).

Belgium.

L. QUÆDVLIEG has published a synopsis of the butterflies of Belgium (Les Papillons Diurnes de Belgique; Manuel du jeune Lépidopteriste, Bruxelles: 1873, 12mo, p. 70, map), enumerating 101 species. The introduction by P. de Borre (pp. 7-22) consists of notes on the geographical distribution of the Belgian *Lepidoptera*.

List of Belgian species; L. Quædvlieg, C. R. Ent. Belg. xvi. pp. 75 & 76.

Captures by various entomologists; *op. cit.* pp. 76, 77, 81.

Holland.

Species new to the Fauna:—Snellen & De Graaf, Tijdschr. Ent. (2) viii. pp. lxxv. lxxvi. 26-35, 231-235.

A supplementary list of the *Lepidoptera* of Breda; F. J. M. Heylaerts, *op. cit.* p. 146.

Captures in the North Sea Islands; J. Ritzema Bos, *op. cit.* pp. 252 & 253: Naar de Peel; Heylaerts & Snellen, *op. cit.* pp. 126-130.

Germany.

Captures in the Upper Harz; by W. Henäcker, S. E. Z. xxxiv. pp. 95 & 96.

Captures at Spalato in Dalmatia; V. Geiger, Verh. z.-b. Wien, xxiii. pp. 167 & 168 (petroleum recommended for destruction of insects injurious to collections).

Switzerland.

Captures by H. C. Long, Ent. vi. pp. 300-303. In the Eastern Alps: A. Curó, Bull. Ent. Ital. v. pp. 267-270.

Italy.

C. Tachetti continues his catalogue of the *Lepidoptera* of Padua through the *Sphinges*: Atti Soc. Pad. i. p. 144-158.

Captures in Tuscany, from April to July, 1872 (774 species); J. Mann, Verh. z.-b. Wien, xxiii. pp. 117-129.

Sicily.

A few *Lepidoptera* new to the Sicilian or European Fauna enumerated by A. Kalchberg, Bull. Ent. Ital. v. p. 51.

Norway.

Captures in Norway in the summer of 1869 & 1870; H. Siebke, N. Mag. Naturw. xvii. pp. 278-284; xix. pp. 68-73.

Russia.

J. G. Schilde (Lepidopterologische Mittheilungen aus Nord-Finn-

land; S. E. Z. xxxiv. pp. 157-184) remarks on the general character of the northern Fauna, and notices several butterflies in considerable detail.

Additions to the Fauna of St. Petersburg; N. Erschoff, Hor. Ent. Ross. ix. p. 160.

Captures:—Riga (additions to Fauna), by A. Dihrik, S. E. Z. xxxiv. pp. 113, 114; Lenkoran, Madschalis & Derbent, by A. Becker, Bull. Mosc. xlv. pp. 256 & 257.

Asia.

G. KOCH has published a new edition of 'Die Indo-Australische Lepidopteren-Fauna' (Berlin: 1873, pp. xix. 119, coloured plate and map). It is merely a reprint of the first edition (1865), even the paging being identical, with the addition of a map republished from Geogr. MT. 1870 (*cf.* Zool. Rec. vii. pp. 368, 372-374), and an additional preface, in which the author dissents from Bates's theory of "mimicry" [which he has misunderstood, having been misled by the literal meaning of the word], and suggests that variation in *Lepidoptera* is due to chemical changes in the pupa, caused by differences of food during the larval state.

H. CHRISTOPH has published an important paper on the *Lepidoptera* of North Persia, with descriptions of many new species. Hor. Ent. Ross. x. pp. 3-55, pl. 1 (the plate, though quoted in the text, and, for convenience, in the present Record, was published in 1874).

W. ATKINS publishes 'Notes on Southern Indian Lepidoptera,' Ent. vi. pp. 446-448, 474-476, 506-509, 542-544.

H. DRUCE has published a list of the collections of Diurnal *Lepidoptera*, made by Mr. Lowe in Borneo, with descriptions of new species (P. Z. S. 1873, pp. 337-361, pls. 32 & 33), 301 species are enumerated; 29 of which are described as new.

Africa.

C. WARD ('African Lepidoptera, being descriptions of new species, with illustrations,' London: Feb. 1873, 4to, pt. 1, pp. 10, 6 col. plates) has commenced a work to illustrate new or rare species of butterflies received by him from Africa and Madagascar.

Snellen (Tijdschr. Ent. (2) viii. pp. 71-74) enumerates 11 *Rhopalocera*, 2 *Noctuae*, 1 *Pyrallis*, and 1 new *Geometra*, captured by J. Keulemans on Prince's Island, in the Gulf of Guinea.

On the *Lepidoptera* of St. Vincent's (Cape Verdes); Weyenbergh, Ent. M. M. x. pp. 121, 122. 6 small species noticed, 1 new. Both the Fauna and Flora are poorer now than in former years.

A. Gerstäcker gives a list of 40 *Lepidoptera* from Zanzibar. Von der Decken's Reisen in Ost Afrika, iii. pt. 2, pp. 363-384, pls. xv. & xvi. [*Ante*, p. 216]. Most of the new species previously described in Arch. f. Nat. xxxvii. pp. 359-361, are figured.

On the scarcity of *Lepidoptera* in Equatorial Central Africa; J. A. Grant, P. Geogr. Soc. xlii. p. 304.

Australasia.

G. MASTERS has published a "Catalogue of the described Diurnal

Lepidoptera of Australia” (Sydney: 1873, 8vo, pp. iv. 24) compiled, with scarcely an alteration, and inclusive of press errors, from the Recorder’s ‘Synonymic Catalogue of Diurnal Lepidoptera.’

Captures in S. Australia, by H. R. Cox, Ent. vi. pp. 357–359, 401, 402.

G. SEMPER notices 12 *Lepidoptera* collected in the Island of Yap, in the South Seas, and figures the earlier stages of several. J. Mus. Godeffr. ii. pp. 59–64, pl. vii.

A. G. Butler re-describes and figures a few previously unfigured butterflies, chiefly from the South Sea Islands: Brenchley’s Cruise of the Curaçoa, [ante, p. 346], pp. 464–474, pls. xlvi.–l.

North America.

A. M. ROSS (‘The Butterflies and Moths of Canada, with descriptions of their colour, size, and habits, and the food and metamorphoses of their larvæ’: Toronto: 1873, 8vo, pp. 93, woodcuts) gives a selection from the more common and conspicuous species.

Grote has published a supplement to the Descriptions of American Lepidoptera by himself and Robinson, including a systematic list of the species published in this series of papers. Tr. Am. Ent. Soc. iv. pp. 425–435. He has also published a series of papers on North American moths, remarking on various known species, describing many new ones, and remarking on the classification of the *Lepidoptera* generally. Bull. Buff. Soc. i. pp. 1–16, 73–94, 168–174, pl. i.

A. S. PACKARD (Am. Nat. vii. pp. 453–458, reprinted from P. Bost. Soc. 1873) compares the distribution of Californian moths with that of other animals. The *Geometræ* may be classed into 4 groups: 1, exclusively American; 2, European and American; 3, Circumpolar or Cosmopolitan; 4, Species common to both the Atlantic and Pacific States.

The same author has also published ‘Notes on North American Moths of the families *Phalænida* and *Pyralidæ* in the British Museum’ (Rep. Peab. Ac. v. pp. 82–92). These notes do not admit of abridgment, and relate solely to the specimens now extant in the British Museum under Walker’s names, without any attempt to compare them with his published descriptions. Grote (*l. c.* pp. 156–160) compares Packard’s results with his own.

P. C. ZELLER has published ‘Beiträge zur Kenntniss der nördamerikanischen Nachtfaltern, besonders der Microlepidopteren,’ pt. 2 (Verh. z.–b. Wien, xxiii. pp. 201–334, pls. iii. & iv.). A great number of new species are described, and known species criticised. The N. American *Tineina* will probably prove to be about as numerous as the European; but the number of peculiar forms is very small.

South America.

Captures at Huasampilla, Peru, by H. B. Whitely, with descriptions of new species; A. G. Butler, Ann. N. H. (4) xii. pp. 219–230.

PAPILIONIDÆ.

Papilio (Ornithoptera) cassandra, Scott, figured and re-described; A. G. Butler, Brenchley’s Cruise of the Curaçoa, p. 474, pl. l.

Papilio alphenor, Cram. Transformations, &c., described and figured; G. Semper, J. Mus. Godeffr. ii. pp. 59 & 60, pl. viii. figs. 1-3, 15-18.

Papilio merope. On aberrant neuration in a ♂: R. Trimen, P. E. Soc. 1873, pp. xxi. & xxii. fig.

C. Ward re-describes and figures his *P. constantinus* (African Lepidoptera, p. 1, pl. i. figs. 1 & 2), and figures *P. evombar*, Boisd., l. c. figs. 3 & 4.

Papilio kirbyi figured and re-described by Hewitson, Ex. Butt. v. pt. 87, Pap. pl. xiii. fig. 42.

H. Strecker (Lepidoptera) figures and re-describes *P. indra*, Reak., p. 9, pl. ii. fig. 1; *P. pilumnus*, Boisd., p. 13, pl. ii. fig. 3; *P. eurymedon*, Bd., p. 25, pl. iv. fig. 1; *P. marchandi*, Bd., l. c. fig. 2; *P. daunus*, Bd., p. 45, pl. vi. figs. 1 & 2; *P. zolicaon*, Bd., p. 46, pl. vii. fig. 3; and *P. asterioides*, Reak., p. 47, pl. vi. fig. 4.

Papilio burtoni and *caleli*, Reak., = *P. columbus*, Hew., and *P. polymetus*, Godt., respectively. H. Strecker, l. c. p. 15.

Parnassius. On its distribution, &c.; H. W. Bates, in Henderson & Hume's 'Lahore to Yarkand,' p. 307.

Parnassius acco figured by Bates, l. c. p. 305.

Parnassius mnemosyne, var. *nubilosus*, from N. Persia described; H. Christoph, Hor. Ent. Ross. x. p. 19.

Bhutanitis, g. n., Atkinson, P. Z. S. 1873, p. 540. Intermediate between *Thais* and *Sericinus*. Type, *B. lidderdalii*, sp. n., id. l. c. p. 571, pl. 1., Bhutan [= *Armandia thaidina*, Blanch.].

Ornithoptera flavicollis, sp. n., Druce, P. Z. S. 1873, p. 356, Borneo.

Papilio illyris, Hewitson, Ent. M. M. ix. p. 232, Ex. Butt. v. pt. 87, Pap. pl. xiii. figs. 43 & 44, Gold Coast; *P. lowii*, pl. xxxiii. fig. 6, and *acuta*, Druce, P. Z. S. 1873, p. 358, Borneo; *P. colonna* and *philonoe* Ward, Ent. M. M. x. pp. 151 & 152, Ribé; *P. anticostensis* (? = *asterias*, var.), Strecker, Lepidoptera, p. 10, pl. ii. fig. 2, Fox Bay, Anticosti Island, Labrador (cf. also W. Saunders & W. H. Edwards, Canad. Ent. v. pp. 117-119, 153 & 154. Edwards states that it is distinct from *asterias*, but = *brevicauda*, Saund.); *P. mayo* [!], Atkinson, P. Z. S. 1873, p. 736, pl. lxiii. fig. 1, Andaman Islands: spp. nn.

Mesapia shawii, sp. n., H. W. Bates, in Henderson & Hume's 'Lahore to Yarkand,' p. 305, Chang Lang Pass, 18,000 feet.

PIERIDÆ.

Tachyris ada and *Terias hecabe* noticed from Yap, and larvæ and pupæ figured by G. Semper, J. Mus. Godeffr. ii. pp. 60 & 61, pl. viii. figs. 4 & 5.

Dismorphia. Butler ('Lepidoptera Exotica,' pl. xlvi.) figures and re-describes his *D. sorana*, p. 122, figs. 1 & 2; *hagaresa*, p. 123, figs. 3; *viridifascia*, p. 123, figs. 4 & 5; *lubina*, p. 124, figs. 6 & 7; and *lumina*, p. 124, figs. 8 & 9.

Terias ingana, Wallace, figured and re-described by Butler, Brenchley's Cruise of the Curaçoa, p. 470, pl. xlix. fig. 3.

Terias rahel (Snellen nec Fab.), = *brigitta*, Cram. [zoe, Hopff., and *pulchella*, Trim., will be the ♀, according to Snellen's previous remarks]; Snellen, Tijdschr. Ent. (2) viii. p. 124.

Pieris. Ward (African Lepidoptera) figures and re-describes his *P. mananhari*, p. 2, pl. ii., figs. 1-4; *antsianaka*, p. 2 pl. ii., figs. 5 & 6; *cebron*, p. 3, pl. iii. figs. 1 & 2; *capricornus*, p. 3, pl. iii. figs. 3-7; and *rhodanus*, p. 4, pl. iv. figs. 1 & 2.

Pieris brassicæ, *rapæ*, and *calypso*. On specimens striped with green along the nervures by bursting of the pigment cells; Gregson, Meldola, and Powell, Ent. vi. pp. 286-288, 315.

Pieris oleracea, *rapæ*, and *protodice*. A popular account, with figures of larvæ and perfect insects, by W. Saunders, Canad. Ent. v. pp. 37-39, 41-43.

Pieris rapæ. Scudder re-describes var. *novangliæ*, from New England: Bull. Soc. Ent. Fr. (5) iii. p. lvii. On yellow vars. bred from mignonette, in both sexes; F. B. Caulfield, Canad. Ent. v. p. 59.

Pieris menapia, Feld., figured and re-described by Strecker, Lepidoptera, p. xiv. pl. ii. fig. 4.

Pieris rapæ and *Anthocharis cardamines* taken *in coitû*; L. G. Pike, Ent. vi. p. 291.

Appius melania, Fab., re-described and figured by Butler, Brenchley's Cruise of the Curaçoa, p. 471, pl. xlix. figs. 4 & 5.

Eronia. Ward (African Lepidoptera, p. 4, pl. iv.) re-describes and figures his *E. vohemara*, figs. 3 & 4, and *verulanus*, figs. 5-7.

Callidryas. Butler ('Lepidoptera Exotica') figures and re-describes *C. agarithe*, Boisd., p. 121, pl. xlv. figs. 1-4; *trite*, L., p. 121, pl. xlv. figs. 5-8; *wallacii*, Feld., p. 122, pl. xlv. figs. 9 & 10; *statira*, Cr., p. 142, pl. li. figs. 1-4; *jaresia*, Butl., p. 144, pl. li. figs. 5 & 6; *jada*, Butl. p. 144, pl. li. figs. 7-10; *neleis*, Boisd., p. 145, pl. lii. figs. 1-4; *godartiana*, Swains., p. 145, pl. liii. figs. 5-8; *hartonia*, Butl., p. 147, pl. lii. figs. 9-12; *orbis*, Poey, p. 153, pl. lv. figs. 1-4; and *intermedia*, Butl., p. 155, pl. lv. figs. 5-8. He concludes his monograph (which is also published separately), having enumerated 43 species, which he proposes (pp. 154 & 155) to divide into 4 genera, as follows;—*Catopsilia*, Hübn., type, *P. crocale*, Cram.; *Phæbis*, Hübn., type, *P. cipris*, Cram.; *Callidryas*, Boisd., type, *P. eubule*, Lim.; *Aphrissa*, Butl. (g. n.), type, *P. statira*, Cram.

Callidryas lactea, Butler, figured and re-described; Brenchley's Cruise of the Curaçoa, p. 470, pl. xlix. figs. 1 & 2.

Rhodocera rhamni observed to mistake a piece of rose-coloured paper for a flower; A. Müller, Ent. M. M. x. p. 20. Its occurrence in Fife recorded by J. Boswell Syme, Scot. Nat. ii. p. 20.

Rhodocera rhamni and *cleopatra*. Hermaphrodites recorded by A. Dihrik, S. E. Z. xxxiv. p. 113, and E. Ragusa, Bull. Ent. Ital. v. p. 50.

Colias. On the Persian species, with special reference to *C. sagartia*, *myrmidone* (of which *thisoa* is a var.), and *aurorina* (with var. *libanotica*); Christoph, Hor. Ent. Ross. x. pp. 20-22.

Colias palæno. J. G. Schilde, S. E. Z. xxxiv. pp. 169-175. *C. pelidne*, *lapponica*, the alpine *verdandi*; and probably also *interior*, *occidentalis*, and *labradorensis*, are forms of this species.

Colias hyale and *erate* may be forms of one species; *id. l. c.* pp. 174 & 175.

Colias nastes and *C. palæno*. On their distribution; H. W. Bates, P. E. Soc. 1873, p. xviii.

Colias dimera, Doubl. & Hew., and var. *semperi*, Reak. [ubi?], figured and re-described by Strecker, Lepidoptera, p. 27, pl. iv. figs. 3 & 4.

Callosune casta, figs. 1 & 1a, and *hetera*, fig. 2, figured and re-described by Gerstäcker, V. d. Decken's Reisen, pt. iii. 2, p. 365, pl. xv.

Callosune theopompe, Feld., = *eupompe*, Klug; and *C. exole* ♀ (*nec* ♂), Reiche, = *achine*, Cr.; Gerstäcker, l. c. p. 364.

Anthocharis danae, Doubl. & Hew., Trimen (*nec* Cram.) is re-named *Callosune cinerascens*; Butler, Cist. Ent. vii. p. 172.

Anthocharis lanceolata, Boisd., figured and re-described by Strecker, Lepidoptera, p. 49, p. vi. fig. 5.

Euterpe rosacea, Quito, *approximata*, Polochic Valley, *nigripennis*, Bogote; Butler, Cist. Ent. vii. p. 174, spp. nn.

Leptosia sinensis, sp. n., *id.* l. c. p. 173, Shanghai.

Nychitona nupta, sp. n., *id.* l. c. p. 175, Angola [= *alceota*, ♀, Hopffer, Peters' Reise, Ins. p. 349.]

Elodina quadrata, sp. n., *id.* l. c. p. 175, Australia.

Sphenogona graduata, p. 174, Para, *ectriva* (Doubl. MS.), p. 175, Archilona, *id.* l. c., spp. nn.

Synchlœ megamera, sp. n., *id.* l. c. p. 173, Japan.

Eronia zelinda, sp. n., Ward, Ent. M. M. x. p. 59, Ribé, Angola.

Megonostoma cynops, sp. n., Butler, l. c. p. 171, Haiti.

Anthocharis julia, sp. n., Strecker, Lepidoptera, p. 50, pl. vi. figs. 6 & 7, Colorado.

DANAIDÆ.

Danais archippus. Transformations described with figures of all stages, and details; W. Saunders, Canad. Ent. v. pp. 4-8. On its spread in Australia and Tasmania; M'Coy, Ann. N. H. (4) xi. pp. 440 & 441; xii. p. 184. On its appearance in the South Sea Islands, Australia, and Celebes; G. Semper, J. Mus. Godeffr. ii. pp. 117-119.

Danais insolata, Butler, figured and re-described in Brenchley's Cruise of the Curaçoa, p. 467, pl. xlvi. figs. 1 & 2.

Danais limniace; the var. *petiverana*, Doubl., from Africa, is regarded by Gerstäcker as distinct: V. d. Decken's Reisen, iii. pt. 2, p. 368.

Amauris nossima, Ward, figured and re-described, African Lepidoptera, p. 5, pl. v. fig. 1.

Euplœa. Butler, l. c., figures and re-describes his *E. brenchleyi*, p. 464, pl. xlvi. figs. 1-4; *imitata*, figs. 1 & 2, and *lorenzo*, figs. 3 & 4, p. 466, pl. xlvi.

Euplœa lorraini, Chapman, Ent. M. M. ix. p. 263, Java; *E. zonata*, Druce, P. Z. S. 1873, p. 338, Borneo; *E. andamanensis*, Atkinson, *op. cit.* p. 736, pl. lxiii. fig. 2, Andaman Islands; *E. mesocala*, Vollenhoven, Tijdschr. Ent. (2) viii. p. 244, pl. xi. figs. 1 & 2, Waigiou: spp. nn.

HELICONIIDÆ.

Butler (Lepidoptera Exotica, pl. 1.) figures and re-describes his *Olyras montagui*, p. 138, fig. 1; *Dircenna lonera* and *relata*, p. 139, figs. 2 & 3;

Ithomia plaginota, p. 139, fig. 4; *Pteronymia fulvimargo*, *olyrilla*, and *notilla*, p. 140, figs. 5-7; and *Leucothyris rubescens*, p. 141, fig. 9.

Melinæa cydippe, Salvin, = *Mechanitis methone*, Hewitson: Butler, Cist. Ent. vii. p. 154.

Heliconia choarina, Hewitson, figured, Ex. Butt. v. (86), *Tithorea* and *Heliconia*, pl. vii. figs. 24 & 25.

Methona confusa, sp. n., Butler (= *M. psidii*, Bates, nec Linn.), Cist. Ent. vii. p. 151, Tapajos, Peru.

Dircenna obfuscata, sp. n., *id. l. c.* Ega.

Ceratinia intermedia and *fulminans*, Bogota, *lurida*, Pusartambo, Peru, *id. l. c.* p. 152, spp. nn.

Mechanitis fallax, Bogota; *deceptus*, Cuença, Bolivia, Rio Napo, p. 154, *veritabilis*, p. 155, Bogota, Venezuela: *id. l. c.* spp. nn.

Napeogenes flossina, sp. n., *id.*, Lepidoptera Exotica, p. 141, pl. l. fig. 8, Colombia.

Hymenitis albinotata, sp. n., *id.* Cist. Ent. vii. p. 153, Bogota.

Ithomia nigrimargo, sp. n., *id. l. c.* Cuença.

Melinæa parallelis, sp. n., *id. l. c.* p. 155, Panama.

Tithorea pseudethra, Brazil, p. 155; *egaensis*, Ega, p. 156; *pavonii*, Panama, Central America, p. 156, *id. l. c.* *T. tamassa*, Hewitson, Ex. Butt. v. (86), *Tith.* and *Heliconia*, pl. vii. figs. 1-3, New Granada: spp. nn.

Heliconius vetustus, Demerara, p. 165, *radiosus*, Villa Nova, *vittatus*, Bogota, p. 166, *bicoloratus*, E. Peru, *metabilis*, Venezuela, p. 167, *diffusus*, Pará, *mimulinus*, Bogota, p. 168, and *rufilimbatus*, Tapajos, p. 169, Butler, *l. c.*; *Heliconia tamarinda*, Hewitson, *l. c.* fig. 23, New Granada: spp. nn.

Eueides unifasciatus, Ega, and *hippolinus*, E. Peru, Butler, *l. c.* p. 169: spp. nn.

ACRÆIDÆ.

Acraea. Ward (African Lepidoptera, pl. vi.) figures and re-describes his *A. satis*, p. 6, fig. 1; *pentapolis*, p. 6, fig. 2; *peneleos*, p. 7, figs. 3 & 4; *polydectes*, p. 8, figs. 5 & 6, and *pharsalus*, figs. 7 & 8.

Acraea seis, Feisth., is referred to *neobule*, Doubl.; Gerstäcker, V. d. Decken's Reisen, iii. pt. 2, p. 368.

Acraea janisca, Godt., *manjaca*, Boisdl., *rougeti*, Guér. *eponina*, Cr., = *serena*, F.; *id. ibid.*

Acraea rogersi, Hewitson, Ent. M. M. x. p. 57, Angola; *A. cydonia*, Camaroons, Angola, and *A. sambavae*, Madagascar, p. 59, *A. rabbale*, Ribé, p. 152, Ward, *op. cit.*: spp. nn.

Actinote griseata, sp. n., Butler, Cist. Ent. vii. p. 170, Pucartambo, Peru.

NYMPHALIDÆ.

Dione. Butler refers *Colaenis telesiphe*, Doubl. & Hew., to this genus; Ann. N. H. (4) xii. p. 227.

Agraulis glycera, Feld., = *Dione moneta*, Hübn.; *A. moneta*, Poey, Doubl. & Hew., nec Hübn., is re-named *poeyi*; Butler, *l. c.*

Terinos fulminans and *lucilla*, Butler, figured and re-described, Lep. Ex. pp. 151-152, pl. liv. figs. 2 & 3.

Argynnis adippe, var.; B. Lockyer, Ent. vi. p. 484.

Argynnis aglaia, var., figured and described; E. Newman, *op. cit.* p. 369.

Argynnis apherape, var. *ossianus*. Larva described; J. G. Schilde, S. E. Z. xxxiv. pp. 175 & 176.

Argynnis freija, *chariclea* and *amathusia* may be forms of one species, *id. l. c.* pp. 176 & 177.

Argynnis frigga. Larva and variation described; *id. l. c.* pp. 177 & 178.

Argynnis laodice. Larva and pupa described and figured; G. Künow, Schr. Ges. Königsb. 1872, pp. 447-449, pl. vii.

Argynnis lathonia, var. figured and described: E. Newman, *l. c.* p. 393.

Argynnis niobe. On its supposed occurrence in England; Doubleday, Ent. vi. p. 447.

Argynnis vorax, Butler, figured and re-described; Lep. Ex. p. 151, pl. liv. fig. 1.

Brenthis bellona. Scudder's paper on this species is translated, with remarks on the allied European species by A. Speyer, Verh. z.-b. Wien, xxiii. pp. 145-152, from Am. Nat. vi. pp. 514-518 [Zool. Rec. ix. p. 343].

Melitea artemis. E. Birchall describes the Irish form as var. *hibernica*, and figures the various forms occurring in the British Isles, Ent. M. M. x. p. 154, pl. i. [the plate is separately published].

Melitea dia supposed to have occurred in Kent; Ent. vi. p. 484.

Melitea didyma. H. Christoph describes a var. *saxatilis* from the mountains of North Persia; Hor. Ent. Ross. x. p. 28.

Melitea euphrosyne, var. described and figured; E. Newman, *l. c.* p. 447.

Melitea athalia and *M. dictynna*. A supposed hybrid between these species from Berlin described by Pfützner under the name *melicerta*; B. E. Z. xvii. pp. 159 & 160.

Eresia yorita, Reakirt, = *E. ezra*, Hewitson; *E. sydra*, Reak., = *E. acesas*, Hew., Strecker, Lepidoptera, p. 24.

Grapta dryas and *comma* are forms of one species: W. H. Edwards, Canad. Ent. v. p. 184.

Vanessa antiopa. On its occurrence in Britain, &c., Ent. M. M. ix. pp. 193-195, 217, 218, 245, 246; x. pp. 40 & 41; Ent. vi. pp. 285 & 286; F. B. White, Scot. Nat. ii. pp. 16-20. On its recent occurrence in Northumberland and Durham, T. J. Bold, Tr. North. Durh. v. pp. 30-33; in Norfolk, C. G. Barrett, Tr. Norw. Soc. 1872-1873, pp. 24-26. Most observers agree that the majority of the specimens taken in Britain are bred in the country, and not immigrants. On the colour of the border, &c., in America; W. V. Andrews, Ent. vi. pp. 329, 484.

Grote proposes the name *Scudderia* for the genus *Papilio*, Scudd., *nec auctt.*, type, *V. antiopa*, auctt.; Canad. Ent. v. p. 144.

Vanessa urticae. Boisduval describes and figures a var. *atrebatensis*, from Arras; R. Z. (3) i. p. 409, pl. xvii. [= *ichnusoides*, De Selys; Pet. Nouv. 1874, p. 387.]

Pyrameis atalanta. G. W. Royston Pigott, 'On the Spherules which compose the Ribs of the Scales of the Red Admiral Butterfly (*Vanessa atalanta*),' &c., M. Micr. J. ix. pp. 59-63, describes the structure of the black scales in great detail.

Pyrameis cardui, var. figured and described; E. Newman, *l. c.* p. 345.

Junonia kowara, Ward, figured and re-described; Ward, African Lepidoptera, p. 6, pl. v. figs. 5 & 6.

Junonia anone. Gerstäcker considers *Pap. clelia*, Cr., to be this species. V. d. Decken's Reisen, iii. 2, p. 369.

Junonia pluto, Heer, is refigured, with remarks on its supposed affinities, by Butler, Lep. Exot. pp. 127 & 128, pl. xlvi. fig. 7; Geol. Mag. x. pp. 3 & 4, pl. i. fig. 7: *V. attavina*, Heer, is possibly the reverse. A wing of *J. hedonia* is figured for comparison (fig. 6).

Junonia vellida and *Diadema auge* recorded from Yap, and the larva and pupa of the latter figured; G. Semper, J. Mus. Godeffr. ii. p. 61, pl. viii. figs. 6 & 7.

Salamis anteva, Ward, figured and re-described, *l. c.* p. 5, pl. v. figs. 2-4.

Epiphile grandis, Butler, figured and re-described; Lep. Exot. p. 152, pl. liv. fig. 4.

Catagramma bonplandi. The varieties figured by Hewitson (Ex. Butt. Cat. figs. 72 & 66) are named *Perisama bourcierii*, (Boisd. MS.) and *albipennis* respectively. Butler, Cist. Ent. vii. p. 160. [The former = *Callicore occidentalis*, Guén.]

Catagramma humboldti, var., Hewitson, Ex. Butt. Cat. figs. 82 & 83, is named *Perisama divergens*, Butler, *l. c.* p. 162.

Callizona aceste, Doubl. & Hew. (*nec* Linn., Cram.), is named *C. latifascia*; Butler, *l. c.*

Diadema. On the African species of the section *Euralia*; R. Trimen, Tr. E. Soc. 1873, p. 107, notes.

Diadema bolina, var.; Butler, Brenchley's Cruise of the Curaçoa, p. 468, pl. xlviii. figs. 3 & 4.

Calinaga buddha certainly belongs to the *Nymphalidæ*, and not to the *Papilionidæ*. It is most nearly related to *Euripus*. Snellen, Tijdschr. Ent. (2) viii. pp. 123 & 124.

Rhomaleosoma viridinatatum, Butler; ♂ described, Cist. Ent. vii. p. 159.

Apatura ilia. On its supposed occurrence in England; Butler & Doubleday, Ent. M. M. ix. pp. 217, 244, 245, 270, 271.

Apatura lycaon and *herse*; Butler, P. E. Soc. 1873, p. xxxi.

Charaxes jasius. On the habits of the larva, &c.; J. H. Pearson, Ent. M. M. x. pp. 113-116.

Charaxes antamboulou, Lucas, is probably a Madagascar form of *C. candiope*, Godt.; and *C. antanala*, Luc., = *C. cacuthis*, Hew.: C. Ward, Ent. M. M. ix. p. 210.

Mynes guerini, Wall., = *M. geoffroyi*, Guér.; W. H. Miskin, P. E. Soc. 1873, p. xxvii.

Paphia glycerium. Transformations, &c., noticed by Riley, Rep. Ins. Mo. v. pp. 145-149.

Siderone ide, Hübn., = *Pap. nemesis*, Ill.; Kirby & Weymer, Pet. Nouv. 1873, p. 283.

Protogonius. Reviewed by A. G. Butler, P. Z. S. 1873, pp. 772-775, pl. lxxix. 8 new species are described; and *Pap. fabius*, Drury, nec Cram., nec *Pap. hippona*, Fab., from Brazil, is re-named *drurii* (p. 773).

New species :—

Cethosia insulata, A. G. Butler, Cist. Ent. vii. p. 165, Ké Island.

Cynthia ada, M. R. Butler, P. Z. S. 1873, p. 686, Queensland.

Atella bowdenia, id. l. c. p. 687, Friendly Islands.

Argynnis pallescens, Hakodadi, and *inconstans*, Australia, A. G. Butler, l. c. p. 164.

Cymbelis whitelii [?-leyi], id. Ann. N. H. (4) xii. p. 226, Huasampilla, Peru.

Eumica octomaculata, id. Cist. Ent. vii. p. 160, East Peru.

Perisama lineata, Peru, p. 160; *viridinota*, E. Peru, *ochreipennis*, Bolivia, and *tristrigosa*, Pucartambo, Peru, p. 161, *rhodoptera*, Peru, Bolivia, p. 162: id. l. c.

Callizona tapajona, p. 162, Tapajos, *fulvescens*, p. 163, E. Peru: id. l. c.

Diadema wallaciana, ? India, *interstincta*, Assam; id. l. c. p. 157; *D. chapmani*, Hewitson, Ent. M. M. ix. p. 233, Calabar; *D. deceptor*, Trimen, Tr. E. Soc. 1873, p. 105, Natal.

Godartia wakefieldi, C. Ward, Ent. M. M. x. p. 152, Ribé.

Pseudacraea simulator, A. G. Butler, Cist. Ent. vi. p. 125, West Africa.

Heterochroa tumida, id. op. cit. vii. p. 163, E. Peru, Bogota.

Athyma amhara, Druce, P. Z. S. 1873, p. 344, pl. xxxii. fig. 2, Borneo.

Euryphene pluto, C. Ward. l. c. p. 59, Camaroons.

Rhomaleosoma inanum, Ashanti, and *permixtum*, Gaboon, A. G. Butler, l. c. p. 158; *R. imitator*, Trimen, l. c. p. 107, Natal.

Adolias bellata, Druce, l. c. p. 344, pl. xxxii. fig. 3, Borneo.

Tanæcia flora, M. R. Butler, l. c. p. 235, Penang.

Apatura substituta, A. G. Butler, l. c. p. 158, North China, Japan; *A. cleocharis*, Hewitson, Ent. M. M. x. p. 58, Angola.

Charaxes andarae and *andriba*, C. Ward, Ent. M. M. ix. pp. 209 & 210, Madagascar; *C. nobilis*, Druce, op. cit. x. p. 13, Old Calabar; *C. pythoderus*, Hewitson, op. cit. p. 57, Angola.

Mynes doryca, A. G. Butler, l. c. p. 163, Dorey.

Protogonius quadridentatus, Bolivia, fig. 1, *bogotanus*, p. 773, and *tithoreides*, Bogota, *ochraceus*, Cayenne, fig. 3, *lileps*, Venezuela, p. 774, *divisus*, E. Peru, *castaneus*, Ega, fig. 2, *albinotatus*, Bogota, fig. 4, p. 775; A. G. Butler, P. Z. S. 1873, pl. lxxix.

MORPHIDÆ.

H. BURMEISTER, 'Description des Morphonides Brésiliens;' R. Z. (3) i. pp. 17-47, criticises the figures of Merian and Stoll. He specially notices *Morpho laertes*, p. 21, pl. iii. figs. 1-4 (larva and pupa), *epistrophis*, p. 24, pl. ii. larva, *perseus* (= *hercules*, p. 26, pl. iii. fig. 5 (pupa), *menelaus* (♀ = *nestor*), p. 27, *anaxibia* (*telemachus*, L.), p. 29, and *achilides*, p. 30.

Morpho metellus, Cram., *P. telemachus*, Cram. (*cramerii*, Kirb.), *M. scipio*, Feld., and probably *P. perseus*, Cram., are forms of this species.

The larva is also noticed. The blue and yellow varieties of the imago occur in both sexes. Möschler, S. E. Z. xxxiv. pp. 197–199.

Morpho zephyritis, Butler, figured and re-described, Lep. Ex. p. 156, pl. lvi. figs. 1 & 2.

Morpho lympharis, sp. n., A. G. Butler, Ann. N. H. (4) xii. p. 225; Lep. Ex. p. 156, pl. lvi. figs. 3 & 4, Pucartambo, Peru.

BRASSOLIDÆ.

H. BURMEISTER, *l. c.*, includes *Opsiphanes* with *Pavonia*. He notices *P. eurylochus*, p. 36, pl. iv. (larva and pupa); *inachis* (*beltrao*, Hübn.), p. 38, pl. v. fig. 1 (larva); *ilioneus*, Cr. (= *teucer*, Hübn.), p. 39, pl. v. figs. 2 & 3 (larva and pupa); *idomeneus*, p. 41; *cassia*, p. 42, pl. vi. figs. 1 & 2 (larva); and *quinteria*, p. 42, pl. vi. fig. 4 (larva); *Dynastor darius*, p. 44, pl. vi. fig. 3 (larva), and *napoleon*, and the genus *Brassolis*.

Opsiphanes orgetoria, Hewitson, figured and re-described, Ex. Butt. v. (86), *Ops.* pl. i. figs. 1 & 2.

Dynastor stygianus, Butler, figured and re-described, Lep. Exot. p. 125, pl. xlvi. fig. 1.

Morpho reinwardtianus, Drap., = *M. inachis*, Godt.; Deyrolle, Pet. Nouv. 1873, p. 279. It probably also = *demosthenes*, Perry, and *beltrao*, Ill.; Kirby, *op. cit.* p. 283.

Dasyophthalma vertebralis, Butler, figured and re-described, *l. c.* fig. 2.

Palæontina, g. n., A. G. Butler, *l. c.* p. 126; Geol. Mag. x. p. 2. Allied to *Dasyophthalma*, *Caligo*, and *Brassolis*; type, *P. oolitica*, sp. n., *l. c.* pl. xlvi. figs. 1 & 2 (Geol. Mag. pl. i. figs. 1 & 2), Stonesfield Slate, Oxfordshire.

Opsiphanes zelotes, sp. n., Hewitson, Ex. Butt. v. (86) *Ops.* pl. i. figs. 3 & 4, New Granada.

SATYRIDÆ.

Antirrhæa phasiana, figs. 3 & 4, *scoparia*, figs. 1 & 2, figured and re-described by Butler, Lep. Ex. p. 137, pl. xlix.

Cyllo leda, from Yap, noticed by G. Semper, J. Mus. Godeffr. ii. p. 61.

Neorinopsis sepulta, Boisdu, re-figured by Butler, Lep. Ex. pl. xlvi. fig. 3; Geol. Mag. x. pl. i. fig. 3. Undersides of *Neorina lowii* and *Antirrhæa philoetetes* figured for comparison (figs. 4 & 5).

Erebia melas and *dromus*. On their variation; Oberthur, Pet. Nouv. 1873, pp. 339 & 340.

E. ligea, *euryale*, *adyte*, and *embla*; J. G. Schilde, S. E. Z. xxxiv. pp. 179–181.

Eneis aello. Egg and young larva described and figured, with details by Scudder, Ann. Ent. Belg. xvi. pp. 145–148, pl. i.

Eneis norna emits an agreeable odour when squeezed. J. G. Schilde, *l. c.* pp. 181 & 182.

Chionobas uhleri, figured and re-described by Strecker, Lepidoptera, p. 28, pl. iv. fig. 5.

Pararga mæra. Vars. from N. Persia; H. Christoph, Hor. Ent. Ross. x. p. 29.

Pararga megæra, var. ; Noel, Birchall, & Anderson, Ent. vi. pp. 485, 521, 545.

Pararga adrasta, and var. *maja*. Habits, transformations, &c. ; A. Fuchs, S. E. Z. xxxiv. pp. 98-107.

Epinephile janira, var. ; T. Barns, Ent. vi. p. 411.

Epinephile hispulla, Esp., is distinct from *janira*, L. ; Millière, Cat. rais. i. p. 29.

Epinephile hyperanthus and *tithonus*. Vars. described and figured by E. Newman, Ent. vi. pp. 417 & 441.

Satyrus semele, var. ; Lambrichs, Ann. Ent. Belg. xvi. p. 112.

Satyrus ridingsi and *sthenele*, Edw., figured and re-described by H. Strecker, Lepidoptera, pp. 29 & 30, pl. iv. figs. 6 & 7.

Periplysia leda, Gerstäcker, figured and re-described, V. d. Decken's Reisen, iii. pt. 2, pp. 370-372, pl. xv. figs. 3 & 3â.

Pedaliodes ereiba, Feld., Butler describes a var. *peruviana* from Huasampilla, Peru, Ann. N. H. (4) xii. p. 221.

Dædalma dorinda, var. ? or sp. n., ? from Huasampilla, Peru ; *id. l. c.* p. 223.

Drucina leonata, Butler, figured and re-described ; Lep. Ex. p. 137, pl. xlix. fig. 5.

Taygetis incerta, *umbracea*, and *leuctra* (p. 149), *xantippe* and *ophelia*, (p. 150), Butler, figured and re-described ; *l. c.* pl. liii. figs. 1-5.

Corades iduna. Butler notes a var. *marginalis* from Huasampilla, Peru ; and a var. *peruviana* from E. Peru ; Ann. N. H. (4) xii. p. 224.

New species :—

Leptoneura dingana, Trimen, Tr. E. Soc. 1873, p. 102, pl. i. fig. 1, Natal.

Erebia irrorata, *id. l. c.* p. 103, pl. 1. fig. 2, Cape Colony.

Satyrus hoffmani, Strecker, Lepidoptera, p. 31, pl. iv. fig. 8, Nevada ; *S. wheeleri*, Edwards, Tr. Am. Ent. Soc. iv. p. 343, Rocky Mountains.

Mycalesis medontius, Gaboon, figs. 56 & 57, *mareotis*, Philippines, fig. 58, *margites*, locality unknown, fig. 59, *macrones*, W. Africa, fig. 60, and *mandanes*, Angola, Gaboon, figs. 61 & 62, Hewitson, Ex. Butt. v. (88) *Myc.* pl. ix. ; *M. ibitina*, Ward, Ent. M. M. x. p. 60, Madagascar ; *M. perspicua*, Trimen, *l. c.* p. 104, pl. i. fig. 3, Natal and Santa Lucia Bay ; *M. amæna*, Druce, P. Z. S. 1873, p. 339, pl. xxxii. fig. 1, Borneo.

Lymanopoda ocellifera and *rufescens*, p. 219 ; *eubagioides*, p. 220, A. G. Butler, Ann. N. H. (4) xii. Huasampilla, Peru.

Steroma umbracina, *id. l. c.* p. 221, Huasampilla.

Pedaliodes ferratilis, and *niveonota*, *id. l. c.* Huasampilla.

Oxeoschistus mirabilis, *id. l. c.* p. 222, Huasampilla.

Pronophila mirabilis and *venerata*, *id. l. c.* p. 223, Huasampilla.

Corades fuscipлага, *id. l. c.* p. 224, Huasampilla.

ERYCINIDÆ.

Mesosemia messala, Hewitson, figured ; Ex. Butt. v. *Mes.* pl. xii. figs. 122 & 123.

Pachythone erebia, Bates, figured ; Hewitson, *l. c.* *Pach.* and *Cremna*, fig. 5.

Mesosemia acuta, figs. 112 & 113, Brazil, *mæra*, figs. 114 & 115, Trinidad, *matatha*, figs. 116 & 117, hab. — ?, *mesora*, figs. 118 & 119, Ecuador, *metura*, figs. 120 & 121, hab. — ?; Hewitson, Ex. Butt. v. *Mesosemia*, pl. xii.: spp. nn.

Creuma cebrenia, sp. n., *id. l. c. Pachythone* and *Cremna*, figs. 1–3, Honduras.

Barbicornis dibaphina and *melanops*, spp. nn., A. G. Butler, Cist. Ent. vii. pp. 170 & 171, Brazil.

Zelotæa idothea, sp. n. (Doubl. MS.), *id. l. c.* p. 171, Rio Janeiro.

Pachythone palades, figs. 1 & 2, *pasicles*, figs. 6 & 7, Espirito Santo, Brazil, *philonis*, figs. 3 & 4, Santa Martha: Hewitson, Ex. Butt. v. *Pach.* and *Cremna*, spp. nn.

Lemonias cythera, sp. n., Edwards, Tr. Am. Ent. Soc. iv., p. 345, Arizona.

LYCÆNIDÆ.

Hewitson has published part 5 of his Illustrations of Diurnal Lepidoptera, Lycænidæ (London: 1873, 4to, pp. 137–151, pls. lv.–lix. and suppl. pl. vi.) chiefly containing hitherto unfigured species of *Thecla*.

Myrina. Hewitson (*l. c.* suppl. pl. vi.) figures *M. amasa*, figs. 89 & 90, *antipha*, figs. 91–93, and *acharia*, figs. 94 & 95.

Dipsas. Hewitson, *ibid.*, figures *D. duma*, fig. 15, *taxila*, figs. 16 & 17, and *grunus*, figs. 18 & 19.

Thecla. Hewitson, *l. c.*, re-describes and figures *T. verania*, pl. lv. figs. 322 & 323; *bagrada*, figs. 324 & 325; *fabulla*, figs. 326 & 327, p. 137; *picentia*, figs. 328 & 329, *ceglusa*, figs. 330 & 331, p. 138; *petilla*, figs. 332 & 333; *philinna*, figs. 334 & 335, p. 139; *celmus*, Cr., p. 140, pl. lvi. figs. 338 & 339; *phrutus*, Hüb. (= *fidentia*, Hew., *olim*), p. 141, figs. 340 & 342; *cleon*, F., p. 142, figs. 347–349; *telea*, pl. lvii. figs. 350 & 351; *asa*, figs. 353 & 354, p. 143; *alda*, p. 144, pl. 57, figs. 355 & 356; *calchinia*, pp. 359 & 360; *hyccara*, figs. 361 & 362, p. 145; *trebula*, figs. 363 & 364; *hygela*, pl. lviii. figs. 367 & 368, p. 146; *agra*, figs. 369 & 370, *davara*, fig. 371, *uzza*, figs. 372 & 373, p. 147; *buphonia*, fig. 374, *calatia*, fig. 375, *demonassa*, figs. 376–378, p. 148; *ophia* (*ornea*, Hew., *olim*, is the ♀), pl. lix. figs. 379–381, *lemuria*, figs. 382 & 383, p. 149; *biblia*, figs. 384 & 385, *gnosia*, figs. 386 & 387, *laconia*, figs. 388 & 389, p. 150; *beera*, p. 151, figs. 390 & 391.

Thecla w-album. Life-history by E. Newman, Ent. vi. pp. 419–421.

Bithys azurinus and *hesperitis*, Butler & Druce, figured and re-described, Lep. Ex. p. 159, pl. lvii. figs. 11 & 14.

Mithras angustinus, B. & Dr., figured and re-described, *ibid.* fig. 8.

Strymon pastor, p. 157, fig. 5, *agricolor*, fig. 4, and *cælicolor*, fig. 6, p. 158, B. & Dr., figured and re-described, *l. c.*

Tmolus crolinus, fig. 13, *invisus*, fig. 12, p. 160, *halciones*, fig. 9, *isobeon*, fig. 2, *vespasianus*, fig. 7, p. 161, *charichlorus*, fig. 7, *renarius*, fig. 3, p. 162, B. & Dr., figured and re-described, *l. c.*

Lampides zachæina, B. & Dr., figured and re-described, *l. c.* p. 157, pl. lvii. fig. 1.

Polyommatus alciphron. On specimens forming a transition to *P. gordius*, cf. Christoph, Hor. Ent. Ross. x. p. 22.

Lycæna helloides, *castro*, and *ianthe*; Strecker, Lepidoptera, p. 15.

Lycæna alsus. Notes, and description of pupa; J. Hellins, Ent. M. M. x. pp. 43 & 44.

Lycæna amyntas, double-brooded; E. Lelièvre, Pet. Nouv. 1873, p. 331.

Lycæna ægon, var.; B. Lockyer, Ent. vi. p. 484.

Lycæna emolus, Godt., and *kersteni*, Gerst., figured and the latter re-described; Gerstäcker, V. d. Decken's Reisen, iii. pt. 2, p. 373, pl. xv. figs. 4 & 5.

Lycæna gamra, Led., = *jésous*, Guér.; *id. l. c.* p. 372.

Pentila abraxus, var.; Hewitson, Ex. Butt. v. *Pent.* and *Liptena*, pl. ii. fig. 10.

Liptena. Hewitson (*l. c.*, text, refers his *Pieris erastus* (olim) to this genus.

Callicista, n. g., Grote, Bull. Buff. Soc. i. p. 178, allied to *Strymon*; type, *C. ocellifera*, sp. n., *id. l. c.* Aurora, near Buffalo.

New species :—

Epitola ceraunia, W. Africa, p. 149, *cercene* and *hyetta*, Angola, *carcina*, Old Calabar, p. 150, *zelza*, Old Calabar. and *cephena*, Gaboon, p. 151, Hewitson, Ent. M. M. x.

Amblypodia alinda, Druce, P. Z. S. 1873, p. 354, pl. xxxiii. fig. 5, Borneo.

Iolaus carina, W. Africa, p. 122, *bolissus*, Congo, and *canissus*, S. Africa, p. 123, Hewitson, Ent. M. M. x.; *I. aphnæoides*, Trimen, Tr. E. Soc. 1873, p. 110, Grahamstown.

Hypolycæna aruma, Gaboon, *mera* and *naara*, Angola, Hewitson, *l. c.* p. 124.

Ilerda (?) *superba*, Druce, *l. c.* p. 350, pl. xxxii. fig. 11, Borneo.

♂ *Aphnæus frigidus*, Druce, *l. c.* p. 350, pl. xxxii. fig. 10, Borneo; *A. phanes*, p. 111, figs. 4 & 5, Griqualand, *pseudozeritis*, p. 113, fig. 6, Cape Colony, Trimen, *l. c.* pl. i.

Thecla una, p. 140, figs. 336 & 337, S. America, *zilda*, p. 141, figs. 343 & 344, Rio Janeiro, *adria* (= *megacles*, Cr. ?), p. 142, figs. 345 & 346, Amazon, pl. lvi. *carnica*, p. 143, fig. 352, Amazon, *azia*, p. 144, figs. 357 & 358, Mexico, pl. lviii. *badeta*, p. 146, pl. lviii. figs. 365 & 366, S. America, Hewitson, Ill. D. Lep. pt. v.; *T. crysalus*, Edwards, Tr. Am. Ent. Soc. iv. p. 344, Lake Paso.

Sithon aurea, *scopula*, *pallida*, and *valida*, Druce, *l. c.* p. 352, pl. xxxiii. figs. 1-4, Borneo.

Hypochrysoops elegans, *id. l. c.* p. 350, pl. xxxii. fig. 12, Borneo.

Cupido cornuta, fig. 5, *cærulea*, fig. 6, *almora*, fig. 7, *adana*, *aluta*, fig. 8, *angusta*, fig. 9, p. 349, pl. xxxii. *akaba*, p. 350, *id. l. c.* Borneo.

Lampides pseudocassius, R. P. Murray, Ent. M. M. x. p. 126, Brisbane (= *cassioides*, Murray, *l. c.* p. 108, pre-occ.).

Lycæna arthurus, J. C. Melvill, Ent. M. M. ix. p. 263, Chamounix (= *L. arion*, var., Editors, *ibid.*, & Staudinger, *op. cit.* p. 290); *L. phæbe*, S. Australia, and *pryeri*, Japan, R. P. Murray, *op. cit.* x. pp. 107 & 126;

L. heathi and *acasta*, Cox, Ent. v. p. 402, S. Australia; *L. melissa*, Edwards, l. c. p. 346, Colorado, Nevada, Arizona; *L. sieversi*, p. 23, figs. 1 & 2, *ægagrus*, p. 24, figs. 3 & 4, *staudingeri*, p. 26, figs. 5 & 6, all from N. Persia, Christoph, Hor. Ent. Ross. x. pl. i.; *L. modesta*, Maynard, Am. Nat. viii. p. 178, Florida (is a *Thecla*; Morrison, Bull. Buff. Soc. i. p. 188).

Zeritis argyraspis, Trimen, l. c. p. 114, pl. i. figs. 7 & 8, Cape Colony.

Miletus regina, pl. xxxii. fig. 4, and *nivalis*, p. 348, Borneo, Druce, l. c.

Liptena ilma, fig. 13, Angola, *isca*, figs. 14–16, Old Calabar, and *milca*, fig. 17, W. Africa, Hewitson, l. c.; *L. tera*, id. Ent. M. M. x. p. 125, Gaboon; *L. aslanga* [? *aslauga*], Trimen, l. c. p. 117, Natal.

Pentila tirza and *carnuta*, Hewitson, Ent. M. M. x. p. 125, Gaboon; *P. amenaida*, figs. 4–7, Angola, *rotha*, figs. 8 & 9, Gaboon. *eleaza*, figs. 11 & 12, Old Calabar, id. Ex. Butt. v. *Pent.* and *Liptena*, pl. ii.

HESPERIDÆ.

Eudamus. Hewitson (Ex. Butt. v. *Eud.* pl. i.) figures his *E. pherenice*, fig. 1, *bryaxis*, figs. 2 & 3, *eous*, figs. 5 & 6, *phænice*, figs. 7 & 8.

Pyrrhopyga bixe, Cram., nec L., is re-named *fluminis*; Butler, Cist. Ent. vii. p. 176.

Hewitson (l. c. *Pyrrhopyga*, pl. iv.) figures *P. santhilarius*, Latr. (= *Tamyris pardalina*, Feld.), figs. 24 & 25, *epimachia*, H. S., figs. 26 & 27, from Ecuador, *amystis*, Hew., figs. 28 & 29, and *phoronis*, Hew., figs. 30 & 31.

Ismene anchises, Gerstäcker, figured and re-described; V. d. Decken's Reisen, iii. pt. 2, p. 374, pl. xv. figs. 6 & 6a.

Hesperia. Hewitson (l. c. *Hesp.* pl. v.) figures and re-describes his *H. litana*, figs. 42 & 43, *physcella*, figs. 44 & 45, *ophiusa*, figs. 46–48, *himella*, figs. 49 & 50, *marsena*, figs. 51 & 52, and *lutetia* (with which *xarippe*, Butl., is synonymous), figs. 53 & 54; also (l. c., *Hesp.*, pl. vi.) his *H. marpesia*, figs. 55 & 56, *cæsina*, fig. 57, *liburnia*, figs. 58 & 59, *dolopia*, figs. 60 & 61, *latoia*, figs. 62 & 62, *calvina*, fig. 64, and *laurea*, figs. 65 & 66.

Hesperia actæon. Transformations described by W. Buckler, Ent. M. M. x. pp. 86–88; also by Newman, Ent. vi. pp. 421–423.

Pamphila zabulon. A specimen linking the typical form with vars. *pocahontas* and *quadraquina*: H. K. Morrison, Canad. Ent. v. p. 164.

Lerema accius and *patteni*. The ♂ has a single stemma in the middle of the forehead. It is triplicate in the ♀ of the former. Scudder, Bull. Soc. Ent. Fr. (5) iii. pp. lii. & liii. The ♀ of *L. patteni* has not yet been examined; there are no ocelli in either sex of *L. hianna*; id. Am. Nat. vii. p. 490.

Syrichthus. On the Belgian species, cf. P. Mabille & De Sélys Longchamps, Pet. Nouv. 1873, pp. 337 & 338.

Syrichthus andromedæ is only doubtfully distinct from *S. centaureæ*, Schilde, S. E. Z. xxxiv. pp. 182–184.

Quaedvlieg's *Syrichthus alveus*, var. *fritillum*, = *alveus*, var. *cirsii*.

and his ab. *a*, and probably also *b*, = *serratulæ*; De Sélys Longchamps, CB. Ent. Belg. xvi. p. 74.

Pterygospidea. Hewitson (*l. c. Pter.*, pl. i. figs. 1-6) figures his *P. pteria*, *decoratus*, *pygela*, *leptogramma*, *phagesia*, and *punctata*.

New species :—

Eudamus zelotes, Hewitson, Ex. Butt. v. *Eud.*, pl. i. fig. 4, St. Paulo, Amazon.

Pyrrhopyga latifasciata, A. G. Butler, Cist. Ent. vii. p. 176, Bogota.

Carystus fulvimargo, *id. ibid.* Venezuela.

Hesperia chusca and *yuma*, Edwards, Tr. Am. Ent. Soc. iv. p. 346, Arizona.

Pamphila morantii, Trimen, Tr. E. Soc. 1873, p. 122, Natal; *P. flossites*, M. R. Butler, P. Z. S. 1873, p. 687, Ega.

Pyrgus chaca, Trimen, *l. c.* p. 118, pl. i. figs. 9 & 10, S. Africa.

Astictopterus armatus, Druce, P. Z. S. 1873, p. 359, pl. xxxiii. fig. 7, Borneo.

Plesioneura pria, p. 359, *signata*, p. 360, pl. xxxiii. fig. 8, Borneo, *id. l. c.*

Cyclopides barberæ, Cape Colony, and *meninx*, Transvaal, Trimen, *l. c.* pp. 120 & 121, pl. i. figs. 11 & 12.

Pterygospidea potiphera, Neilgherries, and *tabrica*, Darjeeling, Hewitson, *l. c. Pter.* pl. i. figs. 7 & 8.

Taractrocera celæno, Cox, Ent. vi. p. 402, S. Australia.

Tagiades striata, Druce, *l. c.* p. 360, Borneo.

Satarupa affinis, Druce, *l. c.* p. 360, pl. xxxiii. fig. 9, Borneo.

SPHINGIDÆ.

Catalogue of the North American species: Grote, Bull. Buff. Soc. i. pp. 17-28.

The horn of the larva is probably a protection for the urinary glands. Goossens, Ann. Soc. Ent. Fr. (5) iii. pp. 123-128.

G. Semper notices *Cherocampa nesus*, *thyelia* and *celerio*, and *Sphinx convolvuli*, from Yap, and figures the larva of *C. celerio*. J. Mus. Godeffr. ii. pp. 62 & 63, pl. viii. figs. 8-10, 19 & 20.

A Brazilian *Sphinx* with proboscis (figured) from 10-11 inches in length; F. & H. Müller, Nature, viii. p. 223.

Hemaris thetis, Fab., *diffinis*, Boisd., and *axillaris*, Grote & Rob., re-described and figured by Grote, *l. c.* p. 6, pl. i. figs. 7-9.

Hæmorrhagia. Grote admits 8 North American species, of which he gives a table, *l. c.* pp. 7 & 8.

Macroglossa hirundo, Gerstäcker, figured and re-described; V. d. Decken's Reisen, iii. 2, p. 375, pl. xv. fig. 7.

Cherocampa elpenor, var.; E. F. Bishopp, Ent. vi. p. 485.

Deilephila. A species from N. Persia, perhaps *D. kotschyi*, Koll., noticed by H. Christoph, Hor. Ent. Ross. x. p. 31.

Deilephila porcellus, var., Millière, Ann. Soc. Lyon (2) xix. pp. 85 & 86, pl. cxvi. fig. 7, Caucasus.

Sphinx convolvuli. On the larva and its habits; W. Buckler, Ent. M. M. ix. pp. 286-289.

Sphinx atropos possesses a tuft of hairs on the first abdominal segment, which it can erect when uttering its cry; the cry seems to be produced by the contraction of the muscles at the base of this. There is a horny scale at the junction of the femur and tibia in the front legs of the ♂, which may assist in grasping the ♀. Laboulbène, Ann. Soc. Ent. Fr. (5) iii. pp. 537-541. Both sexes utter a cry: M. Girard, *op. cit.* Bull. p. ccxxi.

Smerinthus. Strecker (Lepidoptera, pt. vii. pp. 51-60, pl. vii.) monographs the N. American species, admitting 10, of which one is new. The others are *S. juglandis*, A. & S., p. 53, figs. 12 & 13, *excæcata*, A. & S., p. 54, figs. 1 & 2, *myops*, A. & S., p. 55, fig. 9, *astylus*, p. 56, fig. 10, *geminatus*, Say, figs. 6 & 7 (and var. *jamaicensis*, Drury, p. 57, fig. 8, which [has priority, but] really occurs at New York and in Maryland), *ophthalmicus*, Boisd., p. 58, figs. 4 & 5, *cerisyi*, Kirb., p. 59, fig. 3, *modesta*, Harr., p. 60, fig. 11. A figure of a hybrid between *ocellatus* and *populi* (fig. 15) is added; also criticisms on Grote's remarks on the genus.

Smerinthus populeti, Bienert, is probably a southern var. of *S. populi*, H. Christoph, *l. c.*

Laothoe, Fab. Grote proposes to restrict this name to *Smerinthus populi* and allies, *l. c.* p. 24.

Ellema harrisi, Clem., probably = *Lapara bombycoides*, Walk.; *id. l. c.* p. 28.

Calasymbolus, g. n., *id. l. c.* p. 23. Allied to *Smerinthus*; type, *Sphinx astylus*, Drury.

Hemaris tenuis, p. 4, pl. i. fig. 6, Pennsylvania, *marginalis*, p. 6, pl. ii. fig. 10, Michigan, Grote, *l. c.* spp. nn.

Ambulyx constringilis, sp. n., Walker, Tr. N. H. Soc. Glasg. i. p. 328, Congo.

Basiana suffusa, sp. n., *id. l. c.* p. 329, Congo.

Daphnusa miskini, sp. n., R. P. Murray, Cist. Ent. vii. p. 178, Queensland.

Smerinthus pallens, Strecker, Lepidoptera, p. 54, pl. vii. fig. 14, Texas; *S. subjectus*, Walker, *l. c.* p. 328, Congo.

ÆGERIIDÆ.

On the habits, &c., of the British species; E. G. Meek, Ent. M. M. x. pp. 160-162.

URANIIDÆ.

Urania fulgens. On its annual migration from east to west in August and September across the isthmus of Panama; Nature, viii. p. 536.

Urania rhipheus. On its transformations, *cf.* Sganzin & Boisduval, Bull. Soc. Ent. Fr. (5) iii. p. ccxx.

Thaliura cresus, Gerstäcker, figured and re-described; V. d. Decken's Reisen, iii. pt. 2, p. 383, pl. xvi. fig. 4.

CASTNIIDÆ.

Eusemia pardalina, sp. n., Walker, *l. c.* p. 329, pl. v. fig. 1, Congo.

ZYGENIDÆ.

Catalogue of the North American species; Grote, Bull. Buff. Soc. i. pp. 29-36.

Balacra belongs to this family and not to the *Arctiidae*; Walker, Tr. N. H. Soc. Glasg. i. p. 331.

Alypia langtoni, Couper. On the confusion existing in authors about this species, cf. Grote, l. c. p. 31.

Zygana meliloti. Transformations described by T. H. Briggs, Ent. M. M. x. pp. 116 & 117.

Zygana trifolii and *loniceræ*. On their distinctive characters; H. Doubleday, Ent. vi. pp. 514 & 515.

Syntomis phegea. On its supposed occurrence in Yorkshire; H. Doubleday, Ent. M. M. ix. p. 195. On rearing in Belgium; Weinmann & Capronnier, CR. Ent. Belg. xvi. pp. 60-62, 68-70.

Cydosiina proposed as a new sub-family to include the genus *Cydosia*; Grote, l. c. p. 36.

Androloma, sect. n. of *Alypia*; type, *A. lorquini*, Grote. *Id. l. c.* p. 30.

Euctenucha, sect. n. of *Ctenucha*, to contain the Californian species; type, *Apistosia? multifaria*, Walk. *Id. l. c.* p. 33.

Triprocris, g. n., *id. l. c.* p. 35; type, *Procris* (?) *smithsonianus*, Clem.

Pæcilosoma vespens, sp. n., A. G. Butler, Ann. N. H. (4) xii. p. 227. Huasampilla, Peru.

Chrysocale florella, sp. n., *id. l. c.* Huasampilla.

Balacra ochracea, sp. n., Walker, Tr. N. H. Soc. Glasg. i. p. 331, Congo.

NYCTEOLIDÆ.

Hylophila prasinana. 2 varieties described and figured by Millière, Ann. Soc. Lyon (2) xix. pp. 81 & 82, pl. cxvi. figs. 1 & 2.

Earias siliquana. A. T. T. [Targioni-Tozzetti ?] notices its ravages in Egypt. Bull. Ent. Ital. v. pp. 130-132.

LITHOSIIDÆ.

Nyctemera hymenæa, Gerstäcker, figured and re-described; V. d. Decken's Reisen, iii. pt. 2, p. 377, pl. xvi. fig. 1.

Nyctemera integra, Walk., recorded from Yap, and larva and pupa figured; G. Semper, J. Mus. Godefr. ii. pp. 63 & 64, pl. viii. figs. 11 & 12.

Asymbata roseiventris; genus and species re-described by Gerstäcker, l. c. pp. 377 & 378, pl. xv. fig. 8.

Lithosia complana. Habits; G. B. Corbin, Ent. v. pp. 427-429.

Lithosia mesomella, var.; *id. l. c.* p. 334.

Lithosia quadra. Larva described by B. Lockyer, *op. cit.* pp. 479-482.

Lithosia stramineola = *griseola*, var.; J. Hellins & A. B. Farn, Ent. M. M. x. pp. 69, 117 & 118.

Setina ramosa, var. *pallens*; larva and imago described by P. Millière, Ann. Soc. Lyon (2) xix. pp. 6-8, pl. cix. figs. 9-11. *S. ramosa* and *aurita* are distinct; *id. l. c.*

Nola chlamydulalis. Transformations described and figured by P. Millière, *l. c.* pp. 60–63, pl. cxiv. figs. 1–3. Var. (?) *lathonialis*, *id. l. c.* p. 62, fig. 4, from Barcelona.

Nola confusalis, H. S. Transformations described by A. Speyer, *S. E. Z.* xxxiv. pp. 357–360.

Nolaphana malana, Zell., *nec* Fitch, re-named *Asisyra zelleri*, being both generically and specifically distinct from Fitch's insect. Grote, *Bull. Buff. Soc. i.* p. 169.

New genera and species :—

Surina, Walker, *Tr. N. H. Soc. Glasg. i.* p. 333. Allied to *Hypsa*; type, *S. hypsoides*, *id. l. c.* Congo.

Zaracha, *id. l. c.* p. 335. Allied to *Hypsa*; type, *Z. extranea*, *id. ibid.*, Congo.

Leucopsumis cryptochroma, *id. l. c.* p. 331, pl. v. fig. 3, Congo.

Gyara clara, A. G. Butler, *Cist. Ent. vi.* p. 128, Espirito Santo.

Pericopis fantasma, p. 126, Bogota, *lucifer*, *ibid.*, *sibylla*, p. 127, Espirito Santo, *flora*, p. 127, Guatemala, *id. l. c.*

Aletis postica, Walker, *l. c.* p. 332, pl. v. fig. 4, Congo.

Phægorista similis, *id. ibid.* fig. 5, Congo.

Chrysaugæ (Flavinia) limbata, A. G. Butler, *Ann. N. H. (4) xii.* p. 228, Huasampilla, Peru.

Nyctemera simplex, p. 330, *decisa*, *ibid.*, pl. v. fig. 2; Walker, *l. c.*, Congo.

Hypsa dissociata, *id. l. c.* p. 334, Congo.

Gnophria (?) *ceramensis*, Vollenhoven, *Tijdschr. Ent. (2) viii.* p. 246. pl. xii. fig. 1, Ceram.

Crambomorpha (?) *aurora*, *id. l. c.* fig. 2, Salawatti.

Barsine indecisa, Walker, *l. c.* p. 336, Congo.

Soloe quadrigutta, *id. l. c.* Congo.

ARCTIIDÆ.

Arctiæ gelida, Möschl., = *A. quenseli*, Geyer; *A. borealis*, Möschl., = *A. parthenos*, Harr.; *A. americana*, Harr., = *A. caja*, L.: Strecker, *Lepidoptera*, p. 24.

Arctia mendica, var. figured and described by E. Newman, *Ent. vi.* p. 321.

Pyrpharctia (Spilosoma) isabella popularly described, and transformations figured by Saunders, *Canad. Ent. v.* pp. 75–77. On its food and parasites; O. S. Westcott, *op. cit.* p. 137.

Chelonia hebe. On muscardine, &c., in the larva, *cf.* Fallou, Girard & Cornu, *Bull. Soc. Ent. Fr. (5) iii.* pp. cxxix.–cxxxii.

Chelonia villica, var., described and figured by E. Newman, *l. c.* pp. 297 & 298.

Callimorpha dominula. Vars. figured and described by E. Newman, *l. c.* pp. 321 & 322, and P. Millière, *Ann. Soc. Lyon (2) xix.* pp. 83 & 84, pl. cxvi. fig. 4.

Callimorpha hera in Guernsey and Sark; W. A. Luff, *Ent. vi.* p. 333.

- Callimorpha jacobææ*: var. described by G. B. Corbin, Ent. vi. p. 333.
Sciatta, g. n., Walker, Tr. N. H. Soc. Glasg. i. p. 337; type, *S. inconcisa*,
 sp. n., *id. l. c.* p. 338, Congo.
Spilosoma ramivitta, sp. n., *id. l. c.* p. 336, Congo.

LIPARIDÆ.

- Hyphantria textor*. A popular account, with figures of all stages;
 C. J. S. Bethune, Canad. Ent. v. pp. 141-143.
Jana rhodoptera, Gerstäcker, figured and re-described, V. d. Decken's
 Reisen, iii. pt. 2, p. 381, pl. xvi. fig. 3.
Zarfa, g. n., Walker, *l. c.* p. 338; type, *Z. lunifera*, sp. n., *id. l. c.* p. 339,
 Congo.
Sizalisca, g. n., *id. l. c.*; type, *S. graminosa*, sp. n., *id. l. c.* p. 340,
 Congo.
Viana, g. n., *id. l. c.*; type, *V. velutina*, sp. n., *id. l. c.* p. 341, Congo.
Artaxa squamiplaga, sp. n., *id. l. c.* p. 338, Congo.
Anaxita sannionis, sp. n., A. G. Butler, Ann. N. H. (4) xii. p. 228,
 Huasampilla, Peru.

PSYCHIDÆ.

- On cases from Calcutta; A. Müller, P. E. Soc. 1873, pp. iv. & xix.
 The reported parthenogenesis of *Psyche* is doubted by P. F. de Rouge-
 mont; Bull. Soc. Neuch. ix. p. 435.
Cochlophora (?) *valvata*. Gerstäcker figures snail shells which have
 been inhabited by this species, and describes the remains they contain.
 V. d. Decken's Reisen, iii. pt. 2, pp. 379-381.
Psyche hibernicella, C. S. Gregson, Ent. vi. p. 409, Howth; *P. qua-*
drangularis, H. Christoph, Hor. Ent. Ross. x. pp. 32-35 (described in all
 stages; imago and case figured, pl. i. figs. 7 & 8), North Persia: spp. nn.

NOTODONTIDÆ.

- Notodonta sieversi*, Motsch., figured by P. Millière, Ann. Soc. Lyon (2)
 xix. pl. cxi. fig. 10.
Clostera curtula and *reclusa*. Hybrid; F. Boüd, P. E. Soc. 1873,
 p. xxviii.
Crinodes sommeri. Butler re-asserts the distinctness of his *Tarsolepis*
remicauda. Ann. N. H. (4) xi. pp. 78 & 79; Ent. M. M. ix. pp. 198
 & 199.
Phiala xanthosoma, Wallengr., is generically but not specifically iden-
 tical with *Heteromorpha costipuncta*, H. S.; Snellen, Tijdschr. Ent. viii.
 pp. 124 & 125.
Charadra propinquinelinea, sp. n., Grote, Tr. Am. Ent. Soc. iv. p. 293,
 pl. i. fig. 96, Rhode Island.

LIMACODIIDÆ.

- Limacodes asellus*. Larva described by Buckler, Ent. M. M. x.
 pp. 70 & 71.

Zinara, g. n., Walker, Tr. N. H. Soc. Glasg. i. p. 343. Type, *Z. nervosa*, sp. n., *id. l. c.* Congo.

Nyssia rudis, sp. n., *id. l. c.* p. 342, Congo.

SICULODIDÆ.

Væna, g. n., *id. l. c.* p. 341. Type, *V. eucleoides*, sp. n. *id. l. c.* Congo.

SATURNIIDÆ.

Maassen and Weymer have published part 3 of their "Beiträge zur Schmetterlingskunde," and figure the following known species:—*Attacus bolivar* (new name for *ethra*, Walk., *nec* Oliv.), fig. 27, *arethusa*, fig. 29, *betis*, figs. 30 & 31, *splendidus*, figs. 32 & 34, *lorquini*, figs. 46 & 47, *Actias mimosæ*, figs. 35 & 36, *isabellæ*, figs. 40 & 41, *Polythysana andromeda*, figs. 37 & 38, *cinerascens*, fig. 39, *Copaxa decrescens*, figs. 44 & 45, *Samia angulifera*, figs. 48 & 49, *Antheræa dione*, fig. 52, *suraka*, fig. 54, *Bunæa nictitans*, fig. 53, *Urota sinope*, fig. 55.

Attacus cynthia. Larva will eat *Datura stramonium*; Pet. Nouv. 1873, p. 279.

Samia cecropia. On its assembling, *cf.* C. J. S. Bethune, Canad. Ent. v. p. 139.

Antheræa gueinzi, Stand., = *dione*, F.; *A. wahlbergi* is possibly distinct. Maassen, S. E. Z. xxxiv. p. 111.

Hyperchiria io is described and figured in all stages. Riley, Rep. Ins. Mo. v. pp. 133–136. On its eggs: *id.* Canad. Ent. v. p. 109.

Bombyx balamoal, Guér., and *Heniocha palæacea*, H. S., = *Aphelia apollinaris*, Boisd.; Gerstäcker, V. d. Decken's Reisen, iii. pt. 2, p. 379.

Hemileuca maia described and figured in all stages by Riley, Rep. Ins. Mo. v. pp. 127–133.

Syntherata, g. n. (uncharacterized), Maassen & Weymer, Beitr. z. Schmett. pt. 3; type, *S. weymeri*, sp. n., *id. l. c.* figs. 42 & 43, Australia.

Attacus speculum, Brazil, *belus*, S. America (? = *splendidus*, var.), Maassen & Weymer, *l. c.* figs. 28 & 33, spp. nn.

Samia securifera, sp. n. (? = *angulifera*, forma merid.), *id. l. c.* figs. 50 & 51, S. America.

Antheræa rhodophila, p. 343, *intermiscens*, p. 344, pl. vi. fig. 6, Congo, Walker, Tr. N. H. Soc. Glasg., spp. nn.

Tropæa madagascariensis, E. Bartlett, P. Z. S. 1873, p. 336, Madagascar (? = *T. cometes*).

BOMBYCIDÆ.

Bombyx quercifolia, var. *ulmifolia*, and var. gen. ii. *hægii*: *L. populi-folia*, var. gen. ii. *obscura*; W. Henäcker, S. E. Z. xxxiv. p. 244.

Lasiocampa quercifolia and *betulifolia*: a supposed hybrid described by Huguenin, MT. schw. ent. Ges. iv. pp. 30 & 31.

Lasiocampa otus. On its occurrence in Italy and Sicily; J. P. Marott & A. Kalchberg, Pet. Nouv. 1873, pp. 323, 324, & 341.

Bombyx callunæ, var.; G. T. Porritt, Ent. vi. p. 457.

Bombyx quercus and *Saturnia pernii*. On the larvæ drinking ; Lebée & Deyrolle, *Pet. Nouv.* 1873, p. 325.

Bombyx rubi. On *Botrytis*, &c., in the larva ; Fallou, Girard, & Cornu, *Bull. Soc. Ent. Fr.* (5) iii. pp. cxxx. & cxxxii.

Bombyx processionea in Kent [?] ; T. Batchelor, *Ent.* vi. p. 487.

Bombyx castrensis, var. or sp. n. from N. Persia ; H. Christoph, *Hor. Ent. Ross.* x. p. 36.

Dryocampa (Anisota) rubicunda, Fab., described and figured in all stages by Riley, *Rep. Ins. Mo.* v. pp. 137-141.

Palustra, g. n., Bar, *Ann. Soc. Ent. Fr.* (5) iii. p. 300 ; type, *P. laboulbeni*, id. *l. c.* p. 301, pl. viii. No. 2, figs. 1-8. Allied to *Bombyx*, but aquatic habits of larva very interesting. Habits described by Bar, and anatomy by Laboulbène, *l. c.* pp. 297-306 ; cf. also Goossens, *l. c.* *Bull.* pp. xii. & xiii., and Guénée, *op. cit.* *Ann.* pp. 542-544 (apparently discrediting the accuracy of the statements made by Bar).

Brahmæa japonica, A. G. Butler, *Ent. M. M.* x. p. 56, Japan ; *B. ledereri*, Rogenhofer, *Verh. z.-b. Wien*, xxiii. p. 574, Cilicia (its transformations prove the genus to belong to the *Bombycidae*) : spp. nn.

Bombyx intermedia (probably sp. n., allied to *B. dorycni*), Millière, *Cat.* p. 57, note, Nice, Lyon.

Pæcilocampa sublineata, sp. n., Walker, *Tr. N. H. Soc. Glasg.* i. p. 342, Congo.

Sericiculture.

Guerin-Ménéville publishes a review of the state of Sericiculture in 1873, and remarks on the gradual decline of silkworm disease ; pébrine is now being succeeded by diarrhoea (flaquerie) : C. R. lxxvi. pp. 1609-1612. On the latter complaint, cf. Girard, *Bull. Soc. Ent. Fr.* (5) iii. pp. cxliii. cxliv. cxlix. & clxxiii. It is much affected by the weather ; J. Raulin, C. R. lxxvi. pp. 471-473.

Pasteur, *op. cit.* pp. 461-463, reviews Cornalia's report on Sericiculture in Italy in 1872, and considers it to prove the success of his method.

Guérin-Ménéville disputes the value of Pasteur's method of contending with the silkworm disease, and is replied to by Guisquet ; *op. cit.* pp. 455-457, 783-785. He also quotes Duseigneur Kleber's "Monographie du cocon de soie," a recently published work not seen by the Recorder.

On a new method of reeling cocoons from which the moths have emerged ; *Bull. Soc. Ent. Fr.* (5) iii. pp. xxii.-xxv. ; *Pet. Nouv.* 1873, pp. 284 & 285.

On the specimens of silk and cocoons in the Indian Department of the Vienna Exhibition of 1873 ; J. Forbes Watson, *Class and Descriptive Catalogue of the Ind. Dept.* pp. 77-79.

Bombyx mori successfully reared at St. Petersburg ; W. Iversen, C. R. lxxvii. p. 900.

On its fecundation and parthenogenesis ; E. Cornalia & C. v. Siebold, *Bull. Ent. Ital.* v. pp. 58, 271-273.

Antheræa yama-mai. On rearing in France ; *Pet. Nouv.* 1873, p. 298. On disease in its larvæ ; C. Bureau, *op. cit.* p. 312. On its too early hatching in France ; Girard, *Bull. Soc. Ent. Fr.* (5) iii. pp. cc. & cci. On

successfully rearing it in the Baltic Provinces of Russia ; F. W. C. Berg, Bull. Mosc. 1873, i. pp. 96-114.

ZEUZERIDÆ.

Cossus sometimes forms its cocoon underground. H. F. Wilson & E. Newman, Ent. vi. p. 487.

HEPIALIDÆ.

Hepialus humuli, var. ; G. J. L. Eastham, Ent. vi. p. 427.

Porina mairi, sp. n., W. L. Buller, Tr. N. Z. Inst. v. p. 279, plate, New Zealand.

NOCTUIDÆ.

J. Wullschlegel has commenced a catalogue of the *Noctuæ* of Switzerland, to contain about 414 species, 25 varieties, and 23 aberrations. It is based on Staudinger's Catalogue ; and the remarks are chiefly of local interest. The portion already published extends to the genus *Calymnia*. MT. schw. ent. Ges. iv. pp. 32-96.

Grote has published a series of papers on American *Noctuidæ*, containing important notes on known species, and the descriptions of many new. Bull. Buff. Soc. i. pp. 95, 128, 129-155 (to the last paper remarks on the origin and general characters of the *Lepidoptera* are prefixed) ; Tr. Am. Ent. Soc. iv. pp. 293-310.

On the 'boll-worm' (*Anomis xyliua*) and cotton caterpillar (*Heliothis armigera*), with figures of the larvæ and perfect insects ; L. A. Dodge, Am. Nat. vii. pp. 213-216.

Ceropacha ridens, var. ; W. H. Harwood, Ent. vi. p. 387.

Diphthera orion. On breeding ; H. Miller, jun., Ent. vi. pp. 389 & 390.

Acronycta alni. Larva described by J. Chappell, Ent. M. M. ix. p. 195.

Acronycta myricæ and *euphrasiæ*. The larvæ do not differ, and *myricæ*, *euphrasiæ*, *euphorbiæ*, and *abscondita* appear to be only climatic varr. of one species. Berce & Goossens, Bull. Soc. Ent. Fr. (5) iii. pp. cxliv. & cxlv.

Acronycta tridens and *psi* ; F. Bond, P. E. Soc. 1873, p. iv.

Acronycta xylinoides. Larva described by Riley, Rep. Ins. Mo. v. pp. 126 & 127.

Leucania commoides. On its supposed occurrence in England ; Parry, Ent. vi. pp. 522 & 523.

Xylophasia polyodon, var. ; G. J. S. Eastham, Ent. vi. p. 485.

Apamea ophiogramma. On its occurrence in Ireland ; F. J. Battersby, Ent. vi. p. 517.

Miana literosa. Larva described by G. T. Porritt, Ent. M. M. x. pp. 86 & 87.

Celena haworthi. Larva described by W. Buckler, *op. cit.* pp. 195-197.

Agrotis. Millière, Ann. Soc. Lyon (2) xix., describes the transformations of *A. spinifera*, pp. 41 & 42, pl. cxii. figs. 1 & 2 (larva ; imago) ; *puta*, pp. 42 & 43, figs. 3 & 4 (larva ; imago) ; and *fatidica*, pp. 44-46, figs. 5-8 (larva, pupa, and imago).

Agrotis ashworthi. Larva described by C. S. Gregson, Ent. vi. pp. 423-425.

Agrotis depressus, Grote, is an *Amphipyra*; Grote, Bull. Buff. Soc. i. p. 143.

Agrotis. Habits of the 'cut-worm'; N. Coleman, Am. Nat. vii. p. 372.

Taniocampa gothica and *stabilis* taken in coitú; R. E. Brameld, Ent. vi. p. 387.

Cosmia orina, Guén. Grote suggests its identity with *C. trapezina*, and Saunders describes the larva; Canad. Ent. v. pp. 205 & 206.

Eremobia ochroleuca flying by day; Ent. vi. p. 546.

Dianthæcia compta. On reputed British specimens; Ent. vi. p. 563.

Dianthæcia conspersa, var.; G. Norman, Ent. M. M. x. pp. 20 & 21.

Polia chi. Natural history, W. Buckler, Ent. M. M. ix. pp. 290 & 291.

Dasypolia templi. Life history; C. S. Gregson, Ent. vi. pp. 509-511.

Epunda lichenea. Larva feeds on *Silene nocturna*; Millière, Cat. p. 101.

Miselia oxyacanthæ, var. *capucina* from England, described and figured by P. Millière, Ann. Soc. Lyon (2) xix. p. 85, pl. cxvi. fig. 6.

Phlogophora empyrea. Larva noticed by Millière, who doubts whether that figured by Boisduval, Rambur, & Graslin really belongs to this species. Cat. p. 103.

Aplecta speciosa. Var. from France described and figured; P. Millière, Ann. Soc. Lyon (2) xix. p. 84, pl. cxvi. fig. 5.

Hadena turbulenta, Hübn., re-described by Grote, Bull. Buff. Soc. i. p. 180.

Chloantha ramosula, Guén., re-described and figured by Grote, l. c. p. 83, pl. ii. fig. 16.

Cucullia absinthii. On its occurrence in Ireland; F. J. Battersby, Ent. vi. p. 516.

Omia cymbalaria. Larva feeds on *Helianthemum*; Millière, Cat. p. 111.

Heliothis armigera, Hübn. (= *umbrosus*, Grote), is an introduced species in N. America. Grote, l. c. pp. 122 & 123.

Anthæsia violacea, ♀, described and figured; Millière, Ann. Soc. Lyon (2) xix. pp. 58 & 59, pl. cxiii. fig. 15.

Anarta luteola, Grote & Rob., = *cordigera*; Strecker, Lepidoptera, p. 40.

Acontia albicollis is distinct from *solaris*, and the larva feeds on *Malope malacoides*; Millière, Cat. p. 115.

Erastria. Grote admits 8 N. American species. *Miana undulifera*, Walk., = *E. nigrifula*, Guén.; *E. rubicunda*, Walk., is a *Calloplistria*; *E. inscripta*, Walk., = *Bryophila teratophora*, H. S.; Grote, Tr. Am. Ent. Soc. iv. p. 297.

Thalpochares (Micra) paula, Hübn., new to Britain; C. G. Barrett, Ent. M. M. x. pp. 19 & 20.

Thalpochares (M.) parva. On its occurrence in Britain; Barrett & Jordan, op. cit. pp. 20 & 40. Larva feeds on *Inula dysenterica*; Millière, Cat. p. 118.

Thalpochares (M.) candidana. Larva feeds on *Helicryssum stachas*; id. l. c.

Plusia balluca. Larva described and moth figured by W. Saunders, *Canad. Ent. v.* pp. 10 & 11.

Hypogramma (?) ambigua, Gerstäcker, re-described; V. d. Decken's *Reisen*, iii. pt. 2, p. 382.

Catephia alchymista. On its pupa; Taschenberg, *Z. ges. Nat.* (2) vii. pp. 507 & 508.

Catocala. Strecker (*Lepidoptera*, pl. iii.) figures and re-describes *C. tristis*, Edw., p. 17, fig. 1; *viduata*, Guén., p. 17, fig. 2; *lacrymosa*, Guén., p. 18, fig. 3; *relicta*, Walk., p. 19, figs. 5 & 6; *briseis*, Walk., p. 20, fig. 7; *coccinata*, Grote, p. 21, fig. 9; *cerogama*, Guén., p. 22, fig. 10; *serena*, Edw., p. 23, fig. 11. Also (pl. v.) *C. insolabilis*, Guén., p. 33, fig. 1; *desperata*, Guén., p. 33, fig. 2; *subnata*, Grote, p. 34, fig. 3; *neogama*, Abb. & Sm. p. 35, figs. 4 & 5; *clintoni*, Gr., p. 35, fig. 6; *antenympa*, Hübn., p. 36, fig. 7; *fratercula*, Grote & Rob., p. 37, fig. 8; *unijuga*, Walk., p. 37, fig. 9; *porta*, Guén., p. 38, fig. 10; *concombens*, Walk., p. 39, fig. 12.

Catocala. Grote publishes additional notes on some N. American species, and describes 2 as new. *Canad. Ent. v.* pp. 160-164.

Erebus odora. Its occurrence at Montreal [doubtless imported] noticed by F. R. Caulfield; *op. cit.* p. 155.

Drasteria erichto, Guén., probably = *erichtea*, Hübn., var., of which new varieties are described under the names *ochrea*, *agricola*, and *munda*: Grote, *Bull. Buff. Soc. i.* pp. 154 & 155.

Phytometra ænea. On egg and cocoon; J. Hellins, *Ent. M. M. x.* pp. 139 & 140.

Remigia latipes, Guén., probably = *repanda*, F. Gerstäcker, V. d. Decken's *Reisen*, iii. pt. 2, p. 383.

Aventia flexula. Life history by W. Buckler, who considers it to be a *Noctua*, allied to *Catocala*, *Toxocampa*, &c.: *Ent. M. M. x.* pp. 42 & 43.

New genera and species:—

Tachosa (*Bryophilidæ*), Walker, *Tr. N. H. Soc. Glasg. i.* p. 345. Types, *T. acronyctoides*, *ibid.*, and *metaphæaria*, p. 346, Congo.

Harrisimemna, Grote, *Tr. Am. Ent. Soc. iv.* p. 293. Allied to *Moma*; type, *Thyatira (?) sexguttata*, Harr., = *Grammophora trisignata*, Walk.

Tuerta (*Glottulidæ*), Walker, *l. c.* p. 346; type, *T. chrysochlora*, *id. l. c.* p. 347, pl. vi. fig. 7, Congo.

Petrinia (*Glottulidæ*), *id. l. c.* p. 347; type, *P. lignosa*, *id. l. c.* p. 348, Congo.

Admetovis, Grote, *Bull. Buff. Soc. i.* p. 133. Allied to *Brithya*; type, *A. oxymorus*, *id. l. c.* pl. iv. fig. 5, California, Colorado Territory.

Ablepharon, *id. l. c.* p. 111. Allied to *Leucania*; types, *L. henrici* and *evanida*, Grote.

Ommatostola, *id. l. c.* p. 112. Allied to *Tapinostola*; type, *O. lintneri*, *id. l. c.* New York.

Ufeus, *id. l. c.* p. 101. Allied to *Agrotis*; types, *U. satyricus*, *id. ibid.*, pl. iii. fig. 4, and *plicatus*, p. 102, Philadelphia.

Pleonectopoda, *id. l. c.* p. 136. Allied to *Ammoconia (?)*; type, *P. levisi*, *id. l. c.* p. 137, pl. iv. fig. 10, Colorado Territory.

Homohadena, id. l. c. p. 180 ; type, *Hadena badistriga*, Grote.

Eupsephopæctes, id. l. c. Allied to *Hadena* ; type, *E. procinctus*, id. l. c. p. 138, pl. iv. fig. 6, California.

Anytus, id. l. c. p. 144. Allied to *Xylina* ; types, *X. sculpta*, Grote (figured, pl. iii. fig. 1), and *capax*, G. & R.

Annaphila, id. l. c. p. 149. Allied to *Omia* ; types, *A. diva*, fig. 14, and *depicta*, fig. 13, p. 150, *danistica*, p. 151, fig. 7, Nevada Territory, pl. iv.

Azenus, id. l. c. p. 152. Allied to *Omia* ; type, *A. arvalis*, id. *ibid.* pl. iv. fig. 8, California.

Ligranthœcia, Grote & Robinson, *op. cit.* p. 115. Allied to *Heliothis* ; types, *Pyralis marginatus*, Haw., and *Anthœcia thoreau*, G. & R.

Plagiomimicus, Grote, *op. cit.* p. 182. Allied to *Lygranthœcia* ; type, *P. pityochromus*, id. l. c. Alabama, Albany.

Heliolonche, id. l. c. p. 115. Allied to *Melicleptria* ; type, *H. modicella*, id. l. c. p. 116, pl. iii. fig. 12, California.

Tavila (*Acontiidæ*), Walker, l. c. p. 349 ; type, *T. indeterminata*, id. l. c. p. 350, Congo.

Nedroma (*Hemiceridæ*), id. l. c. p. 353 ; type, *N. ferruginea*, id. *ibid.* Congo.

Pteratholia, Grote, Tr. Am. Ent. Soc. iv. p. 298. Allied to *Anomis* ; type, *P. bullula*, id. l. c. p. 299, Central Alabama.

Adipsophanes, id. Bull. Buff. Soc. i. p. 181. Allied to *Stilbia* ; type, *A. miscellus*, id. *ibid.*, New York, Pennsylvania, Massachusetts.

Stridova (*Hypogrammidæ*), Walker, l. c. p. 353 ; type, *S. albigutta*, id. l. c. p. 354, Congo.

Spiloloma, Grote, l. c. p. 126. Allied to *Leucanitis* ; type, *S. lunilinea*, id. l. c. p. 127, West Virginia.

Tolna (*Erebide*), Walker, l. c. p. 355. Allied to *Tavia* ; type, *T. versicolor*, id. *ibid.* pl. vii. fig. 10, Congo.

Obba (*Ophiussidæ*), id. l. c. p. 362 ; type, *O. prompta*, id. *ibid.* Congo.

Spargaloma, Grote, Tr. Am. Ent. Soc. iv. p. 299. Allied to *Drasteria* ; types, *S. secpunctata*, *ibid.*, pl. i. fig. 90, Pennsylvania, and *umbriefascia* [ta], p. 301, Philadelphia, Texas.

Argillophora, id. Bull. Buff. Soc. i. p. 124. Allied to *Spargaloma* ; type, *A. furcilla*, id. *ibid.* Central Alabama.

Harveya, id. l. c. p. 125. Allied to *Argillophora* ; type, *H. auripennis*, id. l. c. p. 126, Florida, Kentucky.

Zirona (*Poaphilidæ*), Walker, l. c. p. 363 ; type, *Z. marginata*, id. *ibid.* Congo.

Ricla (*Thermesiidæ*), id. l. c. p. 365 ; type, *R. expandens*, id. *ibid.* Congo.

Raclia (*Thermesiidæ*), id. l. c. p. 366 ; type, *R. cervina*, id. l. c. p. 367, Congo.

Acronycta connecta, New York, p. 79, note, *ovata*, Pennsylvania, p. 80, note, pl. ii. fig. 14, *sperata*, New York, Pennsylvania, p. 81, note, pl. ii. fig. 1, and *insolita*, Pennsylvania, p. 82, Grote, l. c.

Leucania harveyi (? = *albilinea*, Guén., nec Hübn.), p. 9, fig. 14, Buffalo, *henrici*, fig. 15, New York State, *evanida*, fig. 16, Putnam Co., New York, p. 10 : id. l. c. pl. i.

- Arzama vulnifica*, id. Tr. Am. Ent. Soc. iv. p. 294, Pennsylvania.
- Xylomiges curialis*, p. 143, and *patalis*, p. 144, pl. iv. fig. 11, California, id. Bull. Buff. Soc. i.
- Aporophylla catalaunensis*, Millière, R. Z. (3) i. p. 4, Spain.
- Mamestra farnhami*, p. 103, pl. iii. fig. 2, Colorado Territory; *chartaria*, p. 138, pl. iv. fig. 12, *canente*, p. 138, fig. 9, *niveiguttata*, p. 140, fig. 16, *M. (? Dianthæcia) leucogramma* and *quadrilineata* (fig. 15), *ibid.* California, id. l. c.
- Caradrina miranda*, id. l. c. p. 11, New York State.
- Agrotis hemileuca* and *catenifera*, Walker, l. c. pp. 348 & 349, Congo; *A. engadinensis*, Millière, l. c. p. 3, Sils, *A. pitychrous*, p. 82, pl. ii. fig. 11, Long Island, New York, *auxiliaris*, Colorado, and *repentis*, Atlantic District, Colorado, p. 96, *balanitis*, pl. iii. fig. 14, and *atrifrons*, Colorado Territory, p. 97, *mimallonis* and *fumalis*, New York, p. 98, *herilis* (= *jaculifera*, Guén., varr. A & B), Atlantic District, *saxatilis*, New York, Colorado Territory, p. 100, *vancouverensis*, p. 134, pl. iv. fig. 4, Vancouver's Island, *wilsoni*, p. 135, pl. iv. fig. 3, California; Grote, l. c.
- Ammoconia badicollis*, Grote, l. c. p. 136, pl. iv. fig. 18, Albany, New York.
- Dianthæcia medidata*, id. l. c. p. 104, New York State.
- Oncocnemis dayi*, p. 105, fig. 8, *hayesi*, p. 106, fig. 13, *chandleri*, p. 107, fig. 9, pl. iii., *glennii*, p. 141, pl. iv. fig. 17; id. l. c. Colorado Territory.
- Hadena auranticolor*, id. l. c. p. 109, Colorado Territory.
- Cloantha evicta*, fig. 18, and *vomerina*, fig. 17, id. l. c. p. 84, pl. ii.
- Xylina sculpta*, id. l. c. p. 114, pl. iii. fig. 1, Philadelphia.
- Cucullia yosemitæ*, id. l. c. pp. 113 & 145, pl. iii. fig. 3, California.
- Heliothis mitis*, p. 316, fig. 7, Alabama (may be placed in the sub-genus *Melicleptria*, Hübn., the type of which is *Noct. cardui*, Esp.), *H. suetus*, fig. 10), and *persimilis*, fig. 11, p. 117, *pauillus*, p. 118, fig. 6, *meadi*, p. 121, fig. 5, all from Colorado Territory, pl. iii., *H. (Melicleptria) celerio* and *diminutivus*, p. 148, *californicus*, p. 149, California, Grote, l. c.; *H. pruruptus*, id. Tr. Am. Ent. Soc. iv. p. 294, California.
- Agrophila truncatula*, Zeller, Verh. z.-b. Wien, xxiii. p. 203, pl. iii. fig. 1, Texas.
- Tarache terminimaculata*, Albany, and *flavipennis*, California, Sierra Nevada; Grote, Bull. Buff. Soc. i. p. 153.
- Erastria decora*, Walker, l. c. p. 350, Congo; *E. mitographa*, Alabama, *malaca*, Philadelphia, Grote, Tr. Am. Ent. Soc. iv. p. 296.
- Metaponia obtusula*, Zeller, l. c. pl. iii. fig. 2, Texas.
- Hydrelia terminata*, Walker, l. c. p. 351, Congo.
- Xanthoptera coccinifascia*, Texas, p. 294, fig. 89, *rosalba*, Pennsylvania, Massachusetts, fig. 88, *fax*, Georgia, p. 295, Grote, l. c. pl. i.
- Micra convergens* and *intricata*, Walker, l. c. pp. 351 & 352, Congo; *M. barcinonensis*, Millière, Ann. Soc. Lyon (2) xix. pp. 56 & 57, pl. cxiii. figs. 10 & 11, Barcelona.
- Thalpochares pyranni* and *fumicollis*, Rogenhofer, Verh. z.-b. Wien, xxiii. pp. 570 & 571, Cilicia.
- Eutelia quadriliturata*, Walker, l. c. p. 352, Congo.
- Marasmalus histrio*, Grote, l. c. p. 297, Texas, New York.

Plusia emichi (Haberhauer, MS.), Rogenhofer, Verh. z.-b. Wien, xxiii. p. 569, Gjaur Dagh; *P. pasiphæia*, p. 146, pl. iv. fig. 1, California, *put-nami*, pp. 146, 192 & 193, pl. iv. fig. 2, Albany, Grote, Bull. Buff. Soc. i.

Briarda conturbata, Walker, l. c. p. 354, Congo.

Catocala obscura, New York, p. 19, pl. iii. fig. 4, *faustina*, Arizona, p. 21, fig. 8, *perplexa* (= *parta*, var. ?), Brooklyn, p. 38, pl. v. fig. 11, Strecker, Lepidoptera, *C. meskii*, New York, p. 161, and *arizonæ*, Arizona and New Mexico, p. 163, Grote, Canad. Ent. v.

Ophideres divitiosa, Walker, l. c. p. 356, pl. vii. fig. 11, Congo.

Achæa ophismoides, p. 357, *partita*, p. 358, pl. vi. fig. 8, Congo, *id. l. c.*

Hypetra atriplaga, p. 358, *biangulata*, p. 359, *H. (?) nana*, p. 360, Congo, *id. l. c.*

Athyra albicincta, *id. l. c.* p. 360, Congo.

Ophiusa subænescens, *id. l. c.* p. 361, pl. vi. fig. 9, Congo.

Grammodes curvilinea, *id. l. c.* p. 361, Congo.

Drasteria cærulea, Grote, Bull. Buff. Soc. i. p. 155, California.

Amphigonia fumosa, Walker, l. c. p. 363, Congo.

Thermesia (?) sejuncta, *id. l. c.* p. 364, Congo.

Capnodes (?) trinotata, *id. l. c.* p. 365, Congo.

DELTOIDÆ.*

Grote publishes a list of the North American Deltoidous *Noctuidæ*; Tr. Am. Ent. Soc. iv. pp. 309 & 310.

Hypena and *Herminia*. Grote (Bull. Buff. Soc. i. pp. 37-40) discusses the North American species, and proposes several new genera. To *Bomolocha*, Hübn., Led., he refers *Hypena baltimoralis*, Guén., *abalienalis*, *manalis*, and *bijugalis*, Walk., and *madefactalis*, Guén. To *Zuncloognatha*, Led., he refers *Herminia levigata*, Grote, *cruralis*, Guén., *marcidilinea*, *obscuripennis*, and *ochreipennis*, Grote.

Hypena cranidialis figured; *id.* Tr. Am. Ent. Soc. iv. pl. i. fig. 87.

Bomolocha bijugalis figured; *id. l. c.* fig. 93.

Herminia barbalis, *tarsipennis*, *derivalis*, and *cribalis*. Transformations described by Buckler & Hellins, Ent. M. M. x. pp. 100-104.

Helia, Guén., is restricted to *phæalis*, Guén. (re-described); Grote, l. c. p. 308.

Epizeuxis æmulalis, Hübn. ? = *Microphysa (?) mollifera*, Walk., and *E. americanalis*, Guén., = *M. (?) scriptipennis*, Walk., re-described; *id. l. c.* p. 307.

Renia, Guén., characters reviewed; *R. pastoralis*, Grote, = faded *R. belfragii*; *id. l. c.* pp. 303 & 304; *R. brevirostralis*, figs. 91 & 92, *restrictalis*, fig. 94, and *belfragii*, fig. 95, figured; *id. l. c.* pl. i.

Plat[y]hypena, g. n., *id.* Bull. Buff. Soc. i. p. 38; type, *Hyblæa scabra*, F., the ♀ of which is *Hypena erectalis*, Guén. (cf. also J. A. Lintner, Canad. Ent. v. p. 81).

Macr[o]hypena, Grote, l. c.: types, *Hypena deceptalis*, Walk., and *profecta*, Grote.

* Discussed separately by the Recorder, to avoid confusion, as the group is now classed as often with the *Noctuidæ* as with the *Pyralidæ*.

Meg[a]hypena, g. n., *id. l. c.* p. 86. Allied to *Macrohypena*; types, *M. relifera*, pl. ii. figs. 7, and *lentiginosa*, p. 87, New York State, spp. nn.

Lomanaltes, g. n., *id. l. c.* pp. 13 & 38; type, *L. letulus*, sp. n., p. 14, pl. i. fig. 12, Philadelphia, Albany.

Eur[y]hypena, g. n., *id. l. c.*; types, *Hypena toreuta* and *sordidata*, Grote.

Orixa, g. n., Walker, Tr. N. H. Soc. Glasg. i. p. 367; (*Herminiidæ*) type, *O. filifera*, sp. n., *id. ibid.*, Congo.

Chytolita, g. n., Grote, Tr. Am. Ent. Soc. iv. p. 308, and Bull. Buff. Soc. i. p. 39; type, *Herminia morbidalis*, Guén.

Pityolita, g. n., Grote, *l. c.*; type, *Herminia pedipillalis*, Guén.

Philometra, g. n., *id. l. c.*; types, *Herminia longilabris* and *serraticornis*, Grote.

Phalenostola, g. n., *id. Tr. Am. Ent. Soc. iv.* p. 302. Allied to *Philometra*; types, *P. larentioides*, *id. l. c.* New York, Pennsylvania, and *citrina*, p. 303, Virginia, spp. nn.

Cleptomita, g. n., *id. l. c.* p. 301. Allied to *Zanclognatha*; type, *C. atrilineella*, sp. n., *id. l. c.* Texas.

Litognatha, g. n., *id. Bull. Buff. Soc. i.* p. 85; types, *L. nubilifascia*, *ibid.* pl. ii. figs. 2 & 3, Philadelphia, New York State, and *litophora*, p. 86, Philadelphia, Albany, spp. nn.,

Megachyta, g. n., *id. Tr. Am. Ent. Soc. iv.* p. 306. Allied to *Chytolita*; type, *M. lituralis*, Hübn. (re-described, *l. c.*).

Phalæno-phana, g. n., *id. l. c.* p. 304. Allied to *Renia*; type, *P. ruri-gena*, sp. n., *id. l. c.* p. 305, New York, Pennsylvania.

Tetanolita, g. n., *id. l. c.* p. 305. Allied to *Renia*; type, *P. lizalis*, sp. n., *id. l. c.* p. 306, Alabama, Texas.

GEOMETRIDÆ.

A. S. PACKARD publishes a Catalogue of the *Phalenidæ* of California P. Bost. Soc. xiii. pp. 381-405. [The new species were quoted in Zool. Rec. ix. from Rec. Am. Ent.; but the pagination was not there given.]

H. K. MORRISON [not without good reason] protests against the repetition of the same specific name in numerous genera of American *Geometridæ*. Canad. Ent. v. pp. 204 & 205 [*cf.* also Zool. Rec. viii. p. 378].

Chærodes (*Tetracis*, Guén.) *ægrotata* re-described; Packard, *l. c.* p. 382.

Rumia crategata, var.; J. E. Robson, Ent. vi. p. 516.

Selenia illustraria, var., bred by Doubleday; Millière, Ann. Soc. L. Lyon, (2) xix. pp. 82 & 83, pl. cxvi. fig. 3.

Ennomos angularia. Larva described; B. Lockyer, Ent. vi. pp. 406 & 407.

Amphidasys betularia: 3 varr. from England described and figured; one named *doubledayaria*: Millière, *l. c.* pp. 37 & 38, pl. cxi. figs. 1-3.

Boarmia roboraria and *Tephrosia biundularia*. Larvæ described; G. T. Porritt, Ent. vi. pp. 281 & 282, 385 & 386.

Gnophos glaucinaria, var. *plumbearia*, Staud. Transformations, &c. fully described; A. Fuchs, S. E. Z. xxxiv. pp. 107-110.

Pygmena venatoria. Larva and imago figured and described; P. Millière, *l. c.* pp. 4-6, pl. cix. figs. 5-8.

- Pseudopterypa cytisaria*, Mill. (Ic. ii. pl. xci. fig. 10), var., = *coronillaria*, ♀; Millière, Cat. p. 161.
- Iodis vernaria*, var.; W. A. Forbes, Ent. vi. p. 363.
- Phorodesma bajularia*. Larva described; P. H. Jennings, Ent. vi. pp. 413 & 414.
- Ephyra pendularia*. Larva described; G. T. Porritt, Ent. M. M. x. p. 71.
- Acidalia*. On rearing various larvæ; A. H. Jones, Ent. M. M. ix. pp. 197 & 198.
- Acidalia belemiata*. Transformations; P. Millière, Ann. Soc. L. Lyon (2) xix. pp. 57 & 58, pl. cxiii. figs. 12-14 (larva and imago figured).
- Acidalia incanaria*. Natural history; W. Buckler, Ent. M. M. ix. pp. 246-248.
- Tephрина peltaria*, Mill. (Ic. i. pl. xxxix.), = *binævata*, Mab., and not *peltaria*, var., as supposed by Staudinger; Millière, Cat. p. 184.
- Selidosema juturnaria*, Guén., var.; Packard, l. c. p. 382.
- Fidonia atomaria*. Larva described; B. Lockyer, Ent. vi. pp. 407 & 408.
- Fidonia conspicuata*. Habits; E. F. Bisshopp, Ent. vi. p. 317.
- Fidonia piniaria*, hermaphrodite; J. A. Lilly, Ent. vi. p. 430.
- Aspilates strigilaria*, var.; G. B. Corbin, Ent. vi. p. 334.
- Anisopteryx æscularia*. Larva described; G. T. Porritt, Ent. M. M. ix. p. 272.
- Chimatobia brumata* and *boreata*; P. C. Zeller, S. E. Z. xxxiv. pp. 121-124.
- Emmelesia unifasciata*, Haw. (= *bifasciata*, Haw., = *scitularia*, Ramb., = *aquilaria*, H. S.). Transformations described and larva and imago figured; Millière, Ann. Soc. L. Lyon (2) xix. pp. 66-68, pl. cxiv. figs. 10-13 (fig. 13 is var. ? *euphrasiata*, Millière).
- Eupithecia*. Millière, l. c. pp. 12-35, 63-69, reviews this genus and describes and figures (pl. cix.) the transformations of *E. oxycedrata*, Ramb., pp. 14 & 15, figs. 1-3 (larva and imago), *phœniceata*, Ramb., pp. 15 & 16, figs. 6-9 (larva and imago), *sextiata*, Dard. & Mill., pp. 16-18, figs. 14-17, (larva and imago), *semigrapharia*, Bruand, pp. 18 & 19, figs. 10-13 (larva, pupa, and imago), *ericæaria*, Ramb., pp. 20 & 21, figs. 4 & 5 (larva and imago) *expressaria*, H. S., pp. 21 & 22, figs. 18 & 19 (larva and imago), *helviticaria*, Boisd., var. *anglicata*, Mill. pp. 22-24, figs. 20-22 (larva and imago), *sobrinata*, Hübn., pp. 24 & 25, fig. 23 (larva); also (pl. cxiv.; larvæ and perfect insects figured): *E. constrictata*, Guén. (= *distinctaria*, H. S., = *libanotidata*, Schl.), pp. 63 & 64, figs. 5-7, *merinata*, Guén. (= *perfidata*, Mann.), pp. 65 & 66, figs. 8 & 9, and *alliaria*, Staud., pp. 68 & 69, figs. 14 & 15.
- Eupithecia venosata*. An English var. probably = *E. silenicolata*, Mab., p. 26, note; *E. ligusticata*, Donz., probably = *succenturiata* (var. *oxydata*, Tr.); *E. subfulvata* and *succenturiata* are probably distinct, p. 27; *E. guinarduria*, Boisd., = *multiflorata*, Mill., = *scopariata*, Ramb., and probably also = *tenebrosaria*, H. S., p. 28; *E. tamarisciata*, Frey, is distinct from *innotata*; *E. fraxinata*, Crewe, may not be entitled to specific rank, pp. 30 & 31; *E. globulariata*, Mill., *pauvil-*

lata, Boisd., and probably *parvularia*, H. S., = *pumiliata*, varr., p. 35, Millière, l. c.

Eupithecia expallidata bred from golden-rod, and *succenturiata* from wild chamomile; J. B. Hodgkinson, Ent. M. M. x. p. 118.

Eupithecia pusillata, var. *laricis*, and *E. lariciata*. Transformations, &c., described by A. Speyer, S. E. Z. xxxiv. pp. 361-365. The former ? = *E. tantillaria*, Boisduval & Guénée.

Cidaria albulata, var., from N. Persia; H. Christoph, Hor. Ent. Ross. x. p. 40.

Cidaria immanata, Haw. Millière figures 3 varr.; l. c. p. 40, pl. cxi. figs. 7-9 (the last named *pythonissata*).

Eubolia lineolata and *mensuraria*. Larvæ described; G. T. Porritt, Ent. M. M. ix. p. 197; Ent. vi. p. 362.

Anaitis plagiata. Large and small forms; T. H. Briggs, P. E. Soc. 1873, pp. iv. & v.

New genera and species :—

Hesperumia, Packard, Rep. Peab. Ac. v. p. 79 (uncharacterized); type, *H. sulphuraria*, id. *ibid.* Maine.

Eriplatymetra, Grote, Canad. Ent. v. p. 145. To include *Eugonia coloradaria* and the European *E. angularia*.

Eunemoria, Packard, l. c. p. 76. Allied to *Rhacheospila*; type, *E. gracilaria*, id. l. c. p. 77, Massachusetts.

Traina (Palyidæ), Walker, Tr. N. H. Soc. Glasg. i. p. 372; type, *T. stramineata*, id. *ibid.* pl. vii. fig. 12, Congo.

Timana (Palyidæ), id. l. c. p. 373; type, *T. costalis*, id. *ibid.* fig. 13, Congo.

Euephyra, Packard, l. c. p. 73. Allied to *Ephyra*; type, *E. serrulata*, id. *ibid.*, Texas.

Goniacidalia, id. l. c. p. 68. Allied to *Acidalia*; type, *G. fusciferata*, id. *ibid.*, Texas.

Euacidalia, id. l. c. p. 69; type, *E. sericearia*, id. *ibid.*, Texas.

Chionoptyx, Snellen, Tijdschr. Ent. (2) viii. pp. 72-74, pl. iv. figs. 1-4. Intermediate between *Acidalia* and *Macrosoma*; type, *C. alucitaria*, id. *ibid.*, Prince's Island, Gulf of Guinea.

Nebessa (Acidaliidæ), Walker, l. c. p. 375; type, *N. chalybeata*, id. l. c. p. 376, Congo.

Eumacaria, Packard, l. c. p. 67. Allied to *Macaria*; type, *E. brunneata*, id. *ibid.*, Maine, Massachusetts, Texas.

Mellella, Grote, Bull. Buff. Soc. i. p. 12. Allied to *Fidonia*; type, *M. chamæchrysiaria*, p. 13, pl. i. fig. 1, Atlantic States.

Tomopteryx, Philippi, S. E. Z. xxxiv. p. 313. ? Allied to *Lobophora*; types, *T. amæna*, p. 313, pl. ii. fig. 5a, *læta*, p. 314, fig. 6a, *virescens*, p. 315, pl. iii. fig. 7, Valdivia.

Heterolocha sulphuraria, Packard, l. c. p. 79, New York, Middle States.

Caberodes carnaria, Michigan, p. 80, *cervinaria*, Texas, p. 81, id. l. c.

Nychiodes phasidaria, Rogenhofer, Verh. z.-b. Wien, xxiii. p. 572, Caucasus.

Cleora pellucidaria, Packard, l. c. p. 78, Maine, Albany.

- Tephrosia diffusa*, Walker, *l. c.* p. 374, Congo.
Boarmia abruptaria, id. *ibid.*, Congo.
Gnophos corneliata (? = *variegata*, var.), Millière, Cat. p. 156, Alpes Maritimes.
Mniophila fingsalata, id. *l. c.* p. 159, Alpes Maritimes.
Geometra congrua, Walker, *l. c.* p. 371, Congo.
Rhacheospila rubrifrontaria, Packard, *l. c.* p. 76, Massachusetts.
Synchlora albilineata, Maine, Massachusetts, *rubrifrontaria*, New York, p. 75, *excurvaria*, Texas, p. 76, *id. l. c.*
Aplodes approximaria, p. 73, Albany, ? *rubrilinearia*, Philadelphia, and *latiaria*, Albany, p. 74, *id. l. c.*
Eupistheria sulphurea, p. 77, Massachusetts, *ferruginaria*, p. 78, Maine, *id. l. c.*
Acidalia eugeniata, Dardouin & Millière, Ann. Soc. L. Lyon (2) xix. pp. 38 & 39, pl. cxi. figs. 4-6, Marseilles; *A. helianthemata*, Millière, *l. c.* pp. 54-56, pl. cxiii. figs. 6-9 (larva and imago figured), Cannes; *A. vesubiata*, id. R. Z. (3) i. p. 6, Lantosqué; *A. latifera*, Walker, *l. c.* p. 375, Congo; *A. peralbata* and *punctifimbriata*, p. 70, *longipennata* and *perirrorata*, p. 71, Texas, *candidaria* [!], p. 72, Georgia, Packard, *l. c.*
Micronia tenella, Walker, *l. c.* p. 377, Congo.
Corycia biseriata, Packard, *l. c.* p. 68, locality unknown.
Macaria 8-signata, p. 63, *punctilineata* and *pallidata*, p. 64, Texas, *multilineata*, Massachusetts, *duplicata*, Maine, Massachusetts, Illinois, Alabama, p. 65, *minorata*, p. 66, Massachusetts, *id. l. c.*
Phasiane mellistrigata, Grote, Bull. Buff. Soc. i. p. 12, pl. i. fig. 11, Buffalo.
Scodiona cephalotes, Walker, *l. c.* p. 376, pl. vii. fig. 14, Congo.
Aspilates parvaria, Texas, *quadrifasciaria*, Kansas, Packard, *l. c.* p. 62.
Abraxas lassulata, Rogenhofer, Verh. z.-b. Wien, xxiii. p. 571, Cilicia.
Pachycnemia psi, Packard, *l. c.* p. 61, Massachusetts.
Eupithecia lantoscata, Millière, Cat. p. 201, Valley of Lantosque; *E. magnata*, id. R. Z. (3) i. p. 2, Celerina; *E. vernata*, p. 57, Massachusetts, Maine, N. York, *geminata*, Maine, Massachusetts, *palpata*, New York State, Brunswick, p. 58, *interruptifasciata*, p. 59, Eastern States, *stratonata*, p. 60, Massachusetts, Packard, *l. c.*
Lobophora viridata, Packard, *l. c.* p. 56, Brunswick, Maine.
Melanippe gentianata, Millière, R. Z. (3) i. p. 1, Engadine.
Scotosia albisignata, Packard, *l. c.* p. 61, Southern States.
Cidaria lascinata, Zeller, Verh. z.-b. Wien, xxiii. p. 205, Texas, Massachusetts; *C. disjunctaria*, p. 53, *triangulata*, p. 54, White Mountains, *albilineata*, White Mountains and Maine, *montanata*, Mount Washington, p. 55, *C. (Thera) contractata*, p. 56, Maine, Packard, *l. c.*
Carsia alpinata and *boreata*, Packard, *l. c.* p. 52, Mount Washington.
Erateina latipennis, *cometaris*, and *discalis*, Butler, Ann. N. H. (4) xii. p. 229, Huasampilla, Peru.

PYRALIDÆ.

- Aglossa pingualis*, var. n. *aldidalis* from North Persia described by H. Christoph, Hor. Ent. Ross. x. p. 41.

Acentropus. C. Ritsema publishes a summary of the literature of this genus, Tijdschr. Ent. (2) viii. pp. 16-25.

Acentropus niveus. On its habits; G. B. Corbin, Scot. Nat. ii. pp. 119 & 120.

Acentropus niveus and *latipennis*, noticed and figured; Millière, Ann. Soc. L. Lyon (2) xix. pp. 80 & 81, pl. cxv. figs. 20 & 21.

Botys multilinealis, Guén., noticed from Yap, and larva and pupa figured; G. Semper, J. Mus. Godeffr. ii. p. 64, pl. viii. figs. 13 & 14.

Botys terrealis and *Aphomia sociella*. American specimens compared with European; Zeller, Verh. z.-b. Wien, xxiii. pp. 210-212.

Scopula ærtzenialis, H. S., probably = *S. pallidalis*, var.; Millière, Cat. p. 246.

Cledeobia angustalis. Transformations described, and larva and imago figured; *id.* Ann. Soc. Lyon (2) xix. pp. 1-4, pl. cix. figs. 1-4.

Nymphula impunctalis, Dup., perhaps = *interpunctalis*, Hüb. n.; *id.* Cat. p. 243.

Hellula undalis, F. Larva described; *id.* l. c. p. 244, note.

Eudorea lineolalis. Larva described; C. S. Gregson, Ent. vi. pp. 408 & 409.

Scoparia coarctalis, Zell., described and figured in all stages; Millière, Ann. Soc. L. Lyon (2) xix. pp. 8-11, pl. cix. figs. 12-17 (var. n. *n[e]apolitalis*, p. 10, fig. 17).

Myelois legatella. Transformations figured and described: *id.* l. c. pp. 72-74, pl. cxv. figs. 6-9. *M.* (?) *transversella*, Dup.: transformations; *id.* l. c. pp. 74-76, pl. cxv. figs. 10 & 11 (larva and imago figured). Var. ? *bituminella*, from Cannes; Peyerimhoff & Millière, l. c. p. 75, note.

Phycis (?) *davisellus*. Larva described; W. Buckler, Ent. M. M. x. pp. 89 & 90.

Pempelia gallicola, Staud. Transformations described; Millière, l. c. pp. 76 & 77, pl. cxv. figs. 12-14 (larva and imago figured).

Ancylosis cinnamomella, Dup. (= *dilatella*, Tr.). Transformations described and figured; Millière, l. c. pp. 78 & 79, pl. cxv. figs. 15-19.

Crambus pinetellus. Natural History; W. Buckler, Ent. M. M. x. pp. 162 & 163.

New genera and species:—

Pseudasopia, Grote, Bull. Buff. Soc. i. p. 172. Between *Asopia* and *Endotricha*; type, *P. squamulalis*, *id.* *ibid.*, New York.

Cordylolomia, *id.* l. c. p. 176, pl. v. figs. 4 & 5 (neurulation). Allied to *Duponchelia*; type, *C. participialis*, *id.* l. c. p. 177, Pennsylvania.

Argyrophyes, *id.* l. c. p. 175, pl. v. figs. 1-3 (neurulation). Intermediate between the *Pyrales* and *Geometræ* (? near *Homophysa*); type, *A. cilioides*, *id.* *ibid.*, New Jersey.

Vatica, Walker, Tr. N. H. Soc. Glasg. i. p. 389. Allied to *Botys*; type, *V. rutilabis*, *id.* *ibid.*, Congo.

Xasca (*Botididæ*), *id.* l. c. p. 370; type, *X. trigonalis*, *id.* *ibid.*, Congo.

Opula (*Botididæ*), *id.* l. c. p. 371; type, *O. impletalis*, *id.* *ibid.*, Congo.

Cordylopeza, Zeller, Verh. z.-b. Wien, xxiii. p. 306. Allied to *Amblycera*, Led.; type, *C. nigrinodis*, *id.* *ibid.*, pl. iii. figs. 3 a-e, Massachusetts.

- Deuterollyta borealis*, Grote, *l. c.* p. 177, Massachusetts.
Pyralis pulchellalis, Millière, Cat. p. 221, Berthemont; *P. (?) crassalis*, Walker, *l. c.* p. 368, Congo.
Hypotia tamaricalis, Mann, Verh. z.-b. Wien, xxiii. p. 124, Tuscany.
Samea figuralis, Walker, *l. c.* p. 368, Congo.
Botys interfacialis, id. *l. c.* p. 370, Congo; *B. ribicalis*, p. 208, fig. 4, *sesquialteralis* and *nasonialis*, p. 209, fig. 5 & 6, Zeller, *l. c.* pl. iii. Texas; *B. fractilinealis* and *tesserulalis*, H. Christoph, Hor. Ent. Ross. x. pp. 42 & 44, North Persia; *B. badipennis*, p. 88, pl. ii. fig. 12, Maine, New Hampshire, *gentilis* (= *thesealis*, Zell., nec Led.), *magistralis*, Massachusetts, and *subdentalis*, locality unknown, p. 173, Grote, *l. c.*
Eurycreon cortalis, Grote, *l. c.* p. 89, pl. ii. fig. 13, Albany, Massachusetts, Alabama.
Orobena octonalis, Zeller, *l. c.* p. 211, pl. iii. fig. 7, Texas.
Scoparia gallica, Peyerimhoff, Pet. Nouv. 1873, p. 332, France.
Melissoblastes furellus, Albany, New York, *latro*, Adelaide, New Holland, Zeller, *l. c.* pp. 212 & 213.
Ephestia roxburghi, Gregson, Ent. vi. p. 318, Britain (precise locality not stated); *E. egeriella*, Millière, Pet. Nouv. 1873, p. 310, Cannes.
Rhodophea romanella, Millière, Ann. Soc. L. Lyon (2) xix. pp. 70 & 72, pl. cxv. fig. 115 (larva and imago), Rome.
Myelois bituminella and *astericella*, id., R. Z. (3) i. pp. 8 & 9, Valley of Cannel.
Nephoteryx saturniella, id. *l. c.* p. 7, Cannes.
Eucarphia effertella, Mann, *l. c.* p. 130, Palermo.
Subrita luctuosa, Walker, *l. c.* p. 377, Congo.

TORTRICIDÆ.

C. G. BARRETT has continued his "Notes on British Tortrices," Ent. M. M. ix. pp. 212-215 (*Tortrix* and *Lozotenia*), pp. 266 & 267 (*Ditula*, *Ptycholoma*, *Spilonota*, *Lithographa*, and *Phleodes*), *op. cit.* x. pp. 2-9 (*Pædisca* and *Catoptria*, synonymy discussed at length), pp. 34-38 (*Halonota*), pp. 65-67 (*Coccyx* to *Steganoptycha*), pp. 95 & 96 (*Anchylopera*), pp. 97-100 (*Bactra* to *Peronea*), pp. 143-149 (*Peronea* to *Stigmonota*).

Remarks on various Scottish *Tortrices*, and on continental species which may be expected to occur in Scotland, with instructions for collecting: *id.* Scot. Nat. ii. pp. 58-61.

C. S. Gregson, Ent. M. M. ix. pp. 176-178, remarks on *Amphysa gerningana* (larva described), *A. prodromana*, *Hypermezia augustana* (variation), *Antithesia prælongana*, Guén. (= *sororculana*, Zett.), *A. cynosbatella*, *dimidiana*, and *marginana*, *Sideria achatana* and *Dichelia grotiana*.

Penthina pyrolana and *roseimaculana*, H. S. Transformations, &c.; Zeller, S. E. Z. xxxiv. pp. 127-129.

Tortrix cerasana, Hübn., = *ribeana*, Hübn., var.; Barrett, Ent. M. M. ix. p. 213.

T. pilleriana. On its destructiveness to the vine in the Department of Herault in 1872; Lichtenstein, Bull. Soc. Ent. Fr. (5) iii. p. xiv.

Lozotenia piceana, L., re-described; Barrett, *l. c.* ix. p. 215.

Spilonota roborana, Tr., is perhaps not *cynosbana*, F.; *S. rosicolana* is distinct from *suffusana*; Barrett, *l. c.* ix. p. 266.

Lithographia cinerana, Haw., = *nisella*, Cl., var.; *id. l. c.* p. 267.

Catoptria scopoliana, Wilk., = *cana*, Haw.; *C. hovenwarthiana*, Wilk. (*nec* Tr.), = *scopoliana*, Haw.; *C. aspidiscana*, Haw., and *conterminana*, H. S., are re-described; *Grapholitha modestana*, H. S., is a *Catoptria*: *id. l. c.* x. pp. 4-9.

Halonota scutulana, Wilk. (*nec* Tr.), = *pflugiana*, Haw. (? Fab.); the true *scutulana* is not British: *id. l. c.* x. pp. 35-37.

Halonota grandevana, Zell., new to Britain, has occurred at South Shields, and is re-described; *id. l. c.* ix. p. 272.

Dicrorhampha herbosana, Barrett, recorded as new to Scotland; J. Dunsmore, Scot. Nat. ii. p. 63.

Hedya lariciana, Zell., re-described; Barrett, *l. c.* x. p. 66.

Anchylopera subarcuana, Wilk. (*nec* Dougl.), is a good species, and = *inornatana*, H. S.; *id. l. c.* pp. 95 & 96.

Peronea proteana, H. S. (re-described), and *potentillana*, Cooke, = *comariana*, Zell., varr.; *id. l. c.* pp. 99 & 100.

Paramesia caledoniana, Steph., is a good species; *P. selasana*, H. S., = *ferrugana*, var.; *id. l. c.*, p. 143.

Teras ferrugana, *selasana*, and *quercinana*, compared; Pet. Nouv. 1873, p. 346.

Semasia obscurana, Wilk. (*nec* Steph.), = *gallicolana*, Zell.; *S. obscurana*, Steph., also noticed: Barrett, *l. c.* pp. 144 & 145.

Ephippiphora vernana, Knaggs, perhaps = *argyrana*, var.; *id. l. c.* p. 146.

Stigmonota weirana, Dougl., perhaps = *nitidana*, var.; *S. orobana*, Tr., re-described; *id. l. c.* pp. 146 & 147.

Endopisa nigricana. On breeding; J. B. Fletcher, Ent. M. M. ix. p. 198.

Grapholitha. On an uncertain Dutch species, perhaps *obscurifasciana*, Hein.; Graaf & Snellen, Tijdschr. Ent. (2) viii. p. 28.

Grapholitha (Tmetocera) ocellana, and var. (?) *lariciana*. Larva, &c.; Zeller, S. E. Z. xxxiv. pp. 129 & 130.

Grapholitha (Pedisca) roborana and *incarnatana* compared; *id. l. c.* pp. 130-132.

Grapholitha mercuriana, Hübn. Transformations described; F. Epelsheim, S. E. Z. xxxiv. p. 92.

Grapholitha nisana. Larva described; C. S. Gregson, Ent. vi. p. 410.

Sciaphila penziana and *Euchromia purpurana*. Larvæ described; *id. l. c.* pp. 360 & 410.

Conchylis smeathmanniana and *dipolitella*. Larva described; P. C. Zeller, *l. c.* pp. 124-127.

Phæcasiphora, g. n., Grote, Bull. Buff. Soc. i. p. 90; type, *mutabilana*, Clem. (figured, pl. ii. figs. 4-6, with details); also *P. (?) niveiguttana*, sp. n., Grote, *l. c.* p. 91, pl. ii. fig. 15, Pennsylvania.

Penthina blakeana (Robinson, MS.), p. 91, Pennsylvania, *matutina*, p. 92, Texas, *torauta*, p. 92, Pennsylvania, *id. l. c.* pl. ii. figs. 8-10, spp. nn.

Tortrix lintneriana, *id. Tr. Am. Ent. Soc.* iv. p. 424, New York, *T.*

georgiana, Philadelphia, and *houstonana*, Texas, *id.* Bull. Buff. Soc. i. p. 15, pl. i. figs. 4 & 5, spp. nn.

Teras mucidana, sp. n., Peyerimhoff, Pet. Nouv. 1873, p. 346, Alsace.

Grapholitha fessana, Mann, Verh. z.-b. Wien, xxiii. p. 573, Cilicia; *G. distema*, Grote, Bull. Buff. Soc. i. p. 92, New York, Pennsylvania: spp. nn.

Conchylis straminoides, sp. n., Grote, *l. c.* p. 16, locality unknown.

TINEIIDÆ.

H. T. STANTON has published vol. xiii. of the "Natural History of the Tineina" (London: 1873, 8vo, pp. viii. & 377, 8 col. plates), containing notices of 24 species belonging to 12 genera, in their various stages.

V. T. Chambers, Canad. Ent. v., has continued his papers on North American *Tineina*, describing many new genera and species.

Zeller (Verh. z.-b. Wien, xxiii.) notices the following North American known genera and species, many of which he re-characterizes:—*Anaphora*, Clem., pp. 214 & 215; *Xylesthia*, Clem., pp. 217 & 218; *Amydria effrenatella*, Clem., pp. 219 & 220 (*Amydria* is a good genus); *Tinea (Blabophanes) dorsistrigella* and *rusticella*, Zell., p. 220; *Tinea nigralbella*, Zell.; *spretella*, W. V.; *misella*, Zell., and *biselliella*, Humm., pp. 221–223; *Hyponomeuta multipunctella*, Clem., p. 228; *Æta punctella*, Cram. (= *pustulella*, F., = *Pæciloptera compta*, Clem., and *Æta compta*, auctt.; Walker's genus *Atteva* has priority over *Æta*), *ibid.*; *Plutella cruciferarum*, Zell., p. 223; *Depressaria atridorsella*, Clem., p. 233; *D. heracliana*, Deg., p. 235; *Machinia* and *Psilocorsis*, Clem., = *Cryptolechia*, p. 239; *Cryptolechia tentoriferella*, Clem., p. 238; *quercicella*, Clem., p. 240; *C. schlagerei*, Zell., p. 246; *Gelechia (Teleia) sequax*, Haw., p. 265; *G. (Ergatis) roseisuffusella*, Clem., p. 272, pl. iv. p. 24; *G. (Anacampsis) agrimoniella*, Clem., p. 275; *G. (Trichotaphe) flavicostella*, Clem., and *ochripalpella*, Zell., p. 279; *alacella*, Clem. (? = *Acanthophila alacella*) is re-named *ochripalpella*; *Hypsolophus pauciguttellus*, Clem., p. 283 (*H. flaviguttellus*, Clem., and *Chatochilus malifoliellus* and *contubernatellus*, Fitch, are probably varr. of *C. pometellus*, Fitch); *H. punctidiscellus*, Clem., p. 285; *unicipunctellus*, Clem., p. 286; *Dasycera newmanella*, Clem., p. 289; *D. borkhauseni*, Zell., p. 290; *Butalis fuscicomella*, Clem., is not *eboracensis*, Zell., pp. 292 & 294; *Argyresthia andereggiella*, F. R., p. 304, and *abdominalis*, Zell., p. 306; *Gracilaria falconipennella*, Hübn., p. 307; *G. desmodifoliella*, Clem., p. 308, pl. ix. fig. 40; *Coleophora fabriciella*, Vill. (= *coruscipennella*, Clem.), p. 311; and *Phyllocnistis vitigenella*, Clem., p. 314.

Solenobia walshella (?), Clem. Larva described; Chambers, Canad. Ent. v. pp. 74 & 75.

Ochsenheimeria birdella described and figured in all stages; Stainton, Nat. Hist. Tin. xiii. pp. 14–27, pl. i. fig. 1.

Tinea arenatella, Staint. (= *picarella*, H.). Transformations described; Zeller, S. E. Z. xxxiv. pp. 132 & 133.

Tinea lapella, H. (= *ganomella*, Tr.); Zeller, *l. c.* pp. 133–135.

Phylloporia bistrigella described and figured in all stages; Stainton, *l. c.* pp. 32-41, pl. i. fig. 2.

Myrmecozela ochraceella described and figured in all stages; *id. l. c.* pp. 44-53, pl. i. fig. 3 (*M. danubiella*, Mann, scarcely belongs to this genus).

Incurvaria musculella, pp. 62-73, fig. 1, *pectinea*, pp. 74-83, fig. 2, and *kærneriella*, pp. 84-93, fig. 3; described and figured in all stages, *id. l. c.* pl. ii.

Adela fibulella, pp. 160-171, fig. 1, *rufimitrella*, pp. 172-181, fig. 2, *violella*, pp. 182-191, fig. 3, described and figured in all stages; *id. l. c.* pl. iv.

Nemotois scabiosellus, pp. 200-213, fig. 1, *fasciellus*, pp. 214-227, fig. 2, and *minimellus*, pp. 228-238, fig. 3, described and figured in all stages; *id. l. c.* pl. v.

Micropteryx subpurpurella, pp. 108-117, fig. 1, *unimaculella*, pp. 118-129, fig. 2, and *salopiella*, pp. 130-139, fig. 3; described and figured; *id. l. c.* pl. iii. *M. aruncella* and *seppella* are hardly distinct.

Hyponomeuta. On the habits and synonymy of various species, cf. Laboulbène, Ragonot, &c., Bull. Soc. Ent. Fr. (5) iii. pp. cxii. & cxiii., cxxiii. & cxxiv.; also E. Perris, Pet. Nouv. 1873, pp. 331 & 332.

Hyponomeuta mahalebella; H. Delemain, Bull. Soc. Ent. Fr. (5) iii. pp. cxxviii. & cxxix.

Hyponomeuta malinella. On its habits, and the best means of destroying it; Guénéé, Bull. Soc. Dunoise. On its parasites; Ragonot, *l. c.* pp. cxlv. & cxlvi.

Hyponomeuta orbimaculella, Chambers, probably = *evonymella* of European authors; Chambers, Canad. Ent. v. p. 12.

Eidophasia messingiella. Habits of larva; Stainton, *l. c.* p. 163.

Plutella annulatella. Larva described; C. S. Gregson, Ent. vi. p. 360.

Cerostoma. H. Christoph refers his *Anursia seniculella* to this genus, and describes the ♀; Hor. Ent. Ross. x. p. 51.

Enicostoma lobella figured and described in all stages; Stainton, *l. c.* pp. 310-319, pl. vii. fig. 2.

Phibalocera quercana figured and described in all stages; *id. l. c.* pp. 296-307, pl. vii. fig. 1.

Psecadia funerella, pp. 252-267, fig. 1, *bipunctella*, pp. 268-279, fig. 2, *decemguttella*, pp. 280-291, fig. 3, described and figured in all stages; *id. l. c.* pl. vi. *P. luctuosella* is a form of *funerella*; *P. lardutella* hardly belongs to this genus, *id. l. c.* p. 242.

Exeretia allisella figured and described in all stages; *id. l. c.* pp. 322-331, pl. vii. fig. 3.

Depressaria ontariella, Bethune, = *heracliana*, auctt.; Zeller & Lintner, Canad. Ent. v. p. 82.

Depressaria rotundella, *douglasella*, *yeatiana*, and *capreolella*. Larvæ described; C. S. Gregson, Ent. vi. pp. 426, 453, 454, 482, 566.

Depressaria senecionis, Staud. (= ? *saraceneella*, Rössl.). Transformations described; Eppelsheim, S. E. Z. xxxiv. pp. 92 & 93.

Adrastia quercifoliella, Chambers, ? = *Psoricoptera gibbosella*, Staint.; Chambers, *l. c.* pp. 72, 174, 175.

Gelechia morosa. The larva feeds on *Lysimachia vulgaris*, not on *Lythrum salicaria*. Stainton, Ent. M. M. x. p. 44.

Gelechia similiella, Chambers, is re-named by him *laniella*, "because *similiella* is a bad name for anything, and he has discovered the larva" (!) which he describes, l. c. p. 125.

Venilia, Chambers [*nec* Duponchel], is re-named by him *Eido*; l. c. p. 72.

Hypsolophus ustulellus, pp. 344-353, fig. 1, *fasciellus*, pp. 354-363, fig. 2, and *limosellus*, pp. 364-373, fig. 3, described and figured in all stages; Stainton, Nat. Hist. Tin. xiii. pl. viii.

Ecophora angustella and *luctuosella*. Ragonot points out their distinctive characters; Bull. Soc. Ent. Fr. (5) iii. pp. lxxxiv. & lxxxv.

Ecophora pseudospretella. Larva described; C. S. Gregson, Ent. vi. pp. 511 & 512.

Gracilaria superbifrontella, Clem., re-described; Frey, S. E. Z. xxxiv. p. 202.

Gracilaria eupatoriella, Chambers (? = *venustella*, Clem.), re-described in full by Chambers; l. c. pp. 44-47, with notices of the habits of the larvæ of other species.

Coriscium cuculipennellum, Hübn. Transformations described; Ragonot, l. c. pp. clxvi.-clxviii.

Coleophora. Notes on 44 species found near Paris; *id.* l. c. pp. cix.-cxi.

Batrachedra præangusta. Pupa noticed by R. McLachlan; further notes by Healy & Sang: Ent. M. M. x. pp. 90, 118, 140.

Tischeria zellerella, *quercitella*, and *malifoliella*, Clem., re-described; Frey, S. E. Z. xxxiv. pp. 220-222.

Lithocolletis abniella, Z. (?), p. 210, *argentinotella*, Clem. (= *ulmella*, Chamb.), *trifasciella*, Haw., p. 215, *ornatella*, Chamb., p. 217; *id.* l. c.

Cemiostoma albella. On this and the allied species, *cf.* Chambers, Am. Nat. vii. pp. 47-49.

Nepticula platanella, Clem.; Chambers, Canad. Ent. v. p. 125.

New genera and species :—

Dicte, Chambers, l. c. p. 73. Allied to *Tinea*; type, *D. corruscifasciella*, *id.* l. c. p. 74, Kentucky.

Pitys [Beck, *mollusca*, 1837], *id.* l. c. p. 110. Allied to *Tinea*; to contain *P. auricristatella*, p. 110, *fuscicristatella*, *fasciella*, and *miscicristatella*, p. 111, *id.* l. c. Kentucky.

Cyane [Felder, *Lepidoptera*, 1861], *id.* l. c. p. 112. Allied to *Tinea*; type, *C. visaliella*, *id.* l. c. p. 113, Kentucky.

Clymene [Savigny, *Vermes*, 1817] *id.* l. c. p. 114. Placed after *Cyane*; affinities not stated. Type, *C. æger* [!], *fasciella*, *id.* *ibid.*, Kentucky.

Cyllene [Newman, *Coleoptera*, and Gray, *Mollusca*, 1840], *id.* l. c. p. 124. Allied to *Clymene*; type, *C. minutissima*, *id.* l. c. p. 125, Kentucky (*Clymene* and *Cyllene* are considered by the author, pp. 147-149, to be allied to *Hydroptila*, which he thinks is Lepidopterous).

Pronuba, Riley, Tr. Ac. St. Louis, iii. p. 55, fig. 1 (details). Allied to *Anaphora* and *Amydria*; type, *P. yuccasella*, *id.* l. c. p. 56, fig. 2, Southern States (transformations and habits described in detail, pp. 55-64,

178-180). Cf. also Riley, Rep. Ins. Mo. v. pp. 151-160, and Am. Nat. vii. pp. 619-623.

Argiope [*Argyopes*, Savigny, *Arachnida*], Chambers, *l. c.* p. 13. Allied to *Hyponomeuta*; type, *Heribeia* (?) *incertella*, Chamb. (? = *Acrolepia*, id. *l. c.* p. 174).

Tegeticula, Zeller, Verh. z.-b. Wien, xxiii. p. 232. Allied to *Psecadia*, *Enematia*, and *Trichostibas*; type, *T. alba*, id. *ibid.*, Texas.

Enchrysa, id. *l. c.* p. 282. Allied to *Gelechia*, sect. *Nannonia*, but resembling *Tinagma* in pattern, and *Chrysoclista* in antennæ. Type, *E. dissectella*, id. *l. c.* p. 283, pl. iii. figs. 29 a, b, Ohio.

Evippe, Chambers, *l. c.* p. 185. Allied to *Trypanisma* and *Agnippe*; type, *E. prunifoliella*, id. *l. c.* p. 186, Kentucky.

Eidothoa, id. *ibid.* Allied to *Evippe*; type, *E. vagatisella*, id. *l. c.* p. 187, Kentucky.

Helice [De Haan, *Crustacea*, 1835], id. *ibid.* Allied to *Trypanisma*; type, *H. pallidochrella*, id. *l. c.* p. 188, Kentucky.

Epicorthylis, Zeller, *l. c.* p. 248. Allied to *Hypsolophus* and *Tachypetilia*; type, *E. inversella*, id. *ibid.* pl. iii. figs. 13 a, b, Texas.

Atychia radiata, Christoph, Hor. Ent. Ross. x. p. 49, pl. i. fig. 9. North Persia.

Psilothrix latiorella, Mann, Verh. z.-b. Wien, xxiii. p. 131, Palermo.

Anaphora scardiana, Texas (? = *popeanella*, Clem.), and *bombycina*, Buenos Ayres ?, or Massachusetts ?, Zeller, *l. c.* pp. 216 & 217.

Xylesthia congeminatella, id. *l. c.* p. 218, Massachusetts; *X. clemensella*, Chambers, *l. c.* p. 174, Kentucky.

Tinea sexguttella, Mann, *l. c.* p. 127, Tuscany; *T. defectella*, p. 220, pl. iii. fig. 8, San Francisco, *grunella*, p. 221, Massachusetts, Zeller, *l. c.*; *T. cunituriæella*, Kentucky, Gulf States, *orleansella*, New Orleans, p. 85, *auristrigella* and *straminiella*, Kentucky, *iridella*, locality unknown, *misciella*, p. 86, *costotristrigella* [!], *bimaculella*, and *aurisuffusella*, p. 87, *griseella*, *marginistrigella*, *trimaculella*, and *fuscimaculella*, p. 88, *argentistrigella*, p. 89, *T. (?) auripulvella*, *fuscipulvella*, and *maculabella* [!], p. 90, Kentucky, Chambers, *l. c.*

Tineola gigantea (Staud. MS.), Christoph, *l. c.* p. 49, pl. i. fig. 10, North Persia.

Setomorpha operosella, *inamænella*, and *ruderebella*, Zeller, *l. c.* pp. 223-225, Texas.

Adela chalybeis, p. 225, Texas, *biviella*, p. 226, pl. iii. fig. 10, Massachusetts?, and *schlægeri*, p. 227, fig. 11, Ohio, id. *l. c.*; *A. bella*, Chambers, *l. c.* p. 73, Kentucky.

Æta albiguttata, Queensland, and *fulviguttata*, New Holland, Zeller, *l. c.* pp. 230 & 231; *Æ. gemmata*, Grote, Bull. Buff. Soc. i. p. 93, Cuba.

Anesychia trifurcella, Chambers, *l. c.* p. 12, Kentucky.

Cerostoma ephedrella, Christoph, *l. c.* p. 51, pl. i. fig. 11, North Persia.

Plutella incarnatella, Steudel, S. E. Z. xxxiv. p. 340, Grisons.

Depressaria hilarella, p. 234, Massachusetts, *scabella*, p. 236, Ohio, and *nebulosa*, p. 237, Massachusetts, Zeller, *l. c.*; *D. ruticola*, Christoph, *l. c.* p. 52, pl. i. fig. 12, North Persia.

Cryptolechia piperatella, p. 239, Texas, *obsoletella*, p. 242, Ohio, *fer-*

ruginosa, Ohio, and *cretacea*, Texas, p. 243, *lithosina*, p. 244, *nubeculosa*, p. 245, pl. iii. fig. 12, and *vestalis*, p. 247, all from Texas: Zeller, *l. c.*

Gelechia (Tachyptilia) innocuella, p. 249, Texas, *consonella*, p. 251, Missouri, Texas, *cacella*, p. 252, Massachusetts, *versutella*, p. 253, Texas, *lynceella*, *mundinella*, *unctulella*, *violaceifusca*, pp. 255-258, *olympiadella*, p. 259, fig. 15, *quinella*, p. 260, fig. 14, *albimorella*, p. 261, fig. 16, *G. (? Bryotropha) operculella*, p. 262, fig. 17, *glochinelletta*, p. 263, fig. 18, *G. (? Lita) ternariella*, p. 264, fig. 19, *G. (L.) liturosella*, p. 265, *G. (Teleia) ? gilviscopella*, p. 266, *G. (T. ?) dorsivittella*, p. 267, fig. 20, *G. (T. ?) leuconata*, p. 268, fig. 21, *G. (Pocilia) ? basifasciella*, p. 269, fig. 22, pl. iii.; *G. (P. ?) basistrigella*, p. 270, fig. 23, *fragmentella*, p. 271, *G. (Ergatis) ? pudibundele*, p. 273, *molestella*, p. 274, *G. (Anacamptis) glandiferella*, p. 275, fig. 25, *G. (Ceratophora) ? fullonella*, p. 276, *G. (Doryphora) piscipellis*, p. 277, *G. (Trichotaphe) ? serrativittella*, p. 280, fig. 27, all from Texas, *G. (Malacotricha, new section, characterized, p. 282) bilobella*, p. 280, fig. 28, Washington, Ohio, pl. iv.; Zeller, *l. c.*

Gelechia benedeni, Weyenbergh, Ent. M. M. x. p. 122, Cape Verde; *G. kiesewetteri*, W. Henäcker, S. E. Z. xxxiv. pp. 94 & 245, Osterwieck, Harz; *G. scutellariacella*, p. 175, and *unistrigella*, p. 176, Kentucky, Chambers, *l. c.*

Nothris dolabella, Zeller, *l. c.* p. 288, pl. iv. fig. 30, Texas.

Pleurota amaniella, Mann, *l. c.* p. 573, Cilicia.

Æcophora determinatella and *constrictella*, Zeller, *l. c.* pp. 289 & 291, pl. iv. figs. 31 & 32, Texas; *Æ. (?) boreasella*, Chambers, *l. c.* p. 189, locality unknown (notice of its generic characters, pp. 188 & 189).

Butalis asmodella, Millière, Pet. Nouv. 1873, p. 310, Cannes; *B. tricinctella*, p. 292, pl. iv. figs. 33a, b, Texas, *pilosella*, p. 293, Massachusetts, Zeller, *l. c.*

Acrolepia citri, Millière, *l. c.* p. 310, Corsica.

Blastobasis sciaphilella, p. 295, fig. 29, Texas, *sequella*, p. 296, Sarepta, *nubilella* and *retectella*, p. 297, *fractilinea*, p. 298, fig. 37, *quisquiliella*, *livorella*, *B. (?) aufugella* and *B. (?) fluxella*, pp. 298-301, all from Texas: Zeller, *l. c.* pl. iv.

Hypatima subsenella and *confectella*, id. *l. c.* pp. 302 & 303, Texas.

Argyresthia quadristrigella, p. 304, *delectella*, p. 305, and *austerella*, *ibid.*, pl. iv. fig. 38, id. *l. c.* Texas.

Gracilaria elegantella, *mirabilis*, and *astericola*, Frey, *l. c.* pp. 202-204, N. America; *G. burgessiella*, p. 307, pl. iv. fig. 39, Massachusetts, *atomosella*, p. 309, Texas, *occidentis* (? = *nigricella*, Haw.), p. 309, United States, Zeller, *l. c.*; *G. juglandivorella* (? = *blandella*, Clem.), Chambers, *l. c.* p. 13, Kentucky.

Coriscium paradoxum, Frey, *l. c.* p. 205, N. America.

Ornix inusitatumella, p. 47, *prunivorella*, p. 50, Kentucky, Chambers, *l. c.*

Coleophora helianthemella, Millière, Ann. Soc. Lyon (2) xix. pp. 51-54, pl. cxiii. figs. 1-5, Cannes.

Laverna definitella and *circumscripella*, Zeller, *l. c.* pp. 311 & 312, pl. iv. figs. 41 & 42, Texas.

Batrachedra striolata, id. *l. c.* p. 313, Texas.

Heliozela gracilis, id. *l. c.* p. 314, Texas.

Tischeria œnea and *roseticola*, Frey, *l. c.* pp. 222 & 223, Massachusetts.

Lithocolletis quercetorum, p. 207, Texas, Massachusetts, *hageni*, p. 208; *longistriata*, p. 209 (? = *argentifimbriella*, Clem.), *intermedia*, p. 210, *obsoleta*, p. 211, *mirifica* and *scudderella*, p. 212, *consimilella*, p. 214, *ignota*, p. 215, *bostonica* and *auronitens*, p. 216, *gemmea*, p. 218 (? = *Parectopa robinella*, Clem.), *œnigmatella*, p. 219, all from Massachusetts, Frey, *l. c.*

Phyllocnistis magnatella, Zeller, *l. c.* p. 315, pl. iv. fig. 43, Massachusetts.

Bucculatrix capitealbella [!] and *obscurifasciella*, p. 150, *luteella* and *packardella*, p. 151, Chambers, *l. c.* Kentucky.

Nepticula clemensella, p. 125, Kentucky, Pennsylvania, *maximella* and *serotincella* (? = *bifasciella*, Clem.), p. 126, *apicalbella* [!], *minimella*, *thoracealbella* [!], and *quercicastanella*, p. 127, *fuscicapitella*, *ochreifasciella*, *ciliifascella* (? = *fuscitibiella*, Clem.), p. 128, Kentucky: *id. l. c.*

Trifurcula obrutella, Zeller, *l. c.* p. 316, Texas.

PTEROPHORIDÆ.

Zeller, *l. c.*, notices the following N. American species: *Platyptilia bisehoffi*, Zell., and *cardui* (= *carduidactylus*, Riley), *Oxyptilus periscelidactylus*, Fitch, and *Pterophorus monodactylus*, L.; Verh. z.-b. Wien, xxiii. pp. 317, 318, 319, & 326.

Platyptilia ochrodactyla, *bertrami*, and *graafi*; transformations, &c., noticed by Zeller, S. E. Z. xxxiv. pp. 135-140.

Platyptilus gonodactylus and *Lioptilus lienigianus*. Larvæ described; C. S. Gregson, Ent. vi. pp. 426, 427, 512.

Pterophorus periscelidactylus. A popular account, with figures of all stages; W. Saunders, Canad. Ent. v. pp. 99 & 100.

Scoptonoma, g. n., Zeller, Verh. z.-b. Wien, xxiii. p. 328. Allied to *Agdistes* and *Stenoptycha*, but with longer antennæ. Types, *S. integra*, *id. l. c.* pl. iv. fig. 44, and *interrupta*, p. 329, both from Texas: spp. nn.

Oxyptilus delawaricus (? = *tenuidactylus*, Fitch) and *nigriciliatus*, *id. l. c.* pp. 320 & 322, both from Delaware: spp. nn.

Mimeseoptilus semicostatus and *pumilio*, spp. nn. *id. l. c.* pp. 323 & 324, Texas.

Edematophorus inquinatus, sp. n., *id. l. c.* p. 325, Texas.

Lioptilus paleaceus, sp. n., *id. l. c.* p. 326, Ohio, Texas.

ALUCITIDÆ.

Alucita polydactyla. Larva described; C. S. Gregson, Ent. vi. p. 361.

DIPTERA.

BY

E. C. RYE, F.Z.S.

THE GENERAL SUBJECT.

GRZEGORZEK, ADALBERT. Uebersicht der bis jetzt in der sandezer Gegend West-Galiziens gesammelten Dipteren. Verh. z.-b. Wien, xxiii. pp. 25-36.

A list of names of species of all families but *Cecidomyiidae*, *Sciaridae*, *Psychodidae*, and *Culicidae*.

KOCH, L. Beitrag zur Dipteren-Fauna Tirols. Z. Ferd. (3) xvii. (1872) pp. 329-344.

Supplementary to Palm's similar work.

KOWARZ, F. Beitrag zur Dipteren-Fauna Ungarns. Verh. z.-b. Wien, xxiii. pp. 453-464.

A list of species, with occasional notes on habits and localities, found near Herkulesbad and Orsova, Hungary.

LOEW, HERMANN. Beschreibungen europäischer Dipteren. Band ii. (pt. 10 of Meigen's System. Beschr. der bek. eur. zweifl. Ins.). Halle: 1873, 8vo, pp. 320.

213 species are described, nearly all treated as new (and the greater part of which were taken by the late A. Fedtschenko in Eastern Turkestan); many species, from various parts of Hungary (see KOWARZ, *suprà*), have also been very curtly described as new by the author in B. E. Z. xvii. pp. 33-52, to which prior publication no reference is made by him. Various observations are given on the affinities, &c., of the genera and species discussed, and there is an index for the whole three volumes of the Beschr. eur. Dipt.

——. Monographs of the Diptera of N. America. Part iii. Sm. misc. Coll. No. 256; 8vo, Washington, December, 1873, pp. 1-351 & i.-vi., pls. viii.-xi.

Relates to the *Ortaliides* (discussing also the European species) and *Trypetides*. The first part, referring to the *Trypetides*, *Sciomyzides*, *Ephydrinides*, and *Cecidomyiidae*, appeared in 1862; the second part, in 1864, chiefly referred to the *Dolichopodidae*; and the fourth part, in 1869 (irregularly issued), comprised part of the *Tipulidae*. The present part (included in vol. xi. of Sm. misc. Coll., bearing date 1874 on title) enters at excessive length upon the characters and affinities of the species

and genera discussed; and it will be impossible to reproduce the numerous observations scattered throughout its pages, especially as in many instances they are merely incidental suppositions. Many new genera and species are characterized; and additions and corrections are made, referring to former parts. The figures on the plates represent, with one exception, a wing only of each species.

OSTEN-SACKEN, C. R. Sm. misc. Coll. No. 256. Appendix. pp. vii.-xiii.

Additions to vol. iv. of the above-mentioned monographs of North American Diptera, referring to the *Ptychopteridæ* and *Limnobiidæ*.

RONDANI, CAMILLO. *Muscaria exotica Musei Civici Januensis observata et distincta*. Ann. Mus. Genov. iv. pp. 282-300, woodcuts.

Comprises descriptions of new genera and species: the first part referring to the captures of Dr. Beccari and the Marquis Antinori in Abyssinia, and the second to those of the Marquis Doria in various Eastern localities.

Velzen: captures by Everts, Tidjschr. Ent. (2) viii. Versl. p. xxx.

Altwater Mountains: notice of species observed by J. P. E. F. Stein; S. E. Z. xxxiv. p. 241.

Amurland species mentioned by F. Walker, Ent. vi. p. 328. Turkestan species: *id. op. cit.* p. 388.

F. Walker, Ent. vi. p. 327, refers 3 species of blood-sucking flies mentioned by Stanley as occurring in Central Africa to *Tabanus*, *Stomoxys*, and *Glossina longipalpis*, Walk.

Flies hibernating in Russian bath-houses, revive with artificial elevation of temperature. D. Goubareff, C. R. lxxvi. 785.

On diffusion of germs of disease by flies: Das Ausland, xlv. (1872), p. 624.

CECIDOMYIIDÆ.

The "Hessian-fly" in Canada has either died out, or is so reduced in numbers as to give no trouble: J. J. Murphy, Nature, viii. p. 202.

Asphondylia ulicis. J. W. H. Traill, Scot. Nat. ii. p. 172, proposes this name for an (undescribed) new species reared from galls on *Ulex europæus*.

Asphondylia ononidis, Loew, Verh. z.-b. Wien, xxiii. p. 138, pl. ii. c, figs. 1-6, Pressbaum (all stages: gall on *Ononis spinosa*); *A. cytisi*, Frauenfeld, *op. cit.* p. 186, on *Cytisus austriacus*, Neusiedl: spp. nn.

Cecidomyia (Diplosis) buxi, sp. n., Laboulbène, Ann. Soc. Ent. Fr. (5) iii. p. 32. All stages fully described and figured, *l. c.* pp. 313-326, pl. ix. The species was apparently first observed by Audouin: *op. cit.* Bull. p. ccxxxiv.

Diplosis schineri, sp. n., Frauenfeld, *l. c.* p. 184, Miramar [? = *buxi*, Lab.].

MYCETOPHILIDÆ.

Dynatosoma nobilis [-le], sp. n., H. Loew, B. E. Z. xviii. p. 35, Hungary.

Sciophila pallens, ibid., *nigriceps*, p. 36, spp. nn., *id. l. c.* Hungary.

Sciara egregia, p. 550, *concolor*, p. 552, *tremulæ*, p. 553, *hortulana*, p. 555 (all stages), spp. nn., Beling, Verh. z.-b. Wien, xxiii. Harz district.

BIBIONIDÆ.

Bibio clavipes, Mg., and *lepidus*, Lw., in Scotland; F. B. White, Scot. Nat. ii. p. 23.

Bibio marci. Bazin, Bull. Soc. Yonne, xxvi. p. 165.

Bibio macer, sp. n., Loew, B. E. Z. xvii. p. 36, Eur. Dipt. iii. p. 70, Orsova.

CHIRONOMIDÆ.

Weyenbergh, S. E. Z. xxxiv. p. 452 *et seq.*, describes and figures a larva of *Chironomus* found in the River Primero, Cordova, La Plata, which had 2 heads, and the 5 following segments gradually merging together, the one next the head being free. On the antepenultimate segment was a smaller development of the usual respiratory processes existing at the apex.

CULICIDÆ.

Culex. Observations by Lalanne, Mém. Soc. Cannes, iii. p. 45.

Culex leucacanthus, sp. n., Loew, B. E. Z. xvii. p. 33, Eur. Dipt. iii. p. 1, Kasan.

LIMNOBIIDÆ.

Epiphragma picta, F., *Limnobia annulus*, Meig., *L. 3-punctata*, F., and *Rhipidia maculata*, Meig.; early stages described, from the Harz district. T. Beling, Verh. z.-b. Wien, xxiii. pp. 589-592.

Limnophila pallida, sp. n., *id. l. c.* p. 556 (all stages), Harz district.

Limnobia decemmaculata, Loew, B. E. Z. xvii. p. 35, Eur. Dipt. iii. p. 39, Germany, Kasan, Galizia; *L. obscuricornis*, Beling, *l. c.* p. 559, Harz district: spp. nn.

Rhypholophus bivittatus, p. 41, Harz, Silesia, &c., *tephronotus*, p. 43, Galizia, Switzerland, *helveticus*, p. 45, Switzerland, Loew, Eur. Dipt. iii.; *R. pentagonalis*, *id.* B. E. Z. xvii. p. 35, and *l. c.* p. 46, Posen, Silesia: spp. nn.

Erioptera limbata, sp. n., *id.* Eur. Dipt. iii. p. 47, Galizia.

Acyphona melampodia, p. 48, Harz, Posen, *pallens*, p. 50, Rhineland, *id. l. c.* spp. nn.

Mesocyphona fossarum, sp. n., *id. l. c.* p. 51, Meseritz.

Symplecta grata, sp. n., *id. l. c.* p. 53, Nieusiedler Lake.

Gonomyia jucunda, p. 54, Galizia, *connexa*, p. 55, Switzerland, Vienna, *abbreviata*, p. 58, *lata*, p. 60, *lurida*, p. 62, Reichenhall, *id. l. c.* spp. nn.

Cladura fuscata, sp. n., *id.* B. E. Z. xvii. p. 35 [12 words only], Eur. Dipt. iii. p. 64, Vienna, Bavaria, &c.

Lipsothrix nobilis, sp. n., *id.* Eur. Dipt. iii. p. 67, Asch.

Trichocera limpidipennis, sp. n., *id. l. c.* p. 69, Galizia.

Sigmatomera flavipennis, sp. n., Osten-Sacken, Sm. mis. Col. No. 256, Appendix, p. ix. Mexico.

TIPULIDÆ.

Ctenophora bimaculata, L.; *Tipula nubeculosa*, *scripta*, *hortensis*, *pabulina*, *varipennis*, *flavilineata*, *ochracea*, and *paludosa*, Meig., *T. winnertzi* and *irrorata*, Mcq.; observations on economy, and larva and pupæ described, from the Harz district: T. Beling, Verh. z.-b. Wien, xxiii. pp. 575-589.

Ctenophora vittata, Meig., p. 289, pl. ix. figs. 4 & 4a, *C. amæna*, Loew, p. 290, var. a, figs. 5 & 5a, var. b, fig. 6, Irkoutsk; J. Portschesky, Hor. Ent. Ross. ix.

Ctenophora macra, Loew, Eur. Dipt. iii. p. 2, Kultuk; *C. sibirica*, p. 287, pl. ix. figs. 1 & 1a, *minuta*, p. 288, figs. 2 & 2a, *gracilis*, p. 289, fig. 3, Portschesky, *l. c.* Irkoutsk: spp. nn.

Tipula helvola, Loew, B. E. Z. xvii. p. 34, Eur. Dipt. iii. pp. 3-9, Ragusa, Tarvis, Mehadia, *pannonia* [? -ie], *id. ll. cc.* p. 33, and pp. 9-13, Herkulesbad, *truncata*, *id. ll. cc.* p. 34, and pp. 13-17, Trieste, *bispina*, *id. ll. cc.* pp. 34 & 17, Herkulesbad; *T. bifasciculata*, p. 18, Istria, Dalmatia, *pachyprocta*, p. 21, Laibach, *tergestina*, p. 24, Trieste, *bullata*, p. 25, Carinthia, *alpina*, p. 28, Carinthian Alps, *dedecor*, p. 31, Corfu, *præcox*, p. 33, *cinerascens*, p. 35, Trieste, *selenis*, p. 37, Rhodes, *id.* Eur. Dipt. iii.: spp. nn.

STRATIOMYIDÆ.

Metoponia vagans, sp. n., Loew, Eur. Dipt. iii. p. 71, North Russia.

Clitellaria obscuripennis, p. 72, Jagnob, *ruficornis*, Alai, *cinerascens*, Kisilkum, p. 74, *id. l. c.* spp. nn.

Oxycera tricolor, p. 76, Ssary-Kul, *atra*, p. 77, *rufifrons*, p. 78, Obburden, *melanodactyla*, p. 80, Fan, *æmula*, p. 81, Sarawschan-Kul, *nana*, p. 83, Pjandschikent, Gulscha, *proxima*, p. 85, Frankfort-on-the-Maine, *fasciventris*, p. 86, *bipunctata*, p. 88, Peischambe, Schagimardan, *hybrida*, p. 89, Turcomania, *nigriventris*, p. 91, *notata*, p. 92, Iskander, *fraterna*, p. 95, Sarawschan, &c., *hirticeps*, p. 96, Fan, *id. l. c.* spp. nn.

Odontomyia periscelis, sp. n., *id.* B. E. Z. xvii. p. 36, Eur. Dipt. iii. p. 98, Orsova.

TABANIDÆ.

Glossina fusca, Walk., = *longipalpis*, Walk. (1830: the 'Tsetse' fly); *Prosenia* and *Glossina* may be united to *Stomoxys*. F. Walker, Ent. vi. p. 328.

Hæmophila, g. n., J. Kriechbaumer, Verh. z.-b. Wien, xxiii. p. 69. Between *Hæmatopota* and *Tabanus*: antennæ 5-jointed, joints 1 & 5

elongate, 2-4 very short; palpi of ♀ obliquely distant from rostrum; wings hyaline. *H. fallottii*, sp. n., *id. l. c.* p. 70, Pinerolo.

Tabanus ispahanicus, sp. n., Rondani, Ann. Mus. Genov. iv. p. 300, N. Persia.

LEPTIDÆ.

Chrysopila obscuripennis, Loew, Eur. Dipt. iii. p. 99, Hadschyabad, *merens*, *id. B. E. Z.* xvii. p. 36, and *l. c.* p. 100, Herkulesbad; *C. nigricauda*, T. Beling, Verh. z.-b. Wien, xxiii. pp. 547-549 (all stages described), Harz: spp. nn.

THEREVIDÆ.

Thereva sybarita, sp. n., Loew, Eur. Dipt. iii. p. 144, Calabria.

SCENOPINIDÆ.

Scenopinus opaculus, p. 145, Sarepta, Samarcand, *brevicornis*, p. 146, Warsaminor, *varipes*, p. 148, Usunata, *nitidulus*, p. 149, Balfrusch, *clausus*, p. 150, Samarcand, *id. l. c.* spp. nn.

ACROCERIDÆ.

Oncodes formosus, sp. n., *id. l. c.* p. 101, Scharud.

BOMBYLIIDÆ.

Dimorphophora, Walk., = *Antonia*, Lw.; *D. syrphoides*, W., = *A. suavissima*, Lw.; Loew, Eur. Dipt. iii. p. 180. *Popsia*, Costa, = *Platypygus*, Lw.; *id. l. c.* p. 206.

Anthrax aethiops, F., parasitic on *Heriades truncorum* (Hymenoptera); A. Laboulbène, Ann. Soc. Ent. Fr. (5) iii. pp. 57-60, pl. v. No. iii. figs. 1-3.

Glabella, g. n., Loew, *l. c.* p. 210. Facies of *Simulium*: ? = *Sphærogaster*, Zett. (1842; *nec* Dej., *Coleoptera*, 1821). *G. femorata*, sp. n., Loew, *l. c.* p. 208, Utinata.

Lomatia tibialis, p. 152, *bella*, p. 153, spp. nn. *id. l. c.* Jagnob.

Exoprosopa latiuscula, p. 154, *occlusa*, p. 158, Kisilkum, *completa*, p. 161, Karak, *fallaciosa*, p. 162, Krasnowodsk, *id. l. c.* spp. nn.

Mulio lugubris, p. 164, Taschkent, *melaleucus*, p. 167, Turkestan, *albifrons*, p. 168, *dispar*, p. 169, Kisilkum, *fenestratus*, p. 170, Jagnob, *fenestrulatus*, p. 172, Tschardara, *farinosus*, p. 173, Karak, *id. l. c.* spp. nn.

Callostoma soror, p. 175, Sarawschanthal, *desertorum*, p. 176, Turkestan, *id. l. c.* spp. nn.

Amictus latifrons, sp. n., *id. l. c.* p. 177, Keles.

Antonia fedtschenkoi, sp. n., *id. l. c.* p. 178, Turkestan.

Heterotropus albidipennis, sp. n., *id. l. c.* p. 180, Usunata.

Plous decipiens, Iskander, *nobilis*, Elbrus, p. 183, *bombyliiformis*, p. 184 (= *adunca*, Lw., pt.), Turkestan, *id. l. c.* spp. nn.

Bombylius dorsalis, p. 187, Kossaral, *pericaustus*, p. 188, Keles, *mobilis*,

p. 190, *similis*, p. 196, Taschkent, *hololeucus*, p. 191, Kisilkum, *modestus*, p. 192, Naxos, *argéntifrons*, p. 194, Andalusia, *id. l. c.* spp. nn.

Phthiria atriceps, p. 197, Warsaminor, *quadrinotata*, p. 198, Samarcand, *id. l. c.* spp. nn.

Apolysis eremophila, sp. n., *id. l. c.* p. 199, Kisilkum.

Oligrodranes modestus, sp. n., *id. l. c.* p. 200, Kisilkum.

Usia notata, E. Turkestan, *unicolor*, Samarcand, *id. l. c.* p. 201, spp. nn.

Platypygus lativentris, p. 202, *melinoproctus*, p. 203, *pumilio*, p. 204, spp. nn., *id. l. c.* E. Turkestan.

Cyrtosia pusilla, p. 206, Kisilkum, *cinerascens*, p. 207, Jagnob, *id. l. c.* spp. nn.

Anthrax plumipes, Philippi, S. E. Z. xxxiv. p. 307, Mendoza; *A. erythrostroma*, Rondani, Ann. Mus. Genov. iv. p. 299, N. Persia : spp. nn.

NEMESTRINIDÆ.

Hirnoneura villosa, sp. n., Loew, Eur. Dipt. iii. p. 103, Samarcand.

Nemestrina melaleuca, p. 103, Bairakum, Syr Daria, *naso*, p. 104, Turcomania, *simplex*, p. 105, Samarcand, *fraudatrix*, p. 108 (= *innotata*, Lw., pt.), Sarawschan, *eristalis*, p. 110, *dedecor*, p. 115, Turcomania, *rubriventris*, p. 112, *capito*, p. 116, *marginata*, p. 117, Kisilkum, *læta*, p. 113, Astrabad, *id. l. c.* spp. nn.

ASILIDÆ.

Ceraturgus fasciatus, Walk., = *cruciatus*, Say, ♂; Loew, *l. c.* p. 124.

Laphria flava, L., new to Britain : W. A. Vice, Scot. Nat. ii. p. 120.

Alcimus rubiginosus, Gerst., figured in V. d. Decken's Reisen, iii. pt. 2, pl. xvi. fig. 5.

Promacus (Alcimus) limbatus, Mcq. : ♂ characters added by Rondani, Ann. Mus. Genov. iv. p. 291.

Halictosoma, g. n., *id. l. c.* p. 298, woodcut. *Laphriides*: differs from *Andrenosoma* in its sub-horizontal proboscis, the obovate-elongate last joint of its antennæ, its 7th longitudinal nervure being obliterated beyond the outer transverse one, and its shorter and less thick pubescence. *H. puella*, sp. n., *id. ibid.* N. Persia.

Codionus, g. n., *id. l. c.* p. 299, woodcut [no differential characters given]. *C. chlorizans*, sp. n., *id. ibid.* Caucasus.

Dioctria lugens, p. 120, Hadschyabad, *liturata*, p. 121, Losonz, spp. nn., Loew, Eur. Dipt. iii.

Ceraturgus dispar, sp. n., *id. l. c.* p. 122, Europe.

Habropogon doriæ, sp. n., Rondani, *l. c.* p. 297, N. Persia.

Protacanthus shah, sp. n., *id. ibid.* N. Persia.

Saropogon pittoproctus, p. 124, *alternatus*, p. 127, spp. nn., Loew, *l. c.* Samarcand.

Scleropogon rufipilus, p. 129, *sciron*, p. 130, Schahkuh, *theseus*, p. 132, Astracan, *id. l. c.* ; *S. superbus*, Portschesky, Hor. Ent. Ross. ix. p. 292, pl. ix. figs. 7 & 8, Astrabad : spp. nn.

Anaroliis fronto, sp. n., Loew, *l. c.* p. 133, Taschkent.

Ctenota molitrix, sp. n., *id. l. c.* p. 135, Bairakum.

Pogonosoma unicolor, p. 137, Lenkoran, *lugens*, p. 139, Samarcand, *id.* l. c. spp. nn.

Promacus (Alcimus) teniopus, sp. n., Rondani, l. c. p. 292, Keren.

Apoclea trivialis, p. 140, *helvipes*, p. 141, Kisilkum, &c., Loew, l. c. spp. nn.

Polysarca neptis, sp. n., *id.* l. c. p. 142, Karak.

EMPIDÆ.

Leptozeza sphenoptera, sp. n., Loew, Eur. Dipt. iii. p. 215, Partenkirchen.

Iteaphila italica, sp. n., *id.* l. c. p. 216, Lucca.

Pachymeria obscuripes, p. 218, Smyrna, *subclavata*, p. 220, Parnassus, *ptilocnemis*, p. 222, Kurusch, *id.* l. c. spp. nn.

Empis basalis, p. 223, *candidata*, p. 226, Kurusch, *præputiata*, p. 225, *depilis*, p. 231, Sarepta, *eversmanni*, p. 227, Russia, *æmula*, p. 228, Galizia, *pittoprocta*, p. 229, Kultuk, *id.* l. c.; *E. procera*, *alampra*, p. 37, *nitidiventris*, *tanyssphyra*, *plebeia*, p. 38, *melanotricha*, *filata*, p. 39, *levis*, *leucopeza*, p. 40, *id.* B. E. Z. xvii. Hungary: spp. nn.

Rhamphomyia sphenoptera, *id.* B. E. Z. xvii. p. 40, Eur. Dipt. iii. p. 232, Mehadia, *eupterota*, *leptopus*, *id.* B. E. Z. xvii. p. 41, Hungary: spp. nn.

Hilara scrobiculata, p. 41, *cornicula*, *platyura*, p. 42, *eumera*, *tetragramma*, *pubipes*, *cuneata*, p. 43, spp. nn., *id.* B. E. Z. xvii. Hungary.

Clinocera fallaciosa, sp. n., *id.* l. c. p. 44, Hungary.

DOLICHOPODIDÆ.

Systemus adpropinquans, Lw.: economy described and all stages figured in detail. A. Laboulbène, Ann. Soc. Ent. Fr. (5) iii. pp. 49-56, pl. v. figs. 1-11.

Campsicnemus pictipennis, Boh., ♂ & ♀ described; *Raphium fulvipes*, Walk., *nec* Meig., = *Porphyrus consobrinus*, Zett., and *P. subnudipes*, Zett., ? = *obscuripes*, Zett., ♂, both species occurring at Mecklenburg; *Medeterus albipes*, Zett., ♂ & ♀ described; *Achalcus flavicollis*, Meig., *A. cinereus*, Hal., *Thripticus bellus*, Loew, and *T. smaragdinus*, Gerst., differentiated; Raddatz, S. E. Z. xxxiv. pp. 323-334.

Dolichopus afer, sp. n., Rondani, Ann. Mus. Genov. iv. p. 291, Sciotel.

Dolichopus lonchophorus, sp. n., Loew, Eur. Dipt. iii. p. 234, Kultuk.

Gymnopternus placidus, sp. n., *id.* l. c. p. 236, Sarepta.

Sybstroma mærens, sp. n., *id.* B. E. Z. xvii. p. 44, Hungary.

Oncopygius magnificus, sp. n., *id.* *ibid.* Hungary.

Porphyrus patulus, sp. n., Raddatz, l. c. p. 229, Mecklenburg.

Sympycnus tumidulus, sp. n., *id.* l. c. p. 326, Mecklenburg.

Campsicnemus perforatus, sp. n., *id.* l. c. p. 324, Mecklenburg.

Psilopus vialis, *id.* l. c. p. 331, Mecklenburg; *P. bellus* and *ludens*, Loew, B. E. Z. xvii. p. 44, Hungary: spp. nn.

SYRPHIDÆ.

Ascia 4-punctata, Meig., = *floralis*, Mg., var.; *Syrphus confusus*, Egger, = *albistriatus*, Fall.; *S. obscurus*, Zett., *nec* Say, is re-named *nigricornis*,

and occurs in Scotland; *S. annulatus*, Zett., is described from both sexes, and queried as conspecific with *S. vittiger*, both being British; *S. abbreviatus*, Zett., = *latifasciatus*, Mcq.; *Platychirus longimanus*, Whlb., re-described from Britain; *Chilosia olivacea*, Zett., *Chrysochlamys ruficornis*, *Xylota confinis*, Zett., and *Paragus albifrons*, Fall., recorded from England. G. H. Verrall, Ent. M. M. ix. pp. 251–256, 283–286.

Eristalis tenax. Structure of antennæ noted by J. S. Bowerbank, Ent. vi. p. 547. There is no evidence of their being auditory organs.

A. W. Bennett, J. Hort. Soc. (n. s.) iv. pt. 13, pp. 30–33, states that the stomachs of *Eristalis tenax* and *Syrphus clypeatus* have been found by him to contain large quantities of pollen grains, especially of composite plants. He quotes E. Müller's belief that the transverse denticulations in the terminal valves of the proboscis are specially adapted for disintegrating these grains (cf. also Nature, vii. pp. 132 & 133). Observations on *Syrphidæ* seen feeding on pollen, by W. E. Hart, Nature, vii. p. 161; cf. also A. W. Bennett, l. c. p. 202; E. Newman, Ent. vii. pp. 291 & 336.

Sericomyia nigra, sp. n., Portschinsky, Hor. Ent. Ross. ix. p. 291, Irkoutsk.

Syrphus punctulatus and *compositarum*, p. 254, *flavifrons*, p. 256, spp. nn., G. H. Verrall, l. c. Gt. Britain.

Melanostoma 4-maculatum, sp. n., id. l. c. p. 281, Scotland.

Syrpitta abyssinica, sp. n., Rondani, Ann. Mus. Genov. iv. p. 282, Keren.

Microdon athiopicus, sp. n., id. *ibid.*, Sciotel.

Ceria tridens [pre-occupied by the author himself, B. E. Z. xvi. (1871), p. 86, for a Californian species], sp. n., Loew, B. E. Z. xvii. p. 37, Eur. Dipt. iii. p. 210, Turn-Severin.

Xylota rufipes, sp. n., id. *ll. cc.* pp. 36 & 212, Herkulesbad.

Brachypalpus eunotus, sp. n., id. *ll. cc.* pp. 37 & 213, Orsowa.

Orthoneura tumescens, sp. n., id. Eur. Dipt. iii. p. 214, Saratoff.

PIPUNCULIDÆ.

Chalarus basalis, sp. n., Loew, Eur. Dipt. iii. p. 215, Galizia,

CONOPIDÆ.

Sphixosoma africanum, sp. n., Rondani, l. c. p. 283, Ansaba.

MUSCIDÆ.

Phasiides.

Bogusia, g. n., Rondani, l. c. p. 284, woodcut [no differential characters given]. *B. antinorii*, sp. n., id. *ibid.* Bogos.

Tachinides.

General observations: G. Colin, Feuil. Nat. iii. pp. 93–95.

Tachina (Belvosia) bifasciata, F. (? : also provisionally named *auricincta*, p. 141), parasitic on *Amisota* (Lep.), described, ♂, and figured: C. V. Riley, Rep. Ins. Mo. v. pp. 140 & 141, fig. 68.

Echinomyia persica, Portschinsky, Hor. Ent. Ross. ix. p. 293, pl. ix. fig. 9, Astrabad; *E. brunneri*, Loew, B. E. Z. xvii. p. 45, Hungary: spp. nn.

Dexides.

Phorostoma adelpha and *macrophthalmum*, spp. nn., Loew, B. E. Z. xvii. p. 45, Hungary.

Dinera pallicornis, sp. n., *id.* Eur. Dipt. iii. p. 237, Sarawschan.

Sarcophagides.

Sarcophaga carnaria. Chief stages figured, and economy described by S. Lockwood, Am. Nat. vii. pp. 193-197.

Sarcophaga distinguenda, p. 284, *sejungenda*, p. 285, spp. nn., Rondani, l. c. Keren.

Muscides.

Musca domestica with *Chelifer panzeri*, Koch, attached parasitically, recorded by P. de Borre, SB. z.-b. Wien, xxiii. p. 36. Note on parasites: Nature, viii. p. 263.

Musca domestica and *lateralis* occur in Abyssinia; and the ♂ of *Somomyia albiceps*, Wied., ?, is also described from that country: Rondani, l. c. p. 286.

Beccarimyia, g. n., *id.* l. c. p. 287, woodcut [no differential characters given]. *B. glossina*, sp. n., *id.* *ibid.*, Keren.

Stomoxys sitiens, sp. n., *id.* l. c. p. 288, Keren.

Somomyia cuprinitens, sp. n., *id.* l. c. p. 285, Keren.

Mesembrina decipiens, sp. n., Loew, Eur. Dipt. iii. p. 239, Kultuk.

Anthomyiides.

Anthomyia floralis, Fall., described and figured in detail, with particulars of economy, by H. Weyenbergh, Jr., Tijdschr. Ent. (2) viii. pp. 131-135, pl. viii. figs. 1-12.

Anthomyia mitis, Meig., var. n. *rumicis* (p. 68); habits in connection with *Rumex obtusifolius* in Scotland: J. Hardy, Scot. Nat. ii. pp. 63-68.

Hydrotæa irritans, Fall.; pupa described and figured. F. Loew, Verh. z.-b. Wien, xxii. p. 143, pl. ii. figs. 9 & 10.

Anthomyia luteiventris, Rondani, l. c. p. 288, Keren; *A. triplex* and *corvina*, H. Loew, B. E. Z. xvii. p. 46, Hungary: spp. nn.

Homalomyia cothurnata, *coracina*, *fasciculata*, *obesa*, spp. nn., H. Loew, l. c. p. 47, Hungary.

Aricia pura and *aculeata*, spp. nn., *id.* l. c. p. 48, Hungary.

Hydrotæa amœna, *id.* *ibid.* Hungary; *H. impexa*, *id.* Eur. Dipt. iii. p. 243, Bavaria: spp. nn.

Cænusia inornata, sp. n., *id.* B. E. Z. xvii. p. 49, Hungary.

Lispe nubilipennis, sp. n., *id.* Eur. Dipt. iii. p. 244, Sarepta.

Spilogaster ulmicola, sp. n., Laboulbène, Ann. Soc. Ent. Fr. (5) iii. p. 310, Paris. The three chief stages described and figured, pp. 307-312, pl. viii. figs. 1-8.

Cordylurides.

Cordylura flavipes: economy in connection with *Phlœum pratense*, noted by Konopka, Ber. Krak. Landwirthschaftsoges (SB. z.-b. Wien, xxiii. p. 9).

Cordylura melaleuca, p. 245, Greece, *umbrosa*, p. 246, Hungary, *melanacra*, p. 247, Silesia, *breviventris*, p. 250, Sarepta, *nigricans*, p. 251, Lake Baikal; Loew, Eur. Dipt. iii. spp. nn.

Agromyzides.

Agromyza trivittata, sp. n., *id.* B. E. Z. xvii. p. 52, Hungary.

Ortclides.

H. LCEW, Sm. misc. Coll. No. 256, re-characterizes this group (pp. 2 & 3, 28-31), pointing out species improperly introduced into it, and dividing the European forms into sections. Extra-European species are then discussed by him, under the heads of various authors; and the affinities, &c., of the whole of the known genera are analyzed. The following divisions are proposed:—i. *Ortaliidæ* with a bristly or hairy first longitudinal vein; Section 1, *Pyrgotina* (*Pyrgota*), Wied., and other genera, pp. 35 & 36), 2, *Platystonina* (*Platystoma*, Meig., and allies), 3, *Cephalidina* (*Cephalia*, Meig., &c.), 4, *Ortalina* (*Ortalis*, Fall., and other genera named at p. 54 *et seq.*), 5, *Iterocalina* (*Pterocalla*, Rond., and allies): ii. *Ortaliidæ* having the first longitudinal vein bare; Section 1, *Ulidiidina* (*Ulidia*, &c., p. 65), 2, *Richardidina* (*Richardia*, Desv., &c., p. 66 *et seq.*). The following observations occur:—*Elaphomyia*, Saund., = *Phytalmia*, Gerst.; *E. wallacii* and *cervicornis*, S., respectively = *megalotis* and *cervicornis*, G.; p. 27. *Heterogaster*, Macq. [*nec* Schill., *Hemiptera*, 1829], is re-named *Sphenoprosopa*, p. 34. *Chromatomyia*, Walk., = *Lamprogaster*, Mcq.; [*H*] *enico-neura*, Macq., 1843, *nec* 1840, is re-named *Clitodoca*, p. 42; *Oxycephala*, Macq., = *Pyrgota*, Wied.; *Ortalis ortoeda* and *4-fasciata*, Walk., = *Rivellia viridulans*, Desv.; *Tephronota ruficeps*, *nec* F., is re-named *humilis*, p. 12; *Notogramma cimiciforme*, Lw., = *stigma*, F., var.

The following new genera and species are characterized:—

Bromophila, p. 35. Incidentally 'established' for *Dichromyia caffra*, Macq., provisionally located near *Pyrgota*.

Scholastes, p. 38, for *Platystoma cinctum*, Guér., and *P. nepticula*, Lw.

Euchalcota, p. 40, next *Lamprogaster*, for *Senopterina decora*, Macq.

Celeator, p. 41 for *Tephritis cærulea* and *strigipennis*, Mcq.

Engistoneura, p. 43, for *Ortalis mærens*, F., *parallela*, Wied., *lugens*, F., & ? *Trypeta albvaria*, Walk.

Scotinosoma, p. 45, allied to *Rivellia*, for unnamed species from South East Asia.

Ardelio, p. 46, for [? *Rivellia*] *longipennis* and *brevicornis*, Lw., from Africa.

Epicausta, *ibid.*, allied to *Stenopterina*; for 2 unnamed African species.

Piara, *ibid.*, for an unnamed African species.

Traphera, p. 5, allied to *Piara*; for *Ortalis chalybea*, Wied.

Cormocaris, p. 4, for *Ortalis bucephala*, Meig.

Amphicnephes, p. 83. Allied to *Platystoma*: *A. pertusus*, p. 84, pl. viii. fig. 1, Carolina, Washington.

Himeroessa, p. 85. *H. pretiosa*, *ibid.* fig. 2, Cuba.

Tritoxa, p. 102. *Trypeta arcuata*, Walk., = *flexa*, Wied., and *Tritoxa incurva*, p. 104, fig. 12, Illinois, *cuneata*, p. 107, fig. 11, Nebraska.

Idana, p. 115. Type, *Ortalis marginata*, Say.

Atomola, p. 118, for *O. atomaria* and *3-fasciata*, Wied.

Apospasmica, p. 131. Type, *O. fasciata*, Wied., = *Tephritis 5-fasciata*, Mcq.

Stictocephala, p. 134, *S. cribellum*, *ibid.* fig. 26, Nebraska, (? =) *cribrum*, p. 135, fig. 25, Middle States, *corticalis*, p. 136, fig. 28, New York.

Calloplistria, p. 140. Type, *Platystoma annulipes*, Mcq.

Coniceps, p. 177. Allied to *Eumetopia*. *C. niger*, p. 178, Texas.

Cyrtometopa, p. 179. *Odontomera ferruginea* (& ? *maculipennis*), Mcq.

Stenomacra, p. 180. *Sepsis guerini*, Bigot.

Syntaces, p. 182. *Setellia apicalis*, Mcq.

Evolena, p. 183. *Michogaster egregius*, Gerst.

Idiotypa, *ibid.* *I. appendiculata*, *ibid.* pl. ix. fig. 26, Cuba.

Steneretma, p. 186. *S. laticauda*, p. 187, Texas.

Hemixantha, p. 190. *H. spinipes*, *ibid.* fig. 28, Brazil.

Melanoloma, p. 192. *M. affinis*, *ibid.* fig. 29, Brazil, and *Trypeta cyanogaster*, Wied. (type).

Rivellia conjuncta, p. 88, pl. viii. fig. 3, Maryland, *variabilis*, p. 91, fig. 6, Columbia, *flavimana*, p. 92, fig. 7, Nebraska, *micans*, p. 94, Texas, *pallida*, p. 95, fig. 8, Washington.

Stenopterina caerulea, p. 97, Texas.

Diacrita aemula, p. 114, fig. 15, California.

Tetanops luridipennis, p. 119, fig. 17, Nebraska, *integra*, p. 121, fig. 18, Illinois.

Ceroxys obscuricornis, fig. 20, Nebraska, *ochricornis*, fig. 21, Wisconsin, p. 126, *similis*, p. 127, fig. 23, Connecticut.

Anacampta latiuscula, p. 130, fig. 19, California.

Pterocalla strigula, p. 133, fig. 30, Georgia.

Euxesta nitidiventris, p. 157, Texas.

Celometopia bimaculata, p. 189, pl. ix. fig. 27, Cuba.

Tetanops pictipennis, sp. n., Loew, Eur. Dipt. iii. p. 265 Kultuk.

Ortalis laticornis, l. c. p. 269, Kultuk, *levigata*, B. E. Z. xvii. p. 49, Eur. Dipt. iii. p. 271, Kasan, *kowarzi*, B. E. Z. xvii. p. 49 Eur. Dipt. iii. p. 272, Herkulesbad, *id.* spp. nn.

Ceroxys nanus, p. 275, Spain, *obscuripes*, p. 276, Saravschan, *id.* Eur. Dipt. iii. spp. nn.

Anacampta morosa, p. 278, Sarepta, *robusta*, p. 279, Saravschan, *id.* l. c. spp. nn.

Coniceps (re-characterized, p. 292) *carbonarius*, sp. n., *id.* l. c. p. 290, Sarepta.

Platystomides.

Platystoma suavis [-ve], p. 281, Saravschan, *rufimanus* [1], p. 284, Caucasus, Loew, Eur. Dipt. iii. spp. nn.

Ulidiides.

Myiodella, g. n., Rondani, Ann. Mus. Genov. iv. p. 290, woodcut. Differs from *Myiodina* (details figured) in structure of antennæ and wings. *M. brachialis*, sp. n., *id. ibid.*, Keren.

Ulidia melampodia, sp. n., Loew, Eur. Dipt. iii. p. 287, Sarawsehan.

Empyelocera abstersa, sp. n., *id. l. c.* p. 289, Sarawsehan.

Sapromyzides.

Lonchæa sylvatica, Beling, Verh. z.-b. Wien, xxiii. p. 549 (all stages), Harz; *L. inæqualis*, Loew, B. E. Z. xvii. p. 50, Hungary, *splendida*, *id.* Eur. Dipt. iii. p. 292, Sicily: spp. nn.

Palloptera letabilis, p. 293, Reichenhall, *costalis*, p. 295, Silesia, Bavaria, *pallens*, p. 296, Kultuk (? = *ephippium*, Zett.), Loew, Eur. Dipt. iii. spp. nn.

Sapromyza tetrachæta, *id.* B. E. Z. xvii. p. 50, Eur. Dipt. iii. p. 297, Hungary; *S. dedecor*, p. 298, ? Austria, *adumbrata*, p. 299, Spain, *pæci-loptera*, p. 300, Langenau, Altvater, Galizia, *id.* Eur. Dipt. iii. : spp. nn.

Trypetides.

H. LOEW, Sm. misc. Coll. No. 256, pp. 211-344, pls. x. & xi., supplements his paper on this group, published in 1860, by a "Review of the North American *Trypetina*." Various observations are made on the affinities of species and genera, and some synonymy is given. New genera are proposed and named in such a manner as to lead to the conviction that the author himself only became aware of their real or supposed value when describing the species on which they are founded, and the old generic names of which he has indeed left standing in many cases. In the tables, these new genera are referred to as "smaller genera,"—a new scheme of grouping, probably intended to represent sub-genera. A comparison is made between the European and American species; with a critical examination of all the N. American species described by other authors, some of the descriptions of which are reproduced. Varieties of *Trypeta longipennis*, Wied., are described and named *perfecta*, *typica*, *longitudinalis*, *vittigera*, *intermedia*, *confluens*, and *arculata*, and *T. cornigera* and *cornifera*, Walk., are referred to it. *Tephritis segregata*, Frauentf., = *Trypeta angustipennis*, Lw.

The following new genera and species are characterized:—

Acrotoxa, p. 227. Resembles *Hexachæta*: 4th longitudinal vein curved forwards towards its end, reaching the margin at a very acute angle. *Trypeta suspensa*, Lw., *fraterculus* and *serpentina*, Wied., *obliqua*, Mcq., &c., and *ludens*, p. 223, pl. xi. fig. 19, Mexico, and *tricincta*, p. 225, Hayti.

Epochra, p. 238. Allied to *Acidia*, but differing in the ovipositor and venation. Type [described 3 pages before as a *Trypeta*!] *canadensis*, p. 235, Canada.

Acrotænia, p. 274. *Trypeta latipennis*, Wied., and [a new species described at p. 272 as a *Trypeta*!] *testudinea*, fig. 13, Cuba.

Eutreta, p. 276. *Trypeta sparsa*, Wied., and *rotundipennis*, Lw.

Acidogona, p. 285: incidentally mentioned at the end of description

of a new *Trypeta*. *T. melanura*, p. 283, fig. 6, from Columbia, on which it is founded.

Aspilota, p. 286, for *Trypeta alba* and *albipennis*, Lw.

Icterica, p. 287, for *Trypeta seriata*, Lw.

Evesta, p. 296, for these species of *Tephritis*, the picture of the wings of which forms distinctly developed rays at the apex [!].

Trypeta amabilis, p. 219, Mexico, *hamata*, p. 229, fig. 22, *integra*, fig. 23, *consobrina*, fig. 21, *pseudoparallela*, fig. 24, p. 230, Brazil, *vulnerata*, p. 232, Massachusetts, *tetanops*, p. 245, fig. 15, Mexico, *biseriata*, p. 252, Brazil, *gibba*, p. 260, Texas, *phænicura*, p. 269, fig. 12, Brazil, *pæcilogastra*, p. 271, *circinata*, p. 288, New York, *peregrina*, p. 292, Brazil, *albiceps*, p. 302, fig. 5, Canada, Maine, *evryptera*, p. 304, New York, *platyptera*, p. 306, Connecticut, *spectabilis*, p. 309, pl. x. fig. 27, *obscuriventris*, p. 313, fig. 26, *tenuis*, p. 316, fig. 29, Brazil, *pura*, p. 320, Massachusetts, *polyclona*, p. 324, Cuba, *actinobia*, p. 326, Texas.

Trypeta alternata, Fall.: habits in connection with *Rosa villosa* described. J. Hardy, Scot. Nat. ii. pp. 21-23.

Percnoptera, g. n., Philippi, S. E. Z. xxxiv. p. 307. Type, *P. angustipennis*, sp. n., *id. l. c.* p. 306, pl. ii. figs. 1 a-i, bred from salivary galls on *Baccharis rosmarinifolia*, Chili.

Diopsides.

Diopsis æthiopica and *beccarii*, spp. nn., Rondani, Ann. Mus. Genov. iv. p. 289, Sciotel.

Tanypezides.

Calobata latifrons, p. 253, *stylifera*, p. 255, *nitens*, p. 256, Kultuk, *longiceps*, p. 257, *adusta*, p. 259, Bavaria, Loew, Eur. Dipt. iii.: spp. nn.

Sepsides.

Sepsis pilipes, sp. n., Loew, Eur. Dipt. iii. p. 304, Hungary.

Nemopoda pectinulata, sp. n., *id. l. c.* p. 305, Posen.

Psilides.

Dipterous larvæ (? of *Psila rosæ*) discharged with phlegm by human subject; they survived immersion in spirit for 3 or 4 days. J. O. Westwood, P. E. Soc. 1873, p. iv.

"*Psgomya*" *flavicollis*, sp. n., E. C. Reed, An. Univ. Chil. xli. p. 355 [described in eleven words !], presumably from Chili.

Chloropides.

Dicraeus, g. n., Loew, B. E. Z. xvii. p. 51. With no posterior transverse vein. Nearest *Elliponeura*, but differing in the 2nd and 3rd longitudinal veins being straight, the 3rd and 4th parallel, &c. *D. obscurus*, sp. n., *id. ibid.*, Hungary.

Oscinis (*Siphonella*) *quinquangula* [!], sp. n., *id. ibid.*, Hungary.

Ephydrides.

Athyroglossa nudiuscula, sp. n., *id. l. c.* p. 50, Eur. Dipt. iii. p. 307, Kasan.

Pelina nitens, p. 309, Calabria, *ventruosa*, p. 310, Silesia, *id.* Eur. Dipt. iii. spp. nn.

Drosophilides.

Drosophila rufifrons, sp. n., *id.* B. E. Z. xvii. p. 50, Hungary.

Geomyzides.

Scyphella latifrons, sp. n., *id. ibid.*, Hungary.

Anthomyza ungulata, sp. n., *id.* Eur. Dipt. iii. p. 301, Lake Baikal.

Balioptera divergens, p. 302, *adusta*, p. 303, *id. l. c.*, Bavaria, spp. nn.

Helomyzides.

Blepharoptera brachypterna, sp. n., *id.* B. E. Z. xvii. p. 49, Hungary.

Scatophagides.

Strongylogaster pannonijs, sp. n., *id. l. c.* p. 45, Hungary.

Chirosia fallax, sp. n., *id. l. c.* p. 46, Hungary.

CESTRIDÆ.

Estrus sp. (? *ovis*): larva taken out of an ulcer on the shoulder of a boy in Texas. S. J. Stroop, Am. Nat. vii. p. 437.

NYCTERIBIIDÆ.

Nycteribia frauenfeldi, Kol. (? = *pedicularia*, Westw.), re-described and figured: it occurs in Belgium, but the species of bat infested by it is not known. F. Plateau, Bull. Ac. Belg. (2) xxxvi. pp. 332-335.

(APHANIPTERA.)

PULICIDÆ.

A list of 17 species occurring in the Netherlands, with the animals on which they are parasitic, and localities, is given by C. Ritsema, Tijdschr. Ent. (2) viii. Versl. pp. lxxxiv. & lxxxv.

Pulex felis, Bouché, and *P. fasciatus*, Bosc. Observations on the larvæ of these species, and on the *Pulicidæ* generally, by J. Künckel, Ann. Soc. Ent. Fr. (5) iii. pp. 129-142, pl. vi. figs. 1-11. The larva before hatching has a frontal point, used in breaking the shell of the egg. Cf. also *l. c.* Bull. pp. vi. & vii.

Pulex irritans. W. H. Furlonge, J. Quek. Club, iii. pp. 12-25, pls. i. & ii. describes the alimentary and digestive, respiratory, and reproductive systems, figuring in detail various organs. The copulative operation is also described.

Rhynchoprion penetrans, Oken; observations on economy of this species, known as the "Nigua" or "Earth-flea" in South America, by Franz Engell, Das Ausland, xlii. (1869), pp. 1088-1091, figs. 1-4 (♀ well figured).

NEUROPTERA.

BY

R. McLACHLAN, F.L.S.

THE GENERAL SUBJECT.

COSTA, A. Fauna del Regno di Napoli, Neurotteri.

A concluding fasciculus (and pl. xiii.) of this Order appeared in 1871. There are two separate portions; viz., 'Aggiunte alle precedenti famiglie,' pp. 1-8, dated 7th January; and 'Famiglia de Friganeidei,' pp. 1-6, dated 1st February, 1871; and a title-page and index,—the former dated 1860-70.

GERSTÄCKER, A. Zur Morphologie der Orthoptera Amphibiotica. Festschrift nat. Fr. 1873, pp. 39-74, pl.

Concerns *Odonata* and *Perlidae*.

HAGEN, H. A. Report on the *Pseudoneuroptera* and *Neuroptera* of North America in the collection of the late Th. W. Harris. P. Bost. Soc. xv. pp. 263-301.

Valuable notes on species described by Harris and Say.

McLACHLAN, R. Instructions for the Collection and Preservation of Neuropterous Insects. London: 1873, 8vo, pp. 1-23.

Reprinted from Ent. M. M. ix. pp. 99-104, 168-176, & 225-232.

——. A Catalogue of the Neuropterous Insects of New Zealand, with notes and descriptions of new forms. Ann. N. H. (4) xii. pp. 30-42.

Enumerates 44 spp. of the Order in the Linnean sense, with comparative notes of the fauna with that of Australia.

ROSTOCK, M. Neuropterologische Mittheilungen. SB. Ges. Isis, 1873, pp. 9-17.

A useful analysis of Wallengren's Skandinaviens Neuroptera, pt. i. (*cf.* Zool. Rec. viii. p. 401); with some of the descriptions translated into German.

——. Neuroptera Saxonica, *l. c.* pp. 17-25.

A list of 272 known species occurring in the kingdom of Saxony, with localities.

Altwater mountains: J. P. E. F. Stein, S. E. Z. xxxiv. pp. 233-243, gives notes of an excursion, chiefly relating to *Neuroptera*, and in some degree supplementary to Kolenati's paper on the fauna of this district.

TRICHOPTERA.

HAGEN, H. A. Beiträge zur Kenntniss der Phryganiden. Verh. z.-b. Wien, xxiii. pp. 377-452.

McLACHLAN, R. Supplément aux Notes additionnelles sur les Phryganides décrites par M. le Dr. Rambur. Ann. Ent. Belg. xvi. pp. 149-153.

The most important determinations are the following:—*Lepidostoma villosum* and *sericeum* = *Mormonia hirta*, F., ♀; *Sericostoma festivum* is referred doubtfully to the genus *Notidobia*, and its remarkable characters pointed out; *Rhyacophila irrorella* is a *Polycentropus* (*dubius*, ♀, ?); *Philopotamus urbanus* is a *Cyrnus*; *Mystacida rufa* is a *Setodes*.

McLACHLAN, Ent. M. M. x. pp. 163-165, also gives additional notes on the species described by Zetterstedt, according to information furnished by Wallengren, who has examined the types. The most important determinations are the following:—*Phryganea borealis* = *Limnophilus pavidus*, Hagen, but Zetterstedt's name has priority, and the species called *borealis* by authors is re-named *xanthodes*; *P. atomaria* = *L. marmoratus*, Curtis; *P. notata* = *L. affinis*, Curtis; *P. nigriceps* = *L. striola*, Kol., the former name having priority; *P. lævis* is an *Anobolia*; *P. testacea* is a *Stenophylax*; *P. stigmatella* = *Apatania frigida*, McLach., the former having priority; *P. fusca* = *L. fumigatus*, Germ.; *P. discoidea* = *L. bipunctatus*, Curtis.

Phryganeidæ.

HAGEN, Verh. z.-b. Wien, xxiii. pp. 377-441, gives a very elaborate monographic sketch of the known species, with detailed descriptions of the appendages, &c., and notes on larvæ and cases. He restricts the family to three genera, *Neuronia*, *Phryganea*, and *Agrypnia*, and describes 34 species, of which the following are new:—*Neuronia stygipes* (Harris MS.), p. 388, Maine, N. Hampshire, and Massachusetts; *angustipennis*, p. 400, North Illinois, Michigan, and Massachusetts; *Phryganea improba*, p. 417, Hudson's Bay and New York; *Agrypnia colorata*, p. 424, Hudson's Bay; *straminea*, p. 425, Hudson's Bay; *glacialis*, p. 426, Bear Lake and Labrador; *islandica*, p. 429, Iceland. Notes on the American species are given by the author in P. Bost. Soc. xv. pp. 384, 385.

Phryganea nattereri, sp. n., Brauer, Verh. z.-b. Wien, xxiii. p. 408, Spain.

Limnophilidæ.

HAGEN, l. c. pp. 442-452, treats on the species of the genera *Glyphotælius* and *Grammotælius* in the same manner as followed by him in the fam. *Phryganeidæ*. He describes as spp. nn. *Glyphotælius hostilis*, p. 444, Hudson's Bay and Great Slave Lake, and a form (distinct species?) of *G. punctatolineatus* under the name of *frigidus* (p. 443); *Grammotælius præcox*, p. 451, Great Slave Lake; indicating also (p. 449) a sp. n. of this genus from Iceland.

Halesus auricollis, Pict., occurs abundantly in Wharfedale, Yorkshire, McLachlan, Ent. M. M. x. p. 140.

Encycla pusilla, Burm. Ritsema (CB. Ver. Regensb. 1873, pp. 92-95) gives further notes on this species, with additional localities.

Limnophilus maculatus re-described and figured by Costa, Faun. Reg. Nap., Frig., p. 3, pl. xii. fig. 8.

Limnophilus fuliginosus, id. l. c. p. 4, fig. 9.

Sericostomatidæ.

Costa, l. c. re-describes and figures *Lasiocephala taurus*, p. 2, pl. xiii. fig. 6.

Leptoceridæ.

Setodes eremita, sp. n., Stein, S. E. Z. xxxiv. p. 239, Altvater.

Hydroptilidæ.

EATON, A. E. On the *Hydroptilidæ*, a family of the *Trichoptera*. Tr. E. Soc. 1873, pp. 125-151, pls. ii. & iii.

An important work on this obscure family. The maxillary palpi are declared to be 5-jointed in both sexes, hence the group is removed to the neighbourhood of the *Rhyacophilidæ*. The bibliography is critically examined, and the synonymy worked out as far as possible. The true genus *Hydroptila* of Dalman is considered to represent a form practically unknown to modern entomologists, and of the six genera described all but two are new. *Hydroptila* is distinguished from all the other genera in having 1, 3, 4 spurs. *Agraylea* is tolerably distinct and well known. His other genera are as follows:—

Phrixocoma (p. 132). Ocelli absent. Spurs 0.2.4. Wings acuminate. Includes *P. sparsa*, Curt., *pulchricornis*, Pict., *forcipata*, sp. n. (p. 135), England (and Italy?), *occulta*, sp. n. (l. c.), England, *femoralis*, sp. n. (p. 135), England and Lago di Como, *fuscicornis*, Schneider, *albicornis*, Hagen.

Ithytrichia (p. 139). Ocelli present. Spurs 0.3.4. Wings acuminate, the anterior inner edge with an appendage. *I. lamellaris*, sp. n. (p. 140), England.

Orthotrichia (p. 141). Ocelli absent. Spurs 0.3.4. Wings acuminate. *O. angustella*, McLachlan, and *atra*, Hagen.

Oxyethira (p. 143). Ocelli present. Spurs 0.3.4. Wings acuminate; the anterior inner edge entire. Includes *O. costalis*, Curtis, and *albiceps*, McLachlan.

Agraylea pallicornis, sp. n., Eaton, l. c. p. 148, Turin.

Cyllene minutissimella, sp. n., Chambers, Canad. Ent. v. pp. 124-125, Canada (described as Lepidopterous, but doubtless pertaining to this family).

NEUROPTERA-PLANIPENNIA.

HAGEN, H. A. On the larvæ of the *Hemerobina*. P. Bost. Soc. xv. pp. 243-248.

A sketch of the peculiar distinctions of the various groups, giving good

condensed accounts, especially for *Myrmeleonidæ* and *Ascalaphidæ*. A new feature is the separation of *Sisyra* as a distinct sub-family—termed *Sisyrina*—on account of larval peculiarities.

Sialidæ.

Corydalis cornuta; habits and transformations described and figured by RILEY in Rep. Ins. Mo. 1873, pp. 142-145.

Ascalaphidæ.

HAGEN, H. A. Die Larven von *Ascalaphus*. S. E., Z. xxxiv. pp. 33-62.

Exhibits in a collected form all that has been written concerning the earlier stages, with very many original observations. Much is necessarily left doubtful, owing to the perfect insects not having been bred. Descriptions, more or less complete, or notes, are given concerning the following:—*Ascalaphus macaronius*, *coccajus*, and *longicornis*, *Puer maculatus*, *Theleproctophylla barbara*, *Hybris subjacens*, *Suphalasca* sp., *Helicomitus* (?) sp., *Glyptobasis* (?) sp., *Ulula macleayana*, *U. senex*, and another doubtful, *Haploglenius* several doubtful. The paper concludes with a tabulated and condensed summary of the whole subject.

Myrmeleonidæ.

McLACHLAN, R. Notes sur les Myrméleonides décrites par M. le Dr. Rambur. Ann. Ent. Belg. xvi. pp. 127-141.

The determinations are, for the most part, identical with those previously given by Hagen, but much is left doubtful owing to the confused state of the group.

H. A. HAGEN, S. E. Z. xxxiv. pp. 249-295, 377-398, gives an exhaustive account of the present state of our knowledge of the earlier stages of this family, with detailed descriptions, and differentiated summarized sketches. He describes, more or less confidently, the larvæ of 21 species, belonging to the genera *Palpares*, *Acanthaclisis*, *Dendroleon*, *Formicaleo*, *Myrmecelurus*, *Glenurus*, *Macronemurus*, *Gymnocnemis*, and *Myrmeleon*.

McLACHLAN, 'Neuropterologisches,' S. E. Z. xxxiv. pp. 444-451, follows with descriptions of the larvæ of *Palpares hispanus* and *P. latipennis* (?); and he replies to objections raised by Hagen to Wallengren's, and his determination of the Linnean *Myrmeleon formicarius* as equivalent to the *M. formicalynx* of modern authors. He proposes to re-name the *formicarius* of modern authors as *M. europæus*. Cf. also Ann. Ent. Belg. xvi. p. 137, footnote.

Myrmeleon immaculatus: habits described by H. L. Moody, Canad. Ent. v. pp. 63-65.

Notes on the larva of an American species are given by E. A. Birge in Am. Nat. vii. p. 432.

Echthromyrmex orientalis, sp. n., McLach., Ann. Ent. Belg. xvi. p. 143, Moluccas.

Myrmeleon diversus, sp. n., Hagen, Hayden's 6th Report, p. 729, Yellowstone River.

Costa, l. c. p. 1, pl. xiii. fig. 5, describes and figures *Dendroleon pantherinus*, F., under the name of *Myrmeleon nigricinctus*, Rbr.

Osmylidæ.

Stenosmylus citrinus, sp. n., McLachlan, Ann. N. H. (4) xii. p. 38, New Zealand.

Isoclepteron fulvum re-described and figured by Costa, l. c. p. 6, fig. 4.

Mantispidæ.

Mantispa brunnea. Hagen, P. Bost. Soc. xv. p. 300, states that the 'lobes' on the tarsi of this species, noticed in his American Synopsis, p. 208, are in reality the pollinia of an Orchid.

Hemerobiidæ.

Megalomus hirtus, L., has occurred near Aberdeen, McLachlan, Ent. M. M. x. p. 90.

PSEUDO-NEUROPTERA.

THYSANURA.

LUBBOCK, SIR JOHN. Monograph of the *Collembola* and *Thysanura*. London: 1873, 8vo, pp. 1-265, pls. i.-lxxviii.

This Ray Society volume is the most important work on these animals that has ever appeared. The author's views as to the position of the group as scarcely within the pale of the true *Insecta* have been pretty generally made known by papers published in former years in Tr. L. S. (cf. especially Zool. Rec. vii. pp. 446 & 447), and these are reproduced in the present work, which consists first of a copious and exhaustive introductory portion treating on the bibliography of the subject; secondly, an examination of the classification adopted by previous writers; thirdly, the relations of the group with regard to the evolution of the *Insecta*, the author regarding *Campodea* as the living representative of a primæval type from which all insects have derived their origin; and fourthly, a systematic description and revision of the known species with copious synonymic and other notes. Appended, there is also an essay on the structure of the scales according to the observations of Joseph Beck and his brother, the late Richard Beck. The 78 plates are occupied by magnified figures of very many species (mostly coloured), anatomical structure, and delineation of scales. The *Collembola* correspond pretty well to the old group *Poduridæ*, and are divided by the author into six families, *Papiriidæ*, *Smynthuridæ*, *Degeeriidæ*, *Poduridæ*, *Liparidæ*, and *Anuridæ*. The *Thysanura* (equalling the old *Lepismidæ*) comprise 3 families, *Japygidæ*, *Campodeidæ*, and *Lepismidæ*, and in all there are 22 genera, 16 of *Collembola* and 6 of *Thysanura*. The new forms, &c., are noted below.

PACKARD, A. S., JR. Synopsis of the *Thysanura* of Essex County, Mass., with descriptions of a few extralimital forms. Rep. Peab. Ac. v. pp. 23-51.

A descriptive synopsis, mostly consisting of new species, with a sketch of the literature of the American forms, and comparison of the fauna

with that of Europe, apparently printed before the author had seen Lubbock's Monograph, but not clashing with that work in nomenclature.

PACKARD, Rep. Peab. Ac. v., describes the following new species from N. America:—

Anura gibbosa, p. 27, Maine.

Achorutes boletivorus and *marmoratus*, p. 30, Maine; *texensis*, p. 30, Texas; *prætorum*, p. 31, Maine.

Isotoma nivalis, p. 31, and *albella*, p. 32, Maine; *leonina*, p. 32, and *glauca*, p. 33, Massachusetts; *belfragii*, p. 33, Texas; *tricolor*, p. 34, Massachusetts; *purpurascens*, p. 34, Texas.

Lepidocyrtus marmoratus, p. 36, Massachusetts; *metallicus*, Massachusetts and Maine; *albus*, p. 37, Maine and Tennessee; *bipunctatus*, Texas.

Degeeria perpulchra, p. 38, Texas; *griseo-olivata*, p. 39, Massachusetts; *10-fasciata*, p. 40, Massachusetts, Texas, &c.

Orchesella carneiceps, p. 40, Tennessee; *flavipicta*, p. 41, Massachusetts.

Papirius marmoratus, p. 42, Maine and Massachusetts; *texensis*, Texas.

Smynthurus roseus, p. 43, Massachusetts; *4-signatus*, p. 44, Maine.

Lepisma quadriseriata, p. 47, Maine, Massachusetts, &c.; *domestica*, p. 48, Massachusetts; *spinulata*, p. 48, Texas; *mucronata*, p. 49, Nicaragua.

Machilis brevicornis, p. 49, Texas; *orbitalis*, p. 50, Idaho.

LUBBOCK, *l. c.*, describes the following new species:—

Seira nigrimaculata, p. 146, England.

Lepidocyrtus purpureus, p. 155, pl. xxx. England.

Stein, S. E. Z. xxxiv. p. 242, points out that the species from the Altvater, that Kolenati thought to be *Heterotoma viatica*, L., is most probably not that species, but *Achorutes bielansensis*, Waga.

Structure of scales of *Lepisma*. G. W. Morehouse, Am. Nat. vii. pp. 666-669, agrees with Beck that the appearance of coarse beading is owing to two sets of uninterrupted lines on different surfaces.

MALLOPHAGA.

A. S. Packard, in Hayden's 6th Annual Report of the Geological Survey of the Territories, pp. 731-734, describes the following new species collected by C. H. Merriam when employed upon the Government Survey of the Rocky Mountains:—

Mænopon picicola, p. 731, fig. 58, on *Picoides arcticus* and *dorsalis*.

Goniodes merriamanus, p. 731, fig. 59, on *Tetrao richardsoni*; *G. mephitidis*, p. 732, fig. 60, on *Mephitis*.

Nirmus buteonivorus, p. 733, fig. 61, on *Buteo swainsoni*.

Docophorus syrni, p. 733, fig. 62, on *Syrnium nebulosum*.

TERMITIDÆ.

MÜLLER, FRITZ. Beiträge zur Kenntniss der Termiten. Jen. Z. Nat. vii. pp. 337-357, 451-463, pls. xix. & xx.

An exceedingly valuable contribution to the natural history of White-ants, showing (from personal observation in the province of Santa 1873. [VOL. X.]

Catharina, Brazil) that many of the popular and scientific ideas on important points are pure misconceptions, and, in the main, upholding the assertions of Lespès, many of which had been called in question. Taking as a type a colony of a species of *Termes*, he arrives at the following conclusions:—from very young larvæ, the future states of which are not determinable, there are produced two main larval conditions; first, larval forms not fitted for reproduction, developing respectively into soldiers and workers; secondly, larvæ of forms fitted for reproduction in different degrees. These larvæ develop into nymphs of two forms; from the first are produced winged individuals, the greater part of which appear to die without performing the sexual function, but some of which become 'Kings' and 'Queens'; from the second form there proceed nymphs that in turn become 'surrogate' or 'complementary' males and females that never leave the termitarium, but are nevertheless capable of reproduction, the abdomen of the female never swelling to the enormous size of that of the queen, and the ovaries containing but few eggs. One small nest opened by the author contained a large chamber, but in it, instead of a queen, he found 31 complementary females and a single true fully developed king, the females depositing eggs, and thus, as he expresses it, instead of a royal palace with queen of royal birth, he had before him simply a harem, in which was the king with a multitude of paramours. The popular idea of pairing taking place in the air he also doubts. According to observations on several species of *Calotermes*, he found that the worker-form did not exist with them, and he proves that the soldiers are apparently arrested developmental forms, for even the external sexual characteristics were present, and dissection proved that the testes of the males existed, although in an aborted condition, and that the female internal organs were developed, with the exception of the seminal receptacles. Several new species are indicated, but diagnostic characters of the perfect insects are only given in two instances, viz.:—*Calotermes canella* (p. 334) and *Termes lespesii* (p. 349). A new genus—*Anoplotermes* (p. 347)—differs from all others in a point of internal structure, and includes a species indicated as *A. pacificus*, and probably also *Termes ater*, Hagen, and *T. cingulatus*, Burm. The papers are illustrated by many woodcuts showing the structure of the nests; the plates are devoted to matters of internal anatomy.

Termes flavipes. Hagen, P. Bost. Soc. xv. p. 277, notices damage occasioned by this insect to vines, books, &c.

PSOCIDÆ.

SELYS-LONGCHAMPS, E. DE. Révision des Psocides décrites par Rambur, suivie de la Liste des espèces de cette famille observées jusqu'ici en Belgique. Ann. Ent. Belg. xvi. pp. 1-9.

The determinations agree in the main with those previously given by Hagen in his 'Psocinorum synopsis synonymica'; the exceptions are as

follows:—*Psocus subfasciatus* = *Peripsocus albiguttatus*, Dalm.; *Ps. obscurus* is a *Peripsocus*; *Ps. conspurcatus* = *Ps. 4-maculatus*, Lat.; *Ps. lucifugus* is probably the larva or nymph of a *Psocus* or *Cæcilius*; *Ps. pedicularius* = *Psyllipsocus ramburi*, Selys. Twenty-one species are enumerated as found in Belgium.

PERLIDÆ.

GERSTÄCKER, Festschr. nat. Fr. 1873, pp. 60–74, pl., figs. 17–33, minutely details the characters of the genus *Pteronarcys*, especially with regard to the exceptional external respiratory organs, and describes a new species under the name of *P. frigida* (p. 65, figs. 28 & 29) from Labrador. He also describes and figures a second genus from Chili (*Diamphipnoa*, p. 62) with an analogous respiratory system (the species is named *D. lichenalis*, p. 64, fig. 17). In *Pteronarcys*, according to Newport, and his observations are confirmed by Gerstäcker, there are 13 pairs of external breathing organs, viz., 5 pairs on the prosternum, 3 on the mesosternum and metasternum respectively, and 2 on the basal ventral abdominal segments; whereas, in *Diamphipnoa* the thoracic pairs are absent, but there are 4 abdominal pairs. The two genera are also abundantly distinct in neurulation, &c. [*D. lichenalis* is apparently identical with the previously described *Stenoperla annulata*, Brauer (cf. Zool. Rec. vi. p. 452), but the genus *Diamphipnoa* should stand.]

HAGEN, P. Bost. Soc. xv. pp. 281–288, gives a monographic sketch of the species of *Pteronarcys*. The species called *proteus* by Pictet is considered distinct from Newman's species of that name, and is re-named *picteti* (p. 286).

EPHEMERIDÆ.

A. E. Eaton, Tr. E. Soc. 1873, pp. 381–406, has published critical notes on his 'Monograph of the *Ephemeridæ*' (Zool. Rec. viii. p. 405) communicated to him by H. A. Hagen in a series of letters, accompanied by remarks of his own. These are principally connected with the bibliography and synonymy of the subject, and are too intricate for analysis here.

Oniscigaster, g. n., McLachlan, Ent. M. M. x. p. 109: differs from all known genera by the terminal abdominal segments being dilated laterally into broad wing-like lobes. *O. wakefieldi*, sp. n., *id. l. c.* p. 110 (with figure), New Zealand.

A swarm of Ephemerids passing through the town of Lewisburg on the Susquehanna River, Aug. 22nd, estimated at a mile in length and nearly half a mile in width, and so dense as to obscure sight across the streets, is noted by Gentry, P. Ac. Philad. 1873, p. 350.

ODONATA.

Hagen reports on S. H. Scudder's *Odonata* from the White Mountains after an examination of his types: P. Bost. Soc. xv. pp. 376 & 377.

Spagnolini gives a list of 20 species occurring in Modena; Bull. Ent. Ital. v. pp. 166-169.

Tacchetti records 23 species from Padua, *l. c.* pp. 257-263.

Gerstäcker (Festschr. nat. Fr., 1873, pp. 39-59, figs. 1-16) gives an exhaustive analysis of the composition of the parts of the mouth in the *Odonata*, detailing the variations in different groups, and comparing his own ideas with the varied and often antagonistic theories propounded by previous authors.

Notes on the destruction of Dragon-flies by birds: Canad. Ent. v. pp. 159 & 160.

Gerstäcker, in Von der Decken's Reisen in Ost-Afrika, iii. pt. 2 (*ante* p. 216), describes in full the species previously diagnosed by him (*cf.* Zool. Rec. vi. pp. 455 & 456).

Libellulina.

Libellula quadrimaculata. Notes concerning a great migratory swarm observed in Prussia in May, 1872, by A. Kuwert, S. E. Z. xxxiv. pp. 374 & 375.

Mesothemis composita, sp. n., Hagen, Hayden's 6th Report, p. 728, Yellowstone River.

Libellula julia, Uhler, = *L. exusta*, Say; Hagen, P. Bost. Soc. xv. p. 265.

Æschnina.

Æschna brevistyla, Ramb., occurs in New Zealand; McLachlan, Ann. N. H. (4) xii. p. 34.

Gomphina.

SELYS-LONGCHAMPS, E. DE. Troisièmes additions au Synopsis des Gomphines, pp. 1-46, et appendices, pp. 47-87. Also published subsequently in Bull. Ac. Belg. (2) xxxv. pp. 732-774, & xxxvi. pp. 492-531.

The number of species is stated to be 188 (raised in the appendix to 200); and descriptions are completed of many species of which only one sex was previously known, or of which the types were before imperfect. In the appendices the 'sub-genera' of the great group *Gomphus* are remodelled, and there is a general index to the Synopsis and all the 'additions.' Three new 'sub-genera' are noticed:—

Cyanogomphus (s. g. of *Gomphus*), p. 26. Allied to *Epigomphus* and *Agriogomphus*. The internal nervule of the pterostigma prolonged direct to the principal sector; the sectors of the arculus much separated. In the ♂ the 10th segment truncate above; the superior appendages straight and conical, the inferior with the branches not divaricate. *C. waltheri*, sp. n., p. 27, Rio Janeiro.

Octogomphus (s. g. of *Gomphus*), p. 32. Branches of the inferior appendages of the ♂ divaricate, and, with the superior appendages, furcate at the apex. Type, *Neogomphus specularis*, Hagen.

Allopetalia (s. g. of *Petalia*), p. 65 (appendix). ♀ Discoidal triangles of 3 or 4 cellules, oblong in the superior wings, nearly equilateral in the inferior; internal triangle small and simple in the superior wings,

elongate, and divided into two cellules in the inferior. Eighth and ninth segments dilated. Vulvar plates almost as in the *Æschnina*, to which the species form a transition. *A. pustulosa*, sp. n., p. 67, Bogotá; *reticulosa*, sp. n., p. 70, Bogotá?; the latter is declared by Hagen (*in litt.*) to be a true *Æschnid*.

The other spp. nn. are as follows:—

Gomphus confraternus, p. 16, *sobrinus*, p. 18, and *olivaceus*, p. 21, California; *scudderi*, p. 24, United States.

Hemigomphus amphiclitus, p. 30, Queensland.

Progomphus (?) *paucinervis*, p. 34, Quito; *borealis* (McLachlan, MS.), p. 36, Oregon.

Gomphoides regularis, p. 37, Brazil.

Gomphidia macLachlani, p. 39, Labuan.

Ictinus australis, p. 41, Queensland.

Ophiogomphus bison, p. 51 (appendix), California.

Gomphus personatus, Assam, *promelas*, Madras, p. 53 (appendix).

Cyclogomphus vesciculosus and *verticalis*, p. 56 (appendix), India.

Hemigomphus (?) *lateralis*, p. 57 (appendix), North Australia.

Progomphus pygmaeus, p. 58 (appendix), Bogotá.

Gomphoides suasa, p. 59 (appendix), Vera Cruz and Tampico (race of *suasa* ?), p. 60, Putla; *ambigua*, p. 61, Guatemala.

Hagenius (?) *aberrans*, p. 62 (appendix), North India.

Thecagaster parvistigma, p. 64 (appendix), Himalaya.

Cordulegaster annulatus, race *immaculifrons*, p. 65 (appendix), S. Europe, Tangiers, Asia Minor; *bidentatus*, race *anatolicus*, p. 64, Broussa.

Calopterygina.

SELYS-LONGCHAMPS, E. DE. 'Troisièmes additions au Synopsis des Calopterygines, pp. 1–56, et appendice, pp. 57–66. Appeared subsequently in Bull. Ac. Belg. (2) xxxv. pp. 469–519, & xxxvi. pp. 610–619.

Describing the new species and 'races' discovered since the publication of the 'Secondes Additions,' with synonymic notes. The number of species is raised to 145 (or to 152 with the appendix); and there is a general index to the Synopsis and all its 'additions.'

The new species and 'races' (not described elsewhere) are as follows:—

Mnais andersoni, (McLachlan, MS.), p. 8, Yunan.

Vestalis melania, p. 10, Luzon.

Lais guttifera, p. 11, Brazil.

Heterina donna, p. 14, Brazil; *capitalis*, p. 18 (race of *majuscula* ?), Bogotá.

Euphæa subcostalis (race of *tricolor* ?), p. 19, Labuan.

Dysphæa lugens (race of *dimidiata* ?), p. 21, Borneo; *sublimbata* (race of *dimidiata* ?), p. 22, Labuan.

Rhinocypha eximia (McLachlan, MS.) and *humeralis*, p. 24, Borneo; *frontalis*, p. 26, Moluccas and Menado; *cucullata*, p. 28, Labuan.

Libellago cyanifrons, p. 29, Gaboon.

Thore picturata (race of *saundersi* ?), p. 35, Cayenne; *aequatorialis* (race of *picta* ?), p. 36, Ecuador.

Euthore plagiata (race of *fasciata* ?), p. 37, Rio Negro.

Cora aleyone, p. 39, Bogota; *inca*, l. c., Quito and Ecuador.

Sapho gloriosa (McLachlan, MS.), p. 58 (appendix), Gaboon and Cameroons.

Vestalis apicalis, p. 59 (appendix), India.

Rhinocypha monochroa, p. 61 (appendix), Celebes; *albistigma*, p. 62, Malayan Islands.

Micromerus semiopacus, p. 64 (appendix), Sarawak; *rufescens*, l. c., Celebes or Mindanao.

Previously unknown sexes of many species are described, together with indications of local forms not considered sufficiently marked to receive names. *Sapho longistigma* is referred to *Cleis*, with doubt as to the distinctive characters of the latter; *Heterina macropus* and *occisa* are united; and the species of *Thore* and *Cora* are reviewed. In the appendix (p. 65) it is stated that *Thore saundersi* = *picta*, Rambur, and *picta*, Selys, is re-named *albivittata* (Bates, MS.).

Calopteryx virginica, Westw. = *C. æquabilis*, Say; Hagen, P. Bost. Soc. xv. p. 274.

Agrionina.

Telebasis zealandica, McLachlan, Ann. N. H. (4) xii. p. 35, and *T. sobrina*, p. 36, New Zealand, spp. nn.

The female of a species of this family has been seen to descend beneath the surface of the water in order to deposit her eggs; G. W. Dunn, Am. Nat. vii. p. 498. Cf. also McLachlan, Ent. M. M. x. p. 163.

ORTHOPTERA.

BY

ROBERT MCLACHLAN, F.L.S.

BOLIVAR, IGNACIO. Ortópteros de España nuevos ó poco conicidos. An. Soc. Esp. ii. pp. 213-237, pl. ix.

Descriptions of new species, additions to the Spanish Fauna, and critical remarks on allied forms.

FREY-GESSNER, E. Orthopterologisches. MT. schw. ent. Ges. iv. pp. 7-20, pl. i.

12 additional species to the Swiss Fauna are recorded, making a total of 88.

GERSTÄCKER, A. Zur Morphologie der Orthoptera-amphibiotica. [Ante, p. 428.]

KRAUSS, HERMANN. Beitrag zur Orthopteren-Fauna Tirols. Verh. z.-b. Wien, xxiii. pp. 17-24, pl. i.

Supplementary to Graber's paper (*cf.* Zool. Rec. iv. p. 453) on the same fauna, with 8 additional species, making 90 in all.

SCUDDER, S. H. Notes on the *Orthoptera* collected by Dr. F. V. Hayden in Nebraska. Hayden's Survey of Nebraska, 1872.

STÅL, C. Orthoptera nova. Öfv. Ak. Forh. 1873, No. 4. pp. 39-53.

——. Recensio Orthopterorum. Revue critique des Orthoptères décrits par Linné, De Geer, et Thunberg. Pt. i. Stockholm: 1873, 8vo, pp. 1-154.

The commencement of a valuable and laborious work. The author comments upon the difficulty of determining some of the species described by the old entomologists, consequent upon the fact that the types have been, in some cases, apparently changed. He enters at length into the question of the rule of priority, and gives it his strongest adherence. The neuration of the wings of *Orthoptera* is critically examined. Many new genera and species existing in the Stockholm Museum are described, the former in a series of analytical tables of the groups treated upon. The systematic part of the work is in an intensely complicated form.

THOMAS, CYRUS. Descriptions of new species of *Orthoptera* collected in Nevada, Utah, and Arizona, by the expedition under Lieut. Geo. M. Wheeler. P. Ac. Philad. 1873, pp. 295-297.

——. Notes on *Orthoptera*. Hayden's 6th Annual Report of the Geological Survey of the Territories, pp. 719-725.

GERSTÄCKER, in Von der Decken's Reisen in Ost-Afrika, iii. pt. 2, pp. 1-50, pls. i.-iii., describes in detail (and in many cases figures) various new species previously diagnosed by him in Arch. f. Nat. xxxv. (*cf.* Zool. Rec. vi. p. 445).

FORFICULARIÆ.

Gerstäcker (Von der Decken's Reisen) figures *Brachylabis lata*, pl. iii. fig. 8, *Forficula gravidula*, fig. 9.

BLATTIDÆ.

Blatta carpetana, sp. n., Bolivar, An. Soc. Esp. ii. p. 214, pl. ix. fig. 1, Spain.

Gerstäcker (Von der Decken's Reisen) figures on pl. i., *Gynopeltis picta* (figs. 1 & 2), *Derocolumma porcellus* (fig. 3), and *D. capucina* (fig. 4).

MANTIDÆ.

C. STÅL, Sv. Ak. Handl., Bihang, i. No. 10, pp. 1-26, enters into a

lengthy and detailed critique of the system of classification of the groups and genera effected by Saussure.

Mantis assoi, sp. n., Bolivar, *l. c.* p. 216, Spain.

Gerstäcker (Von der Decken's Reisen) figures *Tarachodes pantherina*, pl. i., fig. 5, *Mantis vincta*, fig. 6, *M. superciliaris*, fig. 7, *Pyrgomantis singularis*, fig. 8.

PHASMIDÆ.

Bacillus. J. Wood-Mason, Ann. N. H. (4) xii. p. 347, states that the true males of *B. insignis* and its allies are to be sought in insects of the type of *Lonchodes stilpnus*, &c., and that the discovery of the male of *B. insignis* necessitates the transfer of *B. cucicularis* and *hypphereon* (Westwood), *B. patellifer* and *scytale* (Bates), *B. ramosus* (Sauss.), *B. penthesilea* and *furcillatus* (Wood-Mason), and probably also *B. woodwardi* and *scabriusculus*, to the genus *Lonchodes*. The true male of *B. insignis* (now called *Lonchodes*) is described at p. 348.

The same author, J. A. S. B. (n. s.) xlii. pt. 2, pp. 45-56, pls. v.-vii., describes as new species:—

Bacillus fuscilineatus, p. 46, pl. v. fig. 7, Punjaub; *hispidulus*, p. 47, pl. vii. figs. 2-3, South Andaman; *oxytenes*, p. 48, pl. v. fig. 3, Pegu; *levigatus*, p. 49, pl. v. fig. 4, Assam; *westwoodi*, p. 50, pl. vi. fig. 3, South Andaman; (*Baculum*) *insignis*, p. 51, pl. v. figs. 1-2, Assam, Sikkim, &c.; (*Baculum*) *penthesilea*, p. 52, pl. v. fig. 5, Bhutan; (*Baculum*) *furcillatus*, p. 54, pl. v. fig. 6, Bhutan; *scabriusculus*, p. 55, pl. vii. fig. 1.

Bacillus patellifer, Bates, = *B. ? artemis*, Westw.; *id. l. c.* p. 51.

GRYLLIDÆ.

Orocharis saltator, Uhler. Habits noticed by Riley in Rep. Ins. Mo. v. p. 119, with figures.

Gerstäcker (Von der Decken's Reisen) figures *Gryllotalpa debilis*, pl. i. fig. 13 (wing), *Gryllus pulchriceps*, fig. 9 (wing), *xanthoneurus*, fig. 10, *scenicus*, fig. 11.

LOCUSTIDÆ.

STÅL (Æfv. Ak. Forh. 1873) establishes the following new genera in this family [owing to the intricate manner in which these are arranged, in a dichotomous form, the Recorder finds it impossible to reproduce their characters]:—

Acanthoplus (allied to *Heterodes*), p. 39. Type, *Heterodes longipes*, Chp.

In the PHANEROPTERIDÆ are the following:—

Trigonocorypha (p. 39). Type, *Locusta crenulata*, Thbg.

Stilpnochlora (p. 40). Type, *Phylloptera marginella*, Serv.

Philophyllia. Type, *P. guttulata*, sp. n., p. 42, Brazil.

Eurycorypha. Type, *Phylloptera cereris*, Stål.

Planzia. Type, *Phylloptera graminea*, Serv.

Amblycorypha. Type, *Phylloptera oblongifolia*, De Geer.

Ctenophlebia (p. 41). Type, *Phylloptera myrtifolia*, De Geer.

Anaulacomera. Includes *Phaneroptera submaculata*, Stål, *nodulosa*, sp. n., p. 43, Surinam, and *opacifolia*, sp. n., l. c., Brazil.

Plagiopleura. Type, *P. nigrimarginata*, sp. n., p. 42, Brazil.

Plagioptera. Type, *P. cincticornis*, sp. n., p. 43, Brazil.

Scudderia. Type, *Phaneroptera curvicauda*, De Geer.

Pyrhicia. Type, *Phaneroptera rubescens*, Stål.

Hormilia. Type, *Phaneroptera tolteca*, Sauss.

Burgilis. Type, *Phaneroptera curta*, Serv.

Holochlora (p. 42). Types, *H. fatidica*, Sierra Leone, and *venosa*, Java (p. 43), spp. nn.

Mirollia. Type, *Phylloptera carinata*, Haan.

Terpnistria. Type, *Phaneroptera zebra*, Serv.

Eurycorypha stylata (p. 43), sp. n., Sierra Leone.

Stirodon citrifolium, Serv. (nec L.), is re-named *ponderosum*, p. 42.

The PSEUDOPHYLLIDÆ contain the following:—

Phyllomimus (p. 44). Type, *P. granulosus*, sp. n., p. 48, locality unknown.

Scopiorus (p. 45). Type, *S. sutorius*, sp. n., p. 48, Antioquia.

Phyllostachys. Type, *Acanthodis scariosa*, Burm.

Brisilis (p. 46). Includes *Acanthodis aquilina*, L., *vulturina*, De Geer, and *brachyptera*, Burm.

Cocconotus. Type, *Meronicidium degeeri*, Stål.

Leptotettix (p. 47). Type, *Locusta falconaria*, De Geer.

Bliastes: Type, *B. punctifrons*, sp. n., p. 49, Antioquia.

Ischnomela. Type, *I. gracilis*, sp. n., p. 49, Carthagera.

Liparoscelis. Types, *L. pallidispina* and *nigrispina*, spp. nn., p. 49, Mexico.

Trichotettix. Type, *T. pilosula*, sp. n., p. 47, Columbia.

Stenotettix. Type, *S. macilentus*, sp. n., p. 50, Antioquia.

Moristus. Type, *Locusta lanceolata*, Stoll.

Pseudophyllus lineolatus, locality unknown, and *afzeli*, Sierra Leone, spp. nn., p. 48.

Pterochroza sinuosa, sp. n., l. c. Brazil.

Acanthodis spiculata, sp. n., p. 49, Antioquia.

In the CONOCEPHALIDÆ are the following:—

Oxyprora (p. 50). Type, *Locusta acuminata*, De Geer.

Pyrgocorypha. Type, *Conocephalus subulatus*, Thbg.

Copiophora brevirostris, sp. n., p. 50, Carthagera.

Idioderus, g. n., allied to *Callimenus*. Lucas, Ann. Soc. Ent. Fr. (5) iii. p. 102. Type, *Callimenus grandis*, id. l. c. p. 103, pl. iii. figs. 1-9.

Pterolepis brunneri, sp. n., Krauss, Verh. z.-b. Wien, xxiii. p. 20, pl. i. figs. 8-15, South Tirol.

Ceuthophilus sloanii, sp. n., Packard, Rep. Peab. Ac. v. p. 93, Indiana (in a cave).

Pycnogaster graellsii, sp. n., Bolivar, Ann. Soc. Esp. ii. p. 218, Manzandres.

Platycleis saussuriana, sp. n., Frey-Gessner, MT. schw. ent. Ges. iv. p. 8, d. i. fig. 1, Valais.

Barbitistes ruficostata (Fieber, MS.), sp. n., *id. l. c.* p. 19, pl. i. fig. 2, Ticino.

Meconema brevipenne, Yersin: both sexes described and figured by Krauss, Verh. z.-b. Wein, xxiii. p. 19, pl. i. figs. 1-5, from Tirolean examples.

Gerstäcker (Von der Decken's Reisen) figures *Eugaster loricatus*, pl. ii. fig. 1, *ephippiatus*, fig. 2, *talpa*, fig. 3, *Cymatomera paradoxa*, fig. 4 (head).

ACRYDIIDÆ.

THOMAS, C. The *Acrididæ* of the United States. Hayden's Report of the United States Geological Survey of the Territories, v. pt. i. Washington: 1873, 4to, pp. 1-258, pl.

An exceedingly valuable monographic Synopsis of all the North American species, commencing with notes on structure, a review of the different classifications proposed by authors, list of species (227), notes on critical species, tabular synopsis, &c. The family is divided into two sub-families, *Acridinæ* and *Tettiginæ*, and the former of these into 7 groups. The author adopts the reprehensible plan (in vogue with some other American naturalists) of placing his own name after already described species when they are transferred by him to other genera. He describes the following new genus and species:—

Tropidolophus, p. 138; type, *Gryllus formosus*, Say.

Tryxalis brevipennis, p. 58, fig. 12, Florida.

Pyrgomorpha punctipennis, p. 68, East Tennessee.

Chrysochraon abdominalis, p. 74, Montana.

Stenobothrus occipitalis, p. 81, Colorado, Wyoming, and Idaho; *tricarinatus*, p. 84, Wyoming.

Gomphocerus clavatus, p. 96, Kansas.

Tragocephala pacifica, p. 101, California.

Ædipoda plattei [*platteana* vel *plattearum*], p. 123, Platte Rivers, Colorado and Wyoming, *hoffmani*, p. 127, Nevada?

Pezotettix unicolor, p. 151, Illinois.

Platyphyma montana [*-næ*, vel *montanense*], p. 155, Montana.

Pedioscertetes, g. n., Thomas, P. Ac. Philad. 1873, p. 295. Resembles *Acrolophitus*, but the pronotum is not crested, and its posterior margin is rounded. *P. nevadensis*, sp. n. *id. l. c.* Nevada.

Acridium shoshone [!], sp. n., *id. l. c.* p. 296, Nevada and Utah.

Ephippigera longicauda, p. 220, fig. 3, *martinezi*, p. 222, fig. 4, *miegii*, p. 224, fig. 5, Bolivar, An. Soc. Esp. ii. pl. ix., Spain, spp. nn.

Platyceles boscæ, sp. n., *id. l. c.* p. 229, pl. ix. fig. 6, Escorial.

Thrincois perezii, sp. n., *id. l. c.* p. 234, pl. ix. fig. 9, Spain.

GERSTÄCKER, S. E. Z. xxiv. describes the following new genus and species:—

Perixerus, p. 192. Allied to *Dactylotum*, differs in its pilose body, more slender antennæ and legs, narrower and shorter head, flat vertex, more approximate eyes, the transverse sulci of the prothorax almost

obsolete; elytra and wings squamiform, irregularly areolate. Type, *P. squamipennis*, p. 192.

Monachidium carbunculus, p. 185, Brazil.

Rhomialia nuptialis, l. c., Salto Grande; *psittacus*, l. c., Bogotá; *trogon*, p. 186, Costa Rica.

Xiphocera cyanoptera and *hymenæa*, l. c., Brazil; *bilunata* and *psittacoma*, p. 187, Columbia; *bivittata*, l. c., Bogotá; *picticollis*, p. 188, Bogotá.

Petasia satanas, l. c., South Africa.

Acridium amethystinum, p. 189, Pará; *cubiceps*, l. c., Salto Grande; *trochilus*, l. c., Bogotá; *bracteatum*, p. 190, Brazil; *virgatum*, l. c., Salto Grande; *porphyreum*, p. 191, Brazil?; *nasicum*, l. c., Salto Grande; *falconicum*, l. c., Rio Janeiro.

Dactylotum pictum, p. 192, Mexico.

Diponthus festivus and *dispar*, p. 193, Brazil.

Ommatolampis venusta, p. 194, Mexico; *cardinalis*, l. c., British Guiana; *pugnax*, l. c., Bogotá; *acanthopus*, p. 195, Guyaquil; *carinipes*, l. c., Bogotá.

Sphenarium histrio and *ictericum*, p. 196, Mexico.

STÅL, Öfv. Ak. Forh. 1873, works out some groups in the same manner as followed by him in the *Locustidæ*, and indicates the following new genera (mostly in a tabular form):—

Monistria, p. 50, allied to *Pyrgomorpha*. Type, *M. pustulosa*, sp. n., l. c. Australia.

Zonocerus, p. 51. Types, *Gryllus elegans* and *lævis*, Thbg.

Aularches. Type, *Pæcilocerus miliaris*, L.

Taphronota. Type, *Pæcilocerus porosus*, Stål.

Maura. Type, *Petasia rubro-ornata*, Stål.

Colpolopha, p. 52. Type, *C. sinuata*, sp. n., p. 53, New Grenada.

Elæochlora. Type, *Gryllus scaber*, Thbg.

Procolopia. Type, *Xiphicera emarginata*, Serv.

Alophonta. Type, *Xiphicera dorsalis*, Burm.

Phymateus viridipes, p. 51, Caffraria.

Tryxalis acridoides, p. 52, Mexico.

Ischnacrida. Allied to *Mesopsis*, p. 53. Type, *I. teniata*, sp. n., l. c., locality unknown.

Oxyrrhepes. Allied to *Opomala* (l. c.). Type, *Opomala lineatitarsis*, Stål.

Cælopterna. Allied to *Ædipoda* (l. c.). Type, *Acridium acuminatum*,

De Geer.

Stål, l. c., also describes as new species:—

Tropinotus angulatus, Bahia.

Pneumora granulata, Caffraria.

The same author in his 'Recensio Orthopterorum,' characterizes:—

Ochrophlebia, g. n., p. 14, for *O. radiata*, sp. n., Caffraria, and *Pæcilocerus ligneolus*, Serv., and *Gryllus caffer*, L.

Porthetis (*P.*) *cinerascens*, p. 23, Caffraria; *ignota*, p. 24, locality unknown, spp. nn.

Tæniopoda, g. n., p. 50. *T. superba*, l. c., Honduras, and *picticornis*, p. 51, Mexico, spp. nn.

Zonipoda, g. n., p. 51. Type, *Acridium tarsatum*, Serv.; *Z. emarginata*, sp. n., p. 52, San Jago d'Estrella.

Hermistria (g. n.) *pulchripes*, sp. n., p. 52, Mexico.

Coscineuta, g. n., l. c., to include *Acridium coxale*, Serv., and *Gryllus virens*, Thbg.

Tetratania, g. n. Type, *Gryllus surinamus*, L.

Teniophora (g. n.) *dentipes*, p. 53, New Granada, and *geniculata*, p. 54, Northern Brazil, spp. nn.

Rhytidochrota (g. n.) *turgida*, p. 54, Antioquia, *antennata*, p. 55, and *sellata*, l. c., New Granada, spp. nn.

Goniaea (g. n.) *rugulosa*, sp. n., p. 56, locality unknown.

Phæoparia, g. n., p. 56, to include *Gryllus linea-alba*, L., and *P. annulicornis*, p. 57, and *mordax*, p. 58, spp. nn., both from New Granada.

Coptacra, g. n., p. 58, to include *Acridium fædatum*, Serv., and *A. præmorsum*, Stål.

Traulia, g. n., l. c., for *Acridium flavo-annulatum*, Stål.

Calliptenus (*Euryphymus*) *ferruginosus*, sp. n., p. 72, locality unknown.

Tristria (g. n.) *lacerta*, sp. n., p. 80, China.

Stenopola, g. n., p. 83; *S. (Oxybleta*, sub-g. n.) *limbatipennis*, sp. n., p. 85, New Granada.

Arnilia, g. n., p. 85, for *Opsomala cylindrioides*, Stål.

Leptysmia, g. n., l. c., to include *Opomala filiformis*, Serv., *Tryxalis obscurus*, Thbg., and *O. marginicollis*, Serv.

Tropidolopa, g. n., p. 86. Type, *O. fasciculata*, Charp.

Acrida acuminata, sp. n., p. 97, Caffraria.

Machæridia (g. n.) *bilineata*, sp. n., p. 100, Sierra Leone.

Mermiria (g. n.) *belfragii*, sp. n., p. 102, Texas.

Syrbula, g. n., l. c., to include *Oxycoryphus montezuma*, Saus., and *S. leucocerca*, Texas, sp. n.

Tryxalis angusticornis, p. 105, South Carolina, and *T. (Orphula*, sub-g. n.) *intricata*, sp. n., Buenos Ayres, p. 106.

Amblytropidia (g. n.) *ferruginosa*, sp. n., p. 107, Brazil.

Arphia, g. n., p. 119, to include *Ædipoda sulphurea*, Burm., and *A. sanguinaria*, l. c., Vancouver's Island, sp. n.

Camnula (g. n.) *tricarinata*, sp. n., p. 120, Vancouver's Island.

Psophus, g. n., p. 121, for *Acridium rubripenne*, D. G.

Pycnodictya, g. n., l. c., for *Gryllus obscurus*, L.

Cosmorhyssa, g. n., l. c., to include *Gryllus fasciatus*, and *sulcatus*, Thunbg.

Pachytylus (Ædaleus) wahlbergi, p. 124, and *acutangulus*, p. 125, Caffraria, spp. nn.

Prionidia, g. n., p. 127, to include *Gryllus bimaculatus* and *villosus*, Thunbg.

Heteropternis, g. n., p. 128, for *Acridium pyrrhoscelis*, var. a., De Haan.

Ædipoda belfragii, p. 129, Illinois, *punctata*, p. 130, Mexico, spp. nn.

Trilophidia, g. n., p. 131, to include *Ædipoda cristella*, Stål, *Gryllus annulatus*, Thunb., and *T. rugosa*, p. 132, Caffraria, sp. n.

Psinidia, g. n., p. 133, to include *Ædipoda fenestralis*, Serv., *P. capito*, l. c. Texas, and *fuscifrons*, p. 134, Texas, spp. nn.

Trimerotropis, g. n., p. 134, to include *Ædipoda placida*, Stål, and *Locusta maritima*, Harris.

Acrotylus flavescens, Cape of Good Hope and China, *apricarius*, Cape of Good Hope, p. 135, spp. nn.

Bulla longicornis, sp. n., p. 139, Caffraria.

Pompholyx, g. n., p. 144, for *Pneumora granulata*, Stål.

Tettix impressus, sp. n., p. 151, Caffraria.

Ædipoda discoidea, *rugosa*, *corallipes*, *haldemani*, and *paradoxa*. Thomas (Hayden's 6th Report, p. 720) is inclined to believe that these are all local forms of one species.

Ædipoda differentialis, figured by Riley in Rep. Ins. Mo. v. p. 14.

Gerstæcker (Von der Decken's Reisen) figures *Opomala brachyptera*, pl. ii. fig. 5, *Petasia hecate*, fig. 6, *Sphenarium pulchripes*, fig. 7, *Chorætypus hippiscus*, fig. 8, *Pomphagus atrox*, fig. 9, *Tryxalis sulphuripennis*, pl. iii. fig. 1, *Chrysochraon dasyncemis*, fig. 2, *Acridium deckeni*, fig. 3, *Catantops decoratus*, fig. 4, *Stenocrotylus cervinus*, fig. 5, *Ixalidium hæmatoscelis*, fig. 6, *Hymenotes humilis*, fig. 7.

RHYNCHOTA.

BY

E. C. RYE, F.Z.S.

HEMIPTERA—HETEROPTERA.

PUTON, A. Notes pour servir à l'étude des Hémiptères.
Ann. Soc. Ent. Fr. (5) iii. pp. 11–26, pl. i.

Descriptions of new or little known species, synonymical notes, and localities for various known species.

REUTER, O. M. Ameisen-Aehnlichkeit unter den Hemiptern.
MT. schw. ent. Ges. iv. pp. 156–159.

After remarks on the imitative appearance of various *Hemiptera*, the author especially notes the resemblance to ants afforded by *Systellonotus 3-guttatus*, L., ♀, and *Diplacus albo-ornatus*, St., of which the two forms are discussed, with general observations on myrmecophilous species.

STÅL, C. Enumeratio Hemipterorum. Bidrag till en Förteckning öfver alla hittills kända Hemiptera. Pt. 3. Sv. Ak. Handl. xi. (1873) No. 2, pp. 1–163.

Comprises the *Scutellerina* (a sub-family of the author's *Pentatomidæ*) of Europe, Asia, Africa, and Australia (pp. 1–32); the *Coreidæ* of Africa,

Asia, and Australia (pp. 33–100); and the extra-European *Cimicidæ* (pp. 101–105), *Nabidæ* (pp. 106–114), *Tingitidæ* (pp. 115–134), *Aradidæ* (pp. 135–147), and *Acanthiidæ* [= *Saldidæ*, auctt.] (pp. 148 & 149). In addition to the divisions of *Scutellerina* relating to European species mentioned in Zool. Rec. ix. p. 401, the following are proposed:—*Sphærocoraria* (*Sphærocoris*, Burm., *Steganocerus*, Mayr, *Hyperoncus*, St.), *Scutelleraria* (*Peltophora*, Burm., *Cantao*, A. & S., *Scutellera*, Lam., &c.), and *Tetyraria* (*Hotea*, A. & S., and *Deroplax*, Mayr); and many genera are, of course, added to the divisions before mentioned. The other groups will be noticed *infra*. Many new divisions, genera, sub-genera, and species are incidentally indicated, for the most part in tables, and in no instance accompanied by the intimations of novelty employed by all other writers, the sole clue to them being the absence of reference to a former publication; and even this is not always to be relied upon, as some of the author's groups already published are mentioned with no back reference.

VOLLENHOVEN, S. C. SNELLEN VAN. De Inlandsche Hemipteren beschreven en Meerendeels ook afgebeeld. Tijdschr. Ent. (2) viii. pp. 75–122, pls. v.–vii.

This further portion of the author's work contains descriptions and figures of (pl. v.) *Temnostethus pusillus*, H. S., fig. 1, *Anthocoris nemorum*, L., fig. 2, *A. nemoralis*, F., fig. 3, *A. limbatus*, Fieb., fig. 4, *A. vittatus*, Fieb., fig. 5, *Piezostethus galactinus*, Fieb., fig. 6, *Triphleps minutus*, L., fig. 7, *Lytocoris domestica*, Schill., fig. 8, *Microphysa coleoptrata*, Fall., fig. 9, *M. pselaphiformis*, Westw., figs. 10 & 11, *Acanthia lectularia*, L., fig. 12; (Pl. vi.) *Aradus depressus*, F., fig. 1, *A. leptopterus*, Germ., fig. 2, *Aneuris levis*, F., figs. 3 & 3a, *Dictyonota crassicornis*, Fall., fig. 4, *Monanthia cardui*, L., fig. 5, *M. humuli*, F., fig. 6, *M. wolffi*, Fieb., fig. 7, *M. 4-maculata*, Wolff, figs. 8 & 8a, *M. nigrina*, Fall., figs. 9 & 9a, *M. parvula*, Fall., figs. 10 & 10a, *M. cervina*, Germ., figs. 11 & 11a; (pl. vii.) *M. carinata*, Pz., figs. 1 & 1a, *M. obscura*, H. S., fig. 2, *Campylostira verna*, Fall., fig. 3, *Derephysia foliacea*, Fall., figs. 4 & 4a, *Asopus punctatus*, L., fig. 5, *Gonocerus venator*, F., fig. 6, *Pachymerus luniger*, Schill., fig. 7, pupæ of *Tingidina* (?), figs. 8 & 9.

WALKER, FRANCIS. Catalogue of the Specimens of Hemiptera Heteroptera in the collection of the British Museum. Parts vi. pp. 210 (*Pyrrhocoridæ* continued, *Capsidæ*, *Phymatidæ*, *Tingididæ* pt.), vii. pp. 213 (*Tingididæ* continued, *Piesmidæ*, *Brachyrhynchidæ*, *Aradidæ*, *Holoptilidæ*, *Piratidæ*, *Reduviidæ* pt.), viii. p. 220 (*Reduviidæ* continued, *Stenopodidæ*, *Ectrichodidæ*, *Apiomeridæ*, *Harpactoridæ*, *Saccoderidæ*, *Emesidæ*, *Hydrometridæ*, *Leptopodidæ*, *Saldidæ*, *Pelagonidæ*, *Hebridæ*, *Veliidæ*, *Geridæ*, *Galgulidæ*, *Naucoridæ*, *Nepidæ*, *Corixidæ*, *Notonectidæ*): 1873.

Some corrections referring to pts. i.–viii. are made at pp. 207 & 208 of pt. viii.

Specific characters in the neururation of the underwings of *Asopus custos*, *bidens*, and *punctatus*, *Cydnus bicolor*, *morio* and *nanus*, *Ælia klugi*, *Cimex rufipes*, *lituratus*, *prasinus*, *baccarum*, and *oleraceus*, *Acanthosoma hæmorrhoidale*, *hæmatogaster*, *clypeatum*, and *griseum*, *Syromastes marginatus* and *scapha*, *Stenocephalus*, *Alydus*, *Gonocerus*, *Corizus pratensis*, *Heterogaster* and *Cymus* are pointed out by Snellen van Vollehoven, Tijdschr. Ent. (2) viii. Versl. pp. liv. & lv.

Captures at Deal : J. W. Douglas, Ent. M. M. ix. pp. 192 & 193.

PACHYCORIDÆ.

Elvisura, Stål, nec Spin., is re-named *Oxyprymna*, p. 5 ; *Callidea 12-punctata*, Germ., Dall., nec F., is re-named *natalensis*, p. 24 ; *Alphocoris lixoides*, St., nec Germ., is re-named *lobulatus*, p. 26 ; Stål, Sv. Ak. Handl. xi. No. 2.

Aulacostethus, g. n., P. R. Uhler, P. Bost. Soc. xiv. p. 93. Type, *Tetyra marmorata*, Say.

Anoplogonius, g. n., Stål, l. c. p. 33 (= *Graptocoris*, St., pt.), for *Chærocoris nigricollis*, Sign.

Phymatogonia, subg. n. of *Hotea*, A. & S., for *H. denticulata*, St. ; id. l. c. p. 24.

Hyperoncus lineaticornis, sp. n., id. l. c. p. 7, Indian Archipelago.

Pæcilochroma equestris [-tre], sp. n., id. l. c. p. 12, Malacca.

Philia fulgurans, Mysol, *caprina*, New Guinea, spp. nn., id. l. c. p. 15.

Calliphara cruenta, sp. n., l. c. p. 17, Australia.

Phimodera levilinea, sp. n., id. l. c. p. 28, Dauria.

EURYGASTRIDÆ.

Xerobia, g. n., id. l. c. p. 29, for *Eurygaster sculpturatus*, St., and *X. verrucosa*, sp. n., id. l. c. p. 30, Beyrouth.

Holophlygdus, subg. n. of *Eurygaster*, id. l. c. p. 30, for *Cimex hottentottus*, F.

Macrocarenus, g. n., id. l. c. p. 32. *Eurygaster* ? *acuminatus*, Dallas [evidently founded on Dallas's observations only].

Psacasta lethierrii, sp. n., Puton, Ann. Soc. Ent. Fr. (5) iii. p. 11, Batna.

PODOPIDÆ.

Podops dilatata, sp. n., Puton, l. c. p. 12, pl. i. figs. 1 & 1a, Madrid.

ODONTOSCELIDÆ.

Arctocoris incisus, sp. n., Stål, l. c. p. 31, Bengal.

ASOPIDÆ.

Arma colorata, Walk., = *Euthyrhynchus punicus* ; F. Walker, Cat. Hem. Brit. Mus. viii. p. 207.

Podisus serieventris, sp. n., P. R. Uhler, P. Bost. Soc. xiv. p. 94, U. S. America.

CYDNIDÆ.

Crocistethus cereus, Fieb., = *waltli*, Fieb., ♂ ; Puton, *l. c.* p. 23.

Æthus saprinoides, p. 403, Mombas, *sculptus*, Moschi, *macrops*, Endara, p. 404, Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2.

SCIOCORIDÆ.

Sciocoris basalis, Fieb., = *macrocephalus*, Fieb., ♀ ; Puton, *l. c.* p. 23.

Anarropa, g. n., Gerstäcker, *l. c.* p. 397. Allied to *Caystrus* and *Dymantis*, St. Second and third joints of both antennæ and rostrum subequal; lateral lobes of head not longer than middle lobe; ocelli remote. *A. trivialis*, sp. n., *id. l. c.* p. 398, pl. xvii. fig. 1, Uru.

Menaccarus ovalis, p. 12, Biskra, *hirticornis*, p. 13, Bone, Puton, *l. c.* spp. nn.

HALYDIDÆ.

Brochymena harrisi, sp. n., P. R. Uhler, P. Bost. Soc. xiv. p. 95, U. S. America.

PENTATOMIDÆ.

Lioderma, g. n., P. R. Uhler, *l. c.* p. 97. Types, *Pentatoma saucia* and *senilis*, Say.

Atomosira, g. n., *id. ibid.* Type, *A. sordida*, sp. n., *id. l. c.* p. 98, U. S. America.

Euschistus fissilis, sp. n., *id. l. c.* p. 96, U. S. America.

Æliomorpha nasica, sp. n., Gerstäcker, *l. c.* p. 399, Mombas and Cape of Good Hope.

Pentatoma (Carbula) jipensis, sp. n., *id. l. c.* p. 400, See Jipe.

Ditomotarsus uribei, sp. n., Reed, An. Univ. Chil. xli. p. 355, Llanquihue.

Nopalis ? rogersi, sp. n., *id. l. c.*, Rio Puelo, Chili.

Bagrada (Nitilia, Muls., Rey) elegans (Fieb. MS.), sp. n., Puton, Ann. Soc. Ent. Fr. (v.) iii. p. 14, pl. i. figs. 2-2c, Aranjuez [in Puton's Cat. 1869, *Nitilia*, Muls., Rey, = *Stenozygum*, Fieb., which contains a species "*elegans*, Fieb., 1869"].

MICTIDÆ.

Helcomeria, g. n., Stål, *l. c.* pp. 37 & 40, for *Petascelis spinosus*, Sig.

Prionolomia, g. n., *id. ibid.*, for *Lygæus heros*, F., *Mictis malaya*, St. & c.

Elasmomia, g. n., *id.* pp. 38 & 41, for *M. granulipes*, Westw.

Phyllogonia, g. n., *id. ibid.*, for *Petascelis bilobus*, Sign.

Elasmopoda, g. n., *id. ibid.*, for *Cimex falx*, Dru., and *Mictis undata*, Dall.

Holopterna, g. n., *id. l. c.* p. 41 (*Hoplopterna*, p. 39), for *Cimex valgus*, L., & c.

Plectrocnemia, g. n., *id. l. c.* pp. 39 & 42, for *Mictis cruciata*, Dall., & c.

Pternistria, g. n., *id. l. c.* pp. 39 & 43, for *Anisoscelis macromera*, Guér., and *P. bispina*, sp. n., p. 43, Australia.

Odontobola, g. n., *id. ibid.*, for *Cimex bellicosus*, F.

Ochrochira, g. n., *id. l. c.* pp. 39 & 44, for *Mictis albiditarsis*, Westw., and *O. palliditarsis*, sp. n., p. 44, N. Hindostan.

Aspilosterna, subg. n. of *Mictis*, *id. l. c.* p. 46, for *M. macra*, St., &c.

Callichlamydia, subg. n. of *Mictis*, *id. l. c.* p. 47, for *M. metallica*, Sig.

Anoplocnemis, g. n., *id. l. c.* pp. 39 & 47, for *Cimex curvipes*, F., and 45 other species (*Mictis*, auctt.).

Odontorhopala, g. n., *l. c.* p. 55. Allied to *Dalader*. *O. callosa*, sp. n., *id. l. c.* p. 56, Madagascar.

Mygdonia amplicollis, sp. n., *id. l. c.* p. 43, Silhet.

Amorbus biguttatus and *atomarius*, spp. nn., *id. l. c.* p. 52, Australia.

Mictis cervina, sp. n., Gerstäcker, *l. c.* p. 406, Wanga.

Metapodius instabilis, p. 98, N. Carolina, *confraternus*, p. 99, Florida, spp. nn., P. R. Uhler, P. Bost. Soc. xiv.

HOMŒOCERIDÆ.

Aschistus, g. n., Stål, *l. c.* pp. 57 & 63, for *Ornytus ? brevicornis*, Dall.

Ptyctus, sub-g. n. of *Latimbus*, St.; for *Philonus ? punctatus*, Dall., and *Homœocerus concolor*, Germ.; *id. l. c.* p. 64.

Amblypelta, g. n., *id. l. c.* pp. 73 & 74. *A. bilineata*, p. 74, New Caledonia, *nitida*, p. 75, Australia, *id. l. c.*, spp. nn.

Homœocerus inornatus, p. 58, Pondicherry, *biplagiatus*, Bombay, *sigilatus*, N. Hindostan, p. 59, *lævilineus*, Ceylon, *fasciolatus*, N. Hindostan, p. 60, *albiguttulus*, p. 61, *immaculipennis*, p. 62, Cochin China, *urbanus*, Ternate, *lineaticollis*, Borneo, *tenuicornis*, Singapore, p. 62; *id. l. c.*, spp. nn.

Latimbus nigrispinus, sp. n., *id. l. c.* p. 64, locality unknown.

Pendulinus (Dasynus) laminatus, sp. n., *id. l. c.* p. 74, Java.

ANISOSCELIDÆ.

Sciophyrus, g. n., Stål, *l. c.* pp. 66 & 67, for *Lybas inermis*, St.

Acanthotyla, g. n., *id. l. c.* pp. 67 & 68, for *Cletus fasciatus*, Walk.

ALYDIDÆ.

Protenor and *Cydamus*, (presumably) gg. nn. Stål, *l. c.* p. 88, div.

Micrelytraria: no types mentioned.

Tollius, (presumably) g. n., *id. l. c.* p. 89, div. *Alydaria*: no type mentioned.

Trichocnemus, g. n., *id. l. c.* pp. 91 & 95, for *Alydus maculatus*, Thunb.

Melanacanthus, sub-g. n. of *Mirperus*, *id. l. c.* p. 92, for *Alydus scutellaris*, Dall., and *Tupalus ferrugineus*, St.

Megalotomus (Huphus) costalis, sp. n., *id. l. c.* p. 92, Japan.

Riptortus atricornis, sp. n., *id. l. c.* p. 94, N. Australia, Java.

Tenosius capicola, sp. n., *id. l. c.* p. 95, Cape of Good Hope.

Daclera rufescens, sp. n., *id. ibid.*, Australia.

STENOCEPHALIDÆ.

Stenocephalus agilis. "Ovipositor-saws" described and figured as not before observed (with head and proboscis, &c.); J. O. Harper, Sci. Goss. 1873, p. 228 [these are the well-known genital segments].

Dichromerus, sub-g. n. of *Stenocephalus*, Stål, l. c. p. 85, for *S. caffer*, Dall., and *S. (D.) punctipes*, sp. n., *id. ibid.*, Madagascar.

Erbula, sub-g. n. of *Leptocorisa*, *id. l. c.* p. 86, for *L. apicalis*, Westw.

Cosmoleptus, g. n., *id. l. c.* pp. 86 & 87, for *Lyrnessus limbaticollis*, St.

Leptocorisa phthisica, sp. n., Gerstäcker, l. c. p. 406, Mbaramu.

COREIDÆ.

Paletroboris, Kolen., = *Enoplops*, Am. S.; and the species of *Spathocera* allied to *obscura*, Germ., are tabulated: Puton, Ann. Soc. Ent. Fr. (5) iii. pp. 15 & 16.

Dasycoris dorsalis, M. & R., = *hirsutus*, Fieb.; *id. l. c.* p. 23.

Phyllophya, g. n., Stål, l. c. p. 80, for *Phyllomorpha persica*, Westw.

Acanthomia, g. n., *id. l. c.* pp. 81 & 82. *Syromastes horridus*, Germ., various species of *Clavigralla* and *A. curvipes*, Bissao, and *brevirostris*, Khartum, *id. l. c.* p. 82, spp. nn.

Oncaspidia, g. n., *id. l. c.* pp. 81 & 83, for *Clavigralla pilosicollis*, St.

Hoplolomia, g. n., *id. l. c.* pp. 82 & 84, for *H. scabricula*, sp. n., *id. l. c.* p. 84, Hindostan.

Aulacosternum punctipes, sp. n., *id. l. c.* p. 73, Australia.

Plinachtus scutellaris, sp. n., *id. l. c.* p. 75, Sennaar.

Cletus ferruginosus, p. 77, Cape of Good Hope, *saucius*, p. 78, N. Australia, *id. l. c.* spp. nn.

Phyllomorpha tetraptera, sp. n., Gerstäcker, l. c. p. 407, Moschi and See Jipe.

Mevania hystrix, sp. n., *id. l. c.* p. 408, Mombas.

Spathocera stali, sp. n., Puton, l. c. p. 14, Bone.

RHOPALIDÆ.

Peliochrous, g. n., Stål, l. c. pp. 97 & 98, for *Corizus nigrimaculatus*, St.

BERYTIDÆ.

Neides decurvatus, sp. n., P. R. Uhler, P. Bost. Soc. xiv. p. 100, New Hampshire.

PYRRHOCORIDÆ.

Dindymus circumcinctus, Stål, p. 11, Australia, *Pysopelta famelica*, St., Aru, *cincticollis*, St., Batchian, Sula, p. 19, *P. schlanbuschi*, F., Penang, p. 20, *Astemma stylophthalmum*, St., p. 37, Ega, *Theraneis vittata*, Spin., p. 39, Petropolis; "? varr." described, not named, by F. Walker, Cat. Hem. Brit. Mus. pt. vi.

Pyrrhocoris volucris, sp. n., Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2, p. 413, Wanga.

Cenæus abortivus, sp. n., *id. ibid.* pl. xvii. fig. 4, Mombas.

Roscius illustris, sp. n., *id. l. c.* p. 414, pl. xvii. fig. 5, Mombas.

Dysdercus cardinalis, sp. n., *id. l. c.* p. 416, Mombas and Kiriamas.

Dindymus decisis, New Guinea, *basifer*, Gilolo, Ternate, p. 5, *discoidalis*, Philippine Isles, *clarus*, *simplex*, Celebes, p. 6, *imitator*, Siam, *effusus*, Mysol, Dorey, New Guinea, p. 7, *venustus*, New Guinea, *rutilans*, Siam, p. 8, *reduvioides*, Celebes, *intermedius*, Mysol, *varius*, Aru, New Guinea, p. 9, *indignus*, p. 10, Siam, *biguttatus*, p. 11, *cinctifer*, p. 12, Australia, *dubius*, p. 12, locality unknown; Walker, *l. c.* spp. nn.

Melamphaus lateralis, p. 13, *marginalis*, *rubidus*, p. 14, *costalis*, p. 14, Celebes, *femoratus*, N. Hindostan, *angulifer*, Ceram, p. 15, *scutifer*, Gilolo, *circumdatas*, Waigiou, p. 16, *lycoides*, Philippine Isles, p. 17; *id. l. c.* spp. nn.

Physopelta apicalis and *plana*, p. 21, *bimaculata*, p. 22, Hindostan, *immunis*, p. 22, Siam, *id. l. c.* spp. nn.

Ectatops largoides, p. 24, Siam, *adustus* and *tenuicornis*, p. 25, Singapore, *amabilis*, Aru, *subjectus*, Celebes, *venustus*, New Guinea, p. 26, *coloratus*, Ceram, *ruficosta*, New Guinea, p. 27; *id. l. c.* spp. nn.

Largus concisus, Brazil, *pulverulentus* and *obtusus*, Mexico, p. 33, *torridus*, Columbia, *anticus*, Amazons, p. 34, *divisus*, p. 35, Tunantins; *id. l. c.* spp. nn.

Arhaphé cicindeloides, sp. n., *id. l. c.* p. 36, Mexico.

Acinocoris bilineatus, Demerara, *inclusens*, Cuenca, *id. l. c.* p. 38, spp. nn.

LYGÆIDÆ.

Notochilus gandolphii, Put., = *Rhyparochromus impressicollis*, Luc., which is not correctly described; *Notochilus*, *Thaumastopus*, and *Taphropeltus* must probably be united: Puton, Ann. Soc. Ent. Fr. (5) iii. p. 17. *Aoploscelis bilineatus*, Fieb., = *bivirgatus*, Costa; *Lasiocoris crassicornis*, Luc., = *anomalus*, Kol.; *Megalonotus puncticollis* and ? *luctuosus*, Luc., = *niger*, Fieb.; *Neurocladus (Acanthocnemis) ater*, Fieb., = *brachioides*, Duf.; *Pachymerus 5-maculatus*, M. & R., = *Oxycaenus modestus*, Fall.: Puton, *l. c.* p. 23.

Ptochiomera nodosa, Say, *Plociomerus constrictus*, Say, and *Eremocoris ferus*, Say: for synonymy, cf. P. R. Uhler, P. Bost. Soc. xiv. p. 100, *et seq.*

Ozophora, g. n., *id. l. c.* p. 102. Type, *O. picturata*, sp. n., *id. ibid.*, Massachusetts.

Belonochilus, g. n., *id. l. c.* p. 104 (Massachusetts).

Plociomerus diffusus, sp. n., *id. l. c.* p. 101, Massachusetts.

Peritrechus fraternus, sp. n., *id. l. c.* p. 103, Massachusetts.

Nysius destructor, sp. n., Riley, Rep. Ins. Mo. v. p. 113, fig. 41, Missouri (habits, &c. described, pp. 111 & 112) [= *N. raphanus*, Howard, Zool. Rec. ix. p. 409, according to the author, who states that Howard wishes to sink his own name; an impossibility after publication. Riley suggests that it and *N. angustatus*, Uhler, will possibly prove identical with the European *N. thymi*].

Ischnodemus bacillus, sp. n., Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2, p. 409, pl. xvii. fig. 2, Moschi and See Jipe.

Lygæus amœnulus and *nasalis*, spp. nn., *id. l. c.* p. 411, Wanga.
Astacops mutilatus, sp. n., *id. l. c.* p. 412, pl. xvii. fig. 3, Mombas.
Ophthalmicus timidus, sp. n., Puton, *l. c.* p. 16, Biskra.
Proderus amabilis, sp. n., *id. l. c.* p. 17, Biskra.

ANTHOCORIDÆ.

Scoloposcelis crassipes, Flor, *rogeri*, Baer., = *pulchella*, Zett.; Puton, *l. c.* p. 23.

Lyctocoris domesticus and *Triphleps insidiosus*, from North Carolina: observations on synonymy, &c., by P. R. Uhler, P. Bost. Soc. xiv. p. 106.

Cacodmus, g. n., Stål, *l. c.* pp. 103 & 104, for *Acanthia villosa*, St.

Æciacus, g. n., *id. l. c.* p. 104, for *Acanthia hirundinis*, Jen.

CAPSIDÆ.

Myiomma feberi, Put., figured, pl. i. figs. 3-3g; *Isometopus alienus*, Fieb., fig. 4, *I. intrusus*, H. S., fig. 5, p. 20; *Calocoris lethierryi*, Fieb., = *Megacelum infusum*, H. S., p. 23; *C. femoralis*, Luc., = *fulvimaculatus*, De G.; *C. tetraphlyctis*, Garb., *schmidtii*, Fieb., = *bimaculatus*, Hoff.; *Lopus lineolatus*, Brullé, *miles*, D. & S., *fulvimarginatus*, Don., = *mat. Rossi*, var.; *Capsus fairmairii*, Sign., = *Bothynotus minki*, Fieb., = *B. pilosus*, Boh.; *Cyphodema meyerduri*, Fieb., = *instabile*, Luc.; *Lygus putoni*, M. D., = *apicalis*, Fieb.; *Ætorhinus kirschbaumi*, Flor, = *bilineatus*, Fall.; *Orthocephalus minutus* and ? *rugicollis*, Luc., = *minor*, Costa, ♂; *Tytthus pellucens*, Boh., = *pygmaeus*, Z.; *Orthotylus pallidus*, M. D., = *Plagiognathus infuscatus*, Fieb., p. 24; *Malacocoris albipunctatus*, Garb., = *Macrotylus luniger*, Fieb.; *Agalliastes artemisiæ*, Becker, and *tibialis*, Fieb., = *albipennis*, Fall., varr.; *A. meyeri*, Fieb., = *obscurellus*, Fall., p. 25; Puton, Ann. Soc. Ent. Fr. (5) iii.

O. M. Reuter, Nott. Fenn. xiv. (1873, sep. copy, pp. 1-25), gives the following synonymy, &c.:—*Myrmecophyes oschanini*, Fieb., *tricondyloides*, Osch., = *Diplacus albo-ornatus*, Stål; *Teratocoris flori*, J. Sahlb., = *sandersi*, D. & S.; *Phytocoris falleni*, Hahn, = *Camptobrochis punctulatus*, Fall.; *C. punctulatus*, Mey., Fieb., = *lutescens*, Schill.; *Phytocoris populi*, Zett., and ? *Capsus minor*, Thoms., = *P. crassipes*, Flor; *Capsus bifasciatus*, F. Sahlb., Kirschb., Flor, *nec F.*, = *Closterotomus variegatus*, Costa; *Capsus scutellaris*, Thoms., pt., = *Deræocoris morio*, Boh.; *Capsus punctatus*, F. Sahlb., = *P. punctatus*, Zett., = *Lygus pratensis*, L.; *L. rufescens*, Hahn, is not *rubricatus*, Fall., as Fieber opined; *L. sulcifrons*, D. & S., = *contaminatus*, Fall., Fieb., *nec Kirschb.*, Flor, Thoms.; *Capsus sulcifrons*, Thoms., = *L. contaminatus*, D. & S., = *commutatus*, Fieb., = *L. viridis*, Fall.; *C. contaminatus*, Kirschb., Flor, Thoms., = *pabulinus*, F. Sahlb., = *L. lucorum*, Mey., Fieb., *nec Boh.*, Thoms., which = *Orthops cervinus*, Mey., Fieb.; *Globiceps flavinotatus*, auctt., = *flavimaculatus*, Wolff, = *flaviquadrinaculatus*, Deg.; *G. flavimaculatus*, auctt., *nec W.*, = *fulvipes*, Scop.; *Capsus dubius*, Zett., = *Mecomma ambulans*, Fall., immature, and *C. nigrutilus*, Zett., is a macropterous ♀ of the same species; *Cytorhinus elegantulus*, Mey., Fieb., = *caricis*, Fall.,

Kirschb., Thoms., *nec* Hahn; *Capsus pellucens*, Boh., = *Cytorhinus pygmaeus*, Zett.; *Capsus diaphanus*, Kirschb., *nec* Fieb., = *Orthotylus tenellus*, Fall., *nec* Hahn; *Conostethus griseus*, D. & S., = *salinus*, J. Sahlb.; *Capsus pinetellus*, Thoms., *nec* Zett., Kirschb., = *Brachyarthrum nigriceps*, Boh.; *Capsus betulae*, Kb., = *Apocremnus betuleti*, Fall., and synonymy of *A. ambiguus*, Fall., is fully discussed. *Psallus obscurellus*, Fall., and *Agalliastes impurus*, Boh., re-characterized, p. 22.

Oncotylus tanaceti, D. & S., *nec* Fall., = *Macrocoleus sordidus*, D. & S., *nec* Kbm., = *Tinicephalus hortulanus*, Fieb., *nec* Mey.; E. Saunders, Ent. M. M. x. p. 92. This opinion contradicted; J. Scott, *l. c.* p. 119. E. Saunders replies, *l. c.* p. 165.

Phytocoris (Lygus) 4-vittatus, Say (= *lineatus*, F.): habits described by W. Le Baron, Rep. Ins. Illin. i. (1871) p. 61. See also A. Fitch, Rep. Ins. N. York, xiii., in Tr. N. York Agric. Soc. 1869, p. 513 *et seq.*

Loxops coccineus, Mey., in Britain: J. Scott, Ent. M. M. x. pp. 63 & 72. On its habits, J. W. Douglas, *ibid.*

Trichymenus, g. n., O. M. Reuter, *l. c.* p. 7. Allied to *Dereocoris*, Kirschb. Type, *Capsus fairmairii*, Sign., = *Phytocoris pilosus*, Boh.

Lopus partilus (partitus), p. 198, p. 56, New Guinea, *australis* and *sordidus*, p. 57, Australia, Walker, Cat. Hem. Brit. Mus. pt. vi. spp. nn.

Capsus xanthomelas and *incisus*, p. 92, *coccineus*, p. 93, E. Florida, *limbatellus*, New York, *obscurellus*, Hudson's Bay, p. 93, *strigulatus*, Canada, *frontifer*, N. America, *pallescens*, Hudson's Bay, p. 94, *hirsutulus*, Lake Huron, *contiguus*, New York, p. 95, *stramineus*, Nova Scotia, *flicicornis*, E. Florida, *marginatus*, New York, p. 96, *floridanus*, p. 97, E. Florida, *scitulus*, p. 99, *opacus*, *decoratus*, *bicinctus*, p. 100, Mexico, *jamaicensis*, p. 101, Jamaica, *basalis*, p. 108, *tibialis*, *atrilineatus*, *cinctipes*, p. 109, *xanthophilus*, *squalidus*, p. 110, *incertus*, *obumbratus*, *alternus*, *leprosus*, p. 111, S. America, *spoliatus*, *nigritulus*, p. 112, 4-notatus and var., p. 113, Galapagos, *sobrius*, p. 115, *sericeus*, p. 117, Sierra Leone, *illepidus*, *ibid.*, *solitus*, *pallidulus*, *conspersus*, *innotatus*, p. 116, *suffusus*, *limbatus*, (re-named *limbifer*, p. 199), p. 117, S. Africa, *semiclusus*, p. 118, *subirroratus*, p. 119, *incisuratus*, p. 121, Ceylon, *partitus*, p. 119, N. Hindostan, *stramineus (pallidifer)*, p. 129, N. Bengal, *patulus*, N. Hindostan, *sinicus*, Hong Kong, p. 120, *vicarius*, Siam, *canescens*, Malacca, p. 121, *fasciatus*, Singapore, *lineifer* and *discoidalis*, Malacca, p. 122, *apicifer*, Celebes, *lucidus*, Sarawak, p. 124, *simulans (dissimulans)*, p. 199, Singapore, *tristis (lugens)*, p. 199, New Guinea, p. 125, *angulifer*, *pictulifer*, p. 126, *intaminatus*, p. 127, Australia, *laticinctus*, p. 127, *ustulatus*, p. 128, New Zealand, *marginicollis*, p. 128, locality unknown; *id. l. c.* spp. nn.

Leptomerocoris simplex, Ceylon, *antennatus*, Australia, p. 145, *maoricus*, p. 146, New Zealand, *id. l. c.* spp. nn.

Monalocoris bipunctipennis, sp. n., *id. l. c.* p. 159, Ceylon.

Monalonium braconoides and *ichneumonoides*, Amazons, *humerales*, Malacca, p. 162, *politum*, Sarawak, *divisum*, Ternate, p. 163, *id. l. c.* spp. nn.

Eucrocoris braconoides and *basifer*, *id. l. c.* p. 164, Australia, spp. nn.

Helopeltis niger, Waigiou, *braconiformis*, New Guinea, *id. l. c.* p. 165, spp. nn.

TINGIDÆ.

Stål, *l. c.*, characterizes the following new genera and species:—

Ceratinoderma, p. 117. Allied to *Serenthia*; for *C. fornicata*, *ibid.*, Caffraria.

Corythuca, pp. 119 & 122, for *Acanthia gossypii*, F., *Tingis fuscigera*, St., and 7 other known spp. of *Tingis*.

Stephanitis, pp. 119 & 123, for *Tingis pyri*, Geoffr., *T. oberti*, Kol., and *T. mitrata*, St.

Leptobyrsa, *ibid.*, for *T. steini*, St.

Lepturga, pp. 119 & 124, for *L. nigritarsis*, p. 124, Australia.

Leptostyla, pp. 120 & 125, for *Tingis oblonga*, Say, and *L. vittipennis*, *furcata*, and *hyaloptera*, p. 126, Rio Janeiro.

Leptopharsa, pp. 122 & 126, for *Monanthia marginella*, St., and *L. elegantula*, p. 126, Bogota.

Leptodictya, pp. 121 & 127, *Monanthia ochropa*, St., and 4 other known species.

Leptocysta, pp. 122 & 127, for *Tingis 6-nebulosa*, St.

Corythaica, pp. 120 & 128, for *T. monacha*, St.

Spherozystia, *ibid.*, for *T. ? inflata* and *globifera*, St.

Coscinopeea, p. 128, sub-g. of *Catoplatys*, for *Monanthia eryngii*, Latr., and *albida*, H. S.

Amblystira, pp. 120 & 129, for *Monanthia pallipes*, St.

Leptoyptha, pp. 121 & 129, for *Tingis mutica*, Say.

Oncophysa, *ibid.*, for *Monanthia vesiculata*, St.

Cysteochila, *ibid.*, for *M. ? tinguoides*, Mots., *M. sordida*, St., and *C. caffra*, p. 129, Caffraria.

Oncochila, p. 121, for *Monanthia scapularis*, Fieb.

Lasiacantha, p. 130, sub-g. n. of *Tingis*; for *T. (L.) odontostoma*, Sierra Leone, and *hedenborgi*, Cyprus, *ibid.*

Melanorhopala, *ibid.*, sub-g. n. of *Tingis*, for *T. (M.) clavata*, *ibid.*, *lurida* and *uniformis*, p. 131, N. America.

Americia, p. 131, sub-g. n. of *Tingis*, for *Lacometopus albilaterus*, St., and *T. (A.) limbata*, *ibid.*, Bogota.

Eurypharsa, pp. 122 & 123, for *Tingis nobilis*, Guér.

Compseuta, p. 133, sub-g. n. of *Monanthia*, for *M. ornatella* and *natalensis*, St., & *M. (C.) femoralis*, *ibid.*, Caffraria.

Cochlochila, *ibid.*, sub-g. n. of *Monanthia*, for *M. (C.) bullita*, *ibid.*, no locality mentioned.

Cantacader afzeli, p. 116, Sierra Leone.

Acalypta thomsoni, p. 122, S. Carolina.

Gargaphia obliqua, p. 124, Rio Janeiro, *fasciata*, Illinois, *trichoptera* and *nigrinervis*, Bogota, p. 125.

Catoplatys australicus, p. 128, Australia.

Teleonemia aterrima, p. 131, *validicornis*, *scrupulosa*, p. 132, Bogota, *belfragii*, p. 132, Texas.

Phyllotingis, g. n., Walker, Cat. Hem. Brit. Mus. pt. vii. p. 3. *P. arida*, sp. n., *id. ibid.*, Ega.

Dictyonota cingalensis, sp. n., *id. op. cit.* pt. vi. p. 178, Ceylon.

Tingis erosa, p. 181, *alicollis*, p. 182, Hindostan, *globulifera*, p. 182, Madras, *id. l. c.* spp. nn.

Monanthia lucida, p. 191, Vera Cruz, *lanceolata* and *lineifera*, p. 194, Brazil, *invaria*, New Guinea, *monticollis*, Sarawak, p. 196, *gibbifera*, p. 197, Australia, *id. l. c.*; *M. (Tropidochila) olivieri*, Puton, Ann. Soc. Ent. Fr. (5) iii. p. 18, Bone : spp. nn.

ARADIDÆ.

Aradus flavimaculatus, Luc., re-described, Corsica : Puton, *l. c.* p. 19.

Mezira mæsta, Stål, var. from N. America, Walker, *l. c.* vii. p. 23.

Quilnus, sub-g. n. of *Aradus*, Stål, *l. c.* p. 137. *A. (Q.) niger*, S. Carolina, and *parvicollis*, Cyprus, *id. l. c.* spp. nn.

Proxius, g. n., *id. l. c.* pp. 139 & 141, for *P. incrustatus*, sp. n., p. 141, Rio Janeiro.

Barcinus, g. n., *id. l. c.* pp. 140 & 142, for *B. horridus*, sp. n., p. 142, Malacca.

Illibius, g. n., *id. l. c.* pp. 140 & 143, for *I. laticeps*, sp. n., p. 143, Bogota.

Pictinus, g. n., *id. l. c.* pp. 140 & 145, for *P. cinctipes*, sp. n., p. 145, Bogota.

Crimia cincticornis, p. 11, Para, *C. ? marginalis*, Columbia, *simulans*, Brazil, p. 12, *C. verrucicollis*, p. 13, *lateralis*, p. 14, Ceylon, *rubrescens*, p. 14, Hindostan, Ceylon, Siam, New Guinea, Australia, *armata*, p. 15, Sumatra, *laminifera*, p. 16, *polyacantha*, *doreica*, p. 17, *parviceps*, p. 19, *bispiniceps*, p. 20, *microcera*, p. 21, New Guinea, *basalis*, Celebes, *varia*, Gilolo, p. 18, *parallela*, p. 19, Sarawak, *pallescens*, p. 20, Aru, *australis*, Australia, *attenuata*, New Zealand, p. 22, Walker, *op. cit.* vii. spp. nn.

Mezira cimicoides, p. 24, *subfasciata*, p. 25, Sierra Leone, *humilis*, *tricolor*, p. 26, New Guinea, *ferrea*, Sarawak, *subfurcata*, Aru, p. 27, *proxima*, *leucotelus*, *albicornis*, p. 28, Australia, *maorica*, p. 29, New Zealand, *id. l. c.* spp. nn.

Aradus proboscideus, p. 35, *caliginosus*, *fascicornis*, *fenestratus*, p. 36, N. America, *pubescens*, p. 38, Para, *truncatus*, Penang, and var. ?, Sarawak, p. 39, *id. l. c.*; *A. robustus*, Uhler, P. Bost. Soc. xiv. p. 104, New England; *A. cedri*, Puton, *l. c.* p. 20, Batna; *A. pallidicornis* and *gracilicornis*, Cuba, *compressicornis*, Bogota, Stål, *l. c.* p. 136 : spp. nn.

Isodermus vacillans, sp. n., Walker, *op. cit.* vii. p. 42, Tasmania.

Carventus denticollis, sp. n., Stål, *l. c.* p. 140, Mysol.

Artabanus sinuatus, sp. n., *id. l. c.* p. 141, New Guinea.

Hesus subarmatus, sp. n., *id. l. c.* p. 142, Surinam.

Artagerus setosus, sp. n., *id. ibid.*, Columbia.

Brachyrhynchus punctiventris, Bogota, *abdominalis*, Cuba, *id. l. c.* p. 144; *B. fulvicornis*, Walker, *l. c.* p. 11, Ceram : spp. nn.

Aneurys inconstans and *simplex*, Uhler, *l. c.* p. 14, New England; *A. septentrionalis*, Walker, *l. c.* p. 30, N. America; *A. australicus*, Stål, *l. c.* p. 146, N. Australia : spp. nn.

REDUVIIDÆ.

E. Mulsant & C. Rey, Ann. Soc. L. Lyon (n. s.) xx. pp. 65-166, revise the French species of *Reduviides*, figuring (pl. i.) *Harpactor erythropus*, *Oncocephalus notatus*, *Oreada denudata*, *Holotrichius cyrilli*, *Pygolampis bidentata*, *Acanthothorax siculus*, *Reduvius personatus*, *Pirates hybridus*, *Prostemma guttula*, and *Nabis aptera*, figs. 1-10, *N. viridula*, pl. ii. fig. 11. The same authors, l. c. pp. 167-184, revise the French species of *Emesides*, figuring *Emesodema domesticum* and *Plæaria vagabunda*, pl. ii. figs. 13 & 14. These two articles form together a part (unnumbered; but really the 4th) of the authors' "Histoire naturelle des Punaises de France: Réduvidés—Émesides." Paris: December, 1873; separate pagination.

Pygolampis pectoralis, Say, *Emesa longipes*, Deg., and *Plæaria errabunda*, Say, from New England; observations on synonymy, &c., by P. R. Uhler, P. Bost. Soc. xiv. p. 107.

Reduvius raptatorius can inflict a severe wound on the hand; R. V. Rogers, Canad. Ent. v. p. 155.

Nabis canadensis, Provancher, = *coleoptratus*, K.; A. S. Packard, Rec. Am. Ent. 1873, p. 101.

Coranus subapterus, Deg., stridulates by rubbing the apex of its rostrum across very fine striations of the cavity of the prosternum; O. M. Reuter, MT. schw. ent. Ges. iv. p. 159.

Nabis pallidus, Eversm., *ex. typ.*, = *viridulus*, Spin.; Puton, Ann. Soc. Ent. Fr. (5) iii. p. 25.

Lestomerus affinis, Serv., Hindostan, vii. p. 91, *Pirates scutellaris*, F., Santarem, p. 102, *P. morio*, Er., p. 104, *Prostemma carduele*, Dohrn, Hindostan, p. 137, *Spiniger amazonus*, St., p. 158, Amazons, and *Oncocephalus desiccatus*, Serv., Ega, viii. p. 24; F. Walker, Cat. Hem. Brit. Mus., describes, without naming, forms of these species, queried as varieties, from the localities mentioned.

Walker, *op. cit.* vii., describes the following new genus and species:—

Stenopirates, p. 139. Distinguished from *Pirates* and *Prostemma* by its filiform antennæ and long neck. *S. collaris*, N. Hindostan, and *anthocoroides*, Sierra Leone, *ibid.*

Mastys viverra and *melanospilus*, Hindostan, *venosus*, Singapore, *subannulatus*, Java, p. 88, *guttifer*, Sarawak, *simplex*, Java, p. 89.

Lestomerus piceipennis, Java, *femoralis*, China, *diffinis*, Hindostan, p. 93, *flavipes*, N. Hindostan, *diversus*, N. China, p. 94, *formicarius*, p. 94, Burmah.

Pirates semirufus, *mexicanus*, p. 99, Mexico, *degener*, p. 100, St. Domingo, *concisus*, p. 101, Columbia, *dimidiatus* (*digramma*, p. 205), p. 102, Monte Video, *indecisus*, p. 104, S. America, *lepidus*, Para, *biplagiatus*, Brazil, p. 105, *vittifer*, *megaspilus*, p. 106, *hamifer*, p. 107, *minusculus*, p. 108, Columbia, *rufiventris*, p. 107, Santarem, *aneus*, p. 108, Amazon region, *planus*, Gambia, *dimidiatus* (*tripars*, p. 205), Natal, p. 111, *sinensis*, p. 114, *turpis*, p. 120, Hong Kong, *adjunctus*, p. 114, *posticus*, p. 115, *6-maculatus*, *striqifer*, p. 116, *basiger*, p. 117, *decisus*, *instabilis*, p. 118, *latifer*, p. 119,

naboides, p. 121, Hindostan, *inscriptus*, p. 115, Siam, *rufifemur*, p. 119, Ceylon, *diffinis*, N. China, Borneo, *mutilloides*, Silhet, p. 120, *sinicus*, p. 121, N. China, *atrimaculatus*, *caliginosus*, p. 123, *sculpturatus*, p. 125, Java, *concinus*, *interruptus*, p. 124, New Guinea, *sobrius*, *fulvipennis*, *erythromelas*, p. 128, *decorellus*, *glaber*, p. 129, Australia, *contiguus*, 3-notatus, p. 130, locality unknown.

Pachynomus zonatus, p. 131, Gilolo.

Prostemma nigricans, *luteiceps*, *ruficeps*, Amazon region, p. 135, *concinna* [-num], p. 136, *longiceps*, p. 137, Natal, *placens*, p. 137, Hindostan, *nigra* [-rum], *tarsalis* [-le], p. 138, New Guinea.

Nabis elegans, p. 144, Petropolis, *bicolor*, Celebes, *maoricus*, New Zealand, p. 145.

Platymeris fulvinigra, p. 147, E. Africa.

Spiniger leucotelus, *sigillatus*, p. 159, *umbriifer*, *maculifer*, p. 162, *pulchellus*, p. 163, *pardalinus*, p. 164, *naboides*, p. 165, Amazon region, *lutescens*, p. 160, *decoloratus*, p. 164, S. America, *pictus*, p. 160, *basalis*, p. 161, Brazil, *rutilans*, p. 161, Constancia, *bipustulatus*, p. 163, Columbia, *hieroglyphicus*, p. 165, *limbifer*, p. 166, Sarawak, *conficitus*, p. 166, Singapore.

Acanthaspis inæqualis, p. 168, Brazil, *aliena*, p. 171, Natal, 4-notata, *luteipes*, p. 175, *megaspilus*, p. 176, *dubius*, *micrographa*, p. 177, Hindostan, *inornata*, p. 175, Singapore, *pictipes*, p. 176, Ceylon, *spinicollis*, p. 178, Australia.

Reduvius guttatus, p. 181, *signifer*, p. 182, Mexico, *pallescens*, *partitus*, p. 183, *xanthospilus*, p. 184, *plagipennis*, p. 186, Amazons, *lugubris*, p. 183, *signatus*, p. 184, *areolatus*, p. 186, Columbia, *decolor*, S. America, *tenebrosus* (*tenebrifer*, p. 205), Tejuca, p. 185, *crassipes*, p. 186, Petropolis, *semiflavus*, *turpis*, *cruentus*, Natal, *varius*, S. Africa, p. 190, *negamicus*, N'gami, *decisus*, Sierra Leone, p. 191, *curvifer*, p. 192, Cape of Good Hope, *pusillus*, p. 193, Niger, *tenebrosus*, *rivulosus*, p. 194, *biligatus*, *argillaceus*, p. 195, *pyrrhophorus*, *sinensis*, *perpusillus*, p. 196, *divisicollis*, *conspersus*, p. 197, *singularis*, p. 198, various parts of Asia, *annularis*, p. 199, *unifasciatus*, p. 201, *lineatus*, *erythrinus*, Philippine Isles, *subfasciatus*, New Guinea, p. 200, *semifasciatus*, *debilis*, p. 202, Australia, *funereus*, *coleopteroides*, *pubicollis*, p. 203, *incommodus*, p. 204, locality unknown.

The same author, *op. cit.* viii., characterizes as new species :—

Opinus pygmæus, p. 1, Tejuca, *acuticeps*, p. 2, Sierra Leone, *strigifer*, Malacca, *rugicollis*, Ceylon, p. 3, *semicostalis*, Cambodia, *nigripes*, Aru, p. 4.

Tiarodes juncturus, p. 7, locality unknown.

Petalochirus funestus, Siam, *munitus*, Sarawak, p. 9, *singularis*, p. 10, Cambodia.

Conorhinus corticalis, *lignarius*, p. 17, *limosus*, *arenarius*, p. 18, *porrigens*, *diminutus*, p. 19, S. America.

Opistoplatys indicas [sic], p. 20, Hindostan.

Oncocephalus ventralis, p. 24, St. Domingo, *cingalensis*, p. 26, *naboides*, p. 27, Ceylon.

Sastrapada bipunctata, p. 28, *longicollis*, *ibid.*, *filiformis*, p. 29, Amazon region.

Stenopoda hyalinipennis, p. 31, Brazil, *hastata*, p. 32, Hindostan.

Pygolampis innotata, Mauritius, *unicolor*, N. Bengal, p. 36, *concolor*, Hindostan, *macera*, Malacca (and ? ♀, Lombok), p. 37, *australis*, p. 38, Australia.

Ectrichodia diversipes, p. 41, Abyssinia, *marginicollis*, p. 42, *diminuens*, p. 45, Sierra Leone, *pictipes*, p. 45, S. Africa, *discrepans*, p. 46, Ceylon, *porrigens*, p. 47, Philippine Isles, *insignis*, Hindostan, *macrops*, Siam, p. 48, *limbifera*, ? Hindostan, *aliena*, Java, p. 49, *sulica*, Sula, p. 50, *intermedia*, p. 50, *luteicollis*, p. 52, *pyrophila*, p. 55, Sarawak, *ophirica*, Mt. Ophir, *includens*, China, p. 51, *cylindrica*, Celebes, *luteoatra* [!], Malacca, p. 53, *atripennis*, p. 56, *nitidissima*, p. 57, *nigriscutata*, p. 60, *tibialis*, p. 62, Amazon region, *fervida*, p. 57, Oojaca, *venusta*, p. 58, Pernambuco, *granulata*, p. 58, *geniculosa*, p. 59, Cuenca, *pallitarsis*, p. 59, locality unknown, *media*, p. 62, New Orleans.

Pothea centralis, p. 63, *reciproca*, p. 64, S. America.

Apiomerus bipunctatus, *nitidus*, *erythromelas*, p. 70, *xanthophilus*, *lituretus*, *lateralis*, *decorus*, p. 71, *pulchripes*, *tarsalis*, *subapicalis*, Amazon region.

Prionotus patulus, p. 76, Guatemala, *mundus*, Venezuela, *xanthopus*, Amazon region, p. 77.

Yolinus rubifer, Celebes, *albigutta*, Cambodia, p. 78, *horrendus*, Sarawak, *siamicus*, Siam, p. 79.

Sycanus angulifer, Sarawak, *incisus*, Celebes, *leucomesus*, Burmah, p. 84, *marginatus*, Timor, *pyrrhomelas*, Hindostan, *semimarginatus*, Silhet, p. 85, *miles*, Penang, *turbidus*, Sarawak, *caliginosus*, Philippine Isles, p. 86, *invisus*, p. 87, Java.

Pristhesancus albipennis, p. 88, Waigiou, *plagipennis*, *ibid.*, *luteicollis*, p. 89, Australia.

Helonotus genualis, Aru, *pallidulus*, Cuenca, p. 90.

Stål, *l. c.*, characterizes the following new genera and species of his family *Nabidae* :—

Punctius, subg. of *Pachynomus*, p. 107, for *Pach. alutaceus* and *biguttatus*, St.

Pæcilta, subg. of *Nabis* (as restricted by the author), p. 108, for *Metastemma perpulchrum*, St., *Prostemma carduele*, Dohrn, and *N. (P.) fasciata*, *ibid.*, Philippine Isles.

Psilistus, pp. 107 & 109, for *P. corallinus*, p. 109, Borneo.

Aspilaspis, subg. of *Coriscus* (Schrank, = *Nabis*, auctt.), p. 114, for *C. viridulus*, Spin.

Scotomedes, *ibid.*, for *S. atra*, *ibid.*, Sumatra.

Pagasa ænescens, Minas Geraes, *pallipes*, Texas, *nitida*, Wisconsin, p. 108

Allæorhynchus vittativentris, p. 109, New Granada, Bogota.

Phorticus collaris, p. 109, Texas.

Arbela costalis, p. 111, Ovalau.

Metatropi[do]phorus, g. n., Reuter, *Øfv. Ak. Förh.* xxix. (1872) No. 6, p. 93. *M. belfragii*, sp. n., *id. l. c.* p. 94, Texas.

Nabis crassipes, Mexico, *sericans*, Texas, p. 83, *sordidus*, Mexico, *pallescens*, N. America, p. 85, *annulatus*, p. 86, *vicarius*, p. 87, Illinois, *propinquus*, p. 87, *roseipennis* and *punctipes*, p. 89, *kalmi*, p. 91, Wisconsin, *parvulus*, Valparaiso, *kimbergi*, S. America and Australia, p. 90, *punctipennis*, Chili, *rufusculus*, N. America; *id. l. c.* spp. nn.

Pantoleistes basalis, sp. n., Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2, p. 417, pl. xvii. fig. 2, Endara.

Ectrichodia carnifex, sp. n., *id. l. c.* p. 418, pl. xvii. fig. 7, Mombas.

Platymeris rhadamanthus, sp. n., *id. l. c.* p. 419, pl. xvii. fig. 8, Ugono Mountains and Endara.

Oncocephalus lyra, sp. n., *id. l. c.* p. 421, Mombas.

Harpactor perrisi, sp. n., Mulsant & Rey, Ann. Soc. L. Lyon (n. s.) xx. p. 77, Bone.

Coranus revellieri, sp. n., *id. l. c.* p. 90, Corsica.

Pirates ambiguus, sp. n., *id. l. c.* p. 123, S. France.

Prostemma fuscipennis [-ne], sp. n., *id. l. c.* p. 131, S. France.

Emesa mantiformis, sp. n., *id. l. c.* p. 169, pl. ii. fig. 12, ? Languedoc.

SALDIDÆ.

"*Acanthia*" *coxalis*, sp. n., Stål, *l. c.* p. 149, Cuba.

HYDROMETRIDÆ.

Metrobates, g. n., P. R. Uhler, P. Bost. Soc. xiv. p. 108. Type, *M. hesperius*, sp. n., *id. l. c.* p. 109, U. S. America and W. Indies.

Rhagovelia obesa, sp. n., *id. l. c.* p. 107, U. S. America.

NEPIDÆ.

Appasus procerus, sp. n., Gerstäcker, in V. d. Decken's Reisen, iii. pt. 2, p. 422, Mombas.

Laccotrephes brachialis, sp. n., *id. ibid.*, See Jipe.

NOTONECTIDÆ.

Enithares cincta, sp. n., Gerstäcker, *l. c.*, p. 424, Mombas.

Anisops pellucens, p. 424, *debilis*, p. 425, spp. nn., *id. l. c.*, Mombas.

CORIXIDÆ.

Corixa. The male has a 'strigil' or 'strigiliform process,' situate on the posterior margin of the upper side of the 6th segment of the abdomen, and consisting of a chitinous plate attached to a short pedicle, provided with rows of closely-set teeth. This structure is described in 20 British species. An analytical key to the British genera and species of the family is given, with an account of their economy so far as known. F. Buchanan White, Ent. M. M. x. pp. 60-63, 75-80.

Corixa levis, Thoms., *salina*, Put., = *stali*, Fieb.; Puton, Ann. Soc. Ent. Fr. (5) iii. p. 25.

Callicorixa, subg. n. of *Corixa*, F. B. White, *l. c.* pp. 62 & 75. Distin-

guished from the type by having no strigil, and the posterior metatarsus being more or less conspicuously marked with black. *Corixa præusta* and *concinna*, Fieb., *socia*, *boldi*, *wollastoni*, *sodalis*, and *cognata*, D. & S.

Orinocorixa, subg. n. of *Corixa*, id. l. c. pp. 63 & 75. Head, with eyes, wider than pronotum, which is impressed with transverse lines; a strigil in male (? = *Glenocorisa*, Thoms.). *Corixa alpestris*, D. & S.

Sigara hydroporina, sp. n., Gerstäcker, l. c. p. 425, Mombas.

HEMIPTERA-HOMOPTERA.

On waxy exudations of *Homoptera*: F. Walker, Ent. vi. p. 456. Honeydew is not produced by *Aphides*: J. D. Hooker, Gardener's Chronicle, July 19, 1873; cf. F. Walker, Ent. vi. p. 502. H. Doubleday, *op. cit.* p. 548, thinks Boissier de Sauvage's opinion correct that there are two kinds of exudation, one caused by *Aphides*, the other by plants. Cf. Boussingault, C. R. lxxiv. pp. 87-90, and abstract and note by W. T. Thiselton Dyer, J. Hort. Soc. (n. s.) iv. pt. 13, pp. 1-7.

Egg-punctures of *Ceresa bubalus*, F., and *Paciloptera pruinosa*, Say, described, and both species figured with details; C. V. Riley, Rep. Ins. Mo. v. pp. 121 & 122, figs. 50-55.

On the connection of *Tettigometra*, *Cercopis*, *Membracis*, and *Fulgora* with ants: É. Perris, Pet. Nouv. 1873, p. 336.

CICADIDÆ.

Zygina ericetorum, J. Sahlb., = *rubrivittata*, Leth.; Puton, Ann. Soc. Ent. Fr. (5) iii. p. 25.

Cicada septemdecim, L.; recurrence and injuries to trees noted by A. S. Packard, Am. Nat. vii. p. 537.

CERCOPIDÆ.

Cercopis cardinalis, sp. n., Gerstäcker, l. c. p. 432, pl. xvii. fig. 10, Endara.

Selinocephalus compactus, sp. n., id. l. c. p. 433, pl. xvii. fig. 11, Endara.

CENTROTIDÆ.

Centrotus fenestratus, p. 429, Endara, *pacificus*, p. 430, Mombas, spp. nn., Gerstäcker, l. c.

Coloborrhis perspicillaris, sp. n., id. l. c. p. 431, See Jipe.

IASSIDÆ.

Acocephalus interruptus, Fieb., and *polystolus*, Fieb., re-described from Britain; synonymy of British species of the genus amended; *A. arenicola*, Msh., = *albifrons*, L., var.: J. Scott, Ent. M. M. ix. pp. 264-266.

J. Scott, *op. cit.* x. pp. 22-29, 80-82, 126-131, describes the British species. *Idiocerus confusus*, Flor, *fulgidus*, Fab., *h-album*, Fieb., *Bythoscopus alni*, Schr., *Pediopsis cereus* and *tiliæ*, Germ., *fuscinervis* and *impurus*, Boh., new to Britain.

Athysanus canescens, p. 210, England, *cognatus*, p. 211, Gt. Britain, spp. nn., J. W. Douglas & J. Scott, *op. cit.* ix.

Pediopsis ulmi, sp. n., J. Scott, *op. cit.* x. p. 129, England.

FULGORIDÆ.

Pyrgoteles, g. n., Gerstäcker, *l. c.* p. 428. Differs from *Aphæna*, Guér., and *Belbina*, St., in its head being much narrower than the prothorax, and armed with an elevated slightly recurved process, which is compressed towards the apex; and from *Prolepta*, Walk., in its carinate and more strongly lobed prothorax, &c. Type, *Enchophora sicca*, Walk.

Pyrops pustulosus, sp. n., *id. l. c.* p. 427, pl. xvii. fig. 9, See Jipe.

Liburnia emulato[r]-[trix], p. 238, *consanguinea*, p. 239, England, J. Scott, Ent. M. M. ix.; *L. marshalli*, p. 104, *lethierrii*, p. 105, Corsica, *guaramanensis*, p. 106, Andalusia, *scutellata*, p. 107, England; *id. op. cit.* x.: spp. nn.

PSYLLIDÆ.

Trioza flavipennis, Först.: metamorphosis and economy in connection with *Hieracium pilosella* and *H. pratense*. F. Löw, Verh. z.-b. Wien, xxiii. pp. 141-143, pl. ii. c, figs. 7 & 8.

Psylla delarbræi, sp. n., Puton, Ann. Soc. Ent. Fr. (5) iii. p. 21, Lioran (Cantal).

APHIDIDÆ.

Aphis. On the simultaneous occurrence of winged and apterous individuals; T. G. Gentry, Canad. Ent. v. pp. 121-123; F. Walker, *op. cit.* p. 172.

Aphis: etymology discussed, W. W. Spicer, Nature, viii. p. 103.

Aphis and *Formica*: on their association in America, cf. T. G. Gentry, *l. c.* p. 207.

Aphis circeandis, sp. n., A. Fitch, "13th Report on the Insects of the State of New York, Agricult. Society for 1869" (Rec. Am. Ent. for 1871).

Phylloxera vastatrix.

T. E. PLANCHON and J. LICHTENSTEIN have published "Le Phylloxera de 1854 à 1873; Résumé pratique et scientifique," Montpellier: 1875, figs.

Max. Cornu commences a treatise, "Études sur la nouvelle maladie de la vigne," in No. 6, vol. xxii. of the "Mémoires présentés par divers savants à l'Académie des Sciences," Paris: 1873, pls.

'Rapports' have also appeared by Nourrigat, in the publications of the Association viticole du Canton de Lunel; by Charvat and others, Société d'Agriculture de la Drôme; by Trimoulet & De Vitton, in No. 261 (25 May, 1873) of Journ. d'Agric. et d'hortic. de la Gironde, and by Trimoulet, in Bull. Soc. L. Bord. 1873.

"Papers respecting the *Phylloxera vastatrix* or new vine-scurge," by Sir C. Murray, Dr. Hooker, and various French authorities; P. Z. S. Vict., 1873, pp. 289-323. Also referred to in Nature, vii. (1872) p. 131.

G. Jäger's observations in "Wochenblatt für Land- und Forstwirtschaft" reproduced, *Das Ausland*, xliii. (1870) p. 120: *cf.* also *op. cit.* p. 405.

Frauenfeld, *Verh. z.-b. Wien*, xxiii. pp. 1-6, gives G. Pouchet's observations on the economy of the insect (from the "Siècle," Sept. 29, 1872), which, however, appear to throw no fresh light on the subject.

C. V. Riley, *Rep. Ins. Mo. v.* pp. 57-73, reviews the experience of the past year, and does not alter any of his views.

Planchon, *C. R.* lxxvii. p. 871, gives the results of his American journey. An *Acarus* pursues the *Phylloxera* below the surface of the ground.

J. Lichtenstein, *op. cit.* p. 342 *et seq.*, gives a general summary of our knowledge of the economy of this insect. The American and European species are identical, as are the leaf and root insects. The insect is very agile in all stages; it becomes winged in the middle of June, and there are two different schemes of neuration, and two forms of the pupa. The number of moults, coupling (if any), and period of depositing the eggs are unknown.

M. Cornu, *op. cit.* pp. 656-663, states that winged individuals are more common than is generally supposed; they certainly fly, and propagate the species, and it is doubtful whether the various agents employed do not drive them out, and so further spread the evil.

Signoret, *op. cit.* pp. 343-346, considers Lichtenstein wrong in only ascribing 10 days as the period in which maturity can be reached: a year is required for perfecting each individual, which is polymorphous, and undergoes 6 moults or 10 periods. Three stages were observed in leaf galls, after which the insect went to the roots, where all the stages have been observed. Most of these statements are repeated by the author in *Bull. Soc. Ent. Fr.* (5) iii. p. cxxxix. Lichtenstein, in reply, cites a case of development in 9 days.

Cornu, *C. R.* lxxvii. pp. 710-714, thinks Signoret exaggerates the polymorphism; the maternal and tubercular types, identical in the early stage, are not so different in the adult as the later stages.

Lichtenstein, *Bull. Soc. Ent. Fr.* (5) iii. p. clxiii., re-affirms the correctness of his statement as to the short period of evolution, giving instances observed by himself. Signoret, p. clxv., refuses to be convinced. Further disputations, *l. c.* pp. ccxxxv. & ccxxxvi.

The first insects of the season appear about the third week in April; p. 766. Fully developed individuals, very small in size, were observed at mid-day on 14th June, on the surface of the ground; p. 1464. L. Faucon, *C. R.* lxxvi.

Transformations noted by Cornu, *op. cit.* p. 947. The same author, *C. R.* lxxvii., in a series of remarks upon the economy, &c., of this insect, states that the root and leaf species are identical (p. 190), that the insect voluntarily falls from the leaves to the ground, and that leaf-galls are rare in French vineyards, the leaves offering little nourishment (pp. 825-830). The production of leaf galls is discussed, pp. 879-883, and of root swellings, pp. 930-934, 1009-1015, 1088-1093, & 1168-1175 (whatever the vine, the swellings are alike). A sexual individual was found just changing; it had no sucker, and came from a batch of winged specimens (p. 1015). The apterous form moults three times, both in

galls and roots, at from 3 to 5 days interval (pp. 1276–1286). The pupa has 68 tubercles, and other particulars of that state are given (pp. 1330–1336). Hybernation of the root and leaf forms is discussed (pp. 1423–1430); the latter, after falling to the ground, does not at once develop, but waits for the early warmth of the next year. A comparative examination is made of the young of both forms, of hibernating and sexual individuals. Those hibernating have no modifications of organization; and the winter is a bad time for destructive agents, as the absorbing functions are suspended. Sexual individuals are not the young, but constitute a special form, differing from the produce of eggs of the ordinary apterous form, not only externally but internally (p. 1478 *et seq.*). The agility of hibernating individuals is discussed; their resuscitation can be produced artificially. They do not necessarily revive with reviving vegetation; but revive earlier and multiply quicker in light soils and warm districts, and the plague therefore increases towards the south. The best time for their destruction is when *they* revive, and the plants are still dormant.

Signoret, Bull. Soc. Ent. Fr. (5) iii. pp. lxxviii.–lxxxiii., denies the discovery of the ♂, either in France or America, and remains of opinion that the *Phylloxera* is neither the cause nor the effect of the disease of the vine. All the elaborate experiments and suggestions of remedies by careful observers are, according to him, founded on misconception. Giraud, *l. c.* p. lxxxiii., considers, with him, that the arrest of sap-circulation has much to do with the disease. Cf. Gallois, Bull. Soc. Angers, ii. (1872) p. 86, on the question of the insect being cause or effect of the disease; also Monier & Dupont, who adopt Signoret's view, and Lambot-Miraval, who opposes it: Bull. Soc. Hort. Var. (7) i. No. 3.

Lichtenstein, Bull. Soc. Ent. Fr. (5) iii. p. cxxi., replies to Signoret, affirming that the insect is the cause of the disease, and that there are winged males, winged and apterous females, and perhaps a full grown apterous form.

Guérin-Méneville, R. Z. (3) i. p. 415, and C. R. lxxvii. p. 929, reiterates his conviction that the insect is not the cause but the consequence of the disease, and in this he is followed by Marès (a good abstract of the latter paper in R. Z. *t. c.* p. ii.). The best conditions of growth are accompanied by the best conditions for resisting the *Phylloxera*; bad growth and deteriorating causes aggravate its effects. Méneville's opinion is strongly contradicted by De Malegnane, C. R. lxxvii. p. 1015; and by Cornu, *op. cit.* p. 1093.

H. Marès, *op. cit.* pp. 1408–1411, discusses the propagation of the insect. Its great multiplication is the effect of general causes simultaneously acting at various points. Vines should be better tended and strengthened. According to Faucon, *op. cit.* p. 1175, all manures and cultivators' methods are useless as preventives.

On varieties of vines affected: Cornu, C. R. lxxvii. pp. 766–770.

The insect is excessively rare in some districts supposed to be infected: Signoret, Bull. Soc. Ent. Fr. (5) iii. p. cxxxix. V. Mayet, *l. c.* pp. cxl. & clxxi., in denial of this statement, refers to personal experience of the injuries done in these districts.

Planchon and Lichtenstein, C.R. lxxvii. pp. 461-463, state that migrations occur both on the surface and below, from root to root. Coulomb, *op. cit.* p. 346, records the progress towards the South, and Milne-Edwards, *op. cit.* p. 572, notes its extension to Cognac.

M. Dunn, J. Hort. Soc. (n. s.) iv. pt. 13, pp. 49 & 50, states that the insect never lives more than 48 hours when isolated from the vine, and that it will touch no other plant.

A somewhat comical view of this grave question is afforded by 'M. Mollière,' and 'M. Jourdan,' who inquire seriously whether it is quite certain "que le phylloxera vastatrix soit un puceron?" Ann. Soc. Agric. Lyon (4) iv. P.-v., p. lxxxix.

"Résultats des divers procédés de guérison proposés à la Commission pour combattre la maladie de la vigne caractérisée par la Phylloxera, procédés qui ont été appliqués dans la domaine de Las Sorres, près Montpellier," a publication of the Departmental Commission of the Hérault, is stated to be printed in the Correspondence: C. R. lxxvii. p. 1487.

The following remedial and destructive methods, &c., are suggested:—

Exposing eggs on the roots to the air; Nourrigat, C. R. lxxvi. p. 361.

Submersion of the vine. A. Dumont, *op. cit.* p. 150, & lxxvii. p. 1287 (by the establishment of canals near vineyards); Faucon, *op. cit.* lxxvi. p. 361, & lxxvii. pp. 663-665 (opposes submersion in the spring, and recommends it in autumn and winter, or during the whole winter); Faucon, Bazille, and Duponchel, Bull. Soc. Hort. Var (7) i. No. 3; Dumas, C. R. lxxvi. p. 1454-1464 (submersion in early April with hot water, or water charged with deleterious substances); Gueyraud, *op. cit.* lxxvii. p. 161.

Sea-water; A. Babret, C. R. lxxvii. p. 1287, L. Lechape, p. 1016 (with bruised garlic!). Saline solution; Gaudin, C. R. lxxvi. p. 1133. Sulphuric acid; Dumas, C. R. lxxvi. p. 213; C. O. Keenan, *op. cit.* lxxvii. p. 1221. Sulphate of carbon; E. de Layal, C. R. lxxvii. p. 601 & p. 715 (with vegetable oil), Dumas, *op. cit.* p. 520. Lecoq de Boisbaudran, p. 771, and A. Roussille, p. 772, consider this agent bad for the vines; and É. Bazille, pp. 934-936, is dubious as to its effect, giving long quotations from Bull. Soc. Hort. Var. Sulphate of copper and manure mixed; A. Pagani, C. R. lxxvii. p. 1093. Sulphate of potassium; E. de Layal, *ibid.* Sulphohydrate of ammonia (also good as a manure); Dumas, *l. c.* p. 870. Sulphate of arsenic; Merice, Bull. Soc. Hort. Var. (7) i. No. 3. Powdered sulphur and alum: A. Sarrand, C. R. lxxvii. p. 562. Soluble sulphates and smoke; H. Marès, *op. cit.* p. 870. Vapour of sulphur and common gas; Lebou, *op. cit.* p. 603. Water from gas-condensers; Beaume, *op. cit.* p. 1177. Coal-tar; L. Petit, *op. cit.* pp. 193 & 1176. Petroleum; Stagno Colombo, *op. cit.* lxxvi. p. 1133. Ammonia; Gueyraud, *op. cit.* lxxvii. p. 111, Deleuil, p. 346, Petit, p. 193 (ammoniacal-water and lime). Fermented urine in November and March; Gauthier, *op. cit.* p. 346. Fermented soap-lye; H. Peyraud, *ibid.* Potash, sulphur, and soap; Letellier, *op. cit.* lxxvi. p. 1133. Mixture containing cyanide of potassium; A. Milius, *op. cit.* lxxvii. pp. 1336 & 1549. Carbohc acid and soot, applied thoroughly; C. V. Riley, Rep. Ins. Mo. v. pp. 57-73. Smoke; Gagnat, C. R. lxxvii. p. 772.

Wine-lees ; C. Daulé, *op. cit.* p. 834. Cultivation of hemp among the vines ; Gauban du Mont, *op. cit.* p. 715. Tobacco-leaves buried [rather an expensive remedy, if successful] ; R. Rejou, *op. cit.* p. 666. Walnut-leaves buried ; E. Rondepierre, *op. cit.* p. 936. Burying strong-smelling plants in full bloom [!] ; Mme. Vivien Jaworsta, *op. cit.* lxxvi. p. 362. Burying young cuttings ; L. Lichtenstein, Bull. Soc. Var, (7) i. No. 3. The same author, Bull. Soc. Ent. Fr. (5) iii. p. xiii., recommends planting young cuttings or shoots of vine round the infected plants ; these attract the insect and can be pulled up and burned in May or June. Surrounding the stems with some adhesive substance ; Jeanheury, C.R. lxxvi. p. 362. A solution of absinthe and tansy ; Laliman, *op. cit.* lxxvii. p. 346. Removing the vine-leaves in September ; E. Ayrál, *ibid.* Encouraging the *Empusa* fungus [!] ; M. Cornu, *op. cit.* p. 1002. Deep planting ; Pellicot, Bull. Soc. Hort. Var, (7) i. No. 3.

General notes on destructive agents : Lacroix, p. 37, Marès, pp. 209, 335, 1465, T. Dufour, p. 421, Erb & Jaworsta, p. 474, Dupré, pp. 550 & 822, Troianowski, p. 700, Faucon, pp. 766 & 1070, Barral, p. 1007, Ghisi, p. 1187, Dumas, p. 1454 ; C.R. lxxvi.

The second year of attack by the insect is the most fitting to attempt its destruction ; Bertrand, *op. cit.* lxxvii. p. 871.

The spring is the best time for using destructive agents ; M. Cornu, *op. cit.* p. 947 (but see Faucon, *suprà*).

Phylloxera quercûs. Balbiani, C.R. lxxvii. pp. 830–834, 884–890, gives particulars of the economy of this species, and of the structure of its reproductive organs. Parthenogenesis occurs in it. There are 3 sorts of eggs :—the winter, summer or parthenogenetic, and male and female (dioiques). Derbès, *op. cit.* pp. 1109 & 1110, compares the *Pemphigus* found on *Pistacia terebinthus* with the *Phylloxera*. Cf. also Milne-Edwards, p. 1111. Balbiani, *op. cit.* pp. 1164–1168, replies to Derbès : *P. quercûs* and *vastatrix* must be added to the limited number of species known to present Leuckhart's 'hétérogonie.'

COCCIDÆ.

SIGNORET, Ann. Soc. Ent. Fr. (5) iii. pp. 27–48 (pt. x.), 395–448 (pt. xi.), pls. 2, 12 & 13 (or x. xi. & xii. of the treatise as a whole), continues his 'Essai sur les Cochenilles ou Gallinsectes.' He discusses PULVINARIA, Targ., (details, pl. 2, figs. 1 *b*, *c*, *h*) and LECANIUM, giving detailed observations on *P. betulæ*, L., *carpini*, L. (pl. 2, fig. 8), *cestri*, Bouché, *evonymi*, Gour., *fagi*, Hdy., *gasteralpha*, Icery (pl. 2, figs. 2 & 2*a*), *lanata*, Gmél., *mesembrianthemii*, Vall., *oxyacanthæ*, L. (pl. 2, fig. 3), *pyri*, Fitch, *salicis*, Bouché (pl. 2, fig. 9), *vitis*, auctt. (pl. 2, figs. 1, 1*a–h*), *Lecanium hesperidum*, auctt., *lauri*, Bdv., *berberidis*, Schr. (pl. 12, figs. 5, *a* & *b*), *juglandis*, Bouché, *persicæ*, = *oblongus*, Réaum. (pl. 12, fig. 10), *piceæ*, Schr., *aceris*, auctt. (pl. 12, figs. 11 & 11*a*), *æsculi*, Koll. (pl. 12, figs. 12, *a* & *b*), *bituberculatum*, Targ. (pl. 12, fig. 13), *caprææ*, L., (pl. 12, fig. 14), *caryæ*, Fitch, *corni*, Bouché (pl. 12, figs. 20 & 20*a*), *coryli*, L. (pl. 12, fig. 15), with which *corylifex*, Fitch, is probably identical, *cynosbati*, Fitch, *fuscus*, Geoff., *genevensis*, Targ. (pl. 12, fig. 16), *gibber*,

Dalm. (pl. 12, fig. 19), *prunastri*, Fonsc. (pl. 12, fig. 17), *pyri*, Schr. pl. 12, fig. 18), *quercifex*, Fitch (pl. 13, fig. 1), *quercitronis*, Fitch (pl. 13, fig. 2), *quercus*, L., *rosarum*, Voll. (pl. 13, fig. 3), *rotundum*, Réaum. (pl. 13, figs. 4, *a-c*), *tiliæ*, L., *ulmi*, L. (pl. 13, figs. 15, *a & b*), of which *fasciatum*, Costa, is probably a var., *anthurii*, Bdv. (pl. 13, figs. 7 & 7a), *coffex*, Wlk., *filicum*, Bdv. (pl. 13, fig. 8), *hemisphæricum*, Targ., (pl. 13, fig. 9), *hibernaculorum*, Bdv., *cycadis*, Bdv. (pl. 13, figs. 10, *a & b*), *depressum*, Targ. (pl. 13, figs. 11, *a & b*), *oleæ*, Bern. (pl. 13, fig. 12), *testudo*, Curt. (? = *cycadis*, Bdv.), *abietis*, Geoff., *emerici*, Planch. (pl. 13, figs. 14 & 14a), & *racemosum*, Rtz. (pl. 13, fig. 16).

Mytilaspis conchiformis, Gmél., and *M. pinifoliæ*, Fitch: detailed account of economy; W. Le Baron, Rep. Ins. Illin. i. (1871), p. 24 *et seq.*

Mytilaspis pinifoliæ, Fitch. Habits, parasites, and remedies discussed; C. V. Riley, Rep. Ins. Mo. v. pp. 97-103, figs. 35 & 36 (= *pini*, Htg., teste Signoret; *op. cit.* p. 98, note.)

Dorthesia: an allied insect, "The ribbed Scale-bark Louse," injurious, to *Acacia* in California, described (larva and ♀). R. H. Stretch, P. Cal. Ac. iv. pp. 262-264. A *Coccus*, near *C. ilicis*, occurs on pines, and an *Aspidiotus* on *Laurestinus*, in San Francisco: *id. l. c.* p. 265.

Dactylopius vitis. The ♂ pupa is active, using its 6 articulated legs. J. Lichtenstein, Bull. Soc. Ent. Fr. (5) iii. p. xiii.

Lichtens[teini]a, g. n., Signoret, *l. c.* p. 27. *Lecaniides*. Covered by a pellicle of cottony tissue. Differs from *Philippia* in its 8-jointed antennæ, and from *Pulvinaria* in having no cottony mass beneath. *L. viburni*, sp. n., *id. l. c.* p. 28, pl. 2, figs. 7 & 7a, Montpellier, on *Viburnum*.

Pulvinaria artemisiæ, sp. n., *id. l. c.* p. 31, pl. 2, fig. 4, Montpellier, *cameli[i]cola*, p. 32, pl. 2, figs. 4 & 6, gardens of the Luxemburg, *fraxini*, p. 36, Montpellier, *populi*, p. 42, pl. 2, fig. 10, Montpellier, *ribesiæ*, p. 43, Clamart, *tremulæ*, p. 45, on aspens.

Lecanium acuminatum, p. 397, pl. 12, fig. 1, on orchids, Luxemburg Gardens; *angustatum*, p. 398, pl. 12, figs. 2 & 2a, on *Papyrus*; *maculatum*, p. 400, pl. 12, fig. 3; *tessellatum*, p. 401, pl. 12, fig. 4, on *Caryota ursus*, Montpellier; *elongatum*, p. 404, pl. 12, fig. 6, on *Prunus laurocerasus*, Mont-de-Marsan; *fitchi*, *ibid.*, pl. 12, fig. 7, Washington, U. S. A.; *genistæ*, p. 405, pl. 12, fig. 8, Hyères, Cannes; *mori*, p. 407, pl. 12, fig. 9, pl. 13, fig. 17, Savoy; *sallai*, p. 410, Mexico; *antennatum*, p. 413, North America; *rugosum*, p. 429, pl. 13, figs. 5, *a & b*, on peach trees, Clamart; *tarsalis*, p. 430, pl. 13, fig. 6, U. S. America; *wistariæ*, p. 433, *verrucosum*, p. 442, pl. 13, figs. 13, *a & b*, Montevideo: *id. l. c.* spp. nn.

Mytilaspis pomicorticis, sp. n., C. V. Riley, Rep. Ins. Mo. v. p. 95, figs. 31 & 32 (habits, parasites, remedies, &c., discussed, pp. 76-96). The insect is apparently *Aspidiotus conchiformis*, auctt.

(ANOPLURA.)

PEDICULIDÆ.

Hæmatomyzus elephantis, Piag.: a general account, and reference to all degraded forms. E. Newman, Ent. vi. pp. 465-470.

INDEX TO

GENERA AND SUBGENERA RECORDED AS NEW IN THIS VOLUME.

INCLUDING NAMES PROPOSED FOR GENERA ALREADY
CHARACTERIZED.

[The symbol || indicates that the name to which it is affixed has been used before in Zoology.]

- Abar[eo]idius, *Chaudoir*, 240.
- Ablepharon, *Grote*, 397 [-rus, *Fitzinger*, *Reptilia*, 1824].
- Acanthocryptus, *Thomson*, 361.
- Acanthocyclus ||, *Dybowski*, 509 [*Lucas*, *Crustacea*, 1844].
- Acanthodes ||, *Dybowski*, 509 [*Agassiz*, *Pisces*, 1833; *De Haan*, *Crustacea*, 1835; *Baly*, *Coleoptera*, 1864].
- Acanthomia, *Stal*, 450 [-mus, *Germer*, *Coleoptera*, 1848].
- Acanthophora, *Sollas*, 521 [-rus, *Audouin &erville*, *Coleoptera*, 1832].
- Acanthophyllum, *Dybowski*, 509.
- Acanthoplus, *Stal*, 440.
- Acanthotyla, *Stal*, 449.
- Acidogona, *Loew*, 425.
- Acorethra, *H. W. Bates*, 325.
- Acrocirrus, *Grube*, 473.
- Acrotænia, *Loew*, 425.
- Acrotoxa, *Loew*, 425.
- Actosus, *Mulsant & Rey*, 251.
- Adipsophanes, *Grote*, 398.
- Admetovis, *Grote*, 397.
- Adonea, *Simon*, 203 [-nia, *Mulsant*, *Coleoptera*, 1846].
- Æletes, *Horn*, 260.
- Æthalides, *F. Bates*, 289.
- Agabetes, *Crotch*, 247.
- Agabinus, *Crotch*, 247.
- Agasthenes, *F. Bates*, 289.
- Agestra, *Pascoë*, 303. (*Aglypha*, *Mulsant & Rey*, 252).*
- Agolius, *Mulsant*, 271.
- Agrilinus, *Mulsant*, 271.
- Allopetalia, *Selys*, 436.
- Alophonta, *Stal*, 443.
- Amarygm[om]imus, *F. Bates*, 290.
- Amblycorypha, *Stal*, 440.
- Amblypelta, *Stal*, 449.
- Amblystira, *Stal*, 454.
- Amblytropidia, *Stal*, 444.
- Americia, *Stal*, 454.
- Ametrangia, *Allman*, 512.
- Amidorus, *Mulsant*, 271.
- Amorphorhynchus, *Wolaston*, 313.
- Amphianax, *F. Bates*, 289.
- Amphicnephes, *Loew*, 424.
- Amphigraptus, *Lapworth*, 515.
- Amphimenes, *H. W. Bates*, 236.
- Amycle ||, *Cambridge*, 208 [*Stal*, *Hemiptera*, 1870; -cla, *Koch*, *Hemiptera*, 1857, *Adams*, *Mollusca*, 1858; -clæa, *Rondani*, *Diptera*, 1863; -cles, *H. Schüller*, *Lepidoptera*, 1855].
- Amystax, *Roelofs*, 296.
- Aname, *L. Koch*, 201.
- Anapleus, *Horn*, 260.
- Anarropa, *Gerstæcker*, 448.
- Anaulacomera, *Stal*, 441.
- Anausis, *F. Bates*, 290.
- Andrector, *Horn*, 337.
- Androloma, *Grote*, 390.
- Androlyperus, *Crotch*, 337.
- Aneflus, *Leconte*, 326.
- Annaphila, *Grote*, 398.
- Anomius, *Mulsant*, 271 [-mia, *Linnaeus*, *Mollusca*, 1758, *Fieber*, *Homoptera*, 1866; -mus, *Fairmaire*, *Homoptera*, 1846].
- Anoplocnemis, *Stal*, 449.
- Anoplogonius, *Stal*, 447.
- Anosimus, *Roelofs*, 297.
- Antenor ||, *Ridgway*, 46 [*Montfaucon*, *Polypi*, 1808].
- Anteus, *Perrier*, 475.
- Antiochrus, *Sharp*, 272.
- Antyllis, *Pascoë*, 303.
- Anytus ||, *Grote*, 398 [*Stal*, *Hemiptera*, 1865].
- Apallodes, *Reitter*, 262.
- Apatornis, *Marsh*, 74.

* The genera in these brackets are either doubtful as new or not characterized.

- Apeltarius, *Desbrochers*, 366 [*C. O. Waterhouse*, Coleoptera, 1869].
 Aphancephalus, *Wollaston*, 258.
 Aphanocorynes, *Wollaston*, 316.
 Aphanommata, *Wollaston*, 313.
 Aphorista, *Gorham*, 342.
 Apleurus, *Chevrolat*, 301.
 Apocope, *Cope*, 119.
 Apomestris, *F. Bates*, 290.
 Apospasmica, *Loew*, 424.
 Apostropha, *H. W. Bates*, 325 [-phus, *Loew*, Diptera, 1871].
 Arabescula, *Carter*, 520.
 Arbanitis, *L. Koch*, 201.
 Archæonodon, *Cope*, 16.
 Archæodiscus, *Brady*, 531.
 Archiulus, *Scudder*, 214.
 Ardelio, *Loew*, 423.
 Argillophora, *Grote*, 398.
 Argiope, *Chambers*, 411.
 Argyrophytes, *Grote*, 405.
 Arnilia, *Stal*, 444.
 Arphia, *Stal*, 444.
 Arrhaptogaster, *Roelofs*, 297.
 (Artystoma, *F. Bates*, 204.)
 Asaperda, *H. W. Bates*, 330.
 Ascarops, *Beneden*, 492.
 Aschistus, *Stal*, 449.
 Asellopsis, *Brady & Robertson*, 194.
 Aspilapsis, *Stal*, 458.
 Aspilosterna, *Stal*, 449.
 Aspilota ||, *Loew*, 426, [*Förster*, Hymenoptera, 1862].
 (Asthmetus, *F. Bates*, 284.)
 Astatichthys, *Vaillant*, 106.
 Asthmatos [Asthmatogennetes ?], *Salisbury*, 527.
 Astræa ||, *Mohnike*, 275 [*Gmelin*, Polypi, 1789; -æus, *Laporte & Gory*, Coleoptera, 1838].
 Astrococcus, *Greiff*, 530.
 Atomosira, *Uhler*, 448.
 Atraphornis, *Severtzoff*, 60.
 Aulacostethus ||, *Philippi*, 366 [*C. O. Waterhouse*, Coleoptera, 1869].
 Aulacostethus ||, *Uhler*, 447.
 Aularches, *Stal*, 443.
 Automola, *Loew*, 424 [-lis, *Hübner*, Lepidoptera, 1816].
 Axenus, *Grote*, 398.
 Axéstinus, *Leconte*, 326.
 Axides, *Pascoe*, 308.
 Bacropsis, *Lütken*, 117.
 Barcinus, *Stal*, 455.
 Basides, *Motschoulsky*, 287.
 Bathymaster, *Cope*, 116.
 Batrachophrynus, *Peters*, 96.
 Beccarimyia, *Rondani*, 422.
 Bellamira, *Leconte*, 327.
 Belonochilus, *Uhler*, 451.
 Bhutanitis, *Atkinson*, 376.
 Biareolina, *Dours*, 347.
 Biastoides, *Schenck*, 348.
 Biralus, *Mulsant*, 271.
 Blanfordius, *Hume*, 60.
 Blepharoneura, *H. Loew*, xii.
 Bodilus, *Mulsant*, 271.
 Bogosia, *Rondani*, 421.
 Bomis, *L. Koch*, 208 [-mius, *Leconte*, Coleoptera, 1851].
 Bonneyia, *Sollas*, 521.
 Borophlœus, *Wollaston*, 315.
 Bostockia, *Castelnau*, 108.
 Bowenia, *Haast*, 117.
 Brachida, *Mulsant & Rey*, 251 [-dia, *Solier*, Coleoptera, 1851].
 Brachychænus, *Wollaston*, 315.
 Brachycryptus, *Thomson*, 360.
 Brachyscapus, *Wollaston*, 313.
 Brachytemnus, *Wollaston*, 318.
 Brisilis, *Stal*, 441.
 Brithy sternum, *W. MacLeay*, 238.
 Bromophila, *Loew*, 423.
 Brontotherium, *Marsh*, 14.
 Bryconæthiops, *Günther*, 119.
 Burgilis, *Stal*, 441.
 Cabira ||, *Kossmann*, 192 [*Sodoffsky*, Lepidoptera, 1837; -rus, *Hübner*, Lepidoptera, 1816].
 Cacodmus, *Stal*, 452.
 Cadurcotherium, *Gervais*, 15.
 Cænocryptus, *Thomson*, 360.
 Calasymbolus, *Grote*, 389.
 Calath[o]idius, *Putzeys*, 243.
 Caldwellia, *H. Adams*, 162.
 Callichlamydia, *Stal*, 449.
 Callicista, *Grote*, 386.
 Callicorixa, *F. B. White*, 459.
 (Callismilax, *F. Bates*, 284.)
 Calloides, *Leconte*, 327.
 Callopietria ||, *Loew*, 424 [*Chevrolat*, Coleoptera, 1834].
 Calloptilum [Callip-], *Hutton*, 116 [-lus (*Agassiz*), *Haliday*, Hymenoptera, 1833].
 Calocryptus, *Thomson*, 361.
 Calodromas, *Sclater & Salvin*, 69 [-mus, *Guérin*, Coleoptera, 1832].
 Calomycterus, *Roelofs*, 298.
 Calpusa, *Mulsant & Rey*, 251.
 Calyciforus, *Wollaston*, 318.
 Cannula, *Stal*, 444.
 Campylogaster, *Dours*, 347.
 Canoixus, *Roelofs*, 297.
 Carcinognathus, *Kirsch*, 280.
 Cardioderma, *Peters*, 8.
 Carinigera, *Möllendorff*, 168.
 Catocentrus, *Walsh*, 363.
 Catolethromorphus, *Wollaston*, 315.
 Caulonia, *Loriol*, 503.
 Celetor, *Loew*, 423.
 Cenephyllum [see Kenophyllum].
 Centrocleonus, *Chevrolat*, 301.
 Centrothele, *L. Koch*, 202.
 Cephaloseymnus, *Crotch*, 344.

- Cephisus ||, *Fauvel*, 255
 [*Stal*, Homoptera, 1866].
 Cerataltica, *Crotch*, 338.
 Ceratinoderma, *Stal*, 454.
 Ceratolophus, *Bocage*, 89.
 Ceratomegilla, *Crotch*, 343.
 Ceratosmus, *Gemminger*, 281.
 Chætobranchus ||, *Verrill*, 475 [*Heckel*, Pisces, 1840].
 Chalcoptaria, *Crotch*, 333.
 Channallabes, *Günther*, 117.
 Chascax ||, *Watson*, 141 [*Ritgen*, Reptilia, 1828].
 Chedima, *Simon*, 203.
 Chelonicus ||, *J. E. Gray*, 20 [*Wagler*, Mammalia, 1830].
 Chionopteryx, *Snellen*, 403.
 Chitina, *Carter*, 513.
 Chlorocamma, *F. Bates*, 290.
 Chondrocladia, *W. Thomson*, 520.
 Chondrophlops, *Blanford*, 85.
 Chondropus, *Greeff*, 530.
 Chrysaethe, *H. W. Bates*, 325.
 Chytolita, *Grote*, 401.
 Chinctipora, *Hutton*, 182.
 Circoptes, *Reitter*, 262.
 Clathrograptus, *Lapworth*, 515.
 Cleptomita, *Grote*, 401.
 Clibanornis, *Sclater & Salvin*, 53.
 Clisiophylloides, *Dybowski*, 509.
 Clymene ||, *Chambers*, 410 [*Savigny*, Vermes, 1817; *Gray*, Mammalia, 1864].
 Clymenella, *Verrill*, 474.
 Cnemidocoptes, *Fürstenberg*, 211.
 Cnemodontus, *Chevrolat*, 301 [-don, *Egger*, Diptera, 1865].
 Cnips, *Reitter*, 262.
 Cocconotus, *Stal*, 441.
 Cochlochila, *Stal*, 454.
 Cochlorine [see *Kochlorine*].
 Codionus, *Rondani*, 419.
 Codonella, *Hüffel*, 526.
 Codonobdella, *Grube*, 478.
 Cœlocryptus, *Thomson*, 361.
 Cœlopterna, *Stal*, 443.
 Cœlosphæra, *W. Thomson*, 520.
 Cœlostethus ||, *Capiomont*, 299 [*Dejean*, Coleoptera, 1834].
 Colobomatus, *Hesse*, 194.
 Colonoceras, *Marsh*, 15.
 Colpolopa, *Stal*, 443.
 Compeuta, *Stal*, 454.
 Conarthrus, *Wollaston*, 316.
 Conchiolites, *Nicholson*, 478.
 Coniceps, *Loew*, 424.
 Coniopoda, *Gorham*, 341.
 Coprochara, *Mulsant & Rey*, 252.
 Coprodema, *Wollaston*, 310.
 Coptorhamphus, *Wollaston*, 313.
 Coptus, *Wollaston*, 377.
 Cordylolomia, *Grote*, 405.
 Cordylopeza, *Zeller*, 405.
 Corethraster, *W. Thomson*, 502.
 Cormocaris, *Loew*, 423.
 Corythaica, *Stal*, 454.
 Corythuca, *Stal*, 454.
 Coscineuta, *Stal*, 444.
 Coscinopea, *Stal*, 454.
 Cosmoleptus, *Stal*, 450.
 Cosmorhyssa, *Stal*, 444.
 Cossinoderus, *Chevrolat*, 301.
 Cosson[o]ideus, *Wollaston*, 312.
 Craspedophyllum, *Dybowski*, 509.
 Cratocryptus, *Thomson*, 361.
 Cryptocentrus, *Walsh*, 362 [-trum, *Richards*, Hymenoptera, 1838].
 Cryptophagistes, *Crotch*, 266.
 Cryptoræa, *Reitter*, 262.
 Cryptotarsus, *Philippi*, 279.
 (Cryptusa, *Mulsant & Rey*, 252).
 Ctenoplebia, *Stal*, 441.
 Ctimene ||, *F. Bates*, 290 [*Boisduval*, Lepidoptera, 1832].
 Cyane ||, *Chambers*, 410 [*Felder*, Lepidoptera, 1861; *Adams*, Mollusca, 1870].
 Cyanocinclia, *Hume*, 57.
 Cyanogomphus, *Selys*, 436.
 Cyathophylloides, *Dybowski*, 509.
 Cycrocephalus, *Reitter*, 262.
 (Cydamus, *Stal*, 449.)
 Cyerce, *Bergh*, 154.
 Cylindropterus ||, *Chevrolat*, 301 [*Motschoulsky*, Coleoptera, 1863].
 Cyllene ||, *Chambers*, 410 [*Newman*, Coleoptera, *Gray*, Mollusca, 1840].
 Cynthi[oi]dia, *Chaudoir*, 241.
 Cypherotylus, *Crotch*, 340.
 Cyprimorphus, *Fairmaire*, 249.
 Cyrtometopa, *Loew*, 424.
 Cyrtotriplax, *Crotch*, 340.
 Cysteocheila, *Stal*, 454.
 Cytalia, *Pascoe*, 303.
 Dactylanthias, *Bleeker*, 106.
 Dactyloporella, *Gümbel*, 531.
 Darwinia ||, *Dybowski*, 509 [*Spence Bate*, Crustacea, 1857].
 Dawsonia, *Nicholson*, 515.
 Decienus, *Pascoe*, 298.
 Dendroctonomorphus, *Wollaston*, 318.
 Dendrodipnis, *Wollaston*, 267.
 Densiphyllum, *Dybowski*, 509.
 Diamphipnoa, *Gerstäcker*, 435.
 Dichromerus, *Stal*, 450.
 Dicomada, *Pascoe*, 303.
 Dicræus, *Loew*, 426.
 Dicte, *Chambers*, 410 [-tea, *Münster*, Pisces, 1840].
 Diethusa, *Pascoe*, 303.
 Digaster, *Perrier*, 476 [in error, *Digastes*, Zool. Rec. ix. pp. 426 & 491].

- (Dimetrota, *Mulsant & Rey*, 252.)
 Dinomys, *Peters*, 18 [-mus, *Brême*, Coleoptera, 1842].
 Dischissus, *H. W. Bates*, 237.
 Disphysema, *Harold*, 270.
 Dissemuroides, *Hume*, 56.
 Domene, *Fawel*, 255.
 Donacophyllum, *Dybowski*, 509.
 Dryotribus, *Horn*, 318.
 Dupophilus, [? *Dyptol-*] *Mulsant & Rey*, 268.
 Duthiersia, *Perrier*, 489.
 Dyschara, *Mulsant & Rey*, 252.
 Eclipta, *H. W. Bates*, 325.
 Ectatotychius, *Tournier*, 306.
 Edelia, *Castelnau*, 108 [-la, *Lesson*, Aves, 1831].
 Eido [Ido], *Chambers*, 410.
 Eidothoa [Ido-], *Chambers*, 411 [-thea, *Risso*, Mollusca, 1826].
 Elæochanis, *Greiff*, 530.
 Elæochlora, *Stal*, 443.
 Elasmomia, *Stal*, 448.
 Elasmopoda, *Stal*, 448.
 Ellasoptes, *Horn*, 318.
 Ellerya, *Castelnau*, 122.
 Elysiella, *Bergh*, 155.
 Emadus, *Mulsant*, 271.
 Enchrysa, *Zeller*, 411.
 Endaliscus, *Kirsch*, 303.
 Engistoneura, *Loew*, 423.
 Enide, *Pascoe*, 303.
 Eniopea, *Pascoe*, 303.
 Entomoderus, *Raffray*, 298 [-res, *Solier*, Coleoptera, 1836].
 Eonycteris, *Dobson*, 8.
 Epicausta, *Loew*, 423.
 Epicorthylis, *Zeller*, 411.
 Epipeda, *Mulsant & Rey*, 251 [-dus, *Spinola*, Hemiptera, 1837; *Schönherr*, Coleoptera, 1842].
 Episopus, *F. Bates*, 290.
 Epitoxicum, *F. Bates*, 288.
 Epochra, *Loew*, 425.
 Epuræanella, *Crotch*, 262.
 Erbula, *Stal*, 450.
 Eriotonus, *Brüderle*, 236.
 Eriplatymetra, *Grote*, 403.
 Erytus, *Mulsant*, 271.
 Esolus, *Mulsant & Rey*, 267.
 Esumus, *Mulsant*, 271.
 Ethmus, *Haag*, 286.
 Etnalis, *Sharp*, 320.
 Euacidalia, *Packard*, 403.
 Euchalcota, *Loew*, 423.
 Eucoptus, *Wollaston*, 314.
 Eucrossus, *Leconte*, 326.
 Euctenucha, *Grote*, 390.
 Eudolus, *Mulsant*, 271.
 Euephyra, *Packard*, 403.
 Euglypta ||, *Mohnike*, 275 [Agassiz, Mollusca, 1837].
 Eumacaria, *Packard*, 403.
 Eumeteor, *Kossmann*, 191.
 Eumichthus, *Leconte*, 326 [-this, *Hübner*, Lepidoptera, 1816].
 Eunemoria, *Packard*, 403.
 Euphiloscia, *Packard*, 191.
 Euplectroscelis, *Crotch*, 338.
 Eupsephopæctes, *Grote*, 398.
 Euptychia ||, *Crosse & Fischer*, 173 [Hübner, Lepidoptera, 1816].
 Eur[y]hyphenia, *Grote*, 401.
 Eurosta, *H. Loew*, xii. [-tus, *Dallas*, Hemiptera, 1851; *Mulsant & Rey*, Coleoptera, 1871].
 Eurycorynes, *Wollaston*, 318.
 Eurycorypha, *Stal*, 440.
 Eurycotyle, *Blessig*, 330.
 Eurypharsa, *Stal*, 454.
 Eustroma ||, *Leconte*, 326 [Hübner, Lepidoptera, 1816].
 Eutassus, *Leconte*, 330.
 Eutornus, *Wollaston*, 317.
 Eutreta, *Loew*, 425.
 Evaresta, *Loew*, 426.
 Evippe, *Chambers*, 411.
 Evolena, *Loew*, 424.
 Exochiscus, *Walsh*, 363.
 Exochus ||, *Chevrolat*, 300 [Gravenhorst, Hymenoptera, 1829].
 Exodema, *Wollaston*, 310.
 Exonotus, *Wollaston*, 315.
 Exurus, *Philippi*, 367.
 Falcirostra, *Severtzoff*, 70.
 Fascicularia ||, *Dybowski*, 509 [Lamoignon, Polypi, 1812].
 Flatipalpus, *Fairmaire*, 273.
 Francesia, *Paladilhe*, 171.
 Galerucella, *Crotch*, 337.
 Ganimus, *Leconte*, 326.
 Gerandryus, *Rottenberg*, 290.
 Gerynassa, *Pascoe*, 303.
 Glabella ||, *Loew*, 418 [Swainson, Mollusca, 1840].
 Glandidium, *Lütken*, 118.
 (Glaphya, *Mulsant & Rey*, 252).
 Glæodema, *Wollaston*, 315.
 Glæotrogus, *Wollaston*, 315.
 Glæoxenus, *Wollaston*, 315.
 Glycobius, *Leconte*, 327.
 Gnathocryptus, *Thomson*, 361.
 Gnathodentex, *Bleeker*, 109.
 Goniacidalia, *Packard*, 403.
 Goniæa, *Stal*, 444.
 Gonicryptus, *Thomson*, 360.
 Gonocallus, *Leconte*, 325.
 Gonocladium (*Allman*, M. S.), *Hincks*, 514.
 Gonocleonus, *Chevrolat*, 301.
 Graphicotera, *Tournier*, 308.
 Grewingkia, *Dybowski*, 509.
 Gymnangium, *Hincks*, 514.
 Gymnopelia, *Sclater & Salvin*, 67.
 Gymnoscopelus, *Günther*, 120.
 Gyroporella, *Gümbel*, 531.
 Habrocryptus, *Thomson*, 360.
 Hadronyche, *L. Koch*, 201.
 Hæmophila, *Kriechbamer*, 417 [Hæmaphilus, Hesse, Crustacea, 1871].
 Halibalæna, *J. E. Gray*, 12.
 Halictosoma, *Rondani*, 419.

- Halodrilus*, *Verrill*, 477.
Halorhynchus, *Wollaston*, 313.
Hamletia, *Crotch*, 337.
Haplidus, *Leconte*, 326.
Haplopoprella, *Gümbel*, 531.
Harrisimemna, *Grote*, 397.
Harveya, *Grote*, 398.
Hectoria, *Castelnau*, 108.
Hedyopsis, *Pascoe*, 303.
Helcomeria, *Stal*, 448.
Helice ||, *Chambers*, 411 [De Haan, Crustacea, 1835].
Heliobletus, *Gorham*, 342.
Heliolonche, *Grote*, 398.
Heliophrys, *Greeff*, 530.
Heliotropis, *Dall*, 142.
Helopeltis ||, *Horn*, 249 [Signoret, Hemiptera, 1858].
Hemixantha, *Loew*, 424.
Hermistria, *Stal*, 444.
Heromorpha, *Bergh*, 153. (*Hesperumia*, *Packard*, 403.)
Hessia, *Beneden*, 194.
Heterarthrus ||, *Wollaston*, 310 [Stephens, Hymenoptera, 1835].
Heteroglaux, *Hume*, 48.
Heterophasis, *Wollaston*, 315.
Heteropsis ||, *Wollaston*, 313 [Westwood, 1850, Guénee, 1857, Lepidoptera; -rops, *Blanchard*, Coleoptera, 1842; *Hodgson*, Aves, 1844].
Heteropternis, *Stal*, 444.
Heterorhynchus ||, *Mandelli*, 58 [Lafresnaye, Aves, 1839].
Hexachæta, *H. Loew*, xii. (*Hilara* ||, *Mulsant & Rey*, 252 [Meigen, Diptera, 1822].)
Himatium, *Wollaston*, 313.
Himeroessa, *Loew*, 424.
(Histeroschema, *Reitter*, 261.)
Holochlora, *Stal*, 441.
Holocnemus, *Simon*, 204 [-nis, *Schiller*, Coleoptera, 1829; *Strickland*, Aves, 1844].
Holophalerus, *Crotch*, 287.
Holophlygdus, *Stal*, 447.
Holopleura, *Leconte*, 326.
Holopterna, *Stal*, 448.
Homæsthesis, *Leconte*, 323.
Homalotrogus, *Wollaston*, 315.
Homaloxenus, *Wollaston*, 314.
Homodesmius, *Sharp*, 270.
Homohadena, *Grote*, 398.
Homœochara, *Mulsant & Rey*, 252.
Hoplocryptus, *Thomson*, 360.
Hoplolomia, *Stal*, 450.
Hoplopterna, *Stal*, 448.
Hormilia, *Stal*, 441.
Hyalosaurus, *Günther*, 86.
Hybodera, *Leconte*, 326.
Hydrodendron [-rum], *Hincks*, 514.
Hygrocryptus, *Thomson*, 361.
Hylonympha, *Gould*, 53.
Hylospongia, *Sollas*, 521.
Hymenaster, *W. Thomson*, 501.
Hyperaspidius, *Crotch*, 344.
Hyperstylus, *Roelofs*, 297.
Hyponotus, *Wollaston*, 315.
Hypophthalma ||, *Taczanowski*, 207 [Latreille, Crustacea, 1831; -mus, *Spix*, Pisces, 1829].
Ichthyomyzocus, *Hesse*, 189.
Icteria, *Loew*, 426.
Ida, *J. E. Gray*, 83.
Idana, *Loew*, 424.
Idiactis, *L. Koch*, 200.
Idiodactylus, *Bocourt*, 88.
Idioderus, *Lucas*, 441.
Idiotypa, *Loew*, 424.
Ido [see *Eido*].
Idothoa [see *Eidothoa*].
Illibus, *Stal*, 455.
Ilybiosoma, *Crotch*, 247.
Ilyopsyllus, *Brady & Robertson*, 194.
Impages, *E. A. Smith*, 145.
Iocryptus, *Thomson*, 360.
Ipsimorpha [Ipom-], *Reitter*, 262 [Ipim-, *Hübner*, Lepidoptera, 1816].
Ischnacrida, *Stal*, 443.
Ischnomela, *Stal*, 441.
Isola, *J. E. Gray*, 83 [-lus, *Rafinesque*, Crustacea, 1814].
Isotrogus, *Wollaston*, 315.
Ithycephus, *Günther*, 93.
Ithyra, *Reitter*, 262.
Ithytrichia, *Eaton*, 430.
Ixalus ||, *L. Koch*, 201 [Ogilby, Mammalia, 1836; *Duméril & Bibron*, Reptilia, 1840].
Ixion, *Reitter*, 262.
Jekelia, *Tournier*, 306.
Joppidium, *Walsh*, 361.
Kenophyllum [Ce-], *Dybowski*, 509.
Kobeltia, *Seibert*, 160.
Kochlorine [Co-], *Noll*, 195.
Labaria, *Gray*, 520.
Labarrus, *Mulsant*, 271.
Labdacus, *Cambridge*, 209.
Labroma, *Sharp*, 270.
Lacepedia, *Castelnau*, 108.
Lachnoderma, *W. MacLeay*, 233.
Lafoeina, *Sars*, 514.
Lagriola, *Kirsch*, 292.
Lamprochrus, *Wollaston*, 312.
Lamprolia, *Finsch*, 58 [-lina, *Baly*, Coleoptera, 1855].
(Lareynia, *Mulsant & Rey*, 267.)
Lasiacantha, *Stal*, 454.
Lasiapheles, *H. W. Bates*, 330.
Lasiograptus, *Lapworth*, 515.
Lateribranchiæa, *Stearns*, 152.
Lawsonia, *Sharp*, 319.
Leioderma [Lioid-] *W. Suhm*, 493.
Leptalia, *Leconte*, 326 [-lea, *Klug*, Hymenoptera, 1839].
Leptobyrsa, *Stal*, 454.
Leptocryptus, *Thomson*, 361.
Leptocysta, *Stal*, 454.
Leptodictya, *Stal*, 454.

- Leptograptus, *Lapworth*, 515.
 Leptomimus, *Wollaston*, 312.
 Leptopharsa, *Stal*, 454.
 Leptophya, *Stal*, 454.
 Leptopœcile, *Severtzoff*, 61.
 Leptostyla ||, *Stal*, 454 [*Lioy*, Diptera, 1864].
 Leptotettix, *Stal*, 441.
 Lepturga, *Stal*, 454 [-ges, *H. W. Bates*, Coleoptera, 1863].
 Leptysmia, *Stal*, 444.
 Leucophantes, *Sclater*, 57.
 Lichtens[tein]ia, *Signoret*, 466.
 Ligranthœcia, *Grote & Robinson*, 398.
 Limarus, *Mulsant*, 271 [-ria, *Steininger*, Polypti, 1833].
 Limnocharis ||, *Horn*, 249 [*Bell*, Reptilia, 1843].
 Liocryptus, *Thomson*, 360.
 Lioderma, *Horn*, 287.
 Lioderma ||, *Uhler*, 448 [*Marseul*, Coleoptera, 1857].
 Lioderma ||, *W.-Suhm* [see *Leio-*].
 Lioscincus, *Bocage*, 87.
 Lipancylyus, *Wollaston*, 314.
 Liparoscelis, *Stal*, 441.
 Lissopis, *Wollaston*, 317.
 Litognatha, *Grote*, 401.
 Litosoma ||, *Beneden*, 492 [*Douglas & Scott*, Hemiptera, 1865; -mus, *Lacordaire*, Coleoptera, 1866].
 (Logiota, *Mulsant & Rey*, 251.)
 Lomanaltes, *Grote*, 401.
 Lophiogobius, *Günther*, 113.
 Loraspis, *Mulsant*, 271.
 Lybæba, *Pascoe*, 303.
 Lycodrilus, *Grube*, 477.
 Lyperaltica, *Crotch*, 338.
 Lyprodes, *Wollaston*, 312.
 Machæridia, *Stal*, 444.
 Macranoxia, *Crotch*, 272.
 Macr[o]hypena, *Grote*, 400.
 Macrocarenus, *Stal*, 447.
 Macrocryptus, *Thomson*, 360.
 Macrorhyncholus, *Wollaston*, 310.
 Macroscincus, *Bocage*, 87.
 Macroura[-rura]||, *Reitter*, 262 [*Latreille*, Crustacea, 1802].
 Maladera, *Mulsant & Rey*, 272.
 Mallambyx, *H. W. Bates*, 325.
 Masteria, *L. Koch*, 201.
 Maura, *Stal*, 443.
 Mecocryptus, *Thomson*, 361.
 Mecynodes, *Mulsant*, 271.
 Mecynognathus, *W. MacLeay*, 238.
 Megachyta, *Grote*, 401.
 Megalocorynus, *Wollaston*, 314.
 Megalodacne, *Crotch*, 339.
 Megalomma ||, *Smith*, 355 [*Westwood*, Coleoptera, 1841].
 Meg[a]hypena, *Grote*, 401.
 Megischyrus, *Crotch*, 340.
 Megobrium, *Leconte*, 326.
 Melanacanthus, *Stal*, 449.
 Melanoloma, *Loew*, 424.
 Melanorhopala, *Stal*, 454.
 Melarhinus, *Wollaston*, 314.
 Melidectes, *Sclater*, 54.
 Melipotes ||, *Sclater*, 54 [*Hübner*, Lepidoptera, 1816].
 Melittoxena, *Morawitz*, 349.
 Mellella, *Grote*, 403.
 Mermiria, *Stal*, 444.
 Mesocryptus, *Thomson*, 361.
 Mesoxenomorphus, *Wollaston*, 313.
 Metabolocerus, *F. Bates*, 288.
 Metamasius, *Horn*, 309.
 Metaparia, *Crotch*, 333.
 Metatropi[do]phorus, *Reuter*, 458.
 Metisopus, *F. Bates*, 290.
 Metrobates, *Uhler*, 459.
 Metulsonia, *F. Bates*, 288.
 Microctyche, *F. Bates*, 290.
 Micrillus, *Raffray*, 255.
 Microbates, *Sclater & Salvin*, 53.
 Microlytus, *Leconte*, 327.
 Microcossonus, *Wollaston*, 312.
 Microcryptus, *Thomson*, 361.
 Microlera, *H. W. Bates*, 329.
 Micromimus *Wollaston*, 315.
 Microphryne, *Peters*, 97.
 Microplasma, *Dybowski*, 509.
 Microsetella, *Brady & Robertson*, 194.
 Microtribus, *Wollaston*, 312.
 Migas, *L. Koch*, 201 [*Mijas*, *Rambur*, Homoptera, 1842].
 Milina, *Beneden*, 489.
 Mimesthes, *Marseul*, 293.
 Mimodromius, *Chaudoir*, 235.
 Mirollia, *Stal*, 441.
 Mnuphorus, *Chaudoir*, 235.
 Moniligaster, *Perrier*, 476.
 Monistria, *Stal*, 443.
 Monopia, *Claus*, 193 [-pis, *Hübner*, Lepidoptera, 1816; *Ziegler*, Coleoptera, 1834].
 Moristus, *Stal*, 441.
 Muscaria, *Hutton*, 182.
 Myiodella, *Rondani*, 425.
 Myloleucus, *Cope*, 118.
 Myloleucus, *Günther*, 118.
 Myosides, *Roelofs*, 297.
 (Myrmelia, *Mulsant & Rey*, 251.)
 Nacospatangus, *A. Agassiz*, 500.
 Nazeris, *Fauvel*, 255.
 Nearctus, *J. E. Gray*, 9.
 Nebessa, *Walker*, 403.
 Necrolemur, *Filhol*, 7.
 Nectonereis, *Verrill*, 471.
 Nedroma, *Walker*, 398.
 Neochætodon, *Castelnau*, 109.
 Neocirrhites, *Castelnau*, 109.
 Neocleonus, *Chevrolat*, 301.
 Neogonus, *Hampe*, 292.

- Neomyripristis, *Castelnau*, 110.
 Nephrodopus, *Sharp*, 274.
 Nephropsis, *Mason*, 189 [-rops, *Leach*, Crustacea, 1816].
 Nesocoeleus, *Sclater & Salvin*, 49.
 Nesospiza, *Cabanis*, 63.
 Nialus, *Mulsant*, 271.
 Nimbus, *Mulsant*, 271.
 Niteliopsis [Nitelo-], *S. S. Saunders*, 355.
 Nitidulora, *Reitter*, 262.
 Nobius, *Mulsant*, 271 [-bia, *Leach*, Crustacea, 1842].
 Nonnus, *Cresson*, 362.
 Notaden, *Günther*, 96.
 Nothoprocta, *Sclater & Salvin*, 68.
 Notiommimetes, *Wollaston*, 311.
 Notiosomus, *Wollaston*, 316.
 Obba ||, *Walker*, 398 [*Beck*, Mollusca, 1837].
 Obbina, *Semper*, 163.
 Ochrochira, *Stal*, 449.
 Ochrophlebia, *Stal*, 443.
 Octavius, *Fauvel*, 256 [-via, *Bigot*, Diptera, 1854].
 Octogomphus, *Selys*, 436.
 Ocyceros [Ocycerus!], *Hume*, 50 [-ra, *Meigen*, Diptera, 1803].
 Ocyroma, *Pascoe*, 298.
 Odontanthias, *Bleeker*, 106.
 Odontobolá, *Stal*, 449.
 Odontolabrax, *Bleeker*, 106.
 Odontomesites, *Wollaston*, 314.
 Odontopteryx, *Owen*, 71 [-ra, *Carreno*, Hemiptera, 1841].
 Odontorhopala, *Stal*, 449.
 Œciacus, *Stal*, 452.
 Œdicarena, *H. Loew*, xii.
 Olanæa, *Pascoe*, 303.
 Ommatostola, *Grote*, 397.
 Omphalodera, *Blessig*, 327.
 Oncaspidia, *Stal*, 450.
 Oncochila, *Stal*, 454.
 Oncophysa, *Stal*, 454.
 Oniscigaster, *McLachlan*, 435.
 Onycholabis, *H. W. Bates*, 243.
 Ophonema, *Hincks*, 514.
 Ophioseincus, *Peters*, 87.
 Ophioseps, *Bocage*, 88.
 Ophryosternus, *Chaudoir*, 241.
 Opula, *Walker*, 405.
 Orinocorixa, *F. B. White*, 460.
 Orixia, *Walker*, 401.
 Orlitia, *J. E. Gray*, 80.
 Orodalus, *Mulsant*, 271.
 Oromus, *Mulsant*, 271.
 Oroodes, *Simon*, 206.
 Orphula, *Stal*, 444.
 Ortezia, *Cresson*, 359 [Orth-, *Bosc*, 1784, *Amyot & Serville*, 1843, Hemiptera].
 Orthaltica, *Crotch*, 338.
 Orthopsyllus, *Brady & Robertson*, 194.
 Orthotemnus, *Wollaston*, 316.
 Orthotrichia, *Eaton*, 430.
 Ortonia ||, *Nicholson*, 478, [Wood, Arachnida, 1869].
 Oscaria, *J. E. Gray*, 48.
 Osmidus, *Leconte*, 326.
 Oxybleta, *Stal*, 444.
 Oxycerus [see Ocyceros].
 Oxydema, *Wollaston*, 316.
 Oxyethira, *Eaton*, 430.
 Oxyprora, *Stal*, 441.
 Oxyprymna, *Stal*, 447.
 Oxyrrhepes, *Stal*, 443.
 Ozophora, *Uhler*, 451.
 Pachyonyx ||, *Walsh*, 363 [Schönherr, Coleoptera, 1824].
 Pachyops, *Wollaston*, 317.
 Pachypus ||, *Cambridge*, 203 [Dejean, Coleoptera, 1821; *D'Alton*, Mammalia, 1839].
 Pachystylus, *Wollaston*, 317.
 Pachytrogus, *Wollaston*, 316.
 Palæolemur, *Delfortrie*, 7.
 Palæopneustes, *A. Agassiz*, 500.
 Pallasia ||, *Homeyer*, 64 [Desvoidy, Diptera, 1830; *Quatrefages*, Annelida, 1848; -us, *Desmarest*, Crustacea, 1825].
 Palustra, *Bar*, 394.
 Panamomus, *Gorham*, 341.
 Pangolin, *J. E. Gray*, 20 [-nus, *Rafinesque*, Mammalia, 1829].
 Parachorius, *Harold*, 270.
 Paraonius, *Grube*, 473.
 Paraphæa, *H. W. Bates*, 235.
 Pararhyssa, *Walsh*, 364.
 Paratichidius, *Brady & Robertson*, 194.
 Parathalestris, *Brady & Robertson*, 194.
 Paratrachys, *E. Saunders*, 277.
 Paromi [oi] dia, *Reitter*, 262.
 Parthenopea, *Kossmann*, 196 [-pia, *Oken*, Mollusca, 1815; -pe, *Fabricius*, Crustacea, 1798].
 Paryzeta, *Pascoe*, 303.
 Pasilia, *Mulsant & Rey*, 251.
 Patroclus ||, *Cresson*, 359 [Montfort, Polypi, 1808].
 Pedioscertetes, *Thomas*, 442.
 Peliochrous, *Stal*, 450.
 Pentacoptus, *Wollaston*, 310.
 Pentamimus, *Wollaston*, 317.
 Perionyx, *Perrier*, 476.
 Periptyches, *Grube*, 473.
 Perixerus, *Gerstäcker*, 442.
 Peronyma, *H. Loew*, xii. (Perthalyera, *Crotch*, 262.)
 Petrinia, *Walker*, 397.
 Phacegaster [Phaco-, vel Phacelo-], *Wollaston*, 314.
 Phæcasiophara, *Grote*, 470.
 Phænocephalus, *Wollaston*, 258.
 Phænogyra, *Mulsant & Rey*, 251.
 Phæoparia, *Stal*, 444.
 Phæopholus, *Roelofs*, 299.
 Phalænophana, *Grote*, 401.
 Phalænostola, *Grote*, 401.
 Pharsalia, *Cresson*, 362.
 Phatagin, *J. E. Gray*, 20 [-nus, *Rafinesque*, Mammalia, 1829].

- Phespia, *H. W. Bates*, 325.
 (Phillygra, *Mulsant & Rey*, 252.)
 Philometra, *Grote*, 401.
 Philophyllia, *Stal*, 440 [-phylla, *Rondani*, Diptera, 1870].
 Philothamna, *Salvadori & Antinori*, 59.
 Phloeophagomorphus, *Wollaston*, 312.
 Phloeophagosoma, *Wollaston*, 310.
 Phlogothraupis, *Sclater & Salvin*, 62.
 Phoberus ||, *Kirsch*, 284 [*MacLeay*, Coleoptera, 1819; -ria, *Hübner*, Lepidoptera, 1816].
 Phoenissa, *H. W. Bates*, 325.
 Pholeuon ||, *L. Koch*, 200 [*Hampe*, Coleoptera, 1856].
 Pholidoforus [-phorus ||], *Wollaston*, 310 [*Agassiz*, Pisces, 1833].
 Pholidonotus, *Wollaston*, 313.
 Phrictus ||, *L. Koch*, 200 [*Spinola*, Homoptera, 1839].
 Phrixocoma, *Eaton*, 430.
 Phrynopus, *Peters*, 95 [-nops, *Wagler*, Reptilia, 1830; -opsis, *Fitzinger*, Reptilia, 1843].
 Phyllodotes ||, *Finsch*, 34, [*Wagler*, Reptilia, 1830].
 Phyllogonia, *Stal*, 448.
 Phylломimus, *Stal*, 441.
 Phyllophya, *Stal*, 450.
 Phyllostachys, *Stal*, 441.
 Phyllostingis, *Walker*, 454.
 Phymatogonia, *Stal*, 447.
 Piara, *Loew*, 423 [-rus, *Wollaston*, Coleoptera, 1862].
 Pictinus, *Stal*, 455.
 Pilema, *Leconte*, 326 [-mia, *Fairmaire*, Coleoptera, 1864].
 Pinaciophora, *Greeff*, 530.
 Pisalia, *Mulsant & Rey*, 251.
 Pityolita, *Grote*, 401.
 Pityis ||, *Chambers*, 410 [*Beck*, Mollusca, 1837].
 Placastræa, *Stoliczka*, 508.
 Plagiographus, *Chevrolat*, 300.
 Plagiomimicus, *Grote*, 398.
 Plagiopleura, *Stal*, 441.
 Plagioptera, *Stal*, 441.
 Plagiotoma, *H. Loew*, xii.
 Plangia, *Stal*, 440.
 Planolinus, *Mulsant*, 271.
 Planolites, *Nicholson*, 478.
 Plasmophyllum, *Dybowskii*, 509.
 Plat[y]hypena, *Grote*, 400.
 Platylitron [Platylitron], *W. MacLeay*, 237 [-ra, *Fairmaire*, Coleoptera, 1863].
 Plectomerus, *Leconte*, 326.
 Prectranthias, *Bleeker*, 106.
 Plectrocnemia ||, *Stal*, 448. [*Stephens*, Neuroptera, 1836].
 Plectrocryptus, *Thomson*, 361.
 Pleonectopoda, *Grote*, 397.
 Plesiomœrix, *Gervais*, 15.
 Plesioperca, *Vaillant*, 106.
 Plumarius, *Philippi*, 366.
 Plutellus, *Perrier*, 476 [-la, *Schrank*, Lepidoptera, 1802].
 Pœcilta, *Stal*, 458.
 Polycricus [see Polykrikos].
 Poliococcyx, *Sharpe*, 51.
 Poliopogon, *W.-Thomson*, 520.
 Polyænus, *Cresson*, 361.
 Polycantha, *Sollas*, 521 [-thus, *Swainson*, Pisces, 1839].
 Polychara, *Mulsant & Rey*, 252.
 Polyplumaria, *Sars*, 514.
 Polyrhabdus, *Walsh*, 363.
 Polykrikos [Polyericus], *Butschli*, 526.
 Pompholyx ||, *Stal*, 445 [*Gosse*, Rotatoria, 1851; *Lea*, Mollusca, 1856; *Freygnuth*, Hymenoptera, 1870].
 Pontobasileus, *Leidy*, 11.
 Porphyropsiza, *Sclater & Salvin*, 63.
 Potosia, *Mulsant*, 275.
 Prionidia, *Stal*, 444 [-dium, *Burmeister*, Coleoptera, 1865].
 Prionolomia, *Stal*, 448.
 Prionorhinus, *Chevrolat*, 301.
 Priops, *Reitter*, 261 [-opis, *Cuvier*, Pisces, 1830; -opus, *Laporte*, Coleoptera, 1840].
 Prio[no]rhinus, *Chevrolat*, 301.
 Pristomachærus, *H. W. Bates*, 238.
 Prochonæsea, *Hesse*, 191.
 Procolopia, *Stal*, 443.
 Proderops, *Fairmaire*, 289.
 Pronuba, *Riley*, 410 [in error, *Promiba*, Zool. Rec. ix. pp. 380 & 494].
 Propyasaon, *Bland & Binney*, 160. (Protenor, *Stal*, 449.)
 Protoporus, *Cope*, 119.
 Proxius, *Stal*, 455 [-xis, *Spinola*, Hemiptera, 1837].
 Psammocolex, *Klemm*, 478.
 Psammoxenus, *Chaudoir*, 235.
 Psephurus, *Günther*, 105.
 Psetalia, *Gray*, 519.
 Pseudabarys, *Chaudoir*, 241.
 Pseudanthias, *Bleeker*, 106.
 Pseudasopia, *Grote*, 405.
 Pseudebæus, *Horn*, 281.
 Pseudobatrachus, *Peters*, 95.
 Pseudocistela, *Crotch*, 291.
 Pseudocleonus, *Chevrolat*, 301.
 Pseudocneorhinus, *Roelofs*, 298.
 Pseudocssonus, *Wollaston*, 310.
 Pseudomesoxenus, *Wollaston*, 313.
 Pseudopentarthrum, *Wollaston*, 312.
 Pseudophloeophagus, *Wollaston*, 313.
 Pseudoryctes, *Sharp*, 274.
 Pseudotarthius, *Wollaston*, 265.
 Psilistus, *Stal*, 458.

- Psilodryophthorus*, *Wollaston*, 312.
Psilosomus, *Wollaston*, 314.
Psinidia, *Stal*, 444.
Psophus, *Stal*, 444 [-phia, *Linnaeus*, *Aves*, 1766].
Ptenos, *Norton*, 370.
Pterætholix, *Grote*, 398.
Pternistria, *Stal*, 449.
Pterygomia, *Stal*, 1873 [omitted from *Hemiptera*].
Pterygomus, *Jekel*, 308.
Ptyctus, *Stal*, 449.
Pubinus, *Mulsant*, 271.
Punctius, *Stal*, 458.
Pupisoma, *Stoliczka*, 168.
Pycnocryptus, *Thomson*, 360.
Pycnodactylus, *Chevrolat*, 301.
Pycnodictya, *Stal*, 444.
Pyrgocorypha, *Stal*, 441.
Pyrgoteles, *Gerstæcker*, 461.
Pyrrhicia, *Stal*, 441.

Quilnus, *Stal*, 455.

Rachia, *Walker*, 398.
Ravenia, *Crosse*, 157.
Ramondionymus, *Wollaston*, 311.
Retia, *Sollas*, 521.
Rhabdospongia, *Sollas*, 521.
Rhabduchus, *Gorham*, 342.
Rhadine ||, *Baudi*, 284 [*Leconte*, *Coleoptera*, 1846].
Rhinococcyx, *Sharpe*, 51.
Rhinognathus, *Fairmaire*, 296.
Rhizorhagium, *Sars*, 513.
Rhodonox, *Fischer*, 169.
Rhomalea ||, *L. Koch*, 202 [*Burmeister*, *Orthoptera*, 1839].
Rhopalessa, *H. W. Bates*, 325.
Rhopalomesites, *Wollaston*, 314.
Rhopalorhynchus, *Wood-Mason*, 196.
Rhopaloscelis, *Blessig*; 330.

Rhynchofalco, *Ridgway*, 46.
Rhytidochrota, *Stal*, 444.
Rhyzodina [Rhyso-], *Chevrolat*, 266.
Ricola, *Walker*, 398.
Riolus, *Mulsant & Rey*, 267.
Ru[e]ppelia, *Castelnau*, 109 [Rueppellia, *Wiedeman*, *Diptera*, 1830; *M. Edwards*, *Crustacea*, 1834; *Ruppellia*, *Swainson*, *Pisces*, 1839].

Sabinotrochus, *Duncan*, 507.
Samythella, *Verrill*, 474.
Saphobius, *Sharp*, 270.
Scaphostethus, *Roelofs*, 302.
Scepticus, *Roelofs*, 296.
Schizax, *Leconte*, 326.
Schizæaca, *Cabanis*, 53.
Scholastes, *Loew*, 423.
Sciatta, *Walker*, 392.
Scionopsis, *Verrill*, 474.
Sciophyrus, *Stal*, 449.
Scopiorus, *Stal*, 441.
Scoptonoma, *Zeller*, 413.
Scoterpes, *Cope*, 214.
Scotina, *Menge*, 202 [-nus, *Kirby*, *Coleoptera*, 1817].
Scotinosoma, *Loew*, 423.
Scotomedes, *Stal*, 458.
Scotonomus, *Fauvel*, 255.
Scudderia, *Grote*, 380.
Scudderia, *Stal*, 441.
Sebastopsis, *Sauvage*, 110.
Selamia, *Simon*, 203 [-mus, *Walker*, *Hymenoptera*, 1829].
Sericotrogus, *Wollaston*, 312.
Sharpia, *Tournier*, 302.
Sigorus, *Mulsant*, 271. (*Silenia*, *Mulsant & Rey*, 252.)
Silotrupes, *Mulsant & Rey*, 271.
Siphonaxis, *Dybowski*, 509.
Sizalisca, *Walker*, 392.
Solenosmilia, *Duncan*, 507.
Solenostoma ||, *Brady & Robertson*, 194 [*Latreille*, *Arachnida*, 1802].
Spargaloma, *Grote*, 398.
Sphærastrum, *Greeff*, 530.

Sphærocorynes, *Wollaston*, 310.
Sphærocysta, *Stal*, 454.
Sphalera ||, *Chaudoir*, 235 [*Leconte*, *Coleoptera*, 1859].
Sphalma, *Horn*, 292.
Spilocryptus, *Thomson*, 360.
Spiloloma, *Grote*, 398.
Spiloscapa, *F. Bates*, 287.
Steganomus, *C. Ritsema*, 347.
Stegodyphus, *Simon*, 203.
Stegosoma ||, *Cambridge*, 206 [*Loew*, *Diptera*, 1863].
Steneretma, *Loew*, 424.
Stenocryptus, *Thomson*, 361.
Stenodryas, *H. W. Bates*, 325.
Stenomacra ||, *Loew*, 424 [*Stal*, *Hemiptera*, 1870].
Stenomimus, *Wollaston*, 315.
Stenommatius, *Wollaston*, 312.
Stenopa, *H. Loew*, xii. [-pus, *Guilding*, *Mollusca*, 1827; *Latreille*, *Crustacea*, 1829].
Stenopirates, *Walker*, 456.
Stenopola, *Stal*, 444.
Stenopseustes, *H. W. Bates*, 325.
Stenoscapa, *F. Bates*, 287.
Stenotettix, *Stal*, 441.
Stenotribus, *Wollaston*, 314.
Stenotrupis, *Wollaston*, 312.
Stenygrinum, *H. W. Bates*, 325.
Stephanitis, *Stal*, 454.
Stephanophorus ||, *Chevrolat*, 301 [*Strickland*, *Aves*, 1841].
Stereoborus, *Wollaston*, 316.
Stereocorynes, *Wollaston*, 317.
Stereoderus, *Wollaston*, 316.
Stereomimetes, *Wollaston*, 316.
Stereotribus, *Wollaston*, 316.

- Stereotrogus, *Wollaston*, 316.
 Sternidius, *Leconte*, 330.
 Stictoccephala ||, *Loew*, 424 [*Stal*, Homoptera, 1869].
 Stilpnochlora, *Stal*, 440.
 Stiphropus, *Gerstäcker*, 208.
 Stolatus, *Mulsant & Godart*, 300.
 Strangal[i]omorpha, *Blessig*, 327.
 Stridova, *Walker*, 398.
 Strongylacantha, *Beneden*, 491.
 Struthiolithus, *Brandt*, 74.
 Stygodromus, *Cope*, 189.
 Stylocordyla, *W.-Thomson*, 519.
 Stylocryptus, *Thomson*, 361.
 Styloxus, *Leconte*, 330.
 Styphloderes, *Wollaston*, 313.
 Styrus, *F. Bates*, 289.
 Subrinus, *Mulsant*, 271.
 Suphisellus [Syph-] *Crotch*, 246.
 Surina, *Walker*, 391.
 Synchytodes, *Crotch*, 265.
 Synnema, *Haast*, 111.
 Synommatus, *Wollaston*, 312.
 Syntaces, *Loew*, 424.
 (Syntherata, *Maassen & Weymer*, 393.)
 Syrbus, *Stal*, 444.

 Tachosa, *Walker*, 397.
 Tachyusida, *Mulsant & Rey*, 251.
 Tæniophora, *Stal*, 444.
 Tæniopoda, *Stal*, 443.
 Taicna, *H. W. Bates*, 235.
 Taphronota, *Stal*, 443.
 Tarphiomimetes, *Wollaston*, 265.
 Tarphiomimus, *Wollaston*, 265.
 Tavila, *Walker*, 398.
 Tegetricula, *Zeller*, 411.
 Teinogenys [Tino-], *Sharp*, 274.
 Temnosophus, *Horn*, 281.
 Tenebrionellus, *Crotch*, 289.

 Tentegia, *Pascoe*, 308.
 Teretriosoma, *Horn*, 260.
 Terpnistria, *Stal*, 441.
 Tetanolita, *Grote*, 401.
 Tetrablemma, *Cambridge*, 201.
 Tetracidaris, *Cotteau*, 503.
 Tetracoctus, *Wollaston*, 317.
 Tetragonothorax, *Chevrolat*, 301.
 Tetratænia, *Stal*, 444.
 Tetratemnus, *Wollaston*, 312.
 Thalassarachna, *Packard*, 212.
 Thaumastophasis, *Wollaston*, 313.
 Thaum[at]ops, *W.-Suhm*, 189.
 Thenetria, *Schauer*, 59.
 Thermoscelis, *Putzeys*, 243.
 Thompsonia, *Kossmann*, 196.
 Thuridilla, *Bergh*, 154.
 Thyrsoporella, *Gümbel*, 531.
 Tillotherium, *Marsh*, 15.
 Timana, *Walker*, 403.
 Tinogenys [see Teinogenys].
 Tisiphore, *Reitter*, 261.
 Titanus ||, *Perrier*, 475 [*Serville*, Coleoptera, 1832].
 Tollius, *Stal*, 449.
 Tolna, *Walker*, 398.
 Tomolips, *Wollaston*, 318.
 Tomopteryx, *Philippi*, 403 [-rus, *Serville*, Coleoptera, 1833].
 Toxabramis, *Günther*, 119.
 Trachydemus, *Chevrolat*, 301.
 Trachyphloeops, *Roelofs*, 297.
 Traina, *Walker*, 403.
 Traphera, *Loew*, 423.
 Traulia, *Stal*, 444.
 Tribalister, *Horn*, 260. (Trichiota, *Mulsant & Rey*, 252).
 Trichocnemus, *Stal*, 449.
 Trichocryptus, *Thomson*, 361.
 Trichopetalum, *Harger*, 214.

 Trichotaster, *Wright*, 503.
 Trichotettix, *Stal*, 441.
 Trichymenus, *Reuter*, 453.
 Trigonocorypha, *Stal*, 440.
 Trilophidia, *Stal*, 444.
 Trimerotropis, *Stal*, 445.
 Tripocris, *Grote*, 390.
 Tristria, *Stal*, 444.
 Trittame, *L. Koch*, 200.
 Tritoxa, *Loew*, 424.
 Tropidolopa, *Stal*, 444.
 Tropidolophus, *Thomas*, 442.
 Tropidoscincus, *Bocage*, 87.
 Trymosternus, *Chaudoir*, 235.
 Tuerta, *Walker*, 397.
 Tychiodes, *Wollaston*, 310.
 Tychiosoma, *Wollaston*, 312.
 Tylophorus, *Blessig*, 330.
 Typhlacontias, *Bocage*, 88.
 Typhlodes, *Sharp*, 254.

 Ufeus, *Grote*, 397.
 Uliodon, *L. Koch*, 202.
 Ulomimus [Ulomimi-], *F. Bates*, 288.
 Urochæta, *Perrier*, 476.
 Urodoplatus[-tys, vel Platyturodon], *Motschoulsky*, 321.
 Uropsila, *Sc Slater & Salvin*, 61.

 Vaena, *Walker*, 393.
 Vatica, *Walker*, 405.
 Verrilia, *Stearns*, 508 [-liana, *J. E. Gray*, Cœlenterrata, 1869].
 Viana, *Walker*, 392.
 Vitriinoconus, *Semper*, 160.
 Vitriinoidea, *Semper*, 158.
 Vitrinopsis, *Semper*, 158.
 Volinus, *Mulsant*, 271.

 Wagneria ||, *Alenitzin*, 521 [*Desvoidy*, Diptera, 1830].
 Washakius, *Leidy*, 9.
 Westwoodia ||, *Castelnau*, 274 [*Brullé*, Hymenoptera, 1846; *Desvoidy*, Diptera, 1863].
 Wollastonia ||, *Horn*, 318 [*Heer*, Coleoptera, 1852].

- Xanthochelus*, *Chevrolat*, 301 [-*chilus*, *Stal*, *Hemiptera*, 1872].
Xasca, *Walker*, 405.
Xeda, *Pascoe*, 303.
Xenochara, *Mulsant & Rey*, 252.
Xenocnema, *Wollaston*, 317.
Xenocrasis, *H. W. Bates*, 325.
Xenodacnis, *Cabanis*, 61.
Xenomimetes, *Wollaston*, 310.
Xenomystus, *Lütken*, 118.
Xenosomatium, *Wollaston*, 312.
Xenotrupidis, *Wollaston*, 317.
Xerobia, *Stal*, 444.
Xestoderma, *Wollaston*, 317.
Xestosoma, *Wollaston*, 317.
Xestomorphus, *Wollaston*, 317.
Xylocrius, *Leconte*, 326.
Zagymnus, *Leconte*, 326.
Zamodes, *Leconte*, 326.
Zantecla, *Castelnau*, 114.
Zaracha, *Walker*, 391.
Zarfa, *Walker*, 392.
Zeuxo ||, *Kossmann*, 192 [*Templeton*, *Crustacea*, 1836].
Zinara, *Walker*, 393.
Ziphila, *J. E. Gray*, 20.
Zirona, *Walker*, 398.
Zonipoda, *Stal*, 444.
Zonocerus, *Stal*, 443.
Zoroaster, *W. Thomson*, 502.

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