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UNITED STATES GEOLOGICAL SURVEY

J. W. POWELL, DIRECTOR

A BIBLIOGRAPHY
OF
PALEOZOIC CRUSTACEA

FROM

1698 to 1889

INCLUDING A LIST OF NORTH AMERICAN SPECIES AND A
SYSTEMATIC ARRANGEMENT OF GENERA

BY

ANTHONY W. VOGDES



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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
DIVISION OF PALEOZOIC INVERTEBRATE PALEONTOLOGY,
Washington, D. C., May 1, 1890.

SIR: I have the honor to transmit herewith, for publication, a bibliography of Paleozoic Crustacea, prepared by Lieutenant A. W. Vogdes, U. S. A.

The bibliography bears internal evidence of long continued and extended research and its publication will supply a work of reference that has long been needed by the student of invertebrate Paleozoic fossils.

I remain, very respectfully,

CHAS. D. WALCOTT,
Paleontologist.

Hon. J. W. POWELL,
Director U. S. Geological Survey.

INTRODUCTION.

The sole object of this bulletin is to give a general view of the literature on the Paleozoic Crustacea and to aid students and paleontologists in their researches. It is the result of more or less constant work during the past ten years.

In its compilation I have examined almost every reference before recording it; those not so examined are indicated by a star (*) following the title.

For convenience, the subject-matter has been arranged as follows:

Part I. List of authors, including a brief index of the genera described in each work.

Part II. A catalogue of the North American Paleozoic trilobites.

Part III. The non-trilobitic Paleozoic Crustacea, with a list of the species.

I am well aware that the value of a work of this kind depends upon the care and labor given to its compilation. Every possible means of obtaining accurate information from a miscellaneous class of literature in many languages has been used, and it is hoped that there are but few errors and omissions.

I would thank those into whose hands this bulletin may fall for any information that would add to its value as a working hand-book.

A. W. VOGDES.

FORT HAMILTON, NEW YORK HARBOR, *April* 30, 1889.

PART I.

LIST OF AUTHORS.

A BIBLIOGRAPHY OF PALEOZOIC CRUSTACEA FROM 1698 TO 1889,

INCLUDING

A LIST OF NORTH AMERICAN SPECIES AND A SYSTEMATIC ARRANGEMENT OF GENERA.

BY ANTHONY. W. VOGDES.

PART I.

LIST OF AUTHORS.

A star (*) following a title indicates that the reference is recorded without opportunity for personal verification.

Agassiz (L.) Monographie des poissons fossiles du vieux grès rouge ou système dévonien (old Red Sandstone) des îles Britanniques et de Russie.

Text, Soleure; atlas, Neuchâtel, 1845, pp. xix-xx, note; and atlas, Tab. A.

Pterygotus n. g.

Alth (Alois von). Ueber die paläozoischen Gebilde Podoliens und deren Versteinerungen. Erste Abtheilung.

In Abhandl. k. k. geol. Reichsanst., vol. 7, pt. 1, Wien, 1874, 5 pl.

Proetus, *Cyphaspis*, *Dalmania*, *Calymene*, *Ceraurus*, *Sphaerexochus*, *Encrinurus*, *Ilænus*, *Eurypterus*, *Pterygotus*, *Stylonurus*, *Beyrichia*, *Leperditia*, *Primitia*, *Bairdia*.

Alton (Ed. de). See Burmeister and Alton.

Ami (Henry M.) Notes on *Triarthrus spinosus* Billings.

In Trans. Ottawa Field Nat. Club, No. 4, 1882-'83, p. 88, 1 pl.

Angelin (N. P.) Palæontologia Scandinavica. Pars I. Crustacea formationis transitionis. Lipsiæ, 1854, 4to.

The first part of this work, entitled "Palæontologia Scandinavica," containing pp. 1-24 and pl. 1-24, was published by the Royal Swedish Academy of Sciences in 1852. The second portion in 1854, including a preface, pp. 1-9 and pp. 21-92, pl. 25-42.

The genera are arranged in the following order: *Olenus*, *Paradoxides*, *Cryptonyx*, *Eryx*

Angelin (N. P.)—Continued.

n. g. (corrected by Angelin to *Elyx*, the generic term *Eryx* having been used by Stephen in 1832 for a genus of the Coleoptera), *Acontheus* n. g. (corrected by the author to that of *Aneucanthus*), *Agnostus*, *Phacops*, *Polytomurus*, *Remopleurides*, *Niobe* n. g., *Megalaspis* n. g., *Nileus*, *Ampyx*, *Proetus*, *Phæthonides* (Angelin uses this term for that of *Phæton* Barr.), *Forbesia*, *Gonio-pleura*, *Celmus* n. g., *Anomocare* n. g., *Solenopleura* n. g., *Liostracus* n. g., *Calymene*, *Homalonotus*, *Pliomera* (*Amphion*), *Cheirurus*, *Cyrtometopus* n. g., *Acidaspis*, *Trapelocera*, *Sphaerexochus*, *Acidaspis*, *Rhodope* n. g. (this term was used by Siebold in 1848 for a genus of the Gasteropoda), *Dysplanus*, *Bumastus*, *Ilænus*, *Eglina*, *Olenus*, *Peltura*, *Parabolina*, *Acerocare* n. g., *Leptoplastus* n. g., *Eurycare* n. g. (this genus is referred by J. W. Salter, Mem. Geol. Survey United Kingdom, Brit. Organic Remains, decade xi, pl. 8, p. 3, to the genus *Sphaerophthalmus* Ang.), *Sphaerophthalmus* n. g., *Anopocare* n. g. (this genus is referred by J. G. O. Linnarsson, Geol. Förening. Stockholm Förh., vol. 5, 1880-'81, p. 136, to the genera *Peltura* and *Sphaerophthalmus*; the specimen, according to Dr. Linnarsson, in the Royal Museum of Sweden, "marked by Angelin as the abdomen till *Stenom. pusillus*, contains several small heads of *Sphaerophthalmus alatus*, and a small pygidium of *Peltura scarabæoides*;" Dr. Linnarsson refers to this specimen as Angelin's type for the genus *Anopocare* and also remarks "that Angelin intended to change the family name of *Sphaerophthalmus alatus* and their nearest forms to that of *Stenomtopus*, inasmuch as another specimen of *Sph. alatus* has, in Angelin's own hand-

Angelin (N. P.)—Continued.

writing, the generic name of *Stenomelopus*"), *Ptychopyge* n. g., *Asaphus*, *Bronteus*, *Holomelopus* n. g., *Isocolus*, *Corynexochus* n. g., *Symphysurus*, *Euloma* n. g., *Pharostoma*, *Conocoryphe*, *Trinucleus*, *Sphaerexocoryphe* n. g., *Deiphon*, *Stauropcephalus*, *Lichas*, *Dolichometopus* n. g., *Platymetopus*, *Cyrtometopus*, *Ampyx*, *Raphiophorus*, *Lonchodomas*, *Harpes*, *Arraphus* n. g., *Harpides*, *Centropleura* n. g. (J. G. O. Linnaeus, Svenska Vetensk. Akad. Handl., vol. 8, 1869, No. 2, p. 71, cites Angelin's *Centropleura angusticauda* and *C. dicreura* under Dr. Owen's genus *Dikelocephalus*), *Cybele*, *Telephus*, *Ogygia*, *Ogygiocaris* n. g.

— **Palæontologia Scandinavica. Pars I. Crustacea formationis transitionis fasciculi 1 et 2 cum tabulis 48.** Holmiæ, 1878 (3d ed.).

This work contains plates 1, 1a, 2, 3, 20, 22, with an appendix, pp. 93-96. Emended and revised by Prof. Gustaf Lindström.

The appendix contains descriptions and figures of the following species: *Paradoxides tessini*, *P. tessini* var. *wahlenbergii*, *P. tessini* var. *calandrini*, *P. affinis*, *P. tuberculatus*, *P. forchhammeri*, *P. tumidus*, *Centropleura loveni*, *C. steenstrupi*, *Ogygiocaris dilatata*, *O. dilatata* var. *sarsi*, *O. dilatata* var. *strömi*, in addition to the genera and species described in the second edition.

Anthony (J. G.) New Trilobites.

In Am. Jour. Sci., 1st series, vol. 34, 1838, p. 379.

Ceratocephala ceralepta, figs. 1 and 2.

— Description of a new fossil (*Calymene bucklandii*).

In Am. Jour. Sci., 1st series, vol. 36, 1839, p. 106.

In this article a specimen of *Ceravrus pleuranthemus* Green was figured and described under the name of *Calymene bucklandii* as a new species.

Audouin (J. V.) Recherches sur les rapports naturels qui existent entre les Trilobites et les animaux articulés.

In Annales Gén. Sc. Phys. Nat., Bruxelles, vol. 8, 1821, pl. 18, p. 233; also Isis (oder Encyc. Zeitung), Oken, vol. 1, 1822, p. 87.

Calymene blumenbachii.

Baily (W. H.) On two new species of Crustacea (*Belinurus* König) from the Coal Measures in Queen's County, Ireland; and some remarks on forms allied to them.

In Rept. 28th Meeting Brit. Assoc. Adv. Sci., 1858, p. 76.

— On the annuloid Crustacea of the Coal Measures. (*)

In Jour. Geol. Soc. Dublin, vol. 8, 1858, p. 89.

In this paper a description of a fossil Crusta-

Baily (W. H.)—Continued.

cean from the Bilboa Colliery, Queen's County, was given, with a few remarks on the allied species from Coal Brook Dale, which had been included with it in the genus *Limulus*, and it was proposed to remove all these Coal-Measure Crustacea from that genus and group them into a new one, under the name of *Steropsis*.

— Remarks on some Coal-Measure Crustacea belonging to the genus *Belinurus* König, with descriptions of two new species from Queen's County, Ireland. Pl. 5.

In Annals Nat. Hist., 3d series, vol. 2, 1863, p. 105. Translated by Milne-Edwards, Annales Gén. Sc. Phys. Nat., Bruxelles, 1863.

The author herein describes *Belinurus reginae*, *B. arcuatus*, *B. bellulus*, *B. rotundus*?

Charles König in his work (Icones Fossilium Sectiles, London, 1825) simply mentions the name of *Belinurus bellulus* in his explanation of pl. 18, fig. 230.

— Figures of characteristic British fossils, with descriptive remarks.

Pt. 1, pls. 1-10, Cambrian and Lower Silurian, London, 1867; pt. 2, pls. 11-20, 1869; pt. 3, pls. 21-30, 1871.

Paradoxides, *Dikelocephalus*?, *Olenus*, *Palæopyge*, *Conocoryphe*, *Angelina*, *Proetus*, *Phacops*, *Calymene*, *Homalonotus*, *Lichas*, *Trinucleus*, *Ampyx*, *Asaphus*, *Ogygia*, *Niobe*, *Pelicocephalus*, *Ægina*, *Cheirurus*, *Sphaerexochus*, *Encrinurus*, *Illenus*, *Agnostus*, *Eurypterus*, *Pterygotus*, *Ceratiocaris*, *Beyrichia*, *Cythere*, *Primitia*, *Hymenocaris*.

— On Trilobites and other fossils from Lower or Cambro-Silurian strata in the county of Clare. (*)

In Jour. Royal Geol. Soc. Ireland, vol. 17, pt. 1, 1886, p. 29.

Banks (R. W.) On the tilestones or Downton sandstones, in the neighborhood of Kington, and their contents.

In Quart. Jour. Geol. Soc. London, vol. 12, 1856, p. 93, plate.

Pterygotus, *Pteraspis*, *Eurypterus*, *Himantopteris*.

Barrande (Joachim). Notice préliminaire sur le système silurien et les Trilobites de Bohême. Leipsic, 1846.

Étage C: *Paradoxides*, *Conocoryphe*, *Ellipsocephalus*, *Arion* n. g., *Sao* n. g., *Balthus*, *Hydrocephalus* n. g., *Monadina* n. g.

Étage D: *Phacops*, *Calymene*, *Odontopleura*, *Asaphus*, *Cheirurus*, *Trinucleus*, *Caphyra* n. g., *Dione* n. g., *Illenus*, *Egle* n. g., *Battus*.

Étage E: *Phacops*, *Arethusa* n. g., *Sphaerexochus*, *Asaphus*, *Cheirurus*, *Calymene*, *Stauropcephalus* n. g., *Lichas*, *Harpes*, *Odontopleura*, *Cyphasps*, *Bronteus*, *Phæton* n. g., *Proetus*.

Barrande (Joachim)—Continued.

Étage F: *Phacops*, *Bronteus*, *Lichas*, *Proetus*, *Harpes*, *Cheirurus*, *Odontopleura*, *Cyphaspis*.

Étage G: *Phacops*, *Bronteus*, *Cheirurus*, *Cyphaspis*, *Odontopleura*, *Proetus*.

— Nouveaux Trilobites. Supplément à la Notice préliminaire sur le système silurien et les Trilobites de Bohême. Prague, 1846.

Étage C: Schistes fossilifères.

Étage D: *Cheirurus*, *Phacops*, *Ampyx*, *Odontopleura*, *Illænus*.

Étage E: *Arethusina*, *Harpes*.

Étage F: *Proetus*, *Phæton*, *Bronteus*, *Odontopleura*.

Étage G: *Harpes*, *Cheirurus*, *Phacops*.

— Ueber das Hypostoma und Epistoma, zwei analoge aber verschiedene Organe der Trilobiten.

In Neues Jahrbuch für Mineral., 1847, p. 385, pl. 8.

Phacops socialis, *P. breviceps*, *Amphion*, *Illænus*, *Cheirurus*, *Asaphus*, *Lichas*.

The generic term *Dione* is herein modified to that of *Dionide*, p. 391.

— *Sao hirsuta* Barrande, ein Bruchstück aus dem "Système silurien du centre de la Bohême."

In Neues Jahrbuch für Mineral., 1849, p. 385, pl. 7.

Sao.

— Note on Trilobites.

In Ber. Mittheil. Freunde Naturw., Wien, vol. 4, 1849, p. 353.

Noticed by J. W. Salter.

In Quart. Jour. Geol. Soc. London, vol. 5, 1849, pt. 2, p. 34.

— *Deiphon forbesii*, neuer Trilobit aus Böhmen.

In Ber. Mittheil. Freunde Naturw., Wien, vol. 5, 1850, p. 6.

— Versuch einer Klassifikation der Trilobiten.

In Neues Jahrbuch für Mineral., 1850, p. 769.

— Système silurien du centre de la Bohême. 1^{re} partie. Recherches paléontologiques. Prague et Paris, 1852.

Vol. 1. Text, Crustacés, Trilobites. With atlas of 51 pls.

This classical work contains a historical sketch of all the genera of Trilobites, and descriptions of the following genera:

Harpes, *Remopleurides*, *Paradoxides*, *Hydrocephalus*, *Sao*, *Arionellus* n. g., *Ellipsocephalus*, *Olenus*, *Peltura*, *Triarthrus*, *Conocephalites*, *Proetus*, *Phillipsia*, *Griffithides*, *Cyphaspis*, *Arethusina* (generic term changed from that of *Arethusina*), *Harpides*, *Phacops*, *Dalmanites*, *Calymene*, *Homalonotus*, *Lichas*, *Trinucleus*, *Ampyx*, *Dionide* (generic term

Barrande (Joachim)—Continued.

changed from *Dione* to *Dionide*), *Asaphus*, *Ogygia*, *Æglina* n. g., *Illænus*, *Nileus*, *Symphysurus*, *Acidaspis*, *Cheirurus*, *Placoparia*, *Sphærexochus*, *Staurocephalus*, *Deiphon*, *Dindymene*, *Zethus*, *Amphion*, *Encrinurus*, *Cromus* n. g., *Bronteus*, *Agnostus*, *Telephus* n. g.

— On *Ceratiocaris bohemicus*.

In Neues Jahrbuch für Mineral., 1853, pt. 3, pp. 335-347.

On p. 335 of this article there is a review of Dr. D. D. Owen's Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, Phila., 1852.

? *Dicalocephalus*, etc.

— Note sur quelques nouveaux fossiles découverts aux environs de la ville de Rokitzan dans le bassin silurien du centre de la Bohême.

In Bull. Soc. Géol. France, 2d series, vol. 13, 1856, p. 532.

Calymene, *Placoparia*, *Acidaspis*, *Agnostus*, *Amphyx*, *Harpes*, *Ogygia*.

Mere mention of locality and period.

— Wiedererscheinung der Gattung *Arethusina* Barrande.

In Neues Jahrbuch für Mineral., 1858, p. 257, 1 pl.

Arethusina sandbergeri Barr.

— Documents anciens et nouveaux sur la faune primordiale et le Système Taconique en Amérique.

In Bull. Soc. Géol. France, 2d series, vol. 18, 1861, pp. 203-321, pls. 4, 5.

Paradoxides asaphoides Emmons, *P. thompsoni* Hall, *P. macrocephalus* Emmons, *P. vermiformis* Hall, *Peltura (Olenus) holopygia* Hall, *Atops trilineatus* Emmons, *A. punctatus* Emmons, *Triarthrus becki* Green, *Microdiscus quadricostatus* Emmons.

— I. Réapparition du genera *Arethusina* Barrande. II. Faune silurienne des environs de Hof, en Bavière. Prague et Paris, 1868.

Olenus, *Conocephalites*, *Arethusina*, *Calymene*, *Bavarilla* n. g., *Lichas*, *Asaphus*, *Cheirurus*, *Agnostus*.

— Trilobites. I. Résumé général de nos études sur l'évolution des Trilobites. II. Distribution verticale des Trilobites dans le bassin silurien de la Bohême. III. Parallèle entre les Trilobites et Céphalopodes siluriens de la Bohême. IV. Épreuve des théories paléontologiques par la réalité. Prague et Paris, 1871.

— Système silurien du centre de la Bohême. 1^{re} partie. Recherches paléontologiques. Supplément au vol. 1.

Barrande (Joachim)—Continued.

Trilobites. Crustacés divers et poissons.
Prague et Paris, 1872, 32 pls.

Trilobites. *Harpes*, *Remopleurides*, *Paradozides*, *Plutonina*, *Anopolenus*, *Dikelocephalus*, *Dolichometopus*, *Hydrocephalus*, *Olenus*, *Olenellus*, *Bohemilla*, *Conocephalites*, *Aneucanthus*, *Angelina*, *Anomocare*, *Arionellus*, *Atops*, *Bathyrus*, *Chariocephalus*, *Corynexochus*, *Ellipsoccephalus*, *Holocephalina*, *Ptychaspis*, *Sao*, *Triarthrus*, *Triarthrella*, *Proetus*, *Arethurina*, *Carmen* n. g., *Cyphaspis*, *Cyphoniscus*, *Harpides*, *Isocolus*, *Phillipsia*, *Phacops*, *Dalmanites*, *Calymene*, *Bavarilla*, *Homalonotus*, *Lichas*, *Trinucleus*, *Ampyz*, *Dionide*, *Endymionia*, *Microdisculus*, *Asaphus*, *Barrandia*, *Ogygia*, *Psilcephalus*, *Stygina*, *Eglina*, *Ilænurus*, *Acidaspis*, *Cheirurus*, *Areia*, *Crotalurus*, *Deiphon*, *Placoparia*, *Sphaerexochus*, *Staurocephalus*, *Zethus*, *Dindymene*, *Amphion*, *Cromus*, *Encrinurus*, *Bronteus*, *Ilænus*, *Nileus*, *Agnostus*, *Ilænopsis*, *Pemphigaspis*, *Shumardia*, *Telephus* n. g., *Triopus*.

Phyllopoda. *Ceratiocaris*, *Aptychopsis* n. g., *Cryptocaris* n. g., *Pterocaris* n. g.
Ostracodes. *Aristozoe* n. g., *Beyrichia*, *Bolbozoe* n. g., *Callizoe* n. g., *Oaryon* n. g., *Crescentilla* n. g., *Cythere*, *Cytheropsis* n. g., *Elpe* n. g., *Eutomis*, *Hippa* n. g., *Ischulina*, *Leperditia*, *Nothozoe* n. g., *Orozoe* n. g., *Primitia*, *Zonozoe* n. g.

Eurypteridæ. *Pterygotus*, *Eurypterus*.
Cirripedia. *Anatifopsis* n. g., *Plumulites* n. g., *Bactropus* n. g., *Dryalus* n. g.

See Corda (A. J. C.) and Hawle (Ignaz),

— and Verneuil (E. de). See Verneuil (E. de) and Barrande (Joachim).

Barrett (S. T.) The coralline or Niagara limestone of the Appalachian system as represented at Neapass's Cliff, Montagne, N. J.

In Am. Jour. Sci., 3d series, vol. 15, 1878, p. 370.

Proetus pachydermatus n. s.

— Description of a new Trilobite, *Dalmanites dentata*.

In Am. Jour. Sci., 3d series, vol. 11, 1876, p. 200, plate.

— On *Dalmanites dentata*.

In Am. Jour. Sci., 3d series, vol. 12, 1876, p. 70.

Barris (W. H.) New fossils from the Corniferous formation at Davenport.

In Davenport Acad. Nat. Sci., vol. 2, 1879, p. 282, pls. 10 and 11.

Proetus davenportensis n. s., pl. 11, fig. 8.

Barrois (Charles). Note sur des fossiles de Cathervielle.

In Bull. Soc. Géol. France, 3d series, vol. 8, 1880, p. 266.

Phacops secundus, *Dalmanites hausmani*, pl. 8.

Barrois (Charles)—Continued.

— Recherches sur les terrains anciens des Asturies et de la Galice.

In Mém. Soc. Géol. Nord, Lille, vol. 2, 1882, 630 pp., 20 pls.

Paradozides, *Conocephalus*, *Arionellus*.

— Sur les faunes siluriennes de la Haute-Garonne. Pls. 6, 7.

In Annales Soc. Géol. Nord, Lille, vol. 10, 1883, p. 151.

Cyphaspis, *Phacops*, *Dalmanites*, *Lichas*.

— Les appendices des Trilobites.

In Annales Soc. Géol. Nord, Lille, vol. 11, 1883-'84, p. 228.

— Mémoire sur le calcaire à Polypiers de Cabrières (Hérault).

In Annales Soc. Géol. Nord, Lille, vol. 13, 1885-'86, p. 74, plate.

Phacops, *Bronteus*.

— Sur la faune de Haut-de-Ver (Haute-Garonne).

In Annales Soc. Géol. Nord, Lille, vol. 13, 1885-'86, pls. 2, 3.

Harpes, *Cyphaspis*, *Phacops*, *Dalmanites*, *Lichas*, *Bronteus*.

— Sur le calcaire dévonien de Chaudesfonds (Maine-et-Loire).

In Annales Soc. Géol. Nord, Lille, vol. 13, 1885-'86, p. 170.

— Aperçu de la constitution géologique de la rade de Brest.

In Bull. Soc. Géol. France, 3d series, vol. 14, 1886, p. 678, pls. 31-33.

Homalonotus le Hiri Barrois.

Baumer (J. W.) Naturgeschichte des Mineralreichs mit besonderer Anwendung auf Thüringen. 2 vols. Gotha, 1763-'64, 1767.

Bayle (E.) Explication de la carte géologique de la France. Vol. 4. Atlas. Paris, 1878.

Première partie. Fossiles principaux des terrains.

Pl. 1, *Megalaspis*; pl. 2, *Homalonotus*; pl. 3, *Calymene*; pl. 4, *Cheirurus*, *Ilænus*, *Phacops*, *Cryphaeus*, *Goldius*, *Prætus*, *Phillipsia*; pl. 5, *Acidaspis*.

Bean (W.) Entomostracans from the Coal Measures of Newcastle-upon-Tyne.

In Mag. Nat. Hist. (London), vol. 9, 1836, p. 376.

Beyrichia.

Beckmann (J.) Commentatio de reductione rerum fossilium ad genera naturalia protyporum.

In Novi Comm. Soc. Scient. Götting., vol. 3, 1773, p. 95.

Beecher (C. E.) *Ceratiocarida* from the Upper Devonian Measures in Warren County.

In Second Geol. Survey Pennsylvania, vol. PPP, 1884, 2 pls.

Echinocaris, *Elymocarid* n. g., *Tropidocaris* n. g.

Author's edition issued separately, entitled: "*Ceratiocarida* from the Chemung and Waverly Groups at Warren, Pa.," with 2 pls., Harrisburg, 1884, 22 pp.

Belt (Thomas). On some new Trilobites from the Upper Cambrian rocks of North Wales.

In Geol. Mag., vol. 4, London, 1867, p. 294, pl. 12.

Agnostus pisiformis, *A. nodosus*, *Olenus gibbosus*.

— On the *Lingula* flags or Festiniog group of the Dolgelly district.

In Geol. Mag., vol. 5, London, 1868, p. 5, pl. 2.
Conocoryphe, *Sphaerophthalmus*, *Agnostus*.

Bergeron (M.-T.) Étude paléontologique et stratigraphique des terrains anciens de la montagne Noire.

In Bull. Soc. Géol. France, 3d series, vol. 15, 1887, No. 5.

Harpes, *Phacops*, *Cheirurus*.

Beushausen (Louis). Beiträge zur Kenntniss des oberharzer Spiriferensandsteins und seiner Fauna. (*)

Inaugural-Dissertation. Göttingen, 1884, p. 34.

Beyrich (Ernst). Ueber einige böhmische Trilobiten. Berlin, 1845, 1 pl.

Lichas, *Cheirurus* n. g., *Sphaerexochus* n. g., *Bronteus*, *Battus*, *Trochurus* n. g.

— Untersuchungen über Trilobiten. Zweites Stück als Fortsetzung zu der Abhandlung "Ueber einige böhmische Trilobiten." Berlin, 1846, 3 pls.

Harpes, *Harpides* n. g., *Proetus*, *Calymene*, *Lichas*, *Trinucleus*, *Odontopleura*, *Cheirurus*, *Sphaerexochus*, *Arges*, *Bronteus*.

Bigsby (J. J.) Description of a new species of Trilobite.

In Jour. Acad. Nat. Sc. Phila., vol. 4, pt. 2, 1825, p. 365, pl. 23.

Paradoxides boltoni (*Lichas boltoni*).

— *Thesaurus Siluricus*. The flora and fauna of the Silurian period. London, 1868.

Billings (E.) Fossil foot prints.

In Canadian Naturalist, vol. 1, 1856, p. 35, wood-cuts.

Protichnites septem-notatus.

— On some of the characteristic fossils of the Lower Silurian rocks of Canada.

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Billings (E.)—Continued.

In Canadian Naturalist, vol. 1, 1856, p. 39, 11 wood-cuts.

The author figures *Isotelus gigas*, *Calymene senaria*, and the hypostoma of *Isotelus gigas*.

— Fossils of the Upper Silurian rocks, Niagara and Clinton groups.

In Canadian Naturalist, vol. 1, 1856, p. 57, 1 pl.
Phacops limulurus Green.

— Description of fossils occurring in the Silurian rocks of Canada.

In Canadian Naturalist, vol. 1, 1856, p. 312, 10 wood-cuts.

Homalonotus delphinocephalus Green.

— Report for the year 1856 of E. Billings, esq., palæontologist, addressed to Sir Wm. E. Logan, etc.

In Geol. Survey Canada. Rept, Progress, 1853-'54-'55-'56, p. 247.

Triarthrus spinosus n. s., *Acidaspis horani* n. s., *Bronteus lunatus* n. s.

— Fossils of the Calciferous sandrock, including those of a deposit of white limestone at Mingan, supposed to belong to the formation.

In Canadian Naturalist, vol. 4, 1859, p. 345, 12 wood cuts.

Bathyrurus n. g., *Leperditia*.

— Description of some new species of Trilobites from the Lower and Middle Silurian rocks of Canada.

In Canadian Naturalist, vol. 4, 1859, p. 367, 18 wood-cuts.

Triarthrus, *Amphion*, *Ilænus*.

— Fossils of the Chazy limestone, with descriptions of new species.

In Canadian Naturalist, vol. 4, 1859, p. 426, 38 wood-cuts.

Harpes, *Bathyrurus*, *Leperditia*.

— Description of some new species of fossils from the Lower and Middle Silurian rocks of Canada.

In Canadian Naturalist, vol. 5, 1860, p. 49, 16 wood-cuts.

Proetus, *Phacops*, *Dalmanites*, *Cheirurus*.

— On some new species of fossils from the limestone near Point Levi, opposite Quebec.

In Canadian Naturalist, vol. 5, 1860, p. 301, 30 figs.

Dikelocephalus, *Conocephalites*, *Arionellus*, *Bathyrurus*, *Menocephalus*, *Asaphus*, *Cheirurus*, *Agnostus*.

— On some of the rocks and fossils occurring near Phillipsburg, Canada East.

In Canadian Naturalist, vol. 6, 1861, p. 310, 6 figs.

Bathyrurus, *Menocephalus*, *Amphion*.

Billings (E.)—Continued.

— On some new or little-known species of Lower Silurian fossils from the Potsdam group (Primordial zone). Montreal, 1861, 24 pp.

This pamphlet, with the addition of a description of *Archæocyathus profundus*, the suppression of that of *A. minganensis*, and the notes on pages 10, 11, and 12, was reprinted in the "Palæozoic Fossils of Canada," vol. 1, 1865, pp. 1-24, also in part in the "Geol. Vermont," vol. 2, 1861, pp. 942-960.

Olenellus thompsoni Hall, *Olenellus vermontana* Hall, *Conocephalites miser* n. s., *C. adamsi* n. s., *C. teucer*, *C. vulcanus* n. s., *C. arenosus* n. s., *Bathyrurus senectus* n. s., *B. parvulus* n. s., *Ampyx halli* n. s.

— Description of a new species of *Harpes* from the Trenton limestone, Ottawa.

In Canadian Naturalist, vol. 8, 1863, p. 36, wood-cut.

Harpes dentoni n. s.

— Geological Survey of Canada. Report of progress from its commencement to 1863. Illustrated by 498 wood-cuts in the text. Montreal, 1863. Atlas of maps and sections.

Harpes, *Paradoxides*, *Conocephalites*, *Triarthrus*, *Bathyrurus*, *Proetus*, *Phacops*, *Dalmanites*, *Calymene*, *Lichas*, *Trinucleus*, *Asaphus*, *Ilænus*, *Acidaspis*, *Cheirurus*, *Amphion*, *Encrinurus*, *Bronteus*, *Beyrichia*, *Leperditia*, *Ischilina*, *Eurypterus*, *Cytheropsis*.

— Description of new species of *Phillipsia* from the Lower Carboniferous rocks of Nova Scotia.

In Canadian Naturalist, vol. 8, 1863, p. 209, 1 wood-cut.

Phillipsia howi.

— Description of some new species of fossils, with remarks on others already known, from the Silurian and Devonian rocks of Maine.

In Proc. Portland Soc. Nat. Hist., vol. 1, 1869, p. 104, plate.

Dalmanites epicrates n. s., *Cheirurus tarquinius* n. s., *Proetus junius* n. s., *P. macrobius* n. s., *Bronteus pompilius* n. s., *Phacops trajanus* n. s., *Lichas*.

— Palæozoic fossils. Vol. 1. Containing descriptions and figures of new or little known species of organic remains from the Silurian rocks. 1861-'65. 426 pp., 401 figures. Geol. Survey Canada.

The first portion of this work, consisting of 24 pages, was issued in November, 1861, and re-appears in this work, with the exception of the notes on pages 10, 11, and 12 of the original edition. The second part, consisting of pp.

Billings (E.)—Continued.

25-56, was issued in January, 1862, and the third, pp. 57-168, in June, 1862; the fourth, pp. 169-344, in February, 1865.

Harpes, *Remopleurides*, *Olenus*, *Olenellus*, *Dolichometopus*, *Dikelocephalus*, *Telephus*, *Conocephalites*, *Arionellus*, *Bathyrurus*, *Loganellus*, *Menocephalus*, *Triarthrus*, *Harpides*, *Lichas*, *Ampyx*, *Asaphus*, *Cheirurus*, *Sphærezochus*, *Amphion*, *Encrinurus*, *Ilænus*, *Nileus*, *Agnostus*, *Beyrichia*, *Leperditia*, *Bathyrurellus* n. g., *Shumardia* n. g., *Endymion* n. g. (this name was changed by the author to that of *Endymionia* on p. 281).

— Catalogue of the Silurian fossils of the island of Anticosti, with descriptions of some new genera and species. 1866. 93 pp., 28 figs. Geol. Survey Canada.

Harpes, *Sphærocoryphe*, *Proetus*, *Dalmanites*, *Calymene*, *Lichas*, *Dionide*, *Asaphus*, *Cheirurus*, *Sphærezochus*, *Encrinurus*, *Bronteus*, *Ilænus*, *Beyrichia*, *Leperditia*.

— Note on some specimens of Lower Silurian Trilobites.

In Quart. Jour. Geol. Soc. London, vol. 26, 1870, p. 479, pls. 31, 32.

Asaphus platycephalus Stokes, with some of the legs preserved.

— Palæozoic fossils. Vol. 2, pt. 1. 1874.

In Geol. Survey Canada, 144 pp., 35 figs. and 9 pls.

Paradoxides, *Anopolenus*, *Agraulos*, *Solenopleura*.

— On some new or little known fossils from the Silurian and Devonian rocks of Canada.

In Canadian Naturalist, new series, vol. 7, 1874, p. 230.

Lichas superbus n. s.

Blumenbach (J. F.) *Abbildungen. naturhistorischer Gegenstände*. Göttingen, 1810.

The author remarks on a species of *Calymene blumenbachii*, which he figures on pl. 50, that "according to all analogy it must have been without doubt the petrification of some species of insect without wings."

The specimen was from Dudley limestone and afterwards named by Alex. Brongniart *Calymene blumenbachii*.

Boeck (C.) *Notitzer til Læren om Trilobiten*. (*)

In Nyt Mag. Naturvid., vol. 1, Christiania, 1827, p. 11.

Trilobitern tesseni, *T. spinosus major*, *T. spinosus minor*, *T. gracilis*, *T. zippei*, *T. hausmanni*.

Noticed in Bull. Sci. Nat. (Férussac), vol. 14, 1828, p. 45.

Boeck (C.).—Continued.

— Uebersicht der bisher in Norwegen gefundenen Formen der Trilobiten-Familie. (*)

In *Gæa Norwegica* (Keilhan), Christiania, 1838, pt. 1, p. 138.

Trilobiten elliptifrons, *T. elegans*, *T. hausmanni*, *T. semilunaris*, *T. punctatus*, *T. sphaericus*, *T. clavifrons*, *T. blumenbachii*, *T. fischeri*, *T. forficula*, *T. acicularis*, *T. lyra*, *T. grandis*, *T. angustifrons*, *T. dilatatus*, *T. expansus*, *T. acuminatus*, *T. limbatus*, *T. striatus*, *T. frontalis*, *T. crassicauda*, *T. centrotus*, *T. asellus*, *T. alatus*, *T. latus*, *T. granulatus*, *T. rostratus*, *T. mammilatus*, *T. scarabeoides*.

— Om Trilobiten.

In Skand. Naturf. Förhandl., vol. 2, 1840, p. 289; Neues Jahrbuch für Mineral, 1841, p. 724.

Boll (Ernst). Beitrag zur Kenntniss der Trilobiten.

In Dunker und von Meyer's Palæontographica, vol. 1, Cassell, 1847, p. 126.

Ampyx, *Battus*.

— Ueber die Arten der Gattung *Beyrichia* in norddeutschen Silurian-Geröllen.

In Zeitschr. deutsch. geol. Gesell., Berlin, vol. 8, 1856, p. 321, 4 figs.

A communication from Herr Boll to Herr Beyrich.

Beyrichia jonesi, *B. spinulosa*, *B. hians*.

— Die Beyrichien der norddeutschen silurischen Gerölle.

In Archiv Vereins Freunde Naturg. Mecklenburg, 1862, p. 114, pl. 1.

Beyrichia.

Born (Chev. de). Lithophilacion Bornianum. Index fossilium quæ colleget in class. ac ordinis digessit. 2 vols. Pragæ, 1772. (*)

In Crustacea, vol. 2, p. 5.

Bornemann (J. G.). Palæontologisches aus dem cambrischen Gebiete von Camalgrande in Sardinien.

In Zeitschr. deutsch. geol. Gesell., Berlin, 1883, p. 270.

Olenellus zoppei, *Conocoryphe* sp.? (*Olenus armatus* Meng.), *Illænus meneghini*.

Bradley (Frank). Description of a new Trilobite from the Potsdam sandstone, with a note by E. Billings, of Montreal, Canada.

In Proc. Am. Assoc. Adv. Sci., 14th meeting, 1861, p. 161, 3 wood-cuts.

Conocephalites minutus.

See, also, Am. Jour. Sci., 2d series, vol. 30, 1860, p. 241; Canadian Naturalist, vol. 5, 1860, p. 420.

Brady (M. P.) See Jones (T. Rupert), Kirkby (J. W.) and Brady (M. P.).**Brocchi (M. P.)** Note sur un crustacé fossile recueilli dans les schistes d'Auntun.

In Bull. Soc. Géol. France, 3d series, vol. 8, No. 1, 1880, p. 3, pl. 1.

Palæocaris, *Gampsonyx*, *Nectotelson* n. g.

Brodie (P. B.) History of fossil insects in the Secondary rocks of England. London, 1845, pp. 105–115, pl. 1, fig. 11.

This author describes and figures a fossil from Coalbrookdale resembling the caterpillar of the Emperor moth, which was afterwards described by J. W. Salter under the name of *Eurypterus* (*Arthropleura*) *ferox*.

Brögger (W. C.) Fossiler fra Oxnå og Kletten. (*)

In Geol. Föreningens Stockholm Förhandl., vol. 2, 1875, 1 pl.

Paradoxides, *Liostracus*, *Agnostus*.

— Andrumkalk ved Breidengen vaders.

In Geol. Föreningens Stockholm Förhandl., vol. 3, 1876, 1 pl.

Paradoxides, *Liostracus*, *Selenopleura*, *Agnostus*.

— Om Trondhjemsfeltets midlere Afdeling mellem Guldalen og Meldalen Christiania. (*)

In Vidensk. Selskab. Förhandl., 1877, No. 2, p. 1, 2 pls.

Dalmanites, *Trinucleus*.

— Om Paradoxides skifrene ved Kreling. (*)

In Nyt Mag. Naturvid., vol. 24, pt. 1, 1873, 6 pls.

Paradoxides, *Olenellus*, *Dolichometopus*, *Liostracus*, *Conocoryphe*, *Anomocare*, *Elyx*, *Selenopleura*, *Ellipsocephalus*, *Arionellus*, *Agnostus*.

— Die silurischen Etagen 2 und 3 im Kristianiagebiet und auf Eker. Kristiania, 1882, 12 pls.

Remopleurides, *Dicelocephalus*, *Olenus*, *Parabolina*, *Peltura*, *Cyclognathus*, *Ceratopyge*, *Ctenopyge*, *Protopleura* (new subgenus to the genus *Peltura*), *Parabolinella* (new subgenus to the genus *Olenus*), *Leptoplastus*, *Sphaerophthalmus*, *Eurycare*, *Beckia* n. g., *Triarthrus*, *Euloma*, *Holometopus*, *Harpides*, *Phacops*, *Lichas*, *Trinucleus*, *Ampyx*, *Asaphus*, *Megaspis*, *Symphysurus*, *Niobe*, *Ptychopyge*, *Nileus*, *Cheirurus*, *Illænus*, *Dysplanus*, *Amphion*, *Cybele*, *Agnostus*, *Conophrys*, *Beyrichia*, *Lepiditia*, *Isochilina*.

— *Paradoxides ölandicus* nivået ved Ringsaker, Norge. (*)

In Geol. Föreningens Stockholm Förhandl., vol. 6, 1884, 1 pl.

Brögger (W. C.)—Continued.

— Om alder af Olenellus-zonen i Nordamerika.

In Geol. Föreningens Stockholm Förhandl., vol. 8, 1886, p. 182.

— Ueber die Ausbildung des Hypostomes bei einigen skandinavischen Asaphiden.

In Öfversigt Kongl. Svenska Vet.-Acad. Handl., vol. 11, 1886, 3 pls.

Asaphus, *Isotelus*, *Ptychopyge*, *Megalaspis*, *Megalaspides* n. g., *Niobe*, *Asaphellus*, *Ogygia*, *Nileus*, *Symphysurus*.

Bromell (M.) Lithographia Suecana.

In Acta Literaria Sueciae, vol. 2, Upsaliae, 1725, p. 63.

This work was continued in several parts through this volume, but it is only at p. 493, in the section called "De lapidibus insectiferis Scaniae et Gothicae," that the Trilobites are treated. We have there the *Oleni* of the alum slate and *Agnostus pisiformis*.

A separate edition of the work was printed at Stockholm and Leipzig, in 1740, bearing the same title as the original work.

Brongniart (Alex.) Histoire naturelle des Crustacés fossiles sous les rapports zoologique et géologique, savoir les Trilobites. Les Crustacés proprement dits par A.-G. Desmarest. 11 pls. Paris, 1822.

This author was the first systematic writer upon the Trilobites. He arranges twenty-two species under five new generic names, as follows: First genus, *Calymene*, species 1. *O. de Blumenbach*, 2. *O. de Tristan*, 3. *O. ? variolatre*, 4. *O. ? macroptalmie*. Second genus, *Asaphus*, species 1. *A. ? cornigère*, 2. *A. de Debuch*, 4. *A. caudigère*, 5. *A. large queue*. Third genus, *Ogygia*, species 1. *O. de Guettard*, 2. *O. de Desmarest*. Fourth genus, *Paradozides*, species 1. *P. de Tessin*, 2. *P. spinuleux*, 3. *P. scaraboidé*, 4. *P. ? gibbeux*, 5. *P. lacinié*. Espèces de genre incertain: *Trilobite granulé*, *T. ponctué*, *T. bucéphale*, *T. tentaculé*. Fifth genus, *Agnostus*, species 1. *A. pisiforme*.

— and Desmarest (A.-G.) Histoire naturelle des Trilobites et des Crustacés fossiles.

In Jour. Mines, vol. 9, 1822, p. 273.

Bronn (Heinrich.) Ueber zwei neue Trilobiten-Arten.

In Zeitschr. für Mineral., vol. 1, pt. 1, 1825, p. 317, pl. 2.

Calymene latifrons, *O. schlotheimi*.

— Geognostische zoologische Untersuchungen in den russisch-baltischen Provinzen von Herrn Dr. Eduard Eichwald.

In Zeitschr. für Mineral., vol. for 1828, pt. 1, p. 104.

Bronn (H. G.) Lethæa geognostica, oder Abbildungen und Beschreibungen der für die Gebirgs-Formationen bezeichnendsten Versteinerungen. Stuttgart, 1835-'38.

2 vols., and atlas with 47 pls.

— and Roemer (F.) H. G. Bronn's Lethæa geognostica, oder Abbildungen und Beschreibungen der für die Gebirgs-Formationen bezeichnendsten Versteinerungen. 3d ed. Stuttgart, 1851-'56.

3 vols. and atlas, 124 pls.; vol. 1, p. 525.

Harpes, *Harpides*, *Remopleurides*, *Paradozides*, *Hydrocephalus*, *Sav.*, *Arionellus*, *Ellipsocephalus*, *Olenus*, *Conocephalites*, *Proetus*, *Cyphaspis*, *Phillipsia*, *Arethusina*, *Phacops*, *Dalmania*, *Orypheus*, *Calymene*, *Homalonotus*, *Lichas*, *Trinucleus*, *Ampyx*, *Dionide*, *Asaphus*, *Ogygia*, *Eglina*, *Ildeus*, *Acidaspis*, *Ceraurus*, *Placoparia*, *Sphærozoehus*, *Staurocephalus*, *Deiphon*, *Dindymene*, *Zethis*, *Amphion*, *Encrinurus*, *Cromus*, *Bronteus*, *Telephus*, *Agnostus*, *Eurypterus*, *Himantopteris*, *Pterygotus*, *Limulus*, *Gampsonychus*, *Cythere*, *Bairdia*, *Cypridina*, *Cyprella*, *Entomoconchus*, *Beyrichia*, *Dithyrocaris*, *Ceratiocaris*.

— Note über die mit Homalonotus verwandten Trilobitengenera.

In Neues Jahrbuch für Mineral., 1840, p. 445, pl. 8, figs. 1 a, b.

— Index palæontologicus, oder Uebersicht der bis jetzt bekannten fossilen Organismen, unter Mitwirkung der HH. H. R. Göppert und Herm. von Meyer bearbeitet von Dr. H. G. Bronn, Nomenclator palæontologicus in alphabetischer Ordnung. Stuttgart, 1848, 3 vols.

— Ueber *Gampsonyx fimbriatus* Jordon aus der Steinkohlen-Formation von Saarbrücken und vom Murg-Thal.

In Neues Jahrbuch für Mineral., 1850, p. 575.

Brückmann (F. E.) Epistolarum itinerariarum centuria. Wolfenbüttel, 3 vols.

In Epist. 23, pl. 2, figs. 1-7, 1732, and Epist. 64, pl. 3, fig. 5, 1737.

This author compares the fossil Crustacea with the Mollusca and calls them *Armata veneris*.

Brunnich (M. T.) Beskrivelse over Trilobiten, en Dyrestagt og dens Arter, med en ny Aftægning.

In Nye Samling af det Kongelige Danske Videnskabers Selskabs Skrifter, Kjöbenhavn. 1781, p. 384, 1 pl.

This author describes *Trilobus* (*Calymene*) *tuberculatus*, *Trilobus* (*Dalmanites*) *caudatus* (figures of head and pygidium), *Trilobus dilatatus*, *Trilobus* (*Encrinurus*) *punctatus*.

Buch (Leopold von). Beiträge zur Bestimmung der Gebirgs-Formationen in Russland.

In Archiv mineral. Geogn., etc., vol. 15, Berlin, 1841, p. 1, pl. 2.

Phacops, Calymene, Asaphus, Illenus.

Buckland (William). Geology and mineralogy considered with reference to natural theology. Bridgewater treatise. 2 vols. London, 1837, 87 pls. [4th ed., London, 1869, 2 vols., 90 pls.]

Translated into German by L. Agassiz.

Paradoxides, Phillipsia, Phacops, Calymene, Asaphus, Ogygia, Emericurus, Limulus (Belinurus) trilobitoides.

Burmeister (H.) Die Organisation der Trilobiten, etc. Berlin, 1843, 6 pls.

The English translation is entitled: "The organization of Trilobites deduced from their living affinities, with a systematic review of the species hitherto described, by Hermann Burmeister, edited from the German by Prof. Thomas Bell, F. R. S., and Prof. E. F. Forbes, F. R. S." London, Ray Society, 1846. There is a supplementary appendix by the editors.

Burmeister classifies 63 species under 23 genera arranged in the following order:

Eurypterus, Cytherina, Trinucleus, Ogygia, Odontopleura, Arges, Bronteus, Paradoxides, Olenus, Conocephalus, Ellipsocephalus, Harpes, Calymene, Homalonotus, Phacops, Cyphaspis n. g., Proetus, Eonia n. g., Archegonus n. g., Illenus, Dysplanus n. g., Asaphus, Ampyz.

The supplementary appendix by Thomas Bell and E. F. Forbes contains an alphabetical list of British Trilobites, also a copy of McCoy's generic description of the following genera: *Tiresia, Forbesia, Portlockia, Trinodus* (Synopsis Silurian Fossils Ireland, 1846); the generic descriptions of *Oheirus, Sphaerexochus, Lichas, Trochurus* (Beyrich, Ueber einige böhmische Trilobiten, 1845), and a list of the genera and species described by Barrande (Notice préliminaire sur le système silurien et les Trilobites de Bohême, 1846).

— and **Alton** (Ed. de). Neue Beobachtungen über die Organisation der Trilobiten. (*)

In Zeitung für Zoologie, Zootomie und Paläozoologie, Alton und Burmeister, Leipzig, vol. 1, 1848, p. 67, pl. 1, figs. 13-19.

Callaway (Charles). On a new area of Upper Cambrian rocks in South Shropshire, with a description of a new fauna.

In Quart. Jour. Geol. Soc. London, vol. 33, 1877, p. 652, plate.

Olenus, Monocoryphe, Asaphus, Asaphellus (new subgenus), *Platypelles* (new subgenus), *Lichapyge* n. g., *Agnostus, Conophrys* n. g.

Castelnau (Laport de). Communiqué à l'Académie des sciences de Paris la 46-

Castelnau (Laport de)—Continued.

couverte des pieds des Trilobites qu'il aurait vus dans l'intérieur d'un exemplaire enroulé de l'Amérique du Nord.

In Inst. France, 1842, p. 74; Neues Jahrbuch für Mineral., 1843, p. 504; Comptes Rendus, vol. 14, 1842, p. 344.

Calymene.

— Essai sur le système silurien de l'Amérique Septentrionale. Paris, 1843, 27 pls.

Asaphus micrurus, A. limulurus, A. cordieri, A. caudatus, A. edwardii, A. murchisoni, Homalonotus giganteus, H. herculaneus, H. atlas, Arctinurus n. g., A. boltoni, Calymene bufo, Odontocephalus, Acantholoma, Aspidolites, Discranurus.

Champernowne (A.) Note on a find of *Homalonotus* in Red Beds at Torquay.

In Geol. Mag., new series, decade 2, vol. 8, 1881, p. 487.

Chapman (E. J.) *Asaphus canadensis.*

In Canadian Jour., new series, vol. 1, 1856, p. 482.

— A review of the Trilobites, their characters and classification.

In Canadian Jour., new series, vol. 1, 1856, p. 271, wood-cuts.

— *Trinucleus concentricus.*

In Canadian Jour., new series, vol. 3, 1858, p. 414, wood-cut.

— On some new Trilobites from Canadian rocks.

In Annals Mag. Nat. Hist., 3d series, vol. 2, 1858, p. 9, 2 figs.

Asaphus canadensis, A. halli.

— On some new Trilobites from Canadian rocks.

In Canadian Jour., new series, vol. 3, 1858, p. 230, 2 wood-cuts.

Asaphus canadensis, A. halli.

— On the hypostoma of *Asaphus canadensis* and on a third new species of *Asaphus* from the Canadian rocks.

In Canadian Jour., new series, vol. 4, 1859, p. 1, 2 figs.

Asaphus canadensis, A. hinksii.

— On the probable nature of the supposed fossil tracks known as *Protichnites*, etc.

In Canadian Jour., new series, vol. 16, 1877, p. 7.

Clarke (J. M.) New Phyllopod Crustaceans from the Devonian of western New York.

In Am. Jour. Sci., 3d series, vol. 23, 1882, p. 476, plate.

Estheria, Spathiocaris n. g., *Lisgocaris* n. g.

Clarke (J. M.)—Continued.

— Cirriped Crustacean from the Devonian.

In Am. Jour. Sci., 3d series, vol. 24, 1882, p. 55.
Plumilites devonius.

— New discoveries in Devonian Crustacea.

In Am. Jour. Sci., 3d series, vol. 25, 1883, p. 120.

Dipterocaris n. g.

— Ueber deutsche oberdevonische Crustaceen (hierzu) Tafel 4.

In Neues Jahrbuch für Mineral., 1884, pt. 1, p. 178.

Spathiocaris, *Entomis*, *Dithyrocaris*.

— On the higher Devonian fauna of Ontario County, New York.

In Bull. U. S. Geol. Survey, No. 16, 1885, 3 pls.
Ceratiocaris, *Beyrichia*, *Echinocaris*, *Spathiocaris*.

— The structure and development of the visual area in the Trilobite *Phacops rana* Green.

In Jour. Morphology, vol. 2, No. 2, Nov., 1888, Boston, p. 253, pl. 21.

Clarke (W. B.) On the occurrence of Trilobites in New South Wales.

In Quart. Jour. Geol. Soc. London, vol. 4, 1848, p. 63 (not descriptive).

Claypole (E. W.) Note on a large Crustacean from the Catskill group of Pennsylvania.

In Proc. Am. Philos. Soc., Phila., vol. 21, 1883, p. 236, plate.

Dolichocephala n. g.

— On the occurrence of the genus *Dalmanites* in the Lower Carboniferous rocks of Ohio.

In Geol. Mag., decade 3, vol. 1, London, 1884, p. 303.

Dalmanites? cuyahogae.

Conrad (T. A.) Report on the Palaeontological Department.

In Rept. Geol. Survey New York, 1838, p. 107.
Platynotus n. g.

— On the Silurian system; with a table of the strata and characteristic fossils.

In Am. Jour. Sci., 1st series, vol. 38, 1840, p. 86.

— Third Annual Report on the Palaeontological Department of the Survey.

In Rept. Geol. Survey New York, 1840, p. 199.
Odontocephalus n. g., *Acanthaloma* n. g.,
Odontocephalus selrurus, *Asaphus halli*,
Acidaspis tuberculatus.

— Description of new genera and species of organic remains. Crustacea.

In Rept. Geol. Survey New York, 1841, p. 48, 1 pl.

Conrad (T. A.)—Continued.

Aspidolites n. g., *Dicranurus* n. g., *Asaphus? acantholeurus*, *A.? denticulatus*, *A. nasutus*, *A. aspectans*, *Oalymene senaria*.

The plate accompanying this report was distributed with a few copies. Republished in the 15th Rept. New York State Cab. Nat. Hist., pl. 11.

— *Cytherina alta*.

In Geol. Survey New York, pt. 3, comprising the survey of the 3d Geol. Dist. (Vanuxem), 1842, p. 112, fig. 23, No. 6.

— Observations on the Silurian and Devonian systems of the United States, with descriptions of new organic remains.

In Jour. Acad. Nat. Sci., Phila., vol. 8, 1842, p. 228, 6 pls.

Asaphus corycæus, *A.? trentonensis*, *Oalymene spinifera*, *C. camerata*, *Dipleura*.

— Observations on the lead-bearing limestone of Wisconsin, and descriptions of a new genus of Trilobites and fifteen new Silurian fossils.

In Proc. Acad. Nat. Sci. Phila., vol. 1, 1843, p. 329.

Thaleops n. g.

Corda (A. J. C.) and Hawle (Ignaz). Prodrum einer Monographie der böhmischen Trilobiten.

In Abhandl. böhm. Gesell. Wiss., Prag, vol. 5, 1847, pp. 129–292, 7 pls.

This work is generally attributed to A. J. C. Corda. The 58 new genera described in this work are arranged by Joachim Barrande, Système silurien du centre de la Bohême, vol. 1, p. 39, as follows:

I. DIVISION. TELEJURIDES.

1. Phrysacium } = Hydrocephalus Barr.

2. Phanoptes }

3. Crithias }

4. Tetracnemis }

5. Goniacanthus }

6. Enneacnemis }

7. Acanthocnemis }

8. Acanthogramma }

9. Endogramma }

10. Micropyge }

11. Selenosema }

12. Staurognus }

13. Herse } = Arionellus Barr.

14. Agranulos }

15. Conocoryphe }

16. Ptychoparia }

17. Ctenocephalus }

18. Selenopeltis = Acidaspis Murch.

19. Polytomurus = Dionide Barr.

20. Tetrapsellium = Trinucleus Lhwyl.

21. Phalacroma = Agnostus (in part) Brong.

22. Selenoptychus = Æglina Barr.

23. Mesospheniscus = Agnostus integer Beyr.

24. Diplorhina = Agnostus integer.

Corda (A. J. C.) and Hawle (Ignaz)—
Continued.

I. DIVISION. TELEJURIDES—Cont'd.

25. Condylpyge } = *Agnostus rex* Barr.
26. Lejopyge }
27. Microparia = *Æglina* Barr.
28. Plasiacomia = *Illænus Dalm.*
29. Cyclopyge = *Æglina* (in part) Barr.
30. Alceste = *Illænus* (in part) Dalm.
31. Xiphogonium = *Proetus* Stein.
32. Conoparia = *Cyphaspis* Burm.
33. Gonioleura = *Proetus elegantulus* Ang.
34. Aulacopleura = *Arethusa* Barr.
35. Pharostoma = *Calymene* Brong.
36. Atractopyge } = *Dalmania* (in part) Emmrich.
37. Odontochile }
(This generic term was used in 1834 for a genus of the Coleoptera).

II. DIVISION. ODONTURIDES.

38. Amphytrion = *Remopleurides* Portlock.
39. Arthrorhachis = *Agnostus tardus* Barr.
40. Peronopsis = *Agnostus integer* Beyr.
41. Battus = *Agnostus integer*.
42. Pleuroctenium = *Agnostus granulatus* Barr.
43. Thysanopeltis = *Bronteus* (in part) Gold.
44. Dindymene = *Dindymene* Corda.
45. Prionopeltis = { *Proetus* (in part) Stein.
Phaenoides Barr.
46. Asteropyge } = *Dalmania* (in part) Dalm.
47. Metacanthus }
48. Odontopyge = *Olenus spinulosus*.
49. Placoparia = *Placoparia* Corda.
50. Eocephochile = *Cheirurus* Beyr.
51. Actinopeltis = *Cheirurus* Beyr.
52. Trochurus = *Staurocephalus* Barr.
53. Corydocephalus }
54. Dieranopeltis } = *Lichas* Dalm.
55. Acanthopyge }
56. Dieranognus }
57. Trapelocera = *Acidaspis* Murch.
58. Ceratopyge = *Olenus forficula* Sars.

Cozzens (Issachar). Description of three new fossils from the Falls of the Ohio.

In *Annals Lyceum Nat. Hist. New York*, vol. 4, 1846, p. 157, 1 pl.

Piliolites n. g.

The author therein describes a species of *Proetus* under the name of *Piliolites ohioensis*.

Da Costa (E. M.) A letter concerning the fossil from Dudley.

In *Philos. Trans. Royal Soc.*, vol. 48, pt. 1, No. 42, 1753, p. 286, pl. 1, figs. 6-8.

Dr. Da Costa herein gives the name of *Pedicularius marinus major trilobus* to the then called Dudley fossil (*Calymene blumenbachii*), and declares it to be a crustaceous animal nearly related to the living *Isopodes*.

— Description of a curious fossil animal.

In *Gentleman's Mag.*, vol. 25, London, 1754, p. 24, pl. —, fig. 3.

Calymene blumenbachii.

Dalman (J. W.) Några petrificater fundne i Östergötlands öfvergangskalk efterknade och beskrifne.

In *Svenska Vetensk. Akad. Handl.*, 1824, p. 368, pl. 4.

Entomotr. actinurus.

— Om Palæaderna eller de så kallade Trilobiterna. Stockholm, 1826, 6 pls.

Svenska Vetensk. Akad. Handl., 1826, p. 226.

The German translation bears the following title: Ueber die Palæaden, oder die sogenannten Trilobiten von J. D. Dalman, von Friedrich Engelhart, mit 6 Kupfertafeln, Nürnberg, 1828. Dalman arranges 41 species of Trilobites under 5 genera and 4 subgenera, as follows:

Division I. Oculated: 1st genus, *Calymene*; 2d genus, *Asaphus*.

Division II. Typhlini: 3d genus, *Ogygia*; 4th genus, *Olenus* (*Paradoxides* Br.). Section 2. Battoides: 5th genus, *Battus* (*Agnostus* Br.).

Subgenera: 1. *Asaphus* (*Nileus*); 2. *Asaphus* (*Illænus*); 3. *Asaphus* (*Ampyx*); 4. *Lichas* n. g.

— Årsberättelse om nyare zoologiska arbeten och upptäckter.

This work forms a part of the annual report of the keepers of the Swedish State Museum for 1828. It contains (p. 134), under the title of "Nya Svenska Palæades" a description of the following Trilobites: *Calymene ornata*, *C. verrucosa*, *C. clavifrons*, *C. centrina*, *Asaphus heros*, *A. platynotus*, *Nileus glomerinus*, *Ampyx pachyrrhinus*, *Battus levigatus*, *B. pisiformis*.

— Nouvelles espèces de Trilobites ou Palæades de Suède.

In *Bull. Férussac*, vol. 19, 1828, p. 129.

A notice of the preceding reference.

Dames (W.) Ueber *Hoplolichas* und *Conolichas*, zwei Untergattungen von *Lichas*.

In *Zeitschr. Deutsch. geol. Gesell.*, Berlin, 1877, vol. 29, pt. 1, p. 793, 3 pls.

The type used for the new genus *Hoplolichas* is *Lichas tricuspidatus* Boll, and for *Conolichas*, *Lichas æquiloba* Steinh.

— Geologische Reisenotizen aus Schweden.

In *Zeitschr. Deutsch. geol. Gesell.*, Berlin, 1881, vol. 33, p. 405.

Paradoxides elandicus, *P. tessini*, *P. forchhammeri*, *P. kjerulfii*, *Ellipsocephalus*, *Lichas*, *Megalaspis*, *Asaphus*?, *Agnostus*.

— Erste Abhandlung. Cambrische Trilobiten von Lian Tung, China (Richthofen). Vol. 4. Berlin, 1883, pls. 1, 2.

The author suggests the new generic term *Dorypyge* for certain Trilobites which have the pygidium armed with strong spines, the penultimate pair being the longest, including in the genus *Dikelocephalus quadriceps* Hall and Whitfield and *D. gothicus* Hall and Whitfield.

Dames (W.)—Continued.

Under *Anomocare* Angelin he includes the following American species: *Conocephalites hamulus* Owen, *C. wisconsinensis* Owen, and *C. pattersoni* Hall.

Conocephalites frequens, *C. quadriceps*, *C. typus*, *C. subquadratus*, *Anomocare latelimbatus*, *A. minus*, *A. planum*, *A. nanum*, *A. majus*, *A. subcostatus*, *Liostracus talingensis*, *L. megalurus*, *Dorypyge* n. g., *D. richthofeni*, *Agnostus chinensis*.

— E. W. Clappole: On the occurrence of the genus *Dalmanites* in the Lower Carboniferous rocks of Ohio. *Geol. Mag.* London, 1884.

In *Neues Jahrbuch für Mineral.*, 1885, vol. 1, p. 102 (abstract).

Dalmanites, *Phillipsia*, *Proetus*.

— C. D. Walcott: Appendages of the Trilobites. *Science*, vol. 3. 1884, p. 279.

In *Neues Jahrbuch für Mineral.*, vol. 1, p. 102 (abstract).

Asaphus, *Calymene*, *Ceraurus*.

— T. R. Jones and J. W. Kirkby: On some Carboniferous Entomostraca from Nova Scotia. *Geol. Mag.* London, 1884.

In *Neues Jahrbuch für Mineral.*, vol. 1, 1885, p. 106 (abstract).

Leperditia, *Beyrichia*.

— T. R. Jones and H. Woodward: Notes on Phyllopidiform Crustacea, referable to the genus *Echinocaris* from the Palæozoic rocks. *Geol. Mag.* London, 1884.

In *Neues Jahrbuch für Mineral.*, vol. 1, 1884, p. 110 (abstract).

— Chas. E. Beecher: Ceratiocaridæ from the Chemung and Waverly group of Warren County. Second *Geol. Survey*, Penn. Rept. PPP.

In *Neues Jahrbuch für Mineral.*, vol. 1, 1884, p. 110 (abstract).

— J. Mickleborough: Locomotory appendages of Trilobites. *Geol. Mag.* London, 1884.

In *Neues Jahrbuch für Mineral.*, 1885, p. 477.

— F. Schmidt and T. R. Jones: On some Silurian *Leperditia*. *Annals Nat. Hist.*, series 5, vol. 9, 1882, p. 168.

In *Neues Jahrbuch für Mineral.*, 1885, vol. 1, p. 105 (abstract).

Dana (James D.) Trilobites in the Potsdam sandstone.

In *Edinburgh New Philos. Jour.*, vol. 6, 1857, p. 350.

— On the supposed legs of Trilobites (*Asaphus platycephalus*).

In *Annals Nat. Hist.*, 4th series, vol. 7, London, 1871, p. 366; *Am. Jour. Sc.*, 3d series, vol. 1, 1871, p. 320.

Dana (James D.)—Continued.

— Manual of geology, treating of the principles of the science with special reference to American geological history. 2d ed. New York, 1874, p. 174.

D'Archiac (A.) and Verneuil (E. de). On the fossils of the older deposits in the Rhenish Provinces, preceded by a general survey of the fauna of the Palæozoic rocks, and followed by a tabulated list of the fossils of the Devonian system of Europe.

In *Bull. Soc. Géol. France*, vol. 13, 1841-42; *Trans. Geol. Soc. Lond.*, vol. 6, pt. 2, 1842, p. 303.

—, **Fischer (de Waldheim G.) and Verneuil (E. de).** *Paléontologie de l'Asie Mineure*. Paris, 1866, atlas, 21 pls. (*)

Dawson (J. W.) On the Lower Coal Measures as developed in British America.

In *Quart. Jour. Geol. Soc. London*, vol. 15, 1859, p. 62.

Tracks of a Crustacean.

— Note on the fossils of Nova Scotia.

In *Canadian Naturalist*, vol. 5, 1860, p. 297 (wrongly paged 197 in the volume).

Homalonotus dawsoni Hall.

— On the foot prints of *Limulus* as compared with the *Protichnites* of the Potsdam sandstone.

In *Canadian Naturalist*, vol. 7, 1862, p. 271. *Am. Jour. Sci.*, 2d series, vol. 34, 1862, p. 416.

— Acadian geology. The geological structure, organic remains, and mineral resources of Nova Scotia, New Brunswick, and Prince Edward Island, etc. London.

Three editions, 1855-'78 (3d ed. contains the supplement to the 2d ed.).

Paradoxides, *Conocephalites*, *Phillipsia*, *Dalmanites*, *Agnostus*, *Microdiscus*.

Mr. C. F. Hartt's descriptions of the trilobites first appeared in the third edition of this work. The original MSS. described *Microdiscus dawsoni* under the new generic name of *Dawsonia*, but on Prof. E. Billings's authority the author has referred it to *Microdiscus dawsoni*.

Eurypterus, *Estheria*, *Levia*, *Beyrichia*, *Leperditia*, *Cythere*, *Diplostylus*.

— Supplement to the 2d edition of Acadian geology. Containing additional facts as to the geological structure, fossil remains, and mineral resources of Nova Scotia, New Brunswick, and Prince Edward Island. London, 1878.

Dawson (J. W.)—Continued.

Homalonotus dawsoni, *Protichnites carbonarius*, *Anthracopalemon* (*Palæocarbus*) *hillianum*.

— Note on two Palæozoic Crustaceans from Nova Scotia.

In Geol. Mag., decade 2, vol. 4, London, 1877, p. 56. (See, also, Supplement Acadian Geol., 1878, p. 55, fig. 10.)

Anthracopalemon (*Palæocarbus*) *hillianum*, *Homalonotus dawsoni*.

Day (F. H.) On the fauna of the Niagara and Upper Silurian rocks as exhibited in Milwaukee County, Wisconsin, and in counties contiguous thereto.

In Trans. Wisconsin Acad. Sc., vol. 4, 1876-'77, p. 113.

Dekay (J. E.) Observations on the structure of Trilobites, and description of an apparently new genus; with notes on the geology of Trenton Falls, by James Renwick. Read Nov. 22 (1824).

In Annals Lyceum Nat. Hist., New York, vol. 1, 1824, p. 174, 2 pls.; Isis (oder Encycl. Zeitung), Oken, 1825 and 1832.

Isotelus n. g.

— Observations on a fossil crustaceous animal of the order Branchiopoda. Read Dec. 12, 1825.

In Annals Lyceum Nat. Hist., New York, vol. 1, pt. 2, p. 375, pl. 29. Republished in Harlan's Med. Phys. Researches, 1835, p. 297.

Eurypterus n. g.

— Report on several fossil multilocular shells from the State of Delaware; with observations on a second specimen of the new fossil genus *Eurypterus*. Read Oct. 2, 1827.

In Annals Lyceum Nat. Hist., New York, vol. 2, 1828, p. 273.

Deslongchamps (E.) Mémoire sur les corps organisés fossiles du grès intermédiaire du Calvados.

In Soc. Linn. Calvados, vol. 2, 1825, p. 291, 2 pls.

The author herein describes two species of the genus *Homalonotus* under the names *Asaphus brongniartii* and *A. brevicaudatus*.

Dethleff (von) and Boll (Ernst). Die Trilobiten Mecklenburgs.

In Archiv Vereins Freunde Naturg. Mecklenburg, 1858, p. 155.

Remopleurides, *Paradozides*, *Ellipsocephalus*, *Olenus*, *O.* (*Sphaerophthalmus*), *Proetus*, *Cyphaspis*, *Harpides*, *Phacops*, *Calymene*, *Homalonotus*, *Lichas*, *Trinucleus*, *Ampyx*, *Asaphus*, *Ogygia*, *Ilanus*, *Nileus*, *Acidaspis*, *Cheirurus*, *Sphaerexochus*, *Sphaerocoryphe*, *Amphion*, *Encrinurus*, *Bronteus*, *Telephus*, *Holometopus*, *Dolichometopus*, *Agnostus*.

Devine (T.) Description of a new Trilobite from the Quebec group.

In Canadian Naturalist, vol. 8, 1863, p. 95, 2 figs.

Loganellus n. g.

Similar forms have been referred by Corda to the genus *Ptychoparia*.

— Description of a new Trilobite from the Quebec group.

In Canadian Naturalist, vol. 8, 1863, p. 210, fig. *Menocephalus salteri*.

Dewalque (G.) Prodrome d'une description géologique de la Belgique. Bruxelles, 1863; 2d ed., 1880.

Contains important list of fossils, and observations.

Dumont (A.-H.) Mémoire sur la constitution géologique de la province de Liège.

In Mém. Cour. Acad. Roy. Sci., Bruxelles, vol. 8, 1832, p. 353. Table of fossils.

Durocher (J.) Sur le test des Trilobites et des animaux fossils de la Bretagne en général.

In Bull. Soc. Géol. France, 2d series, vol. 7, p. 307, also vol. 8, 1850-'51, p. 160.

Dwight (W. B.) Recent explorations in the Wappinger Valley limestone of Dutchess County, New York.

In Am. Jour. Sci., 3d series, vol. 27, 1884, p. 349, pl. 7.

Bathyrurus.

Eaton (Amos). Geological Equivalents.

Description of *Ogygies latissimus* and *Cancer triloboides*.

In Am. Jour. Sci., 1st series, vol. 21, 1832, pp. 135, 136, note.

Cancer triloboides, *Ozygies*.

— Trilobites.

Am. Jour. Sci., 1st series, vol. 22, 1832, p. 165. *Brongniartia* n. g.

We learn from reference to Dr. Amos Eaton's description and figures given in his "Geological text-book," p. 33, pl. 1, fig. 3 (2d ed., 1832), that the original of *Brongniartia carcinodea* Eaton was the same as that afterwards described by Dr. Jacob Green (Monthly Am. Jour. Geology, vol. 1, June, 1832; also Mon. Tril. N. A., p. 87, pl. 1, fig. 6, cast 34) as *Triarthrus beckii*.

— Geological text-book for aiding the study of North American geology; being a systematic arrangement of facts collected by the author for his pupils, etc. 2d ed., 5 pls. (June 15, 1832).

The following species are described in this work, pp. 31-34: Genus *Calamena*, *C. blumenbachii* (*Calymene senaria* Conrad), pl. 2, fig. 19; genus *Asaphus*, *A. hausmannii*, *A. caudatus* (*Dalmanites limulurus* Green), pl. 2, fig. 18; *A. selenourus* (*Dalmanites selenurus* Eaton), pl. 1,

Eaton (Amos)—Continued.

fig. 1; genus *Brongniartia*, *B. platycephala* (*Homalonotus dekayi* Green), pl. 2, fig. 20; *B. isotelea* (*Asaphus platycephalus* Stokes), pl. 2, fig. 22; *B. carcinodia* (*Triarthrus becki* Green), pl. 1, fig. 3; genus *Nuttainia*, *N. concentrica* (*Trinucleus concentrica* Eaton), pl. 1, fig. 2; *N. sparsa* (*Homalonotus dekayi* Green).

Eichwald (Eduard). Observations géognostico-zoologiques per Ingriam marisque Baltici Provincias nec non de Trilobites. Casani, 1825, 4 pls.

The author herein describes and figures eight species of Lower Silurian Trilobites under the new generic term *Cryptonymus*. In his later work ("Lethæa Rossica," p. 1449) the first three are referred to the genus *Asaphus*; viz, *Cryptonymus schlotheimii* to *Asaphus schlotheimii*, *Cryp. weissii* to *Asaphus weissii*, *Cryp. panderi* to *Asaphus expansus* Wahl. The last five are classed as follows: *Cryp. lichtensteini* under *Niobe lichtensteini*, *Cryp. rosenbergii* to *Ilænus rosenbergii*, *Cryp. wahlenbergii* to *Ilænus wahlenbergii*, *Cryp. rudolphii* to *Ilænus rudolphii*, *Cryp. parkinsonii* to *Ilænus parkinsonii*.

This work also contains a description and a figure of *Asaphus fischeri* (*Amphion fischeri* Eich.).

The description of two new Carbonic Trilobites are added by Dr. G. Fischer, pp. 53-55, pl. 4, figs. 4 and 5, *Asaphus brongniarti*, pl. 4, fig. 5, and *A. eichwaldi*, pl. 4, fig. 4. Valerian von Möller ("Ueber die Trilobiten der Steinkohlenformation des Ural," 1867, p. 7) refers these species to *Phillipsia eichwaldi* Fisch., applying the term to the non-mucronate pygidium. The Russian mucronate species, figured by Eichwald ("Lethæa Rossica," pl. 54, fig. 10) as *Griffithides eichwaldi*, was assigned by the same author to *Phillipsia mucronata* McCoy.

— Zoologia specialis, quam expositis animalibus tum vivis tum fossilibus postissimum Rossia in Universum et Polonia. Vilnæ, vols. 1-3, 1829-31. (*)**— Die Thier- und Pflanzenreste des alten rothen Sandsteins und Bergkalk in Novgorodischen Gouvernement.**

In Bull. Acad. Petropol. St. Petersburg, vol. 7, 1840, p. 78.

Otarion eichwaldi.

— Ueber das silurische Schichten-System von Ehstland. St. Petersburg, 1840.

Krustazeen, p. 64.

Calymene odini, *C. blumenbachii* Brong., *C. downingia* Murch., *C. macrophthalma* Murch., *C. bellatula* Dalm., *C. semnitzkii*, *Amphion* (*Asaphus*) *fischeri*, *Zethus verrucosus* Pander, *Cryptonymus punctatus* (Wahl.), Eichwald, *C. variolaris*, *C. wörthii*, *Asaphus expansus* Wahl., *A. weissii*, *A. schlotheimii*, *A. latus* Pander, *A. laeniatus* Dalm., *A. dilatatus* Dalm., *A. devexus*,

Eichwald (Ednard)—Continued.

A. tyrannus Murch., *A. vulcani* March., *Ilænus crassicauda* Dalm., *I. rosenbergii*, *I. cornutus* Pander, *I. perovatis* Murch., *I. centrotus* Dalm., *Trinucleus sparskii*, *Homalonotus herschellii* Murch., *Nileus armadillo* Dalm., *Agnostus nasutus* Dalm.

— Die Urwelt Russlands durch Abbildungen erläutert.

4 pts., St. Petersburg, 1840-48, 14 pls.

In the first part of this work, in the list of fossils given, p. 22, Eduard von Eichwald refers three species to *Cryptonymus*; a generic name which he used in 1825 for an entirely different series of fossil crustacea. In the present work he substitutes the name for such species as *Calymene variolaris*, *C. punctatus*, *C. wörthii*, etc. The name is used without a generic description, and only indicated by the above named species.

Metopias n. g., pt. 2, p. 64, pl. 3, fig. 4.

— Beiträge zur Geologie und Palæontologie Russlands. Moscau, 1854.

Bunodes n. g.

— Die Grauwacken Schichten von Liv- und Estland.

In Bull. Soc. Imp. des Naturalistes Moscou, vol. 27, 1854, no. 1, p. 3.

Eurypterus, *Pterygotus*, *Bunodes*, *Sphagodus*.

— Ueber die Gattungen *Cryptonymus* und *Zethus*.

In Bull. Soc. Imp. des Naturalistes Moscou, vol. 28, 1855. Separated., Moscou, 1855, 23 pp.

The author maintains that the genus *Cryptonymus* should be retained for several Russian and Swedish Trilobites as defined by N. P. Angelin ("Palæont. Scand.," 1852, p. 2), with *Calymene punctatus* as its type.

— Beiträge zur geographischen Verbreitung der fossilen Thiere Russland's.

In Bull. Soc. Nat., Moscou, vols. 28-30, 1855-'57 (vol. 30, 1857).

Harpes, *Proetus*, *Cyphaspis*, *Homalonotus*, *Calymene*, *Griffithides*, *Phacops*, *Chasmops*, *Odonotochile*, *Lichas*, *Trinucleus*, *Ampeyx*, *Asaphus*, *Ptychopyge*, *Megalaspis*, *Nileus*, *Ilænus*, *Dysplanus*, *Cheirurus*, *Sphærezochus*, *Amphion*, *Cryptonymus*, *Bronteus*, *Lonchodomas*, *Raphicphorus*, *Zethus*, *Sphærocoryphe*, *Eurypterus*, *Pterygotus*, *Beyrichia*, *Bairdia*.

— Lethæa Rossica, ou paléontologie de la Russ. Stuttgart, 1852-'69. 3 vols., with atlas, 113 pls.

The Crustacea are arranged in the following order: First order, Ostracopoda, first family, Cypridina, genus 1. *Leperditia*, 2. *Bairdia*, 3. *Beyrichia*. Second order, Pœcilopoda, second family, Agnostidae, genus 4. *Agnostus*. Third order, Copépoda, third family, Eurypteridae, genus 5. *Eurypterus*, 6. *Pterygotus*. Fourth order, Xiphosuridae, fourth family, Limulidae, genus 7. *Campylocephalus* n. g. Fifth order, Isopodes, Trilobites, family Harpidæ, genus 9.

Eichwald (Eduard)—Continued.

Harpes, 10. *Trinucleus*, 11. *Ampyx*, 12. *Lonchodomas*, 13. *Raphiophorus*; sixth family, *Lichidae*, genus 14. *Lichas*; seventh family, *Cheiruridae*, genus 15. *Acidaspis*, 16. *Ceraurus*, 17. *Sphaeræzoceus*, 18. *Zethus*, 19. *Sphaeræzoecoryphe*; eighth family, *Amphionidae*, genus 20. *Amphion*, 21. *Homalonotus*, 22. *Cryptonymus*; ninth family, *Calymnidae*, genus 23. *Calymene*, 24. *Acaste*, 25. *Phacops*, 26. *Chasmops*, 27. *Proetus*, 28. *Griffithides*, 29. (not given), 30. *Cyphaspis*; tenth family, *Remopleuridae*, genus 31. *Bunodes*, 32. *Pseudoniscus*, 33. *Remopleurides*; eleventh family, *Asaphidae*, genus 34. *Asaphus*, 35. *Megalaspis*, 36. *Niobe*, 37. *Ptychopyge*, 38. *Ogygia*, 39. *Illæus*, 40. *Rhodope*, 41. *Dysplanus*, 42. *Actinobolus*, 43. *Nileus*; twelfth family, *Brontidae*, genus 44. *Bronteus*.

— Beiträge zur nähern Kenntniss der in meiner Lethæa Rossica beschriebenen Illæus, etc.

In Bull. Soc. Imp. des Naturalistes Moscou, 1863, No. 4, p. 372.

Nileus, *Bumastus*.

Emerson (B. K.) On the geology of Frobisher Bay and Field Bay.

Appendix 3. Narrative of the second Arctic expedition made by Charles F. Hall, 45th Cong., 3d sess., Senate Doc. 27, Washington, 1879.

Triarthrus, *Cyphaspis*, *Phacops*, *Calymene*, *Asaphus*, *Beyrichia*, *Leperditia*, *Primitia*.

Emmons (Ebenezer). Geology of New York. Pt. 2. Comprising the survey of the Second Geological District. Albany, 1842.

Isotelus gigas, fig. 99 (1); *Bumastus trentonensis*, fig. 100 (1); *Calymene senaria*, fig. 100 (2); *Illæus trentonensis*, fig. 100 (3); *Ceraurus pleurexanthus*, fig. 100 (6); *Trinucleus tessellatus*, fig. 100 (7); *Triarthrus beekii*, fig. 110 (1); *Trinucleus caractaci*, fig. 112 (1).

— The Taconic system, based on observations in New York, Massachusetts, Maine, Vermont, and Rhode Island. Albany, 1844, 6 pls. and map.

Atops trilineatus n. s. and genus, fig. 8; *Elliptocephala asaphoides* n. s. and genus (not *Elliptocephalus* Zenker, 1833), fig. 9.

— Agriculture of New York, comprising an account of the classification, composition, and distribution of the soils and rocks, etc. Vol. 1. Albany, 1846, 21 pls. and maps.

Atops trilineatus, fig. 8; *Elliptocephala asaphoides*, fig. 9.

— On the identity of the *Atops trilineatus* and the *Triarthrus beekii* Green, with remarks upon the *Elliptocephala asaphoides*.

Emmons (Ebenezer)—Continued.

In Proc. Am. Assoc. Adv. Sci., First meeting, Philadelphia, 1848.

Atops trilineatus, *Triarthrus beekii*, *Elliptocephala asaphoides*.

— American geology, containing a statement of the principles of the science, with full illustrations of the characteristic fossils. Vol. 1, Parts I, II, and III. Albany, 1855–57, atlas, 17 pls.

Dikelocephalus, *Olenus*, *Triarthrus*, *Atops*, *Conocephalus*, *Elliptocephalus*, *Phacops*, *Calymene*, *Trinucleus*, *Isotelus*, *Ogygia*, *Illæus*, *Acidaspis*, *Ceraurus*, *Agnostus*, *Microdiscus* n. g., *Beyrichia*, *Cytherina*, *Cyproides*.

— Manual of geology, designed for the use of colleges and academies. New York, 1860.

Paradoxides? quadrispinosus, fig. 57; *Paradoxides macrocephalus*, fig. 70; *Atops punctatus*, fig. 71; *Microdiscus quadricostatus*, fig. 73; *Calymene senaria*, fig. 87; *Illæus trentonensis*, fig. 89 (a); *Illæus crassicauda*, fig. 89 (b); *Triarthrus beekii*, figs. 89 (c) and 91; *Isotelus gigas*, fig. 89 (d); *Beyrichia*, *Cytherina*, *Cyproides*, fig. 90; *Trinucleus caractaci*, fig. 93 (1); *Hemicripturus*, fig. 97 (2); *Illæus darriensis*, fig. 98 (3); *Dalmanella selenurus*, fig. 118 (1); *Phacops bufo*, fig. 124 (6); *Dalmanella calliteles*, fig. 124 (7); *Phacops nupera*, fig. 138 (2); *Cyphaspis girardeauensis*, fig. 145 (2); *Homalonotus dekayi*, figs. 134, 135.

Note A, p. 280, the author remarks: "We now know the following trilobites, all of which belong to a slate beneath the Calciferous; viz, *Atops punctatus*, *Elliptocephalus (Paradoxides) asaphoides*, *Paradoxides thompsoni*, *P. vermonti*, *P. macrocephalus*, *Paradoxides (Pagura) quadrispinosus*, and *Microdiscus quadricostatus*."

Dr. E. Emmons uses the name *Pagura* as a subgenus to *Paradoxides* without indicating his intention with regard to the genus. He may have intended it to replace the generic name of *Peltura (Olenus) holopygia* Hall, 12th Rept. New York State Cab. Nat. Hist., p. 61, which in the 13th Rept. New York State Cab. Nat. Hist., p. 118, is used for the type of *Bathynotus* Hall, 1860.

The preface of the manual is dated Kaleigh, May 1, 1859.

Emmrich (H. F.) De Trilobitis dissertatio petrefactologica quam consensu et auctoritate philissimi philosophorum ordinis, etc. Berolini, 1839, 1 pl.

Classifies 65 species and 9 genera and 6 subgenera, as follows:

1. *Phacops*.
2. *Asaphus* {
 - Sec. 1. *Ogygia*.
 2. *Asaphus*.
 3. *Illæus*.
 - 4.
3. *Calymene* {
 - Sec. 1. *Calymene*.
 2. *Trimerus*.

Emmrich (H. F.)—Continued.

4. Depleura.
5. Conocephalus.
6. Ellipsocephalus.
7. Ampyx.
8. Paradoxides.
9. Odontopleura.
10. Cyphæus.

— Zur Naturgeschichte der Trilobiten. Programm zur öffentlichen Prüfung, welche mit den Zöglingen der Real-schule in Meiningen, Donnerstag dem 28. und Freitag den 29. März 1844 im grossen Hörsaal der Anstalt abgehalten werden soll, etc. Meiningen, 1844, 1 pl.

Pt. 1. Zur Morphologie der Trilobiten, pp. 4-13.

Pt. 2. Ueber die Trilobitengattungen, pp. 13-18.

Pt. 3. Ueber die Verbreitung der Trilobiten in den Gebirgsschichten, pp. 18-28.

The genera are arranged into 25 families in the following order:

1. *Phacops*, *Dalmania* n. g., 2. *Phillipsia*, 3. *Griffithides*, 4. *Gerastos*, 5. *Asaphus*, 6. *Ilænus*, 7. *Ogygia*, 8. *Bronteus*, 9. *Nutania*, 10. *Encrinurus* n. g., 11. *Amphion*, 12. *Calymene*, 13. *Homalonotus*, 14. *Conocephalus*, 15. *Ellipsocephalus*, 16. *Anthes*, 17. *Paradoxides*, 18. *Odontopleura*, 19. *Arges*, 20. *Cryptolithus*, 21. *Ampyx*, 22. *Olenus*, 23. *Remopleurides*, 24. *Ceraurus*, 25. *Agnostus*.

— Ueber die Trilobiten.

In Neues Jahrbuch für Mineral., 1845, p. 18, 1 pl.

For list of genera, see preceding reference.

— On the morphology, classification, and distribution of the Trilobites.

Scientific Memoirs, edited by Richard Taylor, vol. 4, 1846, pt. 14, p. 253, 1 pl.

Translation of the preceding reference.

Esmark (H. M. T.) Om nogle nye Arten af Trilobiter. (*)

In Mag. for Naturvidensk., andre Række, Christiania, vol. 1, 1833, p. 268, pl. 8.

Trilobiter asellus, *T. elliptifrons*, *T. sphaerius*, *T. semilunaris*, *T. dentatus*.

Etheridge (Robert). Description of the Palæozoic and Mesozoic fossils of Queensland.

In Quart. Jour. Geol. Soc. London, vol. 28, 1872, p. 317.

Griffithides dubius, pl. 18, fig. 7.

— Memoirs Geological Survey of Scotland. Edinburgh, 1873.

Expl. Map 23, p. 93.

Ceratiocaris.

— Observations on a few Graptolites from the Lower Silurian rocks of Vic-

Etheridge (Robert)—Continued.

toria, Australia, with a further note on the structure of *Ceratiocaris*.

In Annals Mag. Nat. Hist., London, 4th series, vol. 14, 1874, p. 1.

— On the remains of a large Crustacean probably indicative of a new species of *Eurypteride*, or allied genus (*Eurypterus stenosoni*), from the Lower Carboniferous series (Cementstone group) of Berwickshire.

In Quart. Jour. Geol. Soc. London, vol. 33, 1877, p. 223, 2 figs.

— Palæontology of the coasts of the Arctic lands visited by the late British expedition under Capt. Sir George Nares, etc.

In Quart. Jour. Geol. Soc. London, vol. 34, 1878, p. 568.

Proetus, *Calymene*, *Asaphus*, *Encrinurus*, *Bronteus*.

— On the occurrence of the genus *Dithyrocaris* in the Lower Carboniferous or Calciferous sandstone series of Scotland, and on that of a second species of *Anathrapalæmon* in these beds.

In Quart. Jour. Geol. Soc. London, vol. 35, 1879, p. 464, pl. 23.

Dithyrocaris, *Anathrapalæmon*.

— On the occurrence of a small new Phyllopod Crustacean, referable to the genus *Leaia* in the Lower Carboniferous rocks of Edinburgh.

In Annals Mag. Nat. Hist., London, 5th series, vol. 3, 1879, p. 257.

— and Nicholson (H. A.) See Nicholson (H. A.) and Etheridge (Robert).

— and Salter (J. W.) See Salter (J. W.) and Etheridge (Robert).

— Notes on a collection of fossils from the Palæozoic rocks of New South Wales.

In Proc. Royal Soc. New South Wales, vol. 19, 1880, p. 247, 1 pl.

Encrinurus punctatus.

— Address of the President.

In Quart. Jour. Geol. Soc. London, vol. 37, 1881, p. 37.

— Reports of the committee, consisting of Mr. R. Etheridge, Dr. Henry Woodward, and Prof. T. Rupert Jones, secretary, on the fossil Phyllopoda of the Palæozoic rocks.

See Reports of the secretary, recorded under Jones (T. Rupert). See, also, Woodward (Henry) and Etheridge (Robert); Huxley (T. H.) and Etheridge (Robert).

- Etheridge, jr. (Robert).** On the occurrence of a macrurous decaped (*Anthraxiplamon woodwardi* sp. nov.) in the Red Sandstone or lowest group of the Carboniferous formation of the southeast of Scotland.
In Quart. Jour. Geol. Soc. London, vol. 33, 1877, p. 863, pl. 27.
- On *Pinnocaris lapworthi*.
Proc. Royal Phys. Soc., 1878, vol. 4, p. 167.
Pinnocaris n. g.
- On the genus *Conocephalites*.
In Proc. Royal Soc. Tasmania, June, 1882, p. 152.
- Feistmantel (Ottokar).** Ueber ein neues Vorkommen von nordischen silurischen Diluvialgeschieben bei Lampersdorf in der Grafschaft Glatz (Zeitschrift Lotos, Dec., 1874, p. 10, Prag).
Phacops downingiae, *Leperditia marginata*.
- Fischer (G. de Waldheim).** Notice sur l'Eurypterus de Podolie et le Chirotherium de Livonie. Moscou, 1839, 2 pls.
Eurypterus remipes, *E. lacustris*?, *E. tetragonophthalmus* n. s.
- Fitch (Asa).** Fossils of Washington County, New York.
In Trans. New York Agric. Soc., vol. 9, 1850, p. 862.
Atops trilineatus, *Olenus asaphoides*, *Trinucleus concentrica*.
- Fletcher (W. F.)** Observations on Dudley Trilobites.
In Quart. Jour. Geol. Soc. London, vol. 6, 1850, p. 235, pls. 27, 27 bis.
Lichas bucklandi, *L. hirsutus*, *L. grayii*, *L. salteri*, *L. barrandii*.
- Observations on Dudley Trilobites. Part 2.
In Quart. Jour. Geol. Soc. London, vol. 6, 1850, p. 402, pl. 32.
Cybele punctata, *C. variolaris*.
- Foerste (A. F.)** The Clinton group of Ohio.
In Bull. Denison Univ., vol. 1, 1885, p. 65, 2 pls.
Acidaspis. Bathyrurus?, *Illænus*, *Calymene*, *Lichas*, *Arionellus*?, *Dalmanites*.
- The Clinton group of Ohio. Pt. 2.
In Bull. Denison Univ., vol. 2, 1887, p. 89, pl. 8.
Proetus, *Phacops*, *Dalmanites*, *Calymene*, *Lichas*, *Illænus*, *Acidaspis*, *Ceraurus*, *Encrinurus*.
- Note on Illæni.
In Fifteenth Rept. Geol. Nat. Hist. Survey Minnesota, 1886, p. 478.
Illænus minnesotensis, *I. herricki*, *I. ambiguus*, *I. insignis* Hall.
- Foerste (A. F.)—Continued.**
— Notes on Palæozoic fossils. Pt. 2.
In Bull. Denison Univ., vol. 3, pt. 2, 1888, p. 117, pl. 13.
Phacops, *Lichas*, *Sphærezochus*, *Encrinurus*, *Microdiscus*.
- Forbes (Edward).** Description of *Ampyx nudus*.
In Mem. Geol. Survey United Kingdom, decade 2, London, 1849, pl. 2.
Ampyx nudus, *Brachampyx* n. g.
- Ford (S. W.)** Description of some new species of Primordial fossils.
In Am. Jour. Sci., 3d series, vol. 3, 1872, p. 419.
Agnostus nobilis.
- Descriptions of new species of fossils from the Lower Potsdam group at Troy, New York.
In Am. Jour. Sci., 3d series, vol. 6, 1873, p. 137.
Microdiscus speciosus, *Leperditia troyensis*.
- Note on the discovery of a new locality of Primordial fossils in Rensselaer County, New York.
In Am. Jour. Sci., 3d series, vol. 9, 1875, p. 204.
Conocephalites (Atops) trilineatus Emmons.
- On additional species of fossils from the Primordial of Troy and Lansingburg, Rensselaer County, New York.
In Am. Jour. Sci., 3d series, vol. 11, 1876, p. 369.
Microdiscus meeki.
- Note on *Microdiscus speciosus*.
In Am. Jour. Sci., 3d series, vol. 13, 1877, p. 141.
- On some embryonic forms of Trilobites.
In Am. Jour. Sci., 3d series, vol. 13, 1877, p. 265, pl. 4.
Metamorphoses of *Olenellus (Elliptcephalus) asaphoides*.
- Description of two new species of Primordial fossils.
In Am. Jour. Sci., 3d series, vol. 15, 1878, p. 124.
Solenopleura nana.
- Note on the development of *Olenellus asaphoides*.
In Am. Jour. Sci., 3d series, vol. 15, 1878, p. 129.
- Life of the Silurian age.
New York Tribune Extra, September 2, 1879.
In this paper Mr. S. W. Ford gives generic figures of Trilobites, including figures of *Microdiscus speciosus*.
- Note on the Trilobite *Atops trilineatus* Emmons.
In Am. Jour. Sci., 3d series, vol. 19, 1880, p. 152.
- On additional embryonic forms of Trilobites from the Primordial rocks of Troy, New York, with observations on

Ford (S. W.)—Continued.

the genera *Olenellus*, *Paradoxides*, and *Hydrocephalus*.

In Am. Jour. Sci., 3d series, vol. 22, 1881, p. 250, 13, figs.

— Note on the age of the Swedish *Paradoxides* beds.

In Am. Jour. Sci., 3d series, vol. 32, 1886, p. 473.

— and **Dwight (W. B.)** Preliminary report of S. W. Ford and W. B. Dwight upon fossils obtained in 1885 from metamorphic limestones of the Taconic series of Emmons, at Canaan, New York. Pl. 7.

In Am. Jour. Sci., 3d series, vol. 31, 1886, p. 248.

Genal spine of Trilobite, perhaps *Asaphus megistos*.

Frech (Fritz). Ueber das Devon der Ostalpen.

In Zeitschr. Deutsch. geol. Gesell., Berlin, vol. 39, 1888, p. 659.

Phacops, *Cheirurus*, *Encrinurus*, *Arethusa*.

— Die paläozoischen Bildungen von Cabrières, etc.

In Zeitschr. Deutsch. geol. Gesell., Berlin, vol. 39, 1887, p. 360, pl. 24.

Harpes, *Phacops*, *Proetus*, *Dechenella*, *Lichas*, *Cheirurus*, *Bronteus*, *Ogygia*.

Gehler (J. C.) De quibusdam varioribus agri Lipsiensis petrificatis. Spec. I. Trilobites f. *Entomosolithus paradoxus* Linné. Lipsiæ, 1793 [1 pl.].

The author gives a sketch of the bibliography of the Trilobites, and figures several specimens of *Calymene blumenbachii*.

Geinitz (H. B.) Grundriss der Versteinerungs-Kunde. Dresden, 1846, 28 pls.

Limulus *Halicyme*, *Belinurus*, *Eurypterus*, *Cytherina*, *Calymene*, *Homalonotus*, *Dipleura*, *Trimerus*, *Cyphaspis*, *Phacops*, *Aconia*, *Ilænus*, *Arcegonus*, *Asaphus*, *Dysplanus*, *Nileus*, *Ampyx*, *Trinucleus*, *Ogygia*, *Odontopleura*, *Arges*, *Bronteus*, *Paradoxides*, *Olenus*, *Conocephalus*, *Ellipsocephalus*, *Harpes*, *Cytherea*, *Cypridina*, *Cyprilla*, *Cypridella*, *Pollicipes*, *Cyclus*.

— Carbonformation und Dyas in Nebraska. Dresden, 1866, 5 pls.

Phillipsia sp.?, *Cythere*.

Genzmar. Beschreibung einer versteinerten Muschel mit dreifachen Rücken. (*)

In Gesell. der Ober-Lausitz Lobau, vol. 2, 1758; also, vol. 3, p. 185, fig. 17-21; Neues Mag., Hamburg, 1772.

This author gives a description of the Trilobites of Mecklenburg, especially those of his own collection.

Gerstäcker (A.) In Bronn's Die Klassen und Ordnungen der Arthropoden wis-

Gerstäcker (A.)—Continued.

senschaftlich dargestellt in Wort und Bild. Crustacea. Leipzig und Heidelberg, 1866-79, p. 1142, pls. 43-49.

Agnostus, *Homalonotus*, *Phacops*, *Dalmanites*, *Cheirurus*, *Cromus*, *Deiphon*, *Staurocephalus*, *Ampyx*, *Hydrocephalus*, *Acidaspis*, *Telephus*, *Æglina*, *Lichas*, *Sphaerexochus*, *Triarthrus*, *Dindymene*, *Barrandia*, *Ilænus*, *Nileus*, *Ogygia*, *Bronteus*, *Asaphus*, *Paradoxides*, *Phillipsia*, *Carmon*, *Ellipsocephalus*, *Cyphaspis*, *Arethusa*, *Proetus*, *Arionellus*, *Remopleurides*, *Bohemilla*, *Calymene*, *Conocephalites*, *Olenus*, *Peltura*, *Arera*, *Sao*, *Phacoparia*, *Amphion*, *Encrinurus*, *Zethus*, *Trinucleus*, *Dionides*, *Harpides*, *Harpes*, *Aristozoe*, *Byrrichia*, *Bolbozoe*, *Callizoe*, *Caryon*, *Crescentilla*, *Cythere*, *Cytheropsis*, *Elpe*, *Entomis*, *Heppa*, *Leperditia*, *Isoschilina*, *Orozoe*, *Nothozoe*, *Primitia*, *Zonozoe*, *Cryptocaris*, *Aptychopsis*, *Adelophthalmus*, *Eurypterus*, *Limulus*, *Pterygotus*, *Belinurus*, *Prexwichia*, *Hemiaspis*.

Giebel (C.) Die silurische Fauna des Unterharzes.

In Abhandl. Nat. Vereins Sachsen u. Thüringen, vol. 1, 1858, p. 1, 7 pls.

Harpes, *Proetus*, *Cyphaspis*, *Phacops*, *Lichas*, *Dalmanina*, *Acidaspis*, *Bronteus*.

Goldfuss (A.) Observation sur la place qu'occupent les Trilobites dans le règne animal.

In Annales Sci. Nat. Paris, vol. 15, 1828, p. 83, pl. 2.

Asaphus, *Calymene*.

— Catalogue des Trilobites.

In Handbuch der Geognosie von de la Beche, 1832.

This list was copied by Dr. Jacob Green in his "Monograph of the Trilobites of North America," p. 20.

— Beiträge zur Familie der fossilen Crustaceen.

In Nova Acta Physico Med., vol. 19, 1839, Breslau, p. 353, pl. 33.

Harpes n. g., *Arges* n. g., *Brontes* n. g., *Ilænus*? *triacanthus*.

— Systematische Uebersicht der Trilobiten und Beschreibung einiger neuen Arten.

In Neues Jahrbuch für Mineral., 1843, p. 537, pls. 4-6.

Harpes, *Paradoxides*, *Olenus*, *Anthes* n. g., *Olenus* *scarabaeoides*, *Conocephalus*, *Ellipsocephalus*, *Proetus*, *Acaste*, *Gerastos* n. g., *Phacops*, *Calymene*, *Homalonotus*, *Dipleura*, *Cryptolithus*, *Ampyx*, *Asaphus*, *Isotelus*, *Symphysurus* n. g., *Ogygia*, *Cryptonymus*, *Odontopleura*, *Ceraurus*, *Otarion*, *Arges*, *Zethus*, *Amphion*, *Bronteus*, *Ilænus*, *Bumastus*, *Nileus*, *Agnostus*.
Classifies 204 species under 32 genera.

Goodchild (J. G.) and Postlethwaite (J.). See **Postlethwaite (J.) and Goodchild (J. G.).**

Green (Jacob). Synopsis of the Trilobites of North America. In which some new genera and species are proposed.

Monthly Am. Jour. Geology, Phila., vol. 2, 1832, p. 558, pl. 14. Republished in Dr. Jacob Green's "Monograph of the Trilobites of North America," Phila., 1832. List given in Dr. R. Harlan's "Med. Phys. Researches," Phila., 1835, p. 300.

Calymene blumenbachii, *C. callicephala*, *C. selenecephala*, *C. platys*, *C. microps*, *C. anchips*, *C. diops*, *C. bufo*, *Asaphus caudatus*, *A. selenurus*, *A. pleuroptyx*, *A. vetherilli*, *A. micrurus*, *A. limulus*, *A. laticostatus*, *Trimerus* n. g., *T. delphinocephalus* (pl. 14, fig. 1), *Cryptolithus* n. g., *C. tessellatus* (pl. 14, fig. 4), *Dipleura* n. g., *D. dekayi* (pl. 14, figs. 8, 9), *Isotelus gigas*, *I. planus*, *I. cyclops* (pl. 14, fig. 7), *Triarthrus* n. g., *T. beekii* (pl. 14, fig. 6), *Paradoxides boltonii* (pl. 14, fig. 5), *Ceraurus* n. g., *C. pleurexanthemus* (pl. 14, fig. 10).

— A monograph of the Trilobites of North America, with colored models of the species. Philadelphia, 1832, 94 pp., 1 pl. (Oct. 1, 1832).

Calymene, *Asaphus*, *Hemicrypturus* n. g., *Ogygia*, *Isotelus*, *Cryptolithus*, *Dipleura*, *Trimerus*, *Ceraurus*, *Triarthrus*, *Nuttainia*, *Brongniartia*.

— A supplement to the monograph of the Trilobites of North America, with colored models of the species. Philadelphia, 1835, 24 pp. (May 1, 1835).

Paradoxides, *Calymene*, *Asaphus*.

— A new Trilobite. Letter to the editor, Dec. 26, 1832.

In Am. Jour. Sci., 1st series, vol. 23, 1833, p. 397.

Asaphus myrmecoides.

— Description of a new Trilobite from Nova Scotia.

In Trans. Geol. Soc. Pennsylvania, vol. 1, pt. 1, 1834, p. 37, pl. 4.

Asaphus crypturus.

— Description of some new North American Trilobites.

In Am. Jour. Sci., 1st series, vol. 25, 1834, p. 334.

Calymene odontcephalus, *Asaphus astragalotes*, *A. tetragonocephalus*, *Paradoxides harlani*.

— Description of a new Trilobite.

In Am. Jour. Sci., 1st series, vol. 32, 1837, p. 167.

Calymene phytactinodes, *Asaphus platypleurus*.

— Description of two new species of Trilobites. Read Jan. 24, 1837.

Green (Jacob).—Continued.

In Jour. Acad. Nat. Sci. Phila., vol. 7, 1837, p. 217, 2 wood-cuts.

Cryphaeus n. g., *C. boothi*, *Asaphus trimblii*.

J. W. Salter (Mon. Brit. Tril., p. 15) gives the following diagnosis of the genus, and uses it as a subgenus to *Phacops*: "Form of moderate size, depressed. Glabella depressed, not much expanded in front; all the lobes distinct, the front ones not greatly enlarged, genal angles long-spined. Pleura truncate, and the hinder ones often produced into spines. Tail large, of many segments; the margin spinose."

— Description of several new Trilobites.

In Am. Jour. Sci., 1st series, vol. 32, 1837, p. 343, 2 wood-cuts.

Cryphaeus, *C. boothi*, *C. collitelus*, *Trimerus jacksoni*, *Asaphus trimblii*.

— Some remarks on the genus *Paradoxides* Brong., and the necessity of preserving the genus *Triarthrus*, proposed in the Monograph of the Trilobites of North America.

In Am. Jour. Sci., 1st series, vol. 33, 1838, p. 341.

— Description of a new Trilobite.

In Am. Jour. Sci., 1st series, vol. 33, 1838, p. 406.

Calymene rowii.

This Trilobite was figured by Mr. Row in the Poughkeepsie Telegraph, Nov. 22, 1837.

— Description of a new Trilobite.

In Annals Mag. Nat. History, 1st series, vol. 1, 1838, p. 79.

Calymene rowii.

— The inferior surface of the Trilobite discovered.

In The Friend, a weekly Journal, Philadelphia, March 16, 1839.

Calymene bufo.

— The inferior surface of the Trilobite discovered. Illustrated, with colored models. Philadelphia, 1839.

Calymene bufo.

— Remarks on the Trilobites.

In Am. Jour. Sci., 1st series, vol. 37, 1839, p. 25.

This article appears to be a republication of the two preceding references, with the addition of the remarks on p. 38 of the Journal.

— An additional fact, illustrating the inferior surface of *Calymene bufo*.

In Am. Jour. Sci., 1st series, vol. 38, 1840, p. 410.

Grewingk (C.) Geologie von Liv- und Kurland.

In Archiv Natur. Liv-, Ehst- u. Kurl., Dorpat, vol. 2, pt. 3, 1861, p. 571, 4 pls.

Beyrichia.

Griffith (Richard).

Two important works on the paleontology and geology of Ireland were prepared under the direction of Mr. Richard Griffith by Frederick McCoy, who will be counted as the author, although Mr. Richard Griffith was the collector of the specimens and the financial supporter of the publications.

The contributions on the Paleozoic Crustacea are given under McCoy (Frederick) in this work.

Grote (A. R.) and Pitt (W. H.) New specimen from the Water Lime group at Buffalo, N. Y.

In Proc. Am. Assoc. Adv. Sci., 26th meeting, Nashville, 1877, p. 300.

Pterygotus cummingsi.

— Description of a new Crustacean from the Water Lime group at Buffalo.

In Bull. Buffalo Soc. Nat. Sci., vol. 3, 1875, p. 1.

Eusarcus n. g.

— On new species of *Eusarcus* and *Pterygotus* from the Water Lime group at Buffalo.

In Bull. Buffalo Soc. Nat. Sci., vol. 3, 1875, p. 17, plate.

Eusarcus, *Pterygotus*.

Gruenwaldt (M.) Beiträge zur Kenntniss der sedimentären Gebirgsformationen des Ural.

In Mém. Acad. Sci. St.-Petersbourg, 7th series, vol. 2, No. 7, 1860, 6 pls.

Phillipsia, *Leperditia*.

Guettard (E.-T.) Mémoire sur les ardoisières d'Angers.

In Mém. Acad. Sci. Paris, 1757, p. 52, pls. 7-9. Reprint: Amsterdam, 1768.

The author in his memoir on the geology of Angers gives descriptions and figures of several Trilobites. These were afterwards described by Alex. Brongniart under the genus *Ogygia* and named by this author *Ogygia* de Guettard and *O. desmarestii*.

Haldeman (S. S.) On the supposed identity of *Atops trilineatus* with *Triarthrus beekii*.

In Am. Jour. Sci., 2d series, vol. 5, 1848, p. 107.

Hall (Charles E.) Contribution to paleontology from the Museum of the Second Geological Survey of Pennsylvania.

In Proc. Am. Philos. Soc., Phila., vol. 16, 1877, p. 621.

Eurypterus.

Hall (James). Description of two species of Trilobites belonging to the genus *Paradoxides*.**Hall (James)—Continued.**

In Am. Jour. Sci., 1st series, vol. 33, 1838, p. 139, 2 figs.

Read before the Yale Natural History Society, March 21, 1837.

Paradoxides beekii, *P. eatoni*.

— Trilobites of the inferior strata.

(Extracted and published in advance of the "Paleontology of New York," vol. 1, Albany, 1846, p. 225, pls. 60-67.)

Olenus, *Phacops*, *Calymene*, *Platynotus*, *Trinucleus*, *Asaphus*, *Isotelus*, *Acidaspis*, *Ceraurus*, *Illenus*, *Agnostus*.

— Paleontology of New York. Vol. 1. Containing descriptions of the organic remains of the lower divisions of the New York system. Albany, 1847, 100 pls.

Olenus, *Phacops*, *Calymene*, *Platynotus*, *Trinucleus*, *Asaphus*, *Isotelus*, *Acidaspis*, *Ceraurus*, *Illenus*, *Agnostus*.

— Remarks on the observations of S. S. Haldeman "On the supposed identity of *Atops trilineatus* with *Triarthrus beekii*."

In Am. Jour. Sci., 2d series, vol. 5, 1848, p. 322, 10 wood-cuts.

— Descriptions of new species of fossils, and observations upon some others previously not well known, from the Trenton limestones.

In Third Rept. New York State Cab. Nat. Hist., 1850, p. 167, 5 pls. (2 eds.).

Asaphus extans.

This species was used by Mr. E. Billings for the type of *Bathyrurus*.

— Description of new or rare species of fossils from the Paleozoic series.

In Rept. Geol. Lake Superior Land Dist. (Foster and Whitney), 1851, pt. 2, p. 203, pls. 22-35.

Harpes escanabiae, *Dikelocephalus*, *Proetus*, *Phacops anchiops*, *P. callicephalus*, *Asaphus barrandi*; tracks of a Crustacean?

— Paleontology of New York. Vol. 2. Containing descriptions of the organic remains of the lower divisions of the New York system. Albany, 1852, 104 pls.

Phacops, *Proetus*, *Calymene*, *Homalonotus*, *Arges*, *Lichas*, *Acidaspis*, *Ceraurus*, *Cybele*, *Bumastis*, *Beyrichia*, *Oxytherina*, *Onchus*.

— Notes on some fossils of the so-called Taconic system described by Doctor Emmons.

In Am. Jour. Sci., 2d series, vol. 19, 1855, p. 434.

Olenus (*Eukotocephalus*) *asaphoides*.

Hall (James)—Continued.

- Description of new species of fossils from the Carboniferous limestone of Indiana and Illinois.

Read in 1856 and published separately by the author. See, also, Trans. Albany Inst., vol. 1, pt. 1, 1857, p. 1.

Ocytherina carbonaria.

Descriptions of these fossils, with additional notes by R. P. Whitfield, were published in the Bull. Am. Mus. Nat. Hist., New York, vol. 1, No. 3, 1882.

The original descriptions, with additional observation by James Hall, with the plates from R. P. Whitfield's memoir, were published in the 12th Annual Rept. Geol. Nat. Hist. Indiana, 1882, pp. 321-375, pls. 29-32.

- The Trilobites of the shales of the Hudson River group.

In Twelfth Rept. New York State Cab. Nat. Hist., 1859, p. 59, 3 wood-cuts. See, also, Palæont. New York, vol. 3, 1859; Geol. Vermont, vol. 1, 1861; 13th Rept. New York State Cab. Nat. Hist., 1860.

Olenus thompsoni, *O. vermontana*, *Peltura (Olenus) holopyge*.

- Geological Survey New York. Palæontology. Vol. 3. Containing descriptions and figures of the organic remains of the Lower Helderberg group and the Oriskany sandstone. 1855-59.

Pt. 1, text, 1859; pt. 2, plates, 1861, 120 pls.

Proetus, *Phacops*, *Dalmania*, *Homalonotus*, *Lichas*, *Acidaspis*, *Bronteus*, *Eurypterus*, *Dolichopterus* n. subgenus, *Pterygotus*, *Leperditia*, *Beyrichia*, *Ceraticocaris*, *Olenus thompsoni*, *O. vermontana*, *Peltura (Olenus) holopyge*.

- Description of new species of fossils from the Silurian rocks of Nova Scotia.

In Canadian Naturalist, vol. 5, 1860, p. 144.

Homalonotus dawsoni Hall, *Calymene blumenbachii*, *Dalmania logani* Hall, *Beyrichia pustulosa* Hall, *B. æquilatera* Hall, *Leperditia sinuata* Hall.

- Contributions to palæontology, 1858 and 1859. Notes and observations upon the fossils of the Goniatile limestone in the Marcellus shale of the Hamilton group in the eastern and central parts of the State of New York, and those of the Goniatile beds of Rockford, Indiana; with some analogous forms from the Hamilton group proper.

In Thirteenth Rept. New York State Cab. Nat. Hist., 1860, p. 95.

Proetus doris Hall.

- Note upon the Trilobites of the shales of the Quebec group in the town of Georgia, Vermont.

Bull. 63—3

Hall (James)—Continued.

In Thirteenth Rept. New York State Cab. Nat. Hist., 1860, p. 113.

Barrandia n. g.

This term was used by Frederick McCoy, in 1844, for a genus of Trilobites.

Bathynotus n. g.

- New species of fossils from the Hudson River group of Ohio and the Western States.

In Thirteenth Rept. New York State Cab. Nat. Hist., 1860, p. 119.

Calymene christyi, *Proetus parviusculus*.

- Geological Survey of Wisconsin.

Description of new species of fossils from the investigations of the survey, etc. Report of the superintendent of the Geological Survey, exhibiting the progress of the work, January 1, 1861, p. 11.

Dalmanites, *Calymene*, *Ilænus*.

- Preliminary notice of the Trilobites and other Crustacea of the Upper Helderberg, Hamilton, and Chemung groups.

Author's edition, published in 1861, 11 pls., 170 pp.; 15th Rept. New York State Cab. Nat. Hist., 1862, p. 82.

Olenellus n. g., *Proetus*, *Phacops*, *Dalmania*, *Calymene*, *Homalonotus*, *Lichas*, *Acidaspis*, *Beyrichia*, *Leperditia*.

- Note on the genus *Cypriocardites*.

In Fifteenth Rept. New York State Cab. Nat. Hist., 1861, p. 192. Plate illustrating certain genera and species described by T. A. Conrad in the 5th Annual Rept. Pal. Dept. New York Geol. Survey, 1841, pl. 11 (reprint).

Dicranurus, pl. 11, fig. 1; *Aspidolites*, pl. 11, fig. 2; *Acidaspis tuberculatus*, pl. 11, fig. 3.

- Note upon the Trilobites of the Hudson River group, in the town of Georgia, Vermont.

In Geol. Vermont, vol. 1, 1861, p. 367, pl. 13. *Barrandia*, *B. vermontana*, *Bathynotus*, *B. holopyga*.

- Palæontology of Wisconsin. Remarks upon the condition of the fossils in the rocks of the several formations. Catalogue of fossils known in the Palæozoic formations of Wisconsin, with observations upon some of the known species and descriptions of several new forms.

Geol. Survey Wisconsin, vol. 1, 1862, p. 425.

- On a new Crustacean from the Potsdam sandstone. A letter addressed to Principal Dawson, dated Albany, Oct. 31, 1862.

Hall (James)—Continued.

In Canadian Naturalist, vol. 7, 1862, p. 443, figure. See The Geologist, vol. 6, London, 1863, p. 247, figure.

Aglaspis n. g.

- On the occurrence of Crustacean remains of the genera *Ceratiocaris* and *Dithyrocaris*, with a notice of some new species from the Hamilton group and Genesee slate.

In Sixteenth Rept. New York State Cab. Nat. Hist., Albany, 1863, p. 71, plate.

- Preliminary notice of the fauna of the Potsdam sandstone, with remarks upon the previously known species of fossils, and description of some new ones from the sandstones of the Upper Mississippi Valley.

In Sixteenth Rept. New York State Cab. Nat. Hist., 1863, p. 119, 6 pls. Supplementary note, p. 110.

Dikelocephalus, *Triarthrella* n. g., *Conocephalus*, *Arionellus*, *Chariocephalus* n. g., *Ptychaspis* n. g., *Lichas*, *Ilænurus* n. g., *Amphion*?, *Agnostus*, *Pemphigaspis* n. g., *Aglaspis*.

- Notice of some new species of fossils from a locality of the Niagara group in Indiana, with a list of identified species from the same place.

In Trans. Albany Inst., vol. 4, 1864, p. 195. Author's edition published May 2, 1863, pp. 1-34.

Dalmanites, *Cyphaspis*, *Lichas*.

Plates of the species. 28th Rept. New York State Mus. Nat. Hist., 1879.

- Account of some new or little known species of fossils from rocks of the age of the Niagara group.

In Twentieth Rept. New York State Cab. Nat. Hist., 1867, p. 305, 21 pls. Originally printed in advance for the 18th Report New York State Cab. Nat. Hist., 1864. Revised edition, Albany, 1870, with 22 pls.

Dalmanites, *Calymene*, *Lichas*, *Acidaspis*, *Ceraurus*, *Sphaerexochus*, *Ilænus*, *Encrinurus*, *Bronteus*.

- Geological Survey of the State of Wisconsin, 1859-63. Palæontology. Pt. 3. Organic remains of the Niagara group and the associated limestones. 94 pp., 18 pls. Albany, 1871.

The same was published in 1864 in advance for the 18th Rept. New York State Cab. Nat. Hist., 1867, under the title of "Account of some new or little known species of fossils from rocks of the age of the Niagara group." See 20th Rept. New York State Cab. Nat. Hist., rev. edition, 1870, p. 347.

Hall (James)—Continued.

- Descriptions of new species of fossils from the Hudson River group in the vicinity of Cincinnati, Ohio.

In Twenty-fourth Rept. New York State Mus. Nat. Hist., Albany, 1872, p. 225, 1 pl.

Published Oct., 1871, in advance of the State Cab. report.

Leperditia, *Beyrichia*.

- Descriptions of new species of Crinoids and other fossils from strata of the age of the Hudson River group and Trenton limestone.

In Twenty-fourth Rept. New York State Mus. Nat. Hist., 1872, p. 205, 3 pls.

Dalmanites breviceps, *Proetus parviusculus*.

Advance sheets of this article were printed and distributed in November, 1866, except the first four species of Crinoidea mentioned in the foot-note on p. 205, which were first published in 1871 in a pamphlet entitled "New species of fossils from the Hudson River group in the vicinity of Cincinnati, Ohio."

- The fauna of the Niagara group in central Indiana.

Documents only of Twenty-eighth Rept. New York State Mus. Nat. Hist., 1876, 34 pls.

- The fauna of the Niagara in central Indiana.

In Twenty-eighth Rept. New York State Mus. Nat. Hist., 1879, p. 99, 34 pls.

Cyphaspis, *Dalmanites*, *Odontoccephalus*, *Calymene*, *Homalonotus*, *Lichas*, *Ceraurus*, *Ilænus*, *Beyrichia*, *Leperditia*.

- Illustrations of Devonian fossils: Gasteropoda, Pteropoda, Cephalopoda, Crustacea, and Corals of the Upper Helderberg, Hamilton, and Chemung groups, etc. Albany, 1876, 7 pp., 133 pls.

Proetus, *Phillipsia* (*Brachymetopus*?), *Phacops*, *Dalmanites*, *Calymene*, *Homalonotus*, *Lichas*, *Acidaspis* (*Terataspis*), *Dithyrocaris*, *Ceratiocaris*.

- Descriptions of new species of fossils from the Niagara formation at Waldron, Indiana.

In Trans. Albany Inst., vol. 10, 1883, p. 57. Read 1879, and published separately in 1881.

Acidaspis fimbriata, *Ilænus* (*Bumastus*), *Ioxus*.

- Description of the species of fossils found in the Niagara group at Waldron, Indiana.

In Eleventh Ann. Rept. for 1881, Dept. Geol. Nat. Hist. Survey Indiana, 1882, p. 217, 36 pls.

Cyphaspis, *Dalmanites*, *Odontoccephalus*, *Calymene*, *Homalonotus*, *Lichas*, *Acidaspis*, *Ilænus*, *Beyrichia*, *Leperditia*.

Hall (James)—Continued.

— Note on the *Eurypteridæ* of the Devonian and Carboniferous formations of Pennsylvania, with a supplementary note on the *Stylonurus excelsior*.

In Proc. Am. Assoc. Adv. Sci., 33d meeting, Phila., 1884, p. 420.

— *Eurypteridæ* from the Devonian and Carboniferous formations of Pennsylvania. With 6 pls.

Extracted Rept. Prog. PPP., 2d Geol. Survey Pennsylvania, 1884.

— Note on the *Eurypteridæ* of the Devonian and Carboniferous formations of Pennsylvania.

In Second Geol. Survey Pennsylvania, Rept. Prog. PPP., 1884, 6 pls.

Eurypterus, *Dolichopterus*, *Pterygotus*, *Stylonurus*, *Eurypterus* (*Anthraconetes*) *mazonensis* M. & W.

— Description of a new species of *Stylonurus* from the Catskill group.

In Thirty-sixth Rept. New York State Mus. Nat. Hist., 1884, p. 76, pl. 5.

Stylonurus excelsior Hall.

There was a short notice of this species published by D. S. Martin (Trans. New York Acad. Sci., vol. 2, 1882, p. 8). This notice was based upon a cast of the carapace in the New York State Museum, which had been labeled with name and locality by Prof. James Hall.

— and Whitfield (R. P.) Descriptions of new species of fossils from the vicinity of Louisville, Ky., and the Falls of the Ohio.

In Twenty-fourth Rept. New York State Mus. Nat. Hist., 1872, p. 181, pl. 13, figs 20 and 21.

Ilænus cornigerus H. & W.

— Geological Survey of Ohio. Vol. 2. Geology and palæontology. Pt. 2. Palæontology. 1875, p. 67, pls. 1-12.

Proetus, *Dalmania*, *Calymene*, *Lichas*, *Encrinurus*, *Leperditia* (*Ischilina*), *Beyrichia*, *Plumilites*.

— Palæontology.

In U. S. Geol. Expl. 40th Parallel, vol. 4, pt. 2, 1877, 7 pls.

Dikellocephalus, *Conocephalites*, *Crepicephalus* (*Loganellus*), *Ptychaspis*, *Chariocephalus*, *Bathyrurus*, *Proetus*, *Ogygia*, *Agnostus*.

— and Clarke (John M.) Geological Survey of the State of New York. Palæontology. Vol. VII. Text and plates, containing descriptions of the Trilobites and other Crustacea of the Oriskany, Upper Helderberg, Hamilton, Portage, Chemung, and Catskill groups. Albany, 1888, 236 pp., 36 pls.

Hall (James) and Clarke (John M.)—Continued.

Trilobita: *Calymene*, *Homalonotus*, *Bronteus*, *Phacops*, *Dalmanites* subgen., *Hausmanni* n. s. g., *Coronura* n. s. g., *Cryphaeus*, *Odontocephalus*, *Corycephalus*, *Chasmops*, *Lichas* subgen., *Terataspis*, *Conolichas*, *Hoplichas*, *Arges*, *Ceratolichas*, *Proetus*, *Phæthonides*, *Cyphaspis*.

Xiphosura: *Protolemulus*, *Eurypterus*, *Stylonurus*.

Phyllocaridæ: *Ceratiocaris*, *Echinocaris*, *Elymocarid*, *Tropidocaris*.

Pinæcaridæ: *Mesothyra* n. g.

Rhinocardæ: *Rhinocaris* n. g.

Discinocaridæ: *Spathiocaris*, *Dipterocaris*.

Decapoda: *Palæopalæmon*.

Phyllopoda: *Esteria*, *Schizodiscus* n. g.

Cirripidæ: *Protobalanus*.

Palæocreusia: *Strophilepis* n. g., *Turrilepas*.

Hancock (Abbany). Remarks on certain vermiform fossils found in the mountain limestone districts of the north of England.

In Rept. 28th Meeting Brit. Assoc. Adv. Sci., 1858, Tran. of Sec., p. 80.

Tracks of Trilobites.

Harlan (Richard). Critical notices of various organic remains hitherto discovered in North America.

In Trans. Geol. Soc. Pennsylvania, vol. 1, pt. 1, 1834, p. 46, 1 pl.

The author herein describes two species of *Eurypterus* and gives a list of North American Trilobites.

Eurypterus remipes De Kay, *E. lacustris* Harlan.

— Notice of nondescript Trilobites from the State of New York, with observations on the genus *Triarthrus*, etc.

In Trans. Geol. Soc. Pennsylvania, vol. 1, pt. 2, 1835, p. 263, pl. 15.

Paradozides triarthrus Har., *P. arcuatus* Har., *P. scaraboides* Brong.

— Medical and physical researches, or original memoirs in medicine, surgery, physiology, geology, zoology, etc. Phila., 1835, 36 pls.

Contains a republication of the above articles under Harlan, pp. 253-313 and 400-403.

Hartt (C. F.) Fossils of the Primordial or Acadian group at St. John.

In Acadian Geology, the geological structure, organic remains, and mineral resources of Nova Scotia, etc., by J. W. Dawson, 2d ed., London, 1868, pp. 641-657; also 3d ed., 1878, with supplement (wood-cuts).

Paradozides, *Conocephalites*, *Microdiscus*, *Agnostus*.

Mr. C. F. Hartt, in his original description of *Microdiscus dawsoni* Hartt, described the species under the new generic name of *Dawsonia*.

Hartt (C. F.)—Continued.

In the Acadian Geology the species is placed under the genus *Microdiscus* on the authority of Mr. E. Billings, of the Canadian Geological Survey.

— Appendix B. List of New Brunswick fossils.

See Bailey's "Observations on the Geol. of Southern New Brunswick, etc.," 1865, p. 143.

— and Rathbun (Richard). Morgan Expedition, 1870-71. On the Devonian Trilobites and Mollusks of Ereré, Province of Pará, Brazil.

In *Annals Lyceum Nat. Hist.*, New York, vol. 11, 1875, p. 110.

Dalmania paituna H. & R., *Homalonotus oiara* H. & R.

Hauer (F. von). Ueber Barrande's Versuch einer Classification der Trilobiten.

In *Sitzungsber. d. Wien. Akad. Math.-naturw. Classe*, V, p. 304, 1850.

Haulp (K.) Die Fauna der Graptholitengest.

In *Lausitzische Mag.*, vol. 44, Görlitz, 1878, p. 75, pl. 5.

Beyrichia.

Hawle (Ignaz). See Corda (A. J. C.) and Hawle (Ignaz).**Hayden (F. V.)** See Meek (F. B.) and Hayden (F. V.).**Heidenhain (F.)** Ueber Graptholithen-führende Diluvial-Geschiebe der nord-deutschen Ebene.

In *Zeitschr. Deutsch. geol. Gesell.*, vol. 21, 1869, p. 143, plate.

Calymene blumenbachi, *Dalmanites caudata*, *Odontopleura ovata*, *O. nutica*, *Cyphaspis*, *Homalonotus*, *Beyrichia kladen*, *B. maccoyana*, *B. tuberculatus*.

Hellman (A.) Die Petrefacten Thüringens. Cassel, 1866, 5 pts., 24 pls.

Dalmania tuberculata, *Acidaspis buchi*, *Paradozides spinosus*.

Hermann (L. D.) Maslographia Brigæ, Massel, 1711, pl. 9, fig. 50; pl. 11, fig. 44; pl. 12, fig. 31.

The author herein compares a fragment of the pygidium of an *Encrinurus* to a scolop shell.

Herrick (C. L.) A sketch of the geological history of Licking County, accompanying an illustrated catalogue of Carboniferous fossils from Flint Ridge, Ohio.

In *Bull. Denison Univ.*, vol. 2, pt. 1, 1887, p. 5, 7 pls.

Proetus, *Phillipsia*, *Griffithides*, *Brachymetopus*, *Dalmanites*?

Herrick (C. L.)—Continued.— Appendix 2. A Waverly Trilobite. In *Bull. Denison Univ.*, vol. 2, pt. 1, 1887, p. 69, pl. 7, fig. 14.

Phillipsia shumardi Herrick.

— The geology of Licking County, Ohio. Pt. IV. The Subcarboniferous and Waverly groups.

In *Bull. Denison Univ.*, vol. 3, 1888, p. 13, pls. 2, 11, and 12.

Phillipsia meramecensis Sh., *P. shumardi* Her., *P. precursor* Her.

— On the Trilobites of the Ohio Waverly group.

In Author's advance sheets from the *Bull. Denison Univ.*, vol. 4, 1889, 1 pl.

Proetus, *Phaenoides*, *Phillipsia*, *Cythere*.

— Notes upon the Waverly group in Ohio.

In *Am. Geologist*, vol. 3, 1889, p. 94, 4 pls. (not descriptive).

Hibbert (Dr.) On the fresh-water limestone of Burdiehouse, in the neighborhood of Edinburgh, belonging to the Carboniferous group of rocks; with supplementary notes on other fresh-water limestones.

In *Trans. Royal Soc. Edinburgh*, vol. 13, 1836, p. 169, pl. 9.

The author gives reduced figures of *Euryp-terus remipes* De Kay and *E. lacustris* Harlan, taken from Dr. Richard Harlan's article on "Organic Remains of North America."

Hicks (Henry). Note on the genus *Anopolenus*.

In *Quart. Jour. Geol. Soc. London*, vol. 21, 1865, p. 477, figures.

Anopolenus.

— Description of new species of fossils from the Longmynd rocks of St. David's.

In *Quart. Jour. Geol. Soc. London*, vol. 27, 1871, p. 399, pl. 15.

Paradozides, *Plutonia*, *Conocoryphe*, *Microdiscus*, *Agnostus*, *Leperditia*?

— On some undescribed fossils from the Menevian group, with a note on the Entomostraca by Prof. T. Rupert Jones.

In *Quart. Jour. Geol. Soc. London*, vol. 28, 1872, p. 173, pls. 5-7.

Anoplus, *Cerausia* n. g., *Erinmys*, *Conocoryphe*, *Arionellus*, *Holocephalina*, *Agnostus*, *Leperditia*, *Entomis*.

— On the Tremadoc rocks in the neighborhood of St. David's, South Wales, and their fossil contents.

In *Quart. Jour. Geol. Soc. London*, vol. 29, 1873, p. 39, 3 pls.

Nesuretus n. g., *Niobe*.

Hicks (Henry)—Continued.

— Descriptions of new species of fossils from the Arenig group of St. David's.

In Quart. Jour. Geol. Soc. London, vol. 31, 1875, p. 182, 3 pls.

Phacops, Calymene, Trinucleus, Ampyx, Barandia, Aegina, Placoparia, Illænus, Ilænopsis?

— Appendix to Fossiliferous Cambrian shales, near Carnarvon, by J. E. Marr.

In Quart. Jour. Geol. Soc. London, vol. 32, 1876, p. 135.

Caryocaris, Aegina.

Hisinger (W.) Anteckningar i fysik och geognosi under resor uti Sverige och Norrige. Stockholm, 8 pts., 1828-'40.

The first three parts contain scarcely anything on Crustacea; the remaining parts contain only enumerations of fossils, without descriptions.

Cytherina phaseolus His., pt. 5, pl. 8, fig. 3.

— Tableau des pétrifications de la Suède distribuées en ordre systématique. Stockholm, 1829.

This work enumerates 40 species of Silurian Crustacea previously described by J. W. Dalman.

The second edition of this work bears the title "Esquisse d'un tableau des pétrifications de la Suède," Stockholm, 1831.

This work contains 43 pages and a systematic table of the fossils, in which 46 species of fossil Crustacea are mentioned.

— *Lethæa Svecica, seu petrificata Sveciæ iconibus et characteribus illustrata duobus supplementis.* Holmiæ, 1837-'41, 4to, 42 pls.

The first part of this work was published in 1835 under the title "Icones petrificatorum Sveciæ. Fas. I. Animalia articulata et mollusca Cephalopoda." The plates, 1 to 10, were sent by the author only to his friends. In 1837, *Lethæa Svecica* was published; it contained 124 pages and 39 plates. The first three are marked A, B, C. The fossil Crustacea described in this work are those of J. W. Dalman's *Paleæderna*, with copies of his descriptions and figures. The second supplement, published at Stockholm in 1849, contains eleven pages and three plates. Figures and descriptions of *Calymene clavifrons*, *Asaphus (Trinucleus) secticornis*, *A. cyllarus (Trinucleus)* and *Calymene (Cheirurus) speciosa*. "Lethæa Svecica, seu petrificata Sveciæ, supplementa secundi continuatio," was published at Stockholm in 1841; it contains six pages and three plates (60-62). Figures and description of a *Calymene*.

Hoeninghaus (F. W.) Beschreibung über Abbildungen von *Calymene arachnoides*. Crefeld, 1835, 1 pl. (*)

— Ueber die Versteinerungen des Uebergangs-Thonschiefers von Weisenbach im Dillenburgschen. (*)

In Isis (oder Encycl. Zeitung), Oken, 1830, p. 96; Neues Jahrbuch für Mineral., 1831, p. 341.
Calymene macrophthalma.

— Trilobiten der geognostischen Sammlung. Crefeld, 1843, plate. (*)
Asaphus dalmani.

— *Harpes reflexus*. Crefeld, 1847, 1 p., 1 pl.

Hoffman (E.) Sämmtliche bis jetzt bekannte Trilobiten Russlands.

In Verhandl. russ. k. mineral. Gesell. zu St. Petersburg, 1857-'58, p. 21, 7 pls.

Proetus, Phillipsia, Phacops, Chasmops, Calymene, Lichas, Ampyx, Asaphus, Cheirurus, Sphaerexochus, Zethus, Encrinurus, Amphion, Bronteus, Illænus, Nileus, Agnostus.

Holl (F.) Handbuch der Petrefactenkunde, etc. Dresden, 1841, p. 155.

Calymene, Asaphus, Nileus, Illænus, Lichas, Ampyx, Ogygia, Olenus, Battus.

The author gives short descriptions of the Trilobites described by Alex. Brongniart, J. W. Dalman, E. Eichwald, von Schlotheim, and others.

Holl (H. B.) See Jones (T. Rupert) and Holl (H. B.).

Hollier (E.) On a specimen of *Homalotus delphinocephalus* found at Dudley. Trans. Manchester Geol. Soc., vol. 9, 1869, p. 28.

Holm (Gerhard). Anteckningar om Wahlenberg's *Illænus crassicauda*.

In Svenska Vetensk. Akad. Förhandl., 1880, No. 4, p. 3, Stockholm, pl. 5.

— Bemerkungen über *Illænus crassicauda* Wahl.

In Zeitschr. deutsch. geol. Gesell., vol. 32, pt. 2-4, 1880, p. 559, pl. 23.

— Ueber einige Trilobiten aus dem Phyllograptus-Schiefer Dalekarliens.

In Kongl. Svenska Vet. Akad. Handl., vol. 6, No. 9, 1882, pl. 5.

Plomeria törnquisti, Megalaspis dalecarlicus, Ampyx pater, Agnostus törnquisti, Trilobites brevifrons.

— De Svenska arterna af Trilobitlag tet *Illænus* Dalman.

In Kongl. Svenska Vet. Akad. Handl., vol. 7, No. 3, 1882, 6 pls.

Holm (Gerhard)—Continued.

— Om thoraxledernas antal hos *Paradoxides tessini* Brongn.

In Geol. Föreningens Stockholm Förhandl., vol. 9, 1887, p. 408.

— Om förekomsten af en Cruziana i öfversta Olenidskiffern vid Knifvinge i Vreta Kloster Socken i Östergötland.

In Geol. Föreningens Stockholm Förhandl., vol. 9, 1887, p. 412.

— Om *Olenellus kjerulfi* Linrs.

In Geol. Föreningens Stockholm Förhandl., vol. 9, 1887, p. 493, pls. 14, 15.

Honeyman (D.) On new localities of fossiliferous Silurian rocks in eastern Nova Scotia.

In Canadian Naturalist, vol. 5, 1860, p. 293.

Dr. J. W. Dawson adds a note to this paper, describing *Homalonotus dawsoni* Hall, fig. 1, with notes on other fossils.

— On the geology of Arisaig, Nova Scotia, with a note by Prof. T. Rupert Jones.

In Quart. Jour. Geol. Soc. London, vol. 26, 1870, p. 490.

The note by Prof. T. R. Jones, on p. 492, on some Entomostraca from Arisaig, mentions the following genera:

Beyrichia, *Leperditia*, *Primitia*.

— Notes of examination by Prof. James Hall of the Silurian collection of the Provincial Museum, by the Rev. D. Honeyman.

In Proc. and Trans. Nova Scotian Inst. Nat. Sci., vol. 7, pt. 1, 1886, p. 14.

Asaphus ditmarsiae Honeyman.

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Jones (T. Rupert). On Permian Entomostraca.

In Monograph of Permian Fossils of England (King), Palæont. Soc. London, vol. 3, 1849-'54, p. 58.

Cythere.

Jones (T. Rupert)—Continued.

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Beyrichia.

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Beyrichia.— Notes on Palæozoic bivalved Entomostraca. No. 2. Some British and foreign species of *Beyrichia*.

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Beyrichia.— Notes on Palæozoic bivalved Entomostraca. No. 3. Some species of *Leperditia*.

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Leperditia.

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Leperditia, *Isoschilina*.

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In Geol. Survey Canada, figure and description of Canadian organic remains, decade 3, Montreal, 1858, p. 91, pl. 2; also Annals Mag. Nat. Hist., 3d series, London, vol. 1, 1858, p. 244, pl. 9.

Beyrichia, *Leperditia*, *Isoschilina* n. g., *Cytheropsis*.

— Explanation map 32. The geology of the neighborhood of Edinburgh, by H. H. Howell and A. Geikie; with appendix and list of fossils, by J. W. Salter.

In Mem. Geol. Survey Gt. Brit., London, 1861, p. 137, pl. 2, fig. 5.

Jones (T. Rupert)—Continued.

Prof. T. Rupert Jones herein uses the name of *Entomis* for certain fossils. For a full generic description, see Annals Mag. Nat. Hist., 4th series, London, vol. 11, 1873, p. 413.

— A monograph of the fossil *Estheria*.

In Palæont. Soc. London, vol. 14, 1862, 134 pp., 5 pls.

Estheria, *Leaia* n. g., *Beyrichia*, *Candona*, *Cypridea*.

— Note on *Estheria niddendorffii*.

In Quart. Jour. Geol. Soc. London, vol. 19, 1863, p. 73.

— On fossil *Estheria* and their distribution.

In Quart. Jour. Geol. Soc. London, vol. 19, 1863, p. 140; also Nat. Hist. Review, 1863, p. 262.

— and Kirkby (J. W.) Notes on the Palæozoic bivalved Entomostraca. No. 5.

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Leperditia, *Cytherella*, *Bairdia*, *Cythere*.

— and Holl (H. B.) Notes on the Palæozoic bivalved Entomostraca. No. 6.

In Annals Mag. Nat. Hist., 3d series, London, vol. 15, 1865, p. 414, pl. 13.

Primitia n. g.

— and Kirkby (J. W.) Notes on Palæozoic bivalved Entomostraca. No. 7.

In Annals Mag. Nat. Hist., 3d series, London, vol. 13, 1866, p. 32.

Entomoconchus, *Daphnia*, *Bairdia*, *Cythere*.

— and Holl (W. B.) Notes on Palæozoic bivalved Entomostraca. No. 8. Some Lower Silurian species from Chair of Kildare, Ireland.

In Annals Mag. Nat. Hist., 4th series, London, vol. 2, 1868, p. 54, pl. 7.

Primitia, *Cythere*, *Bairdia*.

— and Holl (H. B.) Notes on Palæozoic bivalved Entomostraca. No. 9.

In Annals Mag. Nat. Hist., 4th series, London, vol. 3, 1869, p. 211, pls. 14, 15.

Cythere, *Bairdia*, *Beyrichia*, *Primitia*, *Thlipsura* n. g., p. 213; *Cytherellina* n. g., p. 215; *Kirkbya* n. g., *Movea* n. g., *Æchmina* n. g., p. 217.

— On ancient Water-fleas of the Ostracodous and Phyllopodous tribes (bivalved Entomostraca).

In Month. Microsc. Jour., vol. 4, London, 1870, p. 184, pl. 61.

Leperditia, *Bairdia*, *Thlipsura*, *Cythere*, *Cytherella*, *Cytherellina*, *Æchmina*, *Carbonia*, *Cypridina*, *Cypridella*, *Cyprella*, *Entomoconchus*, *Entomis*, *Primitia*, *Kirkbya*, *Moorea*, *Isoschilina*, *Beyrichia*, *Leaia*, *Estheria*.

Jones (T. Rupert)—Continued.

- On some bivalved Entomostraca from the Coal Measures of South Wales.

In Geol. Mag., vol. 7, 1870, p. 214, pl. 9.

Cytheroid Entomostraca.

- On the Palæozoic bivalved Entomostraca.

In Proc. Geologist Assoc., 1870.

- Note on the Entomostraca from the Cambrian rocks of St. David's.

In Quart. Jour. Geol. Soc. London, vol. 28, 1872, p. 183, pl. 5.

Leperditia, *Entomis*. Larval trilobite?

This paper forms a part of Henry Hicks's article on some undescribed fossils from the Menavian Group. Same Jour., p. 173.

- Notes on the Palæozoic bivalved Entomostraca. No. 10.

In Annals Mag. Nat. Hist., 4th series, London, vol. 11, 1873, p. 413.

Entomis, *Entomidella* n. g.

- On some bivalved Entomostraca, chiefly Cypridenidæ of the Carboniferous formations.

In Quart. Jour. Geol. Soc. London, vol. 29, 1873, p. 409.

Sulcuna n. g., *Cyprella*.

- Ancient Water-fleas, etc. Pt. 2.

In Monthly Microsc. Jour., vol. 10, London, 1873, p. 71.

Cythere, *Thlipsura*.

- Notes on some forms of British Entomostraca from the Silurian rocks of Peeblesshire.

In Trans. Edinburgh Geol. Soc., vol. 2, pt. 3, 1874, p. 321.

Beyrichia, *Bairdia*, *Entomis*.

- , **Kirkby (J. W.)** and **Brady (M. P.)** Monograph of British fossil bivalve Entomostraca from the Carboniferous formations.

In Palæont. Soc. London, 1874.

Pt. 1. The Cypridinidæ and their allies, 5 pls

Cypridina, *Asterope*, *Philomedes*, *Bradycinetus*, *Eurypylus*, *Conchocia*, *Halocyris*, *Heterodesmus*, *Polycope*, *Cytherella*, *Cypridinella* n. g., *Cypridellina* n. g., *Cypridella*, *Sulcuna*, *Cyprella*, *Rhombina* n. g., *Entomoconchus*, *Offa* n. g., *Chadocopa*, *Platycop*.

- and **Kirkby (J. W.)** Notes on the Palæozoic bivalved Entomostraca. No. 11.

In Annals Mag. Nat. Hist., 4th series, London, vol. 15, 1875, p. 52, pl. 6.

Beyrichia, *Leperditia*, *Primitia*, *Bairdia*, *Cythere*, *Cytherella*.

- Notes on some fossil bivalved Entomostraca.

In Geol. Mag., decade 2, vol. 5, 1878, p. 100, pl. 3.

Esthere, *Cypris*, *Candona*, *Cypridia*.

Jones (T. Rupert) and **Kirkby (J. W.)**

Description of the species of the Ostracodous genus *Bairdia* McCoy, from the Carboniferous strata of Great Britain.

In Quart. Jour. Geol. Soc. London, vol. 35, 1879, p. 565, 5 pls.

- Notes on the Palæozoic bivalved Entomostraca. No. 12. Some carboniferous species belonging to the genus *Carbonia* Jones.

In Annals Mag. Nat. Hist., 5th series, London, vol. 4, 1879, p. 28, pls. 2 and 3.

Carbonia n. g.

- Notes on the Palæozoic Entomostraca. No. 13. *Entomis serrato-striata* and others of the so-called Cypridenin of the Devonian schist of Germany.

In Annals Mag. Nat. Hist., 5th series, London, 79, p. 182, pl. 11.

- Notes on some Palæozoic Entomostraca.

In Geol. Mag., decade 3, vol. 8, 1881, p. 337, 2 pls.

Cypridina?, *Cyprosis*, *Leperditia*?, *Entomis*, *Primitia*, *Beyrichia*, *Cyprosin* n. g., *Polycope*.

- Notes on some Palæozoic Entomostraca. No. 14. Some Cambrian and Silurian *Leperditia* and *Primitia*.

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- and **Schmidt (F.)** On some Silurian *Leperditia*.

In Annals Mag. Nat. Hist., 5th series, London, vol. 9, 1882, p. 168.

- Notes on some Palæozoic bivalved Entomostraca. No. 15.

In Annals Mag. Nat. Hist., 5th series, London, vol. 10, 1882, p. 358, figs. 1 a, b.

Primitia.

- Notes on the Palæozoic bivalved Entomostraca. No. 16. 1. Some Palæozoic and other bivalved Entomostraca from Siberian Russia, pl. 6. 2. Some Palæozoic bivalved Entomostraca from Spitzbergen, pl. 9.

In Annals Mag. Nat. Hist., 5th series, London, vol. 12, 1883, p. 243, pls. 6 and 9.

Entomis, *Leperditia*, *Estheria*, *Primitia*.

- Notes on the late Mr. Tate's specimens of the Lower Carboniferous Entomostraca from Berwickshire, Northumberland.

In Proc. Berw. Nat. Club, vol. 10, 1884, 1 pl.

Candona?, *Berniz*, *Carbonia*, *Macrocypris*?, *Leperditia*, *Beyrichia*, *Kirkbya*, *Cythere*, *Cytherella*, *Estheria*, *Darwinella*?

Jones (T. Rupert)—Continued.

— Notes on the Palæozoic bivalved Entomostraca. No. 17. Some North American *Leperditia* and allied forms.

In *Annals Mag. Nat. Hist.*, 5th series, London, vol. 14, 1884, p. 339.

Leperditia, *Isachilina*, *Primitia*.

— Report of the committee, consisting of Mr. R. Etheridge, Dr. H. Woodward, and Prof. T. Rupert Jones (secretary), on the fossil *Phyllopoda* of the Palæozoic rocks.

In Rept. 53d Meeting Brit. Asso. Adv. Sci., 1883, p. 215.

Hymenocaris, *Caryocaris*, *Lingulocaris*.

— Second report of the committee consisting of Mr. R. Etheridge, Dr. H. Woodward, and Prof. T. Rupert Jones (secretary), on the fossil *Phyllopoda* of the Palæozoic rocks.

In Rept. 54th Meeting Brit. Assoc. Adv. Sci., 1884, p. 75; *Geol. Mag.*, n. s., decade 2, vol. 10, 1883, p. 461.

— and Kirkby (J. W.) On some Carboniferous Entomostraca from Nova Scotia,

In *Geol. Mag.*, n. s., decade 3, vol. 1, 1884, p. 356, pl. 12.

Leperditia, *Beyrichia*, *Carbonia*, *Candona*?, *Cythere*, *Estheria*, *Levia*, *Primitia* or *Beyrichia*.

— and Woodward (Henry). On some Palæozoic *Phyllopoda*.

In *Geol. Mag.*, n. s., decade 3, vol. 1, 1884, p. 348.

Discinocaris, *Spathiocaris*, *Pholadocaris*, *Lisgocaris*, *Ellipsocaris*, *Cardiocaris*, *Dipterocaris*, *Pterocaris*, *Orescentilla*, *Aptychopsis*, *Peltocaris*, *Pinnocaris*.

— Notes on the Palæozoic bivalved Entomostraca. No. 18. Some species of the Entomidæ.

In *Annals Mag. Nat. Hist.*, 5th series, London, vol. 14, 1884, p. 391, pl. 15.

Entomis, *Bolbozoe*, *Entomidella*.

— and Woodward (Henry). Notes on the British species of *Ceratiocaris*.

In *Geol. Mag.*, n. s., decade 3, vol. 2, 1885, p. 385, pl. 10. Continued, *ibid.*, p. 460.

— Kirkby (J. W.) Notes on Palæozoic bivalved Entomostraca. No. 19. On some Carboniferous species of the Ostracodous genus *Kirkbya*.

In *Annals Mag. Nat. Hist.*, 5th series, London, vol. 15, 1885, p. 174, pl. 3.

— and Holl (H. B.) Notes on the Palæozoic bivalved Entomostraca. No. 20. On the genus *Beyrichia* and some new species.

Jones (T. Rupert) and Holl (H. B.)—Continued.

In *Annals Mag. Nat. Hist.*, 5th series, London, vol. 17, 1886, p. 337, pl. 12.

Beyrichia, *Bollia* n. g., *Klædenia* n. g.

— Notes on the Palæozoic bivalved Entomostraca. No. 21. On some Silurian genera and species.

In *Annals Mag. Nat. Hist.*, 5th series, London, vol. 17, 1886, p. 403, pls. 13, 14.

Strepula n. g., *Bollia*, *Placentula* n. g., *Primitia*.

— and Kirkby (J. W.) Notes on the distribution of the Ostracoda of the Carboniferous formation of the British Isles.

In *Abstracts Proc. Geol. Soc. London*, session 1885-'86, No. 489, p. 86.

— On Carboniferous Ostracoda from the Gayton borings, Northamptonshire.

In *Geol. Mag.*, n. s., decade 3, vol. 3, London, 1886, p. 248, pl. 7.

Kirkbya, *Bythocypris*, *Macrocypris*, *Cytherella*.

— Notes on the Palæozoic bivalved Entomostraca. No. 22. On some undescribed species of British Carboniferous Ostracoda.

In *Annals Mag. Nat. Hist.*, 5th series, London, vol. 18, 1886, p. 249, pls. 6-9.

Bythocypris, *Cythere*?, *Leperditia*, *Beyrichia*, *Primitia*?, *Beyrichiella*?, *Kirkbya*, *Moorea*, *Cytherella*, *Bathocythere*, *Argilloecia*, *Aglaia*?, *Xestoleberis*?, *Macrocypris*, *Carbonia*, *Bairdia*.

— On some fringed and other Ostracoda from the Carboniferous series.

In *Geol. Mag.*, n. s., decade 3, vol. 3, London, 1886, p. 434, pls. 11, 12.

Beyrichiopsis n. g., *Beyrichiella* n. g., *Beyrichia*.

— On Palæozoic *Phyllopoda*.

In *Geol. Mag.*, n. s., decade 3, vol. 3, London, 1886, p. 456.

Ceratiocaris.

— Notes on the distribution of the Ostracoda of the Carboniferous formations of the British Isles.

In *Quart. Jour. Geol. Soc. London*, vol. 42, 1886, p. 496.

Beyrichiopsis, *Phreatura* n. g., *Youngia* n. g.

This generic name was used for a new genus of Trilobites by Lindström in 1885.

Note.—Since this paper was read many of the species have been described and figured in the *Annals Mag. Nat. Hist.* for October, 1886, and in the *Geol. Mag.* of the same date. Others in the *Proc. Geologist Assoc.*, vol. 9, 1886.

— Fourth report of the committee, consisting of Mr. R. Etheridge, Dr. H.

Jones (T. Rupert)—Continued.

Woodward, and Prof. T. Rupert Jones (secretary), on the fossil Phyllopoda of the Palæozoic rocks, 1886.

In Rept. 66th Meeting Brit. Assoc. Adv. Sci., 1886, p. 229.

Ceratiocaris, *Emmelezoe*, *Xiphocaris*, *Physocaris*, *Cryptozoe*.

— and **Kirkby (James W.)** A list of the genera and species of bivalved Entomostraca found in the Carboniferous formations of Great Britain and Ireland. With notes on the genera and their distribution.

In Proc. Geologist Assoc., vol. 9, 1886, p. 495.

I. Cyprinidæ: 1. *Cypridina*, 2. *Cypridinnella*, 3. *Cypridellina*, 4. *Cypridella*, 5. *Sulcuna*, 6. *Cyprilla*, 7. *Bradycinetus*, 8. *Philomedes*, 9. *Rhombina*. II. Entomoconchidæ: 1. *Entomoconchus*, 2. *Offa*. III. Polycopidæ: 1. *Polycopoe*. IV. Entomidæ: 1. *Entomis*. V. Cytherellidæ: 1. *Cytherella*. VI. Leperditidæ: 1. *Leperditia*, 2. *Bernia*, 3. *Beyrichia*, 4. *Beyrichiella*, 5. *Beyrichiopsis*, 6. *Kirkbya*, 7. *Moorea*, 8. *Phreatura*. VII. Cyprididæ: 1. *Aglaia*, 2. *Candona*, 3. *Argillæcia*, 4. *Macrocypris*, 5. *Bythocypris*, 6. *Bairdia*. VIII. Dawinulidæ: 1. *Dawinula*. IX. Cytheridæ: 1. *Cythere*, 2. *Xestoleberis*, 3. *Bythocythere*, 4. *Carbonia*, 5. *Youngia*.

—, **Etheridge (R.)** and **Woodward (H.)** Fifth report of the committee, consisting of Mr. R. Etheridge, Dr. H. Woodward, and Prof. T. Rupert Jones (secretary), on the fossil Phyllopoda of the Palæozoic rocks, 1887.

In Rept. 57th Meeting Brit. Assoc. Adv. Sci., 1887, p. 60.

Ceratiocaris, *Dithyrocaris*, *Leaia*, *Estheria*.

— Notes on the Palæozoic bivalved Entomostraca. No. 23. On some Silurian genera and species (continued).

In Annals Mag. Nat. Hist., 5th series, London, vol. 19, 1887, p. 117, pls. 4-7.

Macrocypris, *Pontocypris*, *Bythocypris*, *Cythere*, *Cytherella*, *Primitia*.

Prof. T. Rupert Jones remarks in this paper: "Now that not only *Cythere* but its allied genera have been fully elucidated in the living state, it is found that the genus does not comprehend many of the fossil forms once referred to it. Whether these really belong to the *Cytheridæ* or to the *Cyprididæ* it is often difficult to say; but the genus *Cythere* comprises very few of the smooth subovate forms, and none that have toothless hinges. Hence we find that a real *Cythere* is scarcely known in Palæozoic strata."

— Notes on the Palæozoic bivalved Entomostraca. No. 24. On some Silurian genera and species (continued).

Jones (T. Rupert)—Continued.

In Annals Mag. Nat. Hist., 5th series, London, vol. 19, 1887, p. 400, pls. 12, 13.

Thlipsura, *Octonaria* n. g., *Bollia*, *Primitia*, *Moorea*, *Xestoleberis*, *Achmina*.

— Notes on some Silurian Ostracoda from Gothland. Stockholm, 1887, 8 pp.

Beyrichia, *Leperditia*, *Primitia*, *Primitiopsis* n. g., *Macrocypris*, *Bythocypris*, *Thlipsura*, *Achmina*, *Bursulella* n. g.

— Notes on the Palæozoic bivalved Entomostraca. No. 25. On some Silurian Ostracoda from Gothland.

In Annals Mag. Nat. Hist., 6th series, London, vol. 1, 1888, p. 395.

Beyrichia, *Leperditia*, *Entomis*, *Primitia*, *Primitiopsis* n. g., *Macrocypris*, *Bythocypris*, *Thlipsura*, *Achmina*, *Bursulella* n. g.

— Notes on the Palæozoic bivalved Entomostraca. No. 26. On some new Devonian Ostracoda, with a note on their geological position, by the Rev. G. F. Whidborne.

In Annals Mag. Nat. Hist., 6th series, London, vol. 2, 1888, p. 295, 1 pl.

Kyamodes n. g.

— and **Woodward (Henry)**. A monograph of the British Palæozoic Phyllopoda (Phyllocarida, Packard).

In Palæont. Soc. London, vol. 41, 1887, pt. 1.

Ceratiocaridæ.

— On some Scandinavian Phyllocaridæ.

In Geol. Mag., n. s., decade 3, vol. 5, London, 1888, p. 97, pl. 5.

Ceratiocaris.

— and others. Sixth report of the committee, consisting of Mr. E. Etheridge, Dr. H. Woodward, and Prof. T. Rupert Jones (secretary), on the fossil Phyllopoda of the Palæozoic rocks, 1888.

In Rept. 58th Meeting Brit. Assoc. Adv. Sci., 1888.

Ceratiocaris, *Echinocaris*, *Equisitides*, *Elymocar*, *Tropidocaris*, *Mesothyra*, *Dithyrocaris*, *Rhinocaris*, *Spathiocaris*, *Dipteroecaris*, *Estheria*, *Hymenocaris*, *Succocaris*, *Lingulocaris*, *Bactropus*, *Schizodiscus*.

Author's edition, 9 pp. and 9 wood-cuts.

— and **Woodward (Henry)**. See **Woodward (Henry)** and **Jones (T. Rupert)**.

— See **Schmidt (Fr.)** and **Jones (T. Rupert)**.

Jordan (H.) Ueberreste eines kleinen tiberaus merkwürdigen Crustacees.

Jordan (H.)—Continued.

In Verhandl. natur. Vereins preussischen Rheinlande, Jahrg., vol. 4, 1847, p. 89, pl. 2, figs. 1, 2.

Gampsonyx (von Meyer) n. g.

— and **Meyer (H. von)**. Ueber die Crustaceen der Steinkohlenformation von Saarbrücken. Cassel, 1854, 2 pls.

Gampsonyx, *Adelophthalmus* (*Eurypterus*), *Chonionotus*, *Arthropleura*.

Jukes (F.) and Sowerby (J. D. C.) An account of a new species of Trilobite found in the Barr limestone in the neighborhood of Birmingham, by Frederick Jukes, with a note by J. D. C. Sowerby.

In Mag. Nat. Hist. (London), vol. 2, London, 1829, p. 41, 5 figs.; Am. Jour. Sci., 1st series, vol. 23, 1833, p. 203; Neues Jahrbuch für Mineral., 1833, p. 624.

(*Bumastes barriensis*), *Asaphus*, *Calymene*.

Karsten (Gustav). Die Versteinerungen des Uebergangs-Gebirges in den Geröllen der Herzogthümer Schleswig und Holstein. Kiel, 1869, 25 pls.

Olenus, *Proetus*, *Cyphaspis*, *Phacops*, *Calymene*, *Lichas*, *Trinucleus*, *Ampyx*, *Asaphus*, *Isotelus*, *Ceraurus*, *Sphaerexochus*, *Encrinurus*, *Nileus*, *Agnostus*, *Beyrichia*, *Cythere*.

Kayser (Emanuel). Beiträge zur Geologie und Paläontologie der Argentinischen Republik. Cassel, 1876, 2 pls.

Olenus, *Arionellus*, *Bathyrurus*?, *Arethusina*, *Ampyx*, *Asaphus*, *Ogygia*, *Agnostus*, *Leperditia*.

— Die Fauna der ältesten Devonbildungen des Harzes.

In Abhandlungen zur geologischen Specialkarte von Preussen und den thüringischen Staaten. Vol. 2, pt. 4. Berlin, 1878. Atlas, 36 pls.

Harpes, *Proetus*, *Cryphæus*, *Cyphaspis*, *Phacops*, *Dalmanites*, *Lichas*, *Acidaspis*, *Bronteus*, *Primitia*, *Dithyrocaris*.

— Ueber *Dalmanites rhenanus*, eine Art der *Hausmanni*-Gruppe, und einige andere Trilobiten aus den älteren rheinischen Dachschiefern.

In Zeitschr. Deutsch. geol. Gesell., vol. 32, 1880, p. 19, pl. 3.

Phacops, *Cryphæus*, *Dalmanites*.

— *Dechenella*, eine devonische Gruppe der Gattung *Phillipsia*.

In Zeitschr. Deutsch. geol. Gesell., vol. 32, 1880, p. 703, pl. 27.

Dechenella n. g.

— Beiträge zur Kenntniss von Oberdevon und Culm am Nordrande des rheinischen Schiefergebirges; Arten aus dem Culm von Ayrath.

Kayser (Emanuel)—Continued.

In Jahrbuch Preuss. geol. Landesanst. und Bergakad., Berlin, 1881, p. 67.

Phillipsia aequalis, *P. longicornis*, *P. eichwaldi*, *P. emarginata*.

— Die Orthocerasschiefer zwischen Balduinstein und Laurenberg an der Lahn. Paläontologischer Anhang.

In Jahrbuch Preuss. geol. Landesanst. und Bergakad., Berlin, 1883, p. 34, pl. 3, fig. 6.

Phacops fecundus, *Cryphæus rotundifrons*, *C. kochi*.

— Mittel- und obersilurische Versteinerungen aus dem Gebirgsland von Tschau Tiens.

In China (Richthofen), vol. 4, Berlin, 1883, p. 37.

Asaphus, *Calymene*, *Trinucleus richthofeni*, *Encrinurus*.

— Obercarbonische Fauna von Loping.

In China (Richthofen), vol. 4, Berlin, 1883, p. 161.

Phillipsia obtusicauda, pl. 19, fig. 3.

Keyes (Chas. R.) On the fauna of the Lower Coal Measures of central Iowa.

In Proc. Acad. Nat. Sci. Phila., 1888, p. 222.

Cythere nebrascensis.

Kiesow (J. von). Ueber silurische und devonische Geschiebe West-Preussens.

In Schrift. nat. Gesell. Danzig, new series, vol. 6, 1884, p. 205, 3 pls.

Proetus, *Phacops*, *Calymene*, *Lichas*, *Ampyx*, *Asaphus*, *Ptychopyge*, *Illanus*, *Acidaspis*, *Cheirurus*, *Encrinurus*, *Beyrichia*, *Leperditia*, *Primitia*, *Cytherellina*.

— Ueber gotländische *Beyrichien*.

In Zeitschr. Deutsch. geol. Gesell., vol. 40, 1888, p. 1, 2 pls.

Kinnear (W. T.) Note on the occurrence of a new Carboniferous Crustacean at Ardros Castle, Fife.

In Trans. Edinburgh Geol. Soc., vol. 5, pt. 3, 1887, p. 417.

Dithyrocaris, *Palæocrangon*, *Ceratiocaris*, *Rostrocaris* n. g.

Kinsky (Graf von). Schreiben des H. Grafen von Kinsky an von Born über einige mineralogische und lithologische Merkwürdigkeiten.

In Abhandlungen einer Privat-Gesell. in Böhmen, vol. 1, Prag, 1775, p. 243.

Kirkby (J. W.) On some Permian fossils from Durham.

In Trans. Tyneside Nat. Field Club, vol. 3, 1858, p. 286.

— On Permian Entomostraca from the shell limestone of Durham. With notes on the species by T. Rupert Jones.

Kirkby (J. W.).—Continued.

In *Annals Mag. Nat. Hist.*, 3d series, London, vol. 2, 1858, p. 317, 4 pls.

Kirkbya, *Oytherida*, *Oythere*, *Bairdia*.

— and Jones (T. Rupert). On Permian Entomostraca.

In *Trans. Tyneside Nat. Field Club*, vol. 4, 1859, p. 122, 4 pls.

See, also, Jones (T. Rupert) and Kirkby (J. W.), and Jones (T. Rupert), Kirkby (J. W.), and Brady (M. P.).

— On the Permian rocks of South Yorkshire and their Palæontological relations.

In *Quart. Jour. Geol. Soc. London*, vol. 17, 1861, p. 287.

Oythere (*Bairdia*), *Kirkbya*.

— On some additional species that are common to the Carboniferous and Permian strata.

In *Annals Mag. Nat. Hist.*, 3d series, London, vol. 10, 1862, p. 202.

Kjerulf (Theo.). Veiviser ved geologiske Ekursioner i Christiania og Omegn. Christiania, 1865.

The author herein gives a list of Norwegian Silurian fossils, with some notes and figures on the genera *Ceratopyge*, *Cyrtometopus*, *Ilænus*, *Phacops*.

Klein (J. T.). Specimen descriptionis petrefactorum Gedanensium order Oryctographia Gedanensis, etc. (*)

In Nuremberg, 1770, folio, pl. 15, figs. 5-7.

Calymene blumenbachii.

Klößen (K. F.). Die Versteinerungen des Mark Brandenburg, etc. Berlin, 1834, 10 pls.

Oytherina phaseolus Calymene blumenbachii, *C. var. tuberculata*, *C. var. pulchella*, *C. sclerops*, *C. punctata*, *C. concinna*, *C. polytoma*?, *Asaphus extenuatus*?, *A. angustifrons*, *A. expansus*, *A. auriculatus*, *A. dilatatus*, *A. (Ilænus) crassicauda*, *A. (Ampyx) nasutus*?, *A. caudatus*, *Battus pisiformis*, *B. tuberculatus*, pl. 1, figs. 16-23. F. McCoy, "Brit. Pal. Rocks," p. 135, remarks on this species that the name *Beyrichia tuberculatus* is generally applied to fig. 22 of Klößen's plate, which is a common form in the Gothland beds; *Battus gigas*, pl. 2, fig. 1.

Koch (C.). Monographie der Homalotus-Arten des rheinischen Unterdevon.

In *Preuss. geol. Landesanstalt, Abhandl.*, Berlin, 1883, vol. 4, pt. 2.

Koenen (A. von). Die Kulm-Fauna von Herborn.

In *Neues Jahrbuch für Mineral.*, 1879, p. 309, pls. 6, 7.

Phillipsia, *Proetus*.

Koenen (A. von).—Continued.

— Ueber die Unterseite der Trilobiten. In *Neues Jahrbuch für Mineral.*, 1880, vol. 1, p. 429, pl. 8, figs. 9, 10.

Phacops, *Asaphus*, *Calymene*.

— Ueber Clymenienkalk und Mittel-Devonien bei Montpellier.

In *Neues Jahrbuch für Mineral.*, 1886, p. 163. *Deckenella escoti*.

Kolmodin (Lars). Bidrag till kännedom om Sveriges Siluriska Ostracoder.

In *Akad. Afhandling som med tillstånd af Tidtberömda Filosofiska Fakultetens i Upsala, etc.*, 1869, 1 pl.

Leperditia, *Beyrichia*, *Cytheropsis*, *Elpe*.

— Ostracoda Silurica Gotlandiæ enumerat.

In *Öfversigt kongl. Vet. Akad. Förhandlingar*, 1879, No. 9, p. 133, pl. 19.

Leperditia, *Beyrichia*, *Elpe*.

König (C. E.). Icones fossilium sectiles.

Centuria prima, text, 4 pp., pls. 1-8; *Centuria secunda*, pls. 9-19.; n. d.

The common edition of this work has only four pages of text and eight plates (London, 1820, 4to).

Calymene decipiens, p. 2, pl. 3, fig. 32 (*Ellipsocephalus hoffi*); *Asaphus myops*, p. 3, pl. 4, fig. 53; *Homalotus* n. g., *H. knighti*, p. 4, pl. 7, fig. 85; *Agnostus*, pl. 10, figs. 119, 120; *Isotelus gigas*, pl. 10, fig. 121; *Asaphus extenuatus*, pl. 10, fig. 122; *A. crassicauda*, pl. 13, fig. 150; *Belinurus* n. g., *B. bellulus*, pl. 18, fig. 230.

For a description of the genus *Belinurus*, see W. H. Baily's article, *Annals Mag. Nat. Hist.*, 3d series, London, vol. 11, 1863.

Koninck (L.-G. de). Mémoire sur les Crustacés fossiles de Belgique.

In *Mém. Acad. Sci. Bruxelles*, vol. 14, 1841, 1 pl.

Goldius n. g., *Asaphus*, *Cyclus* n. g., *Oytherina*, *Cypridina*, *Cyprella* n. g. (*Phillipsia* and *Bronteus*).

— Description des animaux fossiles qui se trouvent dans le terrain carbonifère de Belgique. Liège, 1842-44.

Oythere, *Cypridina*, *Cyprella*, *Cypridella* n. g., *Cyclus*, *Phillipsia brongniarti*, *P. globiceps*, *P. derbyensis*, *P. gemmulifera*, *P. pustulata*, *P. jonesii*.

— Recherches sur les fossiles palæozoïques de la Nouvelle-Galles du Sud Australie.

In *Mém. Soc. Sci. Liège*, 2d series, vol. 6, 1877. *Ilænus*, *Staurocephalus*, *Cheirurus*, *Enenurus*, *Cromus*, *Calymene*, *Proetus*, *Lichas*, *Bronteus*, *Harpes*.

Koninck (L.-G. de)—Continued.

— Recherches sur les fossiles palæozoïques de la Nouvelle-Galles du Sud Australie.

In Mém. Soc. Sci. Liège, 2d series, vol. 7, 1878.
Phillipsia, Griffithides, Brachymetopus.

— Sur une nouvelle espèce de crustacé du terrain houiller de la Belgique.

In Bull. Acad. Sc. Bruxelles, 2d series, vol. 45, 1878, p. 409, 1 pl.
Brachypygge carbonis.

The principal part of this article is a letter from Dr. Henry Woodward to L. G. de Koninck.

— Notice sur le *Prestwichia rotundata* J. Prestwich, découvert dans le schiste houiller de Horme, près Mons.

In Bull. Acad. Sci. Bruxelles, 3d series, vol. 1, 1881, p. 91, 1 pl.

Krause (A.) Die Fauna der sogen. Beyrichien oder Choneten-Kalke des norddeutschen Diluviums.

In Zeitschr. Deutsch. geol. Gesell., vol. 29, Berlin, 1877, p. 1, 1 pl.

Calymene blumenbachii, Phacops downingæ, Proetus concinns, Leperditia, Beyrichia, Cythereolina, Primitia.

Kuntzen (K.) Die Trilobiten. (*)

In Mus. Luxemburg, 1877.

Kutorga (S.) Beiträge zur Kenntn. der organischen Ueberreste des Kupfersandst. am westl. Abhange des Urals. St. Petersburg, 1838, p. 22, pl. 4, figs. 1-3.

Limulus oculatus Kutorga.

Édouard d'Eichwald ("Lethæa Rossica," vol. 1, p. 1360) uses this species for a type of his new genus, *Compylocephalus*.

— Ueber einige baltische silurische Trilobiten.

In Verhandl. russ. k. mineral. Gesell. zu St. Petersburg, 1847, p. 287, plate.

Asaphus, Illeenus, Encrinurus.

— Einige *Sphærexochus* und *Cheirurus* aus den silurischen Kalksteinschiechten des Gov. St. Petersburg.

In Verhandl. russ. k. mineral. Gesell. zu St. Petersburg, 1854, p. 105, 3 pls.

Cheirurus gembnitzkii, O. macrophthalmus, Sphærexochus cranium, S. hemicranium, S. platycranium, S. enurus.

Lang (C. N.) Historia lapidum figuratorum Helvetia ejusque vicinæ in qua enarrantur omnia eorum genera, species et vires. Venetiis, 1708. (*)

— Tractatus de origine lapidum figuratorum Helvetiæ. Lucerne, 1709. (*)

Laspeyres (H.) Das fossile Phyllopoden-Genus *Leaia*.

In Zeitschr. Deutsch. geol. Gesell., Berlin, 1870, p. 733, 1 pl.

Latreille (P.-A.) Affinités des Trilobites.

In Mém. Mus. Hist. Nat., Bruxelles, vol. 7, 1821, p. 22; Annals Sci. Phys., Bruxelles, vol. 6.

Lawrow (N.) Zwei neue Asaphus-Arten aus dem silurischen Kalksteine.

In Verhandl. russ. k. mineral. Gesell. zu St. Petersburg, 1855-'56, p. 237, pls. 4, 5.

— *Ptychopyge* und *Megalaspis*, Trilobiten der unter-silurischen Kalksteine.

In Verhandl. russ. k. mineral. Gesell. zu St. Petersburg, 1857-'58, p. 146, plate.

Lebesconte (M.-P.) Constitution générale du massif breton comparée à celle du Finistère.

In Bull. Soc. Géol. France, 3d series, vol. 14, 1886, p. 776, pls. 34-36.

Homalonotus barroisi, H. heberti, Ogygites.

Lehmann (J. G.) Versuch einer Geschichte von Flötzgebirgen betreffend deren Entstehung, Lage, darin befindlichen Metalle, Mineralien und Fossilien. Berlin, 1756. (*)

— De Entrochis et Asteriis. (*)

In Novi Comm. Sci. Petropol., vol. 10, 1764, p. 429, par. 12, par. 12, figs. 8-10.

Leuchtenberg (M. H. von) Beschreibung einiger neuer Thierreste der Urwelt von Zarskoje-Selo. St. Petersburg, 1843, 2 pls.

Asaphus, Nileus, Metopias.

Lhwyd (Edward). Part of a letter from Mr. Edward Lhwyd to Doctor Martin Lister.

In Philos. Trans. Royal Soc. London, vol. 20, No. 243, 1698, p. 299, plate, figs. 8, 9, and 10.

This paper contains the earliest account of Trilobites. The author discovered two fragments and one entire specimen of *Ogygia buchii* near Llandeilo, in Carmarthenshire. Lhwyd says in his letter that he did not know what to make of these fossils. The *Ogygia* (fig. 10) he refers to the skeleton of an unknown fish. Fig. 8 represents the head of a species of the genus *Trinucleus*.

— Lithophylacii Britannici Ichnographia. Londini, 1699, 23 pls.; 2d ed., 1760.

This work gives a catalogue of English fossils contained in the Ashmolean Museum, and also several essays on fossils. In the author's article "Epistola I. de lapidibus quibusdam Germania acceptis," pp. 95-100, he alludes to an *Ogygia*, and remarks: "This ichthyomorphous stone swims spread out on its side, although it

Lhwyd (Edward)—Continued.

does not correspond to any specimen heretofore discovered; it does not agree in its external outline to your fossil, but represents the skeleton of the same or of a sole, only the specimen is striated on the circumference. The figure belongs to *Buglossium*, or the sole fish, except it is somewhat larger and less compressed at its extremities, but it wants the tail of a fish. We call it *Buglossum curtam strigosam*." He also gives a description and figure of *Trinucleus fibriatum vulgare*, pl. 22, 23, on which R. I. Murchison afterwards founded the genus *Trinucleus*.

Lindaker (T. J.) Beschreibung einer noch nicht bekannten Käfermuschel. (*)

In Mayer's Sammlung phys. Aufsätze, Dresden, vol. 1, 1791, p. 37, pl. 1.

The author describes under the name of "gegitterte Käfermuschel" a *Trinucleus* from Prague.

Lindström (G.) Normina fossilium Silurinium Gotlandiæ Laroverks program. Visby, 1867.

Proetus, *Phacops*, *Calymene*, *Homalonotus*, *Lichas*, *Acidaspis*, *Trapezocera*, *Cheirurus*, *Deiphon*, *Sphærezochus*, *Oryctonymus*, *Bronteus*, *Bumastus*, *Eurypterus*, *Pterygotus*, *Ceratiocaris*, *Beyrichia*, *Leperditia*, *Oxytheropsis*.

— List of the fossils of the Upper Silurian formation of Gothland. Stockholm, 1885.

— Förteckning på Götland Siluriska Crustacéer.

In Öfversigt. Kongl. Vet. Akad. Förhandlingar, 1885, No. 6, p. 37, pls. 12-16.

Harpes, *Proetus*, *Oxyphaspis*, *Phatonides*, *Phacops*, *Calymene*, *Homalonotus*, *Lichas*, *Trochurus*, *Acidaspis*, *Cheirurus*, *Sphærezochus*, *Yorgia* n. g., *Deiphon*, *Encrinurus*, *Illænus*, *Bronteus*, *Eurypterus*.

Linnarsson (J. G. O.) Om de Siluriska bildningarna i Mellersta Westergötland. 1.

In Akad. Afhandling som med tillstånd af Vidtberömda Filosofiska Fakulten i Upsala, etc., 1866, 2 pls.

The Trilobites are grouped as follows: Phacopidae: *Phacops*. Cheiruridae: *Pliomera*, *Cyrtometopus*, *Sphærezochus*. Encrinuridae: *Cybele*. Acidaspidae: *Acidaspis*. Lichidae: *Lichas*. Harpedidae: *Arraphus*. Calymenidae: *Calymene*, *Homalonotus*. Aulacopleuridae: *Aulacopleura*. Liostracidae: *Liostracus*. Olenidae: *Paradoxides*, *Olenus*, *Peltura*, *Parabolina*, *Euryceus*, *Sphærophthalmus*. Remopleuridae: *Remopleurides*. Proetidae: *Forbesia*. Asaphidae: *Asaphus*, *Megalaspis*, *Ptychoppyge*, *Ogygia*?, *Niobe*. Illenidae: *Illænus*, *Rhodope*, *Nileus*, *Symphysurus*, *Egolina*. Trinucleidae: *Trinucleus*, *Ampyx*, *Lonchodomas*, *Raphiophorus*, *Dionide*. Agnostidae: *Agnostus*. Incertæ sedis: *Holometopus*.

Linnarsson (J. G. O.)—Continued.

The author also gives descriptions and figures of the following species: *Phacops pulchellus*, *Cyrtometopus latilobus*, *Sphærezochus laticeps*, *Lichas segmentatus*, *Ogygia*? *apiculata*, *Illænus limbatus*, *Agnostus affinis*.

— Om Vestergötlands Cambriska och Siluriska Aflagringar.

In Kongl. Svenska Vet.-Akad. Handl., vol. 8, No. 2, 1869, 2 pls.

Harpes, *Remopleurides*, *Paradoxides*, *Dikelocephalus*, *Olenus*, *Triarthrus*, *Ceratopyge*, *Conocoryphe*, *Anomocare*, *Arionellus*, *Liostracus*, *Euloma*, *Holometopus*, *Proetus*, *Harpides*, *Philipsia*, *Phacops*, *Calymene*, *Homalonotus*, *Lichas*, *Trinucleus*, *Ampyx*, *Dionide*, *Asaphus*, *Megalaspis*, *Symphysurus*, *Stygina*, *Ogygia*, *Niobe*, *Egolina*, *Acidaspis*, *Cheirurus*, *Sphærezochus*, *Staurocephalus*, *Pliomera*, *Cybele*, *Encrinurus*, *Dindymene*, *Nileus*, *Panderia*, *Agnostus*, *Leperditia*, *Beyrichia*, *Primitia*.

— Diagnoses specierum novarum e classe Crustaceorum in depositis Cambrisis et Siluricis Vestrogotiæ Sueciæ repertarum.

In Öfversigt. Kongl. Svenska Vet.-Akad. Förhandl., 1869, No. 1, p. 191.

Remopleurides, *Triarthrus*, *Phacops*, *Trinucleus*, *Symphysurus*, *Ogygia*, *Niobe*, *Acidaspis*, *Cheirurus*, *Cybele*, *Dindymene*, *Panderia*, *Agnostus*, *Lichas*, *Leperditia*, *Beyrichia*, *Primitia*, *Trilobites ænigma*.

— Jemförelse mellan de Siluriska aflagringarna i Dalarne och i Vestergötland.

In Öfversigt. Kongl. Svenska Vet.-Acad. Förhandl., 1871, No. 3, p. 339.

Remopleurides, *Trinucleus*, *Proetus*, *Phacops*, *Chasmops*, *Illænus*, *Nileus*, *Beyrichia*, *Primitia*. Mere mention of occurrence.

— Om några försteningar från Sveriges och Norges "Primordialzon."

In Öfversigt Kongl. Svenska Vet.-Akad. Förhandl., 1871, No. 6.

Paradoxides kjerulfi, pl. 16, figs. 1-3.

— Anteckningar om den Cambrisk-Siluriska lagererien Jemtland.

In Geol. Föreningens Stockholm Förhandl., vol. 1, No. 3, 1872, p. 34.

— Öfversigt af Nerikes öfvergångsbildningar.

In Öfversigt Kongl. Svenska Vet.-Akad. Förhandl., 1875, No. 5, pl. 5; Sveriges Geologiska Undersökning Ser. C, No. 21, 1875.

Paradoxides, *Ellipsoccephalus*, *Leptoplastus* n. g., *Beyrichia*.

— Trilobiter från Vestergötlands Andrarum kalk.

In Geol. Föreningens Stockholm Förhandl., vol. 2, 1875, p. 491.

Linnarsson (J. G. O.)—Continued.

— En egendomlig Trilobitfauna från Jemtland.

In Geol. Föreningens Stockholm Förhandl., vol. 2, No. 12, 1875, p. 491, pl. 22, figs. 1-5.

Dicelolephalus billingsi, *Triarthrus jemtlandicus*, *Remopleurides microphthalmus*, *Bohemilla (?) denticulata*.

— Två nya Trilobiter från Skånes alumskeer.

In Geol. Föreningens Stockholm Förhandl., vol. 2, No. 12, 1875, p. 498.

Liostracus (?) superstes, *Cyclognathus* n. g., *C. micropygus*.

— Geologiska iakttagelser under en resa på Öland.

In Geol. Föreningens Stockholm Förhandl., vol. 3, No. 2, 1876, p. 71.

— Om faunan i lagren med *Paradoxides ölandicus*.

In Sveriges Geologiska Undersökning, Ser. C, No. 22, 1877, 2 pls.

Paradoxides, *Ellipsocephalus*, *Conocoryphe*, *Agnostus*.

— Om de palæozoiska bildningarna vid Humlenäs.

In Sveriges Geologiska Undersökning, Ser. C, No. 28, 1878.

— On the Trilobites of the Shineton shales.

In Geol. Mag., new series, decade 2, vol. 5, 1878, p. 188.

Conocoryphe, *Remopleurides*.

— Om faunan i kalken med *Conocoryphe exsultans*.

In Sveriges Geologiska Undersökning, Ser. C, No. 35, 1879, 3 pls.

Paradoxides, *Liostracus*, *Solenopleura*, *Conocoryphe*, *Agnostus*.

— Ceratopygealkalk och undre graptolitskiffer på Falbygden, i Vestergötland.

In Geol. Föreningens Stockholm Förhandl., vol. 4, 1879, p. 269.

— Om försteningarne i de Svenska lagren med *Peltura* och *Sphærophthalmus*.

In Geol. Föreningens Stockholm Förhandl., vol. 5, 1880, No. 4; Sveriges Geologiska Undersökning, Ser. C, No. 43, 1880.

Peltura, *Sphærophthalmus*, *Anopocare*, *Ctenopyge* n. g., *Agnostus*.

— Promemoria lemnad af A. G. Nathorst för resa på Öland.

In Geol. Föreningens Stockholm Förhandl., vol. 5, No. 13, 1881.

— De undre *Paradoxides* lagren vid Andrarum.

In Sveriges Geologiska Undersökning, Ser. C, No. 54, 1883, 4 pls.

Linné (C.) Ölandska och Gotländska resa. Stockholm och Upsal, 1745.

On p. 147, under the name of *Entomolithus paradoxus*, there is in this work a rough wood-cut of the pygidium of *Asaphus expansus* Linn.

— Wästgöta resa förtrattad år 1746. Stockholm, 1747.

On pp. 87 and 88 of this work there are some rough wood-cuts of Trilobites, probably an *Olenus* and the head of a *Paradoxides*.

— Museum Tessinianum. Holmiæ, 1753, p. 123, pl. 3.

Entomolithus, pl. 3, fig. 2 (*Calymene tuberculatus*); *E. paradoxus*, pl. 3, fig. 1 (*Paradoxides tessini*).

— Skanska resa. Stockholm, 1757, p. 121.

— Petrificatet *Entomolithus paradoxus* beskriefd.

In Acta Regiæ Acad. Sci. Holmiens., vol. 21, 1759, p. 19, pl. 1, figs. 1-4.

Entomolithus paradoxus, pl. 1, fig. 1 (*Olenus spinulosus*); *Entom. paradoxus* β *cantharidum*, pl. 1, fig. 4, head (*Olenus gibbosus*); *Entom. No. 3*, pl. 1, fig. 3 (*Calymene blumenbachii*); *Entom. No. 2*, pl. 1, fig. 2 (*Encrinurus punctatus*).

— Systema naturæ. Ed. 12. Vol. 3. Holmiæ, 1768, p. 160.

Entomolithus paradoxus α *expansus* (*Asaphus expansus* Linn.). *E. paradoxus* β *cantharidum* (*Olenus gibbosus* Wahl.), *E. paradoxus* γ *pisiformis* (*Agnostus pisiformis* Linn.).

Littleton (Charles). On a nondescript petrified insect.

In Philos. Trans. Royal Soc. London, vol. 46, No. 496, 1750, p. 598, pl. 1, figs. 3-12, pl. 2.

Calymene blumenbachii.

Locke (John). On *Isotelus maximus*, found near Trebers, in Adams County, Ohio.

In Second Ann. Rept. Geol. Survey Ohio (W. W. Mather), 1838, p. 247, fig. 8.

— On a new species of Trilobite of very large size.

In Trans. Assoc. Am. Geol. and Naturalists, vol. 1, 1843, p. 221, plate.

Isotelus megistos Locke.

Dr. John Locke has herein given a new name to the species which he called *Isotelus maximus* in the Second Ohio Report. See, also, Am. Jour. Sci., 1st series, vol. 42, 1843, p. 366, 1 pl.

— Notice of a new Trilobite.

In Am. Jour. Sci., 1st series, vol. 44, 1843, p. 346.

Ceraurus crosotus.

— Supplementary notice of the *Ceraurus crosotus*.

In Am. Jour. Sci., 1st series, vol. 45, 1843, p. 223.

Logan (W. E.) *Bronteus canadensis*.

In Rept. Geol. Survey Canada, 1844, p. 54, 2 figs.

— On the tracks of an animal lately found in the Potsdam sandstone.

In Canadian Naturalist, vol. 5, 1860, p. 279.

Lossen (K. A.) Ueber *Cryphæus rotundifrons* aus dem zorder Schiefer des südlichen Unterharzes.

In Zeitschr. Deutsch. geol. Gesell., vol. 31, 1879, p. 215.

Cryphæus.

Lövén (S. L.) On *Calymene clavifrons* and *C. ovata*.

In Öfversigt Kongl. Svenska Vet.-Akad. Förhandl., 1845, p. 63.

— Svenska Trilobiter.

In Öfversigt Kongl. Svenska Vet.-Akad. Förhandl., 1845, pp. 46, 104, pls. 1, 2.

Trinucleus, *Proetus*, *Metopias*, *Lichas*, *Ceraurus*, *Cybele* n. g.

Lungren (B.) Om den vid Ramsåsa och Öfveredskloster i Skåne forekommande sandstenens alder.

In Acta Univ. Lundensis, 1874.

Leperditia.

MacLeay (W. S.) Observations on Trilobites, founded on a comparison of their structure and that of living Crustacea.

In R. I. Murchison. "The Silurian system," London, 1839, p. 666; Annals Mag. Nat. Hist., 1st series, London, vol. 4, 1839, p. 16.

The author compares them with *Apus* and other *Aspidophora*, animals which, in his opinion, of all the *Entomostraca*, appear to come nearest to the *Trilobita*.

McCoy (Frederick). On *Entomoconchus scoulli*.

In Jour. Geol. Soc. Dublin, vol. 11, 1839, p. 91, pl. 5, figs. a, c.

Entomoconchus n. g.

— A synopsis of the characters of the Carboniferous limestone fossils of Ireland. Dublin, 1844, 29 pls.

The title-page bears no author's name. The book shows that it was prepared by Frederick McCoy, under the direction of Richard Griffith, the collector, in whose cabinet all the species were contained.

Phillipsia, *Griffithides*, *Calymene*, *Dithyrocaris*, *Entomoconchus*, *Cytherina*, *Bairdia* n. g., *Cythere*, *Daphina*.

— A synopsis of the Silurian fossils of Ireland, collected from the several districts by Richard Griffith, F. G. S. The whole being named, and the new

McCoy (Frederick)—Continued.

species drawn and described, by Frederick McCoy. Dublin, 1846, 5 pls.

Harpes, *Remopleurides*, *Forbesia* n. g., *Phacops*, *Portlockia* n. g., *Calymene*, *Homalonotus*, *Lichas*, *Trinucleus*, *Ampyx*, *Ogygia*, *Isotelus*, *Illænus*, *Acidaspis*, *Oheirurus*, *Sphaeræzochus*, *Otarion*, *Encrinurus*, *Bronteus*, *Trinodus* n. g., *Tiresias* n. g., *Beyrichia* n. g., *Cythere*, *Battus*.

A notice of the new genera described by Frederick McCoy is given in the Ray Society's edition of Burmeister's "Organization of Trilobites. Supplementary appendix," p. 123.

The generic name *Tiresias* was used in 1845 for a genus of the Coleoptera, and that of *Forbesia* for one of the Polypi in 1845. *Trinodus* was used in 1846 for a genus of the Coleoptera.

— On the fossil botany and zoology of the rocks associated with the coal of Australia.

In Annals Mag. Nat. Hist., 1st series, London, vol. 20, 1847, p. 226, plate.

Phillipsia, *Brachymetopus* n. g., *Cythere*, *Bairdia*.

— On the classification of some British fossil Crustacea, with notices of new forms in the University collection at Cambridge.

In Annals Mag. Nat. Hist., 2d series, London, vol. 4, 1849.

Asaphinæ: 1. *Phacops*, 2. *Calymene*, 3. *Trimerocephalus* n. g., 4. *Asaphus* (subgenera, *Isotelus*, *Basilicus*), 5. *Illænus* (subgenera, *Illænus*, *Bumastus*, *Dysplanus*), 6. *Forbesia*, 7. *Phillipsia*. Paradoxinæ: 1. *Paradoxides* (subgenus, *Olenus*), 2. *Ceraurus*, 3. *Cryphæus*, 4. *Sphaeræzochus*, 5. *Acidaspis*, 6. *Staurocephalus*, 7. *Remopleurides*, 8. *Zethus*. Ogyginæ: 1. *Trinucleus* (subgenus, *Tetrapsellium*), 2. *Tretaspis* n. g., 3. *Ampyx*, 4. *Ogygia*, 5. *Bronteus*, 6. *Lichas* (subgenera, *Trochurus*, *Acanthopyge*). Harpedinæ: 1. *Harpes*, 2. *Harpidella* n. g., 3. *Amphion*. Agnostinæ: 1. *Trinodus*, 2. *Agnostus*, *Chasmops* n. g., *Griffithides*, *Barrandia* n. g., *Ceratiocaris* n. g., *Cytheropsis* n. g., *Pterygotus*.

Partly republished in the author's "Contributions to British Palæontology, etc.," London, 1854.

— On the supposed fish remains figured on plate 4 of "The Silurian system."

In Quart. Jour. Geol. Soc. London, vol. 9, 1853, p. 13.

— A synopsis of the classification of the British Palæozoic rocks, by Adam Sedgwick; with a systematic description of the British Palæozoic fossils in the Geological Museum of Cambridge, by Frederick McCoy, with figures of the new and imperfectly known species. London and Cambridge, 1855, 25 pls. Pt. 2, Palæontology.

McCoy (Frederick)—Continued.

Fasciculus 1. Radiata and Articulata. London, 1851.

Fasciculus 2. Lower and Middle Palæozoic Mollusca. London, 1852.

Fasciculus 3. Upper Palæozoic Mollusca and fish. London and Cambridge, 1855.

Harpes, Forbesia, Phacops, Odontochile, Chas-mops, Portlockia, Calymene, Homalonotus, Trochurus, Lichas, Trinucleus, Harpidella, Tretaspis, Ampyx, Isotelus, Ogygia, Barrandia, Aci-daspis, Ceraurus, Eecoptochile, Staurocephalus-Encrinurus, Zethus, Illænus, Dysplanus, Di-plorhina, Agnostus, Acanthopyge, Eurypterus, Pterygotus, Leptochelone n. g., Ceratiocaris, Bey-richia, Cytheropsis, Trinodus.

— Contributions to British palæon-tology, or first description of 360 species and several genera of fossil Radiata, Articulata, Mollusca and Pisces from the Tertiary, Cretaceous, Oolitic and Palæozoic strata of Great Britain. Re-published from the Annals Mag. Nat. Hist. Cambridge, 1854.

For a list of the genera of fossil Crustacea, see entries under McCoy (Frederick), Annals Mag. Nat. Hist., 2d series, London, vol. 4, 1849.

— Geological Survey of Victoria. Pro-dromus of the palæontology of Vic-toria, or figures and descriptions of Victorian organic remains, decade 3. Melbourne and London, 1875, pls. 22, 23.

Phacops (Odontochile) caudatus, *P. (Port-lockia) fecundus*, *Forbesia euryseps* McCoy, *Lichas australis* McCoy, *Homalonotus harri-soni* McCoy.

Mantell (G.) Medals of creation, or first lessons in geology and the study of organic remains. 2 vols. London, 1854.

Marcou (Jules). On the Primordial fauna and the Taconic system, by Joachim Barrande; with additional notes by Jules Marcou.

In Proc. Boston Soc. Nat. Hist., vol. 7, 1861, p. 369.

— Notice sur les gisements des lentilles trilobitiformes taconique de la Pointe Lévis au Canada.

In Bull. Soc. Géol. France, 2d series, vol. 21, 1864, p. 236.

Marr (J. E.) On some well-defined life zones in the lower part of the Silurian (Sedgwick) of the Lake District.

In Quart. Jour. Geol. Soc. London, vol. 34, 1878, p. 871.

Appendix. On some species of *Phacops*, p. 884.

Marr (J. E.)—Continued.

— and Nicholson (H. A.) The Stock-dale shales.

In Quart. Jour. Geol. Soc. London, vol. 44, 1888, p. 654, pl. 16.

Harpes, Proetus, Phacops, Ampyx, Acidaspis, Oheirus.

Martin (D. S.) A new Eurypterid from the Catskill group.

In Trans. New York Acad. Sci., vol. 2, 1882, p. 8.

This notice was based upon a cast of *Sty-lonurus excelsior* Hall, obtained from the Mu-seum of Natural History, Albany, New York.

Martin (W.) Petrificata Derbiensia: a description of petrifications collected in Derbyshire. Wigan, 1809, 4to, 53 pls.

Entomolithus oniscites (derbiensis), pl. 45, figs. 1-3; *Entomolithus monoculites? (unatus)*, pl. 45, fig. 4; *Entom. paradoxus*, from Dudley, pl. 45, fig. 3; also pl. 45x, fig. 3.

These fossils have been referred to the fol-lowing modern genera: *Phillipsia derbiensis*, pl. 45, figs. 1-3, and pl. 45x, fig. 3; *Belinurus*, pl. 45, fig. 4, *Calymene blumenbachii*, pl. 45, fig. 3.

Matthew (G. F.) Illustrations of the fauna of the St. John group. No. 1. The Paradoxides; their history.

In Trans. Royal Soc. Canada, vol. 1, 1882, Sec. 4, p. 87, pl. 9.

Paradoxides etemeneicus Matt., *Par. acadicus* Matt., *P. lamellatus* Hartt.

— Illustrations of the fauna of the St. John group. No. 1. The Paradoxides (supplementary section describing the parts).

In Trans. Royal Soc. Canada, vol. 1, 1882, Sec. 4, p. 271, pl. 10.

— Illustrations of the fauna of the St. John group, continued: On the *Cono-coryphea*, with further remarks on *Para-doxides*.

In Trans. Royal Soc. Canada, vol. 2, 1884, Sec. 4, p. 99, pl. 1.

Paradoxides, Otenocephalus, Conocoryphe.

In his explanation of the plate, fig. 6, the au-thor uses a new subgenus, *Otenocephalus (Har-tella) matthewi*, and also for fig. 22, *Conocoryphe (Bailiella) baileyi*.

— An outline of recent discoveries in the St. John group.

In Bull. New Brunswick Nat. Hist. Soc., No 4, 1884.

— Illustrations of the fauna of the St. John group. No. 3. Descriptions of new genera and species (including a description of a new species of *Solenop-leura*, by J. F. Whiteaves).

In Trans. Royal Soc. Canada, vol. 3, 1885, p. 29, 3 pls.

Matthew (G. F.)—Continued.

Lepiditina n. g., *Lepidilla* n. g., *Beyrichia*, *Hypoponicharion* n. g., *Beyrichona* n. g., *Primitia*, *Agnostus*, *Microdiscus*, *Agraulos*, *Solenopleura*, *Paradoxides*.

— On the probable occurrence of the great Welsh *Paradoxides*, *P. davidis*, in America.

In Am. Jour. Sci., 3d series, vol. 30, 1885, p. 72; Nature, vol. 32, 1885, p. 358.

— Abstract of a paper on the Cambrian fauna of Cape Breton and Newfoundland.

In Canadian Record Sci., vol. 2, 1886, p. 255.

— Note on the occurrence of *Olenellus?* *kjerulfi* in America.

In Am. Jour. Sci., 3d series, vol. 31, 1886, p. 472.

— On the Cambrian fauna of Cape Breton and Newfoundland.

In Trans. Royal Soc. Canada, vol. 2, 1886, p. 147.

Agraulos, *Solenopleura*.

— Illustrations of the fauna of the St. John group. No. 4. On the smaller eyed Trilobites of Division 1, with a few remarks on the species of the higher division of the group.

In Canadian Record Sci., vol. 2, No. 6, 1887, p. 357.

— On the kin of *Paradoxides* (*Olenellus?*) *kjerulfi*.

In Am. Jour. Sci., 3d series, vol. 33, 1887, p. 390.

— The great Acadian *Paradoxides*.

In Am. Jour. Sci., 3d series, vol. 33, 1887, p. 388.

Paradoxides regina Matt.

— Illustrations of the fauna of the St. John group. No. 4. Part 1. Description of a new species of *Paradoxides* (*P. regina*). Part 2. The smaller Trilobites with eyes (*Ptychoparidae* and *Ellipsocephalidae*).

In Trans. Royal Soc. Canada, vol. 5, 1887, p. 115, 3 pls.

Paradoxides, *Liostracus*, *Strenuella* n. subgen., *Ptychoparia*, *Solenopleura*, *Agraulos*, *Ellipsocephalus*.

Maurer (F.) Paläontologische Studien im Gebiet des rheinischen Devon. Die Fauna des Rotheisenstein der Grube Haina.

In Neues Jahrbuch für Mineral., 1875, p. 596, pl. 14.

Phacops latifrons, *Cyphasps ceratophthalmus*,

Maurer (F.)—Continued.

— Paläontologische Studien im Gebiet des rheinischen Devon. Die Thonschiefer des Ruppbachthales bei Diez.

In Neues Jahrbuch für Mineral., 1876, p. 808, pl. 14.

Phacops, *Acidaspis*, *Bronteus*.

— Die Fauna der Kalke von Waldgirmes bei Giessen.

In Abhandl. grossh.-hess. geol. Landesanstalt zu Darmstadt, vol. 1, pt. 2, 1885, atlas of 11 pls.

Harpes, *Phacops*, *Proetus*, *Cyphasps*, *Cheirus*, *Bronteus*, *Primitia*, *Orozo*.

Meek (F. B.) Note on *Belinurus danæ*, from the Illinois Coal Measures.

In Am. Jour. Sci., 2d series, vol. 43, 1867, p. 257; Geol. Survey Illinois, vol. 2, p. 395.

— Note on a new genus of fossil Crustacea.

In Am. Jour. Sci., 2d series, vol. 43, 1867, p. 394; Geol. Survey Illinois, vol. 3, p. 547.

Euproops (n. g.).

— Descriptions of fossils collected by the U. S. Geological Survey, under charge of Clarence King.

In Proc. Acad. Nat. Sci. Phila., vol. 22, 1870, p. 56.

Republished and illustrated in Rept. U. S. Geol. Expl., 40th Parallel, vol. 4, pt. 1, pp. 1-197, pls. 1-17.

Paradoxides, *Conocoryphe* (*Conocephalites*), *Olenus*.

— Descriptions of new species of invertebrate fossils from the Carboniferous and Devonian rocks of Ohio.

In Proc. Acad. Nat. Sci. Phila., vol. 23, 1871, p. 57.

Republished and figured in "Palæontology of Ohio," vol. 1, 1873, p. 233, 23 pls.

Proetus planimarginatus, *Dalmanites ohioensis*.

— Descriptions of new Western Palæozoic fossils, mainly from the Cincinnati group of the Lower Silurian series of Ohio.

In Proc. Acad. Nat. Sci. Phila., vol. 23, 1871, p. 308.

Redescribed and illustrated in "Palæontology of Ohio," vol. 2, 1875.

Cythere, *Ceratocaris* (*Colpocaris*), *Archæocaris*, *Solenocaris*, *Colpocaris*. (Not *Solenocaris*: Young, 1868.)

— List of Carboniferous fossils from West Virginia, with descriptions of new species.

In Appendix B, Rept. of Regents of West Virginia Univ., 1870, Wheeling, 1871, p. 68.

Phillipsia stevensoni Meek.

— Final report of the U. S. Geological Survey of Nebraska and portions of the

Meek (F. B.)—Continued.

adjacent Territories, by F. V. Hayden, etc. Report on the palæontology of eastern Nebraska, with some remarks on the Carboniferous rock of that district by F. B. Meek. Washington, 1871, p. 83, 11 pls. (Two editions: first in 8vo, second in 4to.)

Phillipsia, Cythere.

— **Genus *Archæocaris*.**

In Proc. Acad. Nat. Sci. Phila., vol. 24, 1872, p. 325.

— **Description of new species of fossils from Cincinnati group, Ohio.**

In Am. Jour. Sci., 3d series, vol. 3, 1873, p. 423.

Proetus, Dalmanites.

— **Preliminary palæontological report, consisting of list and descriptions of fossils, with remarks on the age of the rocks in which they are found, etc.**

In Sixth Ann. Rept. U. S. Geol. Survey Territories, embracing portions of Montana, Idaho, Wyoming, and Utah, etc. F. V. Hayden, Washington, 1873, p. 481.

Conocoryphe (Ptychoparia), Bathyrurus, Bathyrella (Asaphiscus) n. sg., *Asaphus*, (*Megalæpis*), *Agnostus*.

— **Report of the Geological Survey of Ohio. Vol. 1. Geology and palæontology. Pt. 2. Palæontology. Descriptions of invertebrate fossils of the Silurian and Devonian systems, by F. B. Meek.**

Columbus, 1873, pp. 1-243, pls. 1-23.

Proetus, Dalmanites, Calymene, Asaphus (Isotelus), Acidaspis, Ceratourus, Illenus (Bumastus), Cythere, Leperditia.

— **Descriptions of *Olenus (Olenellus) gilberti* and *Olenus (Olenellus) howelli*.**

In Rept. Geog. and Geol. Expl. Surveys West 100th Mer., vol. 3, Washington, 1875, p. 182.

— **A report on some of the invertebrate fossils of the Waverly group and Coal Measures of Ohio.**

In Rept. Geol. Survey Ohio. Vol. 2. Geology and Palæontology. Pt. 2. 1875, pp. 269-347, pls. 10-20.

Phillipsia, Griffithides, Ceratiocaris (Oolpocaris), Ceratiocaris (Solenocaris), Archæocaris, Oolpocaris, Solenocaris.

— **Palæontology.**

In U. S. Geol. Expl. 40th Parallel, vol. 4, pt. 1, 1877, pp. 1-197, pls. 1-17.

Paradoxides, Conocoryphe (Ptychoparia), Proetus, Dalmanites.

— **and Hayden (F. V.) Descriptions of new Lower Silurian, Jurassic, Cretaceous, and Tertiary fossils collected in****Meek (F. B.) and Hayden (F. V.)—Continued.**

Nebraska by the exploring expedition under the command of Capt. W. F. Reynolds, U. S. Top. Eng., with remarks on the rocks from which they were obtained.

In Proc. Acad. Nat. Sci. Phila., vol. 13, 1862, p. 415.

Arionellus, Arionellus (Orepicephalus) oweni.

— **Palæontology of the Upper Missouri. A report upon collections made principally by the expeditions under command of Lieut. G. K. Warren, U. S. Top. Eng., in 1855-'56. Invertebrates. Pt. 1.**

In Smithsonian Contrib., No. 172, Washington, 1864, 5 pls.

Paradoxides, Agrauios, Agrauios oweni M. & H.

— **and Worthen (A. H.) Notice of some new types of organic remains from the Coal Measures of Illinois.**

In Proc. Acad. Nat. Sci. Phila., vol. 17, 1865, p. 41.

Acanthotelson n. g., *Belinurus, Anthrapalæmon, Palæocaris* n. g.

— **Contributions to the palæontology of Illinois and other Western States.**

In Proc. Acad. Nat. Sci. Phila., vol. 17, 1865, p. 245.

Proetus, Phillipsia, Griffithides, Dalmania, Lichas.

— **Descriptions of invertebrates from the Carboniferous system.**

In Geol. Survey Illinois, vol. 2, 1866, p. 145, pls. 14-20, 23-32.

Belinurus, Acanthotelson, Palæocaris, Anthrapalæmon.

— **Preliminary notice of a scorpion, a *Eurypterus*, and other fossils from the Coal Measures of Illinois.**

In Am. Jour. Sci., 2d series, vol. 46, 1868, p. 19. Republished and illustrated in "Geol. Survey Illinois," vol. 3, p. 560.

— **Palæontology.**

In Geol. Survey Illinois, vol. 3, 1868, pp. 291-565, pls. 1-20.

Proetus, Phacops, Dalmanites (Odonoccephalus), Lichas, Acidaspis, Illenus, Ceratiocaris, Euproops, Palæocaris, Eurypterus (Anthrapalæmon), Acanthotelson.

— **Descriptions of a new species and genera of fossils from the Palæozoic rocks of the Western States.**

In Proc. Acad. Nat. Sci. Phila., 2d series, vol. 14, 1870, p. 22.

Meek (F. B.) and Worthen (A. H.)—
Continued.

Phillipsia tuberculata M. & W., *Phillipsia* (*Griffithides*) *bufo* M. & W., *Asaphus* (*Isotelus*) *vigilans* M. & W., *Ilænus* (*Bumastus*) *grattonensis* M. & W., *Dithyrocaris carbonarius* M. & W.

— Descriptions of invertebrates from the Carboniferous system.

In Geol. Survey Illinois, vol. 5, 1873, pp. 323-619, pls. 1-32.

Phillipsia (*Griffithides*) *portlocki*, *Phillipsia* (*Griffithides*) *bufo*, *Phillipsia* (*Griffithides*) *scitula*, *Dithyrocaris carbonarius*.

— Description of the invertebrates.

In Geol. Survey Illinois, vol. 6, 1875, pp. 489-532, pls. 23-33.

Lichas, *Asaphus* (*Isotelus*), *Sphærezochus*, *Ilænus* (*Bumastus*).

Meneghini (Giuseppe). Nuovi fossili siluriani di Sardegna.

In Atti reale Accad. Lincei, Roma, 1880, 1 pl. *Dalmanites*, *Lamarmora*.

— Posizione relativa dei varii piani siluriani dell' Iglesiente in Sardegna.

In Proc. verb. Soc. Toscana Sci. Nat., 1881, p. 258.

Paradoxides, *Trinucleus*, *Dalmanites*, *Conocephalites*.

— Fauna Cambriana dell' Iglesiente in Sardegna.

In Proc. verb. Soc. Toscana Sci. Nat., 1881, p. 158.

Paradoxides, *Olenus*, *Conocephalites*.

— Nuovi Trilobiti di Sardegna.

In Proc. verb. Soc. Toscana Sci. Nat., 1881, p. 200.

Paradoxides, *Conocephalites*.

— Note alla fauna Cambriana dell' Iglesiente.

In Proc. verb. Soc. Toscana Sci. Nat., 1882, p. 7.

Olenus, *Anomocare*, *Conocephalites*, *Platypeltis*.

— Nuovi fossili Cambriani di Sardegna.

In Proc. verb. Soc. Toscana Sci. Nat., 1884, p. 56.

Conocephalites, *Anomocare*.

— Palæontologia dell' Iglesiente in Sardegna. Fauna Cambriana trilobiti.

In Mem. R. Com. Geol. Italia, vol. 3, 1888, pt. 2, 49 pp., 7 pls.

Paradoxides, *Olenus*, *Anomocare*, *Conocephalites*, *Asaphus* (*Platypeltis*), *Conocoryphe*.

Meyer (H. von). Beiträge zur Petrefacten-Kunde.

In Nova Acta Acad. Leop. Carol., vol. 15, 1831, p. 57, pl. 56, fig. 13. See, also, Neues Jahrbuch für Mineral., 1833, p. 481.

Calymene æqualis Meyer.

Meyer (H. von) and Münster (G. G. zu). Beiträge zur Petrefacten-Kunde. Bayreuth, 1840, pt. 3, pl. 5.

Calymene variolaris, *C. intermedia*, *C. lævis*, *C. sternbergi*, *C. propinqua*, *C. articulata*, *Asaphus*? *caudori*, *A. pusillus*, *A.?* *brevis*, *A. grandis*, *Ilænus perovalis*?, *Paradoxides brevimucronatus*, *Brontes radiatus*, *B. costatus*, *B. subradiatus*, *Bumastus frankonicus*, *B. planus*, *Harpes speciosus*, *Trinucleus gracilis*, *T. wilkensis*, *T. ellipticus*, *T. nelsoni*, *T.?* *otariion*, *T.?* *gibbosus*, *Agnostus pisiformis*.

— Beiträge zu Petrefacten-Kunde. Bayreuth, 1842, pt. 5, p. 112. Nachtrag zu den Versteinerungen des Uebergangs-Kalkes mit Clymenien von Oberfranken vom Herausgeber.

Calymene marginata, pl. 10, fig. 6; *C. furcata*, *Asaphus dubius*, *Ellipsocephalus hofsi*, *Otarion elegans*, *Harpes*, *Trinucleus?* *lævis*, *T. intermedium*, *T. nelsoni*.

— Squaliden-Reste aus dem Posidonomyen-Schiefer des Oberharzes bei Oberschulenburg.

In Dunker and von Meyer "Palæont.," vol. 3, Cassel, 1854, p. 53.

Harpes, *Proetus*, *Phacops*, *Lichas*, *Cheirurus*. See, also, Jordan (H.) and Meyer (H. von).

Mickleborough (John). Locomotory appendages of Trilobites.

In Jour. Cincinnati Soc. Nat. Hist., vol. 6, 1883, p. 200, figs. 1-3. Noticed: Am. Jour. Sci., 3d series, vol. 27, 1884, p. 409; Geol. Mag., n. s., decade 2, vol. 1, London, 1884, p. 80.

Asaphus megistos Locke.

Miller (S. A.) Monograph of the Crustacea of the Cincinnati group.

In Cincinnati Quart. Jour. Sci., vol. 1, 1874, p. 115.

Triarthrus, *Proetus*, *Dalmanites*, *Calymene*, *Lichas*, *Trinucleus*, *Asaphus*, *Isotelus*, *Acidaspis*, *Ceraurus*, *Beyrichia*, *Leperditia*, *Cythere*.

The author, in his classification and generic descriptions, has generally followed McCoy ("Brit. Palæozoic Rocks," 1855). He gives a description of the different fossil Crustacea occurring in the Cincinnati group, and figures *Leperditia byrnesi* Miller, and a wood-cut representing the tracks of an *Asaphus* (?).

— [No title.—Description of new species of Palæozoic Entomostraca.]

In Cincinnati Quart. Jour. Sci., vol. 1, 1874, p. 232.

Beyrichia duryi, *B. striato-marginatus*, *B. chambersi*.

— Some new species of fossils from the Cincinnati group, and remarks upon some described forms.

In Cincinnati Quart. Jour. Sci., vol. 2, 1875, p. 349, figures.

Acidaspis, *Beyrichia*, *Leperditia*.

Miller (S. A.)—Continued.

— The American Palæozoic fossils. A catalogue of the genera and species, with names of authors, dates, places of publication, group of rocks in which found, and the etymology and signification of the words, etc. Cincinnati, 1877. Also a 2d ed., with supplement.

— Description of a new genus and eleven new species of fossils, with remarks upon others well known, from the Cincinnati group.

In Jour. Cincinnati Soc. Nat. Hist., vol. 1, 1878-'79, p. 100, pl. 3.

Lichas harrisi, *Cythere irregularis*.

— Description of two new species from the Niagara group, and five from the Keokuk group.

In Jour. Cincinnati Soc. Nat. Hist., vol. 2, 1879, p. 254, pl. 15.

Enerimurus egani.

— Description of new species of fossils.

In Jour. Cincinnati Soc. Nat. Hist., vol. 4, 1881, p. 259, pl. 6.

Leperditia cæcigena.

— Description of three new species, and remarks upon others.

In Jour. Cincinnati Soc. Nat. Hist., vol. 5, 1882, p. 116, pl. 5.

Calymene callicephala Green.

Milne-Edwards (H.) Sur les affinités des Trilobites.

In Institut de France, Acad. Royale Sci., vol. 1, 1827, p. 254.

— Trilobites dans Lamarck's "Histoire naturelle des animaux sans vertèbres." Vol. 5. Paris, 1833, p. 220.

Paradoxides, *Ellipsocephalus*, *Conocephalus*, *Triarthrus*, *Calymene*, *Ampyx*, *Asaphus*, *Ogygia*, *Otarion*, *Agnostus*, *Ceraurus*, *Cypridina* n. g.

— Histoire naturelle des Crustacés, comprenant l'anatomie, la physiologie et la classification de ces animaux. [3 vols., with atlas of plates.] Paris, 1834-'40.

The Trilobites are described in vol. 3, pp. 285-346, in the following order: *Nileus*, *Ampyx*, *Isotelus*, *Asaphus*, *Homalonotus*, *Calymene*, *Pleuracanthæ* n. g. (referred by author to *Dalmanites*), *Trinucleus*, *Otarion*, *Ogygia*, *Paradoxides*, *Peltura* n. g. (the first species cited by the author under this new genus was: *Peltura scarabæoides* Wahlenburg; the second, *Peltura bucklandi* Milne-Edwards, is a species of the genus *Lichas*), *Agnostus*, *Eurypterus*. Classifies 64 species under 13 genera.

— Report on the paleontological researches of M. Marie Ronault in Brittany and Anjou.

Milne-Edwards (H.)—Continued.

In Comptes Rendus Acad. Sci. Paris, 1847, vol. 24, p. 593; Bull. Soc. Géol. France, vol. 4, 1847, p. 309; Quart. Jour. Geol. Soc. London, vol. 4, 1848, pt. 2, Miscellaneous, p. 35.

Trinucleus, *Calymene*, *Phacops*, *Polyeres* n. g., *Prionocæthrus*, *Cheirurus*, *Nileus*, *Ogygia*, *Ilænus*.

— Structure des Trilobites.

In Annales Sci. Nat., vol. 12, 1881, 33 pp., pls. 1-3.

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Mitchell (Samuel L.) An account of the impressions of a fish in the rocks of Oneida County, New York.

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Modeer (A.) Anmerkungen über einige nerikische Versteinerungen. (*)

In Berlin. Gesell. naturf. Freunde, vol. 6, 1785, p. 247, pl. 2, figs. 1-8-12.

(*Agnostus pisiformis*), pl. 2, figs. 1, 2; (*Olenus gibbosus*), pl. 2, figs. 3-5; (*Olenus scarabæoides*), pl. 2, fig. 7.

Möller (Valerian von). Ueber die Trilobiten der Steinkohlenformation des Ural, nebst einer Uebersicht und einigen Ergänzungen der bisherigen Beobachtungen über Kohlen-Trilobiten im Allgemeinen. Moscon, 1867. 1 pl.

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Morris (J.) Catalogue of British fossils. London, 1843. 2d ed., London, 1854.

Mortimer (C.) The description and figures of a small, flat, spheroidal stone having lines formed on it.

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(*Calymene blumenbachi*.)

Müller (O. F.) Entomostraca sen insecta testacea quæ in aquis Daniæ et Norwegiæ reperit, etc. Lipsiæ et Hafniæ, 1785. 21 pls.

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Münster (G. G.) Ueber einige fossile Arten *Cypris* und *Cythere*.

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Murchison (R. I.) The Silurian system, founded on geological researches in the counties of Salop, Hereford, Radnor, etc. [London, 2 vols., 1839, 40 pls., and 3 large maps in folio.]

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— **Metamorphosis of certain Trilobites** as recently discovered by M. Barrande.

In Rept. 19th Meeting Brit. Assoc. Adv. Sci., 1849, Trans. Sec., p. 58.

— **On the Silurian rocks of the south of Scotland**, with a list and description of the Silurian fossils of Ayrshire, by J. W. Salter.

In Quart. Jour. Geol. Soc. London, vol. 7, 1851, p. 137, pls. 8-10.

Cheirurus gelasinotus Port., *Asaphus* sp.?, *Calymene blumenbachi* Brong., *Phacops stokesii* Milne-Edwards, *Ilænus boremani*?, *Lichas laxatus* McCoy, *Enercinurus punctatus* Brün.

— **Siluria**. A history of the oldest rocks in the British Isles and other countries. [London, 1854, geol. map, 37 pls. 3d ed., London, 1859, geol. map, 41 pls. 4th ed., London, 1867, geol. map, 42 pls.]

The figures are all transferred from the original plates in the "Silurian system." In every case where the old name has been changed, in accordance with more recent nomenclature, the name used in the original work is inserted in brackets.

—, **Verneuil (E. de)** and **Keyserling (Alex. von)**. Geology and palæontology of Russia and the Ural Mountains.

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In Öfversigt kongl. Svenska Vet.-Akad. Förhandl., 1869, No. 1, p. 61.

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— **Om det inbördes förhållandet af lagren med *Paradoxides ölandicus* och *P. tessini* på Öland.**

In Geol. Föreningens Stockholm Förhandl., No. 69, vol. 5, 1881.

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In Geol. Föreningens Stockholm Förhandl., No. 71, vol. 6, 1882.

— **The position of the *Olenellus* beds.**

In Am. Geol., vol. 2, 1888, p. 356.

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In Am. Jour. Sci., 3d series, vol. 26, 1883, p. 152.

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Nicholson (H. A.) A manual of palæontology for the use of students, with a general introduction on the principles of palæontology, in two volumes. Vol. 1. Edinburgh and London, 1879. Crustacea, Chapter XVIII.

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Nicholson (H. A.) — Continued.

Bairdia, *Hymenocaris*, *Caryocaris*, *Peltocaris*, *Discinocaris*, *Aptychopis*, *Pterocaris*, *Cryptocaris*, *Ceratiocaris*, *Dithyrocaris*, *Aspidocaris*, *Esteria*, *Psilocephalus*, *Hemiaspis*, *Exapinurus*, *Pseudoniscus*, *Stylonurus*, *Neolimulus*, *Prestwichia*, *Belinurus*.

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Fasciculus I. Rhizopoda, Actinozoa, and Trilobites (1878).

Phacops, *Calymene*, *Lichas*, *Dindymene*, *Asaphus*, *Ogygia*, *Acidaspis*, *Cheirurus*, *Sphaerexochus*, *Encrinurus*, *Cybele*, *Zethus*, *Atractopyge*.

Fasciculus II. Trilobita, Phyllopora, Cirripedia, and Ostracoda (1879).

Remopleurides (*Caphyra*), *Proetus*, *Cyphaspis*, *Phacops*, *Calymene*, *Lichas*, *Trinucleus*, *Ampyx*, *Salteria*, *Asaphus*, *Illæus*, *Cheirurus*, *Acidaspis*, *Encrinurus*, *Cybele*, *Bronteus*, *Agnostus*, *Bronteopsis*, *Lonchodorus*, *Raphiophones*, *Solenocaris*, *Pinnocaris*, *Peltocaris*, *Dictyocaris*, *Turrilepas*, *Beyrichia*, *Primitia*, *Cythere*, *Entomis*.

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Nieszkowski (J.) Der *Eurypterus remipes* aus den ober-silurischen Schichten der Insel Oesel.

In Archiv Naturk. Liv., Ehst- u. Kurl., vol. 2, 1858, p. 299, 2 pls.

— Versuch einer Monographie der in den silurischen Schichten der Ostseeprovinzen vorkommenden Trilobiten.

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— Zusätze zur Monographie der Trilobiten der Ostseeprovinzen, nebst der Beschreibung einiger neuen ober-silurischen Crustaceen.

In Archiv Naturk. Liv., Ehst- u. Kurl., vol. 1, 1859, p. 345, 2 pls.

Cyphaspis, *Lichas*, *Asaphus*, *Cheirurus*, *Sphaerexochus*, *Encrinurus*, *Bronteus*, *Bunodes*, *Exapinurus* n. g., *Pseudoniscus* n. g.

Novák (Ottomar). Studien an Hypostomen böhmischer Trilobiten. No. 1.

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Novák (Ottomar) — Continued.

Harpes, *Paradoxides*, *Onocephalites*, *Proetus*, *Dalmanites*, *Trinucleus*, *Ampyx*, *Acidaspis*, *Cheirurus*, *Placoparia*, *Bronteus*, *Carmon*, *Harpina* n. g., *Calymene*, *Illæus*, *Phacops*.

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In Sitzungsberichte k. böhm. Gesell. Wiss., Jahrg. 1884, 1 pl.

Harpes, *Harpina*, *Asaphus*, *Ogygia*, *Niobe*.

— Zur Kenntniss der böhmischen Trilobiten.

In Beiträge zur Paläontologie von Oesterrich, Wien, 1884, 5 pls.

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Phillipsia, *Phillipsinella* n. g.

— Remarques sur le genre *Aristozoe* Barrande.

In Sitzungsberichte k. böhm. Gesell. Wiss., Jahrg. 1885, p. 239, 1 pl.

Aristozoe, *Callizoe*, *Ceratiocaris*, *Orozoe*.

— Nouveau Crustacé phyllocaride de l'étage F-f₂ en Bohême.

In Sitzungsberichte k. böhm. Gesell. Wiss., Jahrg. 1885, p. 343, 1 pl.

Ptychocaris n. g.

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Encrinurus, *Cromus*.

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In Sitzungsberichte k. böhm. Gesell. Wiss., Jahrg. 1886, p. 660, 2 pls.

Aristozoe.

— Note sur *Phasganocaris*, nouveau Phyllocaride de l'étage F-f₂ en Bohême.

In Sitzungsberichte k. böhm. Gesell. Wiss., Jahrg. 1886, p. 498, 1 pl.

Phasganocaris n. g.

Oehlert (D.) Sur les fossiles dévonien du département de la Mayenne.

In Bull. Soc. Géol. France, 3d series, vol. 5, 1877, p. 578, pl. 9.

Oryphaeus michelini, *O. jonesi*, *O. munieri*, *Homalonotus gervillei*, *Leperditia britannica*, *Primitia fischeri*.

Oehlert (D.) Sur le Dévonien du département de la Sarthe.

In Bull. Soc. Géol. France, 3d series, vol. 7, 1879, p. 697, pl. 13.

Proetus guerangeri, *Bronteus verneuili*.

— Description de *Goldius gerville* Barande.

In Bull. Soc. d'Études Sci., Angers, 1885, 1 pl.

— Études sur quelques Trilobites du groupe des Proetidae.

In Bull. Soc. d'Études Sci., Angers, 1885, 2 pls.
The author divides the Proetidae into two divisions on the form of the glabella.

Sec. A. Glabella conic, genera *Proetus*, *Phæton*, *Dechenella*, and *Brachymetopus*.

Sec. B. Glabella pyriform, genera *Phillipsella*, *Phillipsia*, and *Griffithides*.

Harpes, *Oncocephalites*, *Cyphaspis*, *Arethusa*, *Calymene*, *Asaphus*, *Ogygia*, *Bronteus*.

— Études sur quelques fossiles dévoniens de l'ouest de la France.

In Bibliothèque de l'École des Hautes Études, Sec. Sci. Nat., vol. 33, 1887, 5 pls.

Proetus oehlerti Bayle, *Phacops portieri* Bayle.

Oldham (J.) On *Griffithides globiceps*.

In Jour. Geol. Soc. Dublin, vol. 3, pt. 3, 1846, p. 188, pl. 2.

Redrawn, pl. 6, fig. 1a, b, Woodward's "Monograph British Carboniferous Trilobites," London, 1883.

Ordway (Albert). On the supposed identity of *Paradoxides harlani* Green with *P. spinosus* Boeck.

In Proc. Boston Soc. Nat. Hist., vol. 8, 1861, p. 1, 2 figs.

— The organization of the Trilobites.

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Owen (D. D.) Report of a geological exploration of part of Iowa, Wisconsin, and Illinois, made under instructions from the Secretary of the Treasury of the United States, in the autumn of the year 1839. Washington, 1840.

In 26th Cong., H. of Rep., Doc. 239, 2d ed., 1844; 28th Cong., Sen. Doc. 407, 18 pls. of fossils.

Pl. 12, fig. 3, *Calymene bufo*; pl. 16, fig. 1, *Ilænus trentonensis*? (referred by Dr. D. D. Owen, in 1852, to *Ilænus ovalis*); pl. 17, fig. 9, *Thaleops*?; pl. 18, fig. 2, *Asaphus*; pl. 18, fig. 10 (*Asaphus platycephalus*); pl. 18, fig. 2, *Asaphus*.

— Report of a geological reconnaissance of the Chippewa Land District of Wisconsin and incidentally of a portion of the Kickapoo country, and a part of Iowa and of the Minnesota territory, etc. Washington, 1848.

Owen (D. D.)—Continued.

This report contains figures of the following fossils, which were afterward described by Dr. D. D. Owen under the names of *Dikelocephalus minnesotensis*, pl. 7, figs. 2, 3; *Lonchocephalus hamulus*, pl. 7, fig. 5; *Dikelocephalus iowensis*, pl. 7, fig. 1.

— Report of a geological survey of Wisconsin, Iowa, and Minnesota, and, incidentally, a portion of Nebraska Territory. Philadelphia, 1852, 638 pp., 27 pls., 16 sections and maps.

Dikelocephalus n. g., *Lonchocephalus* n. g., *Crepicephalus* n. g., *Menocephalus* n. g., *Asaphus* (*Isotelus*) *iowensis*.

Owen (Richard). Description of the impressions and foot-prints of the *Protichnites* from the Potsdam sandstone of Canada.

In Quart. Jour. Geol. Soc. London, vol. 8, 1852, p. 214, pls. 9-14a.

— Palæontology, or a systematic summary of extinct animals and their geological relation. Edinburgh, 1861.

Class 3. Crustacea, pp. 45-51.

Pacht (R.) Geognostische Untersuchungen zwischen Orel Woronach und Simbirk im Jahre 1853.

In Beiträge zur Kenntniss des russischen Reiches und der angränzenden Länder Asiens, St. Petersburg, 1858.

Packard, jr. (A. S.) On the embryology of *Limulus polyphemus*.

In Proc. Am. Assoc. Adv. Sci., 1870, 19th meeting, p. 247.

Notes on the larva of Trilobites, etc.

— The structure of the eye of Trilobites.

In Am. Naturalist, vol. 14, 1880, p. 503.

— A monograph of the Phyllopod Crustacea of North America, with remarks on the order Phyllocarida. Pls. 1-38.

In Twelfth Rept. U. S. Geol. Survey Territories (Hayden), Washington, 1883, pt. 1, p. 295.

Hymenocaris, *Peltocaris*, *Ceratiocaris*, *Echinocaris*, *Discinocaris*, *Spathiocaris*, *Lisgocaris*, *Aptychopsis*, *Dictyocaris*, *Dithyrocaris*, *Rachura*, *Argus*, *Etheria*, *Leaia*.

— Types of Carboniferous *Xiphosura* new to North America.

In Am. Naturalist, vol. 19, 1885, p. 291.

Belinurus, *Euproops*, *Oyclus*, *Dipeltis* n. g.

— The *Synearida*, a group of Carboniferous Crustacea.

In Am. Naturalist, vol. 19, 1885, p. 700.

Acanthotelson.

Packard, jr. (A. S.)—Continued.

— On the *Gampsonychidae*, an undescribed family of fossil *Schizopod* Crustacea.

In *Am. Naturalist*, vol. 19, 1885, p. 790; *Mem. Nat. Acad. Sci.*, vol. 3, 1886, p. 129, pl. 3.

Palæocaris, *Gampsonyx*.

— On the *Anthracoridae*, a family of Carboniferous *Macrurous* decapod Crustacea allied to the *Eryonidae*.

In *Am. Naturalist*, vol. 19, 1885, p. 880; *Mem. Nat. Acad. Sci.*, vol. 3, 1886, p. 135, pl. 4.

Anthrapalæmon.

— Discovery of the thoracic feet in a Carboniferous *Phyllocaridan*.

In *Am. Philos. Soc.*, vol. 23, 1886, p. 380, plate. *Oryptozoe problematicus*.

— On the class *Podostomata*, a group embracing the *Merostomata* and *Trilobites*.

In *Am. Naturalist*, vol. 20, 1886, p. 1060.

Merostomata: *Xiphosura*, *Synziphosura*, *Eurypteridae*.

— On the *Syncarida*, a hitherto undescribed synthetic group of extinct Malacostracous Crustacea.

In *Mem. Nat. Acad. Sci.*, vol. 3, pt. 2, 1886, p. 123, pls. 1, 2.

Acanthotelson.

— On the Carboniferous *Xiphosurous* fauna of North America.

In *Mem. Nat. Acad. Sci.*, vol. 3, pt. 2, 1886, p. 143, 8 figs., 3 pls.

Cyclus, *Dipeltia*, *Prestwichia*, *Belinurus*, *Palæocaris*, *Anthrapalæmon*, *Protolimulus* n. g., *Bunodes*, *Pseudoniciscus*, *Exapinurus*, *Hemiaspis*, *Neolimulus*.

Page (David). On the *Pterygotus* and *Pterygotus* beds of Great Britain.

In *Rept. 25th Meeting Brit. Assoc. Adv. Sci.*, 1855, *Trans. Sec.*, p. 89.

The genus *Stylonurus* was proposed by Mr. David Page in his paper read before the Association, and the name published in his "Advance text-book of geology," 1856.

— Further contributions to the palæontology of the Tilestones or Silurian-Devonian strata of Scotland.

In *Rept. 28th Meeting Brit. Assoc. Adv. Sci.*, *Trans. Sec.*, p. 104.

Beyrichia, *Ceratiocaris*, *Himantopterus*, *Stylonurus spinipes*, *S. clavipes*, *Kampecaris*, *Eurypterus*.

— Advance text-book of geology. London, 1856.

Slimonia n. g., *Stylonurus* n. g., *Kampecaris*, *Himantopterus*, *Pterygotus*, *Parka*.

Page (David)—Continued.

In the second edition, 1859, Mr. David Page gives restorations of *Pterygotus anglicus*, *Himantopterus acuminatus*, *Stylonurus powriei*, *S. spinipes*, *Eurypterus clavipes*, *E. scouleri*, and *Limulus rotundatus*.

— Note on the genus *Stylonurus* from the Old Red Sandstone of Forfarshire.

In *Proc. Royal Phys. Soc. Edinburgh*, session 1864-'65, p. 230.

Pander (C. H.) Beiträge zur Geognosie des russischen Reiches. St. Petersburg, 1830; Leipzig, 1839, 31 pls.

Calymene, *Asaphus*, *Illeenus*, *Nileus*, *Amphion* n. g., *Zethus* n. g.

Parkinson (James). Organic remains of a former world, an examination of the mineralized remains of the vegetable and animal antediluvian world generally termed extraneous fossils. London, 1808, 3 vols. Crustacea, vol. 3, letter 16*, pl. 17.

Calymene, *Ogygia*, *Encrinurus*, *Phacops*, *Belinurus*.

Payton. (—). Trilobites found in the Transition limestone at Dudley, from the collection of Mr. Payton, at Dudley. London, 1827, 2 pp., 2 pls.

Calymene blumenbachii and *Asaphus caudatus*.

Peach (B. N.) On some new Crustaceans from the Lower Carboniferous rocks of Eskdale and Liddesdale.

In *Trans. Royal Soc. Edinburgh*, vol. 30, pt. 1, 1880, p. 73, 4 pls.

Ceratiocaris, *Anthrapalæmon*, *Palæocrangon*, *Palæocaris*, *Uronetes*.

— Further researches among the Crustacea and Arachnida of the Carboniferous rocks of the Scottish border.

In *Trans. Royal Soc. Edinburgh*, vol. 30, pt. 2, 1880, p. 511, 2 pls.

Prestwichia, *Cyclus*, *Eurypterus*, *Glyptescorpius* n. g., *Acanthocaris* n. g., *Anthrapalæmon*, *Palæocrangon*, *Palæocaris*, *Pseudo-Galathea* n. g.

— On the occurrence of *Pterygotus* and a *Limuloid* in the Caithness Flagstones, and on the nature and mode of formation of "Adam's plate."

In *Proc. Royal Phys. Soc. Edinburgh*, 1883, p. 343, plate.

Pterygotus dicki.

Phillips (John). On the occurrence of some minute fossil Crustaceans in Palæozoic rocks.

In *Rept. 11th Meeting Brit. Assoc. Adv. Sci.*, 1841, *Trans. Sec.*, p. 64.

Phillips (John)—Continued.

— Illustrations of the geology of Yorkshire. Pt. 2. The mountain limestone district. London, 1836, p. 239.

Asaphus (Phillipsia).

— Figures and descriptions of the Palæozoic fossils of Cornwall, Devon, and West Somerset, observed in the course of the Ordnance Geological Survey of that district. London, 1841, 60 pls. Crustacea, p. 127.

Harpes, *Calymene* (*Ceraurus*, *Phacops*), *Homalonotus*, *Asaphus*, *Bronteus*.

— The Malvern Hill compared with the Palæozoic district of Abberley, Woolhope, May Hill, Tortworth, and Usk.

In Mem. Geol. Survey Gt. Brit., vol. 2, pt. 1, London, 1848. Palæontological appendix to Prof. John Phillips's memoir on the "Malvern Hills compared with the Palæozoic district of Abberley," etc., by John Phillips and J. W. Salter. *Ibid.*, pp. 331-386, 30 pls.

For list of genera, see Salter (J. W.) and Phillips (John).

— Manual of geology. Pt. 2. Ed. by Rob. Etheridge. 1885, pls. 1-12.

Paradoxides, *Olenus*, *Asaphus*, *Ogygia*, *Calymene*, *Trinucleus*, *Agnostus*, *Illeenus*, *Lichas*, *Beyrichia*, *Stygina*, *Phacops*, *Cybele*, *Cheirurus*, *Remopleurides*, *Harpes*, *Ampyx*, *Acidaspis*, *Cyphoniscus*, *Eglina*, *Sphaerexochus*, *Encrinurus*, *Cyphaspis*, *Proetus*, *Pterygotus*, *Bronteus*, *Homalonotus*, *Phillipsia*.

Pictet (F.-J.) *Traité de paléontologie, ou histoire naturelle des animaux fossiles considérés dans leurs rapports zoologique et géologique.* 4 vols and atlas. Paris, 1853-57. Crustacea, vol. 2, 1854, p. 413.

The author arranges the families and genera as follows: Harpidae: *Harpes*. Paradoxidae: *Remopleurides*, *Paradoxides*, *Hydrocephalus*, *Sao*, *Arionellus*, *Ellipsocephalus*, *Olenus*, *Peltura*, *Triarthrus*, *Conocephalites*. Calymenidae, 1st section, *Proetidae*: *Proetus*, *Phillipsia*, *Cyphaspis*, *Arctusina*, *Harpes*; 2d section, *Phacopidae*: *Phacops*, *Dalmanites*; 3d section, *Calymenidae*: *Calymene*, *Homalonotus*. Lichasidae: *Lichas*. Trinucleidae: *Trinucleus*, *Ampyx*, *Dionide*. Asaphidae: *Asaphus*, *Symphysurus*, *Ogygia*. Eglinidae: *Eglina*. Illeenusidae: *Illeenus*, *Nileus*. Odontopleuridae: *Acidaspis*, *Cheirurus*, *Placoparia*, *Sphaerexochus*, *Staurocephalus*, *Deiphon*, *Zethus*, *Dindymene*. Amphionidae: *Amphion*, *Cromus*, *Encrinurus*. Brontidae: *Bronteus*. Agnostidae: *Agnostus*. Phyllopodidae: *Apusius*, *Dithyrocaris*, *Apus*, *Estheria*. Copepodidae: *Eurypterus*. Cyproidae: *Cythere*, *Bairdia*, *Beyrichia*, *Leperditia*, *Cypris*. Cypridine: *Cyprilla*, *Cypridella*. Xiphosuridae: *Limulus*, *Belinurus*, *Pterygotus*. Amphipodidae: *Gamponyx*.

Pitt. See Grote and Pitt.

Plant (John). On the discovery of *Paradoxides davidis* at Tyddingwladis, near Dolgelly, North Wales.

In Trans. Manchester Geol. Soc., vol. 5, 1886, p. 76.

Pohlman (Julius). On certain fossils of the Waterlime group near Buffalo.

In Bull. Buffalo Soc. Nat. Sci., vol. 4, 1881, p. 17, 7 figs.

Pterygotus buffaloensis, *Ceratiocaris grandis*.

— Additional notes on the fauna of the Waterlime group.

In Bull. Buffalo Soc. Nat. Sci., vol. 4, 1882, p. 41, 2 pls.

Eurypterus giganteus, *Pterygotus globicaudatus*, *P. acuticaudatus*, *P. quadraticaundatus*, *P. macrophthalmus*?, *P. buffaloensis*.

— Fossils from the Waterlime group near Buffalo, N. Y.

In Bull. Buffalo Soc. Nat. Sci., vol. 5, 1886, p. 17, pl. 3.

Pterygotus buffaloensis, *P. bilobus*, *Ceratiocaris acuminatus*, *Eusarcus*, *E. grandis*, *Eurypterus scorpionis* (the term *Eurypterus scorpionis* was used by Henry Woodward for a species of this genus in 1868. See *Eurypterus pohlmani*).

Portlock (J. E.) Report on the geology of the county of Londonderry, and of parts of Tyrone and Fermanagh. Dublin, 1843, 28 pls., also maps and sections.

Harpes, *Remopleurides* n. g., *Proetus*, *Phillipsia* n. g., *Griffithides* n. g., *Phacops*, *Calymene*, *ges*, *Trinucleus*, *Ampyx*, *Nuttainia*, *Asaphus*, *Isotelus*, *Ogygia*, *Ceraurus*, *Amphion*, *Zethus*, *Brontes*, *Illeenus*, *Dithyocaris* (Sculer) Portlock, *Limulus*.

Postlethwaite (J.) and Goodchild (J. G.) On some Trilobites from the Skiddaw slates.

In Proc. Geologist Assoc., vol. 9, No. 7, 1886, p. 455, pls. 6-9.

In this contribution the initials of each author designate the paragraphs written by him.

The following list is given of the Trilobite fauna of the Skiddaw slates:

Phacops nicholsoni Salter, *Cybele ovata* Etheridge, *Calymene brevicapitata*?, *Remopleurides* sp.?, *Olenus* sp.?, *Trinucleus gibbsii*?, *Ogygia selwyni*, *Ogygia* sp.?, *Barrandia falcata* P. & G., *Niobe doveri* Eth., *Eurymetopus cambrianus* n. g. and n. sp. P. & G., *E. harrisonii* P. & G., *Eglina*? *rediviva* Barr., *A. binodosa*, *A. obtusicauda* Hicks, *A.?* *caliginosa*, *Agnostus morei* Salter.

Prestwich (S.) On the geology of Coalbrook Dale.

In Trans. Geol. Soc. London, vol. 5, 1840, p. 413, map, 2 sections, 4 pls.

Belinurus.

Quenstedt (F. A.) Beiträge zur Kenntniss der Trilobiten. Rücksicht auf ihre bestimmte Gliederzahl.

In Archiv für Naturgesch. (Wiegmann), vol. 1, Berlin, 1837, p. 337.

In this work Prof. F. A. Quenstedt divides the Trilobites into two groups: 1. Trilobites with faceted eyes; 2. Trilobites with non-faceted eyes. The genera are classified according to the number of segments in the thorax.

Rafinesque (C. S.) On the genera of fossil Trilobites or Glomerites of North America.

In Atlantic Jour. and Friend to Knowledge, vol. 1, 1832, p. 71.

Ramsay (A. C.) The geology of North Wales, with an appendix on the fossils; with plates by J. W. Salter.

In Mem. Geol. Survey Gt. Brit., vol. 3, 1866.

Dikelocephalus, Olenus, Parabolina, Conocoryphe, Angelina, Homalonotus, Lichas, Trinucleus, Dionide, Ampyx, Asaphus, Niobe, Ægina, Cheirurus, Emericurus, Ilænus, Agnostus, Psiloecephalus, Beyrichia, Hymenocaris.

Rathbun (Richard). See **Hartt (C. F.)** and **Rathbun (Richard).**

Ratte (F.) Note on some Trilobites new to Australia.

In Proc. Linn. Soc. New South Wales, 2d series, vol. 1, 1886, p. 1067, 3 pls.

Lichas, Proetus, Acidaspis.

— Note on some Trilobites new to Australia.

In Proc. Linn. Soc. New South Wales, 2d series, vol. 2, 1887, p. 95, 2 pls.

Lichas, Acidaspis, Staurocephalus.

Razoumowsky (Comte de). Quelques observations sur les Trilobites et leurs gisements.

In Annales Sci. Nat. Paris, vol. 8, 1826, p. 186. Trilobites de Zarsko silo.

Remete (A.) Kataloge der Geschiebesammlung. Berlin, 1885. (*)

Reuss (A. E.) Entomostraca and Foraminifera of the Zechstein of the Wetterau. Plate.

In Jahresbericht der wetterauischen Gesell. für die gesammte Naturk., 1854, p. 59 (Hanau).

— Palæontologische Miscellen.

In Denkschriften k. Akad. Wiss. Wien, vol. 10, 1856, 7 pls.

Lepidoderma n. g., *Lepidoderma imhoffi*.

This genus is referred by H. Woodward to the genus *Eurypterus*.

Reuss (F.) Geognostische Bemerkungen auf einer Reise durch einen Theil des Pilsner Kreises.

In Sammlung naturhist. Aufsätze, vol. 4, 1794, p. 47.

Reuter (G.) Die *Beyrichien* der obersilurischen Diluvialgeschiebe Ostpreussens.

In Zeitschr. Deutsch. geol. Gesell., Berlin, vol. 37, 1885, p. 621, pls. 25, 26.

Richter (R.) Beiträge zur Palæontologie Thüringens. Leipzig, 1848, 6 pls.

— Aus dem thüringischen Zechstein.

In Zeitschr. Deutsch. geol. Gesell., Berlin, vol. 7, 1855, p. 526.

Cythere, Cytherella, Cythereis, Bairdia.

— Aus dem thüringischen Schiefergebirge.

In Zeitschr. Deutsch. geol. Gesell., Berlin, vol. 15, 1863, p. 659, 2 pls.

Harpes, Proetus, Arethusa, Phylaspis n. g., *Phacops, Acidaspis, Beyrichia.*

— Aus dem thüringischen Schiefergebirge.

In Zeitschr. Deutsch. geol. Gesell., Berlin, vol. 17, 1865, p. 361, 2 pls.

Proetus expansus, P. plagiophthalmus, Cheirurus, Beyrichia klödeni, B. subcylindrica.

— Das thüringische Schiefergebirge.

In Zeitschr. Deutsch. geol. Gesell., Berlin, vol. 21, 1869, p. 341.

Proetus, Phacops, Dalmanites.

— Devonische Entomostraceen in Thüringen.

In Zeitschr. Deutsch. geol. Gesell., Berlin, vol. 21, 1869, p. 757, pls. 20, 21.

Beyrichia, Cypridina, Cytherina.

Roberg (L.) Dissertatio academica de fluviatile Astaco, etc. Upsaliæ, 1715.

This work contains a plate with the figure of the pygidia of Trilobites and a fossil Crustacean. Fig. H is of a large pygidium of some species of *Asaphus*. Fig. J is a cast in stone of a smaller species of the same genus. The author remarks "that he found the specimens during an excursion along the shores of the Baltic Sea, in a red limestone." He has the merit of referring these fossils to the class Crustacea.

Roemer (F. A.) Versteinerungen der Hartzgebirge. Hannover, 1843, 12 pls. Crustacea, p. 37.

Brontes flabellifer, B. signatus, B. ? glabratus, Calymene ? jordanii, C. schusteri, O. subornatus, C. hydrocephala, Asaphus zinckeni, Paradozides grotel, Homalonotus ahrendi, H. punctatus, H. gigas.

Roemer (Ferdinand). Beiträge zur geologischen Kenntniss des nordwestlichen Harzgebirges.

In Palæontographica, vols. 3, 5, and 13, 5 pts., Cassel, 1854-'66, 38 pls.

Conoccephalus, Proetus, Cyphaspis, Phacops, Trimeroccephalus, Homalonotus, Lichas, Bron-teus, Acidaspis, Trochus, Cheirurus, Dithyrocaris, Cypridina, Harpes, Phillipsia.

Roemer (Ferdinand)—Continued.

- Das rheinische Uebergangsgebirge, eine paläontologisch - geognostische Darstellung. Hannover, 1844, pl. 2.

Phacops latifrons, *Pleuracanthus acimatus*, *P. punctatus*, *Gerastos levigatus*.

- Texas, mit besonderer Rücksicht auf deutsche Ansiedler und die physischen Verhältnisse des Landes, nach eigener Beobachtung geschildert. Mit einem naturwissenschaftlichen Anhang und einer topographisch-geognostischen Karte von Texas. Bonn, 1849.

In the list of fossils on p. 421 *Pteroecephalia sancti sabæ* Roemer is mentioned.

- Ueber ein bisher nicht beschriebenes Exemplar von *Eurypterus* aus devonischen Schichten des New York.

In *Palæontographica*, vol. 1, 1851, p. 190.

- Die Kreidebildung von Texas. Bonn, 1852, 11 pls.

Pteroecephalia sancti sabæ n. g. and sp.

- Notiz über eine riesenhafte neue Art der Gattung *Leperditia* in silurischen Diluvial-Geschieben Ost-Preussens.

In *Zeitschr. Deutsch. geol. Gesell.*, Berlin, vol. 10, 1858, p. 356, 2 figs.

Leperditia baltica, *L. gigantea*.

- Die Versteinerungen der silurischen Diluvial-Geschiebe von Grönningen in Holland.

In *Neues Jahrbuch für Mineral.*, 1858, p. 257. *Proetus*, *Encrinurus*, *Beyrichia*, *Cytherina*.

- Die Silurische Fauna des westlichen Tennessee. Breslau, 1860, 5 pls.

Dalmania, *Calymene*, *Ceraurus*, *Sphaerexochus*, *Bumastus*.

- Palæo-lethæa. II. Theil: Kohlen-Periode (Silur-, Devon-, Kohlen- und Zechstein-Formation).

In *Bronn's Lethæa geognostica*, etc., Stuttgart, 1851-'56.

For list of genera, see *Bronn* (H. G.) and *Roemer* (F.) *Lethæa geogn.*

- Bericht über eine geologische Reise nach Norwegen im Sommer 1859.

In *Zeitschr. Deutsch. geol. Gesell.*, Berlin, vol. 11, 1860.

Dalmania, *Cryphaeus*, *Asaphus*, *Ilænus*, *Phacops*.

- Die fossile Fauna der silurischen Diluvial-Geschiebe von Sadewitz bei Oels in Niederschlesien. Breslau, 1861, 8 pls.

Ceraurus, *Remopleurides*, *Isotelus*, *Asaphus*, *Ilænus*, *Chasmops*, *Proetus*, *Calymene*, *Encrinurus*, *Lichas*.

Roemer (Ferdinand)—Continued.

- Ueber die Diluvial-Geschiebe von nordischen Sedimentär-Gesteinen in den norddeutschen Ebene etc.

In *Zeitschr. Deutsch. geol. Gesell.*, Berlin, vol. 14, 1862, p. 575.

Beyrichia.

- Ueber eine marine Conchylien-Fauna im productiven Steinkohlengebirge Oberschlesiens.

In *Zeitschr. Deutsch. geol. Gesell.*, Berlin, vol. 15, 1863, p. 567, pls. 14-16.

Griffithides mesotuberculata McCoy, *Phillipsia*.

- Notiz über das Vorkommen von *Eurypterus scouleri* im niederschlesischen Steinkohlengebirge.

In *Zeitschr. Deutsch. geol. Gesell.*, Berlin, vol. 25, 1873, p. 562, 1 fig.

- *Lethæa palæozoica*. Stuttgart, 1880. Text and atlas.

- Ueber die Gattung *Arthropleura* aus dem schlesischen Steinkohlengebirge.

In *Sitzungsber. schles. Gesell. für vaterländ. Cultur*, Breslau, Jahrg. 1880, p. 128.

- Ueber eine Kohlenkalk-Fauna der Westküste von Sumatra. Cassel, 1880, 3 pls.

Phillipsia sumatrensis Roemer.

- Ueber eine Art der Limuliden-Gattung *Belinurus* aus dem Steinkohlengebirge Oberschlesiens.

In *Zeitschr. Deutsch. geol. Gesell.*, Berlin, vol. 35, 1883, p. 429, 2 figs.

- *Lethæa erratica*, oder Aufzählung und Beschreibung der in den norddeutschen Ebene vorkommenden Diluvial-Geschiebe nordischen Sedimentär-Gesteine. Berlin, 1885, 11 pls.

In this work many Trilobites and other Crustacea are mentioned, but only a few new species are figured.

- Rogers (W. B.) Discovery of *Paradoxides* in the altered rocks of Massachusetts.

In *Edinb. New Philos. Jour.*, vol. 4, 1856.

- On the discovery of Cambrian fossils at Braintree, Mass.

In *Proc. Boston Soc. Nat. Hist.*, vol. 5, 1854, p. 27 (continued on p. 40).

Paradoxides hartani Green.

- *Paradoxides* near Boston.

In *Edinb. New Philos. Jour.*, vol. 6, 1857, p. 314.

- Rogers (Henry D.) The geology of Pennsylvania. A Government survey with a general view of the geology

Rogers (Henry D.)—Continued.

of the United States, essays on the coal formation and its fossils, and a description of the coal fields of North America and Great Britain. 2 vols. Edinburgh, London, and Philadelphia, 1858. Atlas of plates and maps.

Organic remains of the Palæozoic strata of Pennsylvania, vol. 2, pp. 815-834.

Paradoxides, *Asaphus*, *Calymene*.

Notes on the *Beyrichia* and *Leperditia*, by T. Rupert Jones, vol. 2, p. 834, figs. 595-699.

Rominger (C.) Description of Primordial fossils from Mount Stephens, N. W. Territory of Canada.

In Proc. Acad. Nat. Sci. Phila., 1887, p. 12, 1 pl.

Ogygia, *Embolimus* n. g., *Menocephalus*, *Conocephalites*, *Bathyurus*?, *Agnostus*.

— Dr. C. Rominger's rejoinder to Mr. C. D. Walcott.

In Am. Geologist, vol. 2, 1888, p. 356.

Rouault (Marie). Mémoire sur les Trilobites du département d'Ille et-Vilaine.

In Bull. Soc. Géol. France, 2d series, vol. 4, 1846, p. 309.

Trinucleus, *Nileus*, *Prionocheilus* n. g., *Calymene*, *Phacops*, *Polyeres*, *Cheirurus*, *Trinucleus*.

— Mémoire. 1. Sur la composition du test des Trilobites. 2. Sur les changements de formes dus à des causes accidentelles, ce qui a pu permettre de confondre des espèces différentes.

In Bull. Soc. Géol. France, vol. 6, 1848, p. 67, pls. 1-2.

Ogygia brongniarti, *O. edwardsi*, *Ilænus desmaresti*, *Calymene arago*, *Trinucleus*.

— Fossiles du terrain silurien, étage du schiste, ardoisier fossilifère, Crustacés, famille des Trilobites.

In Bull. Soc. Géol. France, vol. 8, 1851, p. 358.

Calymene salteri, *C. verneuili*, *Dalmanidia vetillarti*, *D. incerta*, *Placoparia tournemini*, *Ogygia desmaresti*, *Homalonotus brongniarti*, *H. barrandei*, *H. hausmanni*, *H. legraverendi*, *Plasiacomia kieneria*, *Proetus kuhayi*, *P. michelini*, *Cyphasps*, *Beyrichia*, *Leperditia* n. g., *L. britannica*, *Phacops*.

Safford (J. M.) Geology of Tennessee. Nashville, 1869, 7 pls. and map.

The author, in his catalogue of Trenton and Nashville fossils occurring in the Central Basin, p. 285, gives the names of *Dalmanites troosti* n. s. and *Encrinurus excedrinus* n. s., but without specific descriptions.

Sandberger (G.) and Sandberger (F.)

Die Versteinerungen des rheinischen Schichten-System in Nassau. Wiesbaden, 1850-'56, atlas in folio, 39 pls.

Sandberger (G.) and Sandberger (F.)—Continued.

Harpes, *Cyphasps*, *Trigonaspis* n. g., *Cylindraspis* n. g., *Phacops*, *Dalmanites*, *Homalonotus*, *Odontopleura*, *Cheirurus*, *Bronteus*, *Cyprinidia*.

Salter (J. W.) On the structure of Trinucleus, with remarks on other species.

In Quart. Jour. Geol. Soc. London, vol. 3, 1847, p. 251, 4 figs.

— Crustacea.

In Mem. Geol. Survey Gt. Britain, vol. 2, pt. 1, 1848, pp. 333-352, figure, pls. 5-8.

Olenus, *Proetus*, *Phacops*, *Dalmanidia*, *Calymene*, *Lichas*, *Trinucleus*, *Ampyx*, *Ogygia*, *Ilænus*, *Acidaspis*, *Cheirurus*, *Sphærezochus*, *Cybele*, *Agnostus*, *Beyrichia*.

— and Forbes (Edward). Figures and descriptions illustrative of British organic remains. Decade 2.

In Mem. Geol. Survey United Kingdom London, 1849, 10 pls.

Paradoxides, *Olenus*, *Parabolina* n. g., *Phacops*, *Dalmanidia*, *Portlockia*, *Cryptheus*, *Calymene*, *Ampyx*, *Brachampyx* n. g., *Asaphus*, *Ogygia*, *Ilænus*, *Bumastus*.

The description of all the species, with the exception of *Ampyx nudus*, was made by J. W. Salter.

— Description of Pterygotus problematicus Agass.

In Quart. Jour. Geol. Soc. London, vol. 8, 1852, p. 386, pl. 21.

Pterygotus, *Bellinurus*.

— Appendix A to British Palæozoic fossils in the Geological Museum, University of Cambridge. London, 1852 (Sedgwick and McCoy).

Description of a few species from Wales and Westmoreland, referred to in the foregoing work by John William Salter, p. 645.

Phacops, *Calymene*, *Homalonotus*, *Lichas*, *Ilænus*, *Cheirurus*, *Encrinurus*, *Cybele*, *Beyrichia*, *Cythere*, *Eurypterus*.

— On the lowest fossiliferous beds of North Wales.

In Rept. 22d Meeting Brit. Assoc. Adv. Sci., 1852, Trans. of Sec., p. 56.

Hymenocaris n. g.

— On a few genera of Irish Silurian fossils.

In Rept. 22d Meeting Brit. Assoc. Adv. Sci., 1852, Trans. of Sec., p. 59.

Styгина n. g., *Cyphoniscus* n. g., *Remopleurides*, *Cyphasps*, *Eglina*, *Acidaspis*.

— Notes on the Trilobites.

Appendix C to an article by Senhor Carlos Ribeiro on the Carboniferous and Silurian formations of the neighborhood of Bussaco, in Portugal.

Salter (J. W.)—Continued.

In Quart. Jour. Geol. Soc. London, vol. 9, 1853, p. 158, pl. 7.

Phacops, Calymene, Trinucleus, Ogygia, Illænus, Placoparia.

— On Arctic Silurian fossils.

In Quart. Jour. Geol. Soc. London, vol. 9, 1853, p. 312.

Proetus, Encrinurus, Leperditia.

— Figures and descriptions illustrative of British organic remains. Decade 7.

In Mem. Geol. Survey United Kingdom, London, 1853, 10 pls.

The genera are arranged in this work in the following order: 1. *Phacops downingii*, section *Acaste*, *P. apiculatus*, *P. brongniartii*, *P. dalmanii*, *P. jamesii*, *P. alifrons*, *P. jukesii*, *P. conophthalmus*; section *Odontochile* (*Dalmanina*), *P. mucronatus*, *P. amphora*. 2. *Oheirurus bimucronatus*, section *Crotalocephalus*, *C. articulatus*?; section *Cheirurus*, *C. speciosus*, *C. gelatinosus*, *C. cancrurus*, *C. octolobatus*; section *Actinopeltis*, *C. clavifrons*. 3. *Sphærezochus mirus*. 4. *Encrinurus sexcostatus*, *E. punctatus*, *E. variolaris*, *E. multisegmentatus*. 5. *Cyphasps megalops*, *C. pygmaeus*. 6. *Acidasps jamesii*, *A. bispinosus*, *A. caractaci*. 7. *Trinucleus lloydii*, section 1, *Trinucleus* proper, *T. concentricus*, with four varieties, *T. thesites*; section 2, *Tretaspis*, *T. seticornis*, *T. fimbriatus*, *T. radiatus*. 8. *Remopleurides colbii*, *R. laterispinifer*, *R. dorsopinifer*; section *Remopleurides*, *R. platyceps*, *R. longicostatus*, *R. obtusus*; section 2, *Caphyra*, *R. (Caph.) radians*. 9. *Cyphoniscus socialis*. 10. *Æglina mirabilis*, *Æglina major*.

— On some new Crustacea from the uppermost Silurian rocks, by J. W. Salter. With a note on the structure and affinities of *Himantopterus*, by T. H. Huxley.

In Quart. Jour. Geol. Soc. London, vol. 12, 1856, pl. 26, figs. 1-7.

Himantopterus n. g.

— Description of the Crustaceans from the uppermost Silurian rocks near Lismahago.

In London, Edinb., Dublin Philos. Mag., vol. 11, 1856, p. 83.

Himantopterus.

— On the great *Pterygotus* (Seraphim) of Scotland and other species.

In Rept. 26th Meeting Brit. Assoc. Adv. Sci., 1856, Trans. of Sec., p. 75.

— On fossil remains in the Cambrian rocks of the Longmynd and North Wales.

In Quart. Jour. Geol. Soc. London, vol. 12, 1856, p. 246.

Palæopyge ramsayi, pl. 4, fig. 3, new species and genus.

Salter (J. W.)—Continued.— On two Silurian species of *Acidasps* from Shropshire.

In Quart. Jour. Geol. Soc. London, vol. 13, 1857, p. 210, pl. 6.

— On some new species of *Eurypterus*. With note on the distribution of the species.

In Quart. Jour. Geol. Soc. London, vol. 15, 1859, p. 229, pl. 10.

— On the fossils of the Lingula flags or zone Primordiale *Paradoxides* and *Conocephalus* from North America.

In Quart. Jour. Geol. Soc. London, vol. 15, 1859, p. 651, 4 figs.

Paradoxides bennetti, *Conocephalus antiquatus*, *Asaphus* or *Olenus* sp.?

— New Silurian Crustacea.

In Annals Mag. Nat. Hist., 3d series, London, vol. 5, 1860, p. 153, figures.

Ceratiocaris, *Dictyocaris* n. g., *Physocaris* n. g.

— On the fossils from the High Andes, collected by David Forbes.

In Quart. Jour. Geol. Soc. London, vol. 17, 1861, p. 62, pls. 4, 5.

Proetus (Crypheus) pentlandi, *Homalonotus lineares*, *H. sp.?*, *Beyrichia forbesii*, *Phacops latifrons* Bronn.

— On some of the higher Crustacea from the British Coal Measures.

In Quart. Jour. Geol. Soc. London, vol. 17, 1861, p. 528, figs. 1-8.

Anthrapalæmon n. g., *Palæocrangon* n. g.

Name changed to that of *Crangopsis*. See same journal, vol. 19, p. 80.

— Crustacea in the Coal Measures.

In London, Edinb., Dublin Philos. Mag., vol. 22, 1861, p. 325.

Anthrapalæmon.

This is merely a notice of the article referred to in the Quart. Jour. Geol. Soc., vol. 17, 1861, p. 523.

— Description of *Uronectes (Gamponyx) socialis* in the Rev. T. Brown's paper, "Mountain limestone and Lower Carboniferous rocks of the Fifeshire coast." (*)

In Trans. Royal Soc. Edinb., vol. 22, pt. 2, 1861, p. 394.

— A monograph of British Trilobites.

In Palæont. Soc. London, vol. 16, 1862, pp. 1-83, pls. 1-6, pt. 1.

Phacops, subgenera *Trimeroccephalus* McCoy, *Phacops* Emm., *Acaste* Gold., *Chasmodon* McCoy, *Odontochile* Corda, *Crypheus* Green.

Cheirurus, subgenera *Crotalocephalus* Salter, *Oheirurus* Beyrich, *Ecoptochile* Corda, *Actinopeltis* Corda, *Sphærezochus* Beyrich.

Amphion Fander.

Salter (J. W.)—Continued.

— On some fossil Crustacea from the Coal Measures and Devonian rocks of New Brunswick, Nova Scotia, and Cape Breton.

In London, Edinb., Dublin Philos. Mag., 4th series, vol. 24, 1862, p. 166.

— A monograph of British Trilobites. Pt. 2. Pp. 81–128, pls. 7–19.

In Palæont. Soc. London, vol. 17, 1863.

Calymene, *Homalonotus*, subgenera *Brongniartia* Salter (not *Brongniartia* Eaton), *Trimerus* Green, *Dipleura* Green, *Kœnigia* Salter, *Burmesteria* Salter; *Ogygia*, *Staurocephalus*, *Deiphon*, *Amphion*.

— On some fossil Crustacea from the Coal Measures and Devonian rocks of British North America.

In Quart. Jour. Geol. Soc. London, vol. 19, 1863, p. 75, figs. 1–12.

Amphipeltis n. g., *Diplostylus* n. g., *Eurypterus*, *Palæocrangon*.

The author herein changes the name *Palæocrangon* Salter to that of *Orangopsis*.

— On some species of *Eurypterus* and allied forms.

In Quart. Jour. Geol. Soc. London, vol. 19, 1863, p. 81, 8 wood-cuts.

Eurypterus scouleri, *E.* (*Arthropleura*?) *mammatus*, *E.*? (*Arthropleura*) *feroz*.

— On *Peltocaris*, a new genus of Silurian Crustacea.

In Quart. Jour. Geol. Soc. London, vol. 19, 1863, p. 87.

Peltocaris n. g., *Hymenocaris*, *Ceratiocaris*, *Dictyocaris*, *Dithyrocaris*, *Arges*, *Apus*, *Nebalia*, *Estheria*, *Leperditia*, *Beyrichia*.

— On some tracks of Lower Silurian Crustacea.

In Quart. Jour. Geol. Soc. London, vol. 19, 1863, p. 92, figures.

— Note on the Skiddaw slate fossils.

In Quart. Jour. Geol. Soc. London, vol. 19, 1863, p. 135, figures.

Caryocaris n. g.

— On the discovery of *Paradoxides* in Britain.

In Quart. Jour. Geol. Soc. London, vol. 19, 1863, p. 274.

Paradoxides davidis.

— On a new Crustacean from Glasgow Coal Field.

In Quart. Jour. Geol. Soc. London, vol. 19, 1863, p. 519, figs. 1, 2.

Palæocarabus russellianus.

— A monograph of British Trilobites. Pt. 3. Pp. 129–179, pls. 15–25.

In Palæont. Soc. London, vol. 18, for 1864 (London, 1866).

Salter (J. W.)—Continued.

Ogygia, subgenera *Barrandia*, and *Homalopteon*; *Niobe*, *Asaphus*, subgenera *Ptychopyge*, *Basileus*, *Megalaspis*, *Isotelus*, *Cryptonymus*, *Symphysurus*, *Brachyaspis*, and *Nileus*; *Stygina*, *Psilocephalus* n. g.

— Figures and descriptions illustrative of British organic remains. Decade XI. Trilobites (chiefly Silurian).

In Mem. Geol. Survey United Kingdom, London, 1864, 10 pls.

Paradoxides, *Angelina*, *Olenus*, *O.* (*Leptoplastus*), *O.* (*Peltura*), *O.* (*Sphærophthalmus*), *O.* (*Parabolina*), *Conocoryphe*, *Phacops* (*Trimeroccephalus*), *Salteria* n. g., *Stygina*, *Asaphus*, *Ægina*, *Staurocephalus*, *Agnostus*, *A.* (*Condylpyge*), *A.* (*Trinodus*), *A.* (*Phalacroma*).

The article on *Salteria primæva* n. g. et sp., pl. 6, was edited by P. Wyville Thomson.

— On some fossils from the Lingula flags of Wales.

In Quart. Jour. Geol. Soc. London, vol. 20, 1864, p. 233, pl. 13.

Paradoxides, *Anopolenus* n. g., *Conocoryphe*, *Holocephalina* n. g., *Microdiscus*, *Agnostus*, *Leperditia*.

— Note on the fossils from the Budleigh Sandstone Pebble bed.

In Quart. Jour. Geol. Soc. London, vol. 20, 1864, p. 286, pl. 15.

Phacops incertus, *Calymene tristani*, *Homalonotus brongniarti*, *Myocaris* n. g.

For detailed description of *Myocaris*, see Geol. Mag., vol. 1, London, 1864, p. 11, fig. 4.

— On the new genus *Anopolenus*.

In Geol. Mag., vol. 1, London, 1864, p. 6.

Anopolenus n. g., *Myocaris*.

— Catalogue of the Museum of Practical Geology of London. London, 1865.

— and Woodward (Henry). Chart of fossil Crustacea, accompanied by a descriptive catalogue of all the genera and species figured. London, 1865, pls. 3 and 4.

Permian: *Prosopinus*, *Dalmanites*? *kablikta*, *Estheria*, *Kirkbya*, *Bairdia*, *Cytheridea*, *Cythere*, *Limulus*.

Coal: *Palæocarabus*, *Pygocephalus*, *Uronectus* (*Gampsonyx*), *Diplostylus*, *Phillipsia*, *Estheria*, *Beyrichia*, *Kirkbya*, *Leperditia*, *Candona*, *Leaia*, *Arthropleura*, *Eurypterus*, *Limulus*? (*Bekinurus*).

Mountain Limestone: *Palæocrangon*, *Brachymetopus*, *Griffithides*, *Phillipsia*, *Dithyrocaris*, *Cyclus*, *Estheria*, *Cythere*, *Cypridina*, *Cyprella*, *Cypridella*, *Entomoconchus*, *Beyrichia*, *Bairdia*, *Leperditia*, *Eurypterus*, *Limulus*? *trilobitoides*.

Devonian: *Amphipeltis*, *Gilocrangon*, *Campecaris*, *Proetus*, *Encrinurus*, *Bronteus*, *Phacops*, *Cyphaspis*, *Arges*, *Typhomiscus*, *Homalonotus*, *Harpes*, *Cypridina*, *Estheria*, *Leperditia*, *Ento-*

Salter (J. W.)—Continued.

mis, *Cypridina*, *Beyrichia*, *Bostrichopus*, *Eurypterus*, *Pterygotus*.

Upper Silurian: *Bronteus*, *Ilænus*, *Cyphaspi*, *Proetus*, *Aulacopleura*, *Phacops*, *Encrinurus*, *Acidaspis*, *Cheirurus*, *Homalonotus*, *Deiphon*, *Calymene*, *Harpes*, *Dictyocaris*, *Beyrichia*, *Ceraticaris*, *Leperditia*, *Stylonurus*, *Pterygotus*, *Hemiaspis*, *Skimonia*, *Bunodes*.

Lower Silurian: *Asaphus*, *Stygina*, *Nileus*, *Ilænus*, *Æglina*, *Ogygia*, *Agnostus*, *Niobe*, *Phacops*, *Trinucleus*, *Ampyx*, *Sphaerexochus*, *Dionide*, *Ecotochile*, *Placoparia*, *Lichas*, *Cybele*, *Acidaspis*, *Calymene*, *Staurocephalus*, *Remopleurides*, *Cyphoniscus*, *Atops*, *Triarthrus*, *Corynexocius*, *Centropleura*, *Monocephalus*, *Peltocaris*, *Beyrichia*, *Cytheropsis*, *Protichnites*.

Cambrian: *Agnostus*, *Sao*, *Anomocaris*, *Dolichometopus*, *Anopocaris*, *Solenopleura*, *Ellipsopcephalus*, *Arionellus*, *Conocoryphe*, *Olenus*, *Acerocaris*, *Hydrocephalus*, *Paradozides*, *Lonchocephalus*, *Dikelocephalus*, *Palaeopyge*.

See also Rept. 35th Meeting Brit. Assoc. Adv. Sci., 1865, Trans. of Sec., p. 79; *Geol. Mag.*, vol. 2, London, 1865, p. 468.

— and **Blanford (H. F.)** Palæontology of Nib, in the northern Himalayas. Calcutta, 1865.

— On some additional fossils from the Lingula flags, with a note on the genus *Anopolenus*, by Henry Hicks.

In Quart. Jour. Geol. Soc. London, vol. 21, 1865, p. 476.

Anopolenus, *Conocoryphe*, *Microdiscus*, *Holocephalina*, *Agnostus*, *Erinmys* n. g.

— On the fossils of North Wales.

In Mem. Geol. Survey Gt. Brit., vol. 3, London, 1866, p. 239, 37 pls.

Dikelocephalus, *Olenus*, *Parabolina*, *Conocoryphe*, *Angelina*, *Homalonotus*, *Lichas*, *Trinucleus*, *Dionide*, *Ampyx*, *Asaphus*, *Niobe*, *Æglina*, *Cheirurus*, *Encrinurus*, *Ilænus*, *Agnostus*, *Psilolecephalus*, *Beyrichia*, *Hymenocaris*.

— A monograph of British Trilobites. Pt. 4. Pp. 177–216, pls. 25–30.

In Palæont. Soc., vol. 20, 1867.

Ogygia, *Barrandia*, *Ilænus*, subgenera *Octilænus*, *Pandertia*, *Dysplanus*, *Ilænus*, *Ectilænus*, *Hydrolænus*, *Ilænopsis*, and *Bumastus*, Family *Bronteidae*.

— A monograph of British Trilobites.

This work forms different parts of the Palæont. Soc. London, volumes for 1862–67, as separately itemized in this connection.

— On *Saccocaris major*.

In Rept. Proc. Geol. Polytech. Soc. West Riding of Yorkshire (for 1867), vol. 4, 1868, p. 588.

— and **Hicks (Henry)**. On some fossils from the Menevian group.

In Quart. Jour. Geol. Soc. London, vol. 25, 1869, p. 51, pls. 2, 3.

Salter (J. W.)—Continued.

Paradozides, *Plutonina* n. g., *Conocoryphe*.

In a note on p. 52, Mr. J. W. Salter suggests the new generic name of *Plutonina*, but leaves the description for another article.

A species of this genus was afterwards described and figured in the same journal, vol. 27, 1871, p. 299, pl. 15, figs. 1–8, under the name of *Plutonina sedgwicki* Hicks. This large species has affinities with the genera *Paradozides* and *Anopolenus* in the form of its glabella, but differs, according to Hicks, "in having the whole surface covered with coarse tubercles or spines." The term *Plutonina* is objectionable, inasmuch as it was used in 1864 for a genus of the Mollusca.

— **Catalogue of the collection of Cambrian and Silurian fossils contained in the Geological Museum of the University of Cambridge, 1873.**

— and **Etheridge (R.)** On the fossils of North Wales.

In Geology of North Wales, with an appendix on the fossils by J. W. Salter, revised and added to by R. Etheridge; Mem. Geol. Survey Gt. Brit., vol. 3, London, 1881, 2d ed., 623 pp., 113 illustrations, 2 geol. maps, 26 plates of fossils.

Paradozides, *Plutonina*, *Anopolenus*, *Dikelocephalus*, *Olenus*, (*Sphaerophthalmus*), *Conocoryphe*, *Angelina*, *Arionellus*, *Phacops*, *Calymene*, *Homalonotus*, *Lichas*, *Trinucleus*, *Ampyx*, *Dionide*, *Æglina*, *Asaphus*, *Ogygia*, *Barrandia*, *Niobe*, *Ilænus*, *Ilænopsis*, *Cheirurus*, *Placoparia*, *Encrinurus*, *Cybele*, *Agnostus*, *Microdiscus*, *Carausia*, *Holocephalina*, *Nesuretus*, *Psilolecephalus*, *Hymenocaris*, *Lingulocaris*, *Ceraticaris*, *Entomis*, *Beyrichia*, *Leperditia*.

— **Monograph of British Trilobites from the Cambrian, Silurian, and Devonian formations. Pt. 5.**

Palæont. Soc. London, vol. 37, 1883, pp. 215, and index, 3 figs.

Ilænus bowmanni?, *I. crassicauda*, *I. (Bumastus)* sp.?

— See **Huxley (T. H.)** and **Salter (J. W.)**. Also **Salter (J. W.)** and **Sharpe (D.)**.

Sars (M.) Ueber einige neue oder unvollständig bekannte Trilobiten.

In Isis (oder Encycl. Zeitung), Oken, 1833, p. 33.

Scheuchzer (J. J.) Specimen lithologiæ Helvetiæ. Turici, 8vo, 1702. (*)

— **Meteorologia et Orytographia Helvetica, oder Beschreibung der Luftgeschichten, Steinen, Metallen, etc.** Turici, 1718. (*)

Schlotheim (E. Fr. von). Beschreibung einer seltenen Trilobiten-Art.

In Taschenbuch für gesam. Mineral., Leonhard, 1810, pl. 1, figs. 1-6.

Trilobiten cornigerus Schloth.

— Nachträge zur Petrefactenkunde.

II. Gotha, 1823, pl. 22.

1. *Trilobites blumenbachii*, 2. *T. tristani*, 3. *T. variolatus*, 4. *T. macrophthalmus*, 5. *T. sulzeri*, 6. *T. hoffi*, 7. *T. cornigerus*, 8. *T. de buchii*, 9. *T. hausmani*, 10. *T. schroet*, 11. *T. caudatus*, 12. *T. laticauda*, 13. *T. guettardi*, 14. *T. desmarestii*, 15. *T. tessini*, 16. *T. spinulosus*, 17. *T. scaraboides*, 18. *T. gibbosus*, 19. *T. laciniosus*, 20. *T. sphaerocephalus*, 21. *T. pisiformis*, 22. *T. granulatus*, 23. *T. punctatus*, 24. *T. mucronatus*, 25. *T. bucephalus*, 26. *T. crassicauda*, 27. *T. tentaculatus*, 28. *T. problematicus*, 29. *T. bitumenosus*.

— Beschreibung einiger abgebildeten Arten von Echinosphäriten und Trilobiten. (*)

In Isis (oder Encycl. Zeitung), Oken, 1826, p. 309, pl. 1, figs. 8, 9; also Féruss., Bull., 1827, vol. 12, p. 406.

Tril. esmarcki, *T. granum* (Agnostus).

Schmid (E. E.) Die kleineren organischen Formen des Zechsteinkalkes von Selters in der Wetterau.

In Neues Jahrbuch für Mineral., 1867, p. 576, plate.

Cythere.

Schmidt (Fr.) Untersuchungen über die silurische Formation von Ehstland, Nord-Livland und Oesel.

In Archiv Naturk. Liv., Ehst. u. Kurl., Dorpat, vol. 2, 1858-'59, pp. 443, 445, 448, 453, 461, 463.

— **Miscellaneæ Silurica.** I. Ueber die russischen silurischen Leperditien mit Hinzuziehung einiger Arten aus den Nachbarländern.

In Mém. Acad. Imp. Sci. St.-Petersbourg, vol. 21, No. 2, 1873, 1 pl.

Leperditia, *Isocilina*.

— Einige Bemerkungen über die podolisch-galizische Silurformation und deren Petrefacten. St. Petersburg, 1875, 1 pl.

Proetus, *Cyphaspis*, *Phacops*, *Oalymene*, *Encrinurus*, *Sphaerexochus*, *Ilænus* (*Bumastus*), *Leperditia*, *Eurypterus*, *Pterygotus*.

— Revision der ost-baltischen silurischen Trilobiten, nebst geognostischer Uebersicht des ost-baltischen Silurgebiets.

In Mém. Acad. Imp. Sci. St.-Petersbourg, vol. 30, No. 1, 1881, 16 pls.

Phacopidae, genera, *Phacops*, *Acaste*, *Pterygomelopus* n. g., *Chasmops*. *Cheiruridae*, genera, *Cheirurus*, *Cyrtometopus*, *Sphaerexochus*, *Pseud*.

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Schmidt (Fr.)—Continued.

dosphærezochus n. g., *Nieszkowskia* n. g., *Amphion*, *Diaphanomelopus* n. g., *Encrinurida*, *Cybele*, *Encrinurus*.

— and Jones (T. Rupert). On some Silurian Leperditia.

In Annals Nat. Hist., 4th series, vol. 9, London, 1882, p. 168.

— **Miscellaneæ Silurica.** III. 1. Nachtrag zur Monographie der russischen silurischen Leperditien. 2. Die Crustaceenfauna der Eurypterschichten von Rootziküll auf Oesel.

In Mém. Acad. Imp. Sci. St.-Petersbourg, vol. 31, No. 5, 1883, 9 pls.

Leperditia, *Bunodes*, *Pseudoniscus*, *Eurypterus*, *Pterygotus*, *Ceratocaris*.

— and Jones (T. Rupert). See Jones (T. Rupert) and Schmidt (Fr.).

— Ueber einige neue ostsibirische Trilobiten und verwandte Thierformen.

In Bull. Acad. Sci. Imp. St.-Petersbourg, vol. 30, No. 4, 1886, p. 502.

Agnostus, *Phacops*, *Proetus*, *Cyphaspis*, *Eurypterus*.

Schrenk (G. A.) Uebersicht des ober-silurischen Schichten-Systems Liv- und Ehstlands, etc.

In Archiv Naturk. Liv., Ehst. u. Kurl., Dorpat, vol. 1854, pp. 35 and 86.

Leperditia.

Scouler (John). Description of a fossil crustaceous animal. (*)

In Edinb. Jour. Nat. Geogr. Sci., vol. 3, 1831, p. 352, pl. 10.

The author describes in this article, under the new generic name of *Eidothea*, certain fragments of an *Eurypterus*.

— Account of some fossil Crustacea which occur in the coal formation (*Argas*).

In Record of Geol. Sci. (Thomson's), vol. 1, 1835, p. 136.

According to Capt. J. E. Portlock (Rept. Geol. Londonderry, etc., 1843, p. 313), "Dr. John Scouler first noticed this remarkable Crustacean found by him in the Carboniferous strata of Paisley; and depending as a principal character on the lateral caudal appendages, he pointed out its analogy to the genera *Cyclops* and *Apus*; and again, at the meeting of the British Association at Glasgow, he described two species, one of which, *Argas tricornis*, in all probability depends on an illusive appearance produced by the overlapping of the crust of different individuals. * * * Dr. John Scouler having subsequently altered his view of the affinities of the genus, he now considers it a bi-valved Crustacean, distinguished by not being able to retract the tail within the shell, and hence has named it *Dithy-*

Scouler (John)—Continued.

rocaris, or bivalved shrimp, abandoning the original name as one already pre-occupied."

The Rept. 10th Meeting Brit. Assoc. Adv. Sci., 1840, held at Glasgow, does not contain in the index Dr. Scouler's name or that of the genus *Argus* or *Dithyrocaris*. In the 5th Rept. of the "Committee on the Fossil *Phyllopora* of the Palæozoic Rocks," 1837, the genus *Dithyrocaris* Scouler is quoted on the authority of Captain Portlock as follows: "*Dithyrocaris* Scouler in Portlock's Geol. Report, Londonderry, etc., 1843," p. 313."

Scudder (Samuel H.) *Rhachura*, a new genus of fossil Crustacea.

In Proc. Boston Soc. Nat. Hist., vol. 19, 1878, p. 296, pl. 9, figs. 3, 3 a.

In the 5th Rept. to the Brit. Assoc. Adv. Sci., 1887, on the fossil *Phyllopora* by the committee, consisting of Mr. R. Etheridge, Dr. H. Woodward, and Prof. T. Rupert Jones this new genus of S. H. Scudder is referred to as probably of that of *Dithyrocaris* Scouler, 1843.

Shaler (N. S.) and Foerste (A. F.) Preliminary description of North Attleborough fossils.

In Bull. Mus. Comp. Zool. Harvard Coll., vol. 16, No. 2, 1888, Geol. Series, vol. 2, 1888, p. 27, 2 pls.

Paradoxides, *Ptychoparia*, *Microdiscus*.

Sharpe (Daniel). On the geology of the neighborhood of Oporto, including the Silurian, coal, and slates of Val-longo.

In Quart. Jour. Geol. Soc. London, vol. 5, 1849, p. 142, pl. 6.

Isotelus powissii Port., *Ilænus lusitanicus* Sharpe.

— Description of the new species of Zoophyta and Mollusca. Appendix B to an article on the Carboniferous and Silurian formations of the neighborhood of Bussaco, in Portugal, by C. Ribeiro.

In Quart. Jour. Geol. Soc. London, vol. 9, 1853, p. 146.

Dithyrocaris? longicauda Sharpe.

Shumard (B. F.) Palæontology. Crustacea.

In 1st and 2d Ann. Repts. of the Geol. Survey of Missouri (Swallow), 1855, pt. 2, p. 195, pl. B. *Proetus*, *Cyphaspis*, *Phillipsia*, *Dalmania*, *Calymene*, *Acidaspis*, *Enerinurus*, *Oythere*.

— Notice of new fossils from the Permian strata of New Mexico and Texas, collected by Dr. George G. Shumard, geologist of the U. S. Government expedition for obtaining water by means of artesian wells along the 32d parallel,

Shumard (B. F.)—Continued.

under the direction of Capt. John Pope, U. S. Corps of Top. Eng.

Trans. Acad. Sci. St. Louis, vol. 1, 1858, p. 290.

Phillipsia perannulata, pl. 11, fig. 10.

— The Primordial zone of Texas, with descriptions of new fossils.

In Am. Jour. Sci., 2d series, vol. 32, 1861, p. 213.

Dikelocephalus, *Conocephalites*, *Arionellus*, *Agnostus*.

— Notice of some new and imperfectly known fossils from the Primordial zone (Potsdam sandstone and calciferous sand group) of Wisconsin and Missouri.

In Trans. Acad. Sci. St. Louis, vol. 2, 1863, p. 101.

Dikelocephalus, *Arionellus*, *Conocephalites*, *Agnostus*.

— Descriptions of new Palæozoic fossils.

In Trans. Acad. Sci. St. Louis, vol. 2, 1863, p. 108.

Proetus proutii.

Sjogren (A.) Anteckningar om Öland, ett bidrag till Sveriges geologi.

In Öfversigt K. Vet.-Akad. Förhandl. Stockholm, vol. 8, 1851, No. 2, p. 36.

Enumerates species of the following genera: *Remopleurides*, *Paradoxides*, *Ellipsocephalus*, *Olenus*, *Phacops*, *Calymene*, *Homalonotus*, *Litchas*, *Ampyx*, *Cheirurus*, *Asaphus*, *Ilænus*, *Nileus*, *Battus*, *Oytherina*.

— Om några försteningar i Ölands Kambriska lager.

In Geol. Föreningens Stockholm Förhandl., vol. 1, No. 5, 1871, 1 pl.

Paradoxides, *Ellipsocephalus*, *Conocoryphe*, *Agnostus*.

Sowerby (J. D. C.) Description of *Homalonotus knighti* in Adam Sedgwick and R. I. Murchison's article on the older formation on the right bank of the Rhine, etc.

In Trans. Geol. Soc. London, 2d series, vol. 6, 1842, p. 275, figure, pl. 38, fig. 17.

Stainer (X.) Note sur un Trilobite nouveau.

In Annales Soc. Géol. Belgique; Mémoires, vol. 14, 1887.

Dechenella.

Steinhart (E. T. G.) Die bis jetzt in preuss. Geschieben gefundenen Trilobiten.

In Beiträge zur Natur. Preuss., herausgegeben von der phys.-ökonomischen Gesell., Königsberg, 1874.

Steinhart (E. T. G.)—Continued.

Harpes, Proetus, Cyphaspis, Phacops, Charnops, Calymene, Dalmania, Licha, Ampyz, Asaphus, A. (Basilicus), Illeenus, Nileus, Bumastus, Acidaspis, Ceratrus, Sphaerexochus, Zelthus, Encrinurus, Agnostus.

Steininger (Jean). Observations sur les fossiles du calcaire intermédiaire de l'Eifel.

In Mém. Soc. Géol. France, vol. 1, 1831, p. 331, pl. 21.

Calymene brongniarti, C. latreilli, C. schlotheimii, C. tristani, Proetus n. g., P. cuvieri, Olenus punctatus, Asaphus mucronati, A. laticauda.

Sternberg (Kasper Graf von). Uebersicht der in Böhmen dermalen bekannten Trilobiten.

In Verhandl. mineral. Gesell. vaterländisch. Mus. Böhm., 1825, p. 69, pls. 2, 3; Isis (oder Encycl. Zeitung), Oken, vol. 7, 1827, p. 627.

Trilobites macrophthalmus, T. hausmanni, T. sulzeri, T. hoffii, T. tessini.

— Ueber die Gliederung und die Füsse der Trilobiten.

In Isis (oder Encycl. Zeitung), Oken, 1830, pp. 516, 563, pl. 5, figs. 1-3.

— Ueber böhmische Trilobiten.

In Verhandl. mineral. Gesell. vaterländisch. Mus. Böhm., 1833, p. 17.

Olenus longicaudatus, Trilobites spinosus, Olenus pyramidalis, O. latus, Conoceph. costatus, Trilobites sulzeri, T. zippii, Ellipsocephalus ambiguus, Trilobites hoffi, Otaron diffractum, Trilobites sternbergi, T. ungula, T. ornatus.

— Ueber die böhmischen Trilobiten mit Beziehung auf die Arbeiten von Boeck und Zenker darüber.

In Neues Jahrbuch für Mineral., 1835, p. 727.

Olenus longicaudatus, O. latus, Trilobites minor, T. gracilis, T. sulzeri, T. hoffi, T. sternbergi, T. ungula, T. ornatus, T. gibbosus, Otaron diffractum.

Steschegloff. Treatise on the Trilobites of Petersburg. (*)

In Jour. für neue Entdeckungen in der Phys., Chem., Natur., und Technologie, St. Petersburg, Nos. 1, 2, 1827, pl. 8. (In Russian.)

Deucalion n. g.

Stock (Thomas). Note on the occurrence of *Anthrapalæmon etheridgi* B. N. Peach, in the ironstones above the sandstones at Craighleith Quarry, near Edinburgh.

In Trans. Edinb. Geol. Soc., vol. 4, 1881, p. 97.

— Note on the occurrence of the remains of Decapod Crustaceans in the Wardie shales.

Stock (Thomas)—Continued.

In Trans. Edinb. Geol. Soc., vol. 4, 1882, p. 219.

Palæocrangon, Anthrapalæmon.

Stoddart (W. W.) On Trilobites.

In Proc. Bristol Nat. Sci., vol. 1, 1866, p. 82.

Stokes (Charles). On a Trilobite from Lake Huron.

In Trans. Geol. Soc. London, 2d series, vol. 1, 1822, p. 208, pl. 28.

Strauss-Durckheim (H.) Ueber *Estheria dahalacensis* Rüffell, eine neue Gattung aus der Familie der Daphniden.

In Mus. Senckenbergianum, vol. 2, 1837, pp. 119-128, pls. 7, 7 b.

The name *Estheria* was originally proposed by Dr. Rüffell for a species brought from Abyssinia; its description, with figures of typical species, appeared in the above cited work. In the same year Mr. Andouin (Annales Soc. Entom., vol. 6) proposed that of *Oyzicus* for similar species, without a generic description. The simultaneous publication of these two generic names for the same genus lead Mr. Joly (Annales Sci. Nat., 2d series, vol. 17, 1842, p. 293) to propose that of *Isaura*. *Estheria* is now generally used by authors.

Symonds (W. S.) On a Phyllopod Crustacean in the Upper Ludlow rock of Ludlow.

In Rept. 25th Meeting Brit. Assoc. Adv. Sci., 1855, Trans. of Sec., p. 98.

Hymenocaris vermicauda.

— On a new species of *Eurypterus* from the Old Red Sandstone of Herefordshire.

In Rept. 27th Meeting Brit. Assoc. Adv. Sci., 1857, Trans. of Sec., p. 93.

— On a new species of *Eurypterus* from the Old Red Sandstone of Herefordshire.

In Edinburgh New Philos. Jour., vol. 6, 1857, p. 257.

Tate (George). Farne Islands.

In Proc. Berwickshire Nat. Club, vol. 3, No. 7, p. 222.

Griffithides farnensis.

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Fig. 3, *Calymene clintoni*, has been referred by A. F. Foerste (Bull. Den. Univ., vol. 2, 1887, p. 95, pl. 8, figs. 12, 16) to *Calymene vogdesi*.

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— Description of a new Crustacean from the Clinton group of Georgia, with remarks upon others. New York City, 1886, 5 pp., 4 figs.

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— The genera and species of North American Carboniferous Trilobites.

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Phillipsia, *Griffithides*?

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In Verhandl. russ. k. mineral. Gesell. zu St. Petersburg, 1847, p. 1, pl. 1.

The author redescribed the genus *Zethus* Pander and its type *Zethus verrucosus*, placing *Oybele bellatulus* Eichw. under the same genus.

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In Bull. Physico-Math. Acad. Sci., St.-Petersbourg, 1854, p. 251.

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Volborth (A.)—Continued.

— Ueber die *Crotaluren* und *Remopleuriden*, ein Beitrag zur Kenntniss der russischen Trilobiten.

In Verhandl. russ. k. mineral. Gesell. zu St. Petersburg, 1857-'58, p. 126, pl. 13.

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— Ueber Herrn von Eichwald's Beitrag zur näheren Kenntniss der *Ilænen*, etc.

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This work was published and distributed in 1818 as a separate article, in advance of the *Nova Acta Reg. Soc. Sci.*, vol. 8, 1821.

— Petrificata telluris Suecana examinata a Georgio Wahlenberg.

In *Nova Acta Reg. Soc. Sci.*, Upsal., vol. 8, 1821, pp. 1-116, pls. 1-4.

Entomostracites expansus Linn., *E. crassicauda* n. s., *E. laticauda* n. s., *E. caudatus* Brün., *E. granulatus* n. s., *E. tuberculatus* Brün., *E. punctatus* Brün., *E. laciniatus* n. s., *E. paradoxissimus* Linn. (*Paradozides tessini*), *E. bucephalus* (hypostoma of *P. tessini*), *E. spinulosa* n. s., *E. gibbosus* n. s., *E. scarabæoides* n. s., *E. pisi-formis* Linn.

— Additamenta quædam ad petrificata telluris Suecana.

In *Nova Acta Reg. Soc. Sci.*, Upsal., vol. 8, 1821, pp. 293-296, pl. 7.

Entomostracites crassicauda, *E. expansus*, *E. tuberculatus*, *E. caudatus*, *E. laticauda*.

Entomostracites crassicauda, pl. 7, fig. 5, has been referred by G. Holm. (De Svenska Arterna Trilobitsläget *Ilænus*, 1882, p. 55) to *Ilænus esmarkii* Schlotheim.

Walch (J. E. T.) Des Trilobites dans le règne des pétrifications, ou de la conque ridée à trois lobes (concha triloba rugosa). Recueil des monumens des catastrophes que le globe de la terre a essuies, contenant des pétrifications. (Knorr, G. W.) Vol. 3. Nuremberg, 1775, p. 105.

Walch (J. E. T.)—Continued.

See also vol. 2, 1768, section 1, p. 81; vol. 3, 1775, pp. 184, 185, 186, 193; suppl. pls. 8, 9 a, 9 b, 9 c, 9 e, 9 f. German and French editions.

This author gives the name of Trilobite to the family, a designation which has been used by all subsequent authors, with the exceptions of J. W. Dalman and C. S. Rafinesque.

Walcott (C. D.) Description of a new species of Trilobite [from Trenton Falls, New York.]

In Cincinnati Quart. Jour. Sci., vol. 2, 1875, p. 273, 2 figs.

Sphaerocoryphe robustus.

— New species of Trilobite from the Trenton limestone at Trenton Falls, N. Y.

In Cincinnati Quart. Jour. Sci., vol. 2, 1875, p. 347, wood-cuts.

Remopleurides striatulus.

— Notes on *Ceraurus pleurexanthemus* Green.

In Annals Lyceum Nat. Hist., New York, vol. 11, 1876, p. 155, pl. 11.

— Preliminary notice of the discovery of the remains of the natatory and branchial appendages of Trilobites.

In 28th Rept. New York State Mus. Nat. Hist., 1875, p. 89.

— Description of new species of fossils from the Trenton limestone.

In 28th Rept. New York State Mus. Nat. Hist., 1875, p. 93.

Bathyurus, *Asaphus*.

— Notes on some sections of Trilobites from the Trenton limestone.

In 31st Rept. New York State Mus. Nat. Hist., 1879, p. 61. Advanced sheets published September 20, 1877, 1 pl.

— Notes upon the legs of Trilobites.

In 31st Rept. New York State Mus. Nat. Hist., 1879, p. 64.

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In 31st Rept. New York State Mus. Nat. Hist., 1879, p. 66. Advanced sheets published September 20, 1877.

— Descriptions of new species of fossils from the Chazy and Trenton limestones.

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Arionellus, *Dalmanites*, *Asaphus*, *Acidaspis*, *Ceraurus*, *Ennerinurus*, *Ilænus*.

— The Utica slate and related formations of the same geological horizon.

In Trans. Albany Inst., vol. 10, 1879, p. 2, pls. 1, 2.

Walcott (C. D.).—Continued.

Metamorphoses of *Triarthrus becki*.

Triarthrus becki and *Beyrichia cincinnatensis*.

- Description of new species of fossils from the Carboniferous formation.

In 32d Rept. New York State Cab. Nat. Hist., 1879, p. 129. Pamphlet published in advance of the report.

Conocephalites, *Ptychaspis*, *Bathyurus*.

- The Trilobite, new and old evidence relating to its organization.

In Mus. Comp. Zool. Harvard Coll., vol. 8, 1881, p. 191, 6 pls.

- Description of a new genus of the order *Eurypterus* from the Utica slate.

In Am. Jour. Sci., 3d series, vol. 23, 1882, p. 213, figures.

Echinognathus n. g.

- Description of new species of fossils from the Trenton group, New York.

In 35th Rept. New York State Cab. Nat. Hist., 1883, p. 206, 1 pl.

Beyrichia, *Leperditia* (*Isochilina*).

Author's edition, October 15, 1883, 8 pp., 1 pl.

- Injury sustained by the eye of a Trilobite at the time of moulting of the shell.

In Annals Nat. Hist., 5th series, vol. 13, London, 1884, p. 69.

- On the locomotory appendages of Trilobites.

In Science, vol. 3, 1884, p. 279, 3 figs.

Asaphus megistos, *Calymene senaria*.

- Palæontology of the Eureka district.

In Mon. U. S. Geol. Survey, vol. 8, 1884, 24 pls.

Dicelloccephalus, *Olenellus*, *Ptychoparia*, *P.* (*Solenopleura*), *P.* (*Pteroccephalus*), *Anomocare*, *Bathyurus*, *Chariocephalus*, *Ptychaspis*, *Agraulos*, *Proetus*, *Cyphaspis*, *Arethusina*, *Phillipsia*, *Griffithides*, *Phacops*, *Dalmanites*, *Trinucleus*, *Asaphus*, *Symphysurus*, *Ogygia*?, *Barrandia*?, *Ilænurus*, *Ceraurus*, *Amphion*, *Ilænus*, *Agnostus*, *Leperditia*, *Beyrichia*, *Primitia*, *Plumulites*.

- On the Cambrian faunas of North America. Preliminary studies.

In Bull. U. S. Geol. Survey, No. 10, 1884, 10 pls.

Paradoxides, *Conocoryphe*, *Harttia* n. g., *Ptychoparia*, *Agnostus*, *Microdiscus*, *Agraulos*, *Protocaris* n. g.

- Palæozoic notes: New genus of Cambrian Trilobites, *Mesonacis*.

In Am. Jour. Sci., 3d series, vol. 29, 1885, p. 328, figures.

Describes a new genus, *Mesonacis*, and substitutes the generic name *Bailiella* of Matthew for the subgenus *Salteria*, proposed by him (Bull. U. S. Geol. Survey, No. 10, 1884).

Walcott (C. D.).—Continued.

- Second contribution to the studies on the Cambrian fauna of North America.

In Bull. U. S. Geol. Survey, No. 30, 1886.

Figures and descriptions of species of the following genera are given, viz: *Paradoxides*, *Bathynotus*, *Mesonacis*, *Olenellus*, *Olenoides*, *Oryctocephalus* n. g., *Ptychoparia*, *Solenopleura*, *Anomocare*, *Crepicephalus*, *Dorypyge*, *Asaphiscus*, *Bathyuriscus*, *Agnostus*, *Microdiscus*, *Protypus* n. g., *Protocaris*, *Leperditia*.

- Fauna of the upper Taconic of Emmons, in Washington County, New York, with one plate.

In Am. Jour. Sci., 3d series, vol. 34, 1887, p. 187.

Solenopleura?, *Ptychoparia*?, *Microdiscus*, *Olenoides*, *Conocoryphe*, *Aristozoe*, *Leperditia*.

- Cambrian fossils from Mount Stephens, North West Territory of Canada.

Am. Jour. Sci., 3d series, vol. 36, 1888, p. 161.

Ptychoparia, *Agnostus*, *Bathyuriscus*, *Olenoides*, *Zacanthoides* n. g.

- Stratigraphic position of the Olenellus fauna in North America and Europe.

Am. Jour. Sci., 3d series, vol. 37, 1889, p. 374.

Leperditia, *Aristozoa*, *Protocaris*, *Agnostus*, *Microdiscus*, *Olenellus*, *Paradoxides*, *Olenoides*, *Zacanthoides*, *Bathynotus*, *Avalonia* n. g., *Conocoryphe*, *Ptychoparia*, *Agraulos*, *Crepicephalus*, *Oryctocephalus*, *Anomocare*, *Protypus*, *Solenopleura*.

- Waldschmidt (E.)** Ueber die devonischen Schichten der Gegend von Wildungen.

In Zeitschr. Deutsch. geol. Gesell., vol. 37, 1885, p. 906, pls. 37–40.

Phacops, *Bronteus*, *Oxyridina*.

- Warder (John A.)** New Trilobites.

In Am. Jour. Sci., 1st series, vol. 34, 1888, p. 377.

Ceratocephala n. g.

This article on the new genus *Ceratocephala* was read before the Western Academy of Science, May 25, 1888.

- Washburn (W. T.)** The geology of the Bosphorus.

In Am. Jour. Sci., 3d series, vol. 6, 1873, p. 186.

Not descriptive; contains important notes on fossil Crustacea.

- Weitenweber (W. R.)** Systematisches Verzeichniss der böhmischen Trilobiten in der Sammlung des Dr. Zeidler.

In Lotos, vol. 7, 1847, pp. 5–42.

- Wetherby (A. G.)** Description of a new family and genus of Lower Silurian Crustacea.

Wetherby (A. G.)—Continued.

In Jour. Cincinnati Soc. Nat. Hist., vol. 1, 1878-'79, p. 162, figure, vol. 2, pl. 7, figs. 1, 1 a-g.
Enoploura balanoides.

— Description of new fossils from the Lower Silurian and Subcarboniferous rocks of Ohio and Kentucky.

In Jour. Cincinnati Soc. Nat. Hist., vol. 4, 1881, p. 77.

Proetus, Isochilina.

White (C. A.) and St. John (O. H.) Preliminary notice of new genera and species of fossils. Iowa City, May 8, 1867, 3 pp.

Beyrichia lithofactor, *B. lithofactor* var. *velata*, *Cythere simplex*.

Of this small pamphlet only fifty copies were published by the Iowa State Geological Survey. Republished in Trans. Chicago Acad. Sci., vol. 1, 1867.

— Description of new subcarboniferous and Coal-Measure fossils collected upon the geological survey of Iowa, together with a notice of new generic characters observed in two species of Brachiopods.

In Trans. Chicago Acad. Sci., vol. 1, pt. 1, 1867, p. 115, 2 figs.

Beyrichia petrifactor, *B. petrifactor* var. *velata*, *B. fotoidea*, *Cythere simplex*.

In this article the authors give the new names of *Beyrichia petrifactor* to the species described in the preliminary notice as *B. lithofactor*, and also change the name of *B. lithofactor* var. *velata* to that of *Beyrichia petrifactor* var. *velata*.

— Preliminary report upon invertebrate fossils collected by the expeditions of 1871, 1872, and 1873, with descriptions of new species.

In Geog. and Geol. Expl. Surveys West 100th Meridian, Washington, 1874.

Olenellus, Dicelloccephalus, Megalaspis, Agnostus, Leperditia.

— Report upon the invertebrate fossils collected in portions of Nevada, Utah, Colorado, New Mexico, and Arizona, by parties of the expeditions of 1871, 1872, 1873, and 1874.

In Geographical Surveys West 100th Meridian, Palaeontology, vol. 4, 1877, pt. 1, pp. 1-219, pls. 1-21.

Olenellus, Dicelloccephalus, Asaphiscus, Conocoryphe (Ptychoparia), Megalaspis, Agnostus, Leperditia.

— Palaeontology: Fossils of the Indiana rocks.

In 2d Ann. Rept. Dept. Statistics and Geology, Indiana, 1880, pp. 471-522, pls. 1-11.

White (C. A.) and St. John (O. H.)—Continued.

Calymene senaria, Cyphaspsis christyi, Phillipsia bufo.

— The fossils of the Indiana rocks. No. 3.

In 13th Ann. Rept. Dept. Geol. and Nat. Hist. Indiana, 1883, pt. 2, pp. 107-180, pls. 23-39.

Phillipsia (Griffithides?) scitula, *P. (G.?) sangamonensis*, *Eurypteris (Anthraconetes) mazonensis*, *Anthrapalaemon gracilis*, *Acanthotelson stimpsoni*, *A. eveni*, *Palaeocaris typus*, *Dithyrocaris carbonarius*, *Leaia tricarinata*, *Euproops dance*, *E. colletti*.

Whiteaves (J. F.) Palaeozoic fossils. Vol. 3, pt. 1, 1884.

In Geol. and Nat. Hist. Survey Canada, 1884, 8 pls.

Eurypteris boylei.

— Contributions to Canadian palaeontology. Vol. 1.

In Geol. and Nat. Hist. Survey Canada, 1888.

In the author's list of fossils from the Hamilton formation of Ontario the following Crustacea are included: *Phacops bufo*, *Dalmanites helena*, *D. boothii*, and *Cythere? (Beyrichia) punctulifera*.

— See **Matthew (G. F.)** Illustrations of the fauna of the St. John group. No. 3.

In Trans. Royal Soc. Canada, vol. 3, 1885, p. 76.

Solenopleura acadia Whiteaves.

Whitfield (R. P.) Description of new species of fossils.

In Rept. Reconnaissance from Carrol, Montana Territory, on the Upper Missouri, to the Yellowstone National Park and return, Ludlow's report, Washington, 1876.

Crepicephalus (Loganellus) montanensis, *Arionellus tripunctatus*.

See, also, Rept. Chief Eng. U. S. A., 1876, Appendix NN.

— Preliminary descriptions of new species of fossils from the lower geological formation of Wisconsin.

In Ann. Rept. Geol. Survey Wisconsin, 1877, pp. 50-89.

Dicelloccephalus, Conoccephalites, Ptychaspis, Crepicephalus, Agraulus (Bathyurus?), Arionellus, Ellipsocephalus, Illeenus, Bronteus.

— Preliminary report on the palaeontology of the Black Hills, containing descriptions of new species of fossils from the Potsdam, Jurassic, and Cretaceous formations of the Black Hills of Dakota.

In U. S. Geol. Survey Rocky Mountain Region, Washington, 1877.

Crepicephalus (Loganellus) centralis, *C. (Loganellus) planus*.

Whitfield (R. P.)—Continued.

— Description of new species of fossils from the Palæozoic formations of Wisconsin.

In Ann. Rept. Geol. Survey Wisconsin, 1879, pp. 44-71.

Dicelloccephalus, *Orepticcephalus*?, *Ptychaspis*, *Aglaaspis*, *Conocephalites*?, *Conocephalites* (*Ptychaspis*?), *Asaphus*, *Ilænus*.

— New forms of fossil Crustaceans from the Upper Devonian rocks of Ohio, with descriptions of new genera and species.

In Am. Jour. Sci., 3d series, vol. 19, 1880, p. 33. *Echinocaris* n. g., *Palæopalæmon* n. g.

A plate and explanation accompany the author's edition.

— Palæontology of the Black Hills of Dakota.

In U. S. Geog. and Geol. Survey Rocky Mountain Region. Rept. Geol. and Resources of the Black Hills of Dakota, with atlas; by Henry Newton and Walter Jenney, Washington, 1880, p. 325, pl. 2.

Orepticcephalus planus, *C. centralis*.

— Palæontology.

In Geol. Wisconsin, vol. 4, 1882, pt. 3, pp. 163-363, pls. 1-27.

Dicelloccephalus, *Conocephalites*, *C.* (*Ptychaspis*)?, *Ellipsocephalus*, *Orepticcephalus*, *Ptychaspis*, *Arionellus*, *A.* (*Agraulos*), *Agraulos* (*Bathyrurus*?), *Aglaaspis*, *Ilænurus*, *Asaphus*, *Ilænus*, *Sphærezochus*, *Phacops*, *Bronteus*, *Leperditia*.

— Description of new species of fossils from Ohio, with remarks on some of the geological formations in which they occur.

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Eurypterus, *Leperditia*, *Plumulites*.

— On the fauna of the Lower Carboniferous limestones of Spargen Hill, Indiana, with a revision of the descriptions of its fossils heretofore published, and illustrations of the species from the original type series.

In Bull. Am. Mus. Nat. Hist. New York, vol. 1, No. 3, 1882, pl. 9.

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Plates republished in 12th Rept. Geol. Nat. Hist. Indiana, 1882.

— List of Wisconsin fossils.

In Geol. Wisconsin, vol. 1, 1883, p. 362; also illustrations of typical fossils of the Wisconsin formations.

— Notice of some new species of Primordial fossils in the collection of the

Whitfield (R. P.)—Continued.

Museum, and corrections of previously described species.

In Bull. Am. Mus. Nat. Hist., New York, vol. 1, No. 5, 1884, p. 139, pls. 14, 15.

Dicelloccephalus, *Olenellus*, *Arionellus*, *Conocephalites*, *Angelina*.

— Notice of a very large species of *Homalonotus* from the Oriskany sandstone formation.

In Bull. Am. Mus. Nat. Hist., New York, vol. 1, No. 6, 1885, p. 193, pl. 22.

Homalonotus major Whitfield.

— Notice of geological investigations along the eastern shore of Lake Champlain, conducted by Prof. H. M. Seely and Prest. Ezra Brainerd, of Middlebury College, with descriptions of the new fossils discovered.

In Bull. Am. Mus. Nat. Hist., New York, vol. 1, No. 8, 1886, p. 293.

Sao? lamottensis n. s., *Lichas champlainensis* n. s., *Asaphus canalis* Conrad.

— Observations on some imperfectly known fossils from the calciferous sandrock of Lake Champlain, and descriptions of several new forms.

In Bull. Am. Mus. Nat. Hist., New York, vol. 2, No. 2, 1889, p. 41, 13 pls.

Primitia gregaria, *P.? cristata*, *P. seelyi*, *Bathyrurus conicus*, *B. seelyi*.

— Additional notes on *Asaphus canalis* Conrad.

In Bull. Am. Mus. Nat. Hist., New York, vol. 2, No. 2, 1889, p. 64, pls. 11, 12.

— Description of a new form of fossil, Balanoid Cirripede, from the Marcellus shale of New York.

In Bull. Am. Mus. Nat. Hist., New York, vol. 2, No. 2, 1889, p. 66.

Protobalanus n. g., *P. hamiltonensis*, pl. 13, fig. 22.

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Wigand (Georg von). Ueber die Trilobiten der silurischen Gesteine in Mecklenburg.

In Zeitschr. Deutsch. geol. Ges., vol. 40, 1888, p. 39, pls. 6-10.

Phacops, *Lichas*, *L.* (*Hoplolichas*), *Ilænus*, *Cheirurus*, *C.* (*Cyrtometopus*), *C.* (*Pseudosphærezochus*), *C.* (*Nieszkowskia*), *Sphærezochus*, *Amphion*, *Cybele*, *Encrinurus*, *Acidaspis*.

Wiik (F. G.) Om fossilerna i Ålands silur-kalksten jemförda med de i Sverige och Estland förekommande. (*)

In Bidrag till Kännedom af Finlands Natur och Folk, pt. 35, Helsingfors, 1881.

Wilckens (C. F.) Sendschreiben, worin wahrscheinlich dargethan wird, dass die Conchiliologen eben keine Ursache mehr haben, das Petrefact, welches bisher unter der Benennung eines *Conchitæ trilobi rugosi* bekannt geworden ist, als einen Theil ihrer Wissenschaft anzusehen. (*)

In Stralsundisches Mag., vol. 1, 1768, p. 267.

— Nachricht von seltenen Versteinerungen, vornemlich des Thier-Reiches, welche bisher noch nicht genau genug beschrieben und erklärt worden. Mit Kupfern, in drei Sendschreiben an seine Gönner und Freunde. Berlin und Stralsund, 1769, pl. 8. (*)

Williams (H. S.) On the occurrence of *Proetus longicauda* Hall in Madison County, Kansas.

In Am. Jour. Sci., 3d series, vol. 21, 1881, p. 156.

— Notice of a new Limuloid Crustacean from the Devonian.

In Am. Jour. Sci., 3d series, vol. 30, 1885, p. 45, 3 figs.

Prestwichia eriensis n. s.

This species was used by A. S. Packard (Mem. Nat. Acad. Sci., vol. 3, 1888, p. 150) for the type of his new genus, *Protolimulus*.

— Notice of a new Limuloid Crustacean from the Devonian formation of Erie County, Pennsylvania.

In Nature, vol. 32, London, 1885, p. 350.

Prestwichia eriensis.

Winchell (Alexander). Descriptions of fossils from the Marshall and Huron groups of Michigan.

In Proc. Acad. Nat. Sci. Phila., vol. 14, 1862, p. 405.

Cythere crassimarginata.

— Description of fossils from the yellow sandstone lying beneath the Burlington limestone at Burlington, Iowa.

In Proc. Acad. Nat. Sci. Phila., vol. 15, 1863, p. 2.

Phillipsia insignis, *P. meramecensis*.

— Notice of a small collection of fossils from the Potsdam sandstone of Wisconsin and Lake Superior sandstone of Michigan.

In Am. Jour. Sci., 2d series, vol. 37, 1864, p. 226.

Dicelloccephalus, *Ptychaspis*.

— Description of new species of fossils from the Marshall group of Michigan

Winchell (Alexander)—Continued.

and its supposed equivalent in other States; with notes on some fossils of the same age previously described.

In Proc. Acad. Nat. Sci. Phila., vol. 17, 1865, p. 109.

Phillipsia rockfordensis, *P. doris* (Hall) Winchell.

— and **Marcy** (O.) Enumeration of the fossils collected in the Niagara limestone at Chicago, Ill.; with descriptions of some new species.

In Mem. Boston Soc. Nat. Hist., vol. 1, 1866, p. 81, pls. 2, 3.

Lichas, *Acidaspis*, *Bronteus*, *Illemus*.

Winchell (N. H.) Fossils from the red quartzite at Pipestone.

In 13th Rept. Geol. Nat. Hist. Survey Minnesota, 1884, p. 65, plate.

Paradoxides barberi.

Woltersdorf (J. L.) Systema minerale. Berlin, 1748, p. 42.

The author classes the Trilobites with the Mollusca, calling them "Conchites trilobus."

Woodward (Henry). On a nearly perfect specimen of *Eurypterus lanceolatus* (Salter) from the Upper Ludlow rocks at Lesmahagow, etc.

In Geol. Mag., vol. 1, London, 1864, p. 107, pl. 5.

— On the *Eurypteridae* and *Xiphosura*.

In Rept. 34th Meeting Brit. Assoc. Adv. Sci., 1864, Sec. C; Geol. Mag., vol. 1, London, p. 239.

Eurypterus, *Pterygotus*, *Stimonia*, *Stylonurus*, *Hemiaspis*.

— Descriptions of some new Palæozoic Crustacea.

In Geol. Mag., vol. 1, London, 1864, p. 196, pl. 10, wood-cuts.

Eurypterus, *Pterygotus*, *Stylonurus*.

— On some Crustacean teeth from the Carboniferous and Upper Ludlow rocks of Scotland.

In Geol. Mag., vol. 2, London, 1865, p. 401, pl. 11.

Ceratiocaris, *Dithyrocaris*.

— On some new species of Crustacea belonging to the order *Eurypteridae*.

In Geol. Mag., vol. 2, London, 1865, p. 319; Quart. Jour. Geol. Soc. London, vol. 21, 1865, p. 482, pl. 13.

Stylonurus powriei Page, *S. scoticus* n. s.

— On the discovery of a new genus of *Cirripedia* in the Wenlock limestone, Dudley.

In Quart. Jour. Geol. Soc. London, vol. 21, 1865, p. 486, pl. 14; Geol. Mag., vol. 2, London, 1865, p. 319.

Turrilepas n. g.

Woodward (Henry)—Continued.

— On a new genus of *Eurypterida* from the Lower Ludlow rocks of Leintwardine, Shropshire.

In Quart. Jour. Geol. Soc. London, vol. 21, 1865, p. 490, pl. 14.

Hemiaspis n. g.

— and Salter (J. W.) Chart of the genera of fossil Crustacea. See Salter (J. W.) and Woodward (Henry).

— Shield bearing Crustacea, recent and fossil.

In Intellectual Observer, vol. 8, 1865, p. 321, plate.

Harpes.

— First report on the structure and classification of fossil Crustacea.

In Rept. 35th Meeting Brit. Assoc. Adv. Sci., 1865.

— On a new Phyllopodous Crustacean.

In Rept. 35th Meeting Brit. Assoc. Adv. Sci., 1865, Trans. of Sec., p. 78.

Discinocaris n. g., *D. browniana* Woodward.

For description and illustration of *Discinocaris*, see Quart. Jour. Geol. Soc., vol. 22, 1866.

— On the occurrence of *Ceratiocaris* in the Wenlock limestone of England.

In Geol. Mag., vol. 3, London, 1866, p. 203, pl. 10.

— Note on some fossil Crustacea and a Chilognathous Myriapod from the Coal Measures of the west of Scotland.

In Trans. Geol. Soc. Glasgow, vol. 2, 1866, p. 234, pl. 3, wood-cuts.

— On a new genus of Phyllopodous Crustacean from the Moffat shales, Dumfriesshire.

In Quart. Jour. Geol. Soc. London, vol. 22, 1866, p. 503, pl. 25.

Discinocaris n. g., *D. browniana*, *Peltocaris aptychoides*.

See, also, Rept. 35th Meeting Brit. Assoc. Adv. Sci., 1865, Trans. of Sec., p. 78.

— Second report on the structure and classification of the fossil Crustacea.

In Rept. 36th Meeting Brit. Assoc. Adv. Sci., 1866, p. 71.

Eurypterida, *Xiphosura*.

— On some points in the structure of the *Xiphosura*, having reference to their relationship with the *Eurypterida*.

In Quart. Jour. Geol. Soc. London, vol. 23, 1867, p. 28, pls. 1, 2.

Eurypterida: *Pterygotus* Agas., *Slimonia* (Page) Woodward, *Stylonurus* (Page) Woodward, *Eurypterus* De Kay subgenus, *Dolichopterus* Hall, *Adelophthalmus* Jordan, *Bumodes* Eichw., *Arthropleura* Jordan, *Hemiaspis*

Woodward (Henry)—Continued.

Wood., *Exapimurus* Nieszk., *Pseudoniscus* Nieszk. *Xiphosura*: *Belinurus* (König) Bailly, *Prestwichia* n. g., *Limulus* Müller.

— A monograph of the British fossil Crustacea of the order Mesostomata.

In Palæont. Soc. London, pt. 1, 1866; pt. 2, 1868; pt. 3, 1871; pt. 4, 1872; pt. 5, 1877, 36 pls.

Pterygotus, *Slimonia*, *Stylonurus*, *Eurypterus*, *Hemiaspis*, *Belinurus*, *Neolimulus*, *Prestwichia*, *Limulus*, *Cyclus*.

— Third report on the structure and classification of the fossil Crustacea.

In Rept. 37th Meeting Brit. Assoc. Adv. Sci., 1867, p. 44.

Eurypterus, *Pterygotus*, *Præatyga*, *Goniocy-poda*.

— Recent and fossil Crustacea; being a lecture delivered before the Geological Association, December 12, 1867.

In Geol. Mag., vol. 5, London, 1868, p. 33; Rept. Geol. Assoc., 1867; notice of lecture.

— On a new Limuloid Crustacean (*Neolimulus falcatus*), from the Upper Silurian of Lesmahagow, Lanarkshire.

In Geol. Mag., vol. 5, London, 1868, p. 1, pl. 1.

— On a newly discovered long-eyed *Calymene* from the Wenlock limestone. Dudley.

In Geol. Mag., vol. 5, London, 1868, p. 489, pl. 21.

— Contributions to British fossil Crustacea.

In Geol. Mag., vol. 5, London, 1868, p. 258; also p. 353, pls. 14, 17.

Pyrgoma crustacea, *Glyphea*, and *Pseudoglyphea*.

— On some new species of Crustacea from the Upper Silurian rocks of Lanarkshire, etc.; and further observations on the structure of *Pterygotus*.

In Quart. Jour. Geol. Soc. London, vol. 24, 1868, p. 289, pls. 9, 10.

Eurypterus (*Pterygotus*) *punctatus* Salter, *Eurypterus scorioides* n. s., *E. obesus* n. s. *Pterygotus raniceps* n. s.

— Fourth report on the structure and classification of the fossil Crustacea.

In Rept. 38th Meeting Brit. Assoc. Adv. Sci., 1868, p. 72, pl. 2.

Neolimulus falcatus sp. et gen. nov., *Cyclus radialis* Dekon.

— On the occurrence of *Stylonurus* in the "cornstone" of Herefordshire.

In Rept. 39th Meeting Brit. Assoc. Adv. Sci., 1869, Trans. of sec., p. 103.

— Note on the palpus and other appendages of an *Asaphus* from the Trenton limestone in the British Museum.

Woodward (Henry)—Continued.

In Quart. Jour. Geol. Soc. London, vol. 26, 1870, p. 486, wood-cut.

- On the remains of a giant Isopod, *Præarcturus gigas*, from the Old Red Sandstone of Rowlestone quarry, Herefordshire.

In Trans. Woolhope Nat. Field Club, 1870, p. 266, 3 pls.

- On *Necrogrammarus salweyi*, lower Ludlow, Leintwardine.

In Trans. Woolhope Nat. Field Club, 1870, p. 271.

- On *Eurypterus brodiei*, from Perton, Herefordshire.

In Trans. Woolhope Field Club, 1870, p. 276, 2 pls.

- Notes on fossil Crustacea.

In Rept. 40th Meeting Brit. Assoc. Adv. Sci., 1870, Trans. of sec., p. 91.

Eurypterus, *Ceratiocaris*, *Cyclus*, *Dithyrocaris*.

- Contributions to British fossil Crustacea.

In Geol. Mag., vol. 7, London, 1870, p. 554, pl. 22.

Cyclus.

- On the structure of Trilobites.

In Geol. Mag., vol. 8, London, 1871, p. 289, pl. 8.

Asaphus platycephalus Stokes.

- On some new Phyllopodous Crustaceans from the Palæozoic rocks.

In Geol. Mag., vol. 8, 1871, p. 104, pl. 3.

Ceratiocaris, *Dithyrocaris*.

Extract published in the Canadian Naturalist, n. s., vol. 6, 1871, p. 18.

- Fifth report on the structure and classification of the fossil Crustacea, etc.

In Rept. 41st Meeting Brit. Assoc. Adv. Sci., 1871, p. 53; also, Geol. Mag., vol. 8, London, 1871, p. 521.

- On a new species of *Eurypterus* (*E. brodiei*) from Perton, near Stoke Edith, Herefordshire.

In Quart. Jour. Geol. Soc. London, vol. 27, 1871, p. 261, figures.

- On a new fossil Crustacean, from the Devonian of Canada.

In Canadian Naturalist, n. s., vol. 6, 1871, p. 18.

Dithyrocaris.

- Note on some British Palæozoic Crustacea belonging to the order Mesostomata.

In Geol. Mag., vol. 9, London, 1872, p. 433, pl. 10.

Woodward (Henry)—Continued.

Hemiaspis, *Pseudoniscus*, *Exapinurus*, *Bunodes*, *Bellinurus*, *Prestwichia*.

- Further remarks on the relationship of the Xiphosura to the Eurypteridæ, and to the Trilobita, etc.

In Quart. Jour. Geol. Soc. London, vol. 28, 1872, p. 46, figures; also, Annals Mag. Nat. Hist. London, 4th series, vol. 9, London, 1872, p. 406.

- Sixth report on the structure and classification of the fossil Crustacea, etc.

In Rept. 42d Meeting Brit. Assoc. Adv. Sci., 1872, p. 321; also, Geol. Mag., vol. 9, London, 1872, p. 563.

- Life forms of the past and present.

In Popular Sci. Review, vol. 11, London, 1873, p. 391, pls. 90, 91.

Pterygotus, *Slimonia*, *Stylonurus*, *Eurypterus*, *Hemiaspis*, *Prestwichia*, *Bellinurus*, *Neolimulus*, *Dithyrocaris*, *Trinucleus ornatus*, *Sao hirsuta*.

- On a new Trilobite from the Cape of Good Hope.

In Quart. Jour. Geol. Soc. London, vol. 29, 1873, p. 32, pl. 2.

Encrinurus crista-galli.

- Seventh report of the committee appointed for the purpose of continuing researches in fossil Crustacea, consisting of Prof. P. Martin Duncan, Henry Woodward, and Robert Etheridge.

In Rept. 43d Meeting Brit. Assoc. Adv. Sci., 1873, p. 304; also, Geol. Mag., vol. 10, London, 1873, p. 520.

Olenus utahensis n. s.

- and Etheridge, jr. (Robert). On some specimens of *Dithyrocaris*, from the Carboniferous limestone series, East Kilbride, and the Old Red Sandstone of Lanarkshire.

In Geol. Mag., vol. 10, London, 1873, p. 482, pl. 16.

- On some specimens of *Dithyrocaris*, from the Carboniferous limestone series, East Kilbride, and from the old red sandstone of Lanarkshire.

In Rept. Brit. Asso., vol. 43, 1873, Trans. of sec., p. 92.

- Eighth report on fossil Crustacea.

In Rept. 45th Meeting Brit. Assoc. Adv. Sci., 1875; also, Geol. Mag., new series, decade 2, vol. 2, 1875, p. 620.

- Two lectures on recent and fossil Crustacea delivered at the Royal Institution, on April 29 and May 6, 1876.

In Proc. Royal Inst. Gr. Brit., 1876; Times, Morning Post, Illustrated News, 1876.

Woodward (Henry)—Continued.

- A catalogue of British fossil Crustacea, with their synonyms and the range in time of each genus and order. Published by order of the trustees of the British Museum 1877.

A review of the book was published in the Geol. Mag., decade 2, vol. 4, 1877.

- Note on the genus *Anthrapalemon* (*Palæocarabus*) of Salter from the Coal Measures.

In Geol. Mag., decade 2, vol. 4, 1877, p. 55.

- Article "Crustacea."

In Ency. Britannica, vol. 6, 1877, 86 wood-cuts. *Asaphus*, *Trinucleus*, *Sao*, *Acidaspis*, *Paradozoides*.

- Discovery of the remains of a fossil crab (*Decapoda-Brachyura*) in the Coal Measures of the environs of Mons, Belgium.

In Geol. Mag., decade 2, vol. 5, London, 1878, p. 433, pl. 11.

Brachypyge carbonis Wood.

- Note on Palæozoic Crustacea.

In Geol. Mag., decade 2, vol. 6, 1879, p. 196, pl. 5.

Eurypterus scouleri.

- A new genus of Trilobites *Onycoppyge liversidgei*, from South Wales.

In Geol. Mag., decade 2, vol. 7, 1880, p. 97, figure.

- Note on a new English *Homalonotus* from the Devonian, Torquay, South Devon.

In Geol. Mag., decade 2, vol. 8, London, 1881, p. 489, pl. 13.

Homalonotus champernownei.

- Contributions to the study of fossil Crustacea.

In Geol. Mag., decade 2, vol. 8, London, 1881, p. 529, pl. 14.

Eryon perroni, *Palæocaris burnettii*, figure, p. 533, pl. 14, fig. 3.

- Additional note on *Homalonotus* from the Devonian.

In Geol. Mag., decade 2, vol. 9, London, 1882, p. 157, pl. 4.

Homalonotus goniopygæus, *H. champernownei*.

- Note on *Ellipsocaris dewalquei*, a new Phyllopod from the Upper Devonian of Belgium.

In Geol. Mag., decade 2, vol. 9, London, 1882, p. 444, figures.

- On a series of Phyllopod Crustacean shields from the Upper Devonian of the

Woodward (Henry)—Continued.

- Eifel; and on one from the Wenlock shales of Wales.

In Geol. Mag., new series, decade 2, vol. 9, London, 1882, p. 385, pl. 9.

Cardiocaris n. g., *Pholadocaris* n. g., *Aptychopis*.

- Synopsis of the genera and species of Carboniferous limestone Trilobites.

In Geol. Mag., new series, decade 2, vol. 10, London, 1883, pp. 445, 481, 534, pls. 11-13.

Phillipsia, *Griffithides*, *Brachymetopus*.

Edition by author 3 pls. and 26 pp.

- Synonyms of *Phillipsia gemmulifera*.

In Geol. Mag., decade 3, vol. 1, London, 1884, p. 22.

- Monograph of the British Carboniferous Trilobites.

In Palæont. Soc. London, pt. 1, 1883, pp. 1-33, pls. 1-6. *Phillipsia*, *Griffithides*. Pt. 2 (conclusion), 1884, pp. 39-83, pls. 7-10.

Proetus, *Phillipsia*, *Brachymetopus*, *Griffithides*, *Dalmanites*?

- On the structure of Trilobites.

In Geol. Mag., decade 3, vol. 1, London, 1884, p. 78.

Asaphus.

- Appendages of Trilobites.

In Geol. Mag., decade 3, vol. 1, London, 1884, p. 162.

Asaphus megistos, 2 figs.; *Calymene*.

- Note on the remains of Trilobites from South Australia.

In Geol. Mag., decade 3, vol. 1, London, 1884, p. 342.

Conocephalites, *Dolichometopus*.

- Synopsis of the genera and species of Carboniferous limestone Trilobites.

In Geol. Mag., decade 3, vol. 1, London, 1884, p. 484, pl. 16.

Phillipsia laticaudata, *P. scabra*, *P. carinata*, *Griffithides brevispinus*, *G. glaber*, *G. ? carringtonensis*.

- On the discovery of Trilobites in the Culm shales of southeast Devonshire.

In Geol. Mag., decade 3, vol. 1, 1884, p. 534.

Phillipsia lei, *P. minor*, *P. cliffordi*, *P. articulosa*.

- and Jones (T. Rupert). Notes on the phyllopodiform Crustacea, referable to the genus *Edinocaris*, from the Palæozoic rocks.

In Geol. Mag., decade 3, vol. 1, London, 1884, p. 393, pl. 13.

Ceratiocaris.

- On some Palæozoic Phyllopod shields and on *Nebalia* and its allies.

In Geol. Mag., decade 3, vol. 2, London, 1885, p. 345, pl. 9.

Woodward (Henry)—Continued.

— Notice of a new limuloid Crustacean from the Devonian, by H. S. Williams. In *Geol. Mag.*, decade 3, vol. 2, London, 1885, p. 427.

— On the discovery of Trilobites in the Upper Green (Cambrian) slates of the Penrhyn quarries, Bethesda, near Bangor, North Wales.

In *Quart. Jour. Geol. Soc. London*, vol. 44, 1888, p. 74, pl. 6.

Conocoryphe viola Wood.

— On the discovery of Trilobites in the Upper Green (Cambrian) slates, etc., North Wales.

In *Rept. 57th Meeting Brit. Assoc. Adv. Sci.*, 1887, p. 696.

Conocoryphe viola.

— On a new species of *Eurypterus* from the Lower Carboniferous shale, Eskdale, Scotland.

In *Rept. 57th Meeting Brit. Assoc. Adv. Sci.*, 1887, p. 696.

— See **Jones (T. Rupert)** and **Woodward (Henry)**.

— See **Etheridge (Robert)** and **Woodward (Henry)**.

Worthen (A. H.) Description of two new species of Crustacea, fifty-one species of mollusca, and three species of Crinoids from the Carboniferous formation of Illinois and adjacent States.

In *Bull. No. 2 State Mus. Nat. Hist. Illinois*, 1884.

Colpocaris chesterensis, *Solenocaris St. Ludovici*.

See also **Meek (F. B.)** and **Worthen (A. H.)**.

Young (J.) Descriptive notes of several new and rare forms of Entomostraca.

In *Trans. Geol. Soc. Glasgow*, vol. 5, pt. 2, 1877.

— On the Silurian strata of Penrhapple Glen, near Girvan.

In *Proc. Nat. Hist. Soc. Glasgow*, vol. 1, pt. 2, 1868, p. 171; also in *Proc. Royal Phys. Soc. Edinburgh*, vol. 4, 1878.

Solenocaris n. g. (not *Solenocaris* Meek.).

Zenker (J. C.) Beiträge zur Naturgeschichte der Urwelt. Organische Reste

Zenker (J. C.)—Continued.

(Petrefacten) aus der Altenburger Braunkohlen-Formation, dem Blankenburger Quadersandstein, jenaischen bunten Sandstein und böhmischen Uebergangsgebirge, mit 6 illuminirten Kupfertafeln. Jena, 1833.

Olenus longicaudatus, *O. pyramidalis*, *O. latus*, *Otarion* n. g., *O. diffractum*, *O. ? squarrosus*, *Conocephalus* n. g., *O. costatus*, *Ellipsocephalus* n. g., *E. ambiguus*.

The genus *Otarion* was made up from the head of *Oyphaspis burmeisteri* Barr., connected with the pygidium of *Cromus beamonti* Barr. The second species, described as *Otarion ? squarrosus*, is referred by Joachim Barrande to *Cheirurus quenstadi*.

J. C. Zenker uses two generic names for his new genus *Conocephalus*, the first on p. 48 in describing the genus and the second in his description of plate 5, where he calls it *Trigonocephalus*.

Both these generic terms had been used in natural history for other genera, the first by Thurnburg in 1812 for a genus of the Orthoptera, and the second by Oppel in 1811 for the Reptiles.

The typical species described as *Conocephalus costatus* on p. 49, and also in the explanation of pl. 5, figs. G-K, p. 51, and as *Trigonocephalus costatus* in the description of pl. 5, given on p. 51, has been referred by Joachim Barrande to an amended genus, *Conocephalites* (Zenker) Barr., and the species to the older name of *sulzeri*. The other new genus, *Ellipsocephalus*, has been used by all subsequent authors.

Zeno (Franz.) Von Seeeversteinerungen und Fossilien, welche bei Prag zu finden sind.

In *Neue phys. Belustigungen*, etc., vol. 1, 1770, p. 65. Continued same vol., p. 362, pl. 1, fig. 1.

Under the names of *Cacada* or *Käfermuschel* Franz Zeno describes the pygidium of *Dalmanites hausmanni* and the head of *Phacops latifrons*.

Zittel (Karl A.) Handbuch der Paläontologie. Vol. 2. München und Leipzig, 1881-'85, p. 525.

Zippe (F. X.) See **Sternberg (Kasper Graf von)**.

PART II.

CATALOGUE OF TRILOBITES.

PART II.

A SYSTEMATIC CATALOGUE OF AMERICAN PALEOZOIC CRUSTACEA. TRILOBITA.

First series, with grooved pleuræ.

Family.	Genera.	Reference.
Harpedidæ	Harpes Goldfuss, 1839	Nova Acta Physico-Med., vol. 19, p. 358. Type, <i>Harpes macrocephalus</i> Gold., <i>Harpes ungula</i> Sternb. Barrande, Syst. Sil. Bohême, vol. 1, p. 347, pls. 3-9.
Remopleuridæ.	Remopleurides Portlock, 1843	Geol. Rept. Londonderry, etc., p. 254. Type, <i>Remopleurides colbii</i> Portlock.
Paradoxidæ....	Paradoxides Brongniart, 1822.....	Hist. Crust. Foss., p. 30. Type, <i>Paradoxides tessini</i> Brong.
	Anopolenus Salter, 1864	Geol. Soc. London Jour., vol. 20, p. 236. Type, <i>Anopolenus henrici</i> Salter.
	Bathynotus Hall, 1860	Thirteenth Rept. New York State Cab. Nat. Hist., p. 117. Type, <i>Bathynotus holopyga</i> Hall.
	Dicelloccephalus Owen, 1852.....	Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, p. 573. Type, <i>Dicelloccephalus minnesotensis</i> Owen.
	Mesonacis Walcott, 1884.....	Am. Jour. Sci., 3d series, vol. 29, p. 329. Type, <i>Olenus vermontana</i> Hall.
	Dolichometopus Angelin, 1854.....	Palæont. Scand., p. 72. Type, <i>Dolichometopus svecicus</i> ; Ang. Palæont. Scand., p. 73, pl. 37, fig. 9.
	Hydrocephalus Barrande, 1846....	Notice Prélim. Syst. Sil. Bohême, p. 18. Type, <i>Hydrocephalus carens</i> Barr. Notice Prélim. Syst. Sil. Bohême, p. 19.
	Olenellus Hall, 1861	Fifteenth Rept. New York State Cab. Nat. Hist., p. 114. Type, <i>Olenellus thompsoni</i> Hall. Twelfth Rept. New York State Cab. Nat. Hist., p. 59, figure.
	Olenus Dalman, 1826.....	Palæad., p. 56. Type, <i>Olenus gibbosus</i> Wahlenburg.
	Zacanthoides Walcott, 1887.....	Am. Jour. Sci., 3d series, vol. 36, p. 165. Type, <i>Olenoides spinosus</i> Walcott.
	Parabolina Salter, 1849.....	Mem. Geol. Survey United Kingdom, decade 2. Type, <i>Olenus spinulosa</i> Wahl.
	Peltura Milne-Edwards, 1840.	Hist. Nat. Crust., vol. 3, p. 344. Type, <i>Olenus scarabæoides</i> Wahl.
	Cyclognathus Linnarsson, 1875 ...	Geol. Föreningens Stockholm Förhandl., vol. 2, No. 12, p. 500. Type, <i>Cyclognathus micropygus</i> Linnarsson.

First series, with grooved pleuræ—Continued.

Family.	Genera.	Reference.
Paradoxides ...	Triarthrus Green, 1832	Mon. Trilobites North America, p. 87. Type, <i>Triarthrus beekii</i> Green.
	Leptoplastus Angelin, 1854	Palæont. Scand., p. 46. Type, <i>Leptoplastus stenotus</i> Angelin.
	Subgenera:	
	1. Sphærophthalmus Angelin, 1854.	Palæont. Scand., p. 49. Type, <i>Sphærophthalmus flagellifer</i> Ang.
	2. Ctenopyge Linnarsson, 1880.	Geol. Föreningens Stockholm Förhandl., vol. 5, p. 145. Type, <i>Olenus (Sphærophthalmus) pecten</i> Salter.
	Beckia Brögger, 1882	Die silurischen Etagen 2 und 3, p. 122. Type, <i>Beckia hirsuta</i> Brögger.
	Ceratopyge Corda, 1847	Prodr., p. 161. Type, <i>Olenus forficular</i> Sars.
Bohemillidæ ...	Bohemilla Barrande, 1872	Syst. Sil. Bohême, vol. 1, Suppl., p. 137. Type, <i>Bohemilla stupenda</i> Barr.
Conocoryphidæ	Atops Emmons, 1844	Taconic System, p. 20. Type, <i>Atops trilineatus</i> Emmons.
	Conocoryphe Corda, 1847	Prodr., p. 23. Type, <i>Trilobite sulzeri</i> Schlott.
	Ptychoparia Corda, 1847	Prodr., p. 26. Type, <i>Conocephalus striatus</i> .
	Ctenocephalus Corda, 1847	Prodr., p. 26. Type, <i>Ctenocephalus barrandi</i> Corda.
	Solenopleura Angelin, 1854	Palæont. Scand., p. 26. Type, <i>Solenopleura holometopa</i> Ang.
	Liostracus Angelin, 1854	Palæont. Scand., p. 27. Type, <i>Liostracus aculeatus</i> Angelin.
	Aneucanthus Angelin, 1854	Palæont. Scand., p. 5. Type, <i>Aneucanthus acutangulus</i> Ang.
	Anomocare Angelin, 1854	Palæont. Scand., p. 24. Type, <i>Anomocare aculeatus</i> Angelin.
	Angelina Salter, 1847	Mem. Geol. Survey United Kingdom, decade xi. Type <i>Angelina sedgwicki</i> Salter.
	Agraulus Corda, 1847	Prodr., p. 26. <i>Agraulus certicephalus</i> Barr.
	Dorypyge Dames, 1884	China (Richthofen), vol. 4, p. 23.
	Bathyurus Billings, 1859	Canadian Naturalist, vol. 4, p. 364. Type, <i>Asaphus extans</i> Hall.
	Bathyurella Billings, 1865	Pal. Foss., vol. 1, p. 262. <i>B. marginatus</i> , <i>B. nitidus</i> , <i>B. expansus</i> Billings.
	Chariocephalus Hall, 1863	Sixteenth Rept. New York State Cab. Nat. Hist., p. 175. Type, <i>Chariocephalus whitfieldi</i> Hall.
	Corynexochus Angelin, 1854	Palæont. Scand., p. 59. Type, <i>Corynexochus spinulosa</i> Ang.
	Ellipsocephalus Zenker, 1833	Beiträge Nat. Umwelt, p. 31. Type, <i>Ellipsocephalus ambiguus</i> Zenker= <i>Ellipsocephalus hofsti</i> Schlott.
	Ptychaspis Hall, 1863	Sixteenth Rept. New York State Cab. Nat. Hist., p. 170. Type, <i>Dikelocephalus miniscensis</i> Owen.
	Sao Barrande, 1846	Notice Prélim. Syst. Sil. Bohême, p. 13. Type, <i>Sao hirsuta</i> Barr.

First series, with grooved pleuræ—Continued.

Family.	Genera.	Reference.
Proetidae	Proetus Steininger, 1831	Mém. Soc. Géol. France, vol. 1, p. 355. Type, <i>Proetus cuvieri</i> Steininger.
	Dechenella Kayser, 1880	Zeitschr. Deutsch. geol. Gesell., Berlin, vol. 32, p. 703. Type, <i>Dechenella verneuili</i> Barr.
	Prionopeltis Corda, 1847 (<i>Phæton</i> Barr., <i>Phæthonides</i> Angelin).	Prodr., p. 121. Type, <i>Prionopeltis polydorus</i> Corda.
	Brachymetopus McCoy, 1847	Annals Mag. Nat. Hist., 1st series, London, vol. 20, p. 229. Type, <i>Phillipsia maccoyi</i> Portlock.
	Cyphaspis Burmeister, 1843	Org. Trilobiten (Ray Soc. Ed., p. 98). <i>Phacops certophthalma</i> Gold.
	Arethusina Barrande, 1852	Syst. Sil. Bohême, vol. 1, p. 494. <i>Arethusina konincki</i> Barr.
	Harpides Beyrich, 1846	Untersuch. Trilobiten, p. 34. Type, <i>Harpides hospes</i> Beyrich.
	Carmon Barrande, 1872	Syst. Sil. Bohême, vol. 1, suppl., p. 19. Type, <i>Carmon multilus</i> Barr.
	Cyphoniscus Salter, 1852	Rept. 22d Meeting Brit. Assoc. Adv. Sci., Trans. Sec., p. 95. Type, <i>Cyphoniscus socialis</i> Salter.
Phillipsiæ	Phillipsinella Novák, 1885	Sitzungsbe. rböhm. Gesell. Wiss., 1885. Author's edition, p. 4. Type, <i>Phillipsinella parabola</i> Barr.
	Phillipsia Portlock, 1843	Geol. Rept. Londonderry, etc., p. 305. Type, <i>Phillipsia kelli</i> Portlock= <i>Asaphus gemmulifera</i> Phillips.
	Griffithides Portlock, 1843	Geol. Rept. Londonderry, etc., p. 310. Type, <i>Griffithides longiceps</i> Portlock.
Dalmanitidæ ..	Phacops Emmrich, 1839	De Trilob., etc., p. 18. Type, <i>Phacops latifrons</i> Bronn.
	Dalmanites Emmrich, 1844	Zur Nat. Trilobiten, etc., p. 15. Barrande's Syst. Sil. Bohême, vol. suppl., p. 27. Type, <i>Dalmanites caudata</i> Brünich.
	Coronura Hall & Clarke, 1888	Pal. New York, vol. 7, p. xxxii. Type, <i>Coronura aspectens</i> Conrad.
	Cryphæus Green, 1837	Am. Jour. Sci., 1st series, vol. 32, p. 343. Type, <i>Cryphæus boothi</i> Green.
	Chasmops McCoy, 1849	Annals Nat. Hist., 2d series, vol. 4; also Contrib. to Palæont., p. 143. Type, <i>Calymene odini</i> Eichwald.
Calymenidæ ...	Calymene Brongniart, 1822	Crust. Foss., p. 11. Type, <i>Calymene tuberculata</i> Brünich.
	Homalonotus Koenig, 1825	Icones Foss. Sectiles, p. 7. Type, <i>Homalonotus knighti</i> Koenig.
	Bavarilla Barrande, 1868	Faune Sil. des environs de Hof en Bavière, p. 75. Type, <i>Bavarilla hofensis</i> Barr.
Lichasidæ	Lichas Dalman, 1826	Palæad., p. 53. Type, <i>Lichas laciniatus</i> Wahl.

First series, with grooved pleuræ—Continued.

Family.	Genera.	Reference.
Trinucleidæ ...	Trinucleus Lhlwyd, 1698 (Cryptolithus Green, 1832). Ampyx Dalman, 1826. Dionidæ Barrande, 1847. Subgenera: 1. <i>Salteria</i> Thomson, 1864. 2. <i>Endyminia</i> Billings, 1862.	Murchison's Silurian Syst., 1839, p. 659. Type, <i>Trinucleus fimbriatus</i> . Palead., p. 53. Type, <i>Ampyx nasuta</i> Dalman. Neues Jahrb. für Mineral., 1847, pt. 4, p. 391; Syst. Sil. Bohême, vol. 1, p. 540. Type, <i>Dionidæ formosa</i> Barr. Mem. Geol. Survey United Kingdom, decade xi, pl. 7, p. 1. Type, <i>Salteria primæva</i> Thomson. Pal. Foss., vol. 1, p. 93. Type, <i>Endyminia meeki</i> Billings.
Æglinidæ	Æglinæ Barrande, 1852.	Syst. Sil. Bohême, vol. 1, p. 663. Type, <i>Æglinæ rediviva</i> Barr.
Illænuridæ ...	Illænurus Hall, 1863.	Sixteenth Rept. New York State Cab. Nat. Hist., p. 176. Type, <i>Illænurus quadratus</i> Hall.
Asaphidæ	Asaphus Brongniart, 1822. <i>Ptychopyge</i> Angelin, 1854. Brachyasps Salter, 1866. Megalasps Angelin, 1852. Ogygia Brongniart, 1822. Barrandia McCoy, 1849. Niobe Angelin, 1852. Asaphellus Callaway, 1877. Nileus Dalman, 1826.	Crust. Foss., p. 17. Type, <i>Asaphus expansus</i> Wahl. Paleont. Scand., p. 51. Type, <i>Ptychopyge appanata</i> Ang. Mon. Brit. Trilobites, p. 167. Type, <i>Asaphus rectifrons</i> Portlock and <i>Asaphus levigatus</i> Angelin. Paleont. Scand., p. 15. Type, <i>Megalasps gigas</i> Angelin. Crust. Foss., p. 26. Type, <i>Asaphus buchi</i> Brong. Annals Nat. Hist., 2d series, vol. 4, p. 409. Type, <i>Barrandia cordai</i> McCoy. Paleont. Scand., p. 13. Type, <i>Asaphus frontalis</i> Dalman. Quart. Jour. Geol. Soc. London, vol. 33, p. 663. Type, <i>Asaphellus homfrayi</i> Salter. Palead., p. 49. Type, <i>Nileus armadillo</i> Dalman.

Second series, with plane pleuræ.

Styginidæ	Styginia Salter, 1853.	Rept. 22d Meeting Brit. Assoc. Adv. Sci., p. 59. Type, <i>Styginia latifrons</i> Portlock.
Illænidæ	Illænus Dalman, 1826. Dysplanus Burmeister, 1843. Bumastus Murchison, 1839. Panderia Volborth, 1863.	Palead., p. 51. Type, <i>Illænus crassicauda</i> Wahl.; Nova Acta Reg. Soc. Sci. Upsal., vol. 8, p. 27, pl. 2, figs. 3, 5, 6. (Not. pl. 7, figs. 5, 6 = <i>Illænus esmarki</i> .) Organization Trilobites, p. 105 (Ray Soc. Ed. 1846). Type, <i>Dysplanus centrotus</i> Dalm. Sil. Syst., p. 656. Type, <i>Bumastus barriensis</i> Murch. Mém. Acad. Sci. St.-Petersbourg, 7th series, vol. 6, No. 2, p. 31. Type, <i>Panderia triquetra</i> Volb.

Third series, with ridged pleuræ (pleure à bourrelet, Barrande).

Family.	Genera.	Reference.
Acidaspidæ....	Acidaspis Murchison, 1839 (<i>Odon- toleura</i> Emmrich, 1839).	Silurian System, p. 558. Type, <i>Acidaspis brightii</i> Murch.
Cerauridæ.....	Ceraurus Green, 1832 (<i>Oheirurus</i> Beyrich, 1845). <i>Sphaerexochus</i> Beyrich, 1845..... <i>Areia</i> Barrande, 1872..... <i>Deiphon</i> Barrande, 1852..... <i>Placoparia</i> Corda, 1847..... <i>Staurocephalus</i> Barrande, 1852.... <i>Onycopyge</i> Woodward, 1880.....	Mon. Trilobites N. A., p. 83. Type, <i>Ceraurus pleurexanthemus</i> Green. Ueber einige böhm. Trilobiten, p. 19. Type, <i>Sphæ- rexochus mirus</i> Beyrich. Syst. Sil. Bohême, vol. 1, suppl., p. 96. Type, <i>Areia bohémica</i> Barr. Syst. Sil. Bohême, vol. 1, p. 814. Type, <i>Deiphon forbesi</i> Barr. Prodr., p. 128. Type, <i>Placoparia zippi</i> Boeck. Syst. Sil. Bohême, vol. 1, p. 810. Type, <i>Stauro- cephalus murchisoni</i> Barr. Geol. Mag., decade 2, vol. 7, p. 97. Type, <i>Onyco- pyge liversidgei</i> Woodward.
Amphionidæ..	<i>Amphion</i> Pander, 1850..... <i>Cromus</i> Barrande, 1852.....	Beiträge Geog. Russischen Reiches, p. 439. Type, <i>Amphion fischeri</i> Eichwald. Syst. Sil. Bohême, vol. 1, p. 821. Type, <i>Cromus in- tercostatus</i> Barr.
Encrinuridæ...	<i>Enerinurus</i> Emmrich, 1844 (<i>Cryp- tonymus</i> Eichwald). <i>Cybele</i> Loven, 1845..... <i>Dindymene</i> Corda, 1847.....	Zur Nat. Trilobiten, p. 16. Type, <i>Trilobus punc- tatus</i> Brünnich. Svenska Akad. Förhandl., 1845, p. 110. Type, <i>Calymene bellatula</i> Dalman. Prodr., p. 119. Type, <i>Dindymene frederico-au- gusti</i> Corda.
Brontidæ.....	<i>Bronteus</i> Goldfuss, 1843.....	Beiträge Petrefact., Nova Acta Physico-Med., vol. 19, p. 360. Type, <i>Brontes flabellifer</i> Gold.

Fourth series.

Agnostidæ.....	<i>Agnostus</i> Brongniart, 1822..... <i>Shumardia</i> Billings, 1862..... <i>Microdiscus</i> Emmons, 1856.....	Hist. Crust. Foss., p. 38. Type, <i>Agnostus pisi- formis</i> . Pal. Foss., vol. 1, p. 92. Type, <i>Shumardia granu- losa</i> Billings. Am. Geology, vol. 1, pt. 2, p. 116. As defined by Chas. D. Walcott, 1886. Type, <i>M. punctatus</i> and <i>M. speciosus</i> .
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A CATALOGUE OF NORTH AMERICAN SPECIES OF TRILOBITES.

[Current names are printed in bold face type; synonyms in *Italic*.]

- Acantholoma* Conrad, 1840; 3d Annual Rept. Pal. Dept. New York Geol. Survey, p. 205. (See **Acidaspis**.)
- *spinosa* Conrad. (See **Acidaspis tuberculatus**.)
- Acidaspis** Murchison, Silurian System, 1839, p. 658.
- Type, *Acidaspis brightii* Murch., Sil. Syst., p. 658, pl. 14, figs. 10, 15.
- Syn., *Ceratocephala* Warder, 1838; Am. Jour. Sci., 1st series, vol. 34, p. 377.
- Odontopleura* Emmrich, 1839; De Tril., p. 53.
- Arges* Goldfuss (in part), Neues Jahrbuch für Mineral., 1843, pp. 544, 556.
- Polyeris* Rouault, 1846; Bull. Soc. Géol. France, vol. 4, p. 320.
- Selenopeltis* Corda, 1847; Prodr., p. 34.
- Trapelocera* Corda, 1847; Prodr., p. 158.
- Discranurus* Conrad, 1841; 5th Ann. Rept. Pal. Dept. New York Geol. Survey, p. 48.
- *anchoralis* Miller, 1875; Cincinnati Quart. Jour. Sci., vol. 2, p. 349, figs. 2-4. Hudson.
- *armatus*. (See **Acidaspis eriops**.)
- *callicera* Hall, 1888; Pal. New York, vol. 7, pp. 69, 224, pl. 16 b, figs. 1-3. Upper Helderberg.
- [*Ceratocephala*] *ceralepta* Anthony, 1838; Am. Jour. Sci., 1st series, vol. 34, p. 379, figs. 1, 2. Hudson.
- *ceralepta* Meek, 1873; Pal. Ohio, vol. 1, p. 169, pl. 14, figs. 8-9.
- *ceralepta* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 130.
- *cincinnatiensis* Meek, 1873; Pal. Ohio, vol. 1, p. 167, pl. 14, fig. 3. Hudson.
- *cincinnatiensis* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 130.
- [*Ceraurus*] *crosotus* Locke, 1842; Am. Jour. Sci., 1st series, vol. 44, p. 347, fig. Hudson.
- *crosotus* James, 1871; Catalogue Fossils Cincinnati Group, p. 14.
- *crosotus* Meek, 1873; Pal. Ohio, vol. 1, p. 165, pl. 14, figs. 10 a, b.
- *crosotus* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 129.
- *danai* Hall, 1862; Geol. Wisconsin, vol. 1, p. 432. Niagara.
- Syn., *Acidaspis ida* (Winchell and Marey) Hall, 20th Rept. New York State Cab. Nat. Hist., p. 389.
- *danai* Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 333, pl. 21, figs. 8, 9.
- *danai* Hall, 1870; 20th Rept. New York State Cab. Nat. Hist., p. 423, pl. 21, figs. 8, 9 (rev. ed.).
- [*Terataspis*] *eriops* Hall, 1876; Illus. Devonian Foss. Crust., pl. 19, figs. 4-7, 10, 11, 12. (See **Lichas** (*Conolichas*) *eriops* Hall.)
- *fimbriata* Hall, 1879; Description of New Species from the Niagara Group, p. 20. Niagara.
- *fimbriata* Hall, 1882; Trans. Albany Inst., vol. 10, p. 76.

- Acidaspis fimbriata* Hall, 1883; 11th Rept. Geol. Nat. Hist. Indiana, p. 334, pl. 33, fig. 11.
- [*Terataspis*] *grandis* Hall, 1876; Illus. Devonian Foss. Crust., pl. 17, figs. 1-8; pl. 18, figs. 1-4. (See *Lichas* (*Terataspis*) *grandis* Hall.)
- *halli* Shumard, 1855; 1st and 2d Rept. Geol. Survey Missouri, pt. 2, p. 200, pl. B, figs. 7 a, b, c. Trenton.
- [*Discranurus*] *hamata* Conrad, 1841; 5th Ann. Rept. Pal. Dept. New York Geol. Survey, p. 48, pl. 1, fig. 1. Lower Helderberg.
- [*Discranurus*] *hamata* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., pl. 2, fig. 1. Republication of pl. 2, 5th Ann. Rept. Pal. Dept. New York Geol. Survey.
- *hamata* Hall, 1859; Pal. New York, vol. 3, p. 371, pl. 79, figs. 15-19.
- *hamata* Meek and Worthen, 1868; Geol. Survey Illinois, vol. 3, p. 390, pl. 7, fig. 17.
- *horani* Billings, 1857; Geol. Survey Canada, p. 341. Trenton.
- *horani* Billings, 1863; Geol. Survey Canada, p. 190, fig. 190.
- *ida* Winchell and Marcy, 1865; Mem. Boston Soc. Nat. Hist., vol. 1, p. 106, pl. 3, fig. 13.
- *o'nealli* Miller, 1875; Cincinnati Quart. Jour., vol. 2, p. 86, fig. 9. Hudson.
- *ortoni* Foerste, 1887; Bull. Denison Univ., vol. 2, p. 90, pl. 8, fig. 1.
- *parvula* Walcott, 1877; Advanced sheets 31st Rept. New York State Mus., p. 16. Trenton.
- *parvula* Walcott, 1879; 31st Rept. New York State Mus., p. 69.
- *romingeri* Hall, 1888; Pal. New York, vol. 7, pp. 71, 224, pl. 16 b, figs. 15-18. Hamilton.
- *spiniger*. (See *Bathyurus spiniger*.)
- *trentonensis* Hall, 1847; Pal. New York, vol. 1, p. 240, pl. 64, figs. 4 af. Trenton.
- *trentonensis* Emmons, 1855; American Geology, vol. 1, pt. 2, p. 216, fig. 73.
- *tuberculatus* Conrad, 1840; 3d Ann. Rept. Pal. Dept. New York Geol. Survey, p. 205. Lower Helderberg.
- Syn., *Acantholoma* Conrad, 1840; 3d Ann. Rept. Pal. Dept. New York Geol. Survey, p. 205, fig. 3.
- Acantholoma spinosa* Conrad, 4th Ann. Rept. Pal. Dept. New York Geol. Survey, p. 39, pl. 1, fig. 3.
- *tuberculatus* Hall, 1859; Pal. New York, vol. 3, p. 368, pl. 79, figs. 1-14.
- *tuberculatus* Hall, 1861; 15th Rept. New York State Cab. Nat. Hist., pl. 2, fig. 3.
- Actinurus* De Castelnau, 1843; Sil. Syst. de l'Amér., p. 21. (See *Lichas boltoni*.)
- Aglaspis* Hall, 1862; Canadian Naturalist, vol. 7, p. 445, figure. Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 181.
- Type, *Aglaspis barrandi* Hall.
- *barrandi* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 181, pl. 11, figs. 7-16. Potsdam.
- *eatoni* Whitfield, 1880; Ann. Rept. Geol. Survey Wisconsin, p. 52. Potsdam.
- *eatoni* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 192, pl. 10, fig. 11.
- Agnostus* Brongniart, 1822; Hist. Nat. Crust. Foss., p. 38.
- Type, *Agnostus pisiformis*, idem., p. 38, pl. 4, figs. 4 a, 4 b.
- Syn., *Battus* Dalman, 1826; Palæad., p. 33.
- Trinodus* McCoy, 1846; Sil. Foss. Ireland, p. 56.
- Phalacroma* Corda (in part), 1847; Prodr., p. 155.
- Mesospheniscus* Corda, 1847; Prodr., p. 46 (*Agnostus integer*).
- Diplorrhina* Corda, 1847; Prodr., p. 46.
- Condylopyge* Corda, 1847; Prodr., p. 50 (*Agnostus rex*).
- Lejopyge* Corda, 1847; Prodr., p. 51 (*Agnostus laevigatus*).
- Arthrorhachis* Corda, 1847; Prodr., p. 114 (*Agnostus tardus*).
- Peronopsis* Corda, 1847; Prodr., p. 115 (*Agnostus interger*).
- Pleuroctenium* Corda, 1847; Prodr., p. 116 (*Agnostus granulatus*).

- Agnostus acadicus* Hartt, 1868; *Acadian Geology*, p. 655, fig. 229 (3d ed.). St. John. Syn., *Similis* Hartt, 1868; *Acadian Geology*, p. 656 (3d ed.).
- Similis* Hartt (Walcott), 1884; Bull. U. S. Geol. Survey, No. 10, p. 22.
- *acadicus* Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 22, pl. 2, figs. 2, 2 a, c.
- *americanus* Billings, 1860; *Canadian Naturalist*, vol. 5, p. 302, fig. 1. Quebec.
- *americanus* Billings, 1865; *Pal. Foss.*, vol. 1, p. 395, fig. 372. Potsdam.
- *bidens* Meek, 1873; 6th Ann. Rept. U. S. Geol. Survey Territories, p. 463. Potsdam.
- *bidens* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 26, pl. 9, figs. 13, 13 a.
- *canadensis* Billings, 1860; *Canadian Naturalist*, vol. 5, p. 304, fig. 3. Quebec.
- *canadensis* Billings, 1865; *Pal. Foss.*, vol. 1, p. 397, fig. 374. Potsdam.
- *coloradoensis* Shumard, 1861; *Am. Jour. Sci.*, 2d series, vol. 32, p. 218. Potsdam.
- *communis* Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 228, pl. 1, figs. 28, 29. Potsdam.
- *communis* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 27. Potsdam.
- *disparilis* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 179, pl. 10, figs. 25-27. Potsdam.
- *fabius* Billings, 1865; *Pal. Foss.*, vol. 1, p. 298, fig. 289. Quebec.
- *glabba* Billings, 1865; *Pal. Foss.*, vol. 1, p. 297, fig. 288. Quebec.
- *interstrictus* White, 1874; *Prelim. Rept. Invert. Foss.*, p. 7. Potsdam.
- *interstrictus* White, 1877; U. S. Geog. and Geol. Survey W. 100th Meridian, p. 38, pl. 2, figs. 5 a, 5 b.
- *interstrictus* Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 149, pl. 16, figs. 6, 6 a.
- *interstrictus* Walcott, 1888; *Am. Jour. Sci.*, 3d series, vol. 36, p. 166.
- sp.? Rominger, 1887; *Proc. Acad. Nat. Sci. Phila.*, p. 18.
- *josepha* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 178, pl. 6, figs. 54, 55. Potsdam.
- *lobatus* Hall. (See *Microdiscus lobatus*.)
- *maladensis* Meek, 1873; 6th Annual Rept. U. S. Geol. Survey Territories, p. 464. Calciferous.
- *neon* Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 229, pl. 1, figs. 26, 27. Potsdam.
- *neon* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 27.
- *nobilis* Ford, 1872; *Am. Jour. Sci.*, 3d series, vol. 3, p. 421, figs. 1, 2. Potsdam.
- *nobilis* Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 150, pl. 16, fig. 7.
- *orion* Billings, 1860; *Canadian Naturalist*, vol. 5, p. 304, fig. 2. Quebec.
- *orion* Billings, 1865; *Pal. Foss.*, vol. 1, p. 397, fig. 393.
- *orion* Shumard, 1863; *Trans. Acad. Sci. St. Louis*, vol. 2, p. 105.
- *parilis* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 179, pl. 11, figs. 23, 24. Potsdam.
- *prolongus* Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 230, pl. 1, figs. 30, 31. Potsdam.
- *prolongus* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 28.
- *richmondensis* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 24, pl. 9, fig. 10. Cambrian.
- *seclurus* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 25, pl. 9, fig. 14. Cambrian.
- *similis* Hartt. (See *Agnostus acadicus*.)
- *tumidosus* Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 231, pl. 1, fig. 32. Potsdam.

Agraulos Corda, 1847; Prodr., p. 23.

Type, *Arionellus certicephalus* Barrande.

Syn., *Arion* Barrande, 1846; Notice Prélim., p. 13.

Ellipsocephalus Barrande, 1846; Notice Prélim., p. 12 (not *Ellipsocephalus* Zenker) or (*Elliptocephalus* Emmons).

Arionellus Barrande, 1852; Syst. Sci. Bohême, p. 404.

— *affinis* Billings, 1874; Pal. Foss., vol. 2, p. 72. Potsdam.

— *affinis* Matthew, 1886; Trans. Royal Soc. Canada, vol. 2, p. 153, figs. 2, 2 a, b.

— [*Arionellus*] *bipunctatus* Shumard, 1863; Trans. Acad. Sci. St. Louis, vol. 2, p. 101. Potsdam.

— [*Arionellus*] *bipunctatus* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 169, pl. 7, figs. 50-57.

— [*Arionellus* (*Agraulos*)] *convexus* Whitfield, 1878; Ann. Rept. Geol. Survey Wisconsin, 1877, p. 57. Potsdam.

— [*Arionellus*] *convexus* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 190, pl. 1, fig. 17.

— [*Arionellus*] *cylindricus* Billings, 1860; Canadian Naturalist, vol. 5, p. 314, fig. 14. Quebec.

— [*Arionellus*] *cylindricus* Billings, 1865; Pal. Foss., vol. 1, p. 406, fig. 385. (See *Ptychaspis cylindricus*.)

— ? *globosus* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 61, pl. 9, fig. 23. Cambrian.

— *oweni* Meek and Hayden, 1861; Proc. Acad. Nat. Sci. Phila., 1861, p. 436. Potsdam.

The species was also referred to the genera *Arionellus* and *Crepicephalus*.

— [*Arionellus*] *oweni* Meek and Hayden, 1862; Am. Jour. Sci., 2d series, vol. 33, p. 74.

— [*Arionellus*] *oweni* Meek and Hayden; Pal. Upper Missouri, p. 9, figs. a, b, c, pl. 1, fig. 4.

Referred by Walcott, 1884, Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 55, pl. 10, to *Ptychoparia oweni*.

— [*Arionellus* (*Bathyurus*)] *planus* Shumard, 1861; Am. Jour. Sci., 2d series, vol. 32, p. 219. Potsdam.

— [*Arionellus*] *pustulatus* Walcott, 1877; Advanced sheets 31st Rept. New York State Mus. Nat. Hist., p. 15. Chazy.

— [*Arionellus*] *pustulatus* Walcott, 1877; 31st Rept. New York State Mus. Nat. Hist., p. 63.

— [*Arionellus*] *quadrangularis* Whitfield, 1884; Bull. Mus. Nat. Hist. New York, vol. 1, p. 147, pl. 14, fig. 8. Potsdam.

— *quadrangularis* Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 48, pl. 7, fig. 1.

— *socialis* Billings, 1874; Pal. Foss., vol. 2, p. 71, fig. 40. Potsdam.

— *socialis* Matthew, 1886; Trans. Royal Soc. Canada, vol. 2, p. 151, fig. 1, 1 a, b.

— *strenuus* Billings, 1874; Pal. Foss., vol. 2, p. 71, fig. 41. Potsdam.

— *strenuus* Matthew, 1886; Trans. Royal Soc. Canada, vol. 2, p. 153, figs. 3, 3 a, b.

— *subclavatus* Billings. (See *Ptychaspis subclavatus*.)

— [*Arionellus* (*Bathyurus*)] *texanus* Shumard, 1861; Am. Jour. Sci., 2d series, vol. 32, p. 218. Potsdam.

— [*Arionellus*] *tripunctatus* Whitfield, 1876; Rept. Recon. Upper Missouri, p. 141, pl. 1, figs. 3-5. Potsdam.

— [*Bathyurus*?] *woosteri* Whitfield, 1878; Ann. Rept. Geol. Survey Wisconsin, 1877, p. 56. Potsdam.

— [*Bathyurus*?] *woosteri* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 189, pl. 1, figs. 19-21.

Amphion Pander, 1830; Beiträge zur Geol. russischen Reiches, p. 139.

Type, *Amphion fischeri* Eichwald.

- Amphion barrandi** Billings, 1865; Pal. Foss., vol. 1, p. 288, fig. 277. Quebec.
 — **canadensis** Billings, 1859; Can. Nat., vol. 4, p. 381, fig. 12, a, b. Chazy.
 — **canadensis** Billings, 1863; Geol. Survey Canada, p. 133, fig. 69.
 — **canadensis** Billings, 1865; Pal. Foss., vol. 1, p. 288, fig. 278.
 — **convexus** Billings, 1865; Pal. Foss., vol. 1, p. 322. Quebec.
 — **insularis** Billings, 1865; Pal. Foss., vol. 1, p. 290. Quebec.
 — **julius** Billings, 1865; Pal. Foss., vol. 1, p. 290, fig. 279. Quebec.
 — **matutina** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 222, pl. 5 a, fig. 6. Potsdam.
 — **multisegmentatus**. (See **Encrinurus multisegmentatus**.)
 — **nevadensis** Walcott, 1884; Pal. Eureka Dist. Mon. U. S. Geol. Survey, vol. 8, p. 94, pl. 12, fig. 13. Pogonip.
 — **salteri** Billings, 1861; Canadian Naturalist, vol. 6, p. 322, fig. 6. Calciferous.
 — **salteri** Billings, 1865; Pal. Foss., vol. 1, p. 352, fig. 399.
 — **westoni** Billings, 1865; Pal. Foss., vol. 1, p. 321, fig. 307. Quebec.
Ampyx Dalman, 1826; Palæad., p. 53 (German edition).
 Type, *Ampyx nasuta* Dalman.
 — **americanus** Safford and Vodge, 1889; Proc. Phila. Acad. Nat. Sci., p. 166, figure. Trenton.
 — **halli** Billings, 1861; Pal. Foss., vol. 1, p. 24, figs. 25, a, b, c. Chazy.
 — **halli** Billings, 1862; Geol. Survey Vermont, vol. 2, p. 959, fig. 365.
 — **læviusculus** Billings, 1865; Pal. Foss., vol. 1, p. 295, fig. 285. Quebec.
 — **normalis** Billings, 1865; Pal. Foss., vol. 1, p. 295, fig. 286. Quebec.
 — **rustilius** Billings, 1865; Pal. Foss., vol. 1, p. 296. Quebec.
 — **semicostatus** Billings, 1865; Pal. Foss., vol. 1, p. 297, fig. 287. Quebec.
Angelina Salter, 1864; Mem. Geol. Survey United Kingdom, decade xi, pl. 7.
 Type, *Angelina sedgwicki* Salter.
 — **hitchcocki** Whitfield, 1884; Bull. Am. Mus. Nat. Hist., New York, vol. 1, p. 148, pl. 14, fig. 13. (See **Protypus hitchcocki**.) Potsdam.
Anomocare Angelin, 1852; Palæont. Scand., p. 24.
 Type, *Anomocare aculeatus* Ang., pl. 18, fig. 6.
 — [*? Conoceph.*] **depressus** Shumard, 1861; Am. Jour. Sci., 2d series, vol. 32, p. 219. Potsdam.
 — [*Lonchocephus*] **hamulus** Owen, 1852; Geol. Survey Wisconsin, Iowa, and Minnesota, p. 576, pl. 1 a, figs. 8-12. Potsdam.
 — undet. Trilobite, Owen, 1848; Geol. Reconnaissance Chippewa Land Dist., p. 15, pl. 7, fig. 5.
 — [*Conocephalites*] **hamulus** Shumard, 1863; Acad. Sci. St. Louis, vol. 2, p. 104.
 — [*Conocephalites*] **hamulus** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 166, pl. 7, figs. 43, 44; pl. 8, figs. 25, 26.
 — **hamulus** Dames, 1884; China (Richthofen), vol. 4, p. 24.
 — [*Conocephalites*] **pateroni** Hall, 1863; Rept. New York State Cab. Nat. Hist., p. 159, pl. 7, figs. 45, 46. Potsdam.
 — **pateroni** Dames, 1884; China (Richthofen), vol. 4, p. 24.
 — ? **parvum** Walcott, 1884; Pal. Eureka Dist. Mon. U. S. Geol. Survey, vol. 8, p. 59, pl. 9, fig. 17. Cambrian.
 — ? **parvum** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 209, pl. 25, fig. 1.
 — [*Crepicephalus*?] **wisconsensis** Owen, 1852; Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, pl. 1, fig. 13. (The upper figure only; the other figured specimen belongs to *Dikelocephalus granulatus*.)
 — [*Crepicephalus*] **wisconsensis** Shumard, 1863; Trans. Acad. Sci. St. Louis, vol. 2, p. 103.

- Anomocare* [*Crepicephalus*] **wisconsensis** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 164, pl. 7, figs. 39-41; pl. 8, figs. 22, 23, 24, 27, 28.
 Syn., *Dikelocephalus latifrons* (Shumard) Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 165, pl. 7, fig. 40.
- **wisconsensis** Dames, 1884; China (Richthofen), vol. 4, p. 24. Potsdam.
- Anopolenus* Salter, 1864; Geol. Mag., vol. 1, p. 236.
 Type, *Anopolenus henrici* Salter; Quar. Jour. Geol. Soc. London, vol. 20, p. 236, pl. 13, figs. 4, 5. (See, also, *Anopolenus salteri* Hicks; same journal, vol. 21, p. 478, pl. , fig. 1.
- **venustus** Billings, 1874; Pal. Foss., vol. 2, p. 73, fig. 42. Potsdam.
- Arethusina* Barrande, 1852; Syst. Sil. Bohême, vol. 1, p. 493.
 Type, *Arethusina konincki* Barrande.
- **americana** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 62, pl. 9, fig. 27. Cambrian.
- Arges*. (See *Lichas*.)
- Arges*, subgenus *Lichas*, Hall and Clarke, 1888; Pal. New York, vol. 7, p. lx.
- *phlyctanodes* Green. (See *Lichas phlyctanodes*.)
- *arionellus*. (See *Agraulos*.)
- Asaphiscus* Meek, 1873; 6th Ann. Rept. U. S. Geol. Survey Territories, p. 485 (foot-note).
 — [*Bathyurellus* (*Asaphiscus*)] **bradleyi** Meek, 1873; 6th Ann. Rept. U. S. Geol. Survey Territories, p. 484. Cambrian.
- **bradleyi** Meek, 1873; 6th Ann. Rept. U. S. Geol. Survey Territories, p. 485.
- **wheeleri** Meek, 1873; 6th Rept. U. S. Geol. Survey Territories, p. 485 (foot-note). Cambrian.
- **wheeleri** White, 1875; Geog. and Geol. Survey West 100th Meridian, vol. 4, p. 43, pl. 2, figs. 1 a-f.
- **wheeleri** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 220, pl. 31, figs. 3, 3 a.
- Asaphus* Brongniart, 1822; Hist. Nat. Crust. Foss., p. 18, pl. 2, fig. 1 a, b.
 Type, *Asaphus expansus* Linné.
 Syn., *Cryptonymus*, Eichwald, 1825; (in part) not *Cryptonymus* Eichwald, 1840.
Isotelus De Kay, 1822; Annals Lyceum Nat. Hist. New York, vol. 1, p. 174.
Hemicrapturus Green, 1832; Mon. Tril. North America, p. 20.
- *acantholeurus*. (See *Dalmanites acantholeurus*.)
- **alacer** Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 26, fig. 9.
- *aspectans*. (See *Dalmanites aspectans*.)
- **astragalotes** Green, 1834; Am. Jour. Sci., 1st series, vol. 25, p. 335.
- **astragalotes** Green, 1835; Suppl. Mon. Tril. N. A., p. 11, cast 37.
 Probably *Phacops rana* Green.
- **barrandi**. (See *Ogygia barrandi*.)
- **canadensis** Chapman, 1856; Canadian Jour., vol. 1, p. 482. Utica Slate.
- **canadensis** Chapman, 1858; Canadian Jour., vol. 2, p. 47.
- **canadensis** Chapman, 1858; Canadian Jour., vol. 3, p. 230, figure.
- **canadensis** Chapman, 1859; Canadian Jour., vol. 4, p. 1, figure.
- **canadensis** Chapman, 1859; Annals Nat. Hist., 3d series, vol. 2, p. 9, fig. 1.
- **canadensis** Billings, 1863; Geol. Survey Canada, p. 204, fig. 201.
 From a personal study of the species collected on the Georgian Bay, Canada, I am inclined to refer *Asaphus halli* and *A. hincksii* to *Asaphus canadensis* Chapman.
- [*Isotelus*] **canalis** Conrad MSS. Chazy.
- [*Isotelus*] **canalis** Hall, 1847; Pal. New York, vol. 1, p. 25, pl. 4 bis, figs. 17-19.
- **canalis** Billings, 1865; Pal. Foss., vol. 1, p. 255; also p. 352, fig. 340 (not Conrad sp.).
- **canalis** Billings, 1862; Geol. Vermont, vol. 1, p. 299, pl. 12, fig. 5.
 This species is probably *Asaphus platycephalus*.

- Asaphus canalis** Whitfield, 1886; Bull. Am. Mus. Nat. Hist., New York, vol. 1, p. 336, pl. 34, figs. 1-8.
- **canalis** Whitfield, 1889; Bull. Am. Mus. Nat. Hist., New York, vol. 2, p. 64, pls. 11, 12.
- **caribouensis** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 98, pl. 12, figs. 7-7 a, b. Pogonip.
- **caudatus**. (See **Dalmanites limulurus**.)
- **cordieri**. (See **Dalmanites limulurus**.)
- **corycæus**. (See **Proetus corycæus**.)
- **crypturus**. (See **Homalonotus crypturus**.)
- **curiosus** Billings, 1865; Pal. Foss., vol. 1, p. 318, fig. 305. Quebec.
- ? **curiosus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 98, pl. 12, fig. 15.
- **denticulatus**. (See **Dalmanites denticulatus**.)
- **ditmarsæ** Honeyman, 1879; Proc. Nova Scotia Inst. Nat. Sci., vol. 5, p. 18. Clinton?
(See **Homalonotus crypturus** Green.)
- **duirus** Green, 1839; Am. Jour. Sci., 1st series, vol. 37, p. 40. Hudson.
- **edwardi**. (See **Dalmanites limulurus**.)
- **emoryi** Hall, 1857; Rept. U. S. Mexican Boundary Survey, vol. 1, pl. 20, fig. 5. Not defined.
- **extans**. (See **Bathyrurus extans**.)
- **gigas**. (See **Asaphus platycephalus**.)
- [*Megalaspis*?] **goniocercus** Meek, 1873; 6th Ann. Rept. U. S. Geol. Survey Territories, p. 480. Quebec.
- **goniurus** Billings, 1860; Canadian Naturalist, vol. 5, p. 324. Quebec.
- **goniurus** Billings, 1865; Pal. Foss., vol. 1, p. 415.
- **halli**. (See **Cryphæus boothi**.)
- **halli** Chapman, 1858; Annals Nat. Hist., 3d series, vol. 2, p. 14, fig. 2. Trenton and Utica.
- **halli** Chapman, 1858; Canadian Jour., 2d series, vol. 3, p. 236, figure. This species is the same as *Asaphus canadensis* Chapman.
- **hincksii** Chapman, 1859; Canadian Jour. Industry, Sci. and Arts, vol. 4, p. 2, figure. (See **Asaphus canadensis** Chapman.) Utica.
- **homalonotoides** Walcott, 1877; Advanced sheets 31st Rept. New York State Mus. Nat. Hist., p. 20. Trenton.
- **homalonotoides** Walcott, 1879; 31st Rept. New York State Mus. Nat. Hist., p. 71.
- **homalonotoides** Whitfield (not Walcott), 1882; Geol. Wisconsin, vol. 4, p. 237. (See **Asaphus triangulatus**.)
- **huttoni** Billings, 1865; Pal. Foss., vol. 1, p. 271, fig. 256. Quebec.
- **illænoides** Billings, 1860; Canadian Naturalist, vol. 5, p. 323.
- **illænoides** Billings, 1865; Pal. Foss., vol. 1, p. 414.
- [*Isotelus*] **iowensis** Owen, 1852; Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, p. 577, pl. 2 a, figs. 1-7. Trenton.
- **laticostatus**. (See **Dalmanites anchiops**.)
- ? **latimarginata** Hall, 1847; Pal. New York, vol. 1, p. 253, pl. 66, figs. 4 a, b. Utica.
- **limulurus**. (See **Dalmanites limulurus**.)
- **marginalis** Hall, 1847; Pal. New York, vol. 1, p. 24, pl. 4 bis, fig. 15. Chazy.
- **marginalis** Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 235, pl. 3, fig. 16.
- [*Isotelus*] **maximus** Locke, 1838; 2d Ann. Rept. Geol. Survey Ohio, p. 246, figs. 8, 9. Trenton and Hudson.
- Syn., *Isotelus megistos* Locke, 1841; Trans. Am. Assoc. Geol. Nat., p. 221, pl. 6.
- Isotelus megistos* Locke, 1842; Am. Jour. Sci., 1st series, vol. 42, p. 366, pl. 3.

- Syn., *Isotelus megistos* Meek, 1873; Pal. Ohio, vol. 1, p. 157, pl. 14, fig. 13.
Isotelus megistos Miller, 1874, Cincinnati Quart. Jour. Sci., vol. 1, p. 137.
Asaphus megistos Walcott, 1884; Science, March 7, fig. 1, vol. 3, p. 200.
- Asaphus megalopthalmus** Troost, 1840; 5th Geol. Rept. Tennessee, p. 57.
 Trenton?
- **micropleurus** Green, 1835; Suppl. Mon. Tril. North America, p. 21, cast No. 41.
 — *micrurus*. (See *Dalmanites micrurus*.)
 — *morrisi* Billings, 1865; Pal. Foss., vol. 1, p. 272, fig. 257, Syn. to **Asaphus huttoni** Billings.
 — *murchisoni* Castelnau, Syn. to **Asaphus platycephalus** Stokes.
 — *myrmecophorus*. (See *Dalmanites myrmecophorus*.)
 — *nasutus*. (See *Dalmanites nasutus*.)
 — ? *nodostriatus* Hall, 1847; Pal. New York, vol. 1, p. 248, pl. 61, figs. 1 a, b. (See **Bathyurus extans** Hall.)
 — *notans* Billings, 1866; Catalogue Silurian Foss. Anticosti, p. 25, fig. 8.
 Compare *Asaphus maximus* Locke.
 — ? *obtusum* Hall, 1847; Pal. New York, vol. 1, p. 24, pl. 4 bis, fig. 14. Chazy.
 — *obtusum* Emmons, 1855; American Geology, vol. 2, pt. 2, p. 236, pl. 3, fig. 14.
 — *pelops* Billings, 1865; Pal. Foss., vol. 1, p. 317, fig. 304. Quebec
 — **platycephalus** Stokes, 1823; Trans. Geol. Soc. London, 2d series, vol. 1, p. 208, pl. 27. Trenton.
- Syn., *Isotelus gigas* De Kay, 1824; Annals Lyceum Nat. Hist. New York, vol. 1, p. 176, pl. 12, fig. 1.
Isotelus planus De Kay, 1824; Annals Lyceum Nat. Hist. New York, vol. 1, p. 178, pl. 13, fig. 7.
Asaphus gigas Dalman, 1826; Palæad., p. 70.
Asaphus gigas and *planus* Dalman, 1826; Palæad., p. 70.
Isotelus gigas Green, 1832; Monthly Am. Jour. Geol., p. 560.
Isotelus gigas Green, 1832; Mon. Tril. N. A., p. 71, cast 21, 22.
Isotelus planus Green, 1832; Monthly Am. Jour. Geol., p. 560; Mon. Tril. N. A., p. 68, cast 23.
Isotelus stegops Green, 1832; Mon. Tril. N. A., p. 71, cast 26, 27.
Brongniartia isotelea Eaton, 1832; Geological Text Book, p. 33, pl. 2, fig. 22.
- **platycephalus** Bronn, 1835; Lethæa Geogn., vol. 1, p. 115, pl. 9, fig. 8.
 Syn., *Isotelus gigas* Milne-Edwards, 1840; Crust., vol. 3, p. 298.
 — **platycephalus** Buckland, 1840; Bridgw. Treatise, vol. 2, p. 76, pl. 63, fig. 12.
 — **platycephalus** Burmeister, 1843; Org. Trilobites, p. 110, pl. 2, fig. 12 (Ray Soc. ed., 1846).
 Syn., *Isotelus gigas* Portlock, 1843; Geol. Rept. Londonderry, p. 295, pl. 7, fig. 1; pl. 8, fig. 1.
Isotelus planus Portlock, 1843; Geol. Rept. Londonderry, p. 295, pl. 7, figs. 2, 3.
Isotelus gigas Hall, 1847; Pal. New York, vol. 1, p. 231, pls. 60-63.
Isotelus gigas Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 215, pl. 16, fig. 12.
- [*Isotelus*] **platycephalus** Bronn and Roemer, 1851-56; Lethæa Geogn., vol. 1, p. 632, pl. 9, fig. 8; pl. 9¹, fig. 5.
 — **platycephalus** Nieszkowski, 1857; Mon. Sil. Ostseeprovinz, Tril., p. 37.
 Syn., *Isotelus gigas* Rogers, 1858; Geol. Survey Pennsylvania, vol. 2, p. 819, fig. 610.
 — **platycephalus** Billings, 1863; Geol. Survey Canada, p. 184, fig. 183.
 Syn., *Asaphus (Isotelus) gigas* Salter, 1864; Mon. Brit. Tril., p. 161, pl. 24, figs. 1-5; pl. 25, fig. 1 (var.).
Asaphus (Isotelus) gigas Salter, 1864; Mem. Geol. Survey United Kingdom, decade xi, pl. 3.

Asaphus platycephalus Billings, 1870; Quart. Jour. Geol. Soc. London, vol. 26, p. 486, pls. 31, 32.

Syn., *Isotelus gigas* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 138.

— **platyleurus** Green, 1837; Am. Jour. Sci., 1st series, vol. 32, p. 169. (See *Dalmanitis platyleurus*.)

— **polypleurus** Green, 1838; Am. Jour. Sci., 1st series, vol. 34, p. 380.

— **quadraticaudatus** Billings, 1865; Pal. Foss., vol. 1, p. 273, fig. 258. Quebec.

— **roemingeri** Walcott, 1876; 28th Rept. New York State Mus. Nat. Hist., p. 96. Trenton.

— *selenurus*. (See *Dalmanites selenurus*.)

— *stokesi*. (See *Proetus stokesi*.)

— *susæ* Calvin; MSS.

— *susæ* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 236, pl. 5, fig. 3; pl. 10, fig. 8. Trenton.

— **tetragonocephalus** Green, 1834; Am. Jour. Sci., 1st series, vol. 25, p. 135.

— **tetragonocephalus** Green, 1835; Suppl. Mon. Tril. N. A., p. 12, cast 38.

— [*Paradoxides*] **tetragonocephalus** Emmrich, 1839; De Tril., etc., p. 34.

The cast issued with Dr. Green's monograph as No. 38 may be the same species which Dr. Emmons afterwards described as *Atops trilineatus*. It has about sixteen segments in the thorax, also obscure nodes along the axis. The head shows the ocular ridges of a *Ptychoparia*, whereas the segments are those characteristic of the *Oleni*. It is too imperfect for generic classification.

— *trentonensis*. (See *Lichas trentonensis*.)

— **triangulatus** Whitfield, 1880; Ann. Rept. Geol. Survey Wisconsin, 1879, p. 59. Trenton.

This species is the *Asaphus homalonotoides* of the Final Report, vol. 4, p. 237, pl. 5, fig. 4.

— ? **trimblii** Green, 1837; Acad. Nat. Sci. Phila., Jour., vol. 7. Niagara.

— **trimblii** Green, 1837; Am. Jour. Sci., 1st series, vol. 32, p. 348.

— [*Ogygia*?] **vetustus** Hall, 1847; Pal. N. Y., vol. 1, p. 227, pl. 60, fig. 1.

Trenton and Hudson.

— ? [*Ogygia*] **vetustus** Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 216, fig. 72.

— [*Isotelus*] **vigilans** Meek and Worthen, 1870; Proc. Acad. Nat. Sci. Phila., p. 53. Hudson.

— [*Isotelus*] **vigilans** Meek and Worthen, 1875; Geol. Illinois, vol. 6, p. 491, pl. 23, fig. 6.

— **wisconsensis** Walcott, 1876; 28th Rept. N. Y. State Mus. Nat. Hist., p. 97. Trenton.

Aspidolites Conrad, 1841; 4th Ann. Rept. Pal. Dept. New York Geol. Survey, p. 48.

Atops Emmons, 1844; Taconic System, p. 20.

Type, *Atops trilineatus* Emmons.

— **trilineatus** Emmons 1844; Taconic System, p. 20, fig. 1, pl. 2, fig. 3. Taconic.

— **trilineatus** Emmons, 1847; Nat. Hist. New York, Agriculture, vol. 1, p. 64, fig. 8, pl. 14, fig. 3.

Syn., *Calymene beckii* Hall, 1847; Pal. New York, vol. 1, p. 252, pl. 67, figs. 4 a-4 e (not *Calymene beckii* Green, or *Atops trilineatus* Emmons).

— **trilineatus** Haldeman, 1848; Am. Jour. Sci., 2d series, vol. 5, p. 107.

— **trilineatus** Emmons, 1849; Proc. Am. Assoc. Adv. Sci., 1st Meeting, Phila., 1848, pp. 16, 17.

Syn., *Calymene beckii* Fitch, 1849; Trans. Agric. Soc. New York, vol. 9, p. 865 (not *Calymene beckii* Green).

— **trilineatus** Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 115, pl. 1, fig. 16.

Syn., *Atops punctatus* Emmons, 1860; Manual Geology, p. 88, fig. 71; also p. 280.

- Atops trilineatus** Barrande, 1861; Bull. Soc. Géol. France, 2d series, vol. 18, p. 269, pl. 5, fig. 1.
- **trilineatus** Barrande, 1861; Bull. Soc. Géol. France, 2d series, vol. 18, p. 271, pl. 5, fig. 3.
- [*Conocephalites* (*Atops*)] **trilineatus** Ford, 1871; Am. Jour. Sci., 3d series, vol. 2, p. 33.
- [*Conocephalites*] **trilineatus** Ford, 1873; Am. Jour. Sci., 3d series, vol. 6, p. 135.
- [*Conocephalites* (*Atops*)] **trilineatus** Ford, 1879; Am. Jour. Sci., 3d series, vol. 9, p. 205.
- [*Triarthrus*] **trilineatus** Miller, 1877; Catalogue Am. Pal. Foss., p. 223.
- [*Conocoryphe*] **trilineatus** Ford, 1880; Am. Jour. Sci., 3d series, vol. 19, p. 152. Syn., *Triarthrus becki* Walcott, 1879; Trans. Albany Inst., vol. 10, p. 23.
- [*Ptycoparia*] **trilineatus** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 203, pl. 27, fig. 1 a-c.
- [*Conocoryphe*] **trilineatus** Walcott, 1887; Am. Jour. Sci., 3d series, vol. 34, p. 197, pl. 1, fig. 7 a, b.
- Bailiella** Matthew, 1884; Trans. Royal Soc. Canada, vol. 1, p. 124 (used as a subgenus to *Conocoryphe* (*Bailiella*) *Baileyi*).
- Barrandia** Hall, 1860; 13th Rept. New York State Cab. Nat. Hist., p. 115 (not *Barrandia* McCoy). (See *Olenellus*.)
- *thompsoni*. (See *Olenellus thompsoni*.)
- *vermontana*. (See *Olenellus vermontana* and *Mesonasis vermontana*.)
- Barrandia** McCoy, 1849; Annals Nat. Hist., 2d series, vol. 4, p. 409.
- Type, *Barrandia cordai* McCoy.
- ? *mccoyi* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 96, pl. 12, fig. 5. Pogonip.
- Bathynotus** Hall, 1860; 13th Rept. New York State Cab. Nat. Hist., p. 117.
- Type, *Bathynotus holopyga* Hall.
- [*Peltura* (*Olenus*)] **holopyga** Hall, 1859; 12th Rept. New York State Cab. Nat. Hist., p. 61, figure.
- [*Peltura* (*Olenus*)] **holopyga** Hall, 1859; Pal. New York, vol. 3, p. 528, figure.
- Syn., *Paradoxides?* *quadrispinosus* Emmons, 1860; Manual Geology, p. 80, fig. 57. *Paradoxides* (*Pagura*) *quadrispinosus* Emmons, 1860; Manual Geology, p. 280, fig. 57.
- **holopyga** Hall, 1860; 13th Rept. New York State Cab. Nat. Hist., p. 118, figure.
- **holopyga** Hall, 1861; Geol. Vermont, vol. 1, p. 371, pl. 13, fig. 3.
- [*Peltura* (*Olenus*)] **holopyga** Barrande, 1861; Bull. Soc. Géol. France, 2d series, vol. 18, p. 278, pl. 5, figs. 9, 10.
- **holopyga** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 191, pl. 31, figs. 1-1 a. Middle Cambrian.
- Bathyurellus** Billings, 1865; Pal. Foss., vol. 1, p. 262.
- **abruptus** Billings, 1865; Pal. Foss., vol. 1, p. 263, fig. 247. Quebec.
- [*Asaphiscus*] *bradleyi* Meek. (See *Asaphiscus bradleyi*.)
- **expansus** Billings, 1865; Pal. Foss., vol. 1, p. 318, figs. 306 a, b. Quebec.
- Compare *B. nitidus* and *B. marginatus* Billings.
- **formosus** Billings, 1865; Pal. Foss., vol. 1, p. 265, fig. 250. Quebec.
- **fraternus** Billings, 1865; Pal. Foss., vol. 1, p. 267, fig. 251. Quebec.
- The head of this species may belong to Salter's genus *Stygina*.
- **litoreus** Billings, 1865; Pal. Foss., vol. 1, p. 320. Quebec.
- **marginatus** Billings, 1865; Pal. Foss., vol. 1, p. 263, fig. 248. Quebec.
- Compare *B. nitidus* and *B. expansus* Billings.
- **nitidus** Billings, 1865; Pal. Foss., vol. 1, p. 265, fig. 249. Quebec.
- On page 320 Mr. Billings says that it may be found necessary to unite *B. nitidus*, *B. marginatus*, and *B. expansus* into one polymorphic species.

- Bathyurellus rarus** Billings, 1865; Pal. Foss., vol. 1, p. 320, no figure. Quebec.
 — [*Dikelocephalus*] **truncatus** Meek, 1873; 6th Ann. Rept. Geol. Survey Territories, p. 465 (no description given).
 — **validus** Billings, 1865; Pal. Foss., vol. 1, p. 268, fig. 252. Quebec.
 — [*Asaphiscus*] **wheeleri**. (See *Asaphiscus wheeleri*.)
Bathyriscus Meek, 1873; 6th Ann. Rept. U. S. Geol. Survey Territories, p. 484.
 — [*Bathyriscus*?] **haydeni** Meek, 1873; 6th Ann. Rept. U. S. Geol. Survey Territories, p. 483. Potsdam.
 — **haydeni** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 215.
 — **howelli** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 216, pl. 30, figs. 2, 2 a. Middle Cambrian.
 Syn., *Embolimus rotundatus* (Rominger) Walcott, 1888; Am. Jour. Sci., 3d series, vol. 36, p. 165, referred to *Bathyriscus howelli*.
 — [*Ogygia*] **producta** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 244, pl. 2, figs. 31-34. Middle Cambrian.
 — [*Ogygia*] **producta** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 245, pl. 2, fig. 35.
 — **producta** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 217, pl. 30, figs. 1, 1 a-c.
Bathyrurus Billings, 1859; Canadian Naturalist, vol. 4, p. 364.
 Type, *Bathyrurus extans* Hall.
 — **amplimarginatus** Billings, 1857; Canadian Naturalist, vol. 4, p. 365, fig. 12 a, b. Calciferous.
 — **amplimarginatus** Billings, 1863; Geol. Canada, p. 122, fig. 41.
 — **amplimarginatus** Billings, 1865; Pal. Foss., vol. 1, p. 352, fig. 341 a.
 — **angelini** Billings, 1859; Canadian Naturalist, vol. 4, p. 467, fig. 37. Chazy.
 — **angelini** Billings, 1863; Geol. Canada, p. 133, fig. 68.
 — **arcuatus** Billings, 1865; Pal. Foss., vol. 1, p. 205, fig. 190. Quebec.
 — **armatus** Billings, 1860; Canadian Naturalist, vol. 5, p. 319, fig. 23.
 — **armatus** Billings, 1865; Pal. Foss., vol. 1, p. 411, fig. 392.
 — **armatus** Walcott, 1879; 32d Rept. New York State Mus. Nat. Hist., p. 131.
 — [*Dorypyge*?] **armatus** Vogdes, Bull. U. S. Geol. Survey No. 63 (this bulletin).
 — **bituberculatus** Billings, 1860; Canadian Naturalist, vol. 5, p. 319, fig. 22; also Geol. Canada, 1863, p. 238, fig. 270. Quebec.
 — **bituberculatus** Billings, 1865; Pal. Foss., vol. 1, p. 410, fig. 391.
 If this species is correctly represented by Mr. E. Billings it can not be included within the limits of *Bathyrurus*. As we know of no other to which it bears a resemblance, the new generic term of *Lloydia* is proposed, in honor of the first author on Trilobites, Edward Lhwyd. Diagnosis: Glabella tumid and extending to the frontal limb; basal lobes elongate-oval, pointed at both ends, separated from the glabella by shallow, obscure grooves; eyes opposite the mid length of the glabella; thorax unknown.
 — **breviceps** Billings, 1865; Pal. Foss., vol. 1, p. 262, fig. 246. Quebec.
 — **capax** Billings, 1860; Canadian Naturalist, vol. 5, p. 318, fig. 20. Quebec.
 — **capax** Billings, 1863; Geol. Canada, p. 238, fig. 271.
 — **capax** Billings, 1865; Pal. Foss., vol. 1, p. 409, fig. 389.
 A similar species was referred by Mr. R. P. Whitfield (Geol. Survey Wisconsin, vol. 4, pl. 4, fig. 6) to *Dicellosephalus*.
 — **caudatus** Billings, 1865; Pal. Foss., vol. 1, p. 261, fig. 245. Quebec.
 — **conicus** Billings, 1859; Canadian Naturalist, vol. 4, p. 366, fig. 12 d. Calciferous.
 — **conicus** Billings, 1863; Geol. Canada, p. 122, fig. 42.
 — **conicus** Billings, 1865; Pal. Foss., vol. 1, p. 352, fig. 341 b.
 — **conicus** Whitfield, 1889; Bull. Am. Mus. Nat. Hist., vol. 2, No. 2, p. 61, pl. 13, figs. 15-21.

- Bathyrurus ? congeneris** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 92, pl. 12, fig. 8. Pogonip.
- **cordai** Billings, 1860; Canadian Naturalist, vol. 5, p. 321, fig. 26. Calceiferous.
- **cordai** Billings, 1863; Geol. Canada, p. 238, fig. 269.
- **cordai** Billings, 1865; Pal. Foss., vol. 1, p. 259, fig. 242; p. 412, fig. 395.
Compare this species with typical *Solenopleura*.
- ? **crotalifrons** Dwight, 1884; Am. Jour. Sci., 3d series, vol. 27, p. 253, figs. 4, 4a, 5, 6. Calceiferous.
- **cybele** Billings, 1859; Canadian Naturalist, vol. 4, p. 366, fig. 12 c. Calceiferous.
- **cybele** Billings, 1863; Geol. Canada, p. 122, fig. 43.
- **cybele** Billings, 1865; Pal. Foss., vol. 1, p. 352, fig. 341 c.
- **dubius** Billings, 1860; Canadian Naturalist, vol. 5, p. 319, fig. 21. Quebec.
- **dubius** Billings, 1865; Pal. Foss., vol. 1, p. 410, fig. 390.
- [*Asaphus*?] **extans** Hall, 1847; Pal. New York, vol. 1, p. 228, pl. 60, figs. 2 a-c. Trenton.
- [*Asaphus*?] **extans** Hall, 1850; 3d Rept. New York State Cab. Nat. Hist., p. 174, pl. 3, figs. 1 a-c.
Syn., *Asaphus nodostratus* Hall, 1850; 3d Rept. New York State Cab. Nat. Hist., p. 175.
- **extans** Billings, 1863; Geol. Canada, p. 153, fig. 114.
- **gregarius** Billings, 1865; Pal. Foss., vol. 1, p. 363, fig. 349. Potsdam.
Mr. Walcott (Bull. U. S. Geol. Survey, No. 10, p. 36) refers this species to the genus *Solenopleura* Angelin, and remarks that many of the Cambrian species of the genus *Bathyrurus* described in the Canadian reports might be referred to that genus.
- ? **haydeni**. (See *Bathyriscus haydeni*.)
- **longispinus** Walcott, 1876; 28th Rept. N. Y. State Cab. Nat. Hist., p. 94. Trenton.
- **minganensis** Billings, 1865; Pal. Foss., vol. 1, p. 353. Calceiferous.
- **nero**. (See *Solenopleura nero* (Billings) Walcott.)
- **oblongus** Billings, 1860; Canadian Naturalist, vol. 5, p. 321, fig. 25. Quebec.
- **oblongus** Billings, 1865; Pal. Foss., vol. 1, p. 412, fig. 394.
- **parvulus** Billings, 1861; Geol. Vermont, vol. 2, p. 952, fig. 361.
- **parvulus** Billings, 1861; Pal. Foss., Bull. Geol. Sur. Canada p. 16, fig. 21. Potsdam.
- **parvulus** Billings, 1865; Pal. Foss., vol. 1, p. 16, fig. 21.
- **perplexus** Billings, 1865; Pal. Foss., vol. 1, p. 364, fig. 350. Potsdam.
- **perspicator** Billings, 1865; Pal. Foss., vol. 1, p. 205, fig. 191. Quebec.
- **pogonipensis** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 243, pl. 1, figs. 33, 34. Cambrian.
- **quadratus** Billings, 1860; Canadian Naturalist, vol. 5, p. 321, fig. 27. Quebec.
- **quadratus** Billings, 1865; Pal. Foss., vol. 1, p. 412, fig. 396.
- **saffordi** Billings, 1860; Canadian Naturalist, vol. 5, p. 321, fig. 24. Quebec.
- **saffordi** Billings, 1865; Pal. Foss., vol. 1, p. 259, fig. 341; p. 411, fig. 393.
- **seelyi** Whitfield, 1886; Bull. Am. Mus. Nat. Hist., New York, vol. 1, No. 8, p. 339, pl. 33, figs. 12-18. Birdseye.
- **seelyi** Whitfield, 1889; Bull. Am. Mus. Nat. Hist., New York, vol. 2, No. 2, p. 62, pl. 13, figs. 8-14.
- **senectus** Billings, 1861; Bull. Geol. Sur. Canada, p. 16. Potsdam.
- **senectus** Billings, 1861; Geol. Vermont, vol. 2, p. 953, figs. 359, 360.
- **senectus** Billings, 1863; Geol. Canada, p. 236, figs. 298 a, b; Pal. Foss., vol. 1, p. 16 (1865), figs. 19, 20.
Referred to *Prototypus senectus* Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 213, pl. 31, figs. 2, 2 a-c.

- Bathyrus serratus** Meek, 1873; 6th Ann. Rept. U. S. Geol. Survey Territories, p. 480. Potsdam.
- ? **simillimus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 93, pl. 12, fig. 11. Pogonip.
- **smithi** Billings, 1863; Geol. Canada, p. 153, fig. 115. Trenton.
- **smithi** Billings, 1865; Pal. Foss., vol. 1, p. 56.
- **solitaricus** Billings, 1865; Pal. Foss., vol. 1, p. 362. Quebec.
- [*Acidaspis*] **spiniger** Hall, 1847; Pal. New York, vol. 1, p. 241, pl. 64, fig. 5. Trenton.
- **stonemani** Vogdes, 1884; 12th Ann. Rept. Geol. Nat. Hist. Minnesota, p. 8. Trenton.
- **strenuus** Billings, 1865; Pal. Foss., vol. 1, p. 204, fig. 188. Quebec.
- **taurifrons** Dwight, 1884; Am. Jour. Sci., 3d series, vol. 27, p. 252, pl. 7, figs. 1-3. Calceiferous.
- **timon** Billings, 1865; Pal. Foss., vol. 1, p. 261, fig. 244. Quebec.
- ? **tuberculatus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 12, fig. 9. Pogonip.
- **vetula** Billings, 1865; Pal. Foss., vol. 1, p. 365. Potsdam.
- [*Agraulos* (*Bathyrus*?)] **woosteri** Whitfield, 1878; Ann. Rept. Geol. Survey Wisconsin, p. 56. Potsdam.
- [*Agraulos* (*Bathyrus*?)] **woosteri** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 189, pl. 1, figs. 19-21.
- Bohemilla** Barrande, 1872; Syst. Sil. Bohême, Suppl., vol. 1, p. 137.
Type, *Bohemilla stupenda* Barrande.
- Brongniartia* Eaton, Am. Jour. Sci., 1st series, vol. 22, p. 166, and Geol. Text-Book, p. 32 (Syn., *Asaphus* in part), not *Brongniartia* Salter (subgenus *Homalonotus*).
- **carcinoides** Eaton. (See *Triarthrus becki*.)
- **isoleta**. (See *Asaphus platycephalus*.)
- **platycephus** Eaton. (See *Homalonotus delphinocephalus*.)
- Brachymetopus** McCoy, 1847; Ann. Nat. Hist., vol. 20, p. 220.
Type, *Brachymetopus maccoyi* Portlock.
- [*Phillipsia* (*Griffithides*)] **lodiensis** Meek, 1875; Pal. Ohio, vol. 2, p. 323, pl. 18, fig. 3. Waverly.
- **lodiensis** Vogdes, 1888; Annals New York Acad. Sci., vol. 4, p. 102.
- [*Phillipsia* (*Brachymetopus*)] **ornata** Hall. (See *Cyphaspis ornata*.)
- Bronteus** Goldfuss, 1839; Beiträge Petrefactenkunde, Nova Acta Physico-Med., vol. 19, p. 360, pl. 33, fig. 3.
Type, *Bronteus flabellifera* Goldfuss.
Syn., *Goldius* De Koninck, 1841; Mém. Crust. Foss. Belgique, p. 5.
- **acamas** Hall, 1865; 20th Rept. New York State Cab. Nat. Hist., p. 332, pl. 21, figs. 19, 20. Niagara.
- **acamas** Hall, 1870; 20th Rept. New York State Cab. Nat. Hist., p. 422, pl. 21, figs. 19, 20 (rev. ed.).
- **barrandi** Hall, 1859; Pal. New York, vol. 3, p. 350, pl. 63, figs. 1-4. Lower Helderberg.
- **canadensis** Logan, 1844; Geol. Canada, p. 54, 2 figs. Lower Helderberg.
- **insularis** Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 66.
- **laphami** Whitfield, 1878; Ann. Rept. Geol. Survey Wisconsin (1877), p. 88. Niagara.
- **laphami** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 310, pl. 22, figs. 1-4.
- **lunatus** Billings, 1857; Geol. Canada, p. 338. Trenton.
- **lunatus** Billings, 1863; Geol. Canada, p. 188, fig. 187.
- ? **niagarensis** Hall, 1852; Pal. New York, vol. 3, p. 314, pl. 70, fig. 3. Niagara.

- Bronteus occasus** Winchell and Marcy, 1866; Mem. Boston Soc. Nat. Hist., vol. 1, p. 104, pl. 3, fig. 12. Niagara.
- **occasus** (Winchell and Marcy) Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 400.
- **pompilius** Billings, 1863; Proc. Portland Soc. Nat. Hist., p. 123, pl. 1, fig. 25. Upper Silurian.
- **tullius** Hall, 1888; Pal. New York, vol. 7, p. 12, pl. 8, figs. 34-36. Hamilton.
- Bumastus** Murchison, 1839; Sil. Syst., p. 656. Subgenus, *Illænus*.
- Calymene** Brongniart, 1822; Crust. Fos., p. 9.
- Type, *Calymene tuberculata* Bünnich, 1781.
- Syn., *Prionocheilus*, Rouault, Bull. Soc. Géol. France, vol. 4, 1846, p. 309.
- *anchiops*. (See *Dalmanites anchiops*.)
- *beckii*. (See *Triarthrus becki*.)
- **blumenbachi** Brongniart, 1822; Crust. Foss., p. 11, pl. 1, figs. 1 a-d.
- **blumenbachi** Barrande, 1852; Syst. Sil. Bohême, pls. 19 and 45.
- **blumenbachi** Salter, 1863; Mon. Brit. Trilobites, pl. 8, figs. 7-11, 13-16; pl. 9, fig. 1.
- This species should take the older name of *Calymene tuberculata* Bünnich.
- **blumenbachi** (Green) not Brong., Mon. Tril. N. A., p. 28, cast 1.
- **blumenbachi** ? Foerste, 1885; Bull. Denison Univ., vol. 1, p. 100, pl. 13, fig. 25.
- *bucklandi*. (See *Ceraurus pleurexanthus* Green.)
- *bufo*. (See *Phacops bufo* Green.)
- *bufo* var. *rana*. (See *Phacops rana* Green.)
- **callicephala** Green, 1832; Mon. Tril. N. A., p. 30, cast 2.
- **callicephala** Burmeister, 1843; Org. Trilobiten, p. 83, pl. 2, figs. 9-10 (Ray Soc. ed.).
- **callicephala** Miller, 1862; Jour. Cincinnati Soc. Nat. Hist., vol. 5, p. 117, pl. 5, fig. 8.
- The cast of this species (from a dark yellowish limestone of Hampshire County, Virginia), issued with Dr. Green's monograph, exhibits a *Calymene* with a broad frontal margin. The other specimens referred to by Dr. Green from Ohio and Indiana are species of the well-known *Calymene senaria* Conrad.
- **camerata** Conrad, 1842; Jour. Acad. Nat. Sci. Phila., vol. 8, p. 278. Niagara.
- **camerata** Hall, 1852; Pal. New York, vol. 2, p. 337, pl. 78, figs. 10 a-f.
- **christyi** Hall, 1860; 13th Rept. New York State Cab. Nat. Hist., p. 119. Hudson.
- **christyi** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., pl. 10, figs. 1, 2, and 5.
- **christyi** Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 107, pl. 4, figs. 13-15.
- **christyi** Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 141.
- [*Hemicrypturis*] **clintoni** Vanuxem, 1842; Geol. New York, 3d Geol. Dist., p. 79, fig. 3; also p. 80. Clinton.
- **clintoni** Hall, 1852; Pal. New York, vol. 2, p. 298, pl. 66 a, figs. 5 a-d.
- **clintoni** Rogers, 1858; Geol. Survey Pennsylvania, vol. 2, p. 823, fig. 637.
- **clintoni** Vogdes, 1880; Proc. Acad. Nat. Sci. Phila., p. 178, figs. 3, 4 (not fig. 3).
- **clintoni** Vogdes, 1886; Des. New Species Foss. Crust. Clinton Group, p. 5, figs. 3, 4. (See *Calymene vogdesii* Foerste.)
- **conradi** Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 236. Hudson.
- *crassimarginata*. (See *Proetus crassimarginata*.)
- **diops** Green, 1832; Mon. Tril. N. A., p. 37, pl. 1, fig. 2, cast 8 (*Proetus diops*).
- *macrophthalma* Green, 1832; Mon. Tril. N. A., p. 39, cast 9. (See *Phacops bufo*.)
- **mamillata** Hall, 1861; Geol. Wisconsin, p. 50. Trenton.
- **mamillata** Hall, 1862; Geol. Wisconsin, vol. 1, p. 432, figs. 1, 2.
- *marginatus*. (See *Proetus marginatus*.)

- Calymene microps** Green, 1832; Mon. Tril. N. A., p. 34, cast 6.
 — **multicosta** Hall, 1847; Pal. New York, vol. 1, p. 228, pl. 60, fig. 3. Trenton.
 — **nasuta** Ulrich, 1879; Jour. Cincinnati Soc. Nat. Hist., vol. 2, p. 131, fig. 3. Niagara.
 — **niagarensis** Hall, 1843; Geol. New York, 4th Dist., p. 102, fig. 3 (on p. 101). Niagara.
 — **blumenbachii** var. **niagarensis** Hall, 1852; Pal. New York, vol. 2, p. 307, pl. 67, figs. 11, 12.
 — **blumenbachii** Roemer, 1860; Sil. Fauna W. Tenn., p. 79, pl. 5, fig. 22.
 — **niagarensis** Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 153, pl. 7, figs. 14, 15.
 — **niagarensis** Hall; 20th Rept. New York State Cab. Nat. Hist., p. 334; revised edition, p. 425.
 — **niagarensis** Hall, 1876; Illus. Devon. Foss. Crustacea, pl. 1, fig. 10.
 — **niagarensis** Hall, 1879; 28th Rept. N. Y. State Mus. Nat. Hist., p. 187, pl. 32, figs. 8-15.
 — **niagarensis** Hall, 1883; 11th Ann. Rept. Geol. Nat. Hist. Indiana, 1881, p. 331, pl. 34, figs. 8-15.
 Compare *C. brevicapitata* (Portlock) McCoy; Brit. Pal. Foss., pl. 1 F, fig. 4.
 — **nupera**. (See **Phacops nupera**.)
 — **odontocephala**. (Syn., *Dalmanites selenus*.)
 — **phlyctainodes** Green, 1837; Am. Jour. Sci., 1st series, vol. 32, p. 167.
 Dr. Green compares this species with *Encrinurus variolaris*.
 — **platys** Green, 1832; Mon. Tril. N. A., p. 32, casts 4, 5. Upper Helderberg.
 — **platys** Hall, 1861; Des. New Species Foss., p. 54.
 — **platys** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 82.
 — **platys** Hall, 1876; Illus. Devon. Foss. Crustacea, pl. 1, figs. 1-9.
 — **platys** Hall, 1888; Pal. New York, vol. 7, p. 1, pl. 1, figs. 1-9; pl. 25, figs. 1, 2.
 — **rana**. (See **Phacops rana** Green.)
 — **rostrata** Vogdes, 1879; Am. Jour. Sci., 3d series, vol. 18, p. 477. Clinton.
 — **rostrata** Vogdes, 1880; Proc. Acad. Nat. Sci. Phila., p. 176, figs. 1, 2.
 — **rostrata** Vogdes, 1886; Des. New Species Foss. Crust. Clinton Group, p. 2, figs. 1, 2.
 — **rowi**. (See **Phacops rowi** Green.)
 — **rugosa** Shumard, 1855; 1st and 2d Repts. Geol. Missouri, p. 200, pl. B, fig. 14. Lower Helderberg.
 — **selenocephala**. (See **Calymene senaria** Conrad.)
 — **senaria** Conrad, 1841; 4th Ann. Rept. Pal. Dept. New York Geol. Survey, p. 49. Trenton.
 — **senaria** Emmons, 1842; Geol. New York, 2d Geol. Dist., p. 390, fig. 2.
 Syn., *selenocephala* Green, 1832; Mon. Tril. N. A., p. 31, cast 3.
 blumenbachii Green, 1832; Mon. Tril. N. A., p. 28, cast 1. (Not of Brongnart.)
 callicephala Green, 1832; Mon. Tril. N. A., p. 31. (Specimens from Ohio and Indiana only.)
 brevicapitata Salter, 1848; Mem. Geol. Surv. United Kingdom, vol. 2, p. 341, pl. 11, figs. 1, 2. (Not of Portlock, 1843; Geol. Rept. Londonderry, etc., p. 286, pl. 3, fig. 3.)
 brevicapitata (Portlock) Salter; Mem. Geol. Surv. United Kingdom, vol. 3, pl. 17, figs. 11, 12. (Not of Portlock.)
 forcipata (McCoy) Salter; Palæon. Soc. London, vol. 17, p. 97. (Not of McCoy, Sil. Foss. Ireland, pl. 4, fig. 14.)
 — **senaria** Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 213, pl. 16, fig. 9.
 — **senaria** Hall, 1847; Pal. New York, vol. 1, p. 238, pl. 64, figs. 3 a-n.

- Calymene* [*blumenbachii*] var. *senaria* Hall, 1852; Pal. New York, vol. 2, p. 299, pl. 66 a, figs. 6 a-e. Clinton.
- *senaria* var. *blumenbachii* Salter, 1865; Mon. Brit. Tril., p. 97, pl. 9, figs. 6-10 (not figs. 7, 8, *Calymene brevicapitata* Portlock).
- *senaria* Meek, Pal. Ohio, vol. 1, p. 173, pl. 14, figs. 14 a-f.
- *senaria* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 140.
- *callicephala* (Green) Miller, 1877; Catalogue Am. Pal. Foss., p. 213.
- *senaria* White, 1880; 2d Ann. Rept. Dept. Statistics Geol. Indiana, p. 493, pl. 2, figs. 1, 2.
- *callicephala* (Green) Miller, 1882; Jour. Cincinnati Soc. Nat. Hist., vol. 5, p. 117, pl. 5, fig. 8.
- *senaria* Walcott, 1887; Notes on Some Sections of Trilobites, pl. 1.
- *senaria* Walcott, 1884; Science, March 7, 1884, vol. 3, p. 201, figs. 2, 3.
- *spinifera* Conrad, 1842; Jour. Acad. Nat. Sci. Phila., vol. 8, p. 277.
- Compare *Cyphaspis girardeauensis*.
- *trisulcata*. (See *Phacops trisulcata*.)
- *vogdesii* Foerste, 1887; Bull. Denison Univ., vol. 2, p. 95, pl. 8, figs. 12-16. Clinton.
- ? *blumenbachii* Foerste, 1886; Bull. Denison Univ., vol. 1, p. 190, pl. 13, fig. 24.
- *clintoni* Vogdes, 1882; Proc. Acad. Nat. Sci. Phila., p. 178, fig. 3 (not fig. 4).
- *clintoni* Vogdes, 1886; Des. New Species Foss. Crust. Clinton Group, p. 5, fig. 3 (not fig. 4).
- Ceratocephala* Warder, 1838. (See *Acidaspis*.)
- *ceralepta* Anthony. (See *Acidaspis cerealepta*.)
- *goniata* Warder, 1838; Am. Jour. Sc., 1st series, vol. 34, p. 378, figure.
- Ceratolichas* Hall, 1888; Pal. New York, vol. 7, p. xl. Subgenus *Lichas*.
- Ceraurus* Green, 1832; Monthly Am. Jour. Geol., vol. 1, p. 560, pl., fig. 6; Mon. Tril. N. A., p. 83, cast 33, pl., fig. 10.
- Ceraurus* Hall, 1847; Pal. New York, vol. 1, p. 242.
- *Otarion* (in part) Zenker, 1833; Beiträge Nat. Urwelt, p. 44.
- *Arges* (in part) Goldfuss, 1843; Neues Jahrbuch für Mineral., p. 5.
- *Cyphaspis* (in part) Burmeister, 1843, Org. Trilobiten, p. 104.
- *Amphion* (in part) Portlock, 1843; Geol. Survey Londonderry, etc., p. 272.
- *Cyphaspis* (in part) McCoy, 1846; Sil. Foss. Ireland, p. 44.
- *Cheirurus* Beyrich, 1846; Unters. Trilobiten, etc. II, p. 3.
- *Eccoptychile* Corda, 1847; Prodr., p. 245.
- *Actinopeltes* Corda, 1847; Prodr., p. 247.
- *Crotalocephalus* Salter, 1853; Mem. Geol. Survey United Kingdom, decade 7, pl. 2, p. 10.
- *Cyrtometopus* Angelin, 1854; Pal. Scand., p. 32.
- *Spheroecoryphe* Angelin, 1854; Pal. Scand., p. 65.
- *Pseudopherozochus* Schmidt, 1881; Rev. Baltic Sil. Tril., p. 130.
- *Nieszkowskia* Schmidt, 1881; Rev. Baltic Sil. Tril., p. 130.
- Type, *Ceraurus pleurexanthemus* Green.
- [*Cheirurus*] *apollo* Billings, 1860; Canadian Naturalist, vol. 5, p. 322, fig. 28. Quebec.
- [*Cheirurus*] *apollo* Billings, 1865; Pal. Foss., vol. 1, p. 413, fig. 397.
- [*Cheirurus*] *bimucronatus* (Murch.) Roemer, Die sil. Fauna W. Tenn., p. 80, pl. 5, fig. 19, not of Murchison. (See *Ceraurus niagarensis* Hall.)
- *crostus* Lock. (See *Acidaspis crostus*.)
- [*Cheirurus*] *eryx* Billings, 1860; Canadian Naturalist, vol. 5, p. 322, fig. 30. Quebec.
- [*Cheirurus*] *eryx* Billings, 1865; Pal. Foss., vol. 1, p. 413, fig. 399.
- [*Cheirurus*] *glaucus* Billings, 1865; Pal. Foss., vol. 1, p. 323, fig. 308. Quebec.

- Ceraurus** [*Cheirurus*] **icarus** Billings, 1860; Canadian Naturalist, vol. 5, p. 67, fig. 14. Hudson.
- [*Cheirurus*] **icarus** Billings, 1863; Geol. Canada, p. 219, fig. 231.
- **icarus** Meek, 1873; Pal. Ohio, vol. 1, p. 162, pl. 14, fig. 11 a, b, c.
- **icarus** Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 133.
- [*Cheirurus*] **insignis** (Beyrich) Hall, 1852; Pal. New York, vol. 2, p. 300, also p. 306, pl. 67, figs. 9, 10.
- Not of Beyrich, 1845; Ueber einige böhm. Tril., p. 12, pl. 1, fig. 1.
- **insignis**. (See **Ceraurus niagarensis** Hall.)
- **mercurius** Billings, 1865; Pal. Foss., vol. 1, p. 285, fig. 272. Quebec.
- **niagarensis** Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 376, pl. 21, fig. 10.
- **niagarensis** Hall, 1870; 20th Rept. New York State Cab. Nat. Hist. (2d ed.), p. 427, pl. 21, figs. 10, 11.
- Syn., *Spharexochus romingeri*? Hall; Doc. Ed. 23th Rept. New York State Mus. Nat. Hist.
- Explanation of pl. 32, fig. 16 (erroneous reference).
- [*Cheirurus*] **niagarensis** Hall, 1879; 28th Rept. New York State Mus. Nat. Hist., p. 189, pl. 32, fig. 16.
- Syn., *Cheirurus bimucronatus* (Murch.) Roemer; Die sil. Fauna W. Tenn., p. 80, pl. 5, fig. 19.
- **niagarensis** Hall, 1882; 12th Ann. Rept. Geol. Nat. Hist. Indiana, 1881, p. 335, pl. 34, fig. 16; pl. 33, fig. 10.
- [*Cheirurus*] **numitor** Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 27, fig. 11. Hudson.
- [*Cheirurus*] **nuperus** Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 61, fig. 20. Anticosti.
- [*Cheirurus*] **perforator** Billings, 1865; Pal. Foss., vol. 1, p. 287, fig. 275. Quebec.
- **pleurexanthemus** Green, 1832; Monthly Am. Jour. Geol., vol. 1, p. 560, pl., fig. 10. Trenton and Hudson.
- **pleurexanthemus** Green, 1832; Mon. Tril. N. A., p. 84, fig. 10, pl. 1, cast 33.
- Syn., *Calymene bucklandi* Anthony, 1838; Am. Jour. Sci., 1st series, vol. 36, p. 106, figs. 1, 2.
- **pleurexanthemus** Hall, 1847; Pal. New York, vol. 1, p. 242, pl. 65, figs. 1 a-n; pl. 66, figs. 1, 1 h.
- **pleurexanthemus** Emmons, 1855; Am. Geology, vol. 1, p. 217, pl. 15, figs. 1 a-k.
- [*Cheirurus*] **pleurexanthemus** Billings, 1863; Geol. Canada, p. 188, fig. 188.
- **pleurexanthemus** Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 132.
- **pleurexanthemus** Walcott, 1875; Annals Nat. Hist. New York, vol. 11, p. 155, pl. 11.
- **pleurexanthemus** Walcott, 1881; Bull. Mus. Comp. Zool. Harvard Coll., vol. 8, p. 211, pl. 5, figs. 1-6.
- [*Cheirurus*] **polydorus** Billings, 1865; Pal. Foss., vol. 1, p. 286, fig. 274. Quebec.
- [*Cheirurus*] **pompilius** Billings, 1865; Pal. Foss., vol. 1, p. 181, fig. 162.
- Chazy and Hudson.
- [*Cheirurus*] **prolificus** Billings, 1865; Pal. Foss., vol. 1, p. 285, fig. 273; p. 325, fig. 311. Quebec.
- ? **pustulosa** Hall, 1847; Pal. New York, vol. 1, p. 246, pl. 61, fig. 2 a-h. Trenton.
- **rarus** Walcott, 1877; Advanced sheets 31st Rept. New York State Mus. Nat. Hist., p. 15. Trenton.
- **rarus** Walcott, 1879; 31st Rept. New York State Mus. Nat. Hist., p. 68.
- [*Cheirurus*] **satyrus** Billings, 1865; Pal. Foss., vol. 1, p. 324, fig. 309. Chazy.

- Ceraurus** [*Cheirurus*] **sol** Billings, 1865; Pal. Foss., vol. 1, p. 288, fig. 276. Quebec.
 — [*Cheirurus*] **solitarius** Billings, 1865; Pal. Foss., vol. 1, p. 206. Quebec.
 — [*Cheirurus*] **tarquinius** Billings, 1863; Proc. Portland Soc. Nat. Hist., vol. 1, p. 121, pl. 1, fig. 22. Upper Silurian.
 — **vigilans**. (See **Encrinurus vigilans**.)
 — [*Cheirurus*] **vulcanus** Billings, 1865; Pal. Foss., vol. 1, p. 284, fig. 27; p. 324, fig. 310. Quebec.
- Chariocephalus** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 175.
 Type, *Chariocephalus whitfieldi* Hall.
 — **tumifrons** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 224, pl. 2, figs. 38, 39. Potsdam.
 — ? **tumifrons** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 61, pl. 10, fig. 16.
 — **whitfieldi** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 175, pl. 6, figs. 49–53; pl. 10, fig. 20. Potsdam.
- Chasmops** McCoy, 1849; Annals Mag. Nat. Hist., 2d series, vol. 4, p. 403. (See **Dalmanites** [*Chasmops*] **anchiops**, **anchiops** var. **armatus**, **anchiops** var. **sobrius**, D. [*Chasmops*] **calypso**, D. [*Chasmops*] **erina**, D. [*Chasmops*] **macrops**.
 — [*Dalmanites*] **troosti** Safford, 1869; Geol. Tennessee, p. 290. Trenton.
 — **troosti** Safford and Vogdes, 1839; Proc. Acad. Nat. Sci. Phila., p. 167, figure.
- Conocephalus* Zenker, 1833; Beiträge Nat. Umwelt, p. 48.
Conocephalites Barrande, 1852; Syst. Sil. Bohême, vol. 1, p. 415.
 For species previously classed under these genera, see **Conocoryphe**, **Ptychoparia**, and **Crepicephalus**.
- Conocoryphe** Corda, 1847; Prodr., p. 139, pl. 2, fig. 10.
 Type, *Conocoryphe sulzeri* Schlotheim.
 — [*Conocephalites*] **baileyi** Hartt, 1868; Acadian Geology, p. 645 (3d ed.). St. John.
 — **baileyi** Matthew, 1884; Trans. Royal Soc. Canada, vol. 1, p. 111, pl. 1, figs. 22–27.
 — [*Bailiella*] **baileyi** Matthew, 1884; Trans. Royal Soc. Canada, vol. 1, pl. 1, fig. 22.
 — [*Salteria*] **baileyi** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 32, pl. 4, figs. 3, 3 a; pl. 5, figs. 7, 7 a.
 The author herein proposed the subgenus *Salteria* (corrected to *Bailiella*) for *Erinnys* Salter, a preoccupied generic name; the same is true of *Salteria*, used for a genus of fossil Crustacea.
- [*Conocephalites*] **calcifera** Walcott, 1879; 32d Rept. New York State Mus. Nat. Hist., p. 129. Calciferous.
 — [*Conocephalites*] **cordilleræ** Rominger, 1887; Proc. Acad. Nat. Sci. Phila., p. 17, pl. 1, fig. 7. Cambrian.
 — **elegans** Hartt, 1868; Acadian Geol. (3d ed.), p. 650. St. John.
 — **elegans** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 33, pl. 4, figs. 2, 2 a, b.
 — *gemini-spinosus* Hartt. (See **Conocoryphe matthewi**.)
 — [*Conocephalites*] **hartti** Walcott, 1879; 32d Rept. New York State Mus. Nat. Hist., p. 131. Calciferous.
 — [*Conocephalites*] **matthewi** Hartt, 1868; Acadian Geology, p. 646, fig. 224. St. John.
 — [*Conocephalites*] **matthewi** Matthew, 1884; Trans. Royal Soc. Canada, vol. 1, p. 103, pl., figs. 6–21.
 Syn., *Harttia matthewi* Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 19, pl. 1, fig. 3.
 — **matthewi** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 28, pl. 4, figs. 1, 1 a, b.
 — [*Conocephalites*] **optatus** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 122, pl. 5 a, fig. 7. Potsdam.
 — [*Conocephalites*] **trilineatus**. (See **Atops trilineatus** Emmons.)

- Conocoryphe** [*Conocoryphe*] *trilineatus*. (See *Atops trilineatus* Emmons.)
 — [*Bailella*] **walcotti** Matthew, 1884; Trans. Royal Soc. Canada, vol. 1, p. 119, pl. 1, figs. 36-36 b. St. John.
 — **walcotti** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 30.
Conolichas Dames, 1877; Zeitschr. Deutsch. geol. Gesell., Berlin, 1877, p. 806. *Conolichas*, subgenus *Lichas* Hall, 1888; Pal. New York, vol. 7, p. xxxix.
Coronura Hall, 1888; Pal. New York, vol. 7, p. xxxii. (See *Dalmanites* [*Coronura*] *aspectans*, D. [*Coronura*] *myrmecophorus*, and D. [*Coronura*] *emarginatus*.)
Corycephalus Hall, 1888; Pal. New York, vol. 7, p. xxxiv. (See *Dalmanites* [*Corycephalus*] *regalis*, D. [*Corycephalus*] *pygmæus*, and D. [*Corycephalus*] *dentatus*.)
Crepicephalus Owen, 1852; Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, p. 576.

There is hardly a question that Dr. D. D. Owen had before him when he wrote the description of his genus *Crepicephalus* a true *Ptychoparia*. He remarks: "The rather flat, slipper-shaped glabella is tapering and slightly acuminate anteriorly, with a faint ridge on the median line; two small and very superficial depressions and a posterior faint furrow very partially divide the glabella. The facial sutures run nearly parallel to the margin of the glabella and join a thickened, cord-like anterior narrow border, inclosing a convex area, narrower in front than at the sides. Oblique plications can sometimes be traced on the cheek-plate in advance of the eye, converging towards the apex of the glabella." He refers the following figures to the genus: Plate 1, fig. 8, *Crepicephalus*?, pygidium from the Miniskah Trilobite grit. Plate 1, fig. 13, *Crepicephalus*? *wisconsinensis* (n. s.), part of cephalothorax and a portion of the cephalic shield of *D. granulosus*?. Plate 1 a, fig. 10, glabella of *Crepicephalus* n. g., near Miniskah. Plate 1 a, fig. 14, pygidium of *Crepicephalus*? *miniscaeensis* n. s., from Miniskah grits. Plate 1 a, fig. 16, pygidium and portion of *Crepicephalus* (?) and portions of cephalothorax of that genus, from the Miniskah Trilobite grit. Plate 1 a, fig. 18, glabella of *Crepicephalus*, near Miniskah, Mississippi River.

- [*Bathyrurus*?] *angulatus* Hall and Whitfield. (See *Ptychoparia angulatus*.)
 — [*Loganellus*] *anytus* Hall and Whitfield. (See *Ptychoparia anytus*.)
 — [*Loganellus*] *centralis* Whitfield. (See *Ptychoparia oweni*.)
 — *gibbsi* Whitfield, 1880; Ann. Rept. Geol. Survey Wisconsin, 1879, p. 50. Potsdam.
 — *gibbsi* Whitfield, 1880; Geol. Wisconsin, vol. 2, p. 67.
 — *gibbsi* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 184, pl. 10, figs. 12, 13.
 — [*Loganellus*] *granulosa* Hall and Whitfield. (See *Ptychoparia granulosa*.)
 — [*Loganellus*] *haguei*. (See *Lisostracus haguei* and *Ptychoparia haguei*.)
 — [*Loganellus*] *maculosus* Hall and Whitfield. (See *Ptychoparia maculosus*.)
 — [*Loganellus*] *montanensis* Whitfield. (See *Ptychoparia montanensis*.)
 — [*Loganellus*] *nitidens* Hall and Whitfield. (See *Ptychoparia nitidens*.)
 — *onustus* Whitfield, 1878; Ann. Rept. Geol. Survey Wisconsin, 1877, p. 53. Potsdam.
 — *onustus* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 182, pl. 1, figs. 22, 23.
 — *oweni*. (See *Agraulos oweni* and *Ptychoparia oweni*.)
 — [*Loganellus*] *planus* Whitfield. (See *Ptychoparia planus*.)
 — [*Loganellus*] *quadrans* Hall and Whitfield. (See *Ptychoparia quadrans*.)
 — [*Loganellus*] *simulator* Hall and Whitfield. (See *Ptychoparia nitidens*.)
 — [*Loganellus*] *unisulcatus* Hall and Whitfield. (See *Ptychoparia unisulcatus*.)
 — ? *wisconsinensis* Owen. (See *Anomocare wisconsinensis*.)
Crepicephalus Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 35.
 Type, *Dikelocephalus*? *iowensis* Owen.

- Crepicephalus augusta* Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 208, pl. 28, figs. 2, 2 a, b. Middle Cambrian.
- [*Dikelocephalus*?] *iowensis* Owen, 1852; Rept. Geol. Wisconsin, Iowa, and Minnesota, p. 575, pl. 1, fig. 4; pl. 1 a, fig. 13. Potsdam.
- Undetermined Trilobite Owen, 1848; Rept. Geol. Reconnaissance Chippewa Land Dist., p. 14, pl. 7, fig. 1.
- [*Conocephalites*] *iowensis* Shumard, 1863; Trans. Acad. Sci. St. Louis, vol. 2, p. 102.
- [*Conocephalites*] *iowensis* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 162, pl. 7, fig. 33; pl. 8, figs. 10–12 and 30.
- *iowensis* Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 36.
- *iowensis* Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 207.
- *liliana* Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 209, pl. 28, figs. 3, 3 a, c. Middle Cambrian.
- Cryphæus* Green, 1837; Am. Jour. Sci., 1st series, vol. 32, p. 343.
- Type, *Cryphæus boothi* Green.
- [*Dalmanites* (*Cryphæus*)] *barrisi* Hall, 1888; Pal. New York, vol. 7, p. 48, pl. 16 a, fig. 18. Hamilton.
- *boothi* Green, 1837; Am. Jour. Sci., 1st series, vol. 32, p. 343, figure. Hamilton.
- Syn., *Cryphæus greeni* Conrad, 1839; 2d Ann. Rept. Pal. Dept. New York Geol. Survey, p. 66.
- Cryphæus calliteles* Conrad, 1839; 2d Ann. Rept. Pal. Dept. New York Geol. Survey, p. 62.
- Asaphus halli* Conrad, 1840; 3d Ann. Rept. Pal. Dept. New York Geol. Survey, p. 204.
- Cryphæus calliteles* Hall, 1843; Geol. New York, pt. 4, p. 201.
- Cryphæus calliteles* De Verneuil, 1850; Bull. Soc. Géol. France, 2d series, vol. 7, p. 164, pl. 1, fig. 3.
- Phacops pectinatus* F. A. Roemer, 1850; Beiträge zur Kenntn. Harzgeb., p. 62, pl. 9, fig. 27.
- Dalmania calliteles* Emmons, 1860; Manual Geology, p. 138, fig. 124 (7).
- [*Dalmania*] *boothi* Hall, 1861; Des. New Species of Fossils, p. 63.
- [*Dalmania*] *boothi* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 91.
- [*Dalmanites*] *boothi* Hall, 1876; Illus. Devonian Foss., pl. 16, figs. 1–6, 9–11, 13, 15, 16.
- Syn., *Cryphæus stellifer* Kayser, 1878; Abhandl. geol. Specialkarte Pr., vol. 2, pt. 4, p. 33, (in part).
- Cryphæus laciniatus* Kayser, 1878; *idem.*, p. 34.
- [*Dalmanites* (*Cryphæus*)] *boothi* Hall, 1888; Pal. New York, vol. 7, p. 42, pl. 16, figs. 1–4; pl. 16 a, figs. 3–8.
- *callitelus* Green, 1837; Am. Jour. Sci., 1st series, vol. 32, p. 346. Hamilton.
- [*Dalmanites*] *boothi* Hall, 1876; Illus. Devonian Foss., pl. 16, figs. 7, 8, 12, 14.
- (?) *callitelus* Kayser, 1878; Abhandl. geol. Specialkarte Pr., vol. 2, pt. 4, p. 32, pl. 3, fig. 10.
- [*Dalmanites* (*Cryphæus*)] *boothi* var. *calliteles* Hall and Clarke, 1888; Pal. New York, vol. 7, p. 45, pl. 16, figs. 5–22; pl. 16 a, figs. 9–17.
- [*Dalmanites* (*Cryphæus*)] *comis* Hall, 1888; Pal. New York, vol. 7, p. 41, pl. 16 a, fig. 1. Corniferous.
- [*Dalmania*] *pleione* Hall, 1861; Des. New Species Fossils, p. 62. Hamilton.
- [*Dalmania*] *pleione* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 90.
- [*Dalmanites*] *pleione* Hall, 1876; Illus. Devonian Foss., pl. 16, fig. 17.
- *pleione* Kayser, 1878; Abhandl. geol. Specialkarte Pr., vol. 2, pt. 4, p. 33.

Cryphæus [*Dalmanites* (*Cryphæus*)] pleione Hall, 1888; Pal. New York, vol. 7, p. 41, pl. 16 a, fig. 2.

Cryptolithus Green, 1832; Mon. Tril. North America, p. 72.

This generic should replace that of *Trinuclæus* Murch., 1839.

Cryptonymus Eichwald, 1825; Syn. to *Asaphus*, *Illænus*, and *Niobe*.

Cryptonymus Eichwald, 1840. (See **Encrinurus**.)

Cybele Löwen, 1845; Svenska Vetensk. Akad. Förhandl., p. 110.

Type, *Cybele bellatula* Dalman.

— *punctata* Hall. (See **Encrinurus ornatus**.)

Cyphaspis Burmeister, 1843; Org. Trilobiten, p. 98.

Type, *Cyphaspis ceratophthalma* Burmeister.

— **christyi** Hall, 1863; Trans. Albany Inst., vol. 4, p. 220. Niagara.

— **christyi** Hall, 1875; 28th Rept. New York State Mus. Nat. Hist., pl. 32, figs. 5-7.

— **christyi** Hall, 1879; 28th Rept. New York State Mus. Nat. Hist., p. 188, pl. 32, figs. 5-7.

— **christyi** White, 1880; 2d Ann. Rept. Dept. Statistics and Geol. Indiana, p. 493, pl. 3, fig. 9.

— **christyi** Hall, 1882; 11th Ann. Rept. Dept. Geol. Nat. Hist. Indiana, 1881, p. 333, pl. 34, figs. 5-7.

— **cœlebs** Hall, 1888; Pal. New York, vol. 7, p. 151, pl. 24, fig. 1.

Lower Helderberg.

— **craspedota** Hall, 1888; Pal. New York, vol. 7, p. 148, pl. 24, figs. 15-20.

Hamilton.

— **diadema** Hall, 1888; Pal. New York, vol. 7, p. 144, pl. 24, fig. 13.

Upper Helderberg.

— **girardeauensis** Shumard, 1855; 1st and 2d Rept. Geol. Missouri, p. 197, pl. B, fig. 11 a, b.

— **girardeauensis** Emmons, 1860; Manual Geology, p. 159, fig. 145 (2).

— **hybrida** Hall, 1888; Pal. New York, vol. 7, p. 144, pl. 24, fig. 14.

Upper Helderberg.

— [*Phillipsia*] **lævis** Hall, 1876; Illus. Devonian Foss., pl. 21, fig. 29.

— **lævis** Hall, 1888; Pal. New York, vol. 7, p. 150, pl. 21, fig. 29.

Chemung.

— [*Phillipsia*] **minuscula** Hall, 1876; Illus. Devonian Foss., pl. 20, fig. 17.

Upper Helderberg.

— **minuscula** Hall, 1888; Pal. New York, vol. 7, p. 140, pl. 20, fig. 17; pl. 24, figs. 7-12.

— [*Phillipsia*? (*Brachymetopus*?)] **ornata** Hall, 1876; Illus. Devonian Foss., pl. 21, fig. 1.

Hamilton.

Syn., *Phillipsia coronata* Miller, 1877; Catalogue Am. Pal. Foss., p. 221.

Phillipsia coronata? Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 211.

— **ornata** Hall, 1888; Pal. New York, vol. 7, p. 145, pl. 21, fig. 1; pl. 24, fig. 21.

— **ornata** var. **baccata** Hall, 1888; Pal. New York, vol. 7, p. 146, pl. 24, figs. 22, 23.

— **stephanophora** Hall, 1888; Pal. New York, vol. 7, p. 142, pl. 24, figs. 2-6.

Upper Helderberg.

Dalmania Emmrich, 1844; Zur Naturgeschichte Trilobiten, p. 15.

This name having been used in 1830 for a genus of the Diptera, J. Barrande suggested that of *Dalmanites*.

Dalmanites (Emmrich) Barrande, 1872; Syst. Sil. Bohême, Suppl., vol. 1, p. 27.

Type, *Dalmanites caudatus* Bünnich.

Syn., *Pleuracanthus* Milne-Edwards, 1840; Crust., vol. 3, p. 329.

Odontochile Corda, 1847; Prodr., p. 208, pl. 5, fig. 56.

Osteropyge Corda, 1847; Prodr., p. 241, pl. 6, fig. 66.

Metacanthus Corda, 1847; Prodr., p. 242, pl. 6, fig. 67.

Chasmops McCoy, 1849; Annals Nat. Hist., 2d series, vol. 4.

Syn., *Cryphaeus* Green, 1837; Am. Jour. Sci., 1st series, vol. 32, p. 343.

Odontocephalus Conrad, 1840; 3d Rept. Pal. Dept. New York Geol. Survey, p. 204.

Hausmannia Hall, 1888; Pal. New York, vol. 7, p. xxxi.

Coronura Hall, 1888; Pal. New York, vol. 7, p. xxxii.

Corycephalus Hall, 1888; Pal. New York, vol. 7, p. xxxiv.

Dalmanites [*Asaphus*?] **acantholeurus** (Conrad) Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 113.

— [*Asaphus*?] **acantholeurus** Conrad, 1841; 4th Rept. Pal. Dept. New York Geol. Survey, p. 48. Onondaga.

— **acantholeurus** Hall, 1876; Illus. Devonian Foss. Crust., pl. 19, fig. 14.

— [*Dalmanites*] **acantholeurus** Hall, 1876; Illus. Devonian Foss. Crust., pl. 19, fig. 14.

— **achates** Billings, 1860; Canadian Naturalist, vol. 5, p. 63, fig. 9. Trenton.

— **achates** Billings, 1863; Geol. Canada, p. 187, fig. 186.

— **ægeria** Hall, 1861; Des. New Species Fossils, p. 57. Upper Helderberg.

— **ægeria** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 85.

— **ægeria** Hall, 1876; Illus. Devonian Foss. Crust., pl. 12, figs. 1, 2, 7.

— **ægeria** Hall, 1876; Illus. Devonian Foss. Crust., p. 12, figs 3, 6, 8 (not figs. 1, 2, 7).

— [*Odontocephalus*] **ægeria** Meek and Worthen, 1868; Geol. Illinois, vol. 3, p. 417, pl. 10, figs. 4 a, b, c.

— [*Odontocophalus*] **ægeria** Hall, 1888; Pal. New York, vol. 7, p. 53, pl. 11 b, figs. 1-11.

— [*Calymene*] **anchiops** Green, 1832; Monthly Am. Jour. Geol., vol. 1, p. 558.

Upper Helderberg.

— [*Calymene*] **anchiops** Green, 1832; Mon. Tril. N. A., p. 35, cast 7.

Syn., *Asaphus laticostatus* Green, 1832; Monthly Am. Jour. Geol., vol. 1, p. 559.

Asaphus laticostatus Green, 1832; Mon. Tril. N. A., p. 45, cast 13.

— [*Phacops*] **anchiops** Burmeister, 1843; Org. Trilobiten, p. 90 (Ray Soc. edition).

— [*Phacops*] **anchiops** Hall, 1851; Rept. Geol. Lake Superior Land Dist. (Foster and Whitney), pt. 2, p. 224, pl. 35, figs. 3 a, 3 b. (See **Dalmanites anchiops** var. **armatus**.)

— [*Dalmania*] **anchiops** Hall, 1861; Des. New Species Fossils, p. 55.

— [*Dalmania*] **anchiops** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 83.

— **anchiops** Hall, 1876; Illus. Devonian Foss. Crust., p. 9, figs. 1, 3-6, 9, 10, 12, 13; pl. 10, figs. 6-14.

— [*Chasmops*] **anchiops** Hall, 1888; Pal. New York, vol. 7, p. 59, pl. 9, figs. 1-6, 10, 12, 13; pl. 10, figs. 1-14.

— [*Dalmania*] **anchiops** var. **armatus** Hall, 1861; Des. New Species Foss., p. 56.

— [*Dalmania*] **anchiops** var. **armatus** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 84.

— **anchiops** var. **armatus** Hall, 1876; Illus. Devonian Foss. Crust., pl. 9, figs. 2, 7, 8.

— [*Chasmops*] **anchiops** var. **armatus** Hall, 1888; Pal. New York, vol. 7, p. 62, pl. 9, figs. 7-9; pl. 10, fig. 14.

— [*Chasmops*] **anchiops** var. **sobrinus** Hall, 1888; Pal. New York, vol. 17, p. 62, pl. 9, fig. 11.

— [*Odontocephalus*] **arenarius** Meek and Worthen, 1868; Geol. Survey Illinois, vol. 3, p. 417, pl. 9, fig. 10. (See **Dalmanites selenurus**.)

— [*Asaphus*] **aspectans** Conrad, 1841; 5th Ann. Rept. Pal. Dept. New York Geol. Survey, p. 48, fig. 9. Upper Helderberg.

Syn., *Asaphus*? *denticulatus* Conrad; *idem.*, p. 48.

- Dalmanites** [*Dalmania*] **aspectans** Hall, 1861; Des. New Species Foss., p. 60 (in error *D. adaspectans*).
- [*Dalmania*] **aspectans** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 88 (in error *D. adaspectans*).
- Syn., *Dalmania helena* Hall, 1861; Des. New Species Foss., p. 61.
- Dalmania helena* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 89.
- Dalmanites ohioensis* Meek, 1871; Proc. Acad. Nat. Sci. Phila., p. 91.
- Dalmanites ohioensis* Meek, 1873; Pal. Ohio, vol. 1, p. 234, pl. 23, fig. 1.
- Dalmanites denticulatus* Hall, 1876; Illus. Devonian Foss. Crust., pl. 10, fig. 1.
- **aspectans** Hall, 1876; Illus. Devonian Foss. Crust., pl. 13, figs. 6-8.
- Syn., *helena* Hall, 1876; Illus. Devonian Foss. Crust., pl. 13, figs. 13, 14.
- [*Coronura*] **aspectans** Hall, 1888; Pal. New York, vol. 7, p. 33, pl. 12, figs. 1-11, 13.
- [*Cryphæus*] **barrisi** Hall. (See **Cryphæus barrisi** Hall.)
- **bebryx** Billings, 1860; Canadian Naturalist, vol. 5, p. 62, fig. 8. Trenton.
- **bebryx** Billings, 1863; Geol. Canada, p. 187, fig. 185.
- [*Dalmania*] **bifida** Hall, 1861; Des. New Species Foss., p. 63. Upper Helderberg.
- [*Dalmania*] **bifida** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 91.
- [*Odontocephalus*] **bifida** Hall and Clarke, 1888; Pal. New York, vol. 7, p. 53, pl. 11 b, figs. 22-25.
- Compare *Dalmanites aegeria* Hall.
- [*Dalmania*] **boothi**. (See **Cryphæus boothi** Green.)
- **bicornis** Hall, 1875; 28th Rept. New York State Mus. Nat. Hist. Expl., pl. 33, fig. 18. Niagara.
- **bicornis** Hall, 1879; 28th Rept. New York State Mus. Nat. Hist., p. 196, pl. 33, fig. 18.
- **bicornis** Hall, 1882; 11th Ann. Rept. Geol. Nat. Hist. Indiana, 1881, p. 342, pl. 35, fig. 18.
- **breviceps** Hall, 1866; 24th Rept. New York State Mus. Nat. Hist., p. 223, pl. 8, figs. 15, 16. Hudson.
- **breviceps** Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 143.
- **breviceps** Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 108, pl. 4, figs. 15, 16.
- [*Phacops*] **callicephalus** Hall, 1847; Pal. New York, vol. 1, p. 247, pl. 65, figs. 3 a-3 i. Trenton.
- [*Phacops*] **callicephalus** Hall, 1851; Rept. Geol. Lake Superior Land Dist. (Foster and Whitney), vol. 2, p. 212, pl. 3, figs. 3 a, 3 b.
- [*Phacops*] **callicephalus** Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 214, pl. 15, figs. 7, 7 a.
- [*Dalmania*] **calliteles**. (See **Cryphæus calliteles**.)
- [*Dalmania*] **calypso** Hall, 1861; Des. New Species Foss., p. 61. Upper Helderberg.
- [*Dalmania*] **calypso** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 89.
- **calypso** Hall, 1876; Illus. Devonian Foss. Crust., pl. 13, figs. 1, 2.
- [*Chasmops*] **calypso** Hall, 1888; Pal. New York, vol. 7, p. 4, pl. 16 a, fig. 1.
- ? **cayahogoe** Claypole, 1884; Geol. Mag., vol. 1, p. 305, figure. Carboniferous.
- ? **cayahogoe** Woodward, 1884; Mon. Brit. Carboniferous Tril., p. 79, figure.
- **carleyi** Meek, 1872; Am. Jour. Sci., 3d series, vol. 3, p. 424. Hudson.
- **carleyi** Meek, 1873; Pal. Ohio, vol. 1, p. 170, pl. 14, figs. 2 a-2 d.
- **carleyi** Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 142.
- [*Dalmania*] **caudata** (Brong.) Roemer. (See *Dalmanites limulurus* Green.)

Dalmanites [*Cryphæus*] *comis*. (See **Cryphæus** *comis* Hall.)

— *concinus* Hall, 1876; Illus. Devonian Foss. Crust., pl. 10, figs. 3-5. Schoharie.
— [*Hausmannia*] *concinus* Hall, 1888; Pal. New York, vol. 7, p. 30, pl. 11 a, figs. 9-11.

— [*Hausmannia*] *concinus* var. *serrula* Hall and Clarke, 1888; Pal. New York, vol. 7, p. 30, pl. 11 a, fig. 12.

— [*Dalmania*] *coronatus* Hall, 1861; Des. New Species Foss., p. 58.

— [*Dalmania*] *coronatus* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 86. Upper Helderberg.

— *coronatus* Hall, 1876; Illus. Devonian Foss. Crust., pl. 12, figs. 15-17; pl. 13, fig. 5.

— [*Odontocephalus*?] *coronatus* Hall, 1888; Pal. New York, vol. 7, p. 54, pl. 11 b, figs. 12-14.

— *danæ* Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., p. 264. Niagara.

— *danæ* Meek and Worthen, 1868; Pal. Illinois, vol. 3, p. 363, pl. 6, figs. 1 a-1 f.

— *dentata* Barrett, 1876; Am. Jour. Sci., 3d series, vol. 11, p. 200, plate.

— *dentata* Barrett, 1876; Am. Jour. Sci., 3d series, vol. 12, p. 70. Lower Helderberg.

— [*Corycephalus*] *dentatus* Hall and Clarke, 1888; Pal. New York, vol. 7, p. 58, pl. 11 a, figs. 4-6.

— [*Asaphus*?] *denticulatus* Conrad, 1841; 5th Rept. Pal. Dept. New York Geol. Survey, p. 48.

— *denticulatus* Hall, 1876; Illus. Devonian Foss. Crust., pl. 10, fig. 1. Lower Helderberg.

— [*Phæton*] *denticulatus* Meek, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 49, pl. 1, figs. 10 a, b.

— *emarginatus* Hall, 1876; Illus. Devonian Foss. Crust., pl. 10, fig. 2.

— [*Coronura*] *emarginatus* Hall, 1888; Pal. New York, vol. 7, p. 40, pl. 11 a, figs. 7, 8. Upper Helderberg.

— *epicrates* Billings, 1863; Proc. Portland Soc. Nat. Hist., vol. 1, p. 119, pl. 1, fig. 21.

— [*Dalmania*] *erina* Hall, 1861; Des. New Species Foss., p. 62.

— [*Dalmania*] *erina* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 90. Upper Helderberg.

— *erina* Hall, 1876; Illus. Devonian Foss. Crust., pl. 13, figs. 3, 4.

— [*Chasmops*] *erina* Hall, 1888; Pal. New York, vol. 7, p. 67, pl. 11, figs. 16-18.

— [*Dalmania*] *helena*. (See **Dalmanites** *aspectans*.) Upper Silurian.

— *intermedius* Walcott, 1877; Advance sheets 31st Rept. New York State Cab. Nat. Hist., p. 17. Trenton.

— *intermedius* Walcott, 1879; 31st Rept. New York State Cab. Nat. Hist., p. 69.

— [*Phacops*?] *laticauda* Hall, 1847; Pal. New York, vol. 1, p. 248, pl. 64, fig. 3.

— [*Asaphus*] *limulurus* Green, 1832; Monthly Am. Jour. Geol., vol. 1, p. 559. Niagara.

— [*Asaphus*] *limulurus* Green, 1832; Mon. Tril. N. A., p. 48, cast 16.

— [*Phacops*] *limulurus* Hall, 1852; Pal. New York, vol. 2, p. 303, pl. 67, figs. 1-8. Syn. [*Dalmania*] *caudata* (Brong.) Roemer, 1860; Die sil. Fauna W. Tenn., p. 82, pl. 5, fig. 21.

— [*Dalmania*] *logani* Hall, 1860; Canadian Naturalist, vol. 5, p. 156, fig. 18.

— [*Dalmania*] *macrops* Hall, 1861; Des. New Species Foss., p. 59. Silurian.

— [*Dalmania*] *macrops* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 87. Upper Helderberg.

- Dalmanites macrops**, 1876; Illus. Devonian Foss. Crust., pl. 13, figs. 9, 10.
 — [*Chasmops*] **macrops** Hall, 1888; Pal. New York, vol. 7, p. 68, pl. 11 a, figs. 14, 15.
 — **macroura** ? (Sjogr.) Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 61.
 — [*Dalmania*] **meta** Hall, 1862; Geol. Wisconsin, vol. 1, p. 433.
 — **meeki** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 207, pl. 17, figs. 5-5 a, b (not fig. 5 c).
 — (undetermined sp.) Meek, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 48, pl. 1, figs. 11, 11 a.
 — [*Hausmannia*] **meeki** Hall, 1888; Pal. New York, vol. 7, p. 11 a, figs. 28-30.
 — [*Asaphus*] **micrurus** Green, 1832; Monthly Am. Jour. Geology, p. 559, pl. 14, fig. 3. Lower Helderberg.
 — [*Asaphus*] **micrurus** Green, 1832; Mon. Tril. N. A., p. 56, cast 19, pl., fig. 3.
 — [*Dalmania*] **micrurus** Hall, 1859; Pal. New York, vol. 3, p. 359, pl. 75, figs. 13-18.
 — [*Asaphus*] **myrmecophorus** Green, 1835; Am. Jour. Sci., 1st series, vol. 23, p. 397. Upper Helderberg.
 — [*Asaphus*] **myrmecophorus** Green, 1835; Suppl. Mon. Tril. N. A., p. 16, cast 40.
 — [*Dalmania*] **myrmecophorus** Hall, 1861; Des. New Species Foss., p. 60.
 — [*Dalmania*] **myrmecophorus** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 88.
 — **myrmecophorus** Hall, 1876; Illus. Devonian Foss. Crust., pl. 13, figs. 15, 16.
 — [*Coronura*] **myrmecophorus** Hall, 1888; Pal. New York, vol. 7, p. 37, pl. 11 a, fig. 13; pl. 13, fig. 12; pl. 14, figs. 1-6; pl. 15, figs. 1-4.
 — [*Asaphus*] **nasutus** Conrad, 1841; 5th Rept. Pal. Dept. New York Geol. Survey, p. 48. Lower Helderberg.
 — [*Dalmania*] **nasutus** Hall, 1859; Pal. New York, vol. 3, p. 362, pl. 75, fig. 2; pl. 76, figs. 1-9.
 — [*Dalmanites*] **ohioensis**. (See **Dalmanites aspectans**.)
 — [*Hausmannia*] **phacotypx** Hall, 1888; Pal. New York, vol. 7, p. 31, pl. 11 a, figs. 23-29. Upper Helderberg.
 — [*Dalmania*] **pleione**. (See **Cryphæus pleione**.)
 — [*Asaphus*] **pleuropteryx** Green, 1832; Monthly Jour. Geol., vol. 1, p. 559. Lower Helderberg.
 — [*Asaphus*] **pleuropteryx** Green, 1832; Mon. Tril. N. A., p. 55, cast 18.
 — [*Dalmania*] **pleuropteryx** Hall, 1859; Pal. New York, vol. 3, p. 356, pl. 74, figs. 5 (?) 9 (?) (not figs. 1-4, 6-8, 10-12), pl. 75, fig. 1.
 — [*Hausmannia*] **pleuropteryx** Hall, 1888; Pal. New York, vol. 7, p. 28, pl. 9, figs. 1-3.
 — [*Corycephalus*] **pygmæus** Hall, 1888; Pal. New York, vol. 7, p. 56, pl. 11, figs. 5-8. Upper Helderberg.
 — **regalis** Hall, 1876; Illus. Devonian Foss. Crust., pl. 11, figs. 1-4. Upper Helderberg.
 — [*Corycephalus*] **regalis** Hall, 1888; Pal. New York, vol. 7, p. 55, pl. 11, figs. 1-4.
 — [*Asaphus*] **selenurus** Eaton, 1832; Geological Text Book, p. 31, pl. 1, fig. 1. Upper Helderberg.
 — [*Asaphus*] **selenurus** Green, 1832; Mon. Tril. N. A., p. 46, casts 14 and 15.
 Syn., *Calymene? odontocephala* Green, 1835; Suppl. Mon. Tril. N. A., p. 9, cast 36.
Calymene? odontocephala Green, 1835; Am. Jour. Sci., 1st series, vol. 25, p. 334.
 — [*Odontocephalus*] **selenurus** Conrad, 1840; 3d Rept. Pal. Dept. New York Geol. Survey, p. 204.
 — [*Odontocephalus*] **selenurus** Vanuxem, 1842; Geol. New York, 3d Geol. Dist., pp. 139, 140, fig. 1.
 — [*Odontocephalus*] **selenurus** Hall, 1843; Geol. New York, 4th Geol. Dist., p. 175, fig. 1.

- Dalmanites** [*Dalmania*] **selenurus** Hall, 1859; 12th Rept. New York State Cab. Nat. Hist., p. 88.
- [*Dalmania*] **selenurus** Hall, 1861; Des. New Species Foss., p. 56.
- [*Dalmania*] **selenurus** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 84.
- ‘Syn., *Odontocephalus*? (*Dalmanites*-*Odontocephalus*) **arenarius** Meek and Worthen, 1868; Geol. Survey Illinois, vol. 3, p. 416, pl. 9, fig. 10.
- **selenurus** Hall, 1876; Illus. Devonian Foss. Crust., pl. 12, figs. 12-14.
- [*Odontocephalus*] **selenurus** Hall, 1888; Pal. New York, vol. 7, p. 49, pl. 11 b, figs. 15-21; pl. 12, figs. 1-13.
- [*Dalmania*] **tridens** Hall, 1859; Pal. New York, vol. 3, p. 361, pl. 75, figs. 3-6. Lower Helderberg.
- [*Dalmania*] **tridentifera** Shumard, 1855; 1st and 2d Geol. Repts. Missouri, p. 199, pl. B, figs. 8 a-c. Lower Helderberg.
- **tridentifera** Meek and Worthen, 1868; Pal. Illinois, vol. 3, p. 391, pl. 7, fig. 16.
- **troosti** Safford, 1869; Geol. Tennessee, p. 290. (See *Chasmops troosti* Safford.) Nashville.
- [*Dalmania*] **verrucosus** Hall, 1863; Trans. Albany Inst., vol. 4, p. 218. (Abstract published May, 1863, p. 24.) Niagara.
- **verrucosus** Hall, 1875; 28th Rept. New York State Mus. Nat. Hist., pl. 23, figs. 5-17, 13-15. Museum ed., 1879, p. 195, pl. 23, fig. 5-17; pl. 34, figs. 13-15.
- **verrucosus** Hall, 1882; 11th Ann. Rept. Dept. Geol. Nat. Hist. Indiana, p. 341, pl. 35, figs. 5-17; pl. 36, figs. 13-15.
- **vigilans** Hall, 1861; Rept. Progress Wisconsin Geol. Survey, p. 51. Niagara.
- [*Dalmania*] **vigilans** Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 335, pl. 21, figs. 16-18.
- [*Dalmania*] **vigilans** Hall, 1870; 20th Rept. New York State Cab. Nat. Hist. (2d ed.), p. 426, pl. 21, figs. 16-18.
- **vigilans** Hall, 1875; 28th Rept. New York State Mus. Nat. Hist. Expl., pl. 33, figs. 1-4.
- **vigilans** Hall, 1879; 28th Rept. New York State Mus. Nat. Hist. (Mus. ed.), p. 193, pl. 33, figs. 1-4.
- **vigilans** Hall, 1882; 11th Ann. Rept. Geol. Nat. Hist. Indiana, 1881, p. 339, pl. 35, figs. 1-4; pl. 33, fig. 9.
- **werthneri** Foerste, 1885; Bull. Denison Univ., vol. 1, p. 116. Clinton.
- **werthneri** Foerste, 1887; Bull. Denison Univ., vol. 2, p. 109, pl. 8, figs. 22-25.
- Dicellocephalus**. (See *Dikelocephalus*.)
- Dikelocephalus** Owen, 1852; Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, p. 573.
- Type, *Dikelocephalus minnesotensis* Owen.
- Syn., *Centropleura* Angelin, 1854; Pal. Scand., p. 87, pl. 41, figs. 9-11.
- This generic term has sometimes been spelled *Dicellocephalus*.
- **affinis** Billings, 1865; Pal. Foss., vol. 1, p. 197, fig. 183 a, b. Quebec.
- ? **angustifrons** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 42, pl. 10, figs. 1, 1 a, b. Cambrian.
- **belli** Billings, 1860; Canadian Naturalist, vol. 5, p. 311, fig. 7. Quebec.
- **belli** Billings, 1865; Pal. Foss., vol. 1, p. 403, fig. 378.
- **barabuensis** Whitfield, 1878; Ann. Rept. Geol. Survey Wisconsin, 1877, p. 63. Lower Helderberg.
- **barabuensis** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 201, pl. 4, figs. 6-9.
- Compare *Bathyrurus capax* Billings.
- **bilobatus** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., p. 226, pl. 2, fig. 36. Potsdam.
- **bilobatus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 40.

- Dikelocephalus crassimarginatus* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 344, pl. 27, fig. 14. Potsdam.
- Syn., *pepinensis* (Hall), 16th Rept. New York State Cab. Nat. Hist. Expl., pl. 11, fig. 2.
- ? *corax* Billings, 1865; Pal. Foss., vol. 1, p. 344, figs. 322 a, b. Quebec.
- Referred to *Olenoides ? corax* Walcott, 1884; Bull. U. S. Geol. Survey, No. 30, p. 184.
- *cristatus* Billings, 1860; Canadian Naturalist, vol. 5, p. 312, fig. 10. Quebec.
- *cristatus* Billings, 1865; Pal. Foss., vol. 1, p. 404, fig. 384.
- This species might be referred to the genus *Dorypyge*.
- *devinei* Billings, 1865; Pal. Foss., vol. 1, p. 195, figs. 180, 181. Quebec.
- *eatoni* Whitfield, 1878; Ann. Rept. Geol. Survey Wisconsin, 1877, p. 65. Lower Magnesian.
- *eatoni* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 202, pl. 4, figs. 11-17; pl. 10, figs. 4, 5.
- ? *expansus* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 89, pl. 9, fig. 19. Cambrian.
- *finalis* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 89, pl. 12, figs. 12 a, b. Pogonip.
- *flabellifer* Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 227, pl. 2, figs. 29, 30. Potsdam.
- *flagricaudus* White. (See *Olenoides ? flagricauda*.)
- ? *gothicus* Hall and Whitfield. (See *Dorypyge gothicus*.)
- *hisingeri* Billings, 1865; Pal. Foss., vol. 1, p. 196, fig. 182. Quebec.
- *inexpectans* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 90, pl. 1, fig. 10. Pogonip.
- ? *iowensis* Owen. (See *Crepicephalus iowensis* (Owen) Walcott.)
- *iole* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 43, pl. 10, fig. 19. Cambrian.
- *latifrons* Shumard, 1863; Trans. Acad. Sci. St. Louis, vol. 2, p. 101. Potsdam.
- *lodensis* Whitfield, 1880; Ann. Rept. Geol. Survey Wisconsin, 1879, p. 51. Potsdam.
- *lodensis* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 188, pl. 10, fig. 14; p. 341, pl. 27, figs. 12, 13.
- *magnificus* Billings, 1860; Canadian Naturalist, vol. 5, p. 307, fig. 5 (*Remopleurides magnificus* Billings, 1865; Pal. Foss., vol. 1, p. 294). Quebec.
- *magnificus* Billings, 1865; Pal. Foss., vol. 1, p. 399, fig. 376.
- ? *marcoui* Whitfield, 1884; Bull. Am. Mus. Nat. Hist. New York, vol. 1, p. 150, pl. 14, fig. 7. Potsdam.
- Referred to *Olenoides marcoui* Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 186, pl. 26, figs. 5, 5 a, b.
- *marica* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 44, pl. 10, fig. 13. Cambrian.
- *megalop* Billings, 1860; Canadian Naturalist, vol. 5, p. 311, fig. 9. Quebec.
- *megalop* Billings, 1865; Pal. Foss., vol. 1, p. 403, fig. 380.
- *miniscaensis*. (See *Ptychaspis miniscaensis*.)
- *minnesotensis* Owen. Cambrian.
- A very large sp. *Asaphus* Owen, 1848; Rept. Geol. Reconnaissance Chippewa Land Dis., p. 15, pl. 7, figs. 2, 3.
- *minnesotensis* Owen, 1852; Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, p. 574, pl. 1, figs. 2, 10; pl. 10, figs. 3, 6.
- *minnesotensis* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 133, pl. 9, figs. 5-10; pl. 10, figs. 10-12; pl. 11, figs. 1-4, 6.
- Bull. 63—8

- Dikelocephalus minnesotensis* var. *limbatus* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 141, pl. 9, fig. 12.
- *minnesotensis* var. Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 141, pl. 9, fig. 11; pl. 10, fig. 9.
- *minnesotensis* Winchell, 1864; Am. Jour. Sci., 2d series, vol. 37, p. 229.
- *minnesotensis* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 187, pl. 3, fig. 1.
- *misa* Hall, 1863; 16th Rept. State Cab. Nat. Hist., p. 144, pl. 8, fig. 15; pl. 10, figs. 4-8. Potsdam.
- *missisquoi* Billings, 1865; Pal. Foss., vol. 1, p. 199. Quebec.
- *multicinctus* Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 226, pl. 2, fig. 37. Potsdam.
- *nasutus* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 40, pl. 10, fig. 15. Cambrian.
- *osceola* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 146, pl. 7, fig. 49; pl. 10, fig. 18. Potsdam.
- *osceola* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 40, pl. 9, fig. 25.
- *oweni* Billings, 1860; Canadian Naturalist, vol. 5, p. 310, fig. 8. Quebec.
- *oweni* Billings, 1865; Pal. Foss., vol. 1, p. 402, fig. 379.
- *pauper* Billings, 1865; Pal. Foss., vol. 1, p. 200. Quebec.
- *pepinensis* Owen, 1852; Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, p. 574, pl. 1, figs. 9, 9 a; pl. 1 a, fig. 7. Potsdam.
- *pepinensis* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 142, pl. 9, figs. 1-4; pl. 10, figs. 13-17. (Expl., pl. 11, fig. 2. See *Dicellocephalus crassimarginatus*.)
- *pepinensis* Winchell, 1864; Am. Jour. Sci., 2d series, vol. 37, p. 229.
- *planifrons* Billings, 1860; Canadian Naturalist, vol. 5, p. 309, fig. 6. Quebec.
- *planifrons* Billings, 1865; Pal. Foss., vol. 1, p. 401, fig. 377.
- *quadriceps*. (See *Dorpyge quadriceps*.)
- *richmondensis* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 41, pl. 10, fig. 7. Cambrian.
- *roemeri* Shumard, 1861; Am. Jour. Sci., 2d series, vol. 32, p. 220. Potsdam.
- *selectus* Billings, 1865; Pal. Foss., vol. 1, p. 199. Quebec.
- *selectus* Billings, 1865; Pal. Foss., vol. 1, p. 198. (See *Ptychaspis selectus*.)
- *spiniger* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 143, pl. 10, figs. 1, 2, 3 (?). Potsdam.
- *wahsatchensis*. (See *Olenoides wahsatchensis*.)
- Dionide* Barrande, 1847; Neues Jahrbuch für Mineral., vol. 4, p. 391.
- Type, *Dionide formosa* Barrande.
- Syn., *Dione* Barrande; Notice Prélim. Sil. Syst. Bohême, p. 33.
- Polytomurus* Corda, 1847; Prodr., p. 153.
- ? *perplexa* Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 67.
- Dipleura* Green, 1832; Mon. Tril. North America, p. 79. (See *Homalonotus de-kayi*.)
- Discranurus* Conrad, 1841; 5th Rept. Pal. Dept. New York Geol. Survey, p. 43. (See *Acidaspis hamata*.)
- Dolichometopus* Angelin, 1854; Palæont. Scand., p. 72.
- Type, *Dolichometopus svecicus* Ang.
- ? *convexus* Billings, 1865; Pal. Foss., vol. 1, p. 269, fig. 253. Quebec.
- ? *gibberrulus* Billings, 1865; Pal. Foss., vol. 1, p. 269, fig. 254. Quebec.
- ? *rarus* Billings, 1865; Pal. Foss., vol. 1, p. 352, fig. 308. Quebec.
- Dorpyge* Dames, 1884; China (Richthofen), vol. 4, p. 23.
- Type, *Dorpyge richthofeni* Dames.
- [*Dikelocephalus*] *cristatus* Billings, 1865; Pal. Foss., vol. 1, p. 404, fig. 384. Cambrian.

- Dorypyge** [*Dikelocephalus*?] **gothicus** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 242, pl. 1, fig. 36. Potsdam.
- **gothicus** Dames, 1884; China (Richthofen), vol. 4, p. 23.
- [*Dicellocephalus*?] **gothicus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 45, pl. 9, fig. 24. Referred to
- [*Olenoides*] **gothicus** Walcott, 1886; Bull. U. S. Geol. Survey, vol. 30, p. 187, pl. 29, figs. 1, 1 a-c.
- [*Dikelocephalus*] **quadriceps** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 240, pl. 1, figs. 37-40. Cambrian.
- [*Dicellocephalus*] **quadriceps** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 45, pl. 9, fig. 24.
- **quadriceps** Dames, 1884; China (Richthofen), vol. 4, p. 23. Referred to
- [*Olenoides*] **quadriceps** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 187, pl. 29, figs. 1, 1 a-c.
- Dysplanus** Burmeister, 1843; Organization of Trilobites (Ray Soc. ed., p. 205).
Type, *Dysplanus centrotus* Dalman.
- Ellipsocephalus** Zenker, 1833; Beiträge Naturgeschichte der Urwelt, p. 51.
Type, *Ellipsocephalus hoffi* Bronn.
- **curtus** Whitfield, 1878; Ann. Rept. Geol. Wisconsin, 1877, p. 58. Potsdam.
- **curtus** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 191, pl. 1, fig. 18.
- Elipsocephalus** Emmons, 1844; Taconic Syst., p. 21, figs. 1-3.
- *asaphoides*. (See *Olenellus asaphoides* Emmons.)
- Embolimus** Rominger, 1887; Proc. Acad. Nat. Sci. Phila., p. 16. (See *Zacanthoides* Walcott.)
- *rotundata*. (See *Bathyriscus howelli*.)
- *spinosa*. (See *Olenoides spinosus*.)
- Encrinurus** Emmrich, 1844; Zur Naturg. Trilobiten, p. 16.
Type, *Encrinurus punctatus* Brünnich.
- **americanus** Vogdes, 1886; Des. New Crust. Clinton Group Georgia, p. 1. Clinton.
- **americanus** Foerste, 1887; Bull. Denison Univ., vol. 2, p. 102.
- **deltoideus** Shumard, 1855; Geol. Missouri, p. 198, pl. B, fig. 10. Upper Silurian.
- [*Cryptonymus*] **deltoideus** Vogdes, 1878; Mon. Genera Zethus, etc., p. 21.
- **deltoideus** Foerste, 1887; Bull. Denison Univ., vol. 2, p. 102.
- **egani** Miller, 1879; Jour. Cincinnati Soc. Nat. Hist., vol. 2, p. 254, pl. 15, figs. 1, 1 a, b. Niagara.
- **elegantulus** Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 62.
- **elegantulus** Foerste, 1887; Bull. Denison Univ., vol. 2, p. 102.
- **excedrens** Safford. (See *Encrinurus varicostatus* Walcott.)
Syn., *excedrens* Safford, 1869; Geol. Tennessee, p. 290.
- **mirus** Billings, 1865; Pal. Foss., vol. 1, p. 292, fig. 222. Quebec.
- [*Cryptonymus*] **mirus** Vogdes, 1878; Mon. Genera Zethus, etc., p. 34.
- [*Amphion*] **multisegmentatus** Portlock, 1843; Geol. Londonderry, etc., p. 291, pl. 3, fig. 6.
- **multisegmentatus** Salter; Mem. Geol. Survey United Kingdom, decade 7, pl. 4.
- **multisegmentatus** Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 61.
- [*Cryptonymus*] **multisegmentatus** Vogdes, 1878; Mon. Genera Zethus, etc., p. 29.
- **nereus** Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 375, pl. 21, fig. 15. Niagara.
- **nereus** Hall, 1870; 20th Rept. New York State Cab. Nat. Hist., p. 425, pl. 21, fig. 15.
- [*Cryptonymus*] **nereus** Vogdes, 1878; Mon. Genera Zethus, etc., p. 24, pl. 3, fig. 17.
- **ornatus** Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 154, pl. 7, fig. 16. Niagara.
- Syn., *Cybele punctata* Hall, 1852; Pal. New York, vol. 2, p. 297, pl. A 66, figs. 1 a-k.

- Encrinurus** [*Cryptonymus*] **ornatus** Vogdes, 1878; Mon. Genera Zethus, etc., p. 23.
— **ornatus** Foerste, 1887; Bull. Denison Univ., vol. 2, p. 102.
— **punctatus** (Brünnich) Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 61.
— **thresheri** Foerste, 1887; Bull. Denison Univ., vol. 2, p. 101, pl. 8, fig. 26. Clinton.
— **trentonensis** Walcott, 1877; Advance sheets 31st Rept. New York State Mus. Nat. Hist., p. 15. Trenton.
— **trentonensis** Walcott, 1879; 31st Rept. New York State Mus. Nat. Hist., p. 68.
— [*Cryptonymus*] **trentonensis** Vogdes, 1878; Mon. Genera Zethus, etc., p. 28.
— **varicostatus** Walcott, 1877; Advance sheets 31st Rept. New York State Mus. Nat. Hist., p. 16. Trenton.
— **varicostatus** Walcott, 1879; 31st Rept. New York State Cab. Nat. Hist., p. 69.
— [*Cryptonymus*] **varicostatus** Vogdes, 1878; Mon. Genera Zethus, etc., p. 27.
— **varicostatus** Safford and Vogdes, 1889; Proc. Acad. Nat. Sci. Phila., p. 167, figure.
— [*Ceraurus*] **vigilans** Hall, 1847; Pal. New York, vol. 1, p. 245, pl. 65, figs. 2 a-2 h. Trenton.
— [*Ceraurus*] **vigilans** Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 217, pl. 15, figs. 2 a-2 c.
— [*Cryptonymus*] **vigilans** Vogdes, 1878; Mon. Genera Zethus, etc., p. 29, pl. 2, figs. 2 a-2 h.
Endymion Billings, 1862; Pal. Foss., vol. 1, p. 94. Changed by author to **Endymionia**.
Endymionia Billings, 1865; Pal. Foss., vol. 1, p. 281.
— **meeki** Billings, 1862; Pal. Foss., vol. 1, pp. 94 and 281, fig. 84. Quebec.
Griffithides Portlock, 1843; Geol. Rept. Londonderry, etc., p. 310.
Type, *Griffithides longiceps* Portlock.
— [*Phillipsia* (*Griffithides*)] **bufo** Meek and Worthen, 1870; Proc. Acad. Nat. Sci. Phila., p. 52. Keokuk.
— [*Phillipsia* (*Griffithides*)] **bufo** Meek and Worthen, 1873; Geol. Survey Illinois, vol. 5, p. 528, pl. 19, fig. 5.
— **bufo** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 95, pl. 3, figs. 4, 5, 10.
— [*Proetus*] **granulatus** Wetherby, 1881; Jour. Cincinnati Soc. Nat. Hist., vol. 4, p. 31, pl. 2, figs. 8, 8 a, 9, 9 a. Chester.
— **granulatus** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 101.
— [*Phillipsia* (*Griffithides* ?)] **lodiensis** Meek. (See *Brachymetopsis lodiensis*.)
— [*Phillipsia* (*Griffithides*)] **portlocki** Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., p. 268. Keokuk.
— [*Phillipsia* (*Griffithides*)] **portlocki** Meek and Worthen, 1873; Geol. Survey Illinois, vol. 5, p. 525, pl. 19, fig. 6.
— **portlocki** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 266, pl. 24, figs. 4, 4 a, b.
— **portlocki** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 93, pl. 3, fig. 9.
— [*Phillipsia* (*Griffithides* ?)] **sangamonensis** Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., p. 270. Coal Measures.
— [*Phillipsia* (*Griffithides* ?)] **sangamonensis** Meek and Worthen, 1873; Geol. Survey Illinois, vol. 5, p. 615, pl. 32, fig. 4.
— [*Phillipsia* (*Griffithides* ?)] **sangamonensis** White, 1883; 13th Rept. Dept. Geol. Nat. Hist. Indiana, p. 174, pl. 39, figs. 4, 5.
— [*Phillipsia*] **sangamonensis** Herrick, 1887; Bull. Denison Univ., vol. 2, p. 61, pl. 5, fig. 13.
— [*Griffithides*] **sangamonensis** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 99, pl. 3, figs. 7, 8.
— [*Phillipsia* (*Griffithides*)] **scitula** Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., p. 270. Coal Measures.

- Griffithides** [*Phillipsia* (*Griffithides*)] *scitula* Meek and Worthen, 1873; Geol. Survey Illinois, vol. 5, p. 612, pl. 32, fig. 3.
- [*Phillipsia* (*Griffithides*)] *scitula* White, 1883; 13th Ann. Rept. Dept. Geol. Nat. Hist. Indiana, 1882, p. 173, pl. 39, figs. 6-9.
- [*Phillipsia*] *scitula* Meek, 1872; U. S. Geol. Survey Territories, Final Rept. Nebraska, p. 238, pl. 6, fig. 9.
- [*Phillipsia*] *scitula* Herrick, 1887; Bull. Denison Univ., vol. 2, p. 62.
- *scitula* Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 97, pl. 2, figs. 11-13.
- ? *sedaliensis* Vogdes, 1888; Trans. New York Acad. Sci., vol. 7, p. 249. Waverly.
- [*Phæthonides*?] *sedaliensis* Herrick, 1889; Bull. Denison Univ., vol. 3, p. 57.
- Harpes** Goldfuss, 1839; Nova Acta Acad. Leop. Carol., vol. 19, p. 358.
- Type, *Harpes ungula* Sternb.
- *antiquatus* Billings, 1859; Canadian Naturalist, vol. 4, p. 469, fig. 38. Chazy.
- *antiquatus* Billings, 1863; Geol. Canada, p. 133, fig. 67.
- *consuetus* Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 64.
- *dentoni* Billings, 1863; Canadian Naturalist, vol. 8, p. 36, figure. Trenton.
- *dentoni* Billings, 1865; Pal. Foss., vol. 1, p. 183, fig. 166.
- *ecanabiæ* Hall, 1851; Rept. Geol. Lake Superior Land Dist. (Foster and Whitney), pt. 2, p. 211, pl. 27, fig. 2 a. Trenton.
- *granti* Billings, 1865; Pal. Foss., vol. 1, p. 326, fig. 314.
- *ottawensis* Billings, 1865; Pal. Foss., vol. 1, p. 182, fig. 165. Trenton.
- Harpides** Beyrich, 1846; Untersuch. Trilobiten, p. 34.
- *atlanticus* Billings, 1865; Pal. Foss., vol. 1, p. 281, fig. 267. Quebec.
- *concentricus* Billings, 1865; Pal. Foss., vol. 1, p. 282, fig. 268. Quebec.
- ? *desertus* Billings, 1865; Pal. Foss., vol. 1, p. 333, fig. 321. Quebec.
- Hausmannia** Hall, 1888; Pal. New York, vol. 7, p. xxxi. (Subgenus, see *Dalmanites*.)
- Hemicrapturus** Green, 1832; Mon. Tril. N. A., p. 20.
- *clintoni*. (See *Calymene clintoni* Vanuxem.)
- Holometopus** Angelin, 1854; Palæont. Scand., p. 58.
- Type, *Holometopus aciculatus*, pl. 33, fig. 5.
- *angelini* Billings, 1862; Pal. Foss., vol. 1, p. 95, fig. 85; also p. 281. Quebec.
- Homalonotus** Koenig, 1820; Icones Foss. Sectiles, p. 4.
- Type, *Homalonotus knighti* Koenig, pl. 7, fig. 85.
- Syn., *Brongniartia* Eaton, 1832; Geological Text Book, p. 32, pl. 2, fig. 20 (in part).
- *Dipleura* Green, 1832; Mon. Tril. N. A., p. 78; Monthly Am. Jour. Geology, p. 560.
- *Trimerus* Green, 1832; Mon. Tril. N. A., p. 81; Monthly Am. Jour. Geology, p. 560.
- *Plasiacomia* Corda, 1847; Prodr., p. 171.
- *Brongniartia* Salter, 1865; Mon. Brit. Tril., p. 104 (subgenus).
- *Burmeisteria* Salter, 1865; Mon. Brit. Tril., p. 105 (subgenus).
- *Koenigia* Salter, 1865; Mon. Brit. Tril., p. 104 (subgenus).
- [*Asaphus*] *cornigerus* (Schlotheim) Brong., 1822; Crust. Foss., p. 18, pl. 4, fig. 10 (not pl. 2, fig. 1).
- [*Asaphus*] *crypturus* Green, 1834; Trans. Geol. Soc. Pennsylvania, vol. 1, p. 37, pl. 4. Devonian.
- [*Asaphus*?] *crypturus* Green, 1835; Suppl. Mon. Tril. N. A., p. 18, cast 41.
- Syn., *Asaphus ditmarsie* Honeyman, 1879; Proc. Nova Scotia Inst., vol. 5, p. 18.
- [*Asaphus*?] *crypturus* Honeyman, 1888; Proc. Nova Scotia Inst., vol. 7, pt. 1, p. 63.
- *dawsoni* Hall, 1860; Canadian Naturalist, vol. 5, p. 155. Silurian.

- Homalonotus dawsoni** Dawson, 1878; *Acadian Geology* (3d ed.), p. 606, fig. 214.
 — [Dipleura] **dekayi** Green, 1832; *Mon. Tril. N. A.*, p. 79, casts 30, 31, pl. 1, figs. 8, 9. Hamilton.
- Syn., *Nuttainia sparsa* Eaton, 1832; *Geological Text Book*, p. 34.
Nuttainia sparsa Green, 1832; *Mon. Tril. N. A.*, p. 89, cast 35.
- [Dipleura] **dekayi** Vanuxem, 1842; *Geol. New York*, 3d *Geol. Dist.*, p. 150, fig. 1.
- [Dipleura] **dekayi** Hall, 1843; *Geol. New York*, 4th *Geol. Dist.*, p. 205, fig. 1.
- **dekayi** Emmons, 1860; *Manual Geology*, pp. 146, 147, figs. 134, 135.
- **dekayi** Hall, 1861; *Des. New Species Foss.*, p. 85.
- **dekayi** Hall, 1862; 15th *Rept. New York State Cab. Nat. Hist.*, p. 113.
- **dekayi** Hall, 1877; *Illus. Devonian Foss. Crust.*, pls. 2-5.
- **dekayi** Hall, 1888; *Pal. New York*, vol. 7, p. 7, pl. 2, figs. 1-12; pl. 3, figs. 1-5; pl. 4, figs. 1-7; pl. 5, figs. 1-4.
- [Trimerus] **delphinocephalus** Green, 1832; *Monthly Am. Jour. Geol.*, vol. 1, p. 559, pl. 0, fig. 1. Niagara.
- [Trimerus] **delphinocephalus** Green, 1832; *Mon. Tril. N. A.*, p. 82, pl. 1, fig. 1, cast 32.
- [Trimerus] **delphinocephalus** Harlan, 1835; *Trans. Geol. Soc. Pennsylvania*, vol. 1, p. 105.
- Syn., *Brongniartia platycephala* Eaton, 1832; *Geol. Text Book*, p. 32, pl. 2, fig. 20.
Brongniartia platycephala Green, 1832; *Mon. Tril. N. A.*, p. 91.
Ogygies latissima Eaton, 1832; *Am. Jour. Sci.*, 1st series, vol. 21, p. 136 (foot-note).
- **delphinocephalus** Murchison, 1839; *Sil. Syst.*, p. 651, pl. 7 *bis*, figs. 1 a, 1 b.
- Syn., *Ahrendii* Roemer, 1843; *Verst. Harzgebirges*, p. 39, pl. 11, fig. 5.
- **delphinocephalus** Hall, 1843; *Geol. New York*, 4th *Geol. Dist.*, p. 103, fig. 34.
- **delphinocephalus** Verneuil, *Note sur la parallélisme*, etc., p. 47.
- Syn., *atlas* Castelnau, 1843; *Syst. Sil. de l'Amér.*, p. 20.
giganteus Castelnau, 1843; *Syst. Sil. de l'Amér.*
herculeaneus Castelnau, 1843; *idem*.
- **delphinocephalus** Hall, 1852; *Pal. New York*, vol. 2, p. 309, pl. 68, figs. 1-14.
- **delphinocephalus** Salter, 1865; *Mon. Brit. Tril.*, p. 113, pl. 11, figs. 1-10.
- **delphinocephalus** Hall, 1883; 12th *Ann. Rept. Dept. Geol. Nat. Hist. Indiana*, 1882, p. 332, pl. 34, figs. 17, 18.
- **delphinocephalus** ? Hall, 1875; 28th *Rept. New York State Mus. Nat. Hist.*, pl. 34, figs. 17, 18.
- **delphinocephalus** Hall, 1879; 28th *Rept. New York State Mus. Nat. Hist.*, p. 187, pl. 32, figs. 17, 18.
- [Trimerus] **jacksoni** Green, 1837; *Am. Jour. Sci.*, 1st series, vol. 32, p. 347. Devonian.
- **major** Whitfield, 1885; *Bull. Am. Mus. Nat. Hist.*, vol. 1, No. 6, p. 193, pl. 22. Oriskany.
- **major** Hall, 1888; *Pal. New York*, vol. 7, p. 4, pl. 5 a, fig. 1.
- **vanuxemi** Hall, 1859; *Pal. New York*, vol. 3, p. 352, pl. 73, figs. 9-14. Lower Helderberg.
- **vanuxemi** Hall, 1888; *Pal. New York*, vol. 7, p. 11, pl. 5 b, figs. 1, 2.
- Hoplichas** Dames, 1877; *Zeitschr. Deutsch. geol. Gesell.*, 1872, p. 794.
 Type, *Lichas (Hoplichas) tricuspidata* Beyrich.
- Illænurus** Hall, 1863; 16th *Rept. New York State Cab. Nat. Hist.*, p. 176.
 Type, *Illænurus quadratus* Hall.
- **convexus** Whitfield, 1878; *Ann. Rept. Geol. Survey Wisconsin*, 1877, p. 66. Lower Magnesian.
- **convexus** Whitfield, 1882; *Geol. Wisconsin*, vol. 4, p. 203, pl. 4, figs. 3-5.
- **eurekensis** Walcott, 1884; *Pal. Eureka Dist.*, *Mon. U. S. Geol. Survey*, vol. 8, p. 97, pl. 12, figs. 4, 4 a. Pogonip.

- Illæurus quadratus* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 176, pl. 7, figs. 52-57. Potsdam.
- Illæurus* Dalman, 1826; Palæad., p. 50.
- Type, *Illæurus crassicauda*, Wahl., Nova Acta Soc. Scient. Upsal., vol. 8, p. 8, pl. 2, figs. 5, 6 (not pl. 7, figs. 5, 6, *Illæurus esmarki*).
- Syn., *Actinolobus* Eichwald, 1860.
- Alceste* Corda, 1847.
- Cryptonymus* Eichwald, 1825 (in part), not *Cryptonymus* Eichwald, 1840.
- Deucalion* Stoeckig, 1827.
- Ectillæurus* Salter, 1866 (subgenus).
- Hydrolæurus* Salter, 1866 (subgenus).
- Illænopsis* Salter, 1865 (subgenus).
- Octillæurus* Salter, 1866 (subgenus).
- Thaleops* Conrad, 1843.
- *ambiguus* Foerste, 1885; Bull. Denison Univ., vol. 1, p. 106, pl. 14, figs. 9 a, b; fig. 10 a, b, c; fig. 11. Clinton.
- *ambiguus* Foerste, 1887; Bull. Denison Univ., vol. 2, p. 94.
- *ambiguus* Foerste, 1886; 15th Ann. Rept. Geol. Nat. Hist. Survey Minnesota, p. 480, fig. 3.
- *americanus* Billings, 1859; Canadian Naturalist, vol. 4, p. 371. Trenton.
- *americanus* Billings, 1865; Pal. Foss., vol. 1, p. 329, fig. 316 a-d; fig. 318.
- *angusticollis* Billings, 1859; Canadian Naturalist, vol. 4, p. 377, fig. 10 a-d. Trenton.
- *arcturus* Hall, 1847; Pal. New York, vol. 1, p. 23, pl. 4 bis, fig. 12. Chazy and Trenton.
- *arcturus* Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 235, pl. 3, fig. 12.
- *arcturus* (Hall) Billings, 1859; Canadian Naturalist, vol. 4, p. 379.
- *arcturus* Billings, 1865; Pal. Foss., vol. 1, p. 279, fig. 265.
- *armatus* Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 330, pl. 22, figs. 1, 2. Niagara.
- *armatus* Hall, 1870; 20th Rept. New York State Cab. Nat. Hist., p. 418, pl. 22, figs. 1, 2; pl. 25, fig. 22.
- *armatus* ? Hall, 1875; 28th Rept. New York State Mus. Nat. Hist., pl. 32, figs. 19, 20.
- *armatus* ? Hall, 1879; 28th Rept. New York State Mus. Nat. Hist., p. 189, pl. 32, figs. 19, 20.
- *armatus* Hall, 1883; 12th Ann. Rept. Dept. Geol. Nat. Hist. Indiana, 1882, p. 335, pl. 34, figs. 19, 20; pl. 33, fig. 12.
- *barriensis* (Murch.) Hall; Trans. Albany Inst., vol. 4, p. 227; abstract, p. 33, May, 1863.
- *barriensis* (Murch.) Roemer, 1860; Die sil. Fauna W. Tennessee, p. 83, pl. 5, fig. 23. Niagara.
- [*Bumastus*] *barriensis* (Murch.), 1839; Sil. Syst., p. 656, pl. 7 bis, figs. 3 a-d, pl. 14, fig. 7 (in part).
- *barriensis* Salter, 1859; Murchison's Siluria (2d. ed.), pl. 17, figs. 9-11.
- *bayfieldi* Billings, 1859; Canadian Naturalist, vol. 4, p. 369, figs. 4-6. Chazy.
- *clavifrons* Billings, 1859; Canadian Naturalist, vol. 4, p. 379. Chazy and Trenton.
- *conifrons* Billings, 1859; Canadian Naturalist, vol. 4, p. 378, figs. 7-9. Trenton.
- *conradi* Billings, 1859; Canadian Naturalist, vol. 4, p. 372, figs. 7-9. (See *Panderia conradi*.) Trenton.
- *consimilis* Billings, 1865; Pal. Foss., vol. 1, p. 277, figs. 263 a-c; p. 331, fig. 317. Compare *Illæurus esmarki* Schlotheim. Quebec.
- *consobrinus* Billings, 1865; Pal. Foss., vol. 1, p. 280, fig. 268; p. 332, fig. 320. Quebec.

- Illæus cornigerus* Hall, 1872; 24th Rept. New York State Cab. Nat. Hist., p. 186, pl. 13, figs. 20, 21. Clinton.
- [*Entomostracetes*] *crassicauda* Wahlenberg, 1821; Nova Acta Soc. Scient. Upsal., vol. 8, p. 27, pl. 2, figs. 5, 6 (not pl. 7, figs. 5, 6).
- *crassicauda* Holm, 1882; Svenska Vet.-Akad. Handl., vol. 7, No. 3, pl. 2, figs. 21-27.
- *crassicauda* ? Hall, 1847; Pal. New York, vol. 1, p. 24, pl. 4 *bis*, fig. 13; pl. 60, figs. 4 a-d.
- *crassicauda* (Wahl.) Meek and Worthen, Geol. Survey Illinois, vol. 3, p. 322, pl. 3, figs. 1 a-1 b.
Compare *Illæus consimilis* and *I. esmarkii*.
- *cuniculus* Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 377, pl. 22, fig. 12. Niagara.
- *cuniculus* Hall, 1870; 20th Rept. New York State Cab. Nat. Hist., p. 421, pl. 22, fig. 12 (rev. ed.).
- *daytonensis* Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 119, pl. 5, figs. 14-16. Clinton.
- *daytonensis* Foerste, 1885; Bull. Denison Univ., vol. 1, p. 104, pl. 14, figs. 4 a, b; figs. 6, 7, 7 a, b, c.
- *daytonensis* Foerste, 1887; Bull. Denison Univ., vol. 2, p. 93, pl. 8, figs. 1-7.
- *fraternus* Billings, 1865; Pal. Foss., vol. 1, p. 276, figs. 262 a, b. Quebec.
- *globosus* Billings, 1859; Canadian Naturalist, vol. 4, p. 367, figs. 1-3. Chazy.
- [*Bumastus*] *griftonensis* Meek and Worthen, 1870; Proc. Acad. Nat. Sci. Phila., p. 54.
- [*Bumastus*] *griftonensis* Meek and Worthen, 1875; Geol. Survey Illinois, vol. 6, p. 508, pl. 25, fig. 4.
- *grandis* Billings, 1859; Canadian Naturalist, vol. 4, p. 380. Hudson River.
- *herricki* Foerste, 1886; 15th Ann. Rept. Geol. Nat. Hist. Minnesota, p. 479, fig. 2. Trenton.
- *imperator* Hall, 1861; Rept. Progress Geol. Survey Wisconsin, p. 49. Niagara.
- *imperator* Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 332, pl. 22, figs. 15-17; pl. 23, figs. 2, 3.
- *imperator* Hall, 1870; 20th Rept. New York State Cab. Nat. Hist., p. 420, pl. 22, figs. 15-17; pl. 23, figs. 2, 3.
- *imperator* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 306, pl. 21, figs. 4, 5.
- *incertus* Billings, 1865; Pal. Foss., vol. 1, p. 332, fig. 319. Quebec.
- *indeterminatus* Walcott, 1877; Advanced sheets 31st Rept. New York State Mus. Nat. Hist., p. 19. Trenton.
- *indeterminatus* Walcott, 1879; 31st Rept. New York State Mus. Nat. Hist., p. 70.
- *insignis* Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 331, figs. 5, 6, pl. 22, figs. 13, 14.
- [*Bumastus*] *insignis* Salter, 1867; Mon. Brit. Tril., p. 207.
- *insignis* Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 331, figs. 5, 6; pl. 22, figs. 13, 14.
- *insignis* Hall, 1870; 20th Rept. New York State Cab. Nat. Hist., p. 419, figs. 10, 11; pl. 22, figs. 13, 14.
- [*Bumastus*] *insignis* Meek, 1873; Pal. Ohio, vol. 1, p. 189, pl. 15, figs. 5 a-c.
- *insignis* Holm, 1882; De Svenska Art. Tril. Illæus, p. 127.
- *insignis* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 305, pl. 21, figs. 6-10.
- *insignis* Foerste, 1886; 15th Ann. Rept. Geol. Nat. Hist. Survey Minnesota, p. 481.
- *ioxus* Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 378, pl. 22, figs. 4-10. Niagara.
- [*Bumastus*] *ioxus* Hall, 1870; 20th Rept. New York State Cab. Nat. Hist., p. 420, pl. 22, figs. 4-10.

- Illænus* [*Bumastus*] **ioxus** Hall, 1883; 12th Ann. Rept. Dept. Geol. Nat. Hist. Indiana, 1882, p. 335, pl. 38, figs. 13, 14.
- **ioxus** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 304, pl. 21, figs. 11, 12.
- [*Bumastus*] **ioxus** Hall, 1883; Trans. Albany Inst., vol. 10, p. 76.
- **latidorsata** Hall, 1847; Pal. New York, vol. 1, p. 230, pl. 60, figs. 6 a, b. Trenton.
- **madisonianus** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 307, pl. 20, figs. 8, 9. Niagara.
- **madisonianus** Foerste, 1885; Bull. Denison Univ., vol. 1, p. 106, pl. 14, figs. 1 a, b and 2 a, b.
- **madisonianus** Foerste, 1887; Bull. Denison Univ., vol. 2, p. 93, pl. 8, figs. 8-10. Clinton.
- **milleri** Billings, 1859; Canadian Naturalist, vol. 4, p. 375, fig. 10. Trenton.
- **milleri** Walcott, 1877; Advance sheets 31st Rept. N. Y. State Mus. Nat. Hist., p. 20.
- **milleri** Walcott, 1879; 31st Rept. N. Y. State Mus. Nat. Hist., p. 71.
- [*Nileus*] **minnesotensis** Foerste, 1886; 15th Ann. Rept. Geol. Minnesota, p. 478, fig. 1. Trenton.
- **niagarensis** Whitfield, 1880; Ann. Rept. Geol. Wisconsin, 1879, p. 69. Niagara.
Name changed, by request of the Wisconsin Geological Survey, from *Illænus niagarensis* to *Illænus madisonianus*. Explanation omitted by accident in the Final Report Pal. Wisconsin, p. 307.
- **orbicaudatus** Billings, 1859; Canadian Naturalist, vol. 4, p. 379. Hudson.
- [*Thaleops*] **ovatus** Conrad, 1843; Proc. Acad. Nat. Sci. Phila., vol. 1, p. 332. Trenton.
- [*Thaleops* (*Illænus*)] **ovatus** Hall, 1847; Pal. New York, vol. 1, p. 259, pl. 67, figs. 6 a-b.
- **ovatus** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 238, pl. 5, figs. 1, 2.
- **pomatia** Salter, 1867; Mon. Brit. Tril., pl. 27, figs. 6, 7.
- **pterocephalus** Whitfield, 1878; Ann. Rept. Geol. Wisconsin, 1877, p. 87. Niagara.
- **pterocephalus** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 309, pl. 20, figs. 10-12.
- **simulator** Billings, 1865; Pal. Foss., vol. 1, p. 337, figs. 315 a, b. Quebec.
- **taurus** Hall, 1861; Rept. Prog. Geol. Survey Wisconsin, p. 49. Niagara.
- **taurus** Meek and Worthen, 1865; Geol. Survey Illinois, vol. 3, p. 320, pl. 3, fig. 2.
- [*Bumastus*] **trentonensis** Emmons, 1842; Geol. New York, 3d Geol. Dist., p. 390 fig. 1. Trenton.
- [*Bumastus*] **trentonensis**, 1854; 7th Rept. New York State Cab. Nat. Hist., p. 64, fig. 1.
- [*Bumastus*] **trentonensis** Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 215, pl. 15, fig. 13.
- **trentonensis** Hall, 1847; Pal. New York, vol. 1, p. 230, pl. 60, fig. 5.
- **tumidifrons** Billings, 1865; Pal. Foss., vol. 1, p. 278, fig. 264. Quebec.
- **vindex** Billings, 1865; Pal. Foss., vol. 1, p. 179, fig. 160. Chazy.
- [*Bumastus*] **worthenanus** Winchell and Marcy, 1866; Mem. Boston Soc. Nat. Hist., vol. 1, pt. 1, p. 105, pl. 3, fig. 13 (referred by Hall, 20th Rept. New York State Cab. Nat. Hist., to *Illænus armatus* Hall).
- Isoletus* De Kay, 1825; Annals Lyceum Nat. Hist. New York, vol. 1, p. 174.
- *canalis*. (See *Asaphus canalis*.)
- *cyclops*. (See *Asaphus platycephalus*.)
- *gigas*. (See *Asaphus platycephalus*.)
- *maximus*. (See *Asaphus maximus*.)
- *megalops* Green, 1832; Mon. Tril. N. A., p. 70, cast 75.
- *megistos*. (See *Asaphus maximus*.)
- *platycephalus*. (See *Asaphus platycephalus*.)
- *planus*. (See *Asaphus platycephalus*.)

Isoteles stegops. (See *Asaphus platycephalus*.)

— *vigilans*. (See *Asaphus vigilans*.)

Lichas Dalman, 1826; Palæad., pp. 53, 71, pl. 6, fig. 1.

Type, *Lichas laciniatus* Wahlenberg.

Syn., *Platynotus* Conrad, 1835; Geol. Survey New York, Rept. Pal. Dept., p. 118.

Arges Goldfuss, 1839 (in part).

Metopias Eichwald, 1842; Die Urwelt Russ., p. 62, pl. 3, figs. 21–23.

Actinurus Castelnau, 1843; Syst. Sil. de l'Amér., p. 21.

Nuttainia Portlock and Emmrich.

Corydocephalus Corda, 1847; Prodr., p. 255.

Dicranopeltis Corda, 1847; Prodr., p. 257.

Acanthopyge Corda, 1847; Prodr., p. 260.

Dicranonymus Corda, 1847; Prodr., p. 261.

Subgenera, *Hoplolichas* Dames, 1877; Zeitschr. Deutsch. geol. Gesellsch., 1877, p. 794.

Type, *Hoplolichas tricuspidata* Beyrich.

Conolichas Dames, 1877; Zeitschr. Deutsch. geol. Gesellsch., 1877, p. 806.

Type, *Conolichas æquiloba* Steinhardt.

— *armatus* Hall. (See *Acidaspis eriopis* Hall.)

— *bigsbyi* Hall, 1859; Pal. New York, vol. 3, p. 364, pl. 77, figs. 1–8.

Lower Helderberg.

— [*Conolichas*] *bigsbyi*? Hall, 1888; Pal. New York, vol. 7, p. 80, pl. 19 a, fig. 1.

— [*Paradoxides*] *boltoni* Bigsby, 1825; Jour. Acad. Nat. Sci. Phila., vol. 4, p. 365, plate. Niagara.

— [*Paradoxides*] *boltoni* Green, 1832; Monthly Am. Jour. Geol., etc., vol. 1, p. 560, pl. 1, fig. 5.

— [*Paradoxides*] *boltoni* Green, 1832; Mon. Tril. North America, p. 60, pl. 1, fig. 5.

— [*Paradoxides*] *boltoni* Harlan, 1834; Trans. Geol. Soc. Penn., vol. 1, p. 103.

— [*Paradoxides*] *boltoni* Harlan, 1835; Med. and Phys. Researches, p. 303.

— [*Platynotus*] *boltoni* Conrad, 1838; Rept. Pal. Dept. Geol. Survey New York, p. 118.

— [*Actinurus*] *boltoni* Castelnau, 1843; Syst. Sil. de l'Amér., p. 21, pl. 3, fig. 3.

— *boltoni* Hall, 1852; Pal. New York, vol. 2, p. 311, pl. 69; pl. 70, figs. 1 a–i.

— *boltoni* Meek and Worthen, 1875; Geol. Survey Illinois, vol. 6, p. 508, pl. 25, fig. 5.

— *boltoni* var. *occidentalis* Hall, 1863; Trans. Albany Inst., vol. 4, p. 223; abstract, p. 29.

— *boltoni* var. *occidentalis* Hall, 1875; 28th Rept. New York State Mus. Nat. Hist. Expl., p. 34, figs. 8–11.

— *boltoni* var. *occidentalis* Hall, 1879; 28th Rept. New York State Mus. Nat. Hist., p. 198, pl. 34, figs. 8–11.

— *boltoni* var. *occidentalis* Hall, 1883; 12th Ann. Rept. Dept. Geol. Nat. Hist. Indiana, 1882, p. 334, pl. 36, figs. 8, 11, 12 (?).

— *breviceps* Hall, 1863; Trans. Albany Inst., vol. 4, p. 222; abstract, p. 28.

Niagara.

— *breviceps* Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 156, pl. 6, fig. 17.

— *breviceps* Hall, 1875; 28th Rept. New York State Mus. Nat. Hist. Expl., pl. 34, figs. 1–7.

— *breviceps* Hall, 1879; 28th Rept. New York State Mus. Nat. Hist., p. 197, pl. 34, figs. 1–7.

— *breviceps* Hall, 1883; 12th Ann. Rept. Dept. Geol. Nat. Hist. Indiana, 1882, p. 343, pl. 36, figs. 1–7.

— *breviceps* Foerste, 1885; Bull. Denison Univ., vol. 1, p. 112, pl. 13, figs. 2, 6 a, b.

Clinton.

- Lichas breviceps* Foerste, 1887; Bull. Denison Univ., vol. 2, p. 98, pl. 8, figs. 18, 19.
 Not *Lichas breviceps* Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 377, pl. 21, figs. 12-14; also rev. ed., p. 424, pl. 21, figs. 12-14. (See *Lichas emarginatus*.)
- *canadensis* Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 65, fig. 22.
- *champlainensis* Whitfield, 1886; Bull. Am. Mus. Nat. Hist. New York, vol. 1, No. 8, p. 342, pl. 23, figs. 6-8. Birdseye.
- [*Arges*] *contusus* Hall, 1888; Pal. New York, vol. 7, p. 83, pl. 19 b, figs. 3-6. Upper Helderberg.
- *cucullus* Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., p. 266. Trenton.
- *cucullus* Meek and Worthen, 1866; Geol. Survey Illinois, vol. 3, p. 299, pl. 1, figs. 6 a-c.
- *decipiens* Winchell and Marcy, 1866; Mem. Boston Soc. Nat. Hist., vol. 1, pt. 1, p. 104, pl. 3, fig. 11. Niagara.
- [*Ceratolichas*] *dracon* Hall, 1888; Pal. New York, vol. 7, p. 85, pl. 19, figs. 14-17. Hall, 1876; Illus. Devonian Foss. Crust., pl. 19, figs. 2, 3. Upper Helderberg.
- *emarginatus* Hall, 1879; 28th Rept. New York State Mus. Nat. Hist., p. 199. Niagara.
- Syn., *Lichas breviceps* Hall; 20th Rept. New York State Cab. Nat. Hist., p. 377, pl. 21, figs. 12-14, rev. ed., p. 424, pl. 21, figs. 12-14.
- *eriops*, Hall. Upper Helderberg.
- Syn., *Lichas armatus* Hall, 1861; Des. New Species Foss., p. 81.
- Lichas armatus* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 109.
- *eriops* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 226.
- [*Acidaspis* (*Terataspis*)] *eriops*, Hall, 1876; Illus. Devonian Foss. Crust., pl. 19, figs. 4-7, 10, 11.
- [*Acidaspis* (*Terataspis*?)] sp. ? Hall, 1876; Illus. Devonian Foss. Crust., pl. 19, fig. 12.
- [*Conolichas*] *eriops* Hall, 1888; Pal. New York, vol. 7, p. 78, pl. 19 a, figs. 2-13, 15, 16.
- *grandis* Hall, 1861; Des. New Species Foss., p. 82. Upper Helderberg.
- *grandis* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 110.
- *grandis* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 223. (Subgenus *Terataspis*.)
- Syn., *superbus* Billings, 1875; Canadian Naturalist, vol. 7, p. 239.
- [*Acidaspis* (*Terataspis*)] *grandis* Hall, 1876; Illus. Devonian Foss. Crust., pls. 17, 18.
- [*Terataspis*] *grandis* Hall, 1888; Pal. New York, vol. 7, p. 73, pl. 17, figs. 1-6; pl. 1*, figs. 1, 2; pl. 19, figs. 1-7.
- [*Ceratolichas*] *grandis* Hall, 1888; Pal. New York, vol. 7, p. 84, pl. 19 b, figs. 7-13.
- [*Ceratolichas*] *gryps* Hall, 1888; Pal. New York, vol. 7, p. 84, pl. 19 b, figs. 7-13.
- *harrisii* Miller, 1878; Jour. Cincinnati Soc. Nat. Hist., vol. 1, p. 106, pl. 3, fig. 9. Hudson.
- [*Acidaspis* n. sp. ?] Hall, 1876; Illus. Devonian Foss. Crust., pl. 19, fig. 1 (not figs. 2, 3). Upper Helderberg.
- [*Conolichas*] *hispidus* Hall, 1888; Pal. New York, vol. 7, p. 77, pl. 19 a, figs. 14, 17, 18.
- Syn., [*Acidaspis* (*Terataspis*)] *eriops* Hall, 1876; Illus. Dev. Foss., pl. 19, figs. 8, 9. Upper Helderberg.
- [*Hoplotichas*] *hylæus* Hall, 1888; Pal. New York, vol. 7, p. 81, pl. 19 b, figs. 1, 2. Upper Helderberg.
- *jukesii* Billings, 1865; Pal. Foss., vol. 1, p. 282, fig. 260; also p. 335, fig. 323. Quebec.

- Lichas minganensis* Billings, 1865; Pal. Foss., vol. 1, p. 181, figs. 163 a, b.
Chazy and Trenton.
- *nereus* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 226, Niagara.
- *obvius* Hall, 1870; 20th Rept. New York State Cab. Nat. Hist., p. 424, pl. 25, fig. 19. Niagara.
- [*Calymene*] *phlyctanodes* Green, 1837; Am. Jour. Sci., 1st series, vol. 32, p. 167. Niagara.
- [*Arges*] *phlyctanodes* Hall, 1852; Pal. New York, vol. 2, p. 314, pl. 70, figs. 2 a, c.
- [*Dicranognmus*] *ptyonurus* Hall, 1888; Pal. New York, vol. 7, p. 86, pl. 19 b, figs. 19-21. Niagara.
- *pugnax* Winchell and Marcy, 1866; Mem. Boston Soc. Nat. Hist., vol. 1, pt. 1, p. 103, pl. 3, fig. 10. Niagara.
- *pugnax* Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 393 (rev. ed., p. 424, pl. 25, fig. 20).
- *pustulosus* Hall, 1859; Pal. New York, vol. 3, p. 366, pl. 77, figs. 9-12; pl. 78, figs. 1-6, fig. 7 (?). Lower Helderberg.
- *pustulosus* Hall, 1876; Illus. Devonian Foss. Crust., pl. 19, fig. 13.
- [*Conolichas*] *pustulosus* Hall, 1888; Pal. New York, vol. 7, p. 80, pl. 19, figs. 8, 10, 11.
- *superbus* Billings, 1875; Canadian Naturalist, n. s., vol. 7, p. 239. (See *Lichas grandis*.) Corniferous.
- [*Asaphus*?] *trentonensis* Conrad, 1842; Jour. Acad. Nat. Sci. Phila., vol. 8, p. 277, pl. 16, fig. 16. Trenton.
- [*Platynotus*] *trentonensis* Hall, 1847; Pal. New York, vol. 1, p. 235, pl. 64, figs. 1 a- ρ .
- *trentonensis* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 127.
- Lloydia* Vogdes, 1889 (generic name for *Bathyrurus bituberculatus* Billings for its type).
- Loganellus* Devine, 1863; Canadian Naturalist, vol. 8, p. 95. (See *Ptychoparia*, *Crepicephalus*, and *Olenus*.)
- *logani* Devine, 1863; Canadian Naturalist, vol. 8, p. 95. (See *Ptychoparia logani*.)
- [*Olenus*?] *logani* Billings, 1865; Pal. Foss., vol. 1, p. 201, figs. 185, 186.
- *quebecensis* Billings, 1865; Pal. Foss., vol. 1, p. 203. (See *Ptychoparia logani*.)
- Lonchocephalus* Owen, 1852; Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, p. 576. (See *Anomocare hamulus* (Owen) Danaes.)
- Megalaspis* Angelin, 1852; Palæont. Scand., p. 15.
Type, *Megalaspis gigas* Ang., pl. 12, fig. 3.
- *belemnurus* White, 1874; Rept. Invert. Foss., etc., p. 11. Quebec.
- *belemnurus* White, 1877; Geog. Sur. W. 100th Meridian, Pal., vol. 4, p. 59, pl. 3, fig. 9.
- [*Asaphus* (*megalaspis*)] *goniocerus* Meek, 1873; 6th Ann. Rept. Geol. Survey Territories, 1872, p. 480. Quebec.
- Menocephalus* Owen, 1852; Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, p. 577.
Dr. D. D. Owen refers one species to this genus, *Menocephalus minnesotensis*, pl. 1, fig. 11, which has a highly arched and hemispherical glabella.
- *globosus* Billings, 1860; Canadian Naturalist, vol. 5, p. 317, figs. 17-19. Quebec.
- *globosus* Billings, 1865; Pal. Foss., vol. 1, p. 408, figs. 388 a-c.
- *minnesotensis* Owen, 1852; Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, p. 577, pl. 1, fig. 11. Cambrian.
- *salteri* Billings, 1863; Canadian Naturalist, vol. 8, p. 210, figure. Cambrian.
- *salteri* Billings, 1865; Pal. Foss., vol. 1, p. 203, fig. 187.

- Menocephalus salteri**? Rominger, 1888; Proc. Acad. Nat. Sci. Phila., pl. 16, pl. 1, fig. 6.
- **sedgwicki** Billings, 1860; Canadian Naturalist, vol. 5, p. 316, fig. 16. Quebec.
- **sedgwicki** Billings, 1865; Pal. Foss., vol. 1, p. 407, fig. 387.
- Mesonacis** Walcott, 1885; Am. Jour. Sci., 3d series, vol. 29, p. 329.
- [*Olenus*] **vermontana** Hall, 1859; 12th Rept. New York State Cab. Nat. Hist., p. 60, figure. Cambrian.
- [*Olenus*] **vermontana** Hall, 1859; Pal. New York, vol. 3, p. 527, figure.
- [*Paradoxides*] **vermonti** Emmons, 1860; Manual Geology, p. 280 (note A).
- [*Paradoxides*] **vermontana** Barrande, 1861; Bull. Soc. Géol. France, 2d series, vol. 18, p. 277, pl. 5, fig. 8.
- [*Paradoxides*] **vermontana** Billings, 1861; Geology Vermont, vol. 2, p. 950.
- [*Barrandia*] **vermontana** Hall, 1861; 13th Rept. New York State Cab. Nat. Hist., p. 117, figure.
- [*Barrandia*] **vermontana** Hall, 1861; Geol. Vermont, vol. 1, p. 370, pl. 13, figs. 2, 4, and 5.
- [*Paradoxides*] **vermontana** Billings, 1863; Geol. Canada, p. 953.
- [*Olenellus*] **vermontana** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 114.
- [*Olenellus*] **vermontana** Billings, 1865; Pal. Foss., vol. 1, p. 10.
- [*Olenellus*] **vermontana** Whitfield, 1884; Bull. Am. Mus. Nat. Hist. New York, vol. 1, p. 152, pl. 15, figs. 2-4.
- **vermontana** Walcott, 1885; Am. Jour. Sci., 3d series, vol. 29, p. 329, figs. 1, 2.
- **vermontana** Walcott, 1885; Nature, vol. 32, p. 68.
- **vermontana** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 158, pl. 24, figs. 1 a, b.
- Microdiscus** Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 116.
- Type, *Microdiscus speciosus* Ford.
- **belli-marginatus** Shaler and Foerste, 1888; Bull. Mus. Comp. Zool. Harvard Coll., vol. 16, p. 35, pl. 2, fig. 19. Cambrian.
- **connexus** Walcott, 1887; Am. Jour. Sci., 3d series, vol. 34, p. 194, pl. 1, figs. 4-4 b. Cambrian.
- **dawsoni** Hartt, 1868; Acadian Geology, p. 654, fig. 228. St. John.
- Mr. Hartt originally described this species under the new generic name of *Dawsonia*, but on Mr. E. Billings's authority the species was referred to *Microdiscus* in the Acadian Geology.
- **dawsoni** Whiteaves, 1878; Am. Jour. Sci., 3d series, vol. 16, p. 225.
- **dawsoni** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 23, pl. 2, figs. 3, 3 a.
- [*Agnostus*] **lobatus** Hall, 1847; Pal. New York, vol. 1, p. 258, pl. 67, figs. 5 a-f. Potsdam.
- [*Agnostus*] **lobatus** Rogers, 1858; Geol. Survey Pennsylvania, vol. 2, p. 820, fig. 614 (1-4).
- **lobatus** Ford, 1873; Am. Jour. Sci., 3d series, vol. 6, p. 135 (foot-note).
- **lobatus** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 156, pl. 16, figs. 1, 1 a, b.
- **lobatus** Shaler and Foerste, 1888; Bull. Mus. Comp. Zool. Harvard Coll., vol. 16, p. 36, pl. 2, fig. 13.
- **meeki** Ford, 1876; Am. Jour. Sci., 3d series, vol. 11, p. 371. Lower Potsdam.
- **meeki** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 155, pl. 16, fig. 4.
- **parkeri** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 157, pl. 16, figs. 2, 2 a. Middle Cambrian.
- **pulchellus** (Hartt MS.) Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 24. St. John.
- **punctatus** Salter, 1864; Quart. Jour. Geol. Soc. London, vol. 20, p. 237, pl. 13, fig. 11. St. John.
- **punctatus** Whiteaves, 1878; Am. Jour. Sci., 3d series, vol. 16, p. 225.

- Microdiscus punctatus* Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 24, pl. 2, figs. 1, 1 a-c.
- *quadricostatus* Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 116, pl. 1, fig. 8. Taconic.
- *quadricostatus* Emmons, 1860; Manual Geology, p. 88, fig. 73.
- *quadricostatus* Barrande, 1861; Bull. Soc. Géol. France, 2d series, vol. 18, p. 280, pl. 5, figs. 13 a, b.
- *speciosus* Ford, 1873; Am. Jour. Sci., 3d series, vol. 6, p. 137, figs. 2 a, b. Potsdam.
- *speciosus* Ford, 1877; Am. Jour. Sci., 3d series, vol. 13, p. 147.
- *speciosus* Ford, 1879; New York Tribune Extra, Sept. 2, 1879, fig. 2.
- *speciosus* Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 154, pl. 16, figs. 3, 3 a-c.
- Nileus* Dalman, 1826; Palæad., p. 246 (German trans., p. 49).
- Type, *Nileus armadillo* Dalman.
- *affinis* Billings, 1865; Pal. Foss., vol. 1, p. 275, figs. 261 a, b. Quebec.
- *macrops* Billings, 1865; Pal. Foss., vol. 1, p. 273, fig. 259. Quebec.
- *scrutator* Billings, 1865; Pal. Foss., vol. 1, p. 274, fig. 260. Quebec.
- Nuttania* Eaton, 1832 (in part); Geological Text Book, p. 33. (See *Trinucleus* and *Homalonotus*.)
- *concentrica* Eaton, 1832; Geological Text Book, p. 34, pl. 1, fig. 2.
- *sparsa* Eaton, 1832; Geological Text Book, p. 34.
- Odontocephalus* Conrad, 1840; 3d Ann. Rept. Pal. Dept. New York Geol. Survey, p. 204.
- [*Dalmanites* (*Odontocephalus*)] Hall and Clarke, 1888; Pal. New York, vol. 7, p. xxxiii.

I can not do justice to this genus without giving a brief historical sketch, which dates back to 1781. During this year M. T. Brünnich (Beskrivelse over Trilobiten, Nye Samling af det Kong. Danske Vidensk. Skrifter, vol. 1, p. 392, pl. 0, figs. 1, 2) published a description of a fossil Trilobite from Coalbrook Dale under the name of *Trilobus caudatus*. As this Trilobite in after years had many generic names, I give a translation of the original description for the use of students. The author figures the head and pygidium of *Trilobus caudatus* and remarks: "As I was not fortunate enough to obtain a complete specimen of the entirely unknown fossil, but only broken parts, I can not distinctly describe its size or number of rings; however, the annexed figures show the distinct features of this species and their peculiar morphology. The size of the fossil at its anterior bend is $1\frac{1}{2}$ inches, the front piece outside of the crust is $\frac{1}{8}$ inch, its total length 34 inches; the broken back part, consisting of about sixteen rings, is 1 inch in length to the tail, the latter being 1 inch long. The head shield is surrounded by a flat-shaped edge, which terminates in an upright protuberance with a tongue rounded anteriorly. The shell shows various elevations separated by transverse furrows. The eyes on the side of the shell are very protruding, semilunar in form, and faceted after the eyes of insects. On the head-shield may be seen some small nodes, which are also visible on the first ring and on some of the others. The tail diminishes in breadth and terminates in a narrow, long, and pointed projection."

The first systematic writer (Brongniart, Crust. Foss., p. 22) included this species under his genus *Asaphus*, and it was so classified until 1844, when Dr. H. F. Emmrich (Zur Morphologie der Trilobiten, p. 15, pl. 1, fig. 1) proposed the new generic term of *Dalmania* for it. Unfortunately this term was then preoccupied for a genus of the Diptera. Dr. H. F. Emmrich's work was well known in Europe, having appeared in two separate German editions, and also in English (Scient. Mem., vol. 4, pt. 14, 1847).

In the year 1847 A. J. C. Corda (Prodr., p. 208, pl. 5, fig. 56) changed Emmrich's generic name to *Odontochile*, a preoccupied term in natural history. This name

was only used by one other author (McCoy, *Annals Nat. Hist.*, London, vol. 4, 1849), all others using *Dalmania* or its modified form, *Dalmanites* (Barrande).

In 1840 Milne-Edwards (*Crust.*, pp. 306, 339) proposed the name of *Pleuranthus* for *Calymene arachnoides* Goldfuss, and Dr. Goldfuss that of *Acaste* (*Neues Jahrbuch für Mineral.*, 1843, p. 511) for such forms as *Calymene downingiae* Murch.

In America a typical species (*Dalmanites limulurus*) has been classed by all American writers either under *Dalmania* or its modified form, but other species properly of this genus—that is, if we do not desire to overburden generic classification—have been given new generic names. The first was an obscure fossil described by Dr. Jacob Green (*Am. Jour. Sci.*, 1st series, vol. 32, p. 343) as *Cryphus boothi*, a generic term preoccupied for a genus of the Coleoptera at the time it was used by Dr. Green. The second species consists of a poorly figured tail, described and figured by Prof. Amos Eaton (*Geological Text Book*, p. 31, pl. 1, fig. 1) as *Asaphus selenurus*, and by Dr. Jacob Green under the name of *Calymene odontocephala* (*Am. Jour. Sci.*, 1st series, vol. 25, p. 334). Prof. Amos Eaton's description was drawn from the tail of the fossil and Dr. Jacob Green's from the head.

Mr. T. A. Conrad in 1840 (3d Ann. Rept. Pal. Dept. New York Geol. Survey, p. 204) procured a perfect specimen of this Trilobite and united the two species under a new generic name, *Odontocephalus selenurus*, taking Dr. Jacob Green's specific name for the genus, and that of Prof. Amos Eaton for the species.

The generic characteristics consist of a series of incisor-like denticulations bordering the frontal margin of the head, and a pygidium with two terminal spines.

Hall and Clarke (1888, *Pal. New York*, vol. 7, p. xxxiii) use the term as a subgenus to *Dalmanites*.

If we follow the strict rule of priority and set aside the preoccupied name *Dalmania* or *Dalmanites* for that of *Odontocephalus* Conrad, we take for a generic name a term indicating a denticulated cephalic shield, which is confined to a special group and miscall such species as the well known type *Dalmanites caudatus*.

We would therefore suggest, not only in honor of the learned Swedish author on Trilobites, but also through courtesy, that the generic name of *Dalmanites* be retained.

Odontocephalus. (See *Dalmanites* [*Odontocephalus*] *selenurus*, D. [*Odontocephalus*] *bifidens*, D. [*Odontocephalus*] *ægeria*, and D. [*Odontocephalus*] *coronatus*.)

Ogygia Brongniart, 1822; *Crust. Foss.*, p. 26.

Type, *Asaphus buchii* Brongniart, pl. 2, figs. 3 a-c.

— [*Asaphus*] *barrandi* Hall, 1851; *Rept. Geol. Lake Superior Land Dist.* (Foster and Whitney), pt. 2, p. 210, pl. 27, figs. 1 a-d; pl. 28. Birdseye.

— [*Asaphus*] *barrandi* Hall, 1862; *Geol. Wisconsin*, vol. 1, p. 41, fig. 4.

— *klotzi* Rominger, 1887; *Proc. Acad. Nat. Sci. Phila.*, p. 12, pl. 1, fig. 1.

Cambrian.

— *klotzi* Walcott, 1888; *Am. Jour. Sci.*, 3d series, vol. 36, p. 166.

— [*Ogygies*] *latissimus* Eaton, 1832; *Am. Jour. Sci.*, vol. 21, p. 136, foot-note.

— [*Ogyges*] *latissimus* Eaton, 1832; *Geol. Text Book*, p. 33 (*Homalonotus delphinoccephus*).

— *parabola* Hall and Whitfield, 1877; *U. S. Geol. Expl. 40th Par.*, vol. 4, p. 245, pl. 2, fig. 35. Cambrian.

— ? *problematica* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 63, pl. 10, figs. 2 a, b and 4. Cambrian.

— *producta* Hall and Whitfield, 1877; *U. S. Geol. Expl. 40th Par.*, vol. 4, p. 234, pl. 2, figs. 31-34; also p. 245, pl. 2, fig. 35. Cambrian.

— [*Niobe*] *producta* Brögger, 1886; Om alderen af *Olenellus zonæ* i Nordamerika, p. 211.

- Ogygia** [*Bathyriscus*] **productus** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 217, pl. 30, figs. 1, 1 a-i.
 Syn., *Ogygia parabola* (H. & W.) Walcott, 1886; *idem.*, p. 217.
- **serrata** Rominger, 1887; Proc. Acad. Nat. Sci. Phila., p. 13, pl. 1, figs. 2, 2 a. Cambrian.
- ? **spinosa** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 63, pl. 9, fig. 22. (See *Olenoides spinosa* Walcott.)
- **vetustus** Hall, 1847; Pal. New York, vol. 1, p. 227, pl. 60, fig. 1. Trenton.
- **vetustus** Emmons, 1855; American Geology, vol. 1, pt. 2, p. 216, fig. 72.
- Olenellus** Hall, 1861; Des. N. Species of Foss., published in advance, 15th Rept. State Cab., p. 86. Hall, 1862; 15th Rept. State Cab. Nat. Hist. Albany, p. 114. Type, *Olenellus thompsoni* Hall.
- [*Elliptocephala*] **asaphoides** Emmons, 1844; Taconic System, p. 21, figs. 1-3. Cambrian.
- [*Elliptocephala*] **asaphoides** Emmons, 1846; Agric. New York, vol. 1, p. 65, figs. 1-3.
- [*Olenus*] **asaphoides** Hall, 1847; Pal. New York, vol. 1, p. 256, pl. 67, figs. 2 a, c.
- [*Olenus*] **asaphoides** Fitch, 1849; Trans. N. Y. State Agric. Soc., vol. 9, p. 865.
- [*Elliptocephalus*] **asaphoides** Emmons, 1849; Proc. Am. Assoc. Adv. Sci., 1st meeting, p. 18.
- [*Elliptocephalus*] **asaphoides** Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 114, figs. 1-3, pl. 1, fig. 18.
- [*Paradoxides*] **asaphoides** Emmons, 1860; Manual Geology, pp. 87, 280.
- [*Paradoxides*] **asaphoides** Barrande, 1861; Bull. Soc. Géol. France, 2d series, vol. 18, p. 273, pl. 5, figs. 4, 5.
- [*Olenus*] **asaphoides** Ford, 1871; Am. Jour. Sci., 3d series, vol. 2, p. 33.
- [*Elliptocephalus*] **asaphoides** Ford, 1877; Am. Jour. Sci., 3d series, vol. 13, p. 266, plate, figs. 1-10.
- [*Elliptocephalus*] **asaphoides** Ford; Am. Jour. Sci., 3d series, vol. 15, p. 129.
- **asaphoides** Ford, 1881; Am. Jour. Sci., 3d series, vol. 22, p. 250.
- **asaphoides** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 168, pl. 17, figs. 4, 8, 10; pl. 20, figs. 3, 3 a, b; pl. 25, fig. 8.
- **gilberti** (Meek MS.) White, 1874; Prelim. Rept. Invt. Foss. U. S. Geog. and Geol. Survey West 100th Mer., p. 7. Potsdam.
- [*Olenus*] **gilberti** Gilbert, 1875; U. S. Geog. Survey West 100th Mer., vol. 3, p. 182.
- **gilberti** White, 1877; U. S. Geog. Survey West 100th Mer., vol. 4, p. 44, pl. 2, figs. 1, 3 a-e.
- **gilberti** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 29, pl. 9, figs. 16, 16 a; pl. 21, fig. 13.
- **gilberti** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 170, pl. 18, figs. 1, 1 a-c; pl. 19, fig. 2, 2 a-k; pl. 20, figs. 1, 1 a, 1 b, 4.
- **howelli** (Meek MS.) White, 1874; Prelim. Rept. Invt. Foss. U. S. Geog. and Geol. Survey West 100th Mer., p. 8. Potsdam.
- [*Olenus*] **howelli** Gilbert, 1875; U. S. Geog. Survey West 100th Mer., vol. 3, p. 183.
- **howelli** White, 1877; U. S. Geog. Survey West 100th Mer., vol. 4, p. 47, pl. 2, figs. 4 a, b.
- **howelli** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, pp. 29, 30, pl. 9, figs. 15 a-b, 16-16 a; pl. 21, figs. 1-9.
- **iddingsi** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 28, pl. 9, fig. 12. Cambrian.
- **iddingsi** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 170, pl. 19, fig. 1.
- [*Paradoxides*] **macrocephalus** Emmons, 1860; Manual Geology, p. 88, fig. 70.
- [*Olenus*] **thompsoni** Hall, 1859; 12th Rept. New York State Cab. Nat. Hist., p. 57, figure. Cambrian.

- Olenellus** [*Olenus*] **thompsoni** Hall, 1859; Pal. New York, vol. 3, p. 525, figure.
 — [*Barrandia*] **thompsoni** Hall, 1860; 13th Rept. New York State Cab. Nat. Hist., p. 116, figure.
 — [*Paradoxides*] **thompsoni** Emmons, 1860; Manual Geology, p. 280, note A.
 — [*Paradoxides*] **thompsoni** Barrande, 1861; Bull. Soc. Géol. France, 2d series, vol. 18, p. 276, pl. 5, fig. 6.
 — [*Paradoxides*] **thompsoni** Billings, 1861; Geol. Vermont, vol. 2, p. 950.
 — [*Barrandia*] **thompsoni** Hall, 1861; Geol. Vermont, vol. 2, p. 369, pl. 13, fig. 1.
 — [*Paradoxides*] **thompsoni** Billings, 1861; Pal. Foss., vol. 1, p. 11 (pamphlet published in advance).
 — **thompsoni** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 114.
 — **thompsoni** Billings, 1863; Geol. Canada, p. 953.
 — [*Olenellus*] **thompsoni** Billings, 1865; Pal. Foss., vol. 1, p. 11.
 — **thompsoni** Whitfield, 1884; Bull. Am. Mus. Nat. Hist., New York, vol. 1, p. 151 pl. 15, figs. 1-4.
 — **thompsoni** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 167, pl. 17, figs. 1, 2, 4, 9; pls. 22, 23, figure.
 — *vermontana*. (See *Mesonacis vermontana* (Hall) Walcott.)
Olenoides Meek, 1877; U. S. Geol. Expl. 40th Par., Pal., vol. 4, p. 25.
 Type, *Olenoides nevadensis* Meek.
 — **fordi** Walcott, 1887; Am. Jour. Sci., 3d series, vol. 34, p. 195, pl. 1, figs. 5, 5 b. Cambrian.
 — *flagricaudus*. (See *Zacanthoides flagricaudus*.)
 — *levis* Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 187, pl. 25, figs. 3-3 a. Cambrian.
 (See *Zacanthoides levis*.)
 — *gothicus* (Hall and Whitfield) Walcott. (See *Dorypyge gothicus*.)
 — ? **marcoui** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 186, pl. 26, fig. 5-5 a, b.
 — [*Dikellocephalus*?] **marcoui** Whitfield, 1884; Bull. Am. Mus. Nat. Hist. New York, vol. 1, p. 150, pl. 14, fig. 7. Cambrian.
 — [*Paradoxides*?] **nevadensis** Meek, 1870; Proc. Acad. Nat. Sci. Phila., vol. 22, p. 62. Middle Cambrian.
 — [*Paradoxides*?] **nevadensis** Meek, 1877; U. S. Geol. Expl. 40th Par., Pal., vol. 4, p. 23, pl. 1, fig. 5.
 — **nevadensis** Meek, 1877; U. S. Geol. Expl. 40th Par., Pal., vol. 4, p. 25.
 — **nevadensis** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 181, pl. 25, fig. 7.
 — **nevadensis** Walcott, 1888; Am. Jour. Sci., 3d series, vol. 36, p. 165.
 Syn., *Ogygia serrata* (Rominger) Walcott, 1888; Am. Jour. Sci., 3d series, vol. 36, p. 165.
 — [*Olenoides*] **quadriceps** (Hall and Whitfield) Walcott. (See *Dorypyge quadriceps*.)
 — *spinosus*. (See *Zacanthoides spinosus*.)
 — *typicalis*. (See *Zacanthoides typicalis*.)
 — [*Dikellocephalus*] **wahsatchensis** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., Pal., vol. 4, p. 241, pl. 1, fig. 35.
 — **wahsatchensis** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 189, pl. 29, figs. 2, 2 a. Middle Cambrian.
 Syn., [*Dikellocephalus*?] *gothicus* (Hall and Whitfield) Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 189.
 — **wahsatchensis** Walcott, 1888; Am. Jour. Sci., 3d series, vol. 36, p. 165.
Olenus Dalman, 1826; Palæad, p. 226.
 Type, *Olenus gibbosus* Wahlenberg.
 — *asaphoides*. (See *Olenellus asaphoides*.)
 — *holopyga*. (See *Bathynotus holopyga*.)
 — *logani*. (See *Ptychoparia logani*.)
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Olenus thompsoni. (See *Olenellus thompsoni*.)

— *undulostriatus* Hall, 1847; Pal. New York, vol. 1, p. 258, pl. 67, figs. 3 a, b.

Hudson.

— *utahensis* Woodward, 1873; Rept. 43d Meeting Brit. Assoc. Adv. Sci.

— *utahensis* Woodward, 1873; Geol. Mag., vol. 10, p. 523.

Cambrian.

— *vermontana*. (See *Mesonacis vermontana* Hall.)

Oryctocephalus Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 210.

— *primus* Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 210, pl. 29, figs. 3, 3 a.

Middle Cambrian.

Pagura Emmons, 1860; Manual Geology, p. 280.

Dr. E. Emmons uses this term in a subgeneric sense for *Paradoxides* [*Pagura*] *quadriscopinosus*. The note accompanying the Manual of Geology does not indicate the author's intentions with regard to the genus and new species. It was probably intended for *Paradoxides* [*Peltura*] *quadriscopinosus*, a synonym of intended *Peltura* [*Olenus*] *holopyga* Hall, 12th Rept. New York State Cab. Nat. Hist., p. 61. Emmons figures this species on p. 80, fig. 57.

Panderia Volborth; Mém. Acad. Sci. St.-Petersbourg, vol. 6, p. 31.

Type, *Panderia triquetra* Volb., pl. 3, fig. 13 bis, 17.

— [*Illæus*] *conradi* Billings, 1859; Canadian Naturalist, vol. 4, p. 372, figs. 7-9.

Trenton.

For other references, see *Illæus conradi* Billings.

Paradoxides Brongniart, 1822; Crust. Foss., p. 30, pl. 4, fig. 1.

Type, *Paradoxides tessini* Brongniart.

Syn., *Plutonia* Salter, 1869; Quart. Jour. Geol. Soc. London, vol. 25, p. 52.

Plutonia sedgwicki, Quart. Jour. Geol. Soc. London, vol. 27, p. 399, pl. 15, figs. 1-8.

— *acadicus* Matthew, 1882; Trans. Roy. Soc. Canada, vol. 1, p. 103, pl. 9, figs. 16-18. St. John.

— *acadicus* Matthew, 1884; Trans. Roy. Soc. Canada, vol. 2, p. 99, pl. 1, fig. 1.

— *acadicus* Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 25, pl. 6, figs. 3-3 a.

— *arcuatus* Harlan. (See *Triarthrus beekii*.)

— *barberi* Winchell, 1884; 13th Rept. Geol. Nat. Hist. Survey Minn., p. 65, pl. 1, fig. 7. Cambrian.

— *beekii*. (See *Triarthrus beekii*.)

— *bennettii* Salter, 1859; Quart. Jour. Geol. Soc. London, vol. 15, p. 553, figure.

Cambrian.

— *bennettii* Salter and Woodward, 1865; Chart of Foss. Crust., fig. 25.

— *boltoni*. (See *Lichas boltoni*.)

— *decorus* Billings, 1865; Pal. Foss., vol. 2, p. 75.

Potsdam.

— *eatonii*. (See *Triarthrus beekii*.)

— *eteminicus* Matthew, 1882; Trans. Roy. Soc. Canada, vol. 1, p. 92, pl. 9, figs. 7-12.

St. John.

Var. *suricoides* (figs. 4-6), var. *breviatus*, var. *malicitus* (fig. 13), var. *pontificalis* (figs. 15, 15 a), var. *quacoensis* (figs. 14, 14 a).

— *eteminicus* Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 27, pl. 3, figs. 1-1 a-g.

— *harlani* Green, 1834; Am. Jour. Sci., 1st series, vol. 35, p. 336. Cambrian.

— *harlani* Green, 1835; Suppl. Mon. Tril. N. A., p. 14, cast 39.

— *harlani* Rogers, 1856; Proc. Boston Soc. Nat. Hist., vol. 6, pp. 27, 40.

— *harlani* Stodder, 1856; Proc. Boston Soc. Nat. Hist., vol. 6, p. 369.

— *harlani* Rogers, 1856; Am. Jour. Sci., 2d series, vol. 22, p. 297.

Syn., *spinus* Rogers, 1858; Geol. Pennsylvania, vol. 2, p. 816, fig. 590.

— *harlani* Ordway, 1861; Proc. Boston Soc. Nat. Hist., vol. 8, p. 1, figure.

— *harlani* Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 45, pl. 7, fig. 3; pl. 8, figs. 1, 1 a-c; pl. 9, fig. 1.

Paradoxides kjerulfi (Linrs.) Matthew, 1886; Am. Jour. Sci., 3d series, vol. 31, p. 471. Cambrian.

Referred by Holm (Geol. Fören. Stockholm Förhandl., vol. 9, 1887, häfte. 7, p. 1) to *Olenellus kjerulfi* Linnarsson, pls. 14 and 15.

— **lamellatus** Hartt, 1868; Acadian Geology, p. 656, fig. 230. St. John.

— **lamellatus** Matthew, 1882; Trans. Royal Soc. Canada, vol. 1, p. 100, pl. 1, figs. 3, 4.

— **lamellatus** var. **loricatus** Matthew, 1882; Trans. Royal Soc. Canada, vol. 1, p. 105, pl. 9, fig. 19.

— **lamellatus** Walcott, 1884; Bull. U. S. Geol. Survey, No. 30, p. 25, pl. 3, figs. 2, 2 a.

— **macrocephalus**. (See *Olenellus thompsoni* Hall.)

— **micmac** Hartt, 1868; Acadian Geology, p. 657. St. John.

— **micmac** Matthew, 1884; Trans. Royal Soc. Canada, vol. 2, p. 101, pl. 10, fig. 8.

— ? **nevadensis**. (See *Olenoides nevadensis*.)

— **quadriscopiosus**. (See *Bathynotus quadriscopiosus*.)

— **tenellus** Billings, 1874; Pal. Foss., vol. 2, p. 74, fig. 43. Potsdam.

— **thompsoni**. (See *Olenellus thompsoni* Hall.)

— **triarthrus** Harlan; Trans. Geol. Soc. Pennsylvania, vol. 1, p. 264, pl. 15, fig. 5. (See *Triarthrus becki* Green.)

— **vermontana**. (See *Olenellus* and *Mesonacis*.)

— **walcotti** Shaler and Foerste, 1888; Bull. Mus. Comp. Zool. Harvard Coll., vol. 16, p. 36, pl. 2, fig. 12. Cambrian.

Peltura Milne-Edwards, 1840; Crust., vol. 3, p. 344.

— (See *Pagura*.)

— **holopyge**. (See *Bathynotus holopyge*.)

Pemphigaspis Hall, 1863; 16th Rept. New York State Mus. Nat. Hist., p. 221.

— **bullata** Hall, 1863; 16th Rept. New York State Mus. Nat. Hist., p. 221, pl. 5 a, figs. 3-5. Potsdam.

A species probably of the genus *Microdiscus*.

Phacops Emmrich, 1839; De Trilobites, etc., p. 18.

Type, *Calymene latifrons* Broun.

The generic term *Trimerocephalus* McCoy has been used by authors for species like *Phacops volborthi*, compact in form; glabella inflated and expanded in front; lobes, except the basal ones, obscure; eyes small and occupying the front portions of the head; genal angles rounded; pleura rounded; pygidium small, with few segments, and even border.

Acaste Goldfuss for such species as *Phacops downingia* Murch. Diagnosis: Glabella not inflated nor greatly expanded in front; furrows distinct; eyes well developed, with numerous lenses; genal angles produced into spines; pleurae rounded or truncate; pygidium small generally, with less than eleven segments; border even, but sometimes mucronate.

— [*Calymene*] **bufo** Green, 1832; Monthly Am. Jour. Geol., p. 559.

— [*Calymene*] **bufo** Green, 1832; Mon. Tril. N. A., p. 41, cast 10.

— **bufo** Hall, 1861; Des. New Species Foss., p. 65.

— **bufo** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 93.

— **bufo** Hall, 1876; Illus. Devonian Foss. Crust., pl. 8, figs. 24, 25.

— **bufo** Hall, 1888; Pal. New York, vol. 7, p. 26, pl. 8, figs. 25, 26.

The fossil is said to have been found in a dark grayish limestone in the State of New Jersey. The cast approaches so near *Phacops latifrons* Broun that it may be the same species.

— **bombifrons**. (See *Phacops cristata*.)

— **cacapona** Hall, 1861; Des. New Species Foss., p. 68. Hamilton.

Syn., *Calymene bufo* Castelnau, 1843; Syst. Sil. de l'Amér., p. 21, pl. 2, figs. 1-4.

— **cacapona** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 96.

- Phacops cacapona** Hall, 1876; Illus. Devonian Foss. Crust., pl. 8, figs. 18-23.
 — **cacapona** Hall, 1888; Pal. New York, vol. 7, p. 27, pl. 8, figs. 19-24.
 — *callicephala*. (See **Dalmanites callicephala**.)
 — **cristata** Hall, 1861; Des. New Species Foss., p. 67. Upper Helderberg.
 Syn., *Phacops bombifrons* Hall, 1861; Des. New Species Foss., p. 67.
Phacops cristata Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 95.
Phacops cristata Hall, 1876; Illus. Devonian Foss. Crust., pl. 6, figs. 1-17.
Phacops bombifrons Hall, 1876; Illus. Devonian Foss. Crust., pl. 6, figs. 18-29.
 — **cristata** Hall, 1888; Pal. New York, vol. 7, p. 14, pl. 6, figs., 1-31, 16-29; pl. 8 a, figs. 1-4.
 — **cristata** var. **pipa** Hall, 1888; Pal. New York, vol. 7, p. 18, pl. 8 a, figs. 5-18. Upper Helderberg.
 — *downingæ* Murch. (See **Phacops trisulcatus** Hall.)
 — **hudsonica** Hall, 1859; Pal. New York, vol. 3, p. 355, pl. 73, figs. 26-28. Lower Helderberg.
 — ? *laticauda* Hall, 1847; Pal. New York, vol. 1, p. 248, pl. 64, fig. 6. (See **Dalmanites micrurus** Green.)
 — **logani** Hall, 1859; Pal. New York, vol. 3, p. 353, pl. 73, figs. 15-25. Lower Helderberg.
 — [*Calymene*] **macrophthalmia** Green, 1832; Mon. Tril. N. A., p. 39, cast 9.
 — [*Calymene*] **nupera** Hall, 1843; Geol. New York, 4th Geol. Dist., p. 262, fig. 116. Chemung.
 — **nupera** Emmons, 1869; Manual Geology, p. 149, fig. 138 (2).
 — **nupera** Hall, 1876; Illus. Devonian Foss. Crust., pl. 8, fig. 26.
 — **nupera** Hall, 1888; Pal. New York, vol. 7, p. 27, pl. 8, fig. 27.
 — **orestes** Billings, 1860; Canadian Naturalist, vol. 5, p. 65, fig. 10. Middle Silurian.
 — **pulchellus** Foerste, 1887; Bull. Denison Univ., vol. 2, p. 99, pl. 8, figs. 4, 20, 21. Clinton.
 — [*Calymene bufo*] var. **rana** Green, 1832; Monthly Am. Jour. Geol., p. 559. Hamilton.
 — [*Calymene bufo*] var. **rana** Green, 1832; Mon. Tril. N. A., p. 42, casts 11, 12.
 — [*Calymene bufo*] var. **rana** Hall, 1843; Geol. New York, 4th Geol. Dist., p. 201, pl. 14.
 Syn., [*Calymene*] **bufo** Owens, 1844; Geol. Expl. Iowa, Wisconsin, and Illinois, p. 74, pl. 12, fig. 1.
 [*Calymene*] **bufo** Emmons, 1860; Manual Geology, p. 138, wood-cut 124, fig. 6.
 — **rana** Hall, 1861; Description New Species Fossils, p. 65.
 — **rana** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 93, pl. 10, fig. 12.
 — **rana** Meek and Worthen, 1868; Geol. Survey Illinois, vol. 3, p. 447, pl. 11, figs. 1 a-e.
 — **rana** Nicholson, 1873; Pal. Province Ontario, p. 123, figs. 5, 6 a.
 — **rana** Hall, 1876; Illus. Devonian Foss. Crust., pl. 6, figs. 14, 15; pl. 7, figs. 1-11; pl. 8, figs. 11-17.
 — **rana** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 339, pl. 26, figs. 17-19.
 — **rana** Walcott, 1884; Pal. Eureka Dist. Mon. U. S. Geol. Survey, vol. 8, p. 207.
 — **rana** Hall, 1888; Pal. New York, vol. 7, p. 19, pl. 7, figs. 1-11; pl. 8, figs. 1-18; pl. 7 a, figs. 21-33.
 — **rana** Clarke, 1888; Jour. Morphology, vol. 2, p. 253, pl. 21.
 — **traganus** Billings, 1863; Proc. Portland Soc. Nat. Hist., vol. 1, p. 124, pl. 1, figs. 26, 27. Upper Silurian.
 — ? **trisulcatus** Hall, 1843; Geol. New York, 4th Geol. Dist., p. 72, fig. 9. Clinton.
 — **trisulcatus** Hall, 1852; Pal. New York, vol. 2, p. 300, pl. 66 a, figs. 3 a, b.

Phæthonides Angelin, 1852; Pal. Scand., p. 21.

— *arenicolus* Hall, 1888; Pal. New York, vol. 7, p. 134, pl. 25, figs. 12, 13.

Upper Helderberg.

— *denticulatus* (Meek) Hall, 1888; Pal. New York, vol. 7, p. 139, pl. 25, figs. 14, 15.

For other references, see *Proetus* [*Phæton*] *denticulatus* Meek.

Steptoe Valley, Nevada, Devonian (?).

— *gemmæus* Hall, 1888; Pal. New York, vol. 7, p. 136, pl. 24, figs. 32-36.

Upper Helderberg.

— *immaturus* Herrick, 1889; Bull. Denison Univ., vol. 4, p. 59, pl. 1, figs. 9-15.

Kinderhook.

— (?) *lodiensis* (Meek) Herrick, 1889; Bull. Denison Univ., vol. 4, p. 59.

For other references, see *Brachymetopus lodiensis* Meek.

— *occidentalis* Herrick, 1889; Bull. Denison Univ., vol. 4, p. 57, pl. 1, figs. 10^a, b.

Kinderhook.

— *sedaliensis* (Vogdes) Herrick, 1889; Bull. Denison Univ., vol. 4, p. 57.

Waverly.

* For other references, see *Griffithides* ? *sedaliensis* Vogdes.

— *spinosus* Herrick, 1889; Bull. Denison Univ., vol. 4, p. 58, pl. 1, figs. 4-5.

Kinderhook.

— *varicella* Hall, 1888; Pal. New York, vol. 7, p. 135, pl. 24, figs. 29-31.

Upper Helderberg.

Phillipsia Portlock, 1843; Rept. Geol. Londonderry, etc., p. 315.

Type, *Phillipsia gemmulifera* Phillips.

Dr. Henry Woodward suggests (Geol. Mag., vol. 10, 1883) the following brief diagnosis of the characters of the genera *Phillipsia* and *Griffithides*, which may be found useful in separating the genera :

	Phillipsia.	Griffithides.
1	Sides of the glabella nearly parallel.....	Glabella pyriform.
2	Marked by either two or three short lateral furrows.	No short lateral furrows on the glabella.
3	Basal lobes continuous with the glabella..	Basal lobes distinct from the glabella.
4	Eyes large, reniform.....	Eyes small, suboval.

— *bufo*. (See *Griffithides bufo*.)

— *cliftonensis* Shumard, 1858; Trans. Acad. Nat. Sci. St. Louis, vol. 1, p. 227.

Coal Measures.

— *cliftonensis* Herrick, 1887; Bull. Denison Univ., vol. 2, p. 11.

— *cliftonensis* Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 84.

— ? *consors* Herrick, 1889; Bull. Denison Univ., vol. 4, p. 53, pl. 1, figs. 16 a, b, c.

Keokuk or Burlington.

— *consors* Herrick, 1890; American Geologist, vol. 5, p. 254.

— ? *coronata*. (See *Cyphaspis coronata* Hall.)

— *doris* (Hall) Winchell, 1865; Proc. Acad. Nat. Sci. Phila., 2d series, vol. 9, p. 133. (See *Proteus doris* Hall.)

— *howi* Billings, 1863; Canadian Naturalist, vol. 8, p. 209, figure. Carboniferous.

— *howi* Dawson, 1868; Acadian Geology, p. 313, fig. 133.

— *howi* Herrick, 1887; Bull. Denison Univ., vol. 2, p. 63.

— *howi* Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 91.

Compare *Phillipsia merameccensis*.

— *insignis* Winchell, 1863; Proc. Acad. Nat. Sci. Phila., 2d series, vol. 7, p. 24.

Burlington.

— *insignis* Billings, 1863; Canadian Naturalist, vol. 8, p. 209.

— *insignis* Herrick, 1887; Bull. Denison Univ., vol. 2, p. 63.

- Phillipsia insignis** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 87.
 — *laevis*. (See **Cyphaspis laevis**.)
- **major** Shumard, 1858; Trans. Acad. Sci. St. Louis, vol. 1, p. 226. Coal Measures.
- **major** Meek, 1872; U. S. Geol. Survey Territories, Final Rept. Nebraska, p. 238, pl. 3, figs. 2 a, b, c.
- **major** Herrick, 1887; Bull. Denison Univ., vol. 2, p. 60.
- **major** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 85, pl. 3, fig. 14.
- **meramecansis** Shumard, 1855; 1st and 2d Rept. Geol. Survey Missouri, p. 199, pl. B, fig. 9. Archimides Limestone.
- **meramecansis** Herrick, 1887; Bull. Denison Univ., vol. 2, p. 59.
- **meramecansis** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 86, pl. 3, fig. 15.
- **Syn., meramecansis?** Winchell, 1863; Proc. Acad. Nat. Sci. Phila., 2d series, vol. 7, p. 24. Keokuk.
- **meramecansis** Herrick, 1888; Bull. Denison Univ., vol. 3, p. 28, pl. 11, fig. 3.
- **Syn., howi** (Billings) Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 92.
- **vindobonensis** (Hartt) Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 92.
- **meramecansis** Herrick, 1889; Bull. Denison Univ., vol. 4, p. 54, pl. 1, fig. 6.
- **minuscula** Hall. (See **Cyphaspis minuscula**.)
- **missouriensis** Shumard, 1858; Trans. Acad. Sci. St. Louis, vol. 1, p. 220. Coal Measures.
- **missouriensis** Herrick, 1887; Bull. Denison Univ., vol. 2, p. 59.
- **missouriensis** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 86, pl. 3, figs. 1, 2, 14, 16.
- **? ornatus**. (See **Cyphaspis coronata**.)
- [**Griffithides**] **portlocki** Meek and Worthen. (See **Griffithides portlocki**.)
- **perannulata** Shumard, 1858; Trans. Acad. Sci. St. Louis, vol. 1, p. 296, pl. 11, fig. 10. Permian.
- **perannulata** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 84.
- **præcursor** Herrick, 1888; Bull. Denison Univ., vol. 3, p. 29, pl. 12, fig. 1. Kinderhook.
- **præcursor** Herrick, 1890; American Geologist, vol. 5, p. 254.
- [**Proetus**] **præcursor** Herrick, 1889; Bull. Denison Univ., vol. 4, p. 54, pl. 1, fig. 1. Waverly.
- **rockfordensis** Winchell, 1865; Proc. Acad. Nat. Sci. Phila., 2d series, vol. 9, p. 133. Kinderhook.
- **rockfordensis** Herrick, 1887; Bull. Denison Univ., vol. 2, p. 62.
- **rockfordensis** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 91.
- **sampsoni** Vogdes, 1888; Trans. New York Acad. Sci., vol. 7, p. 248, figure. Waverly.
- [**Griffithides**] **sangamonensis** Meek and Worthen. (See **Griffithides sangamonensis**.)
- [**Griffithides**] **scitula** Meek and Worthen. (See **Griffithides scitula**.)
- **serraticaudata** Herrick, 1889; Bull. Denison Univ., vol. 4, p. 52, pl. 1, figs. 8 a-d. Keokuk.
- **serraticaudata** Herrick, 1890; American Geologist, vol. 5, p. 254.
- **shumardi**. (See **Proetus auriculata**.)
- **stevensoni** Meek, 1871; Rept. Regents Univ. West Virginia, p. 73. Chester.
- **stevensoni** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 88, pl. 3, fig. 6.
- **tuberculata** Meek and Worthen, 1870; Proc. Acad. Nat. Sci. Phila., p. 52. Burlington.
- **tuberculata** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 92.
- **trinucleata** Herrick, 1887; Bull. Denison Univ., vol. 2, p. 64, pl. 1, figs. 23, 23 a, c, e, h; pl. 2, fig. 32; pl. 3, fig. 21. Coal Measures.

- Phillipsia trinucleata** Herrick, 1889; Bull. Denison Univ., vol. 4, p. 49.
 Syn., *Proetus trinucleatus* Vogdes, 1888; Annals New York Acad. Sci., vol. 4, p. 81 (in error), pl. 2, figs. 7, 8, 9.
- vindobonensis* Hartt, 1868; Acadian Geology, p. 353. Carboniferous.
vindobonensis Herrick, 1887; Bull. Denison Univ., vol. 2, p. 63.
- *vindobonensis* Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 89. (See **Phillipsia meramecensis** Shumard.)
- Piliolites** Cozzens, 1846; Annals Lyceum Nat. Hist. New York, vol. 4, p. 157.
 — *ohioensis* Cozzens, 1846; Annals Lyceum Nat. Hist. New York, vol. 4, p. 157, pl. 16, figs. 1 a, 1 b. (See **Proetus crassimarginatus** ?)
- Proetus** Steininger, 1831; Mém. Soc. Géol. France, vol. 1, p. 355, pl. 24, fig. 6.
 Type, *Proetus cuvieri* Steininger.
 Syn., *Aonia* Burmeister, 1843; Organization Trilobites, p. 116 (Ray Soc. ed., p. 100). Burmeister separates Dalman's species *Calymene concinna* from the type of the genus *Proetus*, and gives a generic description of *Aonia*, with descriptions and figures of *A. concinna*, *A. stokesii*, and *A. verticalis*.
- Phæton** Barrande, 1846; Notice Prélim., p. 62. The author herein gives the new generic term *Phæton* for species of *Proetus* with fimbriated pygidia.
- Prinopeltis** Corda, 1847; Prodr., p. 121. New generic name proposed for the preoccupied term of *Phæton*.
- Xiphogonium** Corda, 1847; Prodr., p. 70. Proposed genus for certain species of *Proetus*, with nine segments in the thorax.
- Goniopleura** Corda, 1847; Prodr., p. 80. This genus includes such species as *Proetus elegantulus* Loven, with twelve segments in the thorax.
- Forbesia** McCoy, 1847; Sil. Foss. Ireland, p. 46. This author uses for the types of his genus *Forbesia latifrons* and *F. stokesii*, which is the same as that used by Barrande in 1846 for his genus *Phæton* and *Angelin* in 1878 for the genus *Phæthonides*.
- Gerastos** Goldfuss, 1843; Neues Jahrbuch für Mineral., p. 557. This genus is a *Proetus* with *G. lævigatus* for its type, a species identical with *Proetus cuvieri* Stein.
- Trigonaspis** and **Cylindraspis** the Brothers Sanderberger; Verst. d. Rhein, Scht.-Syst., p. 30, pl. 3, 1850.
- Dechenella** Kayser, 1880; Zeitschr. Deutsch. geol. Gesell., Berlin, 1880, p. 703. For such species as *Proetus verticalis* and *P. haldemani*.
- **alaricus** Billings, 1860; Canadian Naturalist, vol. 5, p. 68, fig. 12. Hudson.
- **alaricus** Billings, 1863; Geol. Canada, p. 219, fig. 230.
- **angustifrons** Hall, 1861; Des. New Species Foss., p. 70. Schoharie.
- **angustifrons** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 98.
- **angustifrons** Hall, 1876; Illus. Devonian Foss. Crust., pl. 20, figs. 1, 4, 7.
- **angustifrons** Hall, 1888; Pal. New York, vol. 7, p. 91, pl. 20, figs. 1-5; pl. 22, figs. 1-3.
- **auriculatis**. (See **Proetus missouriensis** Shumard.)
- **canaliculatus** Hall, 1861; Des. New Species Foss., p. 73. Upper Helderberg.
- **canaliculatus** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 101.
- **canaliculatus** Hall, 1876; Illus. Devonian Foss. Crust., pl. 20, figs. 10, 11.
- **canaliculatus** Hall, 1888; Pal. New York, vol. 7, p. 107, pl. 20, figs. 10, 11; pl. 23, figs. 10, 11.
- **clarus** Hall, 1861; Des. New Species Foss., p. 71. Upper Helderberg.
- **clarus** Hall, 1862; 15th Rept. New York State Mus. Nat. Hist., p. 99.
- **clarus** Hall, 1876; Illus. Devonian Foss. Crust., pl. 20, figs. 12-14.
- **clarus** Hall, 1888; Pal. New York, vol. 7, p. 104, pl. 20, figs. 12-14; pl. 22, figs. 28-30.
- **conradi** Hall, 1861; Des. New Species Foss., p. 69. Schoharie.

- Proetus conradi** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 97.
 — **conradi** Hall, 1876; Illus. Devonian Foss. Crust., pl. 21, fig. 6 (not figs. 5, 8, 9); pl. 21, figs. 27, 28.
 Syn., **Conradi** Hall, 1876; Illus. Devonian Foss. Crust., pl. 20, figs. 5, 8, 9.
Pillolites ohionensis? Cozzens, 1846; Annals Lyceum Nat. Hist. New York, vol. 7, p. 99, pl. 10, figs. 1 a, b.
 — **conradi** Hall and Clarke, 1888; Pal. New York, vol. 7, p. 89, pl. 20, fig. 9; pl. 21, figs. 27, 28; pl. 12, fig. 4.
 — [*Asaphus*] **corycæus** Conrad, 1842; Jour. Acad. Nat. Sci. Phila., vol. 8, p. 277, pl. 16, fig. 15. Niagara.
 — [*Asaphus*] **corycæus** Hall, 1843; Geol. New York, 4th Geol. Dist., pl. 19, fig. 3.
 — **corycæus** Hall, 1852; Pal. New York, vol. 2, p. 315, pl. 67, fig. 15.
 — [*Calymene*] **crassimarginatus** Hall, 1843; Geol. New York, 4th Geol. Dist., p. 172, fig. 5. Upper Helderberg.
 — **crassimarginatus** Hall, 1859; 12th Rept. New York State Cab. Nat. Hist., p. 88.
 — [*Phillipsia*] **crassimarginatus** Billings, 1861; Canadian Journal, vol. vi, p. 362.
 — **crassimarginatus** Hall, 1861; Des. New Species Foss., p. 72.
 — **crassimarginatus** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 100, pl. 10, fig. 10.
 — **crassimarginatus** Hall, 1876; Illus. Devonian Foss. Crust., pl. 20, figs. 20-31.
 — **crassimarginatus** Hall, 1888; Pal. New York, vol. 7, p. 99, pl. 20, figs. 6-8, 20-31; pl. 22, figs. 20-62; pl. 25, fig. 8.
 — **curvmarginatus** Hall, 1888; Pal. New York, vol. 7, p. 94, pl. 22, figs. 13-19. Schoharie.
 — **davenportensis** Barris. (See **Proetus prouti** Shumard.)
 — **dephinulus** Hall, 1888; Pal. New York, vol. 7, p. 111, pl. 23, figs. 1, 2; pl. 25, fig. 6. Upper Helderberg.
 — **denticulatus** Meek, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 49, pl. 1, figs. 10 a, b. Devonian.
 — **determinatus** Foerste, 1887; Bull. Denison Univ., vol. 2, p. 91, pl. 8, figs. 2, 3, 3 a. Clinton.
 — **doris** Hall, 1860; 13th Rept. New York State Cab. Nat. Hist., p. 112. Goniatile limestone.
 — [*Phillipsia*] **doris** Winchell, 1865; Proc. Acad. Nat. Sci. Phila., 2d series, vol. 2, p. 62.
 — [*Phillipsia*] **doris** Herrick, 1887; Bull. Denison Univ., vol. 2, p. 62.
 — [*Phillipsia*] **doris** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 90 (in error).
 — **ellipticus** Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., p. 267. Kinderhook.
 — **ellipticus** Meek and Worthen, 1868; Geol. Survey Illinois, vol. 3, p. 460, pl. 14, fig. 3.
 — **ellipticus** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 82, pl. 3, fig. 3.
 — **folliceps** Hall, 1888; Pal. New York, vol. 7, p. 101, pl. 23, figs. 3-8. Upper Helderberg.
 — **granulatus** Wetherby. (See **Griffithides granulatus**.)
 — **haldemani** Hall, 1861; Des. New Species Foss., p. 74. Hamilton.
 — **haldemani** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 102, pl. 10, fig. 6.
 — **haldemani** Hall, 1876; Illus. Devonian Foss. Crust., pl. 21, figs. 7-9.
 — **haldemani** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 210.
 — **haldemani** Herrick, 1889; Bull. Denison Univ., vol. 4, p. 55, pl. 1, fig. 12.
 — **haldemani** Hall, 1888; Pal. New York, vol. 7, p. 113, pl. 21, figs. 7-9; pl. 23, figs. 13-15.

- Proetus** [*Dechenella*] **haldemani** Kayser, 1880; Zeitschr. Deutsch. geol. Gesell., Berlin, 1880, p. 770, pl. 27, fig. 9.
- [*Dechenella*] **haldemani** Tschernyschew, 1887; Mém. Comité Géol., vol. 3, No. 3, p. 14, pl. 1, fig. 9.
- **hesione** Hall, 1861; Des. New Species Foss., p. 70. Schoharie.
- **hesione** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 98.
- **hesione** Hall, 1876; Illus. Devonian Foss. Crust., pl. 20, figs. 15, 16.
- **hesione** Hall, 1888; Pal. New York, vol. 7, p. 93, pl. 20, figs. 15, 16.
- **jejunus** Hall, 1888; Pal. New York, vol. 7, p. 124, pl. 25, fig. 7. Hamilton.
- **junius** Billings, 1863; Proc. Portland Soc. Nat. Hist., vol. 1, p. 122, pl. 1, fig. 23. Upper Silurian.
- **latimarginatus** Hall, 1888; Pal. New York, vol. 7, p. 97, pl. 22, figs. 7-12. Schoharie.
- **loganensis** Hall and Whitfield, 1877; U. S. Geol. Expl., 40th Par., vol. 4, p. 264, pl. 4, fig. 33. Waverly.
- **loganensis** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 78.
- **longicaudus** Hall, 1861; Des. New Species Foss., p. 80. Hamilton.
- **longicaudus** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 108, pl. 10, figs. 7-9.
- **longicaudus** Hall, 1876; Illus. Devonian Foss. Crust., pl. 20, figs. 32-34.
- **longicaudus** Williams, 1881; Am. Jour. Sci., 3d series, vol. 21, p. 156.
- (?) **longicaudus** Hall, 1888; Pal. New York, vol. 7, p. 131, pl. 20, figs. 32-34.
- **macrobius** Billings, 1863; Proc. Portland Soc. Nat. Hist., vol. 1, p. 123, pl. 1, fig. 24. Upper Silurian.
- **macrocephalus** Hall, 1861; Des. New Species Foss., pp. 77, 79. Hamilton.
- **macrocephalus** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., pp. 105, 107.
- **macrocephalus** Hall, 1876; Illus. Devonian Foss. Crust., pl. 21, figs. 10-21.
- **macrocephalus** Hall, 1888; Pal. New York, vol. 7, p. 116, pl. 21, figs. 10-21; pl. 23, fig. 30.
- [*Calymene*] **marginalis** Conrad, 1839; Ann. Rept. Pal. Dept. New York Geol. Survey, p. 66. Tully Limestone.
- **marginalis** Hall, 1861; Des. New Species Foss., p. 76. Hamilton.
- **marginalis** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 104.
- **marginalis** Hall, 1876; Illus. Devonian Foss. Crust., pl. 21, figs. 24-28.
- **marginalis** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 210.
- **marginalis** Hall, 1888; Pal. New York, vol. 7, p. 122.
- **microgemma** Hall, 1888; Pal. New York, vol. 7, p. 109, pl. 22, figs. 33, 34. Upper Helderberg.
- **minuscule** Hall, 1876; Illus. Devonian Foss. Crust., pl. 20, fig. 17.
- **minutus** Herrick, 1889; Bull. Denison Univ., vol. 4, p. 56, pl. 1, figs. 7 a, b. Kinderhook.
- **minutus** Herrick, 1890; American Geologist, vol. 5, p. 254.
- **missouriensis** Shumard, 1855; 1st and 2d Rept. Geol. Missouri, p. 196, pl. B, figs. 13 a, b. Waverly.
- **Syn., auriculatus** Hall, 1861; Des. New Species Foss., p. 79.
- **auriculatus** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 107.
- [*Phillipsia* (*Proetus*)] **auriculatus** Herrick, 1889; Bull. Denison Univ., vol. 4, p. 34, pl. 1, fig. 14.
- [*Phillipsia*] **shumardi** Herrick, 1887; Bull. Denison Univ., vol. 2, pp. 58, 69, pl. 7, fig. 14.
- **missouriensis** Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 75, pl. 3, fig. 1.
- **missouriensis** Hall, 1888; Pal. New York, vol. 7, p. 133, pl. 23, fig. 32.

- Proetus occidentalis* Hall, 1861; Des. New Species Foss., p. 80. Hamilton.
- *occidentalis* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 108.
- *occidentalis* Hall, 1876; Illus. Devonian Foss. Crust., pl. 21, figs. 22, 23.
- *occidentalis* Hall, 1888; Pal. New York, vol. 7, p. 130, pl. 21, figs. 22, 23.
- *ovifrons* Hall, 1888; Pal. New York, vol. 7, p. 110, pl. 22, figs. 31, 32.
- *pachydermatus* Barrett, 1873; Am. Jour. Sci., 3d series, vol. 15, p. 370. Upper Helderberg.
- *parviusculus* Hall, 1872; 24th Rept. New York State Cab. Nat. Hist., p. 223, pl. 8, fig. 14. Niagara.
- *parviusculus* Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 109, pl. 4, fig. 18. Hudson.
- *parviusculus* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 144.
- *peroccidentalis* Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., Pal., vol. 4, p. 262, pl. 4, figs. 28-32. Waverly.
- *peroccidentalis* Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 79.
- *phocion* Billings, 1874; Pal. Foss., vol. 2, p. 63, fig. 31. Devonian.
- *phocion* Hall, 1888; Pal. New York, vol. 7, p. 125, pl. 25, figs. 9, 10.
- *planimarginatus* Meek, 1871; Proc. Acad. Nat. Sci. Phila., p. 89. Corniferous.
- *planimarginatus* Meek, 1873; Pal. Ohio, vol. 1, p. 233, pl. 23, figs. 3 a, b.
- *planimarginatus* Hall, 1888; Pal. New York, vol. 7, p. 112, pl. 23, fig. 12.
- *protuberans* Hall, 1859; Pal. New York, vol. 3, p. 351, pl. 73, figs. 5-8.
- *prouti* Shumard, 1863; Trans. Acad. Sci. St. Louis, vol. 2, p. 110. Lower Helderberg.
- *davenportensis* Barris, 1878; Proc. Davenport Acad. Sci., vol. 2, p. 287, pl. 11, fig. 8 (pl. 11, fig. 8, revised). Hamilton.
- *prouti* Hall, 1888; Pal. New York, vol. 7, p. 126, pl. 23, figs. 16-18.
- [*Calymene*] *rowi* Le Row, 1837; Poughkeepsie Telegram, Nov. 22. Hamilton.
- [*Calymene*] *rowi* Green, 1838; Am. Jour. Sci., 1st series, vol. 33, p. 406.
- [*Calymene*] *rowi* Green, 1838; Annals Mag. Nat. Hist., 1st series, London, vol. 1, p. 79.
- *rowi* Hall, 1861; Des. New Species Foss., p. 75.
- *rowi* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 103.
- *rowi* Hall, 1876; Illus. Devonian Foss. Crust., pl. 21, figs. 2-6.
- *rowi* Hall, 1888; Pal. New York, vol. 7, p. 119, pl. 21, figs. 2-6, 24-26; pl. 23, figs. 20-29.
- [*Phillipsia*] *shumardi* Herrick, 1887; Bull. Denison Univ., vol. 2, pp. 58, 69, pl. 7, figs. 14 a, b. Waverly.
- [*Phillipsia*] *shumardi* Herrick, 1888; Bull. Denison Univ., vol. 3, p. 29.
- *spurlocki* Meek, 1872; Am. Jour. Sci., 3d series, vol. 3, p. 426. Hamilton.
- *spurlocki* Meek, 1873; Pal. Ohio, vol. 1, p. 161, pl. 14, fig. 12.
- *spurlocki* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 145.
- *stenopyge* Hall, 1888; Pal. New York, vol. 7, p. 110, pl. 22, fig. 27.
- *stokesi* (Murch.) Hall, 1852; Pal. New York, vol. 2, p. 316, pl. 67, figs. 13, 14. Upper Helderberg.
- *swallowi* Shumard, 1855; 1st and 2d Rept. Geol. Survey Missouri, p. 196, pl. B, figs. 12 a, b. Niagara.
- [*Phillipsia*] *swallowi* Herrick, 1887; Bull. Denison Univ., vol. 2, p. 58. Waverly.
- [*Phillipsia*] *tennesseensis* Winchell, 1869; Geol. Tennessee, p. 445. Waverly.
- *tennesseensis* Vogdes, 1887; Annals New York Acad. Sci., vol. 4, p. 80.
- *tumidus* Hall, 1888; Pal. New York, vol. 7, p. 113, pl. 23, fig. 9.
- *verneuilli* Hall, 1861; Des. New Species Foss., p. 73. Upper Helderberg.
- *verneuilli* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 101. Upper Helderberg.
- *verneuilli* Hall, 1876; Illus. Devonian Foss. Crust., p. 20, figs. 18, 19.

- Proetus verneuilli** Hall, 1888; Pal. New York, vol. 7, p. 108, pl. 20, figs. 18, 19.
- Protichnites** Owen, 1852; Quart. Jour. Geol. Soc. London, vol. 8, p. 214.
- **alternans** Owen, 1852; Quart. Jour. Geol. Soc. London, vol. 8, p. 221, pl. 8 a, fig. 7. Potsdam.
- **carbonarius** Dawson, 1873; Am. Jour. Sci., 3d series, vol. 5. Coal Measures.
- **latus** Owen, 1852; Quart. Jour. Geol. Soc. London, vol. 8, p. 218, pl. 11. Potsdam.
- **lineatus** Owen, 1852; Quart. Jour. Geol. Soc. London, vol. 8, p. 220, pl. 8 a, pl. 13. Potsdam.
- **logananus** Marsh, 1869; Am. Jour. Sci., 2d series, vol. 48, p. 46. Potsdam.
- **multinotatus** Owen, 1852; Quart. Jour. Geol. Soc. London, vol. 8, p. 219, pl. 12. Potsdam.
- **octo-notatus** Owen, 1852; Quart. Jour. Geol. Soc. London, vol. 8, p. 217, pl. 10. Potsdam.
- **septem-notatus** Owen, 1852; Quart. Jour. Geol. Soc. London, vol. 8, p. 214, pl. 9. Potsdam.
- Protypus** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 211.
- [*Angelina*] **hitchcocki** Whitfield, 1884; Bull. Am. Mus. Nat. Hist., New York, vol. 1, p. 148, pl. 14, fig. 13. Potsdam.
- **hitchcocki** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 211, pl. 31, fig. 4.
- [*Bathyrurus*] **senectus** Billings, 1861; Geol. Vermont, vol. 2, p. 953, figs. 359, 360. Middle Cambrian.
- [*Bathyrurus*] **senectus** Billings, 1861; Pamphlet published in adv. Pal. Foss. Canada, p. 15, figs. 20, 21.
- [*Bathyrurus*] **senectus** Billings, 1863; Geol. Canada, p. 236, figs. 293 a, b.
- [*Bathyrurus*] **senectus** Billings, 1865; Pal. Foss., vol. 1, p. 15, figs. 20, 21.
- **senectus** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 213, pl. 31, figs. 2, 2 a-c.
- Pterocephalia** Roemer, 1852; Kreid. von Texas, p. 93.
- [*Conocephalites* (*Pterocephalia*)] **laticeps** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., vol. 4, p. 221, pl. 2, figs. 4-7. Potsdam.
- [*Ptychoparia* (*Pterocephalia*)] **laticeps** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 69.
- [*Ptychoparia* (*Pterocephalia*)] **occidens** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 58, pl. 9, fig. 21. Cambrian.
- **sancti-sabæ** Roemer, 1849; Texas, p. 421. Potsdam.
- **sancti-sabæ** Roemer, 1852; Kreid. von Texas, p. 93, pl. 11.
- Ptychaspis** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 170. Type, *Ptychaspis miniscænsis* Hall.
- **barabuensis** Winchell, 1864; Am. Jour. Sci., 2d series, vol. 37, p. 230. Potsdam.
- [*Arionellus*] **cylindricus** Billings, 1865; Pal. Foss., vol. 1, p. 406, fig. 385.
- [*Conoceph.* (*Ptychaspis*?)] **explanatus** Whitfield, 1880; Ann. Rept. Geol. Survey Wisconsin, 1879, p. 48. Potsdam.
- [*Conoceph.* (*Ptychaspis*?)] **explanatus** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 181, pl. 1, figs. 27, 28.
- Syn., **granulosa** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 173, pl. 6, figs. 33-41.
- **granulosa** Whitfield, 1878; Ann. Rept. Geol. Survey Wisconsin, 1877, p. 34.
- **granulosa** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 185, pl. 1, fig. 24.
- In this work *Ptychaspis granulosa* Hall (not Owen) is referred to *Ptychaspis striata*.
- **granulosa** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 185, pl. 1, fig. 24.
- Syn., *Dikelocephalus miniscænsis* Owen, 1852; Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, p. 574, pl. 1, figs. 3, 12; pl. 1 a, figs. 4, 5.
- [*Dikelocephalus*] **granulosus** Owen, 1852; Rept. Geol. Survey Wisconsin, Iowa, and Minnesota, p. 575, pl. 1, fig. 7. Potsdam.

- Ptychaspis miniscaensis** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 171, pl. 6, figs. 41-46; pl. 10, figs. 21, 22.
- **minuta** Whitfield, 1878; Ann. Rept. Geol. Survey Wisconsin, 1877, p. 55. Potsdam.
- **minuta** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 186, pl. 1, figs. 25, 26.
- **minuta** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 60, pl. 10, fig. 23.
- **pustulosa** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., Palæont., vol. 4, p. 223, pl. 2, fig. 27. Potsdam.
- [*Dikelocephalus*] **sesostris** Billings, 1865; Pal. Foss., vol. 1, p. 198, fig. 184. Quebec.
- **speciosus** Walcott, 1879; 32d Rept. New York State Mus. Nat. Hist., p. 131. Calceiferous.
- **striata** Whitfield, 1878; Ann. Rept. Geol. Survey Wisconsin, 1877, p. 55. Potsdam.
- **striata** Whitfield, 1880; Ann. Rept. Geol. Survey Wisconsin, 1879, p. 51.
- **striata** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 186.
- Syn., **granulosa** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 173, pl. 6, figs. 33-40.
- [*Arionellus*] **subclavatus** Billings, 1860; Canadian Naturalist, vol. 5, p. 315, figs. 15, 15 a. Quebec.
- Ptychoparia** Corda, 1847; Prodr., p. 141, pl. 2, fig. 11.
- Type, *Ptychoparia striatus* Emmrich.
- [*Conocephalites*] **adamsi** Billings, 1861; Pamphlet published in adv. Pal. Foss., p. 12, figure.
- [*Conocephalus*] Adams, 1848; Am. Jour. Sci., 2d series, vol. 5, p. 109.
- [*Conocephalites*] **adamsi** Billings, 1861; Geol. Vermont, vol. 2, p. 950, fig. 355.
- [*Conocephalus*] Billings, 1861; Am. Jour. Sci., 2d series, vol. 32, p. 231.
- [*Conocephalus*] Billings, 1861; Canadian Naturalist, vol. 6, p. 324.
- [*Conocephalites*] **adamsi** Billings, 1863; Geol. Canada, p. 286, fig. 294.
- [*Conocephalites*] **adamsi** Billings, 1865; Pal. Foss., vol. 1, p. 12, fig. 15.
- **adamsi** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 195, pl. 26, figs. 1, 1 a-c. Middle Cambrian.
- Syn., **arenosus** (Billings) Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 195.
- [*Euloma*?] **affinis** Walcott, 1882; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 54, pl. 10, fig. 12. Cambrian and Silurian.
- [*Crepicephalus* (*Bathyrus*)] **angulatus** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., Palæont., vol. 4, p. 220, pl. 2, fig. 28. Potsdam.
- ? **angulatus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 269.
- ? **annectans** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 91, pl. 12, fig. 18. Cambrian.
- [*Crepicephalus* (*Loganellus*)] **anytus** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par. vol. 4, p. 219, pl. 2, figs. 19-21. Potsdam.
- **anytus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 56, pl. 9, fig. 26.
- [*Lisostracus*] **anytus** Brögger, 1886; Geol. Fören. Stock. Förhandl., vol. 8, p. 212.
- [*Conoceph.*] **antiquatus** Saltér, 1859; Quart. Jour. Geol. Soc. London, vol. 15, p. 554, fig. 2. Potsdam.
- Syn., [*Conoceph.*] **arenosus** Billings, 1861; Geol. Vermont, vol. 2, p. 952, fig. 358.
- [*Conoceph.*] **arenosus** Billings, 1861; Pamphlet published in advance of Pal. Foss. Canada, vol. 1; also, Pal. Foss., vol. 1, p. 15, fig. 18.
- [*Conoceph.*] **arenosus** Billings, 1863; Geol. Canada, p. 286, fig. 297.
- Walcott (Bull. U. S. Geol. Survey, No. 30, p. 195) refers this species to *Ptychoparia adamsi*.

- Ptychoparia** [*Conoceph.*] *aurora* Hartt, 1868; *Acadian Geology*, p. 653. (See **Ptychoparia ouangondianus**.)
- [*Conoceph.*] *billingsi* Shumard, 1861; *Am. Jour. Sci.*, 2d series, vol. 32, p. 219. Potsdam.
- [*Conoceph.* ?] *binodosus* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 160, pl. 7, fig. 47. Potsdam.
- [*Solenopleura* ?] *breviceps* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 49, pl. 10, fig. 9. Cambrian.
- [*Conocephalites*] *calymenoides* Whitfield, 1878; *Ann. Rept. Geol. Survey Wisconsin*, 1877, p. 52. Potsdam.
- [*Conocephalites*] *calymenoides* Whitfield, 1882; *Geol. Wisconsin*, vol. 4, p. 179, pl. 3, figs. 2-5. Potsdam.
- *calymenoides* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 48.
- [*Crepicephalus* (*Loganellus*)] *centralis* Whitfield, 1880; *Geol. Resources Black Hills Dakota*, p. 341, pl. 2, figs. 21-24. Potsdam.
- [*Conocephalites*] *chippewaensis* (Owen) Shumard, 1863; *Trans. St. Louis Acad. Sci.*, vol. 2, p. 104.
- [*Lonchocephalus*] *chippewaensis* Owen, 1852; *Rept. Geol. Survey Wisconsin*, Iowa, and Minnesota, p. 576, pl. 8, figs. 6, 14; pl. 1 a, fig. 9.
- ? (subgenus ?) *clavata* Walcott, 1887; *Am. Jour. Sci.*, 3d series, vol. 34, p. 193, pl. 1, fig. 3. Cambrian.
- [*Conoceph*] *cordilleræ* Rominger, 1887; *Proc. Acad. Nat. Sci. Phila.*, p. 17, pl. 1, fig. 7. Cambrian.
- *cordilleræ* Walcott, 1888; *Am. Jour. Sci.*, 3d series, vol. 36, p. 165.
- [*Conoceph*] *depressus* Shumard, 1861; *Am. Jour. Sci.*, 2d series, vol. 32, p. 219. Potsdam.
- [*Conoceph*] *diadematus* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 167, pl. 7, figs. 36-39; pl. 9, figs. 18-21 (?). Potsdam.
- [*Euloma* ?] *dissimilis* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 51, pl. 9, fig. 28. Cambrian.
- [*Conoceph* (*Arionellus* ?)] *dorsalis* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 222. Potsdam.
- [*Conoceph*] *elegans* Hartt, 1868; *Acadian Geology*, p. 650. St. John.
- [*Conoceph*] *eos* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 151, pl. 7, figs. 24, 25; pl. 8, figs. 2-9. Potsdam.
- *eos* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 51.
- [*Conoceph.*] *eryon* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 157, pl. 7, figs. 10-16; pl. 8, figs. 16, 31. Potsdam.
- *fitchi* Walcott, 1887; *Am. Jour. Sci.*, 3d series, vol. 34, p. 197, pl. 1, fig. 6. Cambrian.
- [*Conoceph.*] *formosus* Hartt. (See **Ptychoparia robbi** Hartt.)
- [*Conoceph.* (*Ptychoparia*)] *gallatinensis* Meek, 1873; 6th Ann. Rept. U. S. Geol. Survey Territories, 1872, p. 485. Potsdam.
- Referred by Walcott to *Ptychoparia oweni* Meek and Hayden.
- [*Crepicephalus* (*Loganellus*)] *granulosus* Hall and Whitfield, 1877; *U. S. Geol. Expl. 40th Par.*, Palæont., vol. 4, p. 214, pl. 2, figs. 1, 2, 3. Potsdam.
- *granulosus* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 57.
- [*Crepicephalus* (*Loganellus*)] *haguei* Hall and Whitfield, 1877; *U. S. Geol. Expl. 40th Par.*, Palæont., vol. 4, p. 210, pl. 2, figs. 14, 15. Potsdam.
- *haguei* Walcott, 1884; *Pal. Eureka Dist.*, Mon. U. S. Geol. Survey, vol. 8, p. 57.
- [*Lisostracus*] *haguei* Brögger, 1886; *Geol. Föreningens Stockholm Förhandl.*, vol. 8, p. 202.
- [*Conoceph.*] *halli* Hartt. (See **Ptychoparia orestes** Hartt.)

- Ptychoparia housensis** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 201, pl. 25, fig. 5. Middle Cambrian.
- [*Conocoryphe* (*Concephalites*)] **kingii** Meek, 1870; Proc. Acad. Nat. Sci. Phila., vol. 22, p. 63.
- [*Conocoryphe* (*Concephalites*)] **kingii** Meek, 1877; U. S. Geol. Expl. 40th Par., Palæont., vol. 4, p. 20, pl. 1, fig. 4.
- [*Conocoryphe* (*Ptychoparia*)] **kingii** Meek, 1873; 6th Ann. Rept. U. S. Geol. Survey Territories, 1872, p. 487.
- [*Conocoryphe* (*Ptychoparia*)] **kingii** White, 1876; U. S. Geog. and Geol. Surveys West 100th Mer., Palæont., vol. 4, p. 40, pl. 2, figs. 2 a, b, c.
- [*Liostracus*] **kingii** Brögger, 1886; Geol. Föreningens Stockholm Förhandl., vol. 8, p. 205.
- **kingii** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 193, pl. 27, figs. 4, 4 a. Middle Cambrian.
- **laeviceps** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 54, pl. 10, figs. 17, 18. Cambrian.
- [*Concephalites* (*Pterocephalus*)] **laticeps** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., Palæont., vol. 4, p. 67, 221, pl. 2, figs. 4-7. Cambrian.
- [*Pterocephalus*] **laticeps** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 59.
- ? **linnarssoni** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 47, pl. 9, figs. 18, 18 a. Cambrian.
- [*Loganellus*] **logani** Devine, 1863; Canadian Naturalist, vol. 8, p. 95, figure. Potsdam.
- [*Olenus*?] **logani** Billings, 1865; Pal. Foss., vol. 1, p. 201, figs. 185, 186. Syn., [*Loganellus*] **quebecensis** Billings; *idem.*, p. 203.
- **logani** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 36.
- [*Crepicephalus* (*Loganella*)] **maculosus** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., Palæont., vol. 4, p. 215, pl. 2, figs. 21, 25, 26 (?). Potsdam.
- **maculosus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, pp. 269, 271.
- [*Conoceph.*] **minor** Shumard, 1863; Trans. Acad. Nat. Sci. St. Louis, vol. 2, p. 105. Potsdam.
- (Undet.) trilobite Owen, 1848; Geol. Reconnaissance Chippewa Land Dist., p. 15, pl. 7, fig. 4.
- [*Conoceph.*] **minor** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 149, pl. 8, figs. 1-4.
- **minor** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 91.
- [*Conoceph.*] **minutus** Bradley, 1860; Am. Jour. Sci., 2d series, vol. 30, p. 24, 3 figs. Potsdam.
- [*Conoceph.*] **minutus** Bradley, 1860; Canadian Naturalist, vol. 5, p. 420, figs. 1-3.
- [*Conoceph.*] **minutus** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 150, pl. 8, figs. 5-7.
- **minutus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 91.
- **minutus** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 21.
- [*Conoceph.*] **miser** Billings, 1861; New or little known Sil. Foss., p. 12, fig. 14. Potsdam.
- [*Conoceph.*] **miser** Billings, 1861; Geol. Vermont, vol. 2, p. 950, fig. 354.
- [*Conoceph.*] **miser** Billings, 1863; Geol. Canada, p. 286, fig. 393.
- [*Conoceph.*] **miser** Billings, 1865; Pal. Foss., vol. 1, p. 12, fig. 14.
- **miser** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 199, pl. 27, fig. 2.
- [*Crepicephalus* (*Loganella*)] **montanensis** Whitfield, 1876; Rept. Recon. Upper Missouri, p. 141, pl. 1, figs. 1, 2. Potsdam.
- **montanensis** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, pp. 53, 56.

- Ptychoparia mucronatus** Shaler and Foerste, 1888; Bull. Mus. Comp. Zool. Harvard Coll., vol. 16, p. 37, pl. 2, fig. 21. Cambrian.
- [*Conoceph.*] **nasutus** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 155, pl. 7, figs. 3-9. Potsdam.
- [*Conoceph.*] **neglectus**. (See **Ptychoparia tener**.)
- [*Crepicephalus* (*Loganella*)] **nitidus** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., Palaeont., vol. 4, p. 212, pl. 2, figs. 8-10. Cambrian.
- Syn., *Crepicephalus* [*Loganella*] **simulator** (Hall and Whitfield) Walcott.
- **nitidus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 57.
- **occidentalis** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 51, pl. 10, fig. 5. Cambrian.
- [*Conoceph.*] **orestes** Hartt, 1868; Acadian Geology, p. 649, fig. 225. St. John.
- Syn., *Conoceph. halli* (Hartt) Walcott; Bull. U. S. Geol. Survey, No. 10, p. 40.
- Conoceph. thersites* (Hartt) Walcott; Bull. U. S. Geol. Survey, No. 10, p. 40.
- **orestes** var. **thersites** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 40.
- Syn., **orestes** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 39, pl. 5, figs. 3, 3 a.
- [*Solenopleura*] **orestes** Matthew, 1887; Trans. Royal Soc. Canada, vol. 4, p. 154, pl. 2, figs. 4 a-e.
- [*Pterocephalus*] **occidens** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 58, pl. 9, fig. 21. Cambrian.
- [*Conoceph.*] **ouangondiana** Hartt, 1868; Acadian Geology, p. 651, fig. 226. St. John.
- **ouangondiana** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 37, pl. 5, figs. 4, 4 a-f.
- **ouangondiana** var. **aurora** (Hartt) Walcott; Bull. U. S. Geol. Survey, No. 10, p. 38, pl. 5, fig. 5.
- [*Liostracus*] **ouangondiana** Matthew, 1887; Trans. Royal Soc. Canada, p. 138.
- **oweni** (Meek and Hayden) Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 55, pl. 10, figs. 3, 3 a. (See **Agraulus oweni** Meek and Hayden.)
- The following species are referred by Walcott (Mon. U. S. Geol. Survey, vol. 8, p. 55) to *Ptychoparia oweni*:
- Arionellus oweni* Meek and Hayden, 1862; Am. Jour. Sci., 2d series, vol. 33, p. 74.
- Agraulus oweni* Meek and Hayden, 1864; Pal. Upper Missouri, p. 9, figs. a-c, pl. 1, fig. 4.
- Conocoryphe* (*Ptychoparia*) **gallatinensis** Meek, 1870; 6th Ann. Rept. U. S. Geol. Survey Territories, 1872, p. 485.
- Crepicephalus* (*Loganella*) **centralis** Whitfield, 1880; Geol. Resources Black Hills, Dakota, p. 341, pl. 2, figs. 21-24.
- [*Conoceph.*] **oweni** Hull, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 155, pl. 8, figs. 17-20. Potsdam.
- [*Crepicephalus* (*Loganella*)] **planus** Whitfield, 1877; Prelim. Rept. Pal. Black Hills, p. 11. Potsdam.
- [*Crepicephalus*] **planus** Whitfield, 1880; Geol. Black Hills Dakota, p. 343, pl. 2, fig. 20.
- ? **pernasutus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 49, pl. 10, figs. 8, 8 a, b. Cambrian.
- [*Conoceph.*] **perseus** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 153, pl. 7, figs. 17-22; pl. 8, fig. 33. Potsdam.
- **piochensis** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 201, pl. 26, fig. 2-2 a, b; pl. 28, figs. 1-1 a-e. Middle Cambrian.
- ? **prospectensis** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 46, pl. 9, fig. 20. Cambrian.
- ? **prospectensis** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 202, pl. 27, fig. 5.

- Ptychoparia quadrangularis** Whitfield. The specific name of *Conoceph. quadratus* being preoccupied, Prof. R. P. Whitfield substitutes that of *quadrangularis* for the species.
- [*Crepicepalus* (*Loganella*)] **quadrans** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., Palæont., vol. 4, p. 238, pl. 2, figs. 11-13.
 - **quadrans** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 199, pl. 29, figs. 4-4 a, b. Cambrian.
 - [*Conoceph.*] **quadratus**. (See **Ptychoparia quadrangularis**.)
 - [*Conoceph.*] **quadratus** Hartt, 1868; Acadian Geology, p. 654. St. John.
 - **quadratus** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 39, pl. 5, fig. 1.
 - [*Conoceph.* ?] **quadratus** Whitfield, 1880; Ann. Rept. Geol. Survey, Wisconsin, 1879, p. 47.
 - [*Conoceph.* ?] **quadratus** Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 180, pl. 1, figs. 15, 16. (See **Ptychoparia quadrangularis** Whitfield.)
 - [*Conoceph.*] **robbei** Hartt, 1868; Acadian Geology, p. 648. St. John.
 - Syn., *Conoceph. formosa* (Hartt) Walcott; Bull. U. S. Geol. Survey, No. 10, p. 36.
 - **robbei** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 36, pl. 6, figs. 1, 1 a.
 - [*Solenopleura*] **robbei** Matthew, 1887; Trans. Royal Soc. Canada, vol. 4, p. 153, pl. 2, figs. 3 a-l; fig. 4 a-e.
 - **rogersi** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 47, pl. 7, fig. 2. Lower Cambrian.
 - [*Conoceph.*] **shumardi** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 154, pl. 7, figs. 1-2; pl. 3, figs. 19, 32. Potsdam.
 - **similis** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 52, pl. 10, figures. Cambrian.
 - **similis** var. **robustus** Walcott; *idem.*, p. 53, pl. 1, figs. 9, 9 a.
 - [*Conoceph.*] **subcoronatus** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., Palæont., vol. 4, p. 237, pl. 2, fig. 1.
 - **subcoronatus** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 205, pl. 28, fig. 4. Middle Cambrian.
 - [*Conoceph.*] **teucer** Billings, 1861; New or little known Sil. Foss., p. 12, fig. 16.
 - [*Conoceph.*] **teucer** Billings, 1861; Geol. Vermont, vol. 2, p. 951, fig. 356.
 - [*Conoceph.*] **teucer** Billings, 1865; Pal. Foss., vol. 1, p. 13, fig. 16.
 - [*Conoceph.*] **teucer** Billings, 1863; Geol. Canada, p. 286, fig. 295.
 - **teucer** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 197, pl. 26, fig. 3. Middle Cambrian.
 - [*Conoceph.*] **tener** Hartt, 1868; Acadian Geology, p. 652. St. John.
 - Syn., *Conoceph. neglectus* (Hartt) Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 41.
 - **tener** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 41, pl. 5, figs. 6, 6 a, b.
 - [*Conoceph.*] **thersites**. (See **Ptychoparia orestes** Hartt.)
 - **trilineatus**. (See **Atops trilineatus**, **Conocoryphe trilineatus**, **Conocephalites trilineatus**, **Calymene beekii**, **Triarthrus beekii**.)
 - [*Crepicephalus* (*Loganella*)] **unisulcatus** Hall and Whitfield, 1877; U. S. Geol. Expl. 40th Par., Palæont., vol. 4, p. 216, pl. 2, figs. 22, 23. Cambrian.
 - **unisulcatus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 58.
 - [*Conoceph.*] **verucosus** Whitfield, 1884; Bull. Am. Mus. Nat. Hist., vol. 1, p. 146, pl. 14, fig. 12. Potsdam.
 - [*Conoceph.*] **vulcanus** Billings, 1861; New or little known Sil. Foss., p. 14, fig. 17.
 - [*Conoceph.*] **vulcanus** Billings, 1861; Geol. Vermont, vol. 2, p. 952, fig. 357.
 - [*Conoceph.*] **vulcanus** Billings, 1863; Geol. Canada, p. 286, fig. 296.
 - [*Conoceph.*] **vulcanus** Billings, 1865; Pal. Foss., vol. 1, p. 14, fig. 17.

Ptychoparia vulcanus Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 196, pl. 26, figs. 4, 4 a. Middle Cambrian.

Compare *Ptychoparia adamsi*.

— [*Conoceph.*] **winona** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 161, pl. 7, figs. 26-28. Potsdam.

— [*Conoceph.*] **zenkeri** Billings, 1860; Canadian Naturalist, vol. 5, p. 305, fig. 4. Quebec.

— [*Conoceph.*] **zenkeri** Billings, 1865; Pal. Foss., vol. 1, p. 398, fig. 375.

Remopleurides Portlock, 1843; Rept. Geol. Londonderry, etc., p. 254.

Type, *Remopleurides colbii* Portlock.

Syn., *Amphytryon* Barrande, 1846; Notice Prélim., p. 32.

Amphytryon Corda, 1847; Prodr., p. 228.

— **affinis** Billings, 1865; Pal. Foss., vol. 1, p. 325, fig. 313. Quebec.

— **canadensis** Billings, 1865; Pal. Foss., vol. 1, p. 182, fig. 164. Chazy.

— **panderi** Billings, 1865; Pal. Foss., vol. 1, p. 293, fig. 283. Quebec.

— ? **schlottheimi** Billings, 1865; Pal. Foss., vol. 1, p. 294, fig. 284. Quebec.

Syn., *Paradoxides* or *Olenellus* Billings, 1863; Geol. Canada, pp. 871, 872.

— **striatulus** Walcott, 1875; Cincinnati Quart. Jour. Sci., vol. 2, p. 347, fig. 27, 27 a, b. Trenton.

Sao Barrande, 1846; Notice Prélim. Syst. Sil. Bohême, p. 13.

— ? **lamottensis** Whitfield, 1886; Bull. Am. Mus. Nat. Hist. New York, vol. 1, p. 334, pl. 33, figs. 9-11. Birdseye Limestone.

Shumardia Billings, 1862; Pal. Foss., vol. 1, p. 92.

Type, *Shumardia granulosa* Billings.

The generic name therein suggested by Mr. E. Billings for a minute Trilobite includes a specimen having an expanding glabella, with two anterior side nodules, similar to those of *Battus pusillus* Sar, the genus being allied to *Agnostus*, differing therefrom in having a regularly ribbed pygidium, similar to that of an *Asaphus*. Comparing Mr. E. Billings's type, *Shumardia granulosa*, with *Conophrys salopiensis* Galloway (Quart. Jour. Geol. Soc. London, vol. 33, p. 667, pl. 12, fig. 7), which W. C. Brögger (Sil. Etagen 2 und 3, p. 125) refers to as a synonym to *Battus pusillus*, we find a similar characteristic in the glabella. The pygidium of *Shumardia granulosa* has however a more semi-oval form, with a greater number of axis rings and an additional number of ribs on the side lobes.

The head of *Shumardia granulosa* differs from *Battus pusillus* in having a groove, which runs from the anterior front of the glabella to the frontal margin of the head, a characteristic of some species of *Agnostidae* (vid. Brögger, Sil. Etagen 2 und 3, pl. 1, fig. 10).

Mr. Billings remarks "that in some specimens this furrow has at the bottom a small triangular tubercle, giving the glabella the appearance of having a projecting angular process in the middle of its front." I am more inclined to view this triangular tubercle as a point of attachment for the muscles of the jaws, and not as a process for the attachment of antennæ.

Mr. E. Billings in the same book gives a description of a second species, which he calls *Shumardia glacialis*, figured p. 283, fig. 270. The species is represented with three glabella furrows, and should not be included in the genus *Shumardia*.

If these forms are not embryonic, against which in the case of *Conophrys salopiensis* Mr. C. Callaway dissents on account of the constant size of the heads and the absence of the facial sutures amongst the larger specimens, I would advocate the acceptance of the new genus *Shumardia* amongst the *Agnostidae* for such species as *Shumardia granulosa* and *Battus pusillus* to replace the latter generic term of *Conophrys*.

Bull. 63—10

Solenopleura Angelin, 1854; Palæont. Scand., p. 26.Type, *Solenopleura holometopa* Angelin.

Diagnosis: Glabella prominent, with three distinct furrows; fixed cheeks, elevated especially in the middle; front limb convex; occipital ring bearing a tubercle; genal angles pointed; thorax, pleuræ bluntly rounded; pygidium small with few segments; surface of shell granulated with or without scattered tubercles.

- *acadia* Whiteaves, 1885; Trans. Royal Soc. Canada, vol. 3, p. 76, pl. 7, fig. 15. Cambrian.
- *acadia* Whiteaves, 1887; Trans. Royal Soc. Canada, vol. 4, p. 157, pl. 2, figs. 5 a, b, c.
- *acadia* var. *elongata* Matthew, 1887; *idem.*, p. 159, pl. 1, fig. 6.
- *bombifrons* Matthew, 1886; Trans. Royal Soc. Canada, vol. 2, p. 156, figs. 5-5 a b. St. John.
- *communis* Billings, 1874; Pal. Foss., vol. 2, p. 72. Potsdam.
- *communis* Matthew, 1886; Trans. Royal Soc. Canada, vol. 2, p. 155, figs. 4-4 a, b.
- *nana* Ford, 1878; Am. Jour. Sci., 3d series, vol. 15, p. 126. Potsdam.
- *nana* Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 214, pl. 27, fig. 3.
- ? *nana* Walcott, 1887; Am. Jour. Sci., 3d series, vol. 34, p. 196, pl. 1, figs. 1-1 d. Cambrian.
- *orestes* (Hartt) Matthew, 1887; Trans. Royal Soc. Canada, vol. 4, p. 154, pl. 2, figs. 4 a-e.
- *Syn.*, *robbei* (Hartt) Matthew, 1887; Trans. Royal Soc. Canada, vol. 4, p. 153, pl. 2, figs. 3 a-1 and figs. 4 a-e. St. John.
- ? *tumida* Walcott, 1887; Am. Jour. Sci., 3d series, vol. 34, p. 196, pl. 1, fig. 2, 2 a. Cambrian.

Sphærexochus Beyrich, 1845; Ueber einige böhmische Trilobiten, p. 19.Type, *Sphærexochus mirus*.

- *canadensis* Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 64, fig. 21.
- *mirus* (Beyrich) Roemer, 1860; Die Sil. Fauna W. Tennessee, p. 81, pl. 5, fig. 20. Niagara.
- *parvus* Billings, 1865; Pal. Foss., vol. 1, p. 180, fig. 161. Chazy and Trenton.
- *romingeri* Hall, 1862; Geol. Rept. Wisconsin, p. 434. Niagara.
- *Syn.*, *mirus* Hall (not Beyrich), 1867; 20th Rept. New York State Cab. Nat. Hist., p. 334, pl. 21, figs. 4-7.
- *romingeri* Hall, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 375, pl. 22, figs. 4-7.
- *romingeri* Hall, 1870; 20th Rept. New York State Cab. Nat. Hist., p. 425, pl. 21, figs. 4-7 (rev. ed.).
- *romingeri* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 311, pl. 21, figs. 1-3.
- *romingeri* ? Hall; 28th Rept. New York State Mus. Nat. Hist., p. 32, pl. 32, fig. 16.
- *romingeri* Meek and Worthen, 1875; Geol. Survey Illinois, vol. 6, p. 510, pl. 24, fig. 4.

Sphærocoryphe Angelin, 1854; Palæont. Scand., p. 65.Type, *Sphærocoryphe dentata* Angelin.

- *robustus* Walcott, 1875; Cincinnati Quart. Jour. Sci., vol. 2, p. 273, figs. 18 a, b. Trenton.
- *salteri* Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 63.
- Symphysurus** Goldfuss, 1843; Jahrb. für Mineral., 1843, p. 552.
- ? *goldfussi* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 95, pl. 12, fig. 16. Pogonip.
- Telephus** Barrande, 1852; Syst. Sil. Bohême, vol. 1, p. 890.
- *americanus* Billings, 1865; Pal. Foss., vol. 1, p. 291, figs. 281. Quebec.
- Terataspis* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 223. (See *Lichas* and *Acidaspis*.)
- *grandis*. (See *Lichas* [*Terataspis*] *grandis* Hall.)

- Terataspis eriops*. (See *Lichas* [*Conolichas*] *eriops* Hall.)
- Thaleops** Conrad, 1843; Proc. Acad. Nat. Sci. Phila., vol. 1, p. 332.
- *ovatus* Conrad. (See *Illænus ovatus*.)
- Triarthrella** Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 177.
- *auroralis* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 177, pl. 9, fig. 13. Potsdam.
- Triarthrus** Green, 1832; Monthly Am. Jour. Geol., vol. 1, p. 560 (June). Green, 1832; Mon. Tril. North America, p. 86.
- Type, *Triarthrus beckii* Green.
- *beckii* Green, 1832; Monthly Am. Jour. Geol., vol. 1, p. 560, pl. 1, fig. 3 (June).
- *beckii* Green, 1832; Mon. Tril. N. A., p. 86, cast 34, pl. 1, fig. 3.
- *beckii* Harlan, 1835; Trans. Geol. Soc. Penn., vol. 1, p. 205, pl. 15, fig. 6.
- Syn., [*Paradoxides*] *triarthrus* Harlan, 1835; Trans. Geol. Soc. Penn., vol. 1, pl. p. 264, 15, fig. 5.
- [*Paradoxides*] *arcuatus* Harlan, 1835; Trans. Geol. Soc. Penn., vol. 1, p. 265, pl. 15, figs. 1-3.
- *beckii* Harlan, 1835; Med. Phys. Researches, p. 400, pl., fig. 6.
- Syn., [*Paradoxides*] *triarthrus* Harlan, 1835; Med. Phys. Researches, p. 401, pl., fig. 5.
- [*Paradoxides*] *arcuatus* Harlan, 1835; Med. Phys. Researches, p. 402, pl., figs. 1-3.
- *beckii* Green, 1835; Suppl. Mon. Tril. N. A., p. vii.
- [*Paradoxides*] *beckii* Hall, 1838; Am. Jour. Sci., 1st series, vol. 33, p. 142, fig. 2.
- Syn., *Paradoxides eatoni* Hall, 1838; Am. Jour. Sci., 1st series, vol. 33, p. 142, fig. 2.
- *beckii* Green, 1838; Am. Jour. Sci., 1st series, vol. 33, p. 344.
- *beckii* Mather, 1842; Geol. New York, 1st Geol. Dist., p. 390, fig. 24 (1).
- *beckii* Emmons, 1842; Geol. New York, 2d Geol. Dist., p. 399, fig. 110 (1).
- *beckii* Vanuxem, 1843; Geol. New York, 3d Geol. Dist., p. 57, fig. 8 (1).
- *beckii* Hall, 1843; Geol. New York, 4th Geol. Dist., p. 504.
- [*Calymene*] *beckii* Hall, 1847; Pal. New York, vol. 1, p. 237, pl. 64, figs. 2 a-e.
- [*Calymene*] *beckii* Hall, 1847; Pal. New York, vol. 1, p. 250, pl. 66, figs. 2 a-k (not pl. 67, figs. 4 a-e, *Atops trilineatus*).
- Syn., *Atops trilineatus* (Emmons) Hall, 1847; Pal. New York, vol. 1, p. 237.
- [*Calymene*] *becki* Hall, 1848; Am. Jour. Sci., 2d series, vol. 5, p. 322, figs. 1 a, b, 2 a-g.
- *becki* Emmons, 1848; Am. Assoc. Adv. Sci., p. 17.
- *beckii* Haldeman, 1848; Am. Jour. Sci., 2d series, vol. 8, p. 137.
- *beckii* Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 214, pl. 15, fig. 12.
- [*Calymene*] *beckii* Rogers, 1858; Geol. Survey Penn., vol. 2, p. 820, fig. 613.
- *beckii* Barrande, 1861; Soc. Géol. France, 2d series, p. 269, pl. 5, figs. 11, 12.
- *beckii* Logan, 1863; Geol. Canada, p. 202, fig. 200.
- *beckii* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 146.
- *becki* Walcott, 1876; Trans. Albany Inst., vol. 10, p. 23, pl. 2, figs. 1-16.
- [*Brongniartia*] *carcinodea* Eaton, 1832; Am. Jour. Sci., 1st series, vol. 22, p. 166 (March 6). Trenton.
- [*Brongniartia*] *carcinodea* Eaton, 1832; Geol. Text Book, p. 33, pl. 1, fig. 3.
- *canadensis* Smith, 1861; Canadian Jour., vol. 6, p. 275. Hudson.
- *fischeri* Billings, 1861; Pal. Foss., vol. 1, p. 291, fig. 280. Quebec.
- *glaber* Billings, 1859; Canadian Naturalist, vol. 4, p. 382. Utica.
- *glaber* Billings, 1863; Geol. Canada, p. 202, fig. 198.
- *spinus* Billings, 1859; Canadian Naturalist, vol. 4, p. 382. Trenton.
- *spinus* Billings, 1863; Geol. Canada, p. 202, fig. 199.
- *spinus* Ami, 1882; Trans. Ottawa Nat. Club, vol. for 1882-'83, p. 88, pl. 1, figure.

Triarthrus trimerus Green, 1832; Monthly Am. Jour. Geol., vol. 1, p. 560. (See *Homalonotus delphinocephalus* and *H. jacksoni*.)

Trinucleus Lhwyd, 1698; Lithophyacii Britannici Ichnographia, Epistola 1. Murchison, Silurian System, 1839, p. 659.

Sir R. I. Murchison has revived this old name of Lhwyd's from classical feelings, and all subsequent palæontologists have adopted it. Lhwyd's description meant no more than the general name of Trilobite of the more modern writers, and could not, except by courtesy, set aside Dr. Jacob Green's genus *Cryptolithus*.

— **bellulus** Ulrich, 1878; Jour. Cincinnati Soc. Nat. Hist., vol. 1, p. 99, pl. 4, fig. 15.

— [*Nuttainia*] **concentrica** Eaton, 1832; Geological Text Book, p. 34, pl. 1, fig. 2.

Syn., *Trilobite* Bigsby, 1825; Annals Lyceum Nat. Hist. New York, vol. 1, pt. 2, p. 214, pl. 15, fig. 1. Trenton and Hudson.

Cryptolithus tessellatus Green, 1832; Mon. Tril. N. A., p. 73, cast 38, pl. 1, fig. 4.

Cryptolithus tessellatus Green, 1832; Monthly Am. Jour. Geol., vol. 1, pl. 1, fig. 4.

— **concentrica** Hall, 1847; Pal. New York, vol. 1, pp. 249, 255, pl. 65, figs. 4 a, b; pl. 67, figs. 1 a-h.

— **concentrica** Emmons, 1855; Am. Geology, vol. 1, pt. 2, p. 212, pl. 17, fig. 1.

— **concentrica** Chapman, 1858; Canadian Jour., vol. 3, p. 514.

— **concentrica** Billings, 1861; Geol. Vermont, vol. 1, p. 300, fig. 215.

— **concentrica** Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 126.

Zacanthoides Walcott, 1887; Am. Jour. Sci., 3d series, vol. 36, p. 165.

Type, *Zacanthoides spinosus* Walcott.

— [*Dicellosephalus*?] **flagricauda** White, 1874; Prelim. Rept. Invt. Foss. Geog. and Geol. Survey West 100th Mer., p. 12. Cambrian.

— [*Dicellosephalus*?] **flagricauda** White, 1877; U. S. Geog. and Geol. Survey West 100th Mer., vol. 4, p. 60, pl. 3, figs. 8 a, b.

— [*Olenoides*] **flagricauda** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 185, pl. 25, fig. 4.

— **flagricauda** Walcott, 1888; Am. Jour. Sci., 3d series, vol. 36, p. 165.

— [*Olenoides*] **levis** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 187, pl. 25, figs. 3, 3 a. Cambrian.

— **levis** Walcott, 1888; Am. Jour. Sci., 3d series, vol. 36, p. 165.

— [*Ogygia*?] **spinosus** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 63, pl. 9, fig. 22. Middle Cambrian.

— [*Olenoides*] **spinosus** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 184, pl. 25, figs. 6, 6 a.

— [*Embolimus*] **spinosus** (Rominger) Walcott, 1888; Am. Jour. Sci., 3d series, vol. 36, p. 164.

— **spinosus** Walcott, 1888; Am. Jour. Sci., 3d series, vol. 36, p. 165.

— [*Olenoides*] **typicalis** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 183, pl. 25, figs. 2, 2 a. Middle Cambrian.

— **typicalis** Walcott, 1888; Am. Jour. Sci., 3d series, vol. 36, p. 165.

PART III.

CATALOGUE OF NON-TRILOBITES.

PART III.

NON-TRILOBITIC GENERA AND SPECIES.

MEROSTOMATA.

EURYPTERIDÆ.

- EURYPTERUS** De Kay, 1825; *Annals Lyceum Nat. Hist.*, vol. 1, p. 375.
DOLICHOPTERUS Hall, 1859; *Palæont. New York*, vol. 3, p. 414.
ECHINOGNATHUS Walcott, 1882; *Am. Jour. Sci.*, 3d series, vol. 23, p. 213.
ADELOPHTHALMUS Jordan and Meyer, 1854; *Crust. Steinkohl. Saarb.*, p. 8.
GLYPTOSCORPIUS Peach, 1880; *Trans. Royal Soc. Edinb.*, vol. 30, p. 516.
ARTHROPLEURA Jordan and Meyer, 1854; *Crust. Steinkohl. Saarb.*, p. 13.

PTERYGOTIDÆ.

- PTERYGOTUS** Agassiz, 1844; *Mon. Poissons Foss.*, note, p. xix.
SLIMONIA Page, 1856; *Advance Text-Book Geology*, p. 135.
STYLONURUS Page, 1856; *Advance Text-Book Geology*.

SYNZIPHOSURA.

- ACANTHOTELSON** Meek and Worthen, 1865; *Proc. Acad. Nat. Sci. Phila.*, vol. 17, p. 46;
Geol. Survey Illinois, vol. 2, 1866, p. 399.

XIPHOSURA.

CYCLIDÆ.

- CYCLUS** De Koninck, 1841; *Mém. Acad. Sci. Belgique*, vol. 14, p. 13.
DIPELTIS Packard, 1885; *American Naturalist*, vol. 19, p. 293.

BUNODIDÆ.

- BUNODES** Eichwald, 1854; *Beiträge Geol. u. Pal. Russ.*, p. 131.
HEMISAPIS Woodward, 1865; *Quart. Jour. Geol. Soc. London*, vol. 21, p. 490.
EXAPINURUS Nieszkowski, 1859; *Archiv Nat. Liv-, Esth- u. Kurl.*, vol. 1, p. 380.
PSEUDONISCUS Nieszkowski, 1859; *Archiv Nat. Liv-, Esth- u. Kurl.*, vol. 1, p. 381.

LIMULIDÆ.

- BELINURUS** Koenig, 1820; *Icones Foss. Sec tiles*, pl. 18, fig. 230.
PRESTWICHIA Woodward, 1887; *Quart. Jour. Geol. Soc. London*, vol. 23, p. 32.

LIMULUS Müller, 1785; Entomostraca, etc., p. 124.

PROTOLIMULUS Packard, 1886; Mem. Nat. Acad. Sci., vol. 3, p. 150.

NEOLIMULUS Woodward, 1868; Geol. Mag., vol. 5, p. 1.

PHYLLOPODA.

CERATIOCARIDÆ.

HYMENOCARIS Salter, 1852; Rept. 22d Meeting Brit. Assoc. Adv. Sci., Trans. Sec., p. 56.

CERATIOCARIS McCoy, 1849; Annals Mag. Nat. Hist. London, 2d series, vol. 4, p. 412.

ECHINOCARIS Whitfield, 1880; Am. Jour. Sci., 3d series, vol. 19, p. 34.

DIDYOCARIS Salter, 1860; Annals Mag. Nat. Hist. London, 3d series, vol. 5, p. 161.

DITHYOCARIS (Seouler) Portlock; Geol. Rept. Londonderry, etc., 1843, p. 313.

PROTOCARIS Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 50.

ELYMOCARIS Beecher, 1884; 2d Geol. Survey Penn., vol. PPP., p. 13.

TROPIDOCARIS Beecher, 1884; 2d Geol. Rept. Penn., vol. PPP., p. 15.

PHYSOCARIS Salter, 1860; Annals Mag. Nat. Hist. London, 3d series, vol. 5, p. 159.

PHASGANOCARIS Novák, 1886; Sitzungsab. böhm. Gesell., 1886, p. 498.

ACANTHOCARIS Peach, 1882; Trans. Royal Soc. Edinb., vol. 30, p. 511.

DISCINOCARIDÆ.

DISCINOCARIS Woodward, 1866; Quart. Jour. Geol. Soc. London, vol. 22, p. 504.

SPATHIOCARIS Clarke, 1882; Am. Jour. Sci., 3d series, vol. 23, p. 477.

PHOLADOCARIS Woodward, 1882; Geol. Mag., decade 3, vol. 9, p. 388.

ELLIPSOCARIS Woodward, 1882; Geol. Mag., decade 3, vol. 9, p. 444.

LISGOCARIS Clarke, 1882; Am. Jour. Sci., 3d series, vol. 23, p. 478.

CARDIOCARIS Woodward, 1882; Geol. Mag., decade 3, vol. 9, p. 386.

DIPTEROCARIS Clarke, 1883; Am. Jour. Sci., 3d series, vol. 23, p. 121.

PTEROCARIS Barrande, 1872; Syst. Sil. Bohême, vol. 1, suppl., p. 464.

CRESCENTELLA Barrande, 1872; Syst. Sil. Bohême, vol. 1, suppl., p. 507.

APTYPHOPSIS Barrande, 1872; Syst. Sil. Bohême, vol. 1, suppl., p. 455.

PELTOCARIS Salter, 1863; Quart. Jour. Geol. Soc. London, vol. 19, p. 87.

PINNOCARIS Etheridge, 1878; Proc. Royal Phys. Soc., Edinb., vol. 4, p. 167.

PTYCHOCARIS Novák, 1885; Sitzungsab. böhm. Gesell., 1885, p. 343.

RHINOCARIDÆ.

RHINOCARIS Clarke, 1888; Palæont. New York, vol. 7, p. lviii.

COLPOCARIS Meek, 1871; Proc. Acad. Nat. Sci. Phila., vol. 23, p. 334.

SOLENOCARIS Meek, 1871; Proc. Acad. Nat. Sci. Phila., vol. 23, p. 335. Name should be changed, preoccupied by J. Young. See STRIGOCARIS.

MESOTHYRA Hall, 1888; Palæont. New York, vol. 7, pp. lvi, 187.

SACOCARIS Salter, 1868; Proc. Geol. Polytech. Soc., vol. 4, p. 588.

LINGULOCARIS Salter, 1866; Mem. Geol. Survey, vol. 3, pp. 252, 253, and 294.

SOLENOCARIS Young, 1868; Proc. Nat. Hist. Soc. Glasgow, vol. 1, p. 171.

ROSTROCARIS Kinnear, 1887; Trans. Edinb. Geol. Soc., vol. 5, p. 417.

CARYOCARIS Salter, 1863; Quart. Jour. Geol. Soc. London, vol. 19, p. 139.

ENTOMIDELLA Jones, 1873; Annals Mag. Nat. Hist., London, 4th series, vol. 11, p. 416.

ARCHÆOCARIS Meek, 1872; Proc. Acad. Nat. Sci. Phila., vol. 23, p. 335.

MYOCARIS Salter, 1864; Quart. Jour. Geol. Soc. London, vol. 20, 1864, p. 292.

ESTHERIA Rüppell, 1857; Mus. Senckenberg, vol. 2, p. 119.

LEAIA Jones, 1882; Mon. Fossil Estheria, p. 115.

SCHIZODISCUS Clarke, 1888; Palæont. New York, vol. 7, p. 207.

BIVALVED ENTOMOSTRACA.

CYPRIDINIDÆ.

- CYPRIDINA Milne-Edwards, 1838; Lamareck's Anim. s. Vert., vol. 5, p. 178.
 CYPRIDINELLA Jones and Kirkby, 1874; Mon. Carboniferous Entom., p. 21.
 CYPRIDELLINA Jones and Kirkby, 1874; Mon. Carboniferous Entom., p. 25.
 SULCUNA Jones, 1873; Quart. Jour. Geol. Soc. London, vol. 29, p. 411.
 CYPRELLA De Koninck, 1841; Mém. Acad. Royale Bruxelles, vol. 14, p. 19.
 BRADYCINETUS Sars, 1865; Översigt af Norges Marine Ostracoder.
 PHILOMEDES Lilljeborg, 1853; Crust. in Scania Occurrentibus, p. 175.
 RHOMBINA Jones and Kirkby, 1874; Mon. Carboniferous Entom., p. 43.

ENTOMOCONCHIDÆ.

- ENTOMOCONCHUS McCoy, 1839; Jour. Geol. Soc. Dublin, vol. 2, p. 91.
 OFFA Jones and Kirkby, 1874; Mon. Carboniferous Entom., p. 53.

POLYCOPIDÆ.

- POLYCOPE Sars, 1865; Översigt af Norges Marine Ostracoder.

ENTOMIDIDÆ.

- ENTOMIS Jones, 1861; Mem. Geol. Survey Scotland, Expl. map 32, p. 137.

CYTHERELLIDÆ.

- CYTHERELLA Jones and Bosquet, 1848 and 1852.
 CYTHERELLINA Jones and Holl, 1869; Annals Mag. Nat. Hist., London, 4th series, vol. 3, p. 215.
 CYTHERINA Lamareck, 1818; Animaux sans Vert., vol. 5, p. 125.
 ÆCHMINA Jones and Holl, 1869; Annals Mag. Nat. Hist., London, 4th series, vol. 3, p. 217.

LEPERDITIDÆ.

- LEPERDITIA Rouault, 1851; Bull. Soc. Géol. France, 2d series, vol. 8, p. 377.
 BERNIX Jones, 1884; Proc. Berwickshire Nat. Club, vol. 10, p. 316.
 ISOCHILINA Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 248.
 PRIMITIA Jones and Holl, 1865; Annals Mag. Nat. Hist., London, 3d series, vol. 16, p. 416.
 BEYRICHTIA McCoy, 1846; Synopsis Sil. Foss. Ireland, p. 57.
 BEYRICHTIELLA Jones and Kirkby, 1886; Geol. Mag., n. s., decade 3, vol. 3, p. 438.
 KIRKBYA Jones, 1869; Annals Mag. Nat. Hist., London, 4th series, vol. 3, p. 223.
 MOOREA Jones and Kirkby, 1867; Annals Mag. Nat. Hist., London, 4th series, vol. 3, p. 225.
 PHREATURA Jones and Kirkby, 1886; Quart. Jour. Geol. Soc. London, vol. 42, p. 507.
 STREPULA Jones and Holl, 1886; Annals Mag. Nat. Hist., London, 5th series, vol. 17, p. 403.
 BOLLIA Jones and Holl, 1886; Annals Mag. Nat. Hist., London, 5th series, vol. 17, p. 360.
 KLÆDINIA Jones and Holl, 1886; Annals Mag. Nat. Hist., London, 5th series, vol. 17, p. 362.
 BEYRICHIOPSIS Jones and Kirkby, 1886; Geol. Mag., decade 3, vol. 3, p. 434.
 APARCHITES Jones, 1889; Annals Mag. Nat. Hist., 6th series, vol. 3, p. 385.
 PRIMITOPSIS Jones, 1887; Notes on some Sil. Ostracoda from Gothland, p. 5.

- PLACENTURA Jones and Holl, 1886; *Annals Mag. Nat. Hist.*, London, 5th series, vol. 17, p. 407.
 KYAMODES Jones, 1888; *Annals Mag. Nat. Hist.*, London, 6th series, vol. 2, p. 295.
 CYPROSIS Jones, 1881; *Geol. Mag.*, decade 2, vol. 8, p. 338.
 CYPROSINA Jones, 1881; *Geol. Mag.*, decade 2, vol. 8, p. 338.
 OCTONARIA Jones, 1887; *Annals Mag. Nat. Hist.*, London, 5th series, vol. 19, p. 404.

CYPRIDÆ.

- AGLAIA Brady, 1867; *Challenger Exped.*, Rept. on Ostracoda, p. 33.
 CANDONA Baird, 1850; *History Brit. Entomostraca*, p. 159.
 ARGILLÆCIA Sars, 1865; *Öfversigt af Norges Marine Ostracoder*.
 MACROCYPISIS Brady, 1867; *Intellectual Observ.*, vol. 12, p. 119.
 BATHOCYPISIS Brady, 1880; *Challenger Exped.*, Rept. on Ostracoda, p. 45.
 BAIRDIA McCoy, 1844; *Synopsis Carboniferous Foss. Ireland*, p. 164.

DARWINULIDÆ.

- DARWINULA (Brady and Robertson) Jones, 1885; *Quart. Jour. Geol. Soc.*, vol. 41, p. 346. Name changed from preoccupied term *Darwinella* (*Ann. Mag. Nat. Hist.*, 4th series, vol. 9, 1872, p. 50).

CYTHERIDÆ.

- CYTHERE Müller, 1785; *Entomostraca*, etc., p. 64.
 XESTOLEBERIS Sars, 1865; *Öfversigt af Norges Marine Ostracoder*, p. 68.
 BYTHOCYTHERE Sars, 1865; *Öfversigt af Norges Marine Ostracoder*.
 CARBONIA Jones, 1870; *Geol. Mag.*, vol. 7, p. 218.
 YOUNGIA Jones and Kirkby, 1886; *Quart. Jour. Geol. Soc. London*, vol. 42, p. 507.
 THLIPEURA Jones and Holl, 1869; *Annals Mag. Nat. Hist.*, London, 4th series, vol. 3, p. 213.
 BURSULELLA Jones, 1887; *Notes on some Sil. Ostracoda from Gothland*, p. 7.
 ARISTOZOE Barrande, 1872; *Syst. Sil. Bohême*, vol. 1, suppl., p. 474.
 OROZOE Barrande, 1872; *Syst. Sil. Bohême*, vol. 1, suppl., p. 537.
 CALLIZOE Barrande, 1872; *Syst. Sil. Bohême*, vol. 1, suppl., p. 503.
 ZONZOZOE Barrande, 1872; *Syst. Sil. Bohême*, vol. 1, suppl., p. 554.
 HIPPA Barrande, 1872; *Syst. Sil. Bohême*, vol. 1, suppl., p. 516.
 BOLBOZOE Barrande, 1872; *Syst. Sil. Bohême*, vol. 1, suppl., p. 500.
 ELPE Barrande, 1872; *Syst. Sil. Bohême*, vol. 1, suppl., p. 510.
 NOTHOZOE Barrande, 1872; *Syst. Sil. Bohême*, vol. 1, suppl., p. 536.
 CARYON Barrande, 1872; *Syst. Sil. Bohême*, vol. 1, suppl., p. 505.
 CRYPTOZOE Packard, 1888; *Proc. Acad. Nat. Sci. Phila.*, 1888, p. 381.
 CYTHEROPSIS (McCoy) Barrande, 1872; *Syst. Sil. Bohême*, vol. 1, suppl., p. 508.

CIRRIPEIDÆ.

- PLUMULITES Barrande, 1872; *Syst. Sil. Bohême*, vol. 1, suppl., p. 565.
 STROBILEPIS Clarke, 1888; *Palæont. New York*, vol. 7, p. 212.
 PALÆOCREUSIA Clarke, 1888; *Palæont. New York*, vol. 7, p. 210.
 PROTOBALANUS Whitfield, 1888; *Palæont. New York*, vol. 7, p. lxii; *Bull. Am. Mus. Nat. Hist.*, vol. 2, 1889, p. 66.
 TURRILEPAS Woodward, 1865; *Quart. Jour. Geol. Soc. London*, vol. 21, p. 489.

DECAPODA.

- ANTHRAPALÆMON Salter, 1861; *Quart. Jour. Geol. Soc. London*, vol. 17, p. 529.
 PALÆOPALÆMON Whitfield, 1880; *Am. Jour. Sci.*, 3d series, vol. 19, p. 40.
 CRANGOPSIS Salter, 1863; *Quart. Jour. Geol. Soc. London*, vol. 19, p. 80.
 PSEUDO-GALATHEA Peach, 1882; *Trans. Royal Soc. Edinb.*, vol. 30, p. 573.

SCHIZOPODA.

GAMPSONYX Meyer, 1847 ; Verhandl. Nat. Vereins Preuss., vol. 4, p. 86.

PALÆOCARIS Meek and Worthen, 1865 ; Proc. Acad. Nat. Sci. Phila., p. 48.

NECTOTELSON Brocchi, 1880 ; Bull. Soc. Géol. France, 3d series, vol. 8, p. 10.

AMPHIPODA.

DIPLOSTYLUS Salter, 1863 ; Quart. Jour. Geol. Soc. London, vol. 19, p. 76.

STROMAPODA.

AMPHIPELTIS Salter, 1863 ; Quart. Jour. Geol. Soc. London, vol. 19, p. 75.

CATALOGUE OF NORTH AMERICAN PALEOZOIC CRUSTACEA—NON-TRILOBITA.

(Current generic names in bold face; synonyms in *Italic*.)

Acanthotelson Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., vol. 17, p. 46; Geol. Survey Illinois, vol. 2, 1866, p. 299.

Type, *A. stimsoni*.

— **eveni** Meek and Worthen, 1868; Am. Jour. Sci., 2d series, vol. 46, p. 28.
Coal Measures.

— **eveni** Meek and Worthen, 1868; Geol. Survey Illinois, vol. 3, p. 551, figs. a-d.

— **eveni** White, 1884; 13th Rept. Dept. Geol. Nat. Hist. Indiana, p. 177, pl. 38, figs. 4-7.

— **eveni** Packard, 1886; Mem. Nat. Acad. Sci., vol. 3, p. 125.

— *inequalis*. (See **Palæocaris typus**.)

— ? **magister** Packard, 1886; Mem. Nat. Acad. Sci., vol. 3, p. 127, pl. 1, fig. 2; pl. 2, figs. 4, 5. Carboniferous.

— **stimpsoni** Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., vol. 17, p. 47. Coal Measures.

— **stimpsoni** Meek and Worthen, 1866; Geol. Survey Illinois, vol. 2, p. 401, pl. 32, figs. 6, 6 a-f.

— **stimpsoni** Meek and Worthen, 1868; Geol. Survey Illinois, vol. 3, p. 549, figs. a, b.

— **stimpsoni** Woodward, 1881; Geol. Mag., decade 2, vol. 8, p. 533, pl. 14, fig. 4.

— **stimpsoni** White, 1884; 13th Rept. Dept. Geol. Nat. Hist. Indiana, p. 176, pl. 37, figs. 4, 5.

— **stimpsoni** Packard, 1886; Mem. Nat. Acad. Sci., vol. 3, p. 124.

Packard considers this species to be the young of *Acanthotelson eveni*.

Elchmina Jones and Holl, 1887; Annals Mag. Nat. Hist., 5th series, vol. 3, p. 217.

— **byrnesi** (Miller) Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 12, pl. 3, figs. 9-11. Cincinnati.

For other references, see *Leperditia byrnesi* Miller.

— **spinosa** (Hall) Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 11, pl. 3, figs. 4-8. Niagara.

For other references, see *Cytherina spinosa* Hall.

Amphipeltis Salter, 1863; Quart. Jour. Geol. Soc. London, vol. 19, p. 75.

— **paradoxus** Salter, 1863; Quart. Jour. Geol. Soc. London, vol. 19, p. 76, figs. 11 a, b. Devonian.

— **paradoxus** Dawson, 1868; Acadian Geology, p. 523, fig. 180.

— **paradoxus** Salter and Woodward; Chart of Fossil Crustacea, pl. 3, fig. 3.

Anthraconetes Meek and Worthen, 1868; Am. Jour. Sci., 2d series, vol. 46, p. 21.

— *mazonensis* Meek and Worthen. (See **Eurypterus mazonensis**.)

Anthrapalæmon Salter, 1861; Quart. Jour. Geol. Soc. London, vol. 17, p. 529.

Type, *A. grossarti* Salter.

— **gracilis** Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., vol. 17, p. 50. Coal Measures.

— **gracilis** Meek and Worthen, 1866; Geol. Survey Illinois, vol. 2, p. 407, pl. 32, figs. 4 a, b, c.

- Anthrapalæmon gracilis** Meek and Worthen, 1868; Geol. Survey Illinois, vol. 3, p. 554, figs. a, b.
- **gracilis** White, 1884; 13th Rept. Dept. Geol. Nat. Hist. Indiana, p. 180, pl. 38, figs. 8, 9.
- **gracilis** Packard, 1885; American Naturalist, vol. 19, p. 880.
- **gracilis** Packard, 1886; Mem. Nat. Acad. Sci., vol. 3, p. 135, pl. 4, figs. 1, 2, 3, 5, 6; pl. 7, figs. 3-6.
- [*Palæocarabus*] **hillianus** Dawson, 1878; Geol. Mag., vol. 4, p. 56, fig. 1.
Coal Measures.
- [*Palæocarabus*] **hillianus** Dawson, 1878; Suppl. Acadian Geology, p. 55, fig. 10.
- Aparchites** Jones, 1889; Annals Mag. Nat. Hist., 6th series, vol. 3, p. 385.
- **minutissimus** (Hall) Ulrich, 1889; Contributions Micro-Palæont., pt. 2, p. 49.
For other references, see *Leperditia* [*Isophilina*] **minutissima** Hall. Hudson.
- **unicornis** Ulrich, 1889; Contributions Micro-Palæont., pt. 2, p. 50, pl. 9, fig. 11.
For other references, see *Leperditia unicornis*. Hudson.
- Aptychopsis** Barrande, 1872; Syst. Sil. Bohême, vol. 1, suppl., p. 436.
- Archæocaris** Meek, 1871; Proc. Acad. Nat. Sci. Phila., vol. 23, p. 335.
- **vermiformis** Meek, 1871; Proc. Acad. Nat. Sci. Phila., vol. 23, p. 335.
Carboniferous.
- Aristozoe** Barrande, 1872; Syst. Sil. Bohême, suppl., vol. 1, p. 474.
- **rotundata** Walcott, 1887; Am. Jour. Sci., 3d series, vol. 34, p. 193, pl. 1, fig. 9.
Cambrian.
- **troyensis** (Ford) Walcott, 1887; Am. Jour. Sci., 3d series, vol. 34, p. 193, pl. fig. 8.
Cambrian.
- [*Leperditia*] **troyensis** Ford, 1873; Am. Jour. Sci., 3d series, vol. 6, p. 138.
- Aristozoe** sp. Shaler and Foerste, 1888; Bull. Mus. Comp. Zoology, vol. 16, p. 35, pl. 2, fig. 18.
Cambrian.
- Belinurus** Koenig, 1820; Icones. Foss. Sectiles, p. 18, fig. 230; Baily, Annals Mag. Nat. Hist., London, 3d series, vol. 11, 1863.
- **danæ** Meek and Worthen. (See *Prestwichia danæ*.)
- **laccæi** Packard, 1885; American Naturalist, vol. 19, p. 292.
Carboniferous.
- **laccæi** Packard, 1886; Mem. Nat. Acad. Sci., vol. 3, p. 149, pl. 5, fig. 5.
- Beyrichia** McCoy, 1846; Silurian Foss. Ireland, p. 58.
Type, *Beyrichia klodeni* McCoy.
- **æquilatera** Hall, 1860; Canadian Naturalist, vol. 5, p. 158, fig. 20.
Silurian.
- **æquilatera** Dawson, 1868; Acadian Geology, p. 609, fig. 217.
- **æquilatera** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 18, pl. 2, fig. 6.
- **atlantica** Billings, 1865; Pal. Foss., vol. 1, p. 300.
Quebec.
- **bela** Walcott, 1883; Description New Species Trenton Group, p. 7, pl. 17, figs. 11, 11 a.
Trenton.
- **bela** Walcott, 1884; 35th Rept. New York State Mus. Nat. Hist., p. 213, pl. 17, figs. 11, 11 a.
- **buchiana**? Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 16, pl. 3, fig. 25.
Cincinnati.
- **chambersi** Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 234, fig. 27.
Hudson.
- **chambersi** Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 104, pl. 4, figs. 11, 12.
- **ciliata** Emmons, 1855; American Geology, pt. 2, p. 219, fig. 74 c.
Hudson.
- **ciliata** Miller, 1875; Cincinnati Quart. Jour. Sci., vol. 2, p. 351.
- **ciliata** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 19, pl. 3, figs. 12-16; pl. 4, figs. 16-18.
Syn., *Beyrichia tumifrons* Hall.
- **cincinnatiensis** Miller, 1875; Cincinnati Quart. Jour. Sci., vol. 2, p. 350, fig. 25.
Hudson.

- Beyrichia cincinnatiensis** Walcott, 1876; Trans. Albany Inst., vol. 10, p. 23.
 — **clarkel** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 17, wood-cut, fig. 2. Lower Helderberg.
- **clathrata** Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 242, pl. 9, fig. 1. Niagara.
- **dacon** Clarke, 1885; Bull. U. S. Geol. Survey, No. 16, p. 29, pl. 2, figs. 6, 7. Genesee.
- **decora** Billings, 1866; Catalogue Sil. Foss. Anticosti, p. 67.
- **duryi** Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 232, figs. 24, 25. Hudson.
- **festoidea** White and St. John, 1868; Trans. Chicago Acad. Sci., vol. 1, p. 126, figs. 11 a, b. Niagara.
- **granulosa** Hall, 1876; 28th Rept. New York State Mus. Nat. Hist., Doc. Ed. Expl., pl. 32, fig. 4. Niagara.
- **granulosa** Hall, 1876; 28th Rept. New York State Mus. Nat. Hist., p. 186, pl. 32, fig. 4.
- **granulosa** Hall, 1883; 11th Annual Rept. Dept. Geol. Nat. Hist. Indiana, p. 331, pl. 34, fig. 4.
- **granulosa** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 15, pl. 1, fig. 3.
- **granulata** Hall, 1859; Pal. New York, vol. 3, p. 377, pl. 79 b, figs. 1 a-d. Lower Helderberg.
- **halli** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 15, pl. 4, fig. 21. Waterlime.
- **hamiltonensis** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 19, pl. 2, fig. 3. Hamilton.
- **jonesii** Dawson, 1868; Acadian Geology, p. 313, fig. 132. Carboniferous.
- **lata**. (See *Bollia lata* Vanuxem.)
- **lithofactor** White and St. John, Prelim. Notice New Genera and Species Foss., May 8, 1867, p. 2. Changed to *Beyrichia petrifactor*, which see. Coal Measures.
- **lithofactor** var. *velata*; *idem.*, p. 2. (See *Beyrichia petrifactor* var. *velata*.)
- **logani** Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 244, pl. 9, figs. 6-10. Chazy.
- **logani** Jones, 1858; Geol. Survey Canada, decade 3, p. 91, pl. 11, figs. 1-5.
- **logani** var. *remiformis* Jones, 1858; Geol. Survey Canada, decade 3, p. 91, pl. 11, fig. 1.
- **logani** var. *leperditoides* Jones, 1858; Geol. Survey Canada, decade 3, p. 91, pl. 11, fig. 5.
- **maccoyana** Jones, 1855; Annals Mag. Nat. Hist., London, 2d series, vol. 16, p. 88, pl. 5, fig. 14. Onondaga.
- **maccoyana** Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 252, pl. 10, fig. 15.
- **maccoyana** Jones, 1858; Geol. Survey Penn., vol. 2, p. 834, fig. 695.
- **notata**. (See *Klœdenia notata* (Hall) Jones.)
- **nova scotica** Jones and Kirkby, 1884; Geol. Mag., 5th series, vol. 1, p. 337, pl. 12, figs. 5, 6. Carboniferous.
- sp? Dawson, 1868; Acadian Geology, p. 256, fig. 78 c.
- [*Primitia*] **occidentalis** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 104, pl. 17, figs. 4, 4 a. Devonian.
- **oculifera** Hall, 1871; Pamphlet Cincinnati Group, p. 8. Hudson.
- **oculifera** Hall, 1872; 24th Rept. New York State Mus. Nat. Hist., p. 232, pl. 8, figs. 9, 10.
- **oculifera** Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 103, pl. 4, figs. 9, 10.
- **oculifera** Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 118.
- **oculifera** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 21, pl. 4, figs. 19 a, b, 20.

- Beyrichia oculina* Hall, 1859; Pal. New York, vol. 3, p. 378, pl. 79 b, figs. 2 a-e.
Lower Helderberg.
- *oculina* Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 16, pl. 1, fig. 4.
- *parasitica* (Hall) Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 16, wood-cut.
For other references, see *Leperditia parasitica*.
- *pennsylvanica* Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 253, pl. 10, fig. 16-18. Onondaga.
- *pennsylvanica* Jones, 1858; Geol. Survey Penn., vol. 2, p. 834, fig. 696.
- *persulcata* Ulrich, 1879; Jour. Cincinnati Soc. Nat. Hist., vol. 2, p. 12, pl. 7, fig. 6. Hudson.
- *petrifactor* White and St. John; Trans. Chicago Acad. Sci., vol. 1, p. 125.
- *petrifactor* var. *velata*; *idem.*, p. 126.
- *plagosa* Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 243, pl. 9, fig. 2. Niagara.
- *punctulifera* Hall, 1861; Des. New Species Fossils, p. 83. Hamilton.
- *punctulifera* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 111.
- *pustulosa* Hall, 1860; Canadian Naturalist, vol. 5, p. 157, fig. 19. Silurian.
- *pustulosa* Dawson, 1868; Acadian Geology, p. 608, fig. 216.
- *pustulosa* Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 18, pl. 2, fig. 1 a-c.
Referred to *Beyrichia tuberculata* Boll var. *pustulosa* Hall.
- *quadrilirata* Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 105, pl. 4, figs. 6, 7. Hudson.
- *quadrilirata* Miller, 1875; Cincinnati Quart. Jour. Sci., vol. 2, p. 351. (See *Streptula quadrilirata*.)
- *regularis* Emmons, 1855; American Geology, pt. 2, p. 219, fig. 74 b. Hudson.
- *regularis* Miller, 1875; Cincinnati Quart. Jour. Sci., vol. 2, p. 351.
This species is placed as a synonym to *Bollia lata* by Jones (1890, Quart. Jour. Geol. Soc., vol. 46, p. 13).
- *remiformis* Jones, 1858; Geol. Survey Canada, decade 3, p. 91, pl. 11, fig. 1. Chazy.
- *richardsoni* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 347, fig. 40. Hudson.
- *rugulifera* Jones, 1858; Annals Mag. Nat. Hist. London, 3d series, vol. 1, p. 242, pl. 9, fig. 4. Niagara.
- *sigillata* Jones, 1858; Annals Mag. Nat. Hist., London, vol. 1, p. 242, pl. 9, fig. 5. Niagara.
- *simplex* (Jones) Emmons, 1855; American Geology, vol. 1, pt. 2, p. 218, fig. 74 a.
- [*Cytherina*] *spinosa* Hall, 1852; Pal. New York, vol. 2, p. 317, pl. 67, figs. 17-20. Niagara.
(See *Æchmina spinosa*.)
- *striato-marginatus* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 233, fig. 26.
This species is referred to a new genus. (See *Eurychilinda striatomarginatus*.) Hudson.
- *symmetrica* Hall, 1852; Pal. New York, vol. 2, p. 317, pl. 67, fig. 16. (See *Bollia symmetrica*.) Niagara.
- *trisulcata* Hall, 1859; Pal. New York, vol. 3, p. 381, pl. 79, figs. 5 a, b. Lower Helderberg.
- *trisulcata* Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 14, pl. 1, fig. 2.
- *tumifrons* Hall, 1871; Des. New Species Foss. Hudson River Group, p. 7. Hudson.
- *tumifrons* Hall, 1872; 24th Rept. New York State Mus. Nat. Hist., p. 231, pl. 8, fig. 11.
- *tumifrons* Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 102, pl. 4, fig. 8.
- *tumifrons* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 119.
This species is classed by Jones 1890, Quart. Jour. Geol. Soc., vol. 46, p. 19, as synonymous to *Beyrichia ciliata* Emmons.

- Beyrichia venusta** Billings, 1866; Catalogue Silurian Fossils Anticosti, p. 68.
- Bollia** Jones and Holl, 1886; Annals Mag. Nat. Hist., 5th series, London, vol. 17, p. 360.
- [*Agnostus*] **latus** Vanuxem, 1842; Geol. New York, 3d Geol. Dist., p. 80. Clinton.
- [*Beyrichia*] **lata** Hall, 1852; Pal. New York, vol. 2, p. 301, pl. A 66, figs. 10 a-c.
- [*Beyrichia*] **lata** Jones, 1858; Notes on Palæozoic Entomostraca, No. 2, p. 168, pl. 6, fig. 13.
- **lata** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 12, pl. 3, figs. 1-3.
- [*Beyrichia*] **symmetrica** Hall, 1852; Pal. New York, vol. 2, p. 317, pl. 67, fig. 16. Niagara.
- **symmetrica** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 12.
- This species is closely allied to *Bollia lata*.
- **ungula** (Claypole MS.) Jones, 1889; American Geologist, vol. 4, p. 338, pl. fig. 10-13. Marcellus.
- Bythocypris** Brady, 1880; Challenger Exped., Rep. Ostracoda, p. 45.
- **cylindrica** (Hall) Ulrich, 1889; Contributions Micro-Palæont., pt. 2, p. 48, pl. 9, fig. 6. Trenton and Hudson.
- For other references, see *Leperditia* [*Isochilina*] *cylindrica* Hall.
- **favulosa** Jones, 1889; American Geologist, vol. 4, p. 338, pl. figs. 2 a-c. Marcellus.
- **oviformis** Jones, 1889; American Geologist, vol. 4, p. 340, pl. figs. 3 a-c. Lower Helderberg.
- Carbonia** Jones and Kirkby, 1879; Annals Mag. Nat. Hist., London, 5th series, vol. 4, p. 28.
- ? **bairdioides** (?) Jones and Kirkby, 1884; Geol. Mag., 5th series, vol. 1, p. 358, pl. 12, figs. 8 a-d. Carboniferous.
- Syn., *Bairdia* sp. ? Dawson, 1868; Acadian Geology, p. 206, figs. 48 a (?).
- [*Cythere*? (*Carbonia*)] **bairdiodes** Jones and Kirby, 1879; Annals Mag. Nat. Hist., London, 5th series, vol. 4, p. 38, pl. 3, figs. 24, 25.
- ? **bairdioides**? Jones and Kirkby, 1884; Geol. Mag., decade 3, p. 358, pl. 12, figs. 8 a-d.
- ? **elongata** Jones and Kirkby, 1884; Annals Mag. Nat. Hist., London, 6th series, vol. 1, p. 361, pl. 12, fig. 10. Carboniferous.
- ? **elongata** Jones and Kirkby, 1884; Geol. Mag., decade 3, p. 361, pl. 12, fig. 10.
- **fabulina** Jones and Kirkby, 1879; Annals Mag. Nat. Hist., London, 5th series, vol. 4, p. 31, pl. 2, figs. 1-9.
- **fabulina** var. **humilis** Jones and Kirkby, 1879; Annals Mag. Nat. Hist., London, 5th series, vol. 4, p. 31, pl. 2, figs. 11-14.
- **fabulina** Jones, 1889; Geol. Mag., decade 3, vol. 6, p. 270, figs. 1-4.
- [*Cytherilla*] **inflata** Dawson, 1868; Acadian Geology, p. 206, fig. 48 b.
- **fabulina** Jones and Kirkby, 1884; Geol. Mag., decade 3, vol. 1, p. 358, pl. 12, figs. 9 a-e.
- Ceratiocaris** McCoy, 1849; Annals Mag. Nat. Hist., London, vol. 4, p. 412.
- **aculeatus** Hall, 1859; Pal. New York, vol. 3, p. 422*, pl. 80 a, fig. 10. Waterlime.
- **acuminatus** Hall, 1859; Pal. New York, vol. 3, p. 422*, pl. 84, fig. 6. Waterlime.
- **acuminatus** Pohlman, 1886; Bull. Buffalo Soc. Nat. Sci., vol. 5, p. 28, pl. 3, fig. 2.
- **armatus** Hall. (See *Echinocaris punctata*.)
- **beecheri** Clarke, 1881; Bull. U. S. Geol. Survey, No. 16, p. 44, pl. 2, fig. 1. Devonian.
- **beecheri** Hall, 1888; Pal. New York, vol. 7, p. 104, pl. 31, fig. 3.
- [*Colpocaris*] **bradleyi** Meek, 1871; Proc. Acad. Nat. Sci. Phila., vol. 23, p. 332. Lower Carboniferous.
- [*Onchus*] **deweyi** Hall, 1852; Pal. New York, vol. 2, p. 320, pl. 71, figs. 1 a-d. Niagara.

- Ceratiocaris** [*Colpocaris*] *etytroides* Meek, 1871; Proc. Acad. Nat. Sci. Phila., vol. 23, p. 334. Lower Carboniferous.
- *grandis* Pohlman, 1881; Bull. Buffalo Soc. Nat. Sci., vol. 4, p. 19, fig. 5. Waterlime.
- *longicaudus* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 70, pl. 1, fig. 7 (not figs. 4, 5, 6). Hamilton.
- *longicaudus* Packard, 1883; 12th Annual Rept. U. S. Geol. Survey Territories, p. 450.
- *longicaudus* Jones and Woodward, 1884; Geol. Mag., decade 3, vol. 1, p. 1.
- *longicaudus* Etheridge, Woodward, and Jones; 3d Rept. Comm. Foss. Phyllopoda, p. 35.
- *longicaudus* Hall, 1888; Pal. New York, vol. 7, p. 163, pl. 31, fig. 1.
- Not *C. longicaudus* Clarke, 1885; Bull. U. S. Geol. Survey, No. 16, p. 20.
- *maccoyana* Hall, 1859; Pal. New York, vol. 3, p. 421, pl. 84, figs. 1-5. Waterlime.
- ? *punctatus* Hall. (See *Echinocaris punctata*.)
- *simplex* Clarke, 1885; Bull. U. S. Geol. Survey, No. 16, p. 43, pl. 2, fig. 2. Devonian.
- ? *simplex* Hall, 1888; Pal. New York, vol. 7, p. 165, pl. 31, fig. 2.
- ? *sinuata* Meek and Worthen, 1868; Am. Jour. Sci., 2d series, vol. 46, p. 22. Coal Measures.
- ? *sinuata* Meek and Worthen, 1868; Geol. Survey Illinois, vol. 3, p. 540, fig. a.
- [*Solenocaris*] *strigata*, Meek, 1871; Proc. Acad. Nat. Sci. Phila., vol. 23, p. 335. Lower Carboniferous.
- [*Solenocaris*] *strigata* Meek, 1875; Pal. Ohio, vol. 2, p. 321, pl. 18, figs. 4 a-c.
- The generic name of *Solenocaris* was used by Mr. J. Young for a genus of the Paleozoic Crustacea in 1868. See *Strigocaris*.
- Ciangopsis** Salter, 1863; Name changed from *Palaeocrangon*.
- Cryptozoe** Packard, 1886; Proc. Am. Philos. Soc., vol. 23, p. 381.
- *problematicus* Packard, 1886; Proc. Am. Philos. Soc., vol. 23, p. 382, fig. 3, plate. Carboniferous.
- Cyclus** De Koninck, 1841; Mém. Acad. Sci. Bruxelles, vol. 14, p. 18.
- *americana* Packard, 1885; American Naturalist, vol. 19, p. 293. Coal Measures.
- *americana* Packard, 1886; Mem. Nat. Acad. Sci., vol. 3, p. 143, pl. 5, figs. 1, 1 a; pl. 6, figs. 4, 4 a.
- Cythere** Müller, 1785; Entomostraca, p. 64.
- [*Beyrichia*] *americana* Shumard, 1858; Trans. Acad. Sci. St. Louis, vol. 1, p. 227. Upper Coal Measures.
- *carbonaria* Hall. (See *Leperditia carbonaria*.)
- *cincinnatiensis* Meek. (See *Entomis cincinnatiensis*.)
- *crassimarginata* Winchell, 1862; Proc. Acad. Nat. Sci. Phila., p. 429. Marshall.
- *irregularis* Miller, 1878; Jour. Cincinnati Soc. Nat. Hist., vol. 1, p. 106, pl. 3, figs. 7, 7 a. Hudson.
- *nebrascensis* Geinitz, 1866; Carb. und Dyas in Nebraska, p. 2, pl. 1, fig. 2. Coal Measures.
- *nebrascensis* Meek, 1872; Rept. U. S. Geol. Survey Territories, Final Report Nebraska, p. 237, pl. 11, figs. 1, 2, 3 a, b (?).
- *nebrascensis* Keyes, 1888; Proc. Acad. Nat. Sci. Phila., p. 222.
- *ohiones* Herrick, 1889; Bull. Den. Univ., vol. 4, p. 60, pl. 8, fig. 8; vol. 3, pl. 3, fig. 19. Kinderhook.
- *ohiones* Herrick, 1890; American Geologist, vol. 4, p. 254.
- *okeni*. (See *Leperditia okeni*.)
- *simplex* White and St. John, 1867; Prelim. Notice New Species Foss., p. 3. St. Louis.
- *simplex* White and St. John, 1868; Trans. Chicago Acad. Sci., vol. 1, p. 127.

- Cythere** sp. ? Dawson, 1868; *Acadian Geology*, p. 256, fig. 78 a. Carboniferous.
 — *sublævis*. (See *Leperditia sublævis*.)
 — *subrecta*. (See *Leperditia subrecta*.)
Cytherina Lamarck, 1818; *Animaux sans Vert.*, vol. 5, p. 125.
 — *alta*. (See *Leperditia alta*.)
 — *crenulata* Emmons, 1855; *Am. Geology*, vol. 1, p. 221, figs. 75 a-d. Trenton.
 — *cylindrica*. (See *Isochilina cylindrica*.)
 — *emmonsi* Vogdes, 1889; *Annals N. Y. Acad. Sci.*, vol. 5, p. 13, to replace *C. subcylindrica*.
 — *spinosa*. (See *Beyrichia spinosa*.)
 — *subcylindrica* Emmons, 1855; *Am. Geology*, vol. 1, p. 220, fig. 75 b. Trenton.
 This name was used by Münster for a species of this genus. Change to *C. emmonsi*.
 — *subelliptica* Emmons, 1855; *Am. Geology*, vol. 1, p. 220, figs. 75 a. Trenton.
Cytherellina Jones and Holl, 1869; *Annals Mag. Nat. Hist.*, London, 4th series, vol. 3, p. 215.
 — *grandella* Whitfield, 1882; *Bull. Am. Mus. Nat. Hist.* New York, vol. 1, p. 94, pl. 9, figs. 28, 29. Warsaw.
Cytheropsis McCoy, 1855; *Synopsis Classification Brit. Pal. Rocks*, pl. 1 L., fig. 2.
 No definite description of the genus given.
 — *concinna* Jones. (See *Primitia concinna*.)
 — *rugosa* Jones. (See *Primitia rugosa*.)
 — *silique* Jones, 1858; *Annals Mag. Nat. Hist.*, 3d series, London, vol. 1, p. 249, pl. 10, fig. 6. Trenton.
 — *silique* Jones, 1858; *Geol. Survey Canada*, decade 3, p. 99.
 — *silique* Jones, 1869; *Annals Mag. Nat. Hist.*, London, 4th series, vol. 3, p. 216, pl. 14, figs. 1-6.
Dipeltis Packard, 1885; *Am. Naturalist*, vol. 19, p. 293.
 — *diplo-discus* Packard, 1885; *Am. Naturalist*, vol. 19, p. 293. Carboniferous.
 — *diplo-discus* Packard, 1886; *Mem. Nat. Acad. Sci.*, vol. 3, p. 145, pl. 5, figs. 2, 2 a.
Diplostylus Salter, 1863; *Quart. Jour. Geol. Soc. London*, vol. 19, p. 76.
 — *dawsoni* Salter, 1863; *Quart. Jour. Geol. Soc. London*, vol. 19, p. 77, fig. 6. Coal Measures.
Dipterocaris Clarke, 1883; *Am. Jour. Sci.*, 3d series, vol. 25, p. 121.
 — *pennæ-dædali* Clarke, 1883; *Am. Jour. Sci.*, 3d series, vol. 25, p. 122, fig. 1. Chemung.
 — *pennæ-dædali* Jones and Woodward, 1884; *Geol. Mag.*, decade 3, vol. 1, p. 349.
 — *pennæ-dædali* Etheridge, Woodward, and Jones, 1884; 2d Rept. Comm. Foss. Phyllopoda *Pal. Rocks*, p. 11.
 — *pennæ-dædali* Etheridge, Woodward, and Jones, 1885; 3d Rept. Comm. Foss. Phyllopoda *Pal. Rocks*, p. 3.
 — *pennæ-dædali* Hall, 1888; *Pal. New York*, vol. 7, p. 200, pl. 35, fig. 24.
 — *pennæ-dædali* Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda *Pal. Rocks*, p. 9.
 — *percervæ* Clarke, 1883; *Am. Jour. Sci.*, 3d series, vol. 25, p. 123, figs. 4, 5. Chemung.
 — *percervæ* Jones and Woodward, 1884; *Geol. Mag.*, decade 3, vol. 1, p. 349.
 — *percervæ* Etheridge, Woodward, and Jones, 1884; 2d Rept. Comm. Foss. Phyllopoda *Pal. Rocks*, p. 11.
 — *percervæ* Etheridge, Woodward, and Jones, 1885; 3d Rept. Comm. Foss. Phyllopoda *Pal. Rocks*, p. 3.
 — *percervæ* Hall, 1888; *Pal. New York*, vol. 7, p. 202, pl. 35, figs. 20, 21.
 — *percervæ* Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda *Pal. Rocks*, p. 9.

- Dipterocaris** *præne* Clarke, 1883; Am. Jour. Sci., 3d series, vol. 25, p. 122, figs. 2, 3. Chemung.
- *præne* Jones and Woodward, 1884; Geol. Mag., decade 3, vol. 1, p. 349.
- *præne* Etheridge, Woodward, and Jones, 1884; 2d Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 11.
- *præne* Etheridge, Woodward, and Jones, 1885; 3d Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 3.
- *præne* Hall, 1888; Pal. New York, vol. 7, p. 201, pl. 35, figs. 25-27.
- *præne* Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 9.
- Dithyrocaris** (Scouler, 1843, MS.) Portlock, 1843; Rept. Geol. Londonderry, etc., p. 313.
- *belli* Woodward, 1870; Geol. Mag., decade 2, vol. 8, p. 106, pl. 3, figures. Devonian.
- *belli* Etheridge, Woodward, and Jones, 1887; 5th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 6.
- *belli* Hall, 1888; Pal. New York, vol. 7, p. 194.
- *carbonaria* Meek and Worthen, 1870; Proc. Acad. Nat. Sci. Phila., vol. 22, p. 55. Coal Measures.
- *carbonaria* Meek and Worthen, 1873; Geol. Survey Illinois, vol. 5, p. 618, pl. 32, fig. 1.
- *carbonaria* White, 1884; 13th Rept. Dept. Geol. Nat. Hist. Indiana, p. 178, pl. 39, fig. 2.
- *neptuni* Hall. (See *Mesothyra neptuni*.)
- Dolichocephala** Claypole, 1883; Proc. Am. Philos. Soc., vol. 21, p. 236.
- *locoana* *idem*; p. 236, plate. (See *Stylonurus excelsior*.)
- Dolichopterus** (subgenus *Eurypterus*) Hall, 1859; Pal. New York, vol. 3, p. 414.*
- *macrocheous* Hall, 1859; Pal. New York, vol. 3, p. 414,* pl. 83, fig. 1; pl. 83 a, fig. 1. Waterlime.
- Echinocaris** Whitfield, 1880; Am. Jour. Sci., 3d series, vol. 19, p. 34.
- *condylepsis* Hall, 1888; Pal. New York, vol. 7, p. 173, pl. 19, figs. 14-17. Chemung.
- *multinodosa* Whitfield, 1880; Am. Jour. Sci., 3d series, vol. 19, p. 38, fig. 8. (Plates with author's special edition only.) Erie Shales.
- *multinodosa* Packard, 1882; Am. Naturalist, vol. 16, p. 952, fig. 10.
- *multinodosa* Packard, 1883; 12th Rept. U. S. Geol. Survey Territories, p. 451, fig. 71 a.
- *multinodosa* Beecher, 1884; 2d Geol. Survey Penn., vol. PPP, p. 5.
- *multinodosa* Etheridge, Woodward, and Jones, 1885; 3d Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 35.
- *multinodosa* Hall, 1888; Pal. New York, vol. 7, p. 180, pl. 29, figs. 18-19.
- *multinodosa* Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
- [*Ceratiocaris*] *punctatus* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist. p. 74, pl. 1, fig. 8. Hamilton.
- *punctatus* Whitfield, 1880; Am. Jour. Sci., 3d series, vol. 19, p. 39.
- Syn., *Ceratiocaris armatus* Hall, 1863; 16th Rept. New York State Cab. Nat. Hist., p. 72, pl. 1, figs. 1-3.
- *Ceratiocaris armatus* Hall, 1876; Illus. Devonian Foss., pl. 23, figs. 4, 5.
- [*Ceratiocaris* (*Aristozoe*)] *punctatus* Hall, 1876; Illus. Devonian Foss., Expl. pl. 23, fig. 7.
- *punctatus* Packard, 1882; Am. Naturalist, vol. 16, p. 952, fig. 12.
- *punctatus* Packard, 1883; 12th Rept. U. S. Geol. Survey Territories, p. 450, fig. 70.
- Syn., *armatus* Packard, 1883; 12th Rept. U. S. Geol. Survey Territories, p. 451.

- Echinocaris punctatus** Beecher, 1884; 2d Geol. Survey Penn., vol. PPP, p. 6, pl. 1, figs. 13-16; also fig. 1 in text, page 4.
- **armatus** Jones and Woodward, 1884; Geol. Mag., decade 3, vol. 1, p. 2, pl. 13, fig. 2.
- **armatus** Etheridge, Woodward, and Jones, 1885; 3d Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 35.
- **punctatus** Hall, 1888; Pal. New York, vol. 7, p. 166, pl. 27, fig. 10; pl. 28, fig. 1-7; pl. 29, fig. 1-8.
- **punctatus** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
- **pustulosa** Whitfield, 1880; Am. Jour. Sci., 3d series, vol. 19, p. 38, pl. fig. 7 (plate with author's special edition only). Erie Shales.
- **pustulosa** Packard, 1883; 12th Rept. U. S. Geol. Survey Territories, p. 451.
- **pustulosa** Beecher, 1884; 2d Geol. Survey Penn., vol. PPP, p. 5.
- **pustulosa** Jones and Woodward, 1884; Geol. Mag., decade 3, vol. 1, p. 2, pl. 13, fig. 6.
- **pustulosa** Etheridge, Woodward, and Jones, 1885; 3d Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 35.
- **pustulosa** Hall, 1888; Pal. New York, vol. 7, p. 178, pl. 29, figs. 9, 10.
- **pustulosa** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
- **socialis** Beecher, 1884; 2d Geol. Survey Penn., vol. PPP, p. 10, pl. 1, figs. 1-1e. Chemung.
- **socialis** Etheridge, Woodward, and Jones, 1885; 3d Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 35.
- **socialis** Hall, 1888; Pal. New York, vol. 7, p. 174, pl. 30, figs. 1-12.
- **socialis** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
- **sublevis** Whitfield, 1880; Am. Jour. Sci., 3d series, vol. 19, p. 36, pl. figs. 4-6 (plate with the author's special edition only). Erie Shales.
- **sublevis** Packard, 1882; Am. Naturalist, vol. 16, p. 952, fig. 11.
- **sublævis** Packard, 1883; 12th Rept. U. S. Geol. Survey Territories, p. 450, fig. 71 b.
- **sublevis** Beecher, 1884; 2d Geol. Survey Penn., vol. PPP, p. 5.
- **sublævis** Jones and Woodward, 1884; Geol. Mag., decade 3, vol. 1, p. 2, pl. 13, figs. 3, 4, 5.
- **sublævis** Etheridge, Woodward, and Jones, 1885; 3d Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 35.
- **sublævis** Hall, 1888; Pal. New York, vol. 7, p. 176, pl. 29, figs. 11-13.
- **sublævis** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
- **whitfieldi** Clarke, 1885; Bull. U. S. Geol. Survey, No. 16, p. 45, pl. 2, figs. 3, 4. Portage.
- **whitfieldi** Hall, 1888; Pal. New York, vol. 7, p. 172, pl. 29, figs. 20, 21.
- **whitfieldi** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
- Echinognathus** Walcott, 1882; Am. Jour. Sci., 3d series, vol. 23, p. 213.
- **clevelandi** Walcott, 1882; Am. Jour. Sci., 3d series, vol. 23, p. 213, figs. 1, 2. Utica.
- [*Eurypterus* ?] **clevelandi** Walcott, 1882; Am. Jour. Sci., 3d series, vol. 23, p. 151.
- Elymocarid** Beecher, 1884; 2d Geol. Survey Penn., vol. PPP, p. 13.
- **siliqua** Beecher, 1884; 2d Geol. Survey Penn., vol. PPP, p. 13, pl. 2, figs. 1, 2. Chemung.
- **siliqua** Etheridge, Woodward, and Jones, 1885; 3d Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 35.

- Elymocarid siliqua** Hall, 1888; Pal. New York, vol. 7, p. 182, pl. 31, figs. 5, 6.
 — **siliqua** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
- Entomis** Jones, 1861; Mem. Geol. Survey Scotland, Expl. Map 32, p. 137; also, *Annals Mag. Nat. Hist.*, London, 4th series, vol. 11, p. 413.
 — [*Cythere*] **cincinnatiensis** Meek, 1871; Proc. Acad. Nat. Sci. Phila., vol. 23, p. 331. Hudson.
 — [*Cythere*] **cincinnatiensis** Meek, 1873; Pal. Ohio, vol. 1, p. 158, pl. 14, figs. 1 a-1 d.
 — [*Cythere*] **cincinnatiensis** Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 120.
 — **cincinnatiensis** Jones, 1884; *Annals Mag. Nat. Hist.*, London, 5th series, vol. 14, note p. 395.
 — **rhomboidea** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 10, pl. 2, figs. 9, 10 a, b. Hamilton.
- Equisetides wrightiana**. This species is referred by Woodward and Jones (3d Report Comm. Foss. Phyllopoda Brit. Assoc., 1885, p. 360) to *Echinocaris*. Prof. James Hall places it provisionally with *Stylonurus*, which see.
- Estheria** Ruffell, 1857; Mus. Senckenberg, vol. 2, p. 119.
 — **dawsoni** Jones, 1870; Geol. Mag., vol. 7, p. 220, pl. 9, fig. 15. Carboniferous.
 — **dawsoni** Jones, 1878; Geol. Mag., decade 2, vol. 2, p. 101, pl. 3, fig. 2.
 — sp. ? Dawson, 1868; *Acadian Geology*, p. 256, fig. 78 d.
 — **dawsoni** Jones and Kirkby, 1884; Geol. Mag., decade 3, vol. 1, p. 361, pl. 12, fig. 12.
 — **pulex** Clarke, 1882; Am. Jour. Sci., 3d series, vol. 23, p. 476, pl. 4. Hamilton.
 — **pulex** Packard, 1883; 12th Rept. U. S. Geol. Survey Territories, p. 355.
 — **pulex** Etheridge, Woodward, and Jones, 1888; 5th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 10.
 — **pulex** Hall, 1888; Pal. New York, vol. 7, p. 206, pl. 35, figs. 10, 11.
 — **pulex** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 9.
- Euproops** Meek, 1867; Am. Jour. Sci., 2d series, vol. 34, p. 394. (See *Bellinurus* and *Prestwichia*.)
- Eurychilinda** Ulrich, 1889; Contributions Micro-Palæont., pt. 2, p. 52.
 — **mantibensis** Ulrich, 1889; Contributions Micro-Palæont., pt. 2, p. 53, pl. 9, figs. 10, 10 a. Hudson.
 — **reticulata** Ulrich, 1889; Contributions Micro-Palæont., pt. 2, p. 52, pl. 9, figs. 9, 9 a. Trenton.
 — **striato-marginata** (Miller) Ulrich, 1889; Contributions Micro-Palæont., pt. 2, p. 52.
- For other references, see *Beyrichia striato-marginata*.
- Eurypterus** De Kay, 1825; *Annals Lyceum Nat. Hist. N. Y.*, vol. 1, pt. 2, p. 375.
 — **beecheri** Hall, 1884; 2d Geol. Survey Pennsylvania, vol. PPP, p. 30, pl. 3, fig. 1. Chemung.
 — **beecheri** Hall, 1888; Pal. New York, vol. 7, p. 156, pl. 27, fig. 5.
 — **beecheri** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Fossil Phyllopoda Pal. Rocks, p. 9.
 — **boylei** Whiteaves, 1884; Pal. Fossils, vol. 3, pt. 1, p. 42, pl. 7, fig. 3. Guelph.
 — **dekayi** Hall, 1859; Pal. New York, vol. 3, p. 411*, pl. 82, fig. 1. Waterlime.
 — **eriensis** Whitfield, 1881; *Annals New York Acad. Sci.*, vol. 2, p. 196. Lower Helderberg.
 — **giganteus** Pohlman, 1882; Bull. Buffalo Soc. Nat. Sci., vol. 4, p. 41, pl. 2, fig. 1. Waterlime.
 — **lacustris** Harlan, 1834; Trans. Geol. Soc. Pennsylvania, vol. 1, p. 98, pl. 5, fig. 2. Waterlime.

- Eurypterus lacustris** Harlan, 1835; Med. Phys. Researches, p. 297, plate, fig. 2.
 — **lacustris** Hall, 1859; Pal. New York, vol. 3, p. 407*, pl. 81, figs. 1-11; pl. 81 a, fig. 1; pl. 81 b, figs. 1-5; pl. 83 b, fig. 3; also fig. 5 in text p. 400*.
 — **lacustris** var. **robustus** Hall, 1859; Pal. New York, vol. 3, p. 410*, pl. 81 c, fig. 2.
 — [*Dolichopterus*] **mansfieldi** Hall, C. E., 1877; Proc. Am. Philos. Soc., vol. 16, p. 621. Carboniferous.
 — **mansfieldi** Hall, 1884; 2d Geol. Survey Pennsylvania, vol. PPP, p. 32, pl. 4, figs. 1-8; pl. 5, figs. 1-11; pl. 6, fig. 1; pl. 7, fig. 1; pl. 8, figs. 1-3.
 — [*Anthraconetes*] **mazonensis** Meek and Worthen, 1868; Am. Jour. Sci., 2d series, vol. 46, p. 21. Coal Measures.
 — [*Anthraconetes*] **mazonensis** Meek and Worthen, 1868; Geol. Survey Illinois, vol. 3, p. 544, figures.
 — [*Anthraconetes*] **mazonensis** Hall, 1884; 2d Geol. Survey Pennsylvania, vol. PPP, p. 25, fig. 2; p. 27, fig. 3.
 — [*Anthraconetes*] **mazonensis** White, 1884; 13th Ann. Rept. Dept. Geol. Nat. Hist. Indiana, p. 168, pl. 37, figs. 1, 2, 3.
 — **microphthalmus** Hall, 1859; Pal. New York, vol. 3, p. 407*, pl. 80 a, fig. 7. Lower Helderberg.
 — **pachycheirus** Hall, 1859; Pal. New York, vol. 3, p. 412*, pl. 8, figs. 1-3. Waterlime.
 — **pennsylvanicus** Hall, C. E., 1877; Trans. Am. Philos. Soc. Phila., vol. 7, p. 621. Carboniferous.
 — **pennsylvanicus** Hall, 1884; 2d Geol. Survey Pennsylvania, vol. PPP, p. 31, pl. 5, fig. 18.
 — **pohlmani** Vogdes, 1889; to take the place of the preoccupied name of *E. scorpionis* Grote and Pitt. Ann. N. Y. Acad. Sci., vol. 5, No. 1.
 — **potens** Hall, 1884; 2d Geol. Survey Pennsylvania, vol. PPP, pl. 4, figs. 9, 10. Carboniferous.
 — **prominens** Hall, 1884; Proc. Am. Assoc. Adv. Sci., vol. 33, p. 420. Clinton.
 — **prominens** Hall, 1888; Pal. New York, vol. 7, p. 157, pl. 27, figs. 3, 4.
 — **pulicaris** Salter, 1863; Quart. Jour. Geol. Soc. London, vol. 19, p. 78, figs. 9, 10. Coal Measures.
 — **pulicaris** Dawson, 1868; Acadian Geology, p. 523, figs. 179 a, b.
 — **pustulosus** Hall, 1859; Pal. New York, vol. 3, p. 413*, pl. 83 b, fig. 1. Waterlime.
 — **remipes** De Kay. Waterlime.
 Syn., *Fossil Fish* Mitchell, 1818; Am. Monthly Mag., vol. 3, p. 291.
 — **remipes** De Kay, 1825; Annals Lyceum Nat. Hist., vol. 1, p. 375, pl. 29.
 — **remipes** Harlan, 1834; Trans. Geol. Soc. Penn., vol. 1, p. 96, pl. 5.
 — **remipes** Harlan, 1835; Medical Phys. Researches, p. 297, pl., fig. 1.
 — **remipes** Milne-Edwards, 1840; Hist. Nat. Crust., vol. 3, p. 422.
 — **remipes** Burmeister, 1843; Org. Trilobiten, p. 62 (Ray Soc. ed., p. 54).
 — **remipes** Bronn, 1837; Lethea Geognostica, vol. 1, p. 666, pl. 9^a, fig. 1; pl. 9, fig. 1.
 — **remipes** Salter, 1859; Quart. Jour. Geol. Soc. London, vol. 15, p. 255.
 — **remipes** Nieszkowski, 1858; Der *Eurypterus remipes*, etc., pls. 1, 2, 3.
 — **remipes** Hall, 1859; Pal. New York, vol. 3, p. 404, pl. 80, figs. 1-12; pl. 80 a, figs. 1-6; pl. 83 b, fig. 2, also p. 403*, figs. 6, 7.
 — **remipes** (numerous authors).
 — [*Eusarcus*] **grandis** Grote and Pitt, 1875; Bull. Buffalo Soc. Nat. Sci., vol. 3, p. 17. Waterlime.
 Referred by J. Pohlman (Bull. Buffalo Soc. Nat. Sci., vol. 5, p. 31) to *Eurypterus scorpionis*. An almost similar term, *E. scorpioides* was used for a species of this genus by H. Woodward in 1868; I suggest that of *E. pohlmani* for this species.
 — [*Eusarcus*] **scorpionis** Grote and Pitt, 1875; Bull. Buffalo Soc. Nat. Sci., vol. 3, pp. 1, 17, photographic plate. Waterlime.

- Eurypterus** [*Eusarcus*] *scorpionis* (Grote and Pitt) Pohlman, 1886; Bull. Buffalo Soc. Nat. Sci., vol. 5, p. 30, pl. 2, fig. 3.
- [*Eusarcus*] *grandis* (Grote and Pitt) Pohlman, 1886; Bull. Buffalo Soc. Nat. Sci., vol. 5, p. 31.
Referred to *Eurypterus pohlmani* Vogdes, 1889; Annals N. Y. Acad. Sci., vol. 5, p. 22.
- Hymenocaris** Salter, 1853; 22d Rept. Brit. Assoc. Adv. Sci., Trans. of sec., p. 56.
- Isochilina** Jones, 1857; Mem. Geol. Survey Canada, decade 3, p. 97.
- [*Leperditia (Isochilina)*] *armata* Walcott, 1883; Des. New Sp. Foss. Trenton Group, p. 7.
- [*Leperditia (Isochilina)*] *armata* Walcott, 1884; 35th Rept. N. Y. State Mus. Nat. Hist., p. 213.
- *cristata* (Whitfield) Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 23, pl. 1, fig. 8. Calciferosus.
For other references, see *Primitia cristata*.
- [*Cytherina*] *cylindrica* Hall, 1852; Pal. New York, vol. 2, p. 14, pl. 4, figs. 8 a, b. Medina.
- Prof. T. Rupert Jones (Quart. Jour. Geol. Soc., vol. 46, 1890, p. 8) refers this species to *Leperditia cylindrica*.
- [*Leperditia (Isochilina)*] *cylindrica* Jones, 1858; Annals Mag. Nat. Hist., 3d series, vol. 1, p. 253; also, Geol. Survey Canada, decade 3, p. 101.
- [*Leperditia (Isochilina)*] *cylindrica* Hall, 1871; Description n. sp. Fossils Hudson River Group.
- [*Leperditia (Isochilina)*] *cylindrica* Hall, 1872; 24th Rept. N. Y. State Mus. Nat. Hist., p. 231, pl. 8, fig. 2; also, Pal. Ohio, vol. 2, 1875, p. 101, pl. 4, fig. 5.
Prof. T. Rupert Jones (Quart. Jour. Geol. Soc., vol. 46, 1890, p. 8) refers this species to *Primitia minuta* Eichwald.
- *cylindrica* Miller, 1875; Cincinnati Quart. Jour. Sci., vol. 2, p. 351.
- *fabacea* Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 22, pl. 2, fig. 11. Hamilton.
- [*Leperditia (Isochilina)*] *gracilis* Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 248, pl. 10, fig. 2; also, Geol. Survey Canada, decade 3, p. 98, pl. 2, fig. 15. Trenton.
- *gregaria* (Whitfield) Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 22, pl. 1, figs. 9, 10.
For other references, see *Primitia gregaria*.
- *jonesi* Wetherby, 1881; Jour. Cincinnati Soc. Nat. Hist., vol. 4, p. 80, pl. 2, figs. 7, 7 a. Subcarboniferous.
- *lineata* Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 21, pl. 2, figs. 5 a, b, 8 a, b. Hamilton.
- [*Leperditia (Isochilina)*] *minutissima* Hall, 1871; Des. New Species Foss. Hudson River Group, p. 7.
- [*Leperditia (Isochilina)*] *minutissima* Hall, 1872; 24th Rept. New York State Mus. Nat. Hist., p. 231, pl. 8, fig. 13.
- [*Leperditia (Isochilina)*] *minutissima* Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 102, pl. 4, fig. 5. (See *Aparchites minutissima*.)
- [*Leperditia (Isochilina)*] *ottawa* Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 248, pl. 11, fig. 1. Chazy.
- [*Leperditia (Isochilina)*] *ottawa* Jones, 1858; Geol. Survey Canada, decade 3, p. 97, pl. 9, fig. 14.
- *ottawa* Jones, 1884; Annals Mag. Nat. Hist., London, 5th series, vol. 14, p. 345.
- *seelyi* (Whitfield) Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 22, pl. 1, fig. 7.
For other references, see *Primitia seelyi*.
- Klædenia** Jones and Holl, 1886; Annals Mag. Nat. Hist., London, 5th series, vol. 17, p. 362.

- Klœdenia** [*Beyrichia*] *notata* Hall, 1859; Pal. New York, vol. 3, p. 379, pl. 79 b, figs. 3 a, b, c. Lower Helderberg.
- [*Beyrichia*] *notata* var. *ventricosa* Hall, 1859; *idem*, p. 380, pl. 79 b, figs. 4 a, b, c.
- *notata* Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 13, pl. 4, figs. 22, 23.
- *notata* var. *ventricosa* Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 14, pl. 1, figs. 1 a, b; pl. 4, fig. 24.
- *pennsylvanica* Jones, 1889; American Geologist, vol. 4, p. 341, pl., figs. 5-9. Lower Helderberg.
- *simplex* Jones, 1889; American Geologist, vol. 4, p. 338, pl., fig. 14. Upper Devonian.
- Leaia** Jones, 1862; Mon. Fossil Estheriæ, p. 115.
- [*Cypricardia*] *leidyi* Lea, 1855; Proc. Acad. Nat. Sci. Phila., vol. 7, p. 341, pl. 4. Coal Measures.
- *leidyi* Jones, 1862; Mon. Fossil Estheriæ, p. 116, pl. 5, figs. 11, 12.
- *leidyi* Dawson, 1868; Acadian Geology, p. 256, fig. 78 c.
- *leidyi* Packard, 1882; 12th Rept. U. S. Geol. Survey Territories, p. 358, fig. 24.
- *leidyi* Jones, 1870; Geol. Mag., vol. 7, p. 219, pl. 9, fig. 11; also, Geol. Mag., decade 3, vol. 1, p. 361, pl. 12, fig. 13.
- *tricarinata* Meek and Worthen, 1868; Geol. Survey Illinois, vol. 3, p. 541, figs. B₁, B₂, B₃. Coal Measures.
- *tricarinata* White, 1884; 13th Ann. Rept. Dept. Geol. Nat. Hist. Indiana, p. 167, pl. 39, figs. 10-13.
- Leperditia** Rouault, 1851; Bull. Soc. Géol. France, 2d series, vol. 8, p. 377.
- [*Cytherina*] *alta* Conrad, 1842; Geol. Rept. New York, 3d Geol. Dist. (Vanuxem), p. 112. Lower Helderberg.
- [*Cytherina*] *alta* ? Hall, 1852; Pal. New York, vol. 2, p. 338, pl. 78, figs. 2 a-d. Referred to *Leperditia jonesi* Hall, *idem*, vol. 3, p. 372.
- *alta* Jones, 1856; Annals and Mag. Nat. Hist., London, 2d series, vol. 17, p. 88, pl. 7, figs. 6, 7.
- *alta* Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 250, pl. 10, figs. 10, 11.
- *alta* Hall, 1859; Pal. New York, vol. 3, p. 373, pl. 79 a, figs. 6 a-e.
- *alta* Meek, 1873; Pal. Ohio, vol. 1, p. 187, pl. 17, figs. 2 a, b.
- *alta* Jones, 1881; Annals Mag. Nat. Hist., London, 5th series, vol. 8, p. 346.
- *alta* Whitfield, 1882; Geol. Wisconsin, vol. 4, p. 323, pl. 25, figs. 8, 9.
- *alta* Jones, 1884; Annals Mag. Nat. Hist., London, 5th series, vol. 14, p. 343.
- *alta* Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 25, pl. 1, figs. 6 a, b.
- *amygdalina* Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 341. Trenton.
- *amygdalina* Jones, 1858; Geol. Survey Canada, decade 3, p. 97, pl. 11, figs. 18, 19.
- *amygdalina* Jones, 1881; Annals Mag. Nat. Hist., London, 5th series, vol. 8, p. 344, pl. 19, fig. 9.
- *amygdalina* Jones, 1884; Annals Mag. Nat. Hist., London, 5th series, vol. 14, p. 342.
- *angulifera* Whitfield, 1881; Annals New York Acad. Sci., vol. 2, p. 199. Lower Helderberg.
- *anna* Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 347, pl. 9, fig. 8. Calcareous.
- *anna* Jones, 1858; Geol. Survey Canada, decade 3, p. 96, pl. 11, fig. 13.
- *anticostiana* Jones, 1884; Annals Mag. Nat. Hist., London, 3d series, vol. 14, p. 241. Hudson.
- Syn., *canadensis* var. *anticostiana* Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 341. Hudson.
- canadensis* var. *anticostiana* Jones, 1858; Geol. Survey Canada, decade 3, p. 95, pl. 11, fig. 17.

- Leperditia anticostiana** Billings, 1866; Catalogue Sil. Foss., Anticosti, p. 68.
 Syn., *fabulites* (Conrad) var. *anticostiana* Jones, 1881; Annals Mag. Nat. Hist., London, 5th series, vol. 8, p. 344, pl. 19, fig. 8.
- **arctica** Jones, 1856; Annals Mag. Nat. Hist., London, 2d series, vol. 17, p. 87, figs. 1-5. Upper Silurian.
- Syn., *balthica* var. *arctica* (Jones) Salter, 1852; Appendix Sutherland's Jour. Voyage Baffin's Bay, vol. 2, p. cxxi, pl. 5, fig. 13.
- balthica* var. *arctica* (Jones) Salter, 1853; Quart. Jour. Geol. Soc. London, vol. 9, p. 314.
- **argenta** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 146, pl. 8, fig. 5. Middle Cambrian.
- **billingsi** Jones, 1856; Annals Mag. Nat. Hist., London, 2d series, vol. 8, p. 345, pl. 15, fig. 9. Trenton.
- **bivertex** Ulrich, 1879; Jour. Cincinnati Soc. Nat. Hist., vol. 2, p. 11, pl. 7, figs. 5, 5 a. Hudson.
- **bivia** White, 1874; Rept. Invert. Foss. U. S. Geog. and Geol. Survey W. 100th Mer., p. 11. Quebec.
- **bivia** White, 1877; U. S. Geog. and Geol. Survey W. 100th Mer., Palæont., vol. 4, p. 58, pl. 3, figs. 7 a-d.
- *byrnesi* Miller, 1874; Cincinnati Quart. Jour. Sci., vol. 1, p. 123, fig. 10. (See *Æchmina beyrnesi*.) Hudson.
- **cæcigena** Miller, 1881; Jour. Cincinnati Soc. Nat. Hist., vol. 1, p. 263, pl. 6, figs. 5, 5 a. Hudson.
- **canadensis** Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 244, pl. 9, figs. 11-15. Chazy and Trenton.
- **canadensis** Jones, 1858; Geol. Survey Canada, decade 3, p. 92; var. *nana*, pl. 11, figs. 6, 7, 9, 10, and *labrosa*, pl. 11, fig. 8.
- **canadensis** Jones, 1881; Annals Mag. Nat. Hist., London, 5th series, vol. 14, p. 340.
- Compare *Leperditia turgida*, *L. concinnula*, and *L. ventralis*.
- **canadensis** var. *paquetiana* Jones. (See *Leperditia louckana*.)
- [*Cythere*] **carbonaria** Hall, 1858; Trans. Albany Inst., vol. 4, p. 33. Warsaw.
- **carbonaria** Whitfield, 1882; Bull. Am. Mus. Nat. Hist., New York, vol. 1, p. 94, pl. 9, figs. 24-27.
- **capax** Safford; Geol. Tennessee. (Not defined.)
- **cayuga** Hall, 1861; Des. New Species Foss., p. 83. Corniferous.
- **cayuga** Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 111.
- **claypolei** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 25, pl. 3, figs. 17 a-c. Cincinnati.
- **concinnula** Billings, 1865; Pal. Fossils, vol. 1, p. 299. Quebec.
- **crepiformis** Ulrich, 1879; Jour. Cincinnati Soc. Nat. Hist., vol. 2, p. 10, pl. 7, figs. 3, 3 a. Hudson.
- [*Cytherina*] **cylandrica** Hall, 1852; Pal. N. Y., vol. 2, p. 14, pl. 4, figs. 8 a, b.
- For other references, see *Isochilina cylandrica*. Medina.
- **dermatoides** Walcott, 1887; Am. Jour. Sci., 3d series, vol. 34, p. 192, pl. 1, figs. 13, 13 a. Cambrian.
- **faba** Hall, 1876; 28th Rept. New York State Mus. Nat. Hist., Expl., pl. 32, figs. 1-3. Niagara.
- **faba** Hall, 1879; 28th Rept. New York State Mus. Nat. Hist., p. 186, pl. 32, figs. 1-3 (2d ed.).
- **faba** Hall, 1882; 11th Ann. Rept. Dept. Geol. Nat. Hist. Indiana, p. 331, pl. 34, figs. 1-3.
- [*Cytherina*] **fabulites** Conrad, 1843; Proc. Acad. Nat. Sci. Phila., vol. 1, p. 332. Trenton.
- **fabulites** Jones, 1856; Annals Mag. Nat. Hist., London, 2d series, vol. 17, p. 89.

- Leperditia fabulites** Jones, 1858; *Annals Mag. Nat. Hist.*, London, 3d series, vol. 1, p. 341.
- **fabulites** Jones, 1881; *Annals Mag. Nat. Hist.*, London, 4th series, vol. 8, p. 342.
- **fabulites** Whitfield, 1883; *Geol. Wisconsin*, vol. 1, p. 60, fig. 5.
- **fabulites** Jones, 1884; *Annals Mag. Nat. Hist.*, London, 5th series, vol. 14, p. 342.
- **fonticola**, 1867; 20th Rept. New York State Cab. Nat. Hist., p. 335, pl. 21, figs. 1-3. Niagara.
- **fonticola**, 1870; 20th Rept. New York State Cab. Nat. Hist. (rev. ed.), p. 428, pl. 21, figs. 1-3.
- **gibbera** Jones, 1856; *Annals Mag. Nat. Hist.*, London, 2d series, vol. 17, p. 90, pl. 7, figs. 1-3. Niagara.
- **gibbera** Jones, 1858; *Annals Mag. Nat. Hist.*, London, 3d series, vol. 1, p. 250, pl. 10, figs. 7-9.
- **gibbera** var. **scalaris** Jones, 1858; *Geol. Survey Penn.*, vol. 2, p. 834, fig. 698.
- **gracilis**. (See *Isochilina gracilis*.)
- **hudsonica** Hall, 1859; *Pal. New York*, vol. 3, p. 375, pl. 79 a, figs. 7 a, b, c. Lower Helderberg.
- **hudsonica** Jones, 1890; *Quart. Jour. Geol. Soc.*, vol. 46, p. 24, pl. 1, figs. 5 a-c, 11 a-c; pl. 3, fig. 20 (?).
- **jonesi** Hall, 1859; *Pal. New York*, vol. 3, p. 272, pl. 79 a, figs. 5 a-e. Lower Helderberg.
- **jonesi** Jones, 1884; *Annals Mag. Nat. Hist.*, London, 5th series, vol. 1, p. 343. Syn., *alta* Hall, 1852; *Pal. New York*, vol. 2, p. 338, pl. 78, figs. 2 a-d.
- **josephiana** Jones, 1884; *Annals Mag. Nat. Hist.*, London, 5th series, vol. 1, p. 341. Trenton.
- *Syn.*, **canadensis** var. **josephiana** Jones, 1858; *Annals Mag. Nat. Hist.*, London, 3d series, vol. 1, p. 341.
- *canadensis* var. **josephiana** Jones, 1858; *Geol. Survey Canada*, decade 3, p. 94, pl. 11, fig. 16.
- **fabulites** var. **josephiana** Jones, 1881; *Annals Mag. Nat. Hist.*, London, 5th series, vol. 8, p. 344, pl. 19, fig. 7; pl. 20, figs. 7, 8; also, p. 345, pl. 20, fig. 4 (?).
- **labrosa**. (See *Leperditia canadensis*.)
- **louckiana** Jones, 1884; *Annals Mag. Nat. Hist.*, London, 5th series, vol. 1, p. 341. Trenton.
- *Syn.*, **canadensis**? Jones, 1858; *Annals Mag. Nat. Hist.*, London, 3d series, vol. 1, p. 245, pl. 9, figs. 16, 17.
- *Afterwards* var. **louckiana** and *Leperditia canadensis* var. **paquetiana**.
- *canadensis* var. **louckiana** Jones, 1858; *Geol. Survey Canada*, decade 3, p. 93, pl. 11, fig. 11.
- **fabulites** var. **louckiana** Jones, 1881; *Annals Mag. Nat. Hist.*, London, 5th series, vol. 8, p. 343.
- [*Cypridina*] **marginata** Keyserling, 1846; *Wiss. Beob. auf einer Reise in das Petochora-Land*, p. 288, pl. 11, fig. 16.
- **marginata** Jones, 1858; *Annals Mag. Nat. Hist.*, London, 3d series, vol. 17, p. 91, pl. 7, figs. 11, 14, 15.
- *Syn.*, **Cyridina balthica** Eichwald (not *Cytherina balthica* Hisinger) *Bull. Soc. Nat. Moscou*, 1854, No. 1, p. 99, pl. 2, fig. 6.
- [*Isochilina*] **minutissima** Hall. (See *Isochilina minutissima*.)
- **morgani** Safford; *Geol. Tennessee*. (Not defined.)
- **Nana**? Jones, 1890; *Quart. Jour. Geol. Soc.*, vol. 46, p. 27, pl. 4, fig. 4. (See, also, *Leperditia canadensis* var. **nana**.)
- **okeni** (Münster) Dawson, 1868; *Acadian Geology*, p. 256, fig. 78 b. Lower Carboniferous.
- **ottawa**. (See *Isochilina ottawa*.)
- **ovata** Jones, 1858; *Annals Mag. Nat. Hist.*, London, 3d series, vol. 1, p. 252, pl. 10, fig. 14. Trenton

- Leperditia ovata** Jones, 1858; Geol. Survey Penn., vol. 2, p. 834, fig. 697.
 — *pauquettiana*. (See **Leperditia canadensis** var. *pauquettiana*.)
 — *parasitica* Hall, 1859; Pal. New York, vol. 3, p. 376, pl. 79 a, figs. 8 a, b.
 Lower Helderberg.
- Referred by T. R. Jones to **Beyrichia parasitica**, which see.
- *parvula* Hall, 1859; Pal. New York, vol. 3, p. 376, pl. 79 a, figs. 9 a, b.
 Lower Helderberg.
- *pennsylvanica* Jones, 1858; Annals Mag. Nat. Hist., London, 3d series, vol. 1, p. 251, pl. 10, figs. 12, 13.
 Clinton.
- *pennsylvanica* Jones, 1858; Geol. Survey Penn., vol. 2, p. 834, fig. 699.
- *punctulifera* Hall, 1860; 13th Rept. New York State Cab. Nat. Hist., p. 92. (See **Primitiopsis punctulifera**.)
 Hamilton.
- *radiata* Ulrich, 1879; Jour. Cincinnati Soc. Nat. Hist., vol. 2, p. 9, pl. 7, figs. 2 a, b.
 Utica.
- *rotundata* Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 206, pl. 16, fig. 5.
 Devonian.
- *scalaris* (**Leperditia gibbera** var. *scalaris* Jones, 1858); Annals Mag. Nat. Hist. London, 3d series, vol. 1, p. 250, pl. 10, figs. 7-9.
 Waterlime.
- *seneca* Hall, 1861; Des. New Species Fossils, p. 84.
 Hamilton.
- *seneca* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 112.
- *seneca* Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 23, pl. 1, figs. 13, 14.
- *sinuata* Hall, 1860; Canadian Naturalist, vol. 5, p. 158.
 Upper Silurian.
- *sinuata* Dawson, 1868; Acadian Geology, p. 609, fig. 217.
- *sinuata* Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 24, pl. 1, figs. 12 a-c.
- *spinulifera* Hall, 1861; Des. New Species Fossils, p. 83.
 Corniferous.
- *spinulifera* Hall, 1862; 15th Rept. New York State Cab. Nat. Hist., p. 111.
- [*Cythere*] *sublævis* Shumard, 1855; 1st and 2d Ann. Rept. Geol. Survey Missouri, p. 195, pl. B, fig. 15.
 Lower Magnesian.
- *subquadrata* Jones, 1889; American Geologist, vol. 4, p. 340, pl., figs. 4 a-d.
 Lower Helderberg.
- *troyensis* Ford. (See **Aristozoe troyensis**.)
- *unicornis* Ulrich, 1879; Jour. Cincinnati Soc. Nat. Hist., vol. 2, p. 10, pl. 7, figs. 4, 4 a, b.
 Hudson.
- Referred by Prof. T. R. Jones to *Primitia unicornis*.
- *ventralis* Billings, 1865; Pal. Fossils, vol. 1, p. 300.
 Quebec.
- Lepidocoleus** Faber, 1886; Jour. Cincinnati Soc. Nat. Hist., vol. 9, p. 15.
- *jamesi* (Hall and Whitfield) Faber, 1886; *idem*, vol. 9, p. 15, pl. 1, figs. a-f.
 Hudson.
- For other references, see **Pumulites jamesi**.
- Lisgocaris** Clarke, 1882; Am. Jour. Sci., 3d series, vol. 23, p. 478.
- *lutheri* Clarke, 1882; Am. Jour. Sci., 3d series, vol. 23, p. 478, pl. 1, fig. 5.
 Hamilton.
- Mesothyra** Hall, 1888; Pal. New York, vol. 7, p. 187.
- [*Dithyrocaris*] *neptuni* Hall, 1876; Illus. Devonian Foss., pl. 23 (not pl. 22, figs. 1-5); pl. 23, figs. 1-3.
 Hamilton.
- [*Dithyrocaris*] *neptuni* Packard, 1878; 12th Rept. U. S. Geol. Survey Territories, p. 452, fig. 73.
- [*Dithyrocaris*] *neptuni* Etheridge, Woodward, and Jones, 1887; 5th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
- *neptuni* Hall, 1888; Pal. New York, vol. 7, p. 191, pl. 32, fig. 7; pl. 33, fig. 1.
- *neptuni* Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
- Syn., *oceani* Hall, 1888; Pal. New York, vol. 7, p. 187, pl. 32, figs. 1-6; pl. 33, fig. 4-7; pl. 34, figs. 1-5.
 Portage.
- [*Dithyrocaris*] *neptuni* Hall, 1876; Illus. Devonian Foss., pl. 22, figs. 1-5; pl. 33, figs. 1-3.

- Mesothyra** [*Dithyrocaris*] **neptuni** Etheridge, Woodward, and Jones, 1887; 5th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
 Syn., *Mesothyra oceani* Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
 — **stumea** Hall, 1888; Pal. New York, vol. 7, p. 193, pl. 32, figs. 8, 9; pl. 34, fig. 2. Hamilton.
 — **stumea** Etheridge, Woodward and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
 — [*Dithyrocaris*?] **veneris** Hall, 1888; Pal. New York, vol. 7, p. 193, pl. 33, fig. 3. Hamilton.
 — [*Dithyrocaris*?] **veneris** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopoda Pal. Rocks, p. 8.
Neolimulus Woodward, 1868; Geol. Mag., vol. 5, p. 1.
 Type, *Neolimulus falcatus* Woodward.
Nothozoe Barrande, 1872; Syst. Sil. Bohême, vol. 1, suppl., p. 536.
 Type, *Nothozoe pollens* Barrande.
 — **vermontana** Whitfield, 1884; Bull. Am. Mus. Nat. Hist., vol. 1, p. 144, pl. 14, figs. 14, 15. Potsdam.
Palæocaris Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., vol. 17, p. 48.
 — **typus** Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., vol. 17, p. 49.
 Syn., *Acanthotelson inæqualis* Meek and Worthen, 1865; Proc. Acad. Nat. Sci. Phila., vol. 17, p. 48. Coal Measures.
Acanthotelson inæqualis Meek and Worthen, 1866; Geol. Illinois, vol. 2, p. 403, pl. 32, fig. 7, 7 a.
 — **typus**, Meek and Worthen, 1866; Geol. Illinois, vol. 2, p. 405, pl. 32, figs. 5 a-d.
 — **typus** Meek and Worthen, 1868; Geol. Illinois, vol. 3, p. 552, figs. a, b.
 — **typus** Peach, 1880; Trans. Royal Soc. Edinburgh, vol. 30, p. 85, pl. 10, figs. 10 g, 10 h.
 — **typus** Brocchi, 1880; Bull. Soc. Géol. France, vol. 8, p. 9, pl. 1, figs. 8-10.
 — **typus** Woodward, 1881; Geol. Mag., decade 2, vol. 8, p. 533, wood-cut.
 — **typus** White, 1884; 13th Ann. Rept. Dept. Geol. Nat. Hist. Indiana, p. 179, pl. 38, figs. 1, 2, 3.
 — **typus** Packard, 1885; Am. Naturalist, vol. 19, p. 790.
 — **typus** Packard, 1886; Mem. Nat. Acad. Sci., vol. 3, p. 129, pl. 3, figs. 1-4; pl. 7, figs. 1, 2.
Palæocrangon Salter, 1861. (See *Crangopsis* Salter, 1863.)
Palæopalæmon Whitfield, 1880; Am. Jour. Sci., 3d series, vol. 19, p. 40.
 — **newberryi** Whitfield, 1880; Am. Jour. Sci., 2d series, vol. 19, p. 41. Erie.
 — **newberryi** Whitfield, 1880; Author's Edition, plate, figs. 1, 2, 3.
 — **newberryi** Hall, 1888; Pal. New York, vol. 7, p. 203, pl. 30, figs. 20-23.
Palæocreusia Clarke, 1888; Pal. New York, vol. 7, p. 210.
 — **devonica** Clarke, 1888; Pal. New York, vol. 7, p. 210, pl. 36, figs. 24, 26. Corniferous.
Plumulites Barrande, 1872; Syst. Sil. Bohême, suppl., vol. 1, p. 565.
 — **devonicus** Clarke, 1882; Am. Journ. Sci., 3d series, vol. 24, p. 55, figs. 1, 2. Hamilton.
 — **jamesi** Hall and Whitfield, 1875; Pal. Ohio, vol. 2, p. 106, pl. 4, figs. 1-3. Hudson.
 — ? **jamesi** Miller, 1875; Cincinnati Quart. Jour. Sci., vol. 2, p. 275, fig. 19.
 Referred by Faber (Jour. Cincinnati Soc. Nat. Hist., vol. 9, 1886, p. 15) to a new genus under the name of *Lepidocoleus*.
 — **newberryi** Whitfield, 1881; Annals New York Acad. Sci., vol. 2, p. 217. Huron.
Prestwichia Woodward, 1867; Quart. Jour. Geol. Soc. London, vol. 23, p. 32.

- Prestwichia danæ** (Meek and Worthen) Packard, 1886; Mem. Nat. Acad. Sci., vol. 3, p. 146, pl. 5, figs. 3, 39; pl. 6, figs. 1 a, 2, 2 a.
For other references to this species, see **Euproops** and **Belinurus**.
— **eriensis** Williams. (See **Protolimulus eriensis**.)
- Protolimulus** Packard, 1866; Mem. Nat. Acad. Sci., vol. 3, p. 150.
— [**Prestwichia**] **eriensis** Williams, 1885; Am. Jour. Sci., 3d series, vol. 30, p. 45, 3 figs. Devonian.
— [**Protolimulus**] **eriensis** Packard, 1886; Mem. Nat. Acad. Sci., vol. 3, p. 150, figs. 11-13.
— **eriensis** Hall, 1888; Pal. New York, vol. 7, p. 153, pl. 26, figs. 1, 2.
- Primitia** Jones and Holl, 1865; Annals Mag. Nat. Hist., 3d series, London, vol. 16, p. 415.
Primitia cristata Whitfield, 1889; Bull. Am. Mus. Nat. Hist., New York, vol. 2, p. 59, pl. 13, figs. 1, 2. (See **Isochilina cristata**.)
— **gregaria** Whitfield, 1889; Bull. Am. Mus. Nat. Hist., New York, vol. 2, p. 58, pl. 13, figs. 3-5. (See **Isochilina gregaria**.)
— **lativia** Ulrich, 1889; Contributions Micro-Palæont., pt. 2, p. 50, pl. 9, figs. 8, 8 a. Hudson.
— [**Beyrichia**] **logani** var. **leperditioides** Jones, 1858; Annals and Mag. Nat. Hist., London, 3d series, vol. 1, p. 244, pl. 9, fig. 10. Trenton.
— [**Beyrichia**] **logani** var. **leperditioides** Jones, 1858; Geol. Survey Canada, decade 3, p. 91, pl. 11, figs. 1-5.
— **leperditioides** Jones, 1884; Annals and Mag. Nat. Hist., 6th series, London, vol. 14, p. 345.
— **mundula** Jones, 1889; American Geologist, vol. 4, p. 337, pl., figs. 1, 2, 10, 15. Upper Devonian.
— [**Beyrichia** (**Primitia**)] **occidentalis** Walcott, 1884; Pal. Eureka Dist., Mon. U. S. Geol. Survey, vol. 8, p. 204, pl. 17, figs. 4, 4 a. Devonian.
— [**Beyrichia**?] **parallela** Ulrich, 1889; Contributions Micro-Palæont., pt. 2, p. 51, pl. 9, figs. 7-7 a. Hudson.
— **pennsylvanica** Jones, 1889; American Geologist, vol. 4, p. 339, pl., figs. 15 a, b. Marcellus.
— **seminulum** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 5, pl. 2, fig. 2. Hamilton.
— **seelyi** Whitfield, 1889; Bull. Am. Mus. Nat. Hist., N. Y., vol. 2, p. 60, pl. 13, figs. 15-21. (See **Isochilina seelyi**.)
— **unicornis** (Ulrich) Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 7, pl. 11, figs. 8-13.
For other references, see **Beyrichia unicornis** Ulrich. The species is referred by Ulrich (Contributions Micro-Palæont., pt. 2, p. 50) to **Aparchites unicornis**, pl. 9, fig. 11.
— **whitfieldi** Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 9, pl. 3, figs. 24 a, b. Cincinnati.
- Primitiopsis** Jones, 1887; Notes on some Sil. Ostracoda from Gothland, p. 5.
— **punctulifera** (Hall) Jones, 1890; Quart. Jour. Geol. Soc., vol. 46, p. 9, pl. 2, figs. 7 a, b, 12 a, b. Hamilton.
For other references, see **Beyrichia punctulifera** Hall.
- Protobalanus** Whitfield, 1889; Bull. Am. Mus. Nat. Hist., New York, vol. 2, p. 66; Hall, 1888; Pal. New York, vol. 7, pp. lxii and 209.
— **hamiltonensis** (Whitfield) Hall, 1888; Pal. New York, vol. 7, p. 209, pl. 36, fig. 23.
— **hamiltonensis** Whitfield, 1889; Bull. Am. Mus. Nat. Hist., New York, vol. 2, p. 67, pl. 13, fig. 22. Marcellus.
- Protocaris** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 50.
— **marshi** Walcott, 1884; Bull. U. S. Geol. Survey, No. 10, p. 50, pl. 10. Cambrian.
— **marshi** Walcott, 1886; Bull. U. S. Geol. Survey, No. 30, p. 148, pl. 15, fig. 1.

Pterygotus Agassiz, 1844; Mon. Poissons Fossiles, note, p. xix.

— **acuticauda** Pohlman, 1882; Bull. Buffalo Soc. Nat. Sci., vol. 4, p. 42, pl. 2, fig. 3. Waterlime.

— **bilobus** (Huxley and Salter) Pohlman, 1886; Bull. Buffalo Soc. Nat. Sci., vol. 5, p. 27. Waterlime.

— **buffaloensis** Pohlman, 1881; Bull. Buffalo Soc. Nat. Sci., vol. 4, p. 17, figs. 1, 2. Waterlime.

— **buffaloensis** Pohlman, 1882; Bull. Buffalo Soc. Nat. Sci., vol. 4, p. 44, pl. 3, fig. 3.

— **buffaloensis** Pohlman, 1886; Bull. Buffalo Soc. Nat. Sci., vol. 5, p. 24, pl. 3, fig. 1.

— **canadensis** Dawson, 1881; Canadian Naturalist, new series, vol. 9, p. 103, figs. 1, 2. Niagara.

— **cobbi** Hall, 1859; Pal., New York, vol. 3, p. 417, pl. 83 b, fig. 4; pl. 84, fig. 8 (?). Waterlime.

— **cummingsi** Grote and Pitt, 1875; Bull. Buffalo Soc. Nat. Sci., vol. 3, p. 18, figure. Waterlime.

— **cummingsi** Grote and Pitt, 1878; Proc. Am. Assoc. Adv. Sci., 26th Meeting, p. 300, figure.

— **globicaudatus** Pohlman, 1882; Bull. Buffalo Soc. Nat. Sci., vol. 4, p. 42, pl. 2, fig. 2. Waterlime.

— **macrophthalmus** Hall, 1859; Pal. New York, vol. 3, p. 418, pl. 80 a, figs. 8, 8 a. Waterlime.

— **macrophthalmus** Pohlman, 1882; Bull. Buffalo Soc. Nat. Sci., vol. 4, p. 44.

— **osborni** Hall, 1859; Pal. New York, vol. 3, p. 419, pl. 80 a, fig. 9. Waterlime.

— **quadricaudatus** Pohlman, 1882; Bull. Buffalo Soc. Nat. Sci., vol. 4, p. 43, pl. 3, fig. 1. Waterlime.

Rachura Scudder, 1878; Proc. Boston Soc. Nat. Hist., vol. 19, p. 296.

Probably the same as the genus *Dithyocaris*.

— **venosa** Scudder, 1878; Proc. Boston Soc. Nat. Hist., vol. 19, p. 296.

Coal Measures.

— [*Dithyocaris*?] **venosa** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopora, p. 4.

Rhinocaris Clarke, 1888; Pal. New York, vol. 7, p. lviii.

— **columbina** Clarke, 1888; Pal. New York, vol. 7, p. 195, pl. 31, figs. 16-21.

Hamilton.

— **columbina** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopora, etc., p. 8.

— **scaphoptera** Hall, 1888; Pal. New York, vol. 7, p. 197, pl. 31, figs. 22, 23.

Hamilton.

— **scaphoptera** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopora Pal. Rocks, p. 8.

Schizodiscus Clarke, 1888; Pal. New York, vol. 7, p. 207.

— **capra** Clarke, 1888; Pal. New York, vol. 7, p. 207, pl. 25, figs. 1-9. Hamilton.

Spathiocaris Clarke, 1882; Am. Jour. Sci., 3d series, vol. 23, p. 477.

— **emersoni** Clarke, 1882; Am. Jour. Sci., 3d series, vol. 23, p. 477, pl., figs. 1-3.

Hamilton.

— **emersoni** Packard, 1883; 12th Rept. U. S. Geol. Survey Territories, p. 451.

— **emersoni** Clarke, 1886; Neues Jahrbuch für Mineral., p. 180.

— **emersoni** Woodward and Jones, 1884; 2d Rept. Comm. Foss. Phyllopora Pal. Rocks, p. 7.

— **emersoni** Clarke, 1885; Bull. U. S. Geol. Survey, No. 16, p. 46.

— **emersoni** Etheridge, Woodward, and Jones, 1885; 3d Rept. Comm. Foss. Phyllopora Pal. Rocks, p. 3.

— **emersoni** Hall, 1888; Pal. New York, vol. 7, p. 199, pl. 35, figs. 12-18.

— **emersoni** Etheridge, Woodward, and Jones, 1888; 6th Rept. Comm. Foss. Phyllopora Pal. Rocks, p. 8.

Solenocaris Meek, 1871; Proc. Acad. Nat. Sci. Phila., vol. 23, p. 335.

The name *Solenocaris* was used for a species of fossil crustacea by Mr. J. Young in 1868. Change to *Strigocaris*.

— *ludovici* Worthen, 1884; Bull. Illinois State Cab. Nat. Hist., No. 2, p. 3.

St. Louis.

— [*Ceratiocaris* (*Solenocaris*)] *strigata* Meek, 1872; Proc. Acad. Nat. Sci. Phila., vol. 23, p. 335.

Waverly.

— [*Ceratiocaris* (*Solenocaris*)] *strigata* Meek, 1875; Pal. Ohio, vol. 2, p. 321, pl. 18, figs. 4 a-c.

Strigocaris, name suggested to replace preoccupied generic name *Solenocaris* (Meek) Vogdes, 1889; Annals N. Y. Acad. Sci., vol. 5, p. 34.

— [*Solenocaris*] *st. ludovici* Worthen, 1884; Bull. Illinois State Cab. Nat. Hist., No. 2, p. 3.

St. Louis.

— [*Ceratiocaris* (*Solenocaris*)] *strigata* Meek, 1872; Proc. Nat. Acad. Sci. Phila., vol. 23, p. 335.

Waverly.

— [*Ceratiocaris* (*Solenocaris*)] *strigata* Meek, 1875; Pal. Ohio, vol. 2, p. 321, pl. 18, figs. 4 a-c.

Strobilepsis Clarke, 1888; Pal. New York, vol. 7, p. 212.

— *spinigera* Clarke, 1888; Pal. New York, vol. 7, p. 212, pl. 36, figs. 20-22.

Hamilton.

Stylonurus Page, 1856; Advance Text-book Geology.

— *excelsior* Hall, MSS.

Catskill.

— *excelsior* Martin, 1882; Trans. New York Acad. Sci., vol. 2, p. 8.

— *excelsior* Hall, 1884; 36th Rept. New York State Mus., p. 77, pl. 5, fig. 1.

— *excelsior* Hall, 1885; Proc. Am. Assoc. Adv. Sci., 33d Meeting, p. 421.

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— [*Equistides*] *wrightianus* Dawson, 1881; Quart. Jour. Geol. Soc., vol. 37, p. 303, pl. 12, fig. 10; pl. 13, fig. 20.

Portage.

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For other references, see *Beyrichia quadrilirata*.

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Hamilton.

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Chemung.

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Chemung.

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 — **interrupta** Beecher, 1884; 2d Geol. Survey Penn., vol. PPP, p. 18, pl. 2, fig. 5. Chemung.
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