

# Contributions in Biology and Geology

---

Number 39

December 30, 1980

## Catalog of Fossil Type and Figured Specimens in the Milwaukee Public Museum

Jens Munthe

---

MILWAUKEE  
PUBLIC  
MUSEUM

---

**REVIEW COMMITTEE FOR THIS PUBLICATION:**

**Matthew H. Nitecki, Field Museum of Natural History  
Klaus W. Westphal, University of Wisconsin  
Peter Sheehan, Milwaukee Public Museum**

---

**ISBN 0-89326-065-9**

---

**Milwaukee Public Museum Press  
Published by the Order of the Board of Trustees  
Milwaukee Public Museum  
Accepted for publication October 2, 1980**

# Catalog of Fossil Type and Figured Specimens in the Milwaukee Public Museum

Jens Munthe  
Geology Section  
Milwaukee Public Museum  
Milwaukee, Wisconsin 53233\*

\* Present address: Faculty of Natural Sciences and Mathematics, Stockton State College, Pomona,  
New Jersey 08240

## INTRODUCTION

This catalog records the current status of the Milwaukee Public Museum fossil type collection. Systematists will note a general lack of revision of primary taxonomic work. For example, lectotypes have not been selected from many syntype series. Specialists in the groups of organisms involved are encouraged to incorporate this Milwaukee Public Museum material into current taxonomic studies.

Many type and figured specimens known to belong to the Milwaukee Public Museum are missing. This is due primarily to lack of loan records for any but the most recent years. Information concerning the present location of specimens listed as not found (NF) is solicited.

All fossil type and figured Milwaukee Public Museum specimens known to have appeared in the paleontologic literature are cataloged here. Unfigured referred specimens are not cataloged, nor are replicas (casts, peels, etc.) of the types of Milwaukee Public Museum or other institutions' specimens which are in the Museum collection. Holotypes, designated paratypes, and syntypes are recognized. Indication of whether holotypes are monotypes or holotypes by original designation is given in parentheses. No attempt has been made to designate lectotypes from syntype series.

All figured specimens are listed as such if they are not holotypes, paratypes or syntypes in the reference cited. Original designations such as hypotype, plesiotype, topotype, etc. are not used here, and the type designations which are used follow the current recommendations of the International Commission on Zoological Nomenclature.

Nomenclatorial changes resulting from taxonomic revision are indicated by cross-reference in some cases. However, there has been little revision of the original taxonomic literature concerning Milwaukee

Public Museum specimens; nomenclatorial changes noted here are mostly those of Pohl (1929) modifying the pelecypod taxonomy of Cleland (1911).

Geological age, formation, and locality are given in that order, separated by semicolons. A brief verbal locality designation from the cited reference is given. The designation "Berthelet" is used for all specimens described as having been collected at the Milwaukee Cement Quarry, Humboldt Street Bridge, Humboldt and the Milwaukee River, between Humboldt and Port Washington, or Berthelet. These were a closely spaced group of Devonian localities, all now destroyed by construction, which were discussed in some detail by Cleland (1911, pp. 5-8). For stratigraphy within these sites, additional detail may be obtained from the relevant passages in Cleland (1911) or Pohl (1929). Formation designations used in the reference cited are given, followed in parentheses by current lithostratigraphic nomenclature if this is significantly different.

The taxonomic arrangement used in this catalog is given below. Genera are arranged alphabetically within plant divisions and within animal phyla, or within classes of Mollusca, Arthropoda and Chordata. Species are arranged alphabetically within genera.

The prefix MPM is assumed for all specimen numbers given below. The only nonstandard abbreviation used is (NF), meaning the specimen is missing.

I thank Drs. Peter M. Sheehan and Robert M. West for the opportunity to study the fossil type material in the Milwaukee Public Museum. Ms. Jessica Schiefelbein assisted with arranging, labeling, indexing and proofreading. This work is supported by Institute of Museum Services Grant G007903521 to Dr. Sheehan.

#### SYSTEMATIC ARRANGEMENT

	Page
Division Phaeophycophyta	
<i>Fucus</i> .....	5
Division Anthophyta	
<i>Aralia</i> .....	5
<i>Cyperacites</i> .....	5
<i>Morus</i> .....	5
Division Uncertain	
<i>Nematophycus</i> .....	5
Phylum Protista	
<i>Chitinodendron</i> .....	6
Phylum Coelenterata	
<i>Conularia</i> .....	6

Phylum Brachiopoda	
<i>Camarotoechia</i> .....	6
<i>Cranaena</i> .....	6
<i>Craniella</i> .....	6
<i>Lingula</i> .....	6
<i>Lingulodiscina</i> .....	6
<i>Orbiculoidea</i> .....	6
<i>Pentameroides</i> .....	7
<i>Spirifer</i> .....	7
<i>Stropheodonta</i> .....	7
Phylum Mollusca	
Class Hyolitha	
<i>Hyolithes</i> .....	7
Class Gastropoda	
<i>Bellerophon</i> .....	7
<i>Cyclonema</i> .....	8
<i>Loxonema</i> .....	8
<i>Platyceras</i> .....	8
<i>Pterotheca</i> .....	8
Class Pelecypoda	
<i>Actinopteria</i> .....	8
<i>Aviculopecten</i> .....	8
<i>Cimitaria</i> .....	9
<i>Conocardium</i> .....	9
<i>Goniophora</i> .....	9
<i>Grammysia</i> .....	9
<i>Ilionia</i> .....	9
<i>Leiopteria</i> .....	9
<i>Modiomorpha</i> .....	9
<i>Mytilarca</i> .....	10
<i>Nuculana</i> .....	10
<i>Nuculites</i> .....	11
<i>Nyassa</i> .....	11
<i>Palaeoneilo</i> .....	11
<i>Paracyclas</i> .....	12
<i>Plethomytilus</i> .....	13
<i>Schizodus</i> .....	13
<i>Vertumnia</i> .....	13
Class Cephalopoda	
<i>Acleistoceras</i> .....	14
<i>Buehleroceras</i> .....	14
<i>Clarkoceras</i> .....	14
<i>Conocerina</i> .....	14
<i>Eremoceras</i> .....	14
<i>Gomphoceras</i> .....	14

<i>Gyroceras</i> .....	15
<i>Levisoceras</i> .....	15
<i>Orthoceras</i> .....	15
Phylum Arthropoda	
Class Merostomata	
<i>Aglaspella</i> .....	15
<i>Aglaspis</i> .....	15
<i>Aglaspoidea</i> .....	16
<i>Beckwithia</i> .....	16
<i>Chraspedops</i> .....	16
<i>Cyclopina</i> .....	17
<i>Glypharthrus</i> .....	17
<i>Setaspis</i> .....	17
<i>Uarthrus</i> .....	17
Aglaspidae .....	17
Merostomata ? .....	17
Class Trilobita	
<i>Briscoia</i> .....	18
<i>Calvinella</i> .....	18
<i>Dikelocephalus</i> .....	18
<i>Encrinurus</i> .....	20
<i>Prosaukia</i> .....	20
<i>Saukia</i> .....	20
<i>Saukiella</i> .....	22
<i>Tellerina</i> .....	22
Phylum Echinodermata	
<i>Holocystites</i> .....	22
<i>Nucleocrinus</i> .....	23
<i>Pentremitidea</i> .....	23
Phylum Chordata	
Class Graptolithina	
<i>Callograptus</i> .....	23
<i>Dendrograptus</i> .....	23
<i>Dictyonema</i> .....	23
<i>Haplograptus</i> .....	24
<i>Mastigograptus</i> .....	24
Class Placodermi	
<i>Dinichthys</i> .....	24
<i>Ptyctodus</i> .....	24
Class Chondrichthyes	
<i>Cladodus</i> .....	24
Class Osteichthyes	
<i>Esox</i> .....	24

<i>Ictalurus</i> .....	24
<i>Lepomis</i> .....	25
<i>Micropterus</i> .....	25
<i>Umbra</i> .....	25
Class Mammalia .....	
<i>Bison</i> .....	25
<i>Centetodon</i> .....	25
<i>Cervus</i> .....	25
<i>Elephas</i> .....	25
<i>Hyopsodus</i> .....	25
<i>Mammut</i> .....	26
<i>Rangifer</i> .....	26
Phylum and Class Uncertain .....	
<i>Coleolus</i> .....	26

## CATALOG

### DIVISION PHAEOPHYCOPHYTA

- Fucus bertheletensis* Penhallow, 1908  
*Holotype* (monotype): 399 (NF)  
 Penhallow, 1908, pp. 11-12, pl. 2  
 Cleland, 1911, p. 161, pl. 53  
 Middle Devonian; Hamilton Group (Milwaukee Formation); Milwaukee  
 (probably Berthelet).

### DIVISION ANTHOPHYTA

- Aralia*  
*Figured specimen*: 2090  
 MacGinitie, 1953, p. 154, pl. 69, fig. 5  
 Oligocene; Florissant beds; Florissant, Colorado.
- Cyperacites lacustris* MacGinitie, 1953  
*Holotype* (designated): 1798  
 MacGinitie, 1953, p. 92, pl. 17, fig. 2  
 Oligocene; Florissant beds; Florissant, Colorado.
- Morus symmetrica* Cockerell, 1908  
*Figured specimen*: 1369  
 MacGinitie, 1953, pp. 107-108, pl. 25, fig. 9  
 Oligocene; Florissant beds; Florissant, Colorado

### DIVISION UNCERTAIN

- Nematophycus milwaukeeensis* Penhallow, 1908  
*Holotype* (monotype): 402  
 Penhallow, 1908, pp. 8-10, pl. 1  
 Cleland, 1911, pp. 159-160, pl. 52, fig. 2  
 Middle Devonian; Hamilton Group (Milwaukee Formation); Milwaukee  
 (probably Berthelet).

**PHYLUM PROTISTA**

*Chitinodendron franconianum* Ruedemann and Shrock, 1939

*Holotype* (designated): 22347

*Paratype*: 22348

Ruedemann and Shrock, 1939, fig. 1-2

Late Cambrian; Franconia Formation; 12 mi. N. of Sparta, Monroe Co.

**PHYLUM COELENTERATA**

*Conularia congregata milwaukeeensis* Cleland, 1911

*Syntypes*: 244, 245

Cleland, 1911, pp. 130-131, pl. 26, fig. 4, 6

Middle Devonian; Milwaukee Formation; Berthelet.

**PHYLUM BRACHIOPODA**

*Camarotoechia contracta saxatilis* (Hall, 1867)

*Figured specimen*: One specimen (NF)

Cleland, 1911, pp. 70-71, pl. 13, fig. 3-5

Middle Devonian; Milwaukee Formation; Berthelet.

*Cranaena iowensis* (Calvin, 1890)

*Figured specimens*: Two specimens (NF)

Cleland, 1911, pp. 72-73, pl. 13, fig. 8-11

Middle Devonian; Milwaukee Formation; Berthelet.

*Craniella hamiltoniae* (Hall, 1867)

*Figured specimen*: 233

Cleland, 1911, pp. 86-87, pl. 12, fig. 8

Middle Devonian; Milwaukee Formation; Berthelet.

*Lingula milwaukeeensis* Cleland, 1911

*Syntypes*: Two specimens (NF)

Cleland, 1911, pp. 69-70, pl. 12, fig. 3-4

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel,  
Milwaukee.

*Lingula* sp.

*Figured specimen*: 236

Cleland, 1911, p. 70, pl. 12, fig. 5

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel,  
Milwaukee.

*Lingulodiscina marginalis* (Whitfield, 1862)

*Figured specimen*: 230

Cleland, 1911, pp. 84-85, pl. 12, fig. 12-13

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel or  
Berthelet, Milwaukee.

*Orbiculoidea telleri* Cleland, 1911

*Syntypes*: 225, 227



Cleland, 1911, p. 85, pl. 12, fig. 9-10  
Middle Devonian; Milwaukee Formation; Berthelet.

*Orbiculoidea wardi* Cleland, 1911

*Syntypes*: 225, two specimens (NF)

Cleland, 1911, pp. 85-86, pl. 12, fig. 14-16

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel or  
Berthelet, Milwaukee.

*Pentameroides (Pentameroides)* sp.

*Figured specimen*: 18119

Boucot and Johnson, 1979, pl. 5

Silurian; Racine Dolomite; Chilton, Calumet County.

*Spirifer asper* Hall, 1858

*Figured specimen*: One specimen (NF)

Cleland, 1911, pp. 76-77, pl. 16, fig. 1, 2, 4

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel or  
Berthelet, Milwaukee.

*Spirifer iowensis* Owen, 1882

*Figured specimen*: 334

Cleland, 1911, p. 79, pl. 17, fig. 4

Middle Devonian; Milwaukee Formation; Berthelet.

*Stropheodonta halli* Cleland, 1911

*Syntype*: One specimen (NF)

Cleland, 1911, pp. 87-88, pl. 14, fig. 8

Middle Devonian; Milwaukee Formation; Lake Church or Berthelet, Mil-  
waukee.

## PHYLUM MOLLUSCA

### CLASS HYOLITHA

*Hyolithes acilis?* Hall, 1876

*Figured specimen*: 272

Cleland, 1911, p. 132, pl. 26, fig. 8

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel or  
Berthelet, Milwaukee.

### CLASS GASTROPODA

*Bellerophon (Ptomatis) patulus* Hall, 1879

*Figured specimen*: 394

Cleland, 1911, pp. 123-124, pl. 28, fig. 13

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel or  
Berthelet, Milwaukee.

*Bellerophon pelops* Hall, 1879

*Figured specimen*: 395

Cleland, 1911, p. 123, pl. 28, fig. 12

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel, Milwaukee.

*Cyclonema? subglobosa* Cleland, 1911

*Syntype*: 398

Cleland, 1911, p. 126, pl. 28, fig. 7

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel, Lake Church, or Berthelet, Milwaukee.

*Loxonema hamiltoniae* Hall, 1862

*Figured specimen*: 396:

Cleland, 1911, p. 128, pl. 27, fig. 5

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel, Lake Church, or Berthelet, Milwaukee.

*Platyceras hornefferi* Cleland, 1911

*Syntype*: 393

Cleland, 1911, p. 129, pl. 28, fig. 4-5

Middle Devonian; Milwaukee Formation; Berthelet.

*Pterotheca expansa* (Emmons, 1842)

*Figured specimen*: 23069

Shrock and Raasch, 1937, p. 571, pl. 5, fig. 9

Middle Ordovician; Lower Buff Dolomite (Platteville Formation). Klevenville, Dane Co.

#### CLASS PELECYPODA

*Actinopteria convexa* Pohl, 1929

*Holotype* (designated): 18590

Pohl, 1929, p. 45, pl. 7, fig. 16-17

Middle Devonian; Lake Church Formation; Lake Church, Milwaukee.

*Actinopteria pauciradiata* Pohl, 1929

*Holotype* (designated): 2302

*Paratype*: 5149

Pohl, 1929, pp. 43-45, pl. 7, fig. 14-15

Middle Devonian; Milwaukee Formation; Berthelet.

*Actinopteria rhombolineare* Pohl, 1929

*Syntypes*: 455, 456, 13745

Pohl, 1929, pp. 42-43, pl. 7, fig. 11-13

Middle Devonian; Milwaukee Formation; Berthelet.

*Actinopteria singularis* Pohl, 1929

*Holotype* (designated): 2301

*Paratype*: 5150

Pohl, 1929, p. 45, pl. 7, fig. 16-17

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel.

*Aviculopecten duplicostatus* Pohl, 1929

*Holotype* (designated): 13529

Pohl, 1929, p. 58, pl. 8, fig. 4

Middle Devonian; Milwaukee Formation; Berthelet.

- Aviculopecten hystriculus* Pohl, 1929  
 Syntype: 13734  
 Pohl, 1929, pp. 57-58, pl. 8, fig. 1  
 Middle Devonian; Milwaukee Formation; Berthelet.
- Aviculopecten* sp.  
 Figured specimen: 13730  
 Pohl, 1929, p. 59, pl. 8, fig. 5  
 Middle Devonian; Milwaukee Formation; Berthelet.
- Cimitaria obtusiloba* (Cleland, 1911)  
 Figured specimens: 10224, 10225  
 Pohl, 1929, pp. 27-30, pl. 2, fig. 4, 7  
 Middle Devonian; Milwaukee Formation; Berthelet.  
 See: *Goniophora obtusiloba* Cleland, 1911
- Conocardium truncatum* Pohl, 1929  
 Syntype: 13593  
 Pohl, 1929, pp. 53-54, pl. 7, fig. 6  
 Middle Devonian; Lake Church Formation; Lake Church, Milwaukee.
- Goniophora obtusiloba* Cleland, 1911  
 Holotype (monotype): 10225  
 Cleland, 1911, p. 119, pl. 25, fig. 11  
 Middle Devonian; Milwaukee Formation; Berthelet.  
 See: *Cimitaria obtusiloba* (Cleland, 1911)
- Grammysia marginata* Pohl, 1929  
 Syntype: 477  
 Pohl, 1929, pp. 24-25, pl. 1, fig. 6  
 Middle Devonian; Milwaukee Formation; Berthelet.
- Grammysia nodocostata* Hall, 1885  
 Figured specimen: 478  
 Cleland, 1911, pp. 97-98, pl. 23, fig. 1-2  
 Middle Devonian; Milwaukee Formation; Berthelet.
- Ilionia tenuistriata* Pohl, 1929  
 Figured specimens: 13590, 13591  
 Pohl, 1929, p. 70, pl. 14, fig. 21-22  
 Middle Devonian; Lake Church Formation; Lake Church, Milwaukee.
- Leiopteria acutilaris* Pohl, 1929  
 Syntypes: 13739, 13740  
 Pohl, 1929, pp. 40-41, pl. 5, fig. 9-10  
 Middle Devonian; Milwaukee Formation; Berthelet.
- Modiomorpha concentrica* Conrad, 1885  
 Figured specimen: 458  
 Cleland, 1911, p. 113, pl. 24, fig. 6-7  
 Middle Devonian; Milwaukee Formation; Berthelet.  
 See: *Modiomorpha saccula* Pohl, 1929
- Modiomorpha diffidens* Pohl, 1929  
 Holotype (designated): 13569

*Paratypes*: 13531, 13549, 13578  
 Pohl, 1929, p. 69, pl. 14, fig. 5, 10-11, 16  
 Middle Devonian; Milwaukee Formation; Berthelet.

*Modiomorpha elongata* (Cleland, 1911)  
*Figured specimens*: 460, 18599  
 Pohl, 1929, p. 66, pl. 11, fig. 5-6  
 Middle Devonian; Milwaukee Formation; Berthelet.  
*See: Nyassa elongata* Cleland, 1911

*Modiomorpha saccula* Pohl, 1929  
*Syntypes*: 458, 2451, 13575, 27637  
 Pohl, 1929, pp. 65-66, pl. 10, fig. 12, 14, pl. 11, fig. 2-3  
 Middle Devonian; Milwaukee Formation; Berthelet.  
*See: Modiomorpha concentrica* Conrad, 1885  
*Remarks*: Two syntypes originally numbered 458, one recataloged as 27637, the other referred to *Modiomorpha concentrica* by Cleland, 1911.

*Modiomorpha schucherti* Cleland, 1911  
*Syntype*: 495  
 Cleland, 1911, p. 115, pl. 24, fig. 1-3  
 Pohl, 1929, p. 68, pl. 13, fig. 6  
 Middle Devonian; Milwaukee Formation; Berthelet.

*Mytilarca cingulosa* Pohl, 1929  
*Syntypes*: 498, 13537, 13538, 13580, 27638  
 Pohl, 1929, pp. 47-48, pl. 5, fig. 15-19  
 Middle Devonian; Milwaukee Formation; Berthelet.  
*See: Mytilarca* sp.  
*Remarks*: 498 referred to *Mytilarca* sp. by Cleland, 1911; two syntypes originally numbered 13538, one recataloged as 27638.

*Mytilarca dentata* Pohl, 1929  
*Syntypes*: 13539, 13574  
 Pohl, 1929, p. 48, pl. 5, fig. 20-21  
 Middle Devonian; Milwaukee Formation; Berthelet.

*Mytilarca oviformis?* Conrad, 1885  
*Figured specimen*: 497  
 Cleland, 1911, p. 107, pl. 22, fig. 2  
 Middle Devonian; Milwaukee Formation; Berthelet.  
*See: Plethomytilus suberectus* Pohl, 1929

*Mytilarca* sp.  
*Figured specimen*: 498  
 Cleland, 1911, p. 108, pl. 22, fig. 3  
 Middle Devonian; Milwaukee Formation; Berthelet.  
*See: Mytilarca cingulosa* Pohl, 1929

*Nuculana gibbosa* Pohl, 1929  
*Syntypes*: 5154, 13612, 13613, 13616  
 Pohl, 1929, p. 39, pl. 4, fig. 38, 40-45  
 Middle Devonian; Milwaukee Formation; Fox Point, Milwaukee.

- Nuculites milwaukeeensis* Cleland, 1911  
*Holotype* (designated): 461  
 Cleland, 1911, p. 100, pl. 20, fig. 5  
 Middle Devonian; Milwaukee Formation; North Avenue intake tunnel,  
 Milwaukee.  
*See: Palaeoneilo milwaukeeensis* (Cleland, 1911)
- Nyassa elongata* Cleland, 1911  
*Holotype* (monotype): 460  
 Cleland, 1911, p. 111, pl. 22, fig. 10-12  
 Middle Devonian; Milwaukee Formation; Berthelet.  
*See: Modiomorpha elongata* (Cleland, 1911)
- Palaeoneilo brevis* Hall, 1885  
*Figured specimen*: 464  
 Cleland, 1911, pp. 101-102, pl. 20, fig. 7  
 Middle Devonian; Milwaukee Formation; North Avenue intake tunnel,  
 Milwaukee.  
*See: Palaeoneilo dentata* Pohl, 1929
- Palaeoneilo* cf. *P. constricta* Conrad, 1882  
*Figured specimens*: 463, 13532, 13540, 13555, 13556, 13559, 13580  
 Cleland, 1911, p. 102, pl. 20, fig. 22  
 Pohl, 1929, p. 34, pl. 4, fig. 2-4, 7-8, 14-15  
 Middle Devonian; Milwaukee Formation; Whitefish Bay and Berthelet,  
 Milwaukee.
- Palaeoneilo corrugata* Pohl, 1929  
*Syntype*: 13546  
*Paratypes*: 466, 468, 471, 13579  
 Pohl, 1929, pp. 35-36, pl. 4, fig. 28-30, 32-33  
 Middle Devonian; Milwaukee Formation; North Avenue intake tunnel and  
 Berthelet, Milwaukee.  
*See: Palaeoneilo emarginata* Conrad, 1882
- Palaeoneilo dentata* Pohl, 1929  
*Syntypes*: 464, 465, 5157, 13619  
 Pohl, 1929, pp. 34-35, pl. 4, fig. 16-25  
 Middle Devonian; Milwaukee Formation; North Avenue intake tunnel and  
 Whitefish Bay, Milwaukee.  
*See: Palaeoneilo brevis* Hall, 1885; *Palaeoneilo* sp.
- Palaeoneilo devexa* Pohl, 1929  
*Syntype*: 13621  
*Paratypes*: 13544, 13576  
 Pohl, 1929, pp. 38-39, pl. 5, fig. 3-5  
 Middle Devonian; Milwaukee Formation; Fox Point and Berthelet, Mil-  
 waukee.
- Palaeoneilo emarginata* Conrad, 1882  
*Figured specimen*: 466  
 Cleland, 1911, p. 103, pl. 20, fig. 12  
 Middle Devonian; Milwaukee Formation; North Avenue intake tunnel or

Berthelet, Milwaukee.

See: *Palaeoneilo corrugata* Pohl, 1929

*Palaeoneilo fecunda* Hall, 1885

*Figured specimens*: 473, one specimen (NF)

Cleland, 1911, pp. 103-104, pl. 20, fig. 13-14

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel and Berthelet, Milwaukee.

See: *Palaeoneilo pulchella* Pohl, 1929

*Palaeoneilo impressa* Pohl, 1929

*Holotype* (designated): 13592

*Paratype*: 13595

Pohl, 1929, p. 33, pl. 3, fig. 14-15

Middle Devonian; Lake Church Formation; Lake Church, Milwaukee.

*Palaeoneilo milwaukeeensis* (Cleland, 1911)

*Figured specimens*: 461, 476, 2399, 2400, 5011, 5012, 18579

Pohl, 1929, p. 32, pl. 3, fig. 16-25

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel and Berthelet, Milwaukee.

See: *Nuculites milwaukeeensis* Cleland, 1911

*Palaeoneilo persinuata* Pohl, 1929

*Holotype* (designated): 13757

Pohl, 1929, p. 37, pl. 4, fig. 35-37

Middle Devonian; Milwaukee Formation; Berthelet.

*Palaeoneilo* cf. *P. plana* Hall, 1885

*Figured specimens*: Two specimens (NF)

Cleland, 1911, p. 104, pl. 20, fig. 15-16

Middle Devonian; Milwaukee Formation; Berthelet.

*Palaeoneilo pulchella* Pohl, 1929

*Syntypes*: 473, 5159, 5160

*Paratypes*: 13581, 13582

Pohl, 1929, pp. 37-38, pl. 4, fig. 46-51

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel and Berthelet, Milwaukee.

See: *Palaeoneilo fecunda* Hall, 1885

*Palaeoneilo* sp.

*Figured specimen*: 465

Cleland, 1911, p. 105, pl. 20, fig. 8

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel, Milwaukee.

See: *Palaeoneilo dentata* Pohl, 1929

*Paracyclas elliptica incerta* Pohl, 1929

*Holotype* (designated): 2760

Pohl, 1929, p. 71, pl. 14, fig. 19-20

Middle Devonian; formation unknown; Milwaukee River in Milwaukee County.

*Paracyclas lirata* "var."

Figured specimen: 501

Cleland, 1911, p. 118, pl. 25, fig. 6-7

Middle Devonian; Milwaukee Formation; Berthelet.

See: *Paracyclas* sp.*Paracyclas obesaumbonata* Pohl, 1929

Syntype: 10991

Pohl, 1929, p. 71, pl. 14, fig. 18

Middle Devonian; Lake Church Formation; Lake Church, Milwaukee.

Remarks: Published as *Paracyclas obesa-umbonata*.*Paracyclas paradoxica* Pohl, 1929

Holotype (designated): 13622

Pohl, 1929, pp. 70-71, pl. 10, fig. 5

Middle Devonian; Milwaukee Formation; Fox Point, Milwaukee.

*Paracyclas* sp.

Figured specimens: 500, 501

Cleland, 1911, p. 119, pl. 25, fig. 8

Pohl, 1929, p. 72, pl. 14, fig. 23-24

Middle Devonian; Milwaukee Formation; Berthelet.

See: *Paracyclas lirata* "var."*Plethomytilus suberectus* Pohl, 1929

Syntype: 497

Pohl, 1929, pp. 51-52, pl. 6, fig. 3

Middle Devonian; Milwaukee Formation; Berthelet.

See: *Mytilarca oviformis*? Conrad, 1885*Schizodus dubius* Pohl, 1929

Holotype (designated): 13572

Pohl, 1929, pp. 64-65, pl. 10, fig. 4

Middle Devonian; Milwaukee Formation; Berthelet.

*Schizodus* sp.

Figured specimen: 13611

Pohl, 1929, p. 65, pl. 10, fig. 7

Middle Devonian; Thiensville Formation; Fox Point, Milwaukee.

*Vertumnia barretti* Pohl, 1929

Holotype (designated): 5156

Pohl, 1929, p. 61, pl. 9, fig. 3-4

Middle Devonian; Milwaukee Formation; North Avenue intake tunnel, Milwaukee.

*Vertumnia edwardsi* Pohl, 1929

Syntype: 13729

Pohl, 1929, p. 63, pl. 9, fig. 2

Middle Devonian; Milwaukee Formation; Berthelet.

*Vertumnia intercalaris* Pohl, 1929

Holotype (designated): 13737

Pohl, 1929, p. 62, pl. 9, fig. 5

Middle Devonian; Milwaukee Formation; Berthelet.

*Vertumnia raaschi* Pohl, 1929

Syntype: 13543

Pohl, 1929, pp. 63-64, pl. 10, fig. 2

Middle Devonian; Milwaukee Formation; Berthelet.

#### CLASS CEPHALOPODA

*Buehleroceras compressum* Ulrich *et al.*, 1943

Paratype: 25113

Ulrich *et al.*, 1943, p. 61

Early Ordovician; Oneota Dolomite; Asbury Ridge, Genoa, Vernon County.

*Clarkoceras luthei* (Calvin, 1892)

Figured specimens: 326, 791

Ulrich *et al.*, 1943, pl. 47, fig. 1-2, pl. 48, fig. 1-2

Early Ordovician; Oneota Dolomite; near Genoa, Vernon County.

Remarks: Specimens have been recataloged, 326=25133, 791=25134.

*Conocerina beani* Ulrich *et al.*, 1943

Holotype (designated): 25125

Ulrich *et al.*, 1943, pl. 53, fig. 13-14

Early Ordovician; Oneota Dolomite; Vernon County.

*Conocerina raaschi* Ulrich *et al.*, 1943

Holotype (designated): 25126

Paratypes: 25127, 25128, 27639

Ulrich *et al.*, 1943, p. 106, pl. 53, fig. 1-4

Early Ordovician; Oneota Dolomite; 3/4 mi. NW of Harmony School, Genoa, Vernon County.

*Eremoceras ? difficile* Ulrich *et al.*, 1943

Holotype (designated): 25112

Ulrich *et al.*, 1943, pl. 61, fig. 1

Early Ordovician; Oneota Dolomite; Vernon County.

*Eremoceras teres* Ulrich *et al.*, 1943

Holotype (designated): 25110

Paratypes: 25111, 27640

Ulrich *et al.*, 1943, pl. 60, fig. 7-8, 10-12

Early Ordovician; Oneota Dolomite; Asbury Ridge, Genoa, Vernon County.

*Gomphoceras fusiforme* Whitfield, 1882

Figured specimen: 432

Cleland, 1907, pp. 467-468, fig. 11

Cleland, 1911, pp. 139-140, pl. 41, fig. 1

Middle Devonian; Milwaukee Formation; Berthelet.

Remarks: = *Acleistoceras ? clelandi* Miller, 1932, replacement name.

*Gomphoceras whitfieldi* Cleland, 1907

Holotype (monotype): 427

Cleland, 1907, pp. 464-465, fig. 10

Middle Devonian; Milwaukee Formation; Berthelet.



*Gomphoceras wisconsinense* Cleland, 1907

Syntypes: 407, 411

Cleland, 1907, pp. 461-464, fig. 1, 3

Cleland, 1911, pp. 135-136, pl. 29, 31

Middle Devonian; Milwaukee Formation; Berthelet.

*Gyroceras clarkei* Cleland, 1907

Holotype (monotype): 437

Cleland, 1907, p. 469, fig. 14

Middle Devonian; Milwaukee Formation; Berthelet.

Remarks: "*Gyroceras eryx* Hall n. sp." in text, "*G. clarkei*, n. sp." in figure caption. Cleland presumably removed this specimen from *G. eryx* and founded *G. clarkei* on it, but the same specimen is called *G. eryx* by Cleland, 1911, pl. 33.

*Gyroceras eryx* Hall, 1879

Figured specimen: 437

Cleland, 1911, pp. 140-141, pl. 33

Middle Devonian; Milwaukee Formation; Berthelet.

Remarks: See discussion of this specimen under *Gyroceras clarkei* Cleland, 1907.

*Levisoceras complanatum* Ulrich *et al.*, 1943

Figured specimen: 27641

Ulrich *et al.*, 1943, pl. 63, fig. 17-18

Early Ordovician; Oneota Dolomite; Vernon County.

*Levisoceras edwardsi* Ulrich *et al.*, 1943

Holotype (designated): 27642

Paratype: 27643

Ulrich *et al.*, 1943, pp. 137-138, pl. 65, fig. 8-9

Early Ordovician; Oneota Dolomite; Asbury Ridge, Genoa, Vernon County.

*Orthoceras* cf. *O. bebryx* Hall, 1879

Figured specimen: 490

Cleland, 1911, p. 135, pl. 43, fig. 1-2

Middle Devonian; Milwaukee Formation; Berthelet.

**PHYLUM ARTHROPODA**  
**CLASS MEROSTOMATA**

*Aglaspella granulifera* Raasch, 1939

Syntypes: 11166, 11173, 11908

Raasch, 1939, pl. 9, fig. 1-3, 5-6

Late Cambrian; Lodi Member, St. Lawrence Formation; Richland Center (11166), 4 mi. E of Gotham (11173), 2½ mi. N of Spring Green (11908).

*Aglaspis barrandei* Hall, 1863

Figured specimens: 12161, 18570, 18578, 22764

Raasch, 1939, pl. 5, fig. 4, pl. 6, fig. 5, 8-10

Late Cambrian; Lodi Member, St. Lawrence Formation; 2½ mi. N of Spring Green (12161), Prairie du Sac (18570), Mazomanie (18578), Gibraltar Bluff (22764).

*Aglaspis dorsetensis* Raasch, 1939*Holotype* (designated): 12162 (NF)

Raasch, 1939, pl. 7, fig. 6

Late Cambrian; Trempealeau Formation (Trempealeau Group); Dorset Valley, Monroe County.

*Aglaspis simplex* Raasch, 1939*Paratypes*: 11903, 18576, 22753, 22813

Raasch, 1939, pl. 8, fig. 2, 4-6, 10

Late Cambrian; Lodi Member, St. Lawrence Formation; Ryman's Quarry, 2½ mi. N of Spring Green (11903, 22753), Richland Center (18576, 22813).

*Aglaspis spinifer* Raasch, 1939*Syntypes*: 11153 (NF), 11154, 11155, 11156, 11271, 11274, 11275, 11276, 11280, 11283, 11286, 11287, 11288, 11401, 22871*Paratype*: 11276

Raasch, 1939, pl. 1-4, pl. 9, fig. 9-10, pl. 10, fig. 9-10

Briggs *et al.*, 1979, pl. 22-25, fig. 1-2

Late Cambrian; Lodi Member, St. Lawrence Formation; Point Jude, 3 mi. E of Gotham.

*Remarks*: Raasch, 1939, lists 11152 as "holotype for appendages", but many other specimens as "cotypes". The number 11152 is an error, applied by Raasch to part and counterpart cataloged as 11154 and 11155, respectively. Briggs *et al.*, 1979, lists these specimens as "holotype." The number 11287 applies to two designated syntypes on one slab, and 11276 to a designated syntype and designated paratype on one slab.*Aglaspidoides sculptilis* Raasch, 1939*Holotype* (designated): 11168*Paratype*: 12164

Raasch, 1939, pl. 11, fig. 10-13

Late Cambrian; Lodi Member, St. Lawrence Formation; 2½ mi. N of Spring Green.

*Aglaspidoides semicircularis* Raasch, 1939*Syntypes*: 11905 (NF), 11910, 11918 (NF)

Raasch, 1939, pl. 11, fig. 5-9

Late Cambrian; Lodi Member, St. Lawrence Formation; Pheasant Branch, Lake Mendota, Dane County (11910, 11918), Point Jude, 3 mi. E of Gotham (11918), 2½ mi. N of Spring Green (11905).

*Remarks*: One of the syntypes listed as 11918 is an error.*Beckwithia ? major* (Graham, 1931)*Figured specimen*: One specimen? (NF)

Raasch, 1939, pl. 18, fig. 5

Late Cambrian; Eau Claire Formation; Black River Bridge, 1 mi. SW of North Bend, Jackson County.

*Remarks*: Plate caption refers to specimen as "MPM?".*Chraspedops fragilis* Raasch, 1939*Holotype* (designated): 22796

Raasch, 1939, pl. 15, fig. 14

Late Cambrian; Lodi Member, St. Lawrence Formation; 2½ mi. E. of Gotham.

*Chraspedops modesta* Raasch, 1939

*Syntypes*: 11158, 11159, 11275, 11278, 11312 (NF), 11318, 11326, 11351, 11354, 11357, 11358, 11359, 11361, 11369, 11371, 11938

*Paratypes*: 11363, 11915, 22788, 22872

Raasch, 1939, pl. 15, fig. 13, pl. 16, fig. 1-13, 16-17, pl. 17, fig. 2-7

Late Cambrian; Lodi Member, St. Lawrence Formation; Point Jude, 3 mi. E of Gotham (all but 11915), 2 mi. S of Spring Green.

*Cyclopina vulgaris* Raasch, 1939

*Syntypes*: 11169, 11171, 22729, 22768, 22833, one specimen (NF)

*Paratypes*: 11926, 22820

Raasch, 1939, pl. 14, fig. 1-3, 5-6, pl. 15, fig. 1, 6-7, 11-12

Late Cambrian; Lodi Member, St. Lawrence Formation; 2½ mi. E of Gotham, 2½ mi. N of Spring Green, Richland Center, 4½ mi. ENE of Spring Green.

*Glypharthrus thomasi* (Walter, 1924)

*Figured specimens*: 11163, 11164, 22815

Raasch, 1939, pl. 11, fig. 1-3, pl. 20, fig. 1

Late Cambrian; Lodi Member, St. Lawrence Formation; 2½ mi. N of Spring Green (11163, 11164), Richland Center (22815).

*Setaspis regularis* Raasch, 1939

*Holotype* (designated): One specimen (NF)

Raasch, 1939, pl. 13, fig. 5

Late Cambrian; Lodi Member, St. Lawrence Formation; 2 mi. E of Gotham.

*Setaspis spinulosus* Raasch, 1939

*Syntypes*: 11918, two specimens (NF)

Raasch, 1939, pl. 13, fig. 8, pl. 18, fig. 6-7

Late Cambrian; Lodi Member, St. Lawrence Formation; Point Jude, 3 mi. E of Gotham (11918), Pheasant Branch, Lake Mendota, Dane County, WNW of Prairie du Sac.

*Uarthrus instabilis* Raasch, 1939

*Syntypes*: 11171, 11354 (NF), 11921, 12169, one specimen (NF)

*Paratype*: One specimen (NF)

Raasch, 1939, pl. 12, fig. 1-4, 6, 12

Late Cambrian; Lodi Member, St. Lawrence Formation; Point Jude, 3 mi. E of Gotham (11354), 4½ mi. ENE of Spring Green (11171), Richland Center (11921), 2½ mi. N of Spring Green (12169).

*Remarks*: Published as *U-arthrus instabilis*.

## Aglaspidae

*Figured specimen*: One specimen (NF)

Raasch, 1939, pl. 9, fig. 8

Late Cambrian; Trempealeau Formation (Trempealeau Group); Dorset Valley, Monroe County.

## Merostomata ?

*Figured specimens*: 11162, 11377, 11378

Raasch, 1939, pl. 21, fig. 1-4

Late Cambrian; Lodi Member, St. Lawrence Formation; Point Jude, 3 mi. E of Gotham.

## CLASS TRILOBITA

*Briscoia lodensis* Ulrich and Resser, 1930

*Syntype*: 18692 (NF)

Ulrich and Resser, 1930, pl. 22, fig. 11

Late Cambrian; Lodi Shale, St. Lawrence Formation; W of Ontario.

*Calvinella pustulosa* Ulrich and Resser, 1933

*Paratypes*: 19409 (NF), 19410 (NF)

Ulrich and Resser, 1933, pl. 39, fig. 5, 7-8

Late Cambrian; Norwalk Sandstone (Jordan Formation); Coon Valley.

*Calvinella wisconsinensis* Ulrich and Resser, 1933

*Syntypes*: 19411 (NF), 19412 (NF)

Ulrich and Resser, 1933, pl. 40, fig. 25, 32

Late Cambrian; Lodi Shale, St. Lawrence Formation; near Newton, Vernon County.

*Dikelocephalus barretti* Ulrich and Resser, 1930

*Syntypes*: 11176, 18686, 18687, 18688, 18689

Ulrich and Resser, 1930, pl. 16, fig. 1-7

Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. E of Gotham (11176, 18686, 18687, 18688), 1¼ mi. NE of Gotham (18689).

*Dikelocephalus brevis* Ulrich and Resser, 1930

*Syntypes*: 18656, 18657, 18658, 18681

Ulrich and Resser, 1930, pl. 1, fig. 3-5, pl. 14, fig. 1

Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. E of Gotham.

*Dikelocephalus edwardsi* Ulrich and Resser, 1930

*Syntypes*: 18662, 18663, 18664, 18665, 18666

Ulrich and Resser, 1930, pl. 9, fig. 1-5

Late Cambrian; Lodi Shale, St. Lawrence Formation; 1¼ mi. NW of Richland Center (18662-18665), 2 mi. S of Spring Green (18666).

*Dikelocephalus gracilis* Ulrich and Resser, 1930

*Syntypes*: 18667, 18675

Ulrich and Resser, 1930, pl. 9, fig. 6, pl. 13, fig. 1

Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. N of Spring Green.

*Dikelocephalus marginatus* Ulrich and Resser, 1930

*Syntypes*: 11186, 11904

Ulrich and Resser, 1930, pl. 15, fig. 6-7

Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. N of Spring Green.

*Dikelocephalus* cf. *D. orbiculatus* Ulrich and Resser, 1930

*Figured specimen*: 18690

Ulrich and Resser, 1930, pl. 17, fig. 1

Late Cambrian; Lodi Shale, St. Lawrence Formation; Gibraltar Rock, Columbia County.

*Dikelocephalus ovatus* Ulrich and Resser, 1930

*Syntypes*: 18676, 18677, 18679

*Paratypes*: 18678, 18680

Ulrich and Resser, 1930, pl. 13, fig. 3-7

Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. N of Spring Green.

*Dikelocephalus oweni* Ulrich and Resser, 1930

*Paratypes*: 18659, 18660

Ulrich and Resser, 1930, pl. 8, fig. 2-3

Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. N of Spring Green (18659), ¾ mi. SE of Richland Center (18660).

*Dikelocephalus postrectus* Ulrich and Resser, 1930

*Holotype* (designated): 18691

Ulrich and Resser, 1930, pl. 20, fig. 1-2

Late Cambrian; Mazomanie Sandstone (Franconia Formation); 2½ mi. NE of Reedsburg.

*Dikelocephalus raaschi* Ulrich and Resser, 1930

*Syntypes*: 18661, 18672, 18673

*Paratype*: 18674

Ulrich and Resser, 1930, pl. 8, fig. 4, pl. 10, fig. 1-3

Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. N of Spring Green (18661, 18672, 18673), ¾ mi. SE of Richland Center (18674).

*Dikelocephalus retrorsus* Ulrich and Resser, 1930

*Syntype*: 18685

Ulrich and Resser, 1930, pl. 14, fig. 6

Late Cambrian; Lodi Shale, St. Lawrence Formation; ½ mi. NW of Richland Center.

*Dikelocephalus subplanus* Ulrich and Resser, 1930

*Syntypes*: 18682, 18683, 18684

Ulrich and Resser, 1930, pl. 14, fig. 3-5

Late Cambrian; Lodi Shale, St. Lawrence Formation; 1¼ mi. NW of Richland Center (18682, 18684), ¾ mi. SE of Richland Center (18683).

*Dikelocephalus weidmani* Ulrich and Resser, 1930

*Holotype* (designated): 9557

*Paratypes*: 9558, 9559, 9560 (NF)

Ulrich and Resser, 1930, pl. 17, fig. 2-6

Late Cambrian; Norwalk Sandstone (Jordan Formation); near Mondovi.

*Dikelocephalus wisconsinensis* Ulrich and Resser, 1930

*Syntypes*: 18668, 18669, 18670, 18671

Ulrich and Resser, 1930, pl. 9, fig. 7-10

Late Cambrian; Lodi Shale, St. Lawrence Formation; ¾ mi. SE of Richland Center.

*Dikelocephalus* sp.

*Figured specimen*: 11179

Ulrich and Resser, 1930, pl. 14, fig. 9

Late Cambrian; Lodi Shale, St. Lawrence Formation; 4½ mi. NW of Lone Rock.

*Encrinurus* sp.

*Figured specimens:* 26242, 26515, 26516, 26522

Tripp *et al.*, 1977, pl. 114, fig. 8-13

Middle Silurian; Racine Dolomite; Milwaukee City Quarry, Wauwatosa (26242), Brookfield, Waukesha County (26515, 26516), Wauwatosa, Milwaukee County (26522).

*Prosaukia acclivis* Ulrich and Resser, 1933

*Syntypes:* 19371, 19372, 19373, 19374

Ulrich and Resser, 1933, pl. 31, fig. 1-5

Late Cambrian; Mazomanie Formation (Franconia Formation); Genoa.

*Prosaukia* ? *ambigua* Ulrich and Resser, 1933

*Holotype* (designated): 19375

*Paratypes:* 19376, 19377

Ulrich and Resser, 1933, pl. 31, fig. 6-8

Late Cambrian; Franconia Formation; Genoa.

*Prosaukia granosa* Ulrich and Resser, 1933

*Holotype* (designated): 19370

Ulrich and Resser, 1933, pl. 28, fig. 18

Late Cambrian; Franconia Formation; 2 mi. W of Hustler Tunnel, Juneau County.

*Prosaukia lodensis* Ulrich and Resser, 1933

*Holotype* (designated): 19369

Ulrich and Resser, 1930, pl. 28, fig. 9

Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. E of Gotham.

*Prosaukia miniscula* Ulrich and Resser, 1933

*Syntypes:* 19378, 19396

Ulrich and Resser, 1933, pl. 31, fig. 12-13

Late Cambrian; Mazomanie Formation (Franconia Formation); Genoa.

*Prosaukia misa* (Hall, 1863)

*Figured specimen:* 5968

Ulrich and Resser, 1933, pl. 24, fig. 7

Late Cambrian; Franconia Formation; Alma.

*Remarks:* Figured cast.

*Prosaukia* sp.

*Figured specimens:* 19380 (NF), 19381 (NF)

Ulrich and Resser, 1933, pl. 28, fig. 10-11

Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. E of Gotham.

*Saukia curvata* Ulrich and Resser, 1933

*Holotype* (designated): 19388

Ulrich and Resser, 1933, pl. 30, fig. 5

Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. E of Gotham.

*Saukia granilineata* Ulrich and Resser, 1933

*Holotype* (designated): 19395

Ulrich and Resser, 1933, pl. 31, fig. 11

Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. E of Gotham.

- Saukia levigenata* Ulrich and Resser, 1933  
*Holotype* (designated): 19389  
 Ulrich and Resser, 1933, pl. 30, fig. 6  
 Late Cambrian; Lodi Shale, St. Lawrence Formation; Gibraltar Rock,  
 Columbia County.
- Saukia lodensis* (Whitfield, 1880)  
*Figured specimen*: 19397  
 Ulrich and Resser, 1933, pl. 31, fig. 26  
 Late Cambrian; Lodi Shale, St. Lawrence Formation; 2 mi. S of Spring  
 Green.
- Saukia nitida* Ulrich and Resser, 1933  
*Holotype* (designated): 19385  
*Paratype*: 19386  
 Ulrich and Resser, 1933, pl. 30, fig. 1-2  
 Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. E of Gotham.
- Saukia ornata* Ulrich and Resser, 1933  
*Holotype* (designated): 19387  
 Ulrich and Resser, 1933, pl. 30, fig. 3  
 Late Cambrian; Lodi Shale, St. Lawrence Formation; Lodi.
- Saukia parva* Ulrich and Resser, 1933  
*Holotype* (designated): 19394  
 Ulrich and Resser, 1933, pl. 30, fig. 26  
 Late Cambrian; Lodi Shale, St. Lawrence Formation; Richland Center.
- Saukia separatoidea* Ulrich and Resser, 1933  
*Syntypes*: 19391, 19392, 19393  
 Ulrich and Resser, 1933, pl. 30, fig. 8-10  
 Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. E of Gotham.
- Saukia subgranosa* Ulrich and Resser, 1933  
*Holotype* (designated): 19390  
 Ulrich and Resser, 1933, pl. 30, fig. 7  
 Late Cambrian; Lodi Shale, St. Lawrence Formation; Richland Center.
- Saukia sublonga* Ulrich and Resser, 1933  
*Holotype* (designated): 19382  
 Ulrich and Resser, 1933, pl. 29, fig. 7  
 Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. N of Spring  
 Green.
- Saukia subrecta* Ulrich and Resser, 1933  
*Holotype* (designated): 19384  
 Ulrich and Resser, 1933, pl. 29, fig. 19  
 Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. E of Gotham.
- Saukia* cf. *S. whitfieldi* Ulrich and Resser, 1933  
*Figured specimen*: 19383 (NF)  
 Ulrich and Resser, 1933, pl. 29, fig. 18  
 Late Cambrian; Lodi Shale, St. Lawrence Formation; 2½ mi. E of Gotham.

*Saukiella indenta intermedia* Ulrich and Resser, 1933*Holotype* (designated): 19399

Ulrich and Resser, 1933, pl. 36, fig. 4

Late Cambrian; Norwalk Sandstone (Jordan Formation); Johnson Hill.

*Saukiella minor* Ulrich and Resser, 1933*Syntypes*: 19400, 19401, 19402, 19403, 19404, 19405, 19406, 19407, 19408

Ulrich and Resser, 1933, pl. 37, fig. 6-14

Late Cambrian; Mazomanie Formation (Franconia Formation); Genoa (19400, 19401), Sec. 22 T12N R6W, Vernon County (19402-19408).

*Saukiella* cf. *S. pyrene* Ulrich and Resser, 1933*Figured specimen*: 19398 (NF)

Ulrich and Resser, 1933, pl. 35, fig. 9

Late Cambrian; Norwalk Sandstone (Jordan Formation); Goodenough Hill, Juneau County.

*Saukiella subgracilis* Ulrich and Resser, 1933*Syntype*: 6671 (NF)

Ulrich and Resser, 1933, pl. 33, fig. 18

Late Cambrian; Lodi Shale, St. Lawrence Formation; Reads Landing, Minnesota.

*Saukiella subgracilis parallela* Ulrich and Resser, 1933*Figured specimen*: 3550

Ulrich and Resser, 1933, pl. 33, fig. 27

Late Cambrian; Lodi Shale, St. Lawrence Formation; Red Wing, Minnesota.

*Saukiella transita* Ulrich and Resser, 1933*Holotype* (designated): 19379 (NF)

Ulrich and Resser, 1933, pl. 25, fig. 20

Late Cambrian; St. Lawrence Limestone Member, Trempealeau Formation (St. Lawrence Formation); Gibraltar Rock, Columbia County.

*Saukiella typicalis subrecta* Ulrich and Resser, 1933*Syntype*: 6105 (NF)

Ulrich and Resser, 1933, pl. 33, fig. 6

Late Cambrian; Lodi Shale, St. Lawrence Formation; Bluff Siding.

*Tellerina gothamensis* Ulrich and Resser, 1933*Syntypes*: 19413, 19414

Ulrich and Resser, 1933, pl. 42, fig. 4-5

Late Cambrian; Lodi Shale, St. Lawrence Formation; 1½ mi. NE of Gotham.

*Tellerina leucosia* (Walcott, 1914)*Figured specimens*: 6099 (NF), 6115 (NF), 6116 (NF)

Ulrich and Resser, 1933, pl. 44, fig. 18-20

Late Cambrian; Norwalk Sandstone (Jordan Formation); Osceola.

**PHYLUM ECHINODERMATA***Holocystites alternatus* Hall, 1868*Figured specimen*: 839

Foerste, 1920, p. 53, pl. 4, fig. 1

Middle Silurian; Racine Dolomite; Racine.



*Nucleocrinus obovatus* (Barris, 1883)

*Figured specimen:* 5282

Cleland, 1911, p. 43, pl. 3, fig. 2

Middle Devonian; Milwaukee Formation; Berthelet.

*Pentremitidea filosa* Whiteaves, 1891

*Figured specimen:* One specimen (NF)

Cleland, 1911, p. 44, pl. 3, fig. 3

Middle Devonian; Milwaukee Formation; Berthelet.

*Pentremitidea milwaukeensis* Weller, 1898

*Figured specimen:* 284

Cleland, 1911, p. 43, pl. 3, fig. 1

Middle Devonian; Milwaukee Formation; Berthelet.

## PHYLUM CHORDATA

### CLASS GRAPTOLITHINA

*Callograptus* sp.

*Figured specimen:* 19457

Ruedemann, 1933, pl. 52, fig. 1, 11

Late Cambrian; Trempealeau Formation (Trempealeau Group); Dorset Valley, Monroe County.

*Dendrograptus edwardsi* Ruedemann, 1933

*Holotype* (designated): 11510

*Paratype:* 19452

Ruedemann, 1933, pl. 47, fig. 2, 4-5, 8

Late Cambrian; Trempealeau Formation (Trempealeau Group); Dorset Valley, Monroe County.

*Dendrograptus hallianus* (Prout, 1851)

*Figured specimens:* 11508, 19445, 19449, 19451, 19456, 19458, 19548

Ruedemann, 1933, pl. 46, fig. 1-12, pl. 47, fig. 3, pl. 48, fig. 1

Late Cambrian; Lodi Shale and Trempealeau Formation (Trempealeau Group); Dorset Valley, Monroe County (11508, 19451, 19456, 19458, 19548), Richland Center (19445, 19449).

*Remarks:* 19449 listed erroneously as 19450.

*Dendrograptus hallianus spissus* Ruedemann, 1933

*Holotype* (designated): 19453

Ruedemann, 1933, pl. 46, fig. 13-14

Late Cambrian; Trempealeau Formation (Trempealeau Group); near Ontario, Monroe County.

*Dendrograptus sparsus* Ruedemann, 1933

*Holotype* (designated): 19454

Ruedemann, 1933, pl. 47, fig. 1, 9

Late Cambrian; Trempealeau Formation (Trempealeau Group); Dorset Valley, Monroe County.

*Dictyonema* sp.

*Figured specimen:* 19459

Ruedemann, 1933, pl. 52, fig. 3, 10  
Late Cambrian; Trempealeau Formation (Trempealeau Group); E of Spring Green.

*Haplograptus wisconsinensis* Ruedemann, 1933

*Holotype* (designated): 19444

*Paratypes*: 19447, 19448, 19450

Ruedemann, 1933, pl. 52, fig. 4-5, 8-9, 12-15

Late Cambrian; Trempealeau Formation (Trempealeau Group); Richland Center.

*Remarks*: 19450 listed erroneously as 19449.

*Mastigograptus* sp.

*Figured specimens*: 19446, 19455

Ruedemann, 1933, pl. 52, fig. 2, 6-7

Late Cambrian; Trempealeau Formation (Trempealeau Group); Richland Center (19446), Dorset Valley, Monroe County (19455).

#### CLASS PLACODERMI

*Dinichthyes pustulosus* Eastman, 1897

*Figured specimen*: 468

Eastman, 1900, p. 33, fig. 1

Cleland, 1911, pl. 45, fig. 1

Middle Devonian; Hamilton Limestone (Milwaukee Formation); Berthelet.

*Ptyctodus ferox* Eastman, 1898

*Paratype*: One specimen (NF)

Eastman, 1898, pp. 481-482, fig. 36

Cleland, 1911, p. 151, pl. 49, fig. 36

Middle Devonian; Milwaukee Formation; Berthelet.

#### CLASS CHONDRICHTHYES

*Cladodus monroei* Eastman, 1900

*Holotype* (monotype): One specimen (NF)

Eastman, 1900, p. 36, fig. 2

Cleland, 1911, pp. 147-148, pl. 47, fig. 3

Middle Devonian; Hamilton Limestone (Milwaukee Formation); Berthelet.

#### CLASS OSTEICHTHYES

*Esox* sp.

*Figured specimen*: VP2693

Teller-Marshall and Bardack, 1978, pl. 2

Holocene; 4700 Kinnickinnic River Parkway, Milwaukee.

*Ictalurus melas* Rafinesque, 1820

*Figured specimens*: VP2697, VP2704, VP2797

Teller-Marshall and Bardack, 1978, pl. 4A-C

Holocene; 4700 Kinnickinnic River Parkway, Milwaukee.

*Lepomis cyanellus* Rafinesque, 1819

*Figured specimen*: VP2718

Teller-Marshall and Bardack, 1978, pl. 6

Holocene; 4700 Kinnickinnic River Parkway, Milwaukee.

*Lepomis gibbosus* Linnaeus, 1758

*Figured specimen:* VP2720

Teller-Marshall and Bardack, 1978, pl. 7

Holocene; 4700 Kinnickinnic River Parkway, Milwaukee.

*Micropterus dolomieu* Lacapède, 1802

*Figured specimen:* VP2714

Teller-Marshall and Bardack, 1978, pl. 5

Holocene; 4700 Kinnickinnic River Parkway, Milwaukee.

*Umbra limi* (Kirtland, 1841)

*Figured specimen:* VP2689

Teller-Marshall and Bardack, 1978, pl. 1

Holocene; 4700 Kinnickinnic River Parkway, Milwaukee.

Catostomidae

*Figured specimen:* VP2694

Teller-Marshall and Bardack, 1978, pl. 3

Holocene; 4700 Kinnickinnic River Parkway, Milwaukee.

#### CLASS MAMMALIA

*Bison occidentalis* Lucas, 1898

*Figured specimens:* VP5851, VP5852, VP5853, VP5854, one specimen (NF)

Palmer, 1954, pl. 1-2

Pleistocene; Mountain Meadow, Interstate Park, Polk County.

*Centetodon pulcher* Marsh, 1872

*Figured specimens:* VP3943, VP3944

Krishtalka and West, 1979, fig. 1, 3a

Middle Eocene; Bridger Formation; Uinta County, Wyoming.

*Centetodon* sp.

*Figured specimen:* VP3918

Krishtalka and West, 1979, fig. 4

Middle Eocene; Bridger Formation; Uinta County, Wyoming.

*Cervus canadensis* Borowski, 1780

*Figured specimen:* VP5855

Palmer, 1954, pl. 2, fig. 1

Pleistocene; Mountain Meadow, Interstate Park, Polk County.

*Elephas primigenius* Blumenbach, 1799

*Figured specimen:* One specimen (NF)

Hay, 1914, p. 409, pl. 59

Pleistocene; Milwaukee.

*Hyopsodus lepidus* Matthew, 1909

*Figured specimen:* VP3973

West, 1979, fig. 100

Middle Eocene; Bridger Formation; Uinta County, Wyoming.

*Hyopsodus paulus* Leidy, 1870

*Figured specimens:* VP3906, VP3954, VP3966, VP3975, VP3982, VP3984

West, 1979, fig. 10A-C, 11A-B, 12, 13, 16A-C

Middle Eocene; Bridger Formation; Uinta County, Wyoming.

*Mammot americanum* (Kerr, 1792)

*Figured specimen:* 2

West and Dallman, 1980, fig. 4  
Pleistocene; Fond du Lac.

*Rangifer tarandus* (Linnaeus, 1758)

*Figured specimen:* VP858

West, 1978, fig. 1  
Late Pleistocene; probably NW T7N R21E, Wauwatosa, Milwaukee.  
*Remarks:* Three antler fragments.

#### PHYLUM and CLASS UNCERTAIN

*Coleolus ? tenuis* Cleland, 1911

*Syntype:* One specimen (NF)

Cleland, 1911, p. 130, pl. 26, fig. 11  
Middle Devonian; Milwaukee Formation; Lake Church, Milwaukee.

#### LITERATURE CONTAINING MILWAUKEE PUBLIC MUSEUM FOSSIL TYPE AND FIGURED SPECIMENS

- Boucot, A. J. and J. G. Johnson. 1979. Pentamerinae (Silurian Brachiopoda). *Palaeontographica*, Abt. A, Bd. 163.
- Briggs, D. E. G., D. L. Bruton and H. B. Whittington. 1979. Appendages of the arthropod *Aglaspis spinifer* (Upper Cambrian, Wisconsin) and their significance. *Palaeontology*, 22(1):167-180.
- Cleland, H. F. 1907. Restorations of certain Devonian cephalopods with descriptions of new species. *Jour. Geol.*, 15(5):459-469.
- Cleland, H. F. 1911. The fossils and stratigraphy of the middle Devonian of Wisconsin. *Bull. Wisc. Geol. Nat. Hist. Surv.*, No. 21, Sci. Ser. No. 6, 222 pp.
- Eastman, C. R. 1898. Dentition of Devonian Ptyctodontidae. *Amer. Nat.*, 32:473-488.
- Eastman, C. R. 1900. Dentition of some Devonian fishes. *Jour. Geol.*, 8(1):32-41.
- Foerste, A. F. 1920. Racine and Cedarville cystoids and blastoids with notes on other echinoderms. *Ohio Jour. Sci.*, 21(2):33-82.
- Hay, O. P. 1914. The Pleistocene mammals of Iowa. *Iowa Geol. Surv.*, v. 23, Ann. Rept. 1912, 662 pp.
- Krishtalka, L. and R. M. West. 1979. Paleontology and geology of the Bridger Formation, southern Green River Basin, southwestern Wyoming. Part 4. The Geolabididae (Mammalia, Insectivora). *Milwaukee Pub. Mus., Contrib. Biol. Geol.*, 27:1-10.
- MacGinitie, H. D. 1953. Fossil plants of the Florissant beds, Colorado. *Carnegie Inst. Washington, Publ.* 599, 198 pp.
- Palmer, H. A. 1954. A review of the Interstate Park, Wisconsin, bison find. *Iowa Acad. Sci., Proc.* 61:313-319.
- Penhallow, D. P. 1908. Some fossil plants from the middle Devonian of Milwaukee, Wisconsin. *Bull. Wisc. Nat. Hist. Soc.*, 6(1-2):8-12.
- Pohl, E. R. 1929. The Devonian of Wisconsin. Part 1, Lamellibranchiata. *Bull. Pub. Mus. City Milwaukee*, 11(1):1-100.

- Raasch, G. O. 1939. Cambrian Merostomata. Spec. Pap. Geol. Soc. Amer., No. 19, 146 pp.
- Ruedemann, R. 1933. The Cambrian of the upper Mississippi Valley. Part III, Graptolitoidea. Bull. Pub. Mus. City Milwaukee, 12(3):307-348.
- Ruedemann, R. and R. R. Shrock. 1939. A new Wisconsin upper Cambrian foraminifer. Amer. Jour. Sci., 237(1):66-71.
- Shrock, R. R. and G. O. Raasch. 1937. Paleontology of the disturbed Ordovician rocks near Kentland, Indiana. Amer. Midland Nat., 18(4): 532-607.
- Teller-Marshall, S. and D. Bardack. 1978. Post-glacial fishes from a Lake Michigan drainage in Milwaukee, Wisconsin. Milwaukee Pub. Mus., Contrib. Biol. Geol., 15:1-19.
- Tripp, R. P., J. T. Temple and K. C. Gass. 1977. The Silurian trilobite *Encrinurus variolaris* and allied species, with notes on *Frammia*. Palaeontology, 20(4):847-867.
- Ulrich, E. O., A. F. Foerste and A. K. Miller. 1943. Ozarkian and Canadian cephalopods. Part II: brevicones. Spec. Pap. Geol. Soc. Amer., No. 49, 240 pp.
- Ulrich, E. O. and C. E. Resser. 1930. The Cambrian of the upper Mississippi Valley. Part I, Trilobita; Dikelocephalinae and Osceolinae. Bull. Pub. Mus. City Milwaukee, 12(1): 1-122.
- Ulrich, E. O. and C. E. Resser. 1933. The Cambrian of the upper Mississippi Valley. Part II, Trilobita; Saukiinae. Bull. Pub. Mus. City Milwaukee, 12(2):123-306.
- West, R. M. 1978. Late Pleistocene (Wisconsinan) caribou from southeastern Wisconsin. Wisconsin Acad. Sci. Arts Ltrs., Trans., 66:50-53.
- West, R. M. 1979. Paleontology and geology of the Bridger Formation, southern Green River Basin, southwestern Wyoming. Part 3. Notes on *Hyopsodus*. Milwaukee Pub. Mus., Contrib. Biol. Geol., 25:1-52.
- West, R. M. and J. E. Dallman. 1980. Late Pleistocene and Holocene vertebrate fossil record of Wisconsin. Geoscience Wisconsin, 4:25-45.

**Information for Authors**  
**Contributions in Biology and Geology Series**

Manuscripts should be sent to the Editor, Mary Garity, Publications Department, Milwaukee Public Museum, 800 W. Wells St., Milwaukee, Wis. 53233.

Unpublished manuscripts on all aspects of natural science will be considered. Recent issues in the contribution series are the best guide to style, but authors of manuscripts with unique or difficult problems of presentation may consult in advance with the editor. The editor will determine whether an accepted manuscript will appear as a Contribution, Publication or Special Publication.

**Copyright**

Authors submitting a manuscript will receive a transfer of copyright form upon acceptance of the manuscript for publication. In consideration of the assignment of copyright, the Milwaukee Public Museum will supply the author with 100 reprints of the published contribution. Additional copies at cost may be ordered from the editor at the time galley proofs are returned.

**Manuscript preparation**

The original and three copies of the manuscript should be submitted to the editor. Double spacing must be used throughout, including tables, footnotes, figures, legends and literature lists. Tables and figure legends should appear on separate pages at the end of the manuscript. Copies of the manuscript will be reviewed by an appropriate staff member and two outside reviewers. Acceptance or rejection of the manuscript will be determined by an Advisory Board. Suggested revisions are the responsibility of the author.

**Abstract**

The abstract should tersely summarize the main findings or conclusions of an article and not merely describe the study. Uninformative phrases such as "is discussed" and "are described" should be avoided.

**Illustrations**

Illustrations must be sharp, glossy black and white photographs and/or neatly prepared line drawings in India ink. They should be numbered sequentially through the article. Original illustrations for papers accepted for publication will *not* be returned.

**Abbreviations**

Abbreviations in the text should be consistent with recent issues and/or defined. Titles of periodicals should be abbreviated as in the fourth edition of the World List of Scientific Periodicals and its supplements.

**Citations**

In citing literature references, the names of authors and titles must be given exactly as in the original publication, except that initials are always used for the given names of authors. The publisher and place of publication must be given and editions other than the first should be indicated.

**Galleys**

Galley proofs will be sent to the author along with the final, accepted, manuscript. Proofs must be corrected within 10 days and returned with the manuscript to the editor. Excessive resetting due to other than printer's error is chargeable to the author.

Reprints of this or other papers in the Museum's series may be ordered from the Milwaukee Public Museum's publication catalog, available from the Publications Office.