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Catalog of Fossils from the Middle and Upper Ordovician of Oklahoma

By Thomas W. Amsden

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CATALOG OF FOSSILS FROM THE MIDDLE AND UPPER ORDOVICIAN OF OKLAHOMA

THOMAS W. AMSDEN

This catalog attempts to record all of the fossils which have been described and/or illustrated from the Middle and Upper Ordovician strata of Oklahoma. In the Arbuckle Mountain region it records the species from those formations between the Arbuckle group and the Hunton group; in the Ouachita Mountain region the formations between the Mazarn shale and the Missouri Mountain shale; in the Ozark region the formations between the Cotter dolomite and the St. Clair limestone. The formations whose known fossils are covered in this catalog are listed below (in italics):

ARBUCKLE MOUNTAIN REGION

Chimneyhill limestone (Silurian)
  Sylvan shale
  "Fernvale" limestone
  Viola limestone

Bromide formation
  Pooleville member
  Mountain Lake member

Simpson group
  Tulip Creek formation
  McLish formation
  Oil Creek formation
  Joins formation

Arbuckle group (Canadian)

OUACHITA MOUNTAIN REGION*

Missouri Mountain shale (Silurian)
  Polk Creek shale
  Bigfork chert
  Womble shale ( =Stringtown shale)
  Mazarn shale ** (Canadian?)

OZARK REGION

St. Clair limestone (Silurian)
  Sylvan shale
  "Fernvale" limestone
  Fite limestone
  Tyner shale
  Burgen sandstone
  Cotter dolomite (Canadian)

*The Talihina chert of Taft and other early investigations = the Arkansas novaculite (Dev.-Miss.), Missouri Mountain shale (Sil.), Polk Creek shale and Bigfork chert.

SOME comments are needed on the subdivisions of the Simpson group in the Arbuckle Mountain region. The formations of this group as given above are those of Decker and Merritt (1931) and are the names in general usage at the present time. Past investigators, notably E. O. Ulrich, have employed a different terminology and thus many of the older publications dealing with the paleontology and stratigraphy of this group present a set of names that is confusing to the uninitiated. The nomenclatorial history of the Simpson group has been ably covered by A. R. Loeblich (1942, pp. 413-417) and therefore only the major changes are here summarized.

Ulrich variously subdivided the Simpson group, but in 1933 he apparently reached his maximum, recognizing the following 8 formations:

- Bromide
- Criner
- Cool Creek
- Tulip Creek
- McLish
- Falls
- Oil Creek
- Joins

Of these names, the Falls formation is now included within the McLish (Decker and Merritt 1931, p. 28); the Criner formation within the Bromide formation (Decker and Merritt 1931, pp. 12, 40); the name Cool Creek has been dropped from the Simpson group (Decker 1933B, pp. 55-56) and is now used for a unit in the Arbuckle group.

The only additional information that need be cited is that given by G. A. Cooper in 1956 (pp. 120-122). This author proposes to subdivide the Bromide into two members, a lower Mountain Lake member and an upper Pooleville member, the latter said to be equivalent to Ulrich's Criner formation.

There have been differences of opinion on the age to be assigned these various formations, a situation which can be considered as more or less normal. No attempt is here made to record all of these different ideas, and only a few of the latest attempts are reviewed. In 1952 Decker (1952B, p. 135) classified the Arbuckle Mountain section, primarily on the basis of graptolites. He placed the Sylvan and "Fernvale" in the Richmondian, the Viola and Bromide in the Trentonian, the Tulip Creek in the Blackriverian, and the other Simpson formations in the Chazyan. One of the latest attempts at a classification is that of the Ordovician subcommittee of the National Research Council. These authors (Twenhofel et al., 1954) correlate the Sylvan, "Fernvale", and Tulip Creek with the Richmondian. The upper part of the Viola and the Bigfork are placed in the Trentonian, and the lower part of the Viola and upper part of the Bromide in the Blackriverian with the older Simpson formations referred to the Chazyan. The Womble shale is believed to range in age from Trentonian through Blackriverian and Chazyan, into the upper Canadian. This subcommittee did not consider the Ozark section of Oklahoma, but according to Huffman (1953, p. 4) the Fite and upper Tyner are Mohawkian, the lower Tyner and Burgen are Chazyan.

In 1956 G. A. Cooper published his monumental work on "Chazyan and Related Brachiopods". This publication presents a revised classification of a portion of the Middle Ordovician and makes some changes in the age assigned to some of the Oklahoma formations (Chart 1). The Viola is placed in the Trenton and Wilderness stages (Trentonian and Bolarian of Kay); the Bromide in the Wilderness and Porterfield (Bolarian of Kay); the Tulip Creek in the Ashby (Chazyan of Kay); the McLish in the Marmor (Chazyan of Kay); and the Oil Creek and Joins in the Whiterock.

Species recorded only by name are not included in the catalog. Such faunal lists have some value, but are here excluded because in most instances it is impossible to check the identification satisfactorily. Moreover, it is commonly difficult to determine whether an identification was made by the author citing the species or was merely copied from an earlier publication. A number of such faunal lists have been published, but reference is given to only a few of these. In 1908 Ruedemann (pp. 24-25) identified several graptolites from the Telifrina formation of the Ouachita Mountains. This name has since been dropped and the strata assigned to a number of different formations (see footnote above). R. W. Harris recorded many of the Simpson ostracods in a field guide book issued in 1936, and at the present time this author has a major publication in press describing the ostracods of this group. In 1936 C. E. Decker (pp. 301-311) listed a number of Oklahoma graptolites, and some years later he (Decker, 1952C, table 3, pp. 99-102) gave additional lists of graptolites, including those from the "Stringtown" shale (Womble shale), Bromide formation and Viola limestone.

In this catalog the writer has tried to summarize the information on those species that have been described from the Middle and Upper Ordovician of Oklahoma. The author and date of the original description are given for all species, and a bibliographic reference is also included; however, this applies only to the publication describing specimens from the Ordovician of Oklahoma. The name is preceded by an asterisk if the original description was based upon specimens from Oklahoma, names of species with types from other areas being unmarked. The repository and catalog number are listed for all type specimens where such data are available. The writer has tried to obtain information on these types, and in most cases it has been possible to determine at least the location of such specimens. The names of institutions storing these specimens have been abbreviated as follows:

- OU—Museum of Invertebrate Paleontology, University of Oklahoma.
- USNM—United States National Museum.
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Yale—Peabody Museum of Natural History, Yale University
UC—Walker Museum, University of Chicago.
HA—Museum of Comparative Zoology, Harvard University.
MO—University of Missouri.

The catalog is organized as follows: (1) species are first listed by formation, e.g., Bromide, Viola, Joins; (2) under each formation the species are further subdivided into their major biologic groups, e.g., Foraminifera, Brachiopoda; (3) under the biologic heading they are listed alphabetically, first by genus and then by species.

There are a total of 359 entries in this catalog, but a number of these represent duplicates since the same species may be recorded from more than one formation. These may be broken down by formations as follows:

JOINS FORMATION (total, 8 species)
- Graptolithina 2 species
- Brachiopoda 3
- Ostracoda 3

OIL CREEK FORMATION (total, 12)
- Brachiopoda 5
- Trilobita 1
- Ostracoda 4
- Gastropoda 5
- Conodontophoridina 1

McLISH FORMATION (total, 29)
- Anthozoa 2
- Brachiopoda 6
- Ostracoda 1
- Gastropoda 2
- Cystoidea 2
- Conodontophoridina 16

TULIP CREEK FORMATION (total, 22)
- Brachiopoda 8
- Bryozoa 1
- Ostracoda 11
- Conodontophoridina 2

BROMIDE FORMATION (total, 191)
- Porifera 1
- Anthozoa 3
- Graptolithina 4
- Brachiopoda 88
- Bryozoa 31
- Trilobita 3
- Ostracoda 16

* Indicates species based upon type specimen(s) from the Ordovician of Oklahoma.
# Indicates species that are genotypes.

CATALOG

JOIN FORMATION

Edrioasteroidea 1
Cystoidea 20
Crinoidea 6
Conodontophoridina 23

VIOLA LIMESTONE (total, 80)
- Foraminifera 8 species
- Graptolithina 54
- Chitinozoa 1
- Brachiopoda 1
- Trilobita 5
- Ostracoda 2
- Cephalopoda 1
- Conodontophoridina 8

"FERNAVALE" LIMESTONE (total, 2)
- Brachiopoda 1
- Cephalopoda 1

SYLVAN SHALE (total, 8)
- Graptolithina 7
- Brachiopoda 1

WOMBLE FORMATION (total, 5)
- Graptolithina 3
- Brachiopoda 2

POLK CREEK SHALE (total, 1)
- Graptolithina 1

FITE LIMESTONE (total, 1)
- Anthozoa 1

DIDYMOCRAGRAPUS ARTUS Elles and Wood 1901. (Decker 1935B, p. 240, 242, pl. 1, figs. 8-9a; Decker 1944, p. 379, figs. 26-28 [two of the illustrated specimens are from the Joins formation, Arbuckle Mts.; the third from a well-core, Oklahoma City field]; Decker 1951, pp. 1673-1674, fig. 1 [illustrated specimen from a well-core, 4767-4768 ft., Carter Co., Okla.]; Decker and Merritt 1931, pl. 16, figs. D, E; Ruedemann 1947, pp. 326-327, pl. 54, figs. 3-7 [plate legend, pl. 54, he states this species is also present in the top of the Arbuckle limestone]). Decker's figured specimens OU, 515, 516, 585, 652 (old Nos. B2308, B2308a, A2049).
**OIL CREEK FORMATION**


**BRACHIOPODA**

*DESMORTHIS COSTATA* Cooper 1956. (p. 446, pl. 50, J, figs. 42-46). USNM, 110813a.

**DESMORTHIS NEVADENSIS** Ulrich and Cooper 1938. (Cooper 1956, p. 447, pl. 50, H, figs. 35-39; pl. 83, fig. 5). USNM, 110817a, 110806a [Holotype from the Pogonip formation, Roberts Mt. Quadrangle, Nevada].

**ORTHIS COSTALIS** Hall 1847. (Decker and Merritt 1931, p. 15, pl. 2, fig. C) [The specimen illustrated is probably conspecific with *Desmorthis costata* Cooper 1956; see above].

**OSTRACODA**

**ISOCHILINA BULBOSA** Harris (See under *OIL CREEK FORMATION*).

*LEPERDITELLA BROOKINGI* Harris 1931 (p. 88, pl. 3, figs. 2a, b, c). HA.

*LEPERDITELLA COOPERI* Harris 1931 (p. 88, pl. 3, figs. 1a, b, c). HA.

**OIL CREEK FORMATION**

**BRACHIOPODA**

*ANOMALORTHIS OKLAHOMENSIS* Ulrich and Cooper 1936 (p. 622; 1938, p. 128, pl. 22A, figs. 1-6; Cooper 1956, p. 392, pl. 78C, figs. 13-20). USNM, 92854a, 92854b, 92855a, 110182.

**LINGULELLA** sp. 2 Cooper 1956 (p. 206, pl. 5, B, fig. 6). USNM, 116771.

*ORTHAMBONITES DINOORTHOIDES* Cooper 1956 (p. 301, pl. 33, E, figs. 20-27). USNM, 109823b, 109821a, b, 109823a, c, d.

*ORTHAMBONITES SUBCONVEXUS* Cooper 1956 (p. 312, pl. 34, E, figs. 21-26). USNM, 109844a, 109844b.

**ORTHIS ACUTIPILICATA** Raymond 1905. (Decker and Merritt 1931, pl. 4, fig. B). [This may be the species Cooper described as *Orthambonites dinorthoides*].

**TRILOBITA**

**PLIOMEROPS NEVADENSIS** Walcott 1884. (Decker and Merritt 1931, pl. 4, fig. C).

**McLISH FORMATION**

**OSTRACODA**

*APARCHITES PERFORATUS* Harris 1931 (p. 87, pl. 5, figs. 4a, b; Harris 1932, p. 57, pl. 3, fig. 3). HA.

*BROMIDELLA RETICULATA* Harris 1931 (See under BROMIDE FORMATION).

*ERIDOCONCHA MAGNA* Harris 1931 (p. 91, pl. 5, figs. 3a, b; Harris 1932, p. 57, pl. 2, figs. 2a, b). HA [Type specimen from the Oil Creek formation; also recorded from the Bromide and Tulip Creek formations].

*ISOCHILINA BULBOSA* Harris 1931 (p. 87, pl. 5, figs. 2a, b; Harris 1932, p. 57, pl. 3, fig. 3). HA [Type specimen from the Oil Creek; also recorded from the Joints formation].

**GASTROPODA**

**MACLUREA** or **MACLURITES** Decker and Merritt 1931 (pl. 4, fig. F).

**CONODONTOPHORIDIA**

**DREPANODUS ARCUATUS** Pander 1956. (Harris 1931, p. 95, pl. 5, figs. 1a, 1b). [This species also recorded from the Tulip Creek formation].

**McLISH FORMATION**

**ANTHOZOA**

*PLICATILIA* cf. *L. CARTERENSIS* (Safford) 1869. (Decker and Merritt 1931, pl. 9, figs. A, B, C). [In 1950 Bassler made this a new genus and species, *Saffordophyllum deckeri*; according to Bassler this came from the Bromide formation; see under BROMIDE FORMATION].

**SAFFORDOPHYLLUM DECKERI** Bassler 1950 (see under BROMIDE FORMATION).

**BRACHIOPODA**


**DORYTRETA BELLA** Cooper 1956 (p. 667, pl. 124, G, figs. 39-43). USNM, 117191a. [Genus Dorytreta proposed in this paper, *D. bella* designated the genotype].

**GLYPTORTHIS** sp. 4 Cooper 1956 (p. 383, pl. 46, G, figs. 41, 42). USNM, 116995a.

*ORTHAMBONITES MINUTUS* Cooper 1956 (p. 305, pl. 42, A, figs. 1-9). USNM, 116883c, 116883a, b, d, e.
**McLISH FORMATION**

*PTYCHOUPLELLA OKLACHOMENSIS* Cooper 1956 (p. 388, pl. 42, G, figs. 40-44). USNM, 110095b, 110095a.

*SPLHENOTRETA SULCATA* Cooper 1956 (p. 666, pl. 124, C, figs. 18-23). USNM, 117190a, b.

**OSTRACODA**

*LEPERDITIA FABULITES* (Conrad) 1843. (Harris 1931, p. 87, pl. 10, figs. 1, 2; Harris 1932, p. 57, pl. 2, fig. 9).

**GASTROPODA**

*MACLURITITES MAGNA* [sic] Lesueur 1818. (Decker and Merritt 1931, pl. 8, figs. A, B, C).

*RAPHISTOMA STAMINEUM* Hall 1847. (Decker and Merritt 1931, pl. 9, fig. E).

**CYSTOIDEA**

*CARYOCYSTITES TAPPANI* Bassler 1943 (p. 699, pl. 1, figs. 16-18) USNM, 113104. [Bassler gives the formation as “Or dovician (Falls formation)”; Decker and Merritt (1931, p. 12, 98) state that the Falls formation = McLish formation].

**PALEOCYSTITES** [sic] TENUIRADIATUS (Hall) 1847. (Decker and Merritt 1931, pl. 8, figs. D, E).

**CONODONTOPHORIDIA**

*CORDYLODUS PLATTINENSIS*? Branson and Mehl 1933. (Branson and Mehl 1943, p. 381, pl. 63, fig. 7). MO.

*CORDYLODUS PRIMUS* Branson and Mehl 1933. (Branson and Mehl 1943, p. 381, pl. 63, fig. 6). MO.

*CURTONGNATHUS* sp. Branson and Mehl 1943 (p. 381, pl. 63, fig. 3). MO.

*ERISMODUS* sp. Branson and Mehl 1943 (p. 380, pl. 63, figs. 1, 10). MO.

*LEPTOCIRGIIGNATHUS ERECTA* Branson and Mehl 1943 (p. 377, pl. 63, fig. 18). MO, C528-5.

*LEPTOCIRGIIGNATHUS GRACILIS* Branson and Mehl 1943 (p. 377, pl. 63, figs. 39, 40). MO, C530-3.

*LEPTOCIRGIIGNATHUS OBESA* Branson and Mehl 1943 (p. 377, pl. 63, figs. 36-38). MO. C531-4.

*LEPTOCIRGIIGNATHUS PRIMA* Branson and Mehl 1943 (p. 378, pl. 63, figs. 29-35). MO, C529-2.

*LEPTOCIRGIIGNATHUS QUADRATA* Branson and Mehl 1943 (p. 378, pl. 63, figs. 23-28). MO, C530-2. [The genus

**TULIP CREEK FORMATION**

*LEPTOCIRGIIGNATHUS* proposed in this paper, *L. quadrata* designated the genotype.

*LEPTOCIRGIIGNATHUS SEMIFLOREALIS* Branson and Mehl 1943 (p. 379, pl. 63, figs. 11-16). MO, C530-5.

*LEPTOCIRGIIGNATHUS TRIDACTYLA* Branson and Mehl 1943 (p. 380, pl. 63, figs. 17, 19-22). MO, C531-3.

LEPTOCIRGIIGNATHUS? sp. Branson and Mehl 1943 (p. 380, pl. 63, fig. 5). MO, C527-3.

*OISTODUS*? sp. Branson and Mehl 1943 (p. 381, pl. 63, fig. 9). MO.

*PHRAGMODUS PRIMUS*? Branson and Mehl 1933 (Branson and Mehl 1943, p. 381, pl. 63, fig. 7). MO.

*PTEROCONUS*? sp. Branson and Mehl 1943 (p. 380, pl. 63, fig. 2). MO.

*TRICHONYGATHUS*? sp. Branson and Mehl 1943 (p. 381, pl. 63, fig. 4). MO.

**TULIP CREEK FORMATION**

**BRACHIOPDA**

*ATELELASMA SULCATUM* Cooper 1956 (p. 524, pl. 81, B, figs. 7-13). USNM, 117013.

*HESPERORTHIS MATUTINA* Cooper 1956 (p. 353, pl. 54, A, figs. 1-4). USNM, 109975b, 109975a, c, c.

*MIMELLA* sp. 2 Cooper 1956 (p. 490, pl. 91, figs. 29-34). USNM, 117057.

*MURINELLA* sp. 2 Cooper 1956 (p. 851, pl. 217, A, fig. 1). USNM, 117648a.

*ORTHAMBERONITES MINUS* Cooper 1956 (p. 304, pl. 34, D, figs. 16-20). USNM, 116882.

*PLECTORTHIS PUNCTATA* Cooper 1956 (p. 452, pl. 84, D, figs. 19-23; pl. 84, F, figs. 33-35). USNM, 110836a, 110723b, 117024.

*VALCOUREA DECKERI* Cooper 1956 (p. 407, pl. 74, A, figs. 1-14). USNM, 110208a, 110208b, c, c, 110211b, c, 110212a, b.

*VALCOUREA TENUIS* Cooper 1956 (p. 412, pl. 76, D, figs. 18-29). USNM, 116970c, 116970a, b, f, g, h, i, j.

**BRYOZOAA**

*CORYNOTRYPA* sp. (Harris 1936, fig. 33).
OSTRACODA

APARCHITES ELLIPTICUS (see under BROMIDE FORMATION).

APARCHITES MINUTISSIMUS TRENTONENSIS [see under BROMIDE FORMATION].

BYTHOCYPRIS CYLINDRICA (see under BROMIDE FORMATION).

BROMIDELLA RETICULATA Harris 1931 (p. 93, pl. 14, figs. 6a, b; Harris 1936, fig. 31). [see under BROMIDE FORMATION].

DICRANELLA MACROCARINATA [see under BROMIDE FORMATION].

ERIDOCONCHA MAGNUS [see under OIL CREEK FORMATION].

PRIMITIOPSIS BASSLERI [see under BROMIDE FORMATION].

SCHMIDTELLA cf. S. AFFINIS Ulrich 1892. (Harris 1931, pp. 89-90, pl. 11, figs. 4a, b).

SCHMIDTELLA CRASSIMARGINATA (see under BROMIDE FORMATION).

SCHMIDTELLA UMBONATA Ulrich 1894. (Harris 1936, fig. 30).

CONODONTOPHORIDIA

DREPLANODUS ARCUATUS Pander 1956. [see under OIL CREEK FORMATION].

PRIONIODUS ACULEATUS Stauffer 1930. (Harris 1931, pp. 94-95, pl. 9, fig. 3; Harris 1936, fig. 34).

BROMIDE FORMATION

PORIFERA

ISCHADITES IOWENSIS (Owen) 1852. (Decker and Merritt 1931, pl. 13, fig. C).

ANTHOZOA

**SAFFORDOPHYLLUM DECKERI Bassler 1950 (p. 267, pl. 14, figs. 4-6). USNM, 90998. [The genus Saffordophyllum proposed in this paper, S. deckeri designated the genotype; according to Bassler this is the species which Decker (and Merritt 1931, pl. 9, figs. A, B, C) identified as Lichenaria carterensis; (actually as L. cf. L. carterensis) according to Decker and

Merritt this species came from the McLish formation, but Bassler records it only from the Bromide formation].

*TETRADIUS OKLAHOMENSE Bassler 1950 (p. 281, pl. 1, figs. 5, 13). USNM, 95679, 113619.

*TETRADIUS SPICULATUM Bassler 1950 (p. 289, pl. 2, fig. 9; pl. 4, figs. 15-17; pl. 5, fig. 4). USNM, 95670.

GRAPTOLITHINA

DICELLOGRAPTUS GURLEYI Lapworth 1896 (Decker 1943, pp. 1391-1392, pl. 1, figs. 3, 3a, 45, 5a, 6). Decker's figured specimens, OU, 586-588 [old Nos., A2064-A2064C; see under VIOLA FORMATION].

*DICTYONEMA FRANCESIAE Decker 1943 (p. 1389, pl. 1, fig. 1). OU, 546 [old No., A2062].

*DICTYONEMA ROCKCROSSINGENSIS [sic] Decker 1943 (pp. 1389-1391, pl. 1, fig. 2). OU, 545 old No. A2063.

*DIPLOGRAPTUS (AMPLEXOGRAPTUS) MAXWELLI Decker 1935B (pp. 242-243, pl. 1, figs. 1-7, 1a-6a; Ruedemann 1947, p. 413, pl. 70, figs. 33-38). OU, 653-659. [This species also recorded from the Viola formation].

BRACHIOPODA

*ACANTHOCRANIA ERECTA Cooper 1956 (p. 284, pl. 26, G, figs. 16, 17). USNM, 109789. ["Mountain Lake member"].

*ACANTHOCRANIA OKLAHOMENSIS Cooper 1956 (p. 285, pl. 27, H, figs. 18-20). USNM, 116873a-d. ["Pooleville member — bed 2"].

*ACANTHOCRANIA SUBQUADRATA Cooper 1956 (p. 286, pl. 26, I, figs. 20-25; pl. 27, B, figs. 4-7). USNM, 10979b, 10975c, d. 10979, 116863. ["Mountain Lake member"].

*ANCISTRORHYNCHA GLOBULARIS Cooper 1956 (p. 624, pl. 128, B, figs. 6-9). USNM, 111278a. ["Pooleville member").

*ATELELASMA OKLAHOMENSIS Cooper 1956 (p. 521, pl. 80, C, figs. 12-19). USNM, 110124, 110125, ["Mountain Lake member").

*BELLIMURINA COMPRESSA Cooper 1956 (p. 855, pl. 221, D, figs. 23-28). USNM, 117653. ["Mountain Lake member").

*BELLIMURINA SUBQUADRATA Cooper 1956 (p. 857, pl. 222, H, figs. 15-18). USNM, 117655a-d. ["Mountain Lake member").
BROMIDE BRACHIOPODA

*CAMEERELLA ANTEROPLICATA Cooper 1956 (p. 562, pl. 111, F, figs. 46-54; pl. 111, G, figs. 55-63). USNM, 117129, 11341. ["Pooleville member"].

*CAMEERELLA OKLAHOMENSIS Cooper 1956 (p. 574, pl. 71, F, figs. 27-35). USNM, 117993. ["Pooleville member"].

*CHAULISTOMELLA CRASSA Cooper 1956 (p. 434, pl. 71, B, figs. 5-9A). USNM, 116996a, b. ["Mountain Lake member"].

*CHAULISTOMELLA MAGNA (Schuchert and Cooper) 1932 (p. 98, pl. 10, figs. 16, 20, 27-29 [as Valcoureia magna]; Cooper 1956, p. 438, pl. 70, B, figs. 11-23; Decker and Merritt 1931, pp. 42, 46, pl. 13, fig. G; identified this species as Dinorthis subquadrata [not Hall 1847]). YALE, 5779 [holotype]; figured specimens, USNM, 110539c, 110543a, 110545, 116999b. ["Pooleville member"].

*CHAULISTOMELLA MIRA Cooper 1956 (p. 439, pl. 61, D, figs. 16-22). USNM, 117001a, 117001c, d. ["Mountain Lake member—cystid bed"].

*CHAULISTOMELLA MUNDULA Cooper 1956 (p. 440, pl. 67, D, figs. 24-29; pl. 76, C, figs. 15-16). USNM, 11700a, 110442a, b, 117000e. ["Mountain Lake member"].

*CHAULISTOMELLA NITENS Cooper 1956 (p. 441, pl. 67, C, figs. 17-23). USNM, 117003a, 117003c. ["Mountain Lake member"].

*CHAULISTOMELLA OBESA Cooper 1956 (p. 441, pl. 67, B, figs. 8-16). USNM, 110562a, 110561a, 117991a. ["Mountain Lake member"].

CLIFTONIA GOULDI Decker and Merritt 1931 (pl. 13, fig. H); [Nomen nudum; see Oxoplecia gouldi].

CLIFTONIA OCCIDENTALIS Butts 1926 (see under Oxoplecia occidentalis).

*CRANIOPS TENUIS Cooper 1956 (p. 240, pl. 22, figs. 3-5). USNM, 109752a. ["Pooleville member—Oxoplecia gouldi zone"].

*CYCLOSPIRA PARVA Cooper 1956 (p. 694, pl. 142, K, figs. 49-53). USNM, 111391a. ["Pooleville member—Oxoplecia gouldi zone"].

*DACTYLOGONIA SCULPTURATA Cooper 1956 (p. 835, pl. 218, F, figs. 17-21; pl. 219, D, fig. 10). USNM, 117598b. ["Mountain Lake member"].

DACTYLOGONIA SUBAEQUICOSTELLATA Cooper 1956 (p. 836, pl. 217, J, figs. 27-31; pl. 219, A, fig. 1; C. figs. 6-9). USNM, 117602, 117601b, c, 117603. ["Mountain Lake member"].

[DINORTHIS SUBQUADRATA [see Chaulistomella magna].

*DOLEROIDES COMPRESSUS Cooper 1956 (p. 456, pl. 96, B, figs. 22-38). USNM, 110607a, 110596a, 110607a, d-f. ["Mountain Lake member"].

*DOLEROIDES OKLAHOMENSIS Cooper 1956 (p. 461, pl. 92, A, figs. 1-4; pl. 96, A, figs. 1-21). USNM, 110603a, b, 110600a, 110602b, 110613, 117032c, g, h. ["Pooleville member—Oxoplecia gouldi zone"].

ECTENOGLOSSA ? SCULPTA Cooper 1956 (p. 220, pl. 4, C, figs. 9-13). USNM, 109302a, b. ["Pooleville member—Oxoplecia gouldi zone"].

FASCIFERA DALMANELLOIDEA Cooper 1956 (p. 999, pl. 149, A, figs. 1-3; pl. 153, D, figs. 33-47; E, figs. 48-53). USNM, 117305a, b, 117304a, d, e, 117306a, 117307a, b, 117308. ["Mountain Lake member"].

GLOSELLA LIUMBONA Cooper 1956 (p. 228, pl. 4, A, figs. 1-4; pl. 9, I, figs. 23-25; pl. 13, E, figs. 7-12). USNM, 116785a, b, 109285, 116786. ["Pooleville member—Oxoplecia gouldi zone"].

GLYPTORTHIS COSTELLATA Cooper 1956 (p. 366, pl. 43, C, fig. 8; pl. 44, D, figs. 20-37). USNM, 110052a, b, 110038a, 110040a, b, 110059a. ["Pooleville member—Oxoplecia gouldi zone"].

GLYPTORTHIS CRENULATA Cooper 1956 (p. 367, pl. 44, C, figs. 11-19). USNM, 116932a, b, 110054. ["Mountain Lake member"].

GLYPTORTHIS OBESA Cooper 1956 (p. 372, pl. 47, B, figs. 9-12). USNM, 110068a, b, c. ["Mountain Lake member"].

GLYPTORTHIS UNCINATA Cooper 1956 (p. 377, pl. 43, B, figs. 4-7; pl. 46, B, figs. 5-10; pl. 50, E, figs. 19-23). USNM, 116943a, 116941a, b, 116942. ["Mountain Lake member"].

HESPERORTHIS CRINERENSIS Cooper 1956 (p. 350, pl. 52, B, figs. 8-15). USNM, 110004a, b. ["Mountain Lake member—middle zone 7 of Decker"].
BROMIDE BRACHIOPODA

**Hesperorthis Sulcata** Cooper 1956 (p. 356, pl. 52, D, figs. 22-37). USNM, 109987b, 109988a-f, 10992a-d, 109994a, c, h, 116922. ["Pooleville member—Oxoplecia gouldi zone"].

**LINGULELLA GALBA** Cooper 1956 (p. 200, pl. 7, B, figs. 13-16). USNM, 109282b, a. ["Mountain Lake member"].

**LINGULELLA ? GLYPTA Cooper 1956 (p. 200, pl. 1, G, figs. 21-25). USNM, 116760a, 116760b. ["Pooleville member—zone 3"].

**LINGULASMA OKLAHOMENSE Cooper 1956 (p. 233, pl. 12, E, figs. 12-17). USNM, 109353a, b, 109352b, c. ["Pooleville member—Oxoplecia gouldi zone"].

**MACROCOELIA BELLA Cooper 1956 (p. 891, pl. 234, B, figs. 6-13). USNM, 117766a, 117764, 117765. ["Mountain Lake member"].

**MIMELLA EXTENSA Cooper 1956 (p. 470, pl. 86, A, figs. 1-21; pl. 90, A, figs. 1-15). USNM, 117037a-j, 110662a, 110669b. ["Mountain Lake member"].

**MIMELLA SUBQUADRATA Cooper 1956 (p. 493, pl. 92, B, figs. 5-9). USNM, 117050a. ["Mountain Lake member—lower Sowerbysite zone"].

**MULTICOSTELLA SULCATA Cooper 1956 (p. 428, pl. 71, A, figs. 1-4). USNM, 116993, 110459. ["Mountain Lake member—Valcoursia transversa zone"].

**MURINELLA PARTITA Cooper 1956 (p. 847, pl. 223, F, figs. 11-17; pl. 227, D, figs. 17-25). USNM, 117639, 117638, 117640. ["Mountain Lake member"].

**ONYCHOPLECA TENUIS Cooper 1956 (p. 535, pl. 100, K, fig. 50). USNM, 117091. ["Mountain Lake member"].

**OPIKINA sp. 2 (Cooper 1956, p. 924). USNM, 117850. ["Pooleville member—zone 2"].

**OPIKINA EXPATIATA Cooper 1956 (p. 907, pl. 241, A, figs. 1-8). USNM, 118072c. ["Mountain Lake member"].

**OPIKINA EXTENSA Cooper 1956 (p. 908, pl. 243, A, figs. 1-8). USNM, 123268a, b. ["Pooleville member"].

**OPIKINA FORMOSA Cooper 1956 (p. 909, pl. 243, B, figs. 9-17; C, figs. 18-28). USNM, 123272a, b. 117808, 123269b, 123270a, 123271a. ["Pooleville member—Oxoplecia gouldi zone"].

**ÖPIKINA GREGARIA Cooper 1956 (p. 911, pl. 238, figs. 8-18). USNM, 117814a-c. ["Mountain Lake member"].

**ORBICULOIDEA EXIMIA Cooper 1956 (p. 275, pl. 13, C, fig. 5; pl. 20, D, figs. 11-23). USNM, 109632a-f, 109428a, b, 109634b, 11795a. ["Pooleville member—Oxoplecia gouldi zone"].

**ORTHIS TRICENARIA Conrad 1843. (Decker and Merritt 1931, pl. 13, fig. f). [Conrad's species is now referred to Hesperorthis; in 1956 Cooper recognized two species (both new) of Hesperorthis from the Bromide formation].

**OXOPLECA FILOSA Cooper 1956 (p. 542, pl. 103, A, figs. 1-12). USNM, 117099a, b. ["Mountain Lake member"].

**OXOPLECA GOULDI Ulrich and Cooper 1936b (p. 338, pl. 50, figs. 15, 18, 19, 23, 28, 32, 38 [as Cliftonia (Oxoplecia gouldi)]; Cooper 1956, p. 545, pl. 103, C, figs. 17-29). USNM, 91897, 91898a, b, 91899, 11086, 118010. [=Cliftonia gouldi Decker and Merritt 1931, pl. 13, fig. H, nomen nudum. Ulrich and Cooper gave the formation as Criner, but in 1956 Cooper gave the formation as Bromide, Pooleville member, Oxoplecia gouldi zone, stating (p. 121) that this equalled Ulrich and Cooper's Criner formation].

**OXOPLECA OCCIDENTALIS (Butts) 1926 (p. 126, pl. 31, figs. 21, 22; Cooper 1956, p. 551, pl. 101, C, figs. 16-22). USNM, 71529a (lectotype), 71529b, c, 117116a, b. [Butts gave the formation and locality of this species as Chickamauga limestone, northeast of Gate City, Ala., but according to Cooper this is an error and the types are actually from the Bromide formation of Oklahoma; see discussion given by Cooper 1956 under Horizon and locality].

**PACHYGLOSSA BICONVEXA Cooper 1956 (p. 224, pl. 7, A, figs. 1-12). USNM, 109271g, 109269a, 109271f, j, m. ["Pooleville member—Oxoplecia gouldi zone"].

**PAUORTHIS MACRODELOIDEA Cooper 1956 (p. 969, pl. 151, A, figs. 1-6). USNM, 117284a, 117285. ["Pooleville member"].

**PETROCRANIA sp. 3 (Cooper 1956, p. 291, pl. 25, G, figs. 20-22). USNM, 109760a, b. ["Mountain Lake member"].

**PETROCRANIA INFLATA Cooper 1956 (p. 288, pl. 25, I, figs. 24, 25; pl. 25, J, figs. 26-35; pl. 26, F, figs. 14, 15). USNM, 109785a, e, 109758, 109767, 109783c. ["Pooleville member—Oxoplecia gouldi zone"].
PHILHEDRA ? sp. (Cooper 1956, p. 292, pl. 22, H, fig. 15). USNM, 109761. ["Mountain Lake member"].

*PLATYMEMA ? BELATULA Cooper 1956 (p. 880, pl. 230, B, figs. 11-13). USNM, 117758. ["Pooleville member"].

*PECTOGLOSSA OKLAHOMENSIS Cooper 1956 (p. 222, pl. 6, C, figs. 7-15). USNM, 116763-116765, 109294. ["Pooleville member—Oxoplecia goudii zone"].

*PROTOZYGA COSTATA Cooper 1956 (p. 676, pl. 142, A, figs. 1-5). USNM, 117239c. ["Mountain Lake member"].

*PROTOZYGA ELONGATA Cooper 1956 (p. 677, pl. 140, E, figs. 27-37; pl. 143, I, figs. 41-46). USNM, 117241a, b, c, 11408a, b. ["Mountain Lake member—Doleroides zone=bryozoan zone"].

*PROTOZYGA LOEBLICHI Cooper 1956 (p. 679, pl. 140, C, figs. 17-21). USNM, 111412a. ["Pooleville member—Oxoplecia goudii zone"].

*PROTOZYGA MAGNIFICOSTATA Cooper 1956 (p. 680, pl. 140, A, figs. 1-9). USNM, 117245a, b. 118040. ["Mountain Lake member"].

RAPINESQUIN MINNESOTENSIS (Winchell) 1881. (Decker and Merritt 1931, pl. 13, fig. E). [This species now placed in the genus *Opikina*; Cooper 1956 described several species of this genus from the Bromide of Oklahoma, but his list does not include this species].

ROSTRICELLULA sp. 1 (Cooper 1956, p. 656, pl. 137, G, figs. 47-52). USNM, 117236. ["Pooleville member—bed E of Cooper"].

*ROSTRICELLULA CUNATEA Cooper 1956 (p. 637, pl. 124, H, figs. 44, 45). USNM, 117218a. ["Mountain Lake member"].

*ROSTRICELLULA PARVA Cooper 1956 (p. 643, pl. 134, C, figs. 27-32). USNM, 117223a. ["Pooleville member"].

*ROSTRICELLULA TRANSVERSA Cooper 1956 (p. 651, pl. 132, G, figs. 38-42; pl. 134, E, figs. 47-53; pl. 137, H, figs. 53-60). USNM, 111545a, 117229a, 117230. ["Pooleville member"].

*SCIZHAMBON PERSPINOSUS Cooper 1956 (p. 268, pl. 15, C, figs. 7-17). USNM, 109681a, b, c, 71891a, 109678, 109680. ["Mountain Lake member"].

*SKEINDIOIDES OKLAHOMENSIS Cooper 1956 (p. 498, pl. 97, A, figs. 1-12; pl. 98, E, figs. 24-27). USNM, 117079a, d-f, 118007a-d. ["Mountain Lake member"].
BROMIDE BRYOZOA

*VALCOUREA TRANSVERSA Cooper 1956 (p. 413, pl. 72, D, figs. 22-31, pl. 76, B, figs. 11-14). USNM, 116971, 116972b, d, 110277b. ["Mountain Lake member"].

BRYOZOA

*ANOLOTICHA DECKERI Loeblich 1942 (p. 417, pl. 61, figs. 1, 2). UC, USNM.

ANOLOTICHA IMPOLITA (Ulrich) 1886. (Loeblich 1942, p. 418, pl. 61, figs. 5, 6). Loeblich's figured specimens. UC, USNM.

*ANOLOTICHA SPINULIFERA Loeblich 1942 (p. 418, pl. 61, figs. 3, 4). UC, USNM.

*ATACTOPORELLA BELLULA Loeblich 1942 (p. 420, pl. 61, figs. 7, 8). UC, USNM.

*BATOSTOMA CHAPPARSI Loeblich 1942 (p. 431, pl. 64, figs. 11-13). UC, USNM.

*BATOSTOMA CUMINSI Loeblich 1942 (p. 431, pl. 64, figs. 14-16). UC, USNM.

BATOSTOMA WINCHELLI (Ulrich) 1886. (Loeblich 1942, p. 432, pl. 64, figs. 8-10). Loeblich's figured specimens. UC, USNM.

DEKAYELLA PRAENTUNTA ECHINATA Ulrich 1893. (Loeblich 1942, p. 426, pl. 63, figs. 12, 14). Loeblich's figured specimens. UC, USNM.

*ERIDOTRYPA ABRUPTA Loeblich 1942 (p. 429, pl. 63, figs. 20, 21). UC, USNM.

*FISTULIPORA ? BASSLERI Loeblich 1942 (p. 419, pl. 61, figs. 9, 14). UC, USNM.

*HALLOPOREA DUBIA Loeblich 1942 (p. 430, pl. 62, figs. 8-11). UC, USNM.

*HALLOPOREA MACROSTOMA Loeblich 1942 (p. 430, pl. 62, figs. 12-14). UC, USNM.

*HALLOPOREA PACHYMURA Loeblich 1942 (p. 431, pl. 62, figs. 15-17). UC, USNM.

HEMIPHRAGMA IRRASUM (Ulrich) 1886. (Loeblich 1942, p. 433, pl. 63, figs. 19). Loeblich's figured specimens. UC, USNM.

*HEMIPHRAGMA PULCHRUM. Loeblich 1942 (p. 434, pl. 64, figs. 17-20). UC, USNM.

*BROMIDE BRYOZOA

*HETEROTRYPA TAFFI Loeblich 1942 (p. 427, pl. 62, figs. 21-24). UC, USNM.

*HOMOTRYPA CALLITOECHA Loeblich 1942 (p. 420, pl. 62, figs. 18-20). UC, USNM.

*HOMOTRYPA MULTITABULATA Loeblich 1942 (p. 421, pl. 63, figs. 1-3; Decker 1944B, p. 875, pl. 1, figs. 4, 5, 6). Loeblich's types, UC, USNM; Decker's specimen, OU. [Decker's specimen from a well-core, Cleveland County, Okla.; in the text this species assigned to Homotrypa, but in the plate explanation to Monotrypa].

*HOMOTRYPA SAGITTATA Loeblich 1942 (p. 421, pl. 63, figs. 7-9). UC, USNM.

*HOMOTRYPA ULRICHI Loeblich 1942 (p. 422, pl. 63, figs. 4-6). UC, USNM.

*MESOTRYPA FAVOSA Loeblich 1942 (p. 422, pl. 63, figs. 15, 16). UC, USNM.

*MESOTRYPA TUBULIFERA Loeblich 1942 (p. 422, pl. 63, figs. 17, 18). UC, USNM.

*MONTICULIPORELLA CRONEISI Loeblich 1942 (p. 433, pl. 62, figs. 6-7). UC, USNM.

*MONTICULIPORELLA PECULIARIS Loeblich 1942 (p. 424, pl. 62, figs. 1, 2). UC, USNM.

*MONTICULIPORELLA SHIDELERI Loeblich 1942 (p. 425, pl. 62, figs. 3-5). UC, USNM.

*NICHOLSONELLA IRREGULARIS Loeblich 1942 (p. 428, pl. 64, figs. 5-7). UC, USNM.

NICHOLSONELLA LAMINATA Ulrich 1893 (Loeblich 1942, p. 428, pl. 64, figs. 3-4). Loeblich's figured specimens. UC, USNM.

*NICHOLSONELLA MONILIFORMIS Loeblich 1942 (p. 429, pl. 64, figs. 1, 2). UC, USNM.

*PACHYDICHTYA BROMIDENSIS Loeblich 1942 (p. 435, pl. 64, figs. 21, 22). UC, USNM.

*PRASOPORA FRITZAE Loeblich 1942 (p. 426, pl. 63, figs. 10, 11). UC, USNM.

*STROMATOTRYPA FRONDOSA Loeblich 1942 (p. 434, pl. 61, figs. 15-17). UC, USNM.
BROMIDE OSTRACODA

TRILOBITA
*AMPYX (LONCHODOMAS) MCGEHEEI Decker 1931 (pp. 153-155, figs. 1, 2) OU.
ILLAENUS AMERICANUS (Billings) 1859. (Decker and Merritt 1931, pl. 13, fig. D).
ISOTELUS GIGAS Dekay 1824. (Laudon 1937, p. 283; 1939, pp. 211-213, fig. 2; Loeblich 1940, p. 161).

OSTRACODA
*BROMIDELLA RETICULATA Harris 1931 (p. 93, pl. 14, figs. 6a, b; Harris 1932, p. 57, pl. 3, fig. 6). HA. [The genus Bromidella proposed in this paper, B. reticulata designated the genotype; this species also recorded from the Oil Creek formation].
BYTHOCYPRIS CYLINDRICA (Hall) 1871. (Harris 1932, p. 57, pl. 2, figs. 3a, b). [This species recorded from the Bromide, Viola and Tulip Creek formations].
CRYPTOPHYLLUS OBOLOIDES (Ulrich and Bassler) 1923. Levinson 1951, pl. 77, figs. 9a, b).
DICRANELLA BICORNIS Ulrich 1894. (Harris 1932, p. 58, pl. 3, fig. 7).
DICRANELLA MACROCARPATA Harris 1931 (p. 92, pl. 14, figs. 3a, b). HA.
ERIDOCONCHA MAGNA Harris (see under OIL CREEK FORMATION).
*ERIDOCONCHA SIMPSONI Harris 1931 (p. 90, pl. 14, figs. 1a, b; pl. 11, figs. 1a, b, c, d). HA.
EURYCHILINA RETICULATA Ulrich 1889. (Harris 1932, p. 58, pl. 3, fig. 2).
EURYCHILINA VENTROSA Ulrich 1894. (Harris 1932, p. 58, pl. 2, fig. 6).
HALIHELLA LABIOSA Ulrich 1894. (Harris 1932, p. 57, pl. 2, fig. 5).
KRAUSELLA ARCUATA Ulrich 1892. (Harris 1931, p. 94, pl. 14, figs. 4a, b, c).
*LEPERDITELLA ? DECKERI Harris 1931 (p. 89, pl. 14, figs. 5a, b, c). HA.
LEPERDITELLA INFILATA (Ulrich) 1892. (Harris 1931, p. 89, pl. 14, figs. 5a, b, c).

BROMIDE CYSTOIDEA

*PRIMITIOSIS BASSLERI Harris 1931 (p. 91, pl. 14, figs. 2a, b, pl. 11, figs. 2a, b, c, d; Harris 1932, p. 57, pl. 3, figs. 1a, b). HA. [Also recorded from the Tulip Creek formation].
ULRICHIA INITIALIS (Ulrich) 1894. (Harris 1932, p. 58, pl. 3, fig. 5) [Bassler and Kellett 1934 refer this species to Kloedenia].
SCHMIDTELLA UMBONATA Ulrich 1894. (Harris 1932, p. 58, pl. 3, figs. 9a, b).

EDRIOASTEROIDEA

*CYATHOCYSTIS OKLAHOMAE Strimple and Graffham 1955 (pp. 353-355, figs. 3, 7, 8). USNM.

CYSTOIDEA

*AMYGDALOCYSTITES TRIBRACHIATUS Bassler 1943 (p. 695, pl. 1, figs. 14, 15). USNM, 93386.
*ANTHRACOCRINUS PRIMITIVUS Strimple and Watkins 1955 (p. 349, figs. 1a-c, 2a, 4-6). USNM. [The genus Anthracocrinus proposed in this paper, A. primitivus designated the genotype].
*CHEIROCRINUS ARDMORENSIS Bassler 1943 (p. 699, pl. 1, fig. 6). USNM, 93471. [Bassler gives the formation as "Simpson group (Cool Creek formation). . " He is following Ulrich's usage of Cool Creek, a name now dropped from Simpson terminology. Bassler's specimens are believed to be from the Bromide formation (Sinclair 1945, p. 707), probably from the lower Bromide because Cooper notes (1956, p. 120) that his lower Mountain Lake member carries the cysts Platycystites and Cheirocrinus].
*CHEIROCRINUS ? LOEBLICHII Bassler 1943 (p. 701, pl. 1, figs. 1, 2). USNM, 113107. [For a discussion of the stratigraphic position see under Cheirocrinus ardmoresis].
*ECHINOENCIRINITES ? ORNATUS Bassler 1943 (p. 703, pl. 1, fig. 7). USNM, 113106. [For a discussion of the stratigraphic position see under Cheirocrinus ardmoresis].
*ENOPLOURA ? PAPILLATA Bassler 1943 (p. 695, pl. 1, figs. 3-5). USNM, 113105. [For a discussion of the stratigraphic position see under Cheirocrinus ardmoresis].
*EUMORPHOCYSTIS MULTIPORATA Branson and Peck 1940 (pp. 89-90, pl. 13, figs. 1-7; Bassler 1943, p. 703). MO. [The
generic name *Eumorphocystis* proposed in this paper, *E. multiporta* being the genotype (monotypical).

**GLYPTOCYSTITES LOEBLICHAEE** Bassler 1943 (p. 702, pl. 1, figs. 8, 9; Sinclair 1948, p. 312). USNM, 93484. [For a discussion of the stratigraphic position see under *Cheirolepis arderensis*].

**HESPEROCYSTIS DECKERI** Sinclair 1945 (p. 711, pl. 1, figs. 9-10; text fig. 1). OU. [The genus *Hesperocystis* proposed in this paper, *H. deckeri* designated the genotype].

**MYEOINOCYSTITES NATUS** Strimple 1953 (p. 106, figs. 1, 2). USNM. [The genus *Myeoinocystites* proposed in this paper, *M. natus* designated the genotype].

**PARARCHAEOCRINUS DECORATUS** Strimple and Watkins 1955 (pp. 315-352, figs. 2b-f, figs. 9, 10). USNM. [The genus *Pararchaeocrinus* proposed in this paper, *P. decoratus* designated the type].

**PLATYCYSTITES BASSLERI** Sinclair 1945 (p. 709, pl. 1, figs. 1-5). OU, 5001.

**PLATYCYSTITES BROMIDENSIS** Bassler 1943 (p. 698, pl. 1, fig. 10; Sinclair 1945, p. 708, pl. 1, fig. 6). Bassler’s types, USNM, 93333; Sinclair’s figured specimens, OU, 5008. [For a discussion of the stratigraphic position of Bassler’s specimens seen under *Cheirolepis arderensis*].

**PLATYCYSTITES CRISTATUS** Bassler 1943 (p. 697, pl. 1, fig. 11). USNM, 93334.

**PLATYCYSTITES FIMBRIATUS** Bassler 1943 (p. 698, pl. 1, fig. 12). USNM, 93336. [For a discussion of the stratigraphic position see under *Cheirolepis arderensis*].

**PLATYCYSTITES LEVATUS** Bassler 1943 (p. 697, pl. 1, fig. 13; Sinclair 1945, p. 708, pl. 1, figs. 7-8). Bassler’s types, USNM, 93339; Sinclair’s figured specimens, OU, 5009. [For a discussion of the stratigraphic position of Bassler’s specimens see under *Cheirolepis arderensis*].

**PLEUROCYSTITES WATKINSI** Strimple 1948 (p. 761, pl. 1, fig. 1-3). USNM.

**SINCLAIROCYSTIS ANGULATUS** Strimple 1952 (p. 158, figs. 5-9). USNM.

**SINCLAIROCYSTIS SULPHURENSIS** Strimple 1952 (p. 160, figs. 14). USNM.
BROMIDE CONODONTS

*CURTOGNATHUS CORDIFORMIS* Branson and Mehl 1943 (p. 386, pl. 64, fig. 19). MO, C538-4. ["upper Bromide"; see under *Cardiodus abbreviatus"].

CURTOGNATHUS CORONATA Branson and Mehl 1933. (Branson and Mehl 1943, p. 384, pl. 64, fig. 47). MO. ["lower Bromide"; see under *Cardiodus robustus"].

CURTOGNATHUS LIMITARIS Branson and Mehl 1933. (Branson and Mehl 1943, p. 384, pl. 64, figs. 20, 49). MO. ["lower Bromide" and "upper Bromide"; see under *Cardiodus abbreviatus* and *C. robustus"].

ERISMODUS ? sp. (Branson and Mehl 1943, p. 385, pl. 64, fig. 17). MO. ["upper Bromide"; see under *Cardiodus abbreviatus"].

LEPTOCHIROGNATHUS ? sp. (Branson and Mehl 1943, p. 383, pl. 64, fig. 44). MO. ["upper Bromide"; see under *Cardiodus abbreviatus"].

LEPTOCHIROGNATHUS EXTENSA Branson and Mehl 1943 (p. 383, pl. 64, figs. 35, 51, 52). MO, C535-5, C535-5. ["lower Bromide"; see under *Cardiodus robustus"].

MICROCEOLODUS ? sp. (Branson and Mehl 1943, p. 384, pl. 64, fig. 44). MO, ["lower Bromide"; see under *Cardiodus robustus"].

MICROCEOLODUS ASYMMETRICUS Branson and Mehl 1933. (Branson and Mehl 1943, p. 383, pl. 64, figs. 37, 39, 41, 46). MO. ["lower Bromide"; see under *Cardiodus robustus"].

MICROCEOLODUS INORNATUS Branson and Mehl 1943 (p. 384, pl. 64, fig. 45). MO, C535-3. ["lower Bromide"; see under *Cardiodus robustus"].

MICROCEOLODUS INTERMEDIUS Branson and Mehl 1943 (p. 384, pl. 64, figs. 38, 40, 53). MO, C532-1. ["lower Bromide"; see under *Cardiodus robustus"].

MICROCEOLODUS MINUTIDENTATUS Branson and Mehl 1933. (Branson and Mehl 1943, p. 384, pl. 64, fig. 50). MO. ["lower Bromide"; see under *Cardiodus robustus"].

MICROCEOLODUS TYPUS Branson and Mehl 1933. (Branson and Mehl 1943, p. 383, 385, pl. 64, figs. 12, 36, 54-56); MO. [This species recorded from both the "lower" and the "upper" Bromide; see *Cardiodus abbreviatus* and *C. robustus"].

VIOLA LIMESTONE

POLYCAULODUS BIDENTATUS Branson and Mehl 1933. (Branson and Mehl 1943, p. 382, 385, pl. 64, figs. 15, 29). MO. [This species recorded from both the "lower" and the "upper" Bromide; see *Cardiodus abbreviatus* and *C. robustus"].

POLYCAULODUS TRIDENTATUS Branson and Mehl 1933. (Branson and Mehl 1943, p. 382, 385, pl. 64, figs. 14, 27, 28). MO. [This species recorded from both the "lower" and the "upper" Bromide; see *Cardiodus abbreviatus* and *C. robustus"].

OISTODUS SUBERECTUS Branson and Mehl 1933. (Branson and Mehl 1943, p. 385, pl. 64, fig. 11). MO. ["upper Bromide"; see *Cardiodus abbreviatus"].

*T*TRICHOGNATHUS OBTUSA Branson and Mehl 1943 (p. 385, pl. 64, fig. 13). MO, C538-2. ["upper Bromide"; see *Cardiodus abbreviatus"].

TRUCHEROGNATHUS DISTORTA Branson and Mehl 1933. (Branson and Mehl 1943, p. 385, pl. 64, figs. 30, 33). MO. ["lower Bromide"; see *Cardiodus robustus"].

TRUCHEROGNATHUS IRREGULARIS Branson and Mehl 1933. (1943, p. 384, pl. 64, figs. 31, 32). MO. ["lower Bromide"; see *Cardiodus robustus"].

FORAMINIFERA

*BATHYSIPHON EXIGUUS* Moreman 1930 (p. 46, pl. 6, fig. 8). USNM.

*KERIONAMMINA FAVUS* Moreman 1933 (p. 397, pl. 47, figs. 1, 3). USNM. [The genus *Kerionammina* proposed in this paper, K. favus designated the genotype].

*MARSIPPELLA AGGREGATA* Moreman 1933 (p. 395, pl. 47, figs. 11, 14). USNM.

*RAIBOSAMMINA ASPERA* Moreman 1930 (p. 50, pl. 6, figs. 13, 14, 15). USNM.

*RAIBOSAMMINA MICA* Moreman 1930 (p. 50, pl. 6, figs. 7, 11). USNM. [The genus *Raibosammina* proposed in this paper, R. mica designated the genotype].

*RHABDAMMINA TRIFURCATA* Moreman 1933 (p. 394, pl. 47, fig. 12). USNM.

*THOLOSINA ELONGATA* Moreman 1930 (p. 55, pl. 6, fig. 4). USNM.
*WEBBINELLA THOLUS* Moreman 1933 (p. 395, pl. 47, figs. 8, 10). USNM.

**GRAPTOLITHINA**

**CHAUHOGRAPTUS** sp. (Decker and Coleman 1945, p. 457, pl. 1, fig. 11). [Well-core, Carter County, Okla.].

**CLIMACOGRAPTUS ANTIQUUS** Lapworth 1873. (Decker 1951B, pl. 1, fig. 2 [well-core, Beckham County, Okla.]; Decker 1952B, pl. 1, fig. 4 [well-core, Carter County, Okla.]). Decker's figured specimens, OU, 570, 571.

**CLIMACOGRAPTUS ANTIQUUS POLYTHECA** Ruedemann 1947 (Decker 1952B, pl. 1, fig. 15, 27). Decker's specimens, OU, 571, 578 [well-core, Carter County, Okla.].

**CLIMACOGRAPTUS BICORNS** (Hall) 1847. (Decker 1944B, p. 875, pl. 1, fig. 3 [well-core, Cleveland County, Okla.]; Decker 1951B, pl. 1, fig. 1 [well-core, Beckham County, Okla.]; Decker 1952B, pl. 1, fig. 13, 20 [well-core, Carter County, Okla.]). Decker's figured specimens, OU, 569, 571, 629, 632.

**CLIMACOGRAPTUS CAUDATUS** Lapworth 1876 (Ruedemann and Decker 1934, p. 319, pl. 43, figs. 1, 1a; Ruedemann 1947, p. 424, pl. 72, figs. 60-62; Decker 1952B, pl. 1, fig. 29). Ruedemann and Decker's figured specimens, OU, 457, 568.

**CLIMACOGRAPTUS EXIMUS** Ruedemann 1908. (Ruedemann and Decker 1934, p. 319, pl. 43, figs. 2, 2a; Ruedemann 1947, p. 435, pl. 72, figs. 8, 9). Ruedemann and Decker's figured specimens, OU, 465.

**CLIMACOGRAPTUS LORRAINENSIS** Ruedemann 1925. (Ruedemann and Decker 1934, p. 322, pl. 43, figs. 3, 4; Ruedemann 1947, p. 430). Ruedemann and Decker's figured specimens, OU, 455, 466.

**CLIMACOGRAPTUS MODESTUS** Ruedemann 1908. (Decker 1951B, pl. 1, fig. 14 [well-core, Beckham County, Okla.]; Decker 1952B, pl. 1, fig. 5, 12 [well-core, Carter County, Okla.]). Decker's specimens, OU, 570, 571.

**CLIMACOGRAPTUS PARVUS** Hall 1847. (Ruedemann 1947, p. 433, pl. 74, figs. 22, 23; Decker 1951B, pl. 1, fig. 12 [well-core, Beckham County, Okla.]; Decker 1952B [well-core, Carter County, Okla.]). Decker's figured specimens, OU, 568, 627.

**VIOLA GRAPTOLEITES**

**CLIMACOGRAPTUS SCHARENBERGI** Lapworth 1876. (Decker 1951B, pl. 1, fig. 3 [well-core Beckham County, Okla.]). Decker's figured specimen, OU, 628.

**CLIMACOGRAPTUS SPINIFER** Ruedemann 1908. (Ruedemann and Decker 1934, p. 322, pl. 43, figs. 5, 5a; Ruedemann 1947, p. 439, pl. 75, figs. 4-7 [as *C. spiniferus*]. Ruedemann and Decker's figured specimen, OU, 469.

**CLIMACOGRAPTUS TYPICALIS** Hall 1865. (Ruedemann and Decker 1934, p. 322, pl. 43, figs. 6-7; Ruedemann 1947, p. 441, pl. 76, figs. 36-38; Decker 1951B, pl. 1, fig. 13 [well-core, Beckham County, Okla.]; Decker 1952B, pl. 1, figs. 16, 28 [well-core, Carter County, Okla.]). Ruedemann and Decker's figured specimens, OU, 451, 468, 568, 571, 626.

**CLIMACOGRAPTUS TYPICALIS CRASSIMARGINALIS** Ruedemann and Decker 1934 (p. 322, pl. 43, figs. 8, 9, 12, 12a; Decker and Coleman 1945, p. 457, pl. 1, figs. 3, 5, 6; [well-core, Carter County, Okla.]). Ruedemann and Decker's and Coleman's figured specimens, OU, 453, 620.

**CLIMACOGRAPTUS TYPICALIS POSTERUS** Ruedemann 1925. (Ruedemann and Decker 1934, p. 324, pl. 43, figs. 10, 11; Ruedemann 1947, p. 442, pl. 75, figs. 44, 45). Ruedemann and Decker's figured specimens, OU, 479, 480.

**CRYPTOGRAPTUS INSECTIFORMIS** Ruedemann 1908. (Ruedemann and Decker 1934, p. 324, pl. 43, figs. 13-17; Ruedemann 1947, p. 446, pl. 75, figs. 39-41 [as *C. tricornis insectiformis*]; Decker 1951B, pl. 1, fig. 6 [as *C. tricornis insectiformis*; well-core, Beckham County, Okla.]). Ruedemann and Decker's and Decker's figured specimens, OU, 490, 461, 462, 630.

**CRYPTOGRAPTUS TRICORNIS** (Carruthers) 1858. (Decker 1951B, pl. 1, fig. 16 [well-core, Beckham County, Okla.]; Decker 1952B, pl. 1, figs. 3, 22, 31 [well-core, Carter County, Okla.]). Decker's figured specimens, OU, 568, 569, 570, 627.

**CRYPTOGRAPTUS TRICORNIS INSECTIFORMIS** Ruedemann (see *C. insectiformis*).

**DESMOGRAPTUS OKLAHOMENSIS** Ruedemann and Decker 1934 (p. 303, pl. 40, fig. 1, la; Ruedemann 1947, p. 221, pl. 22, figs. 7, 8). Ruedemann and Decker's figured specimen, OU, 463.
DICELLOGRAPTUS DIVARICATUS (Hall) 1859. (Decker 1951B, pl. 1, fig. 8 [well-core, Beckham County, Okla.]; Decker 1952B, pl. 1, fig. 1 [well-core, Carter County, Okla.]).
Decker's figured specimens, OU, 570, 626.

DICELLOGRAPTUS FORCHAMMERNI (Geinitz) 1852. (Ruedemann and Decker 1934, p. 307, pl. 40, figs. 9, 10a, 11, pl. 41, figs. 1, 2; Decker 1944B, p. 873, pl. 1, fig. 1 [well-core, Cleveland County, Okla.]; Ruedemann 1947, p. 382, pl. 63, figs. 15-20; Decker 1951B, pl. 1, fig. 7 [well-core, Beckham County, Okla.]). Ruedemann and Decker's, and Decker's figured specimens, OU, 481, 482, 520, 562, 624, 646.

DICELLOGRAPTUS GURLEYI Lapworth 1896. (Ruedemann and Decker 1934, p. 310, pl. 41, figs. 4-6a; Ruedemann 1947, p. 382, pl. 63, figs. 29-32; Decker 1951B, pl. 1, fig. 5 [well-core, Beckham County, Okla.]). Ruedemann and Decker's, and Decker's figured specimens, OU, 470-472, 630.

DICELLOGRAPTUS MENSURANS Ruedemann 1908. (Decker 1951B, pl. 1, fig. 11 [well-core, Beckham County, Okla.]).
Decker's figured specimens, OU, 624.

DICELLOGRAPTUS MOFFATENSIS ALABAMENSIS Ruedemann 1908. (Decker 1951B, pl. 1, fig. 10 [well-core, Beckham County, Okla.]). Decker's specimen, OU, 624.

DICELLOGRAPTUS SEXTANS PEREXILIS Ruedemann 1908. (Ruedemann and Decker 1934, p. 312, pl. 41, fig. 7). Ruedemann and Decker's figured specimen, OU, 459.

DICRANOGRAPTUS NICHOLSONI Hopkinson 1870. (Decker 1951B, pl. 1, fig. 9 [well-core, Beckham County, Okla.]; Decker 1952B, pl. 1, fig. 2 [well-core, Carter County, Okla.]).
Decker's figured specimens, OU, 570, 624.

*DICRANOGRAPTUS NICHOLSONI GENICULATUS Ruedemann and Decker 1934 (p. 312, pl. 41, figs. 8, 8a; Decker and Coleman 1945, p. 454, pl. 1, fig. 2 [well-core, Carter County, Okla.]; Ruedemann 1947, p. 393, pl. 66, figs. 21-24). OU, 520 (?], 621.

DICRANOGRAPTUS NICHOLSONI LONGIBASALIS Ruedemann and Decker 1934 (p. 313, pl. 41, figs. 9-10; Ruedemann 1947, p. 393, pl. 67, figs. 1-5). OU, 454.

DIPLOGRAPTUS VESPERTINUS Ruedemann 1908. (Ruedemann and Decker 1934, p. 317, pl. 42, fig. 7; Decker 1944B, p. 874, pl. 1, fig. 2 [well-core, Cleveland County, Okla.]; Decker and Coleman 1945, p. 455, pl. 1, figs. 7, 8, 10 [well-core, Carter County, Okla.]; Ruedemann 1947, p. 410, pl. 69, figs. 67-68 [as D. (Glyptograptus) vespertinus]; Decker 1952B, pl. 1, figs. 9, 25 [well-core, Carter County, Okla.]).
Ruedemann and Decker's, and Decker's figured specimens, OU, 478, 571, 568, 631.

DIPLOGRAPTUS (AMPLEXOGRAPTUS) MAXWELLI Decker 1935B. (Decker 1952B, pl. 1, figs. 21, 26 [well-core, Carter County, Okla.]).
Decker's figured specimen, OU, 569. [The type specimens of this species are from the Bromide formation; see GRAPTOLOTHINA under that formation.]

DIPLOGRAPTUS (AMPLEXOGRAPTUS) AMPLEXICAULIS (Hall) 1847. (Ruedemann and Decker 1934, p. 313, pl. 42, figs. 1-2a; Ruedemann 1947, p. 411, pl. 70, figs. 12-14). Ruedemann and Decker's and Decker's figured specimens, OU, 452, 464.

DIPLOGRAPTUS (AMPLEXOGRAPTUS) RECURRENS Ruedemann 1925. (Ruedemann and Decker 1934, p. 316, pl. 42, figs. 6, 6a; Ruedemann 1947, p. 415, pl. 70, figs. 49-50).
Ruedemann and Decker's figured specimens, OU, 458.

DIPLOGRAPTUS (GLYPTOGRAPTUS) EUGLYPHUS Lapworth 1877. (Decker 1952B, pl. 1, figs. 10, 18 [well-core, Carter County, Okla.]).
Decker's figured specimens, OU, 569, 571. [Ruedemann 1947, p. 405 lists this species from the “Stringtown shale” (= Wombly shale)].

DIPLOGRAPTUS (GLYPTOGRAPTUS) EUGLYPHUS PYGMÆUS Ruedemann 1908. Decker 1952B, pl. 1, fig. 11 [well-core, Carter County, Okla.].
Decker's figured specimen, OU, 571. [Ruedemann 1947, p. 406 records from the “Stringtown shale” (= Wombly shale)].

DIPLOGRAPTUS (GLYPTOGRAPTUS) TERETIUSCULUS (Hisinger) 1840. (Ruedemann 1947, p. 69, figs. 44, 45; Decker 1951B, pl. 1, fig. 15 [well-core, Beckham County, Okla.];
VIOLA GRAPTOLITES

Decker 1952B, pl. 1, figs. 8, 19 [well-core Carter County, Okla.]. Decker's figured specimens, OU, 569, 571, 626.

DIPOLOGRAPTUS (ORTHOGRAPTUS) CALCARATUS ACUTUS Elles and Wood 1901-1918. (Decker 1952B, pl. 1, figs. 7, 17, 23 [well-core, Carter County, Okla.]). Decker's figured specimens, OU, 568, 659, 571.

DIPOLOGRAPTUS (ORTHOGRAPTUS) CALCARATUS INCUS Lapworth 1908. (Decker 1952B, pl. 1, figs. 6, 24 [well-core, Carter County, Okla.]). Decker's figured specimens, OU, 568, 571. [Ruedemann 1947 records this species from the "Stringtown shale"; see under WOLUMBE FORMATION].

DIPOLOGRAPTUS (ORTHOGRAPTUS) NEXUS Ruedemann 1925. (Ruedemann and Decker 1934, p. 316, pl. 42, fig. 3; Ruedemann 1947, p. 402, pl. 69, fig. 11). Ruedemann and Decker's figured specimen, OU, 477.

GLOSSOGRAPTUS CILIATUS Emmons 1855. (Ruedemann and Decker 1934, p. 317, pl. 42, fig. 8; Ruedemann 1947, p. 450). Ruedemann and Decker's figured specimen, OU, 467.

GLOSSOGRAPTUS QUADRIRIMUCRONATUS (Hall) 1865. (Ruedemann and Decker 1934, p. 318; Ruedemann and Coleman 1945, p. 456, pl. 1, fig. 9 [well-core, Carter County, Okla.]).

Decker and Coleman's figured specimen, OU, 636.

GLOSSOGRAPTUS QUADRIRIMUCRONATUS CORNUTUS Ruedemann 1908. (Decker 1952B, pl. 1, fig. 32 [well-core, Carter County, Okla.]). Decker's figured specimen, OU, 568.

GLOSSOGRAPTUS QUADRIRIMUCRONATUS SPINIGERUS (Lapworth) 1876. (Ruedemann and Decker 1934, p. 318, pl. 42, figs. 9-10a; Ruedemann and Coleman, 1945, p. 456, pl. 1, fig. 4 [well-core, Carter County, Okla.]; Ruedemann 1947, p. 457, pl. 79, figs. 14, 15). Ruedemann and Decker's, and Decker and Coleman's figured specimens, OU, 476, 639.

GLOSSOGRAPTUS WHITFIELDI (Hall) 1859. (Decker 1952B, pl. 1, fig. 33 [well-core, Carter County, Okla.]). Decker's figured specimen, OU, 568.

LASIOGRAPTUS (THYSANOCAR符US) EUCARIS (Hall) 1865. (Ruedemann and Decker 1934, p. 324, pl. 43, figs. 18-20; Decker and Coleman 1945, p. 457, pl. 1, fig. 1 [well-core, Carter County, Okla.; as Lasiograptus eucharis]; Ruedemann 1947, p. 461, pl. 82, fig. 25). Ruedemann and Decker's, and Decker and Coleman's figured specimens, OU, 636.

LEPTOGRAPTUS ? sp. ind. (Whittington 1955, p. 838, pl. 83, figs. 1, 2; text figs. 1-5). HA, 520a, b, c.

LEPTOGRAPTUS ANNEXANS (Walcott) 1883. (Ruedemann and Decker 1934, p. 305, pl. 40, figs. 4, 4a; Ruedemann 1947, p. 363, pl. 59, fig. 6). Ruedemann and Decker's figured specimen, OU, 590.

LEPTOGRAPTUS CAPILLARIS (Carruthers) 1868. (Ruedemann and Decker 1934, p. 305; Ruedemann 1947, p. 364).

LEPTOGRAPTUS FLACCIDUS MACER Elles and Wood 1901-1918. (Ruedemann and Decker 1934, p. 306, pl. 40, fig. 5; Ruedemann 1947, p. 365, pl. 59, figs. 22-24). Ruedemann and Decker's figured specimen, OU, 456.

LEPTOGRAPTUS FLACCIDUS TRENTONENSIS Ruedemann 1908. (Ruedemann and Decker 1934, p. 306, pl. 40, figs. 7, 8; Ruedemann 1947, p. 366, pl. 59, figs. 14-17). Ruedemann and Decker's figured specimens, OU, 460, 473.

MASTIGOGRAPTUS cf. M. CIRCINALIS Ruedemann 1908. (Ruedemann and Decker 1934, p. 304, pl. 40, figs. 2, 2a, 3, 3a; Ruedemann 1947, p. 256, pl. 35, figs. 23-26). Ruedemann and Decker's figured specimens, OU, 474, 475.

NEAGRAPTUS GRACILIS (Hall) 1847. (Decker 1951B, pl. 1, fig. 4 [well-core, Beckham County, Okla.]). Decker's figured specimen, OU, 625.

**ORTHORETIOLITES HAMI Whittington 1954 (pp. 613-621, pl. 63; text figs. 1-13). HA, 511, 512a-m. [The genus Orthoretiolites proposed in this paper, O. hami designated the genotype].

**PHEOMORFOGRAPTUS SOONERI Whittington 1955 (pp. 847-850, pl. 83, figs. 4, 5; text figs. 15-19). HA, 523, 524a-j. [The genus Pheomorfortus proposed in this paper, P. soongeri designated the genotype].

**PIPIOGRAPTUS HESPERUS Whittington 1955 (pp. 841-846, pl. 84; text fig. 6-14). HA, 521, 522a-e. [The genus Pipiograptus proposed in this paper, P. hesperus designated the genotype].

CHITINOZOA


32
VIOLA TRILOBITA

BRACHIOPODA

*PATERULA POLITA Cooper 1956 (p. 239, pl. 24, A, figs. 1, 2). USNM, 109411a, b.

TRILOBITA

**CRYPTOLITHOIDES ULRICHII Whittington 1941 (pp. 38-39, pl. 6, figs. 1, 2, 6, 12-14, 16, 17, 21, 22). USNM. [The genus Cryptolithoides proposed in this paper, C. ulrichi designated the genotype].

CRYPTOLITHUS sp. (Whittington 1941, pp. 37-38, pl. 6, fig. 15). USNM.

*CRYPTOLITHUS CARINATUS Ulrich and Whittington 1941 (in Whittington 1941, pp. 34-35, pl. 6, figs. 3, 23, 25, 39). USNM.

*CRYPTOLITHUS CONVEXUS Ulrich and Whittington 1941 (in Whittington 1941, p. 35, pl. 6, figs. 4, 5, 33, 37). USNM.

*CRYPTOLITHUS FITTSI Ulrich and Whittington 1941 (in Whittington 1941, pp. 36-37, pl. 5, figs. 3, 5, 6, 10-12, 16, 20, 24). USNM. [The holotype is from a chert boulder in the Johns Valley shale, Johns Valley, Okla.; other specimens from the Viola limestone].

*ROBERGIA DECKERI Cooper 1953 (pp. 23-24, pl. 2, figs. 1-6, pl. 19, figs. 1-2). USNM, 116432a-c. [Decker (1933, pp. 1415, 1417) identified this as Robergia athenia, a species described by Butts from the Athens shale, Shelby County, Ala.].

OSTRACODA

BYTHOCYPRIS CYLINDRICA (Hall) 1871. (See under Bromide formation).

CERATOPSIS CHAMBERSI (Miller) 1874. (Harris 1932, p. 58, pl. 2, fig. 7).

CEPHALOPODA

*WESTONOCERAS DECKERI Foerste 1935 (p. 61, pl. 4, fig. 1). USNM [?]. [Foerste states that the specimens used in describing this species are in the “Collection of Prof. Charles E. Decker”. There is one paratype in the OU palaeontological collections, numbered 238, but this is not Foerste’s figured specimen. Presumably this figured specimen is the holotype and is at the USNM].

“FERNVALE” AND SYLVAN

CONODONTOPHORIDIA

DICHOCNATHUS EXTENSA Branson and Mehl 1933. (Branson and Mehl 1943, p. 387, pl. 64, fig. 10). MO.

DICHOCNATHUS TYPICA Branson and Mehl 1933. (Branson and Mehl 1943, p. 387, pl. 64, fig. 9). MO.

OISTODUS ABUNDANS Branson and Mehl 1933. (Branson and Mehl 1943, p. 386, pl. 64, fig. 11). MO.

OISTODUS INCLINATUS Branson and Mehl 1933. (Branson and Mehl 1943, p. 386, pl. 64, fig. 1). MO.

PALTOCUS COMPRESSUS Branson and Mehl 1933. (Branson and Mehl 1943, p. 386, pl. 64, fig. 6). MO.

PALTOCUS GRACILIS Branson and Mehl 1933. (Branson and Mehl 1943, p. 386, pl. 64, figs. 7, 8). MO.

PHERMODUS UNDATUS Branson and Mehl 1933. (Branson and Mehl 1943, p. 386, pl. 64, figs. 4, 5). MO.

*PTEROCONUS ? ABBREVIATUS Branson and Mehl 1943 (p. 387, pl. 64, figs. 2, 3). MO, C541-3.

“FERNVALE” LIMESTONE

BRACHIOPODA

LEPIDOCYCLUS sp. 1 (Cooper 1956, p. 658, pl. 130, G, figs. 36, 37). USNM.

CEPHALOPODA

*DECKEROCERAS ADAENSE Foerste 1935 (p. 93, pl. 21, fig. 4). USNM [?]. [The genus Deckerceras proposed in this paper, D. adaense designated the genotype. According to Foerste the types are in the “Collection of Prof. Charles E. Decker”, but the only specimen in the OU collections is a paratype numbered 237 and this is not the figured specimen. Presumably the holotype is the figured specimen and is at the USNM].

SYLVAN SHALE

GRAPTOLITHINA

*CLIMACOGROPTUS MISSISSIPPIENSIS Ruedemann 1908 (pp. 413-414, pl. 28, figs. 12, 13; Decker 1935A, pp. 704, 706, figs. 11-1; Decker 1945, p. 1044, figs. 2, 2a [well-core, Carter County, Okla.]; Ruedemann 1947, p. 431, pl. 74, figs. 3-9). Decker’s figured specimens, OU, 484, 504 [old numbers, A2370, A2371, A2380]. [Ruedemans’s types (1908) from the “Sylvan shale of the Arbuckle Mountains in Indian Territory’’].
SYLVAN AND WOMBRE

CLIMACOGRAPTUS PUTILLUS (Hall) 1865. (Decker 1935A, p. 706, figs. 1m-o; Decker 1945, p. 1045, figs. 3, 3a [well-cuttings, Carter County, Okla.]; Ruedemann 1947, p. 434, pl. 72, figs. 30, 31, 34-40). Decker's figured specimens, OU, 490, 492 [old numbers, A2372, A2373].

*CLIMACOGRAPTUS TRIDENTATUS MAXIMUS Decker 1935A (p. 707, figs. 1p-t, 2a-d; Ruedemann 1947, p. 439, pl. 75, figs. 16-26). OU, 486-488, 494 [old numbers, A2374, A2375, B2361-2364].

CLIMACOGRAPTUS ULRICHI Ruedemann 1908. (Decker 1935A, p. 707, fig. 2e; Ruedemann 1947, p. 443). Decker's figured specimens, OU, 491 [old number, B2365].

*DICELLOGRAPTUS COMPLANATUS Lapworth 1880. (Ruedemann 1908, p. 294, pl. 18, fig. 1 [as Dicellograptus cf. D. complanatus Lapworth: illustration marked "wrongly reproduced"]; Decker 1935A, p. 702, figs. 1a-e; Ruedemann 1947, p. 376, pl. 62, figs. 4-5, 8-9; Decker and Huffman 1953, p. 451, figs. 1, 2). Decker's figured specimens, OU, 495, 496, 499, 500, 501, 503 [old numbers, A2361-2365, A2376].

*DIPLOGRAPHUS CRASSITESTUS Ruedemann 1908 (p. 354, pl. 25, fig. 6; Decker 1935A, pp. 702-703, figs. 1e-i; Ruedemann 1947, p. 415, pl. 71, figs. 3-9 [as D. (Mesograptus) crassitestus]). Decker's figured specimens, OU, 485, 489, 493, 523 [old numbers, A2366-2369, A2377]. [Ruedemann (1908) type specimens, "Sylvan shale, Arbuckle Mountains, Indian Territory"]. RETIOGRAPTUS sp. (Decker 1935A, p. 708, fig. 2f). OU, 491 [old number, B2366].

BRACHIPODA

ELIPTOGLOSSA SYLVANICA Cooper 1956 (p. 244, pl. 23, D, figs. 7-13). USNM, 109388a, b, c, f-i. [Types from Oklahoma; also reported from the Maquoketa of Missouri].

OUACHITA MOUNTAIN REGION

WOMBRE FORMATION (= Stringtown)

GRAPTOLITHINA

DIPLOGRAPHUS (GLYPTOGRAPTUS) EUGLYPHUS Lapworth 1877. (see under Viola limestone).

DIPLOGRAPHUS (GLYPTOGRAPTUS) EUGLYPHUS PYGMÆUS Ruedemann 1908. (see under Viola limestone).

POLK CREEK AND FITE

DIPLOGRAPHUS (ORTHOGRAPTUS) CALCARATUS INCISUS Lapworth 1908. (Ruedemann 1947, pl. 68, fig. 10; see also under Viola limestone).

BRACHIPODA

ARCHAEORTHIS BICONVEXA Cooper 1956 (p. 293, pl. 31, B, figs. 7-10). USNM, 116685a, b.

PATERULA SUBCIRCULARIS Cooper 1956 (p. 239, pl. 24, C, figs. 7-10). USNM, 109414a-c. [Cooper gives the formation as "Stringtown shale = Wombale shale (Big Fork chert)"].

POLK CREEK SHALE

GRAPTOLITHINA

?CLIMACOGRAPTUS ANTIQUUS Lapworth 1873. (Ruedemann 1908, p. 439, pl. 28, figs. 28, 29; Ruedemann 1947, p. 423). [In 1908 Ruedemann illustrated specimens which he referred to this species from "the shales associated with the Talihina formation in the Indian Territory". The Talihina formation has subsequently been divided into four formations: Arkansas novaculite, Missouri Mountain shale, Polk Creek shale and Big Fork chert; Ruedemann's specimens were probably from the Polk Creek shale. In 1947 Ruedemann stated that he had erroneously recorded this species from the Talihina formation].

OZARK REGION

FITE LIMESTONE

ANTHOZOA

*TETRADUUM OCULATUM Basiller 1950 (p. 283, pl. 1, figs. 7, 8, pl. 5, fig. 9). USNM, 95635. [Basiller gives the formation as "Richmondian (Basal Fernvale-Fite ls.); 7 miles nw of Tahlequah, Okla.". The Fite limestone was named by Cram in Okla. Geological Survey, Bull. 40, vol. 3; according to Cram (p. 548) the Fite limestone overlies the Tyner formation unconformably, and is unconformably overlain by the Fernvale limestone].
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