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VERTEBRATA

ARTICLE 3

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CATALOGUE OF CONODONTS

By ROBERT O. FAY

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University of Kansas Paleontological Contributions
Vertebrata, Article 3, Pages 1-206, Figures 1-109

CATALOGUE OF CONODONTS

By ROBERT O. FAY[1]

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ABSTRACT

Knowledge of microscopic toothlike fossils named conodonts is summarized and indexed objectively, complete to 1949. A history of studies is given, together with an annotated bibliography and index to genera and species. Special sections are devoted to cross indexes, stratigraphy, key, anatomy, and glossary. Conodonts are found in Lower Ordovician (Tremadoc) to Middle Triassic rocks. They are considered parts of chordates because of calcium phosphate composition and bonelike basal attachment material, but their exact affinities are unknown. Assemblages suggest paired groups. Two distinct types of microstructure exist: lamellar and fibrous, suggesting perhaps that conodonts belong to animals of polyphyletic origin. About 100 valid genera and 1,000 valid species have been named, from 150 to 200 main papers.

INTRODUCTION

PURPOSE AND SCOPE

The study of conodonts has multiplied fivefold in the last 20 years, making desirable a compilation of data relating to these fossils. An exhaustive treatment of the subject is here attempted, although the impossibility of a complete work is fully realized by me. The report has been prepared very carefully and is believed to be reasonably accurate, with no serious omissions and few mistakes. Any corrections or additions will be welcome.

The index is organized in the most objective manner possible, apart from views expressed by me where clarification of some matters seems needed in order to avoid misunderstandings — for example, where scolecodonts have been described under the name of conodonts, or a single name is applied to an assemblage of conodonts. Such practice has led to confusion and conflicting statements in the literature. In two single-name assemblages (Eichenberg, 1930; Schmidt, 1934), I have restricted the name to one or two specimens. The discussion and comparison following each generic or specific reference is that expressed by the individual whose name appears after the reference. Where additional information is necessary, I have tried to make plain my responsibility for statements.

In order to facilitate checking, I have assembled copies of every article cited in this book. Publications unavailable to me were ordered on interlibrary loan and material pertaining to conodonts

1. Student, University of Kansas.

(both text and illustrations) was copied and filed for permanent reference. Almost all present-day investigators of conodonts have kindly sent their reprints to me, which has proved an inestimable aid, especially where a worker compares species only by referring to some published figures without actually spelling out the name of the compared species. Because I have undertaken to cross-index these "number" references, a complete library is essential.

HISTORY OF CONODONT STUDIES

For a more complete treatment of the history of conodont studies, reference is best made to BRYANT (1921) and STAUFFER & PLUMMER (1932). Although I have included a few facts overlooked by them, these works are the most comprehensive.

Scientific researches on conodonts began in the year 1853, when CHRISTIAN HEINRICH PANDER, of St. Petersburg, Russia, collected and examined samples of the Glaukonitsand (Lower Ordovician) near Pawlowsk, a small town a few kilometers south of St. Petersburg. In 1854, CHRISTIAN GOTTFRIED EHRENBERG, of Berlin, examined some samples from the same sandstone near Narwa, Estonia, and St. Petersburg. He published his work in 1854 and 1856, and figured and named what is probably a fragmentary conodont on one of his 1856 plates. In a letter to PANDER (1858), EHRENBERG states that the conodonts were very obvious to him, and that he thought he had described and illustrated a few forms in 1854 and 1856. PANDER replied that only one of the forms was a tooth fragment showing the characteristic structure of his conodonts. The actual discovery of conodonts by PANDER was first noted in an obscure manner by EDOUARD D. EICHWALD in a manuscript dated November 2, 1853. Only in 1856, when PANDER published the results of his investigations, were conodonts first named and studied on a firm basis.

From the very beginning, a dispute arose as to affinities of these microscopic teethlike objects. Although PANDER described them as fish teeth, ROBERT (?) CARPENTER and RODERICK I. MURCHISON, of England, and JOACHIM BARRANDE, of Bohemia, were of different opinions. Later workers mistook scolecodonts (annelid jaws) for conodonts. The question of the biologic position of conodonts remains open even today, except for firm evidence that they are chordates of some sort. Both their taxonomic position within the chordates and their morphologic relationships are unknown; they may well belong to more than one division of the lower chordates.

Soon after the discovery of conodonts, search was made for them in other countries. They were mentioned in Sweden (Oeland Island), 1861; England (Ludlow), 1861; United States (Ohio), 1873; Germany, 1877; Scotland (Southern Uplands), 1878; Canada (Ontario), 1879; Czechoslovakia, 1894; Poland, 1900; Canada (Mackenzie region), 1912; Denmark, 1936; Belgium, 1938; Egypt, 1940; and Australia, 1943. Although I have written to workers in many countries and have examined many hundred books, I have not found a positive reference to any other country, but these dates of discovery may be changed in the light of further research.

After PANDER's monograph, the next important article to be published was by GEORGE JENNINGS HINDE, in 1879, who became recognized as the second student of the subject. J. S. NEWBERRY, from 1873 to 1875, mentioned a few American occurrences of conodonts. Later JOHN YOUNG (1880), HINDE (1900), and JOHN SMITH (1907) wrote three short articles on Scottish conodonts. Because these papers lack essential details, their value lies mostly in the noting of new forms and in the extension of geographic records. In 1886, KARL A. VON ZITTEL & J. V. ROHON published an article on the structure of conodonts, and in this they concluded that conodonts probably were related to annelids. It is interesting to note that since 1912 these enigmatic fossils have been classified as annelids in the Zoological Record, a view evidently held by scientists who follow ZITTEL & ROHON. WILLIAM L. BRYANT's (1921) paper on Genesee conodonts is the first containing actual photographs of conodonts, in addition to a good history of the progress of research up to that time. The many sporadic occurrences recorded in the literature from 1856 to 1926 mostly serve only to extend knowledge of geographic distribution of the animals represented by conodonts.

Although E. O. ULRICH mentioned conodonts in 1878, it was not until 1926, in a joint paper with RAY S. BASSLER, that he published extensively on the subject. The year before, RAYMOND R. HIBBARD, of Buffalo, New York, had sent many fine specimens to ULRICH & BASSLER, making it possible for them to publish the first comprehensive classification of conodonts, coincident with preparation by PAUL V. ROUNDY of the first conodont bibliography. Two years later GRACE HOLMES compiled the first bibliographic index, which included figures of most of the previously described species.

With these papers as background, several new workers entered the field, outstanding among whom were EDWIN B. BRANSON and MAURICE G. MEHL, of the University of Missouri. Since 1930 their enthusiastic work on conodonts has revived interest in these fossils. They were among the first scientists to use stereoscopic plates for illustration, and their papers on classification, problems, techniques, stratigraphy, and Paleozoic faunas have established a sound foundation for researches on these fossils. BRANSON and MEHL have revised the work of HINDE (1879), making possible the future study of Upper Devonian faunas, and they have built up a collection from almost all previously mentioned conodont localities. Two of their papers "Conodont studies no. 1" (1933) and "Conodonts" (1944) are basic references furnishing introduction to the subject.

Another very useful general reference is "Conodonts as Paleozoic guide fossils" by SAMUEL P. ELLISON, JR. (1946). Since 1937 he has written a revision of the Pennsylvanian conodonts and has published the first comprehensive article on composition of these fossils, in addition to some short articles on ecology, stratigraphy, and faunas of Ordovician and Pennsylvanian ages. At present, one of the most active writers is WALTER YOUNGQUIST, whose papers, mostly on Iowa conodonts, are suitable as models for students entering this field of paleontological study. RAYMOND R. HIBBARD has been collecting and describing Upper Devonian conodonts of New York since 1923. HAROLD W. SCOTT, of the University of Illinois, has written on conodont assemblages from Montana, suggesting that they are worm remains. Since 1931 CHALMER L. COOPER has written many articles on conodonts from Upper Devonian and Lower Mississippian beds over much of the United States. WILBERT H. HASS wrote the first comprehensive article on the structure of lamellar conodonts; no comparable work has yet been written on the fibrous types. Other articles written by HASS deal mostly with Upper Devonian and Lower Mississippian faunas. FRANK H. GUNNELL, formerly of the University of Missouri, wrote on Pennsylvanian forms from Missouri. JOHN W. HUDDLE's doctorate thesis (Indiana University), published in 1934, is important because it includes a glossary and key to Upper Devonian-Lower Mississippian conodonts as well as a bibliography from 1925 to 1934; also, he shows the value of conodonts as stratigraphic markers, if they are studied both quantitatively and qualitatively. This work has provided basis for zonation of the New Albany shale and determination of the Mississippian-Devonian boundary in southern Indiana sections. CLINTON R. STAUFFER, while at the University of Minnesota, wrote many papers on Ordovician and Devonian conodont faunas. In addition, various other authors in the United States have written one or two articles on conodonts.

No paleontologists in the rest of the world are doing work on conodonts comparable to that of the American workers. In Germany, HERMANN SCHMIDT, of Göttingen, is continuing his work of 1934 on conodont assemblages from the Mississippian of Westphalia, convincingly suggesting that several types of conodonts occurred together in each animal. W. EICHENBERG (1930) wrote a few pages on a conodont assemblage from Culm rocks in the Harz Mountains. HANS MATERN published a paper on Upper Devonian-Lower Mississippian forms of Germany, describing many fossils, most of which are probably not validly named. O. WETZEL (1932-1948), of Eutin, reported on some conodonts from Cretaceous flints of Denmark and Sweden, but he later states that these are probably worm remains. KAREL ZEBERA wrote a few short articles on the Barrandian series of Czechoslovakia, describing one new species of conodont. In Tartu, Estonia, ARMIN ÖPIK (1936) published a short article, mentioning need for revision of some of PANDER's work. F. DEMANET, of Belgium, wrote a few pages on assemblages from that country in 1938 and 1941, and in 1939 he figured a conodont *in situ* on a gill arch of a fish from the Coal Measures of England. Concerning this form, C. J. STUBBLEFIELD and W. H. C. RAMSBOTTOM, of the Geological Survey and Museum, London, are not "content to accept that the specimen cited . . . shows an unquestioned conodont" (personal communication).

Conodonts were discovered in Egypt in 1940 by DONALD B. EICHER, of the Standard Oil Company of New Jersey, and he has written several short notes about Carboniferous and Triassic conodonts. IRENE CRESPIN, of Australia, described two species in 1943 from the Ordovician of that country. No conodonts have been found in South or Central America so far as I am aware, but an article by F. W. LANGE (1947) on scolecodonts from Brazil mentions that these remains were misinterpreted as conodonts by P. F. CARVALHO in 1941. A recent review of LANGE's article (*Journal of Paleontology*, vol. 22, pp. 647-648), which mentions conodonts in Brazil, is incorrect. The forms recently described by ALICE E. WILSON, of Canada, are scolecodonts, according to a letter from her. Of these foreign works, none contain descriptions of more than two valid new species, and there are no major articles like those published in the United States.

In North America, most of the work is concentrated in New York, Texas, and the Mid-Continent region. Stratigraphically, most work on conodonts in North America has been on the Upper Devonian and Lower Mississippian fossils, with Ordovician or Pennsylvanian next in importance. Other parts of the Paleozoic and lower Mesozoic have been little touched. The tendency at present is to extend the use of conodonts as better stratigraphic markers, to expand further their known stratigraphic and geographic boundaries, to describe new faunas and revise previous works, to describe and illustrate specimens more accurately, and to investigate new phases of the subject such as ecology, composition, morphology, and problematica. In general, the trend is toward a refinement of methods, with Americans doing the most work in the last several decades.

To summarize, the history of conodont studies can be divided into three periods: (1) the 1853-1856 period of discovery led by PANDER, (2) the 1856-1926 period of slow expansion and discussion influenced by HINDE, and (3) the 1926-to-present-day period of refinement, activated by American workers, outstanding among whom are BRANSON and MEHL.

NATURE OF CONODONTS

The following short summary of present knowledge of conodonts is presented to show main features learned about these fossils. Most specialists

believe conodonts to be chordate remains because they are composed of phosphate of lime, are attached to bonelike material, and are found in abundance in association with abundant remains of fishes, sharks, ostracoderms, and other lower chordates. Every conodont is homogeneous throughout, with no divisions into parts such as true dentine or enamel. They may have either a fibrous or a lamellar structure. The fibrous type is composed of small bundles of fibers; little work has been done on their morphology. The lamellar type, comparable to an onion, is composed of "unit cells" of fluorin-dahllite crystals with the c-axis oriented normal to the direction of ontogenetic growth.

Normally, conodonts are transparent to translucent, and amber or brown in color; but if altered, they may be grayish-white and opaque. They are never black, like scolecodonts with which they are often confused. Conodonts have a specific gravity above that of quartz, dolomite, and calcite and therefore may be concentrated by the heavy-liquid separation method. They vary in size from about 4 mm. to 0.14 mm. or less, most of them being retained on an 80-mesh screen after passing a 32-mesh screen.

These teethlike objects are good horizon markers, especially in sediments devoid of other fossils, like some of the Upper Devonian black shales. According to BRANSON, the basis for correlation is appearance of a new fauna rather than comparison with an older fauna. For example, where Upper Ordovician species are mixed with Lower Silurian species, the age of the containing bed would be considered Lower Silurian. Entire genera are restricted to parts of each system, but future workers may find longer ranges for some genera. Conodonts are among the best index fossils of the Paleozoic and lower Mesozoic, having special value when age based on other fossils is equivocal. The animals which bore conodonts probably recognized few barriers. A near-shore environment is suggested by the fact that conodonts are found in large numbers in shales and sandstones, but many times they have been found in limestones, dolomites, and cherts, proving that they do not follow facies, because almost identical species have been found in all different types of lithologic units. For example, the Glen Park oölite and the Louisiana dolomite have identical species of conodonts with the Grassy Creek shale and Sylamore sandstone of Missouri, showing that facies enters little into the problem of correlation by means of these fossils.

Conodonts have been reworked into higher formations by an advancing sea or seemingly deposited in a lower formation by occurrence in channels and sinks. However, since many conodonts have limited ranges that are well known, these admixtures and "ghost faunas" can readily be detected by even the inexperienced.

Conodonts occur from Lower Ordovician through Lower Permian, with a few in the Middle Triassic, attaining their climax in the Upper Devonian and Lower Mississippian. Little work has been published on the Upper Silurian, Lower Devonian, Upper Mississippian, and Permian or higher faunas.

Classification is arbitrary. The entire group of conodonts is considered to constitute an order. Two sub-orders have been erected, based on microstructure (lamellar or fibrous). Families of each suborder are principally based upon four main types of arbitrary categories: cones, blades, bars, and platforms. Genera and species are segregated on basis of major or minor differences in external form, type of escutcheon, and sometimes minor internal structures, such as germ denticles. Assemblages show that perhaps one animal bore different species of different families, as outlined above. It is not feasible to apply a specific name to an assemblage because the entire animal is unknown and assemblages are rare and not entirely free from question as to natural association of component elements. Rather, it is more tenable to describe the individual units of an assemblage as separate species, and to list these together for the purpose of showing the exact components of an assemblage.

There are approximately 600 publications containing about 150 proposed generic names and 1,800 specific names. Just 20 years ago, there were approximately 37 generic names and 300 specific names proposed. This shows the progress made by workers in study of conodonts.

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and Mr. ROBERT DOWNS, of the University of Iowa, have sent me corrections to records of types at that University, in addition to separates published by various authors working at Iowa City. Mr. RAYMOND R. HIBBARD, of the Buffalo Society of Natural Sciences, Buffalo, N. Y., has presented some separates and has communicated knowledge concerning types in his collection, besides loaning rare foreign and domestic publications. Mrs. HELEN J. PLUMMER (deceased) kindly supplied type numbers for conodonts on deposit at the University of Texas, Bureau of Economic Geology. Other scientists who have supplied their separates, or were helpful in locating new occurrences of conodonts or repositories for types are Mr. RALPH BOND, Capital University, Columbus, Ohio; Mr. ENRIQUE CAMACHO, Lake Charles, La.; Dr. KENNETH E. CASTER, University of Cincinnati; Miss MARIBELLE CORMACK, Director of the Park Museum, Providence, R. I.; Dr. MAXIM K. ELIAS, Nebraska Geological Survey; Dr. R. V. HOLLINGSWORTH, Midland, Texas; Dr. CLINTON R. STAUFFER, Pasadena, Calif.; Mr. SAM TUELL, Plainville, Conn.; and Dr. J. MARVIN WELLER, University of Chicago.

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ABBREVIATIONS

The following was copied from the abbreviations in the Bibliography of North American Geology (United States Geological Survey) and Bibliography of Geology Exclusive of North America (Geological Society of America), with additional abbreviations of my own. One abbreviation may stand for several meanings, especially where a word has different endings or spelling as result of translation into another language.

Abh	—Abhandlungen
(ab)Na	—abstract, Naturwissenschaften Wochenschrift, etc.
(ab)N	—abstract, Neues Jahrbuch
(ab)R	—abstract, Geological Record
Abs	—Abstract
Abt	—Abteilung, Abtheilung
(ab)Z	—abstract, Palaeontologisches Zentralblatt
Acad	—Academie, Academy
Adv	—Advancement
Akad	—Akademie, etc.
Ala	—Alabama
Am	—America
Amend	—Amendment
Ann	—Annals, etc., Annual
Anno	—Annotated
App	—Appendix
Apr	—April
Arch	—Archiv, etc.
Ariz	—Arizona
Ark	—Arkansas
Arq	—Arquivos
Ars	—Arsskrift, etc.
art	—article
Ass	—Association
Assm	—Assembly
Aug	—August
Aust	—Australia
Avh	—Avhandlingar
Beil	—Beilage
Belg	—Belgique
Ber	—Berichte
Bergak	—Bergakademie
Biblio	—Bibliography
Bien	—Biennial

Biol —Biological, etc.
Brit —British
Buff —Buffalo
Bull —Bulletin, etc.
Bur —Bureau

C —Cambrian
Calif —California
Camb —Cambrian
Can —Canada, Canadian, etc.
Cinc —Cincinnati
Circ —Circular
Cl —Classe
Coll —Collection
Colo —Colorado
Comment —Commentatione
Comp —Comparative, compared
Conf —Conference
Cong —Congress
Conn —Connecticut
Contr —Contributions
Czech —Czechoslovakia

d —der, die, das, des, de, etc.
D —Devonian
De —Decade
Dec —December
def —definition
Denksch —Denkschriften
Dept —Department
desc —description
Deut —Deutschen
Dev —Devonian
Dig —Digest
disc —discussion
dol —dolomite

E —East
Econ —Economic
ed —edition, editor
etc —and so forth, u. s. b.
expl —explanation

f —für
Feb —February
fig —figure
Foren —Forening

Ga —Georgia
Gdb —Guidebook
Gefor —Geschiebeforschung
Gen —General
Geog —Geography
Geol —Geology, Geological, etc.
Germ —German
Ges —Gesellschaft
gr —group

Handl —Handlingar
Hb —Handbuch, Handbook, etc.
Hist —History, l'Histoire, etc.

il —illustrated
Ill —Illinois
Illust —Illustrovany
Imp —Imperial, etc.
incl —including
Ind —Indiana
inf —information
Inst —Institute, Institution, etc.
Intern —International
Inv —Investigation

Jan —January
Jb —Jahrbuch
Jg —Jahrgang
Jour —Journal

K —Kaiserlich, Königlich, etc.
Kans —Kansas
Kl —Klasse
Ky —Kentucky

l —la, etc.
L —Lower
La —Louisiana
Landest —Landesanstalt
ls —limestone

M —Middle
Mag —Magazine
Mar —March
Mass —Massachusetts
Math —Mathematische, –ique, etc.
Mber —Monatsbericht
Md —Maryland
Medd —Meddelanden
Meddel —Meddellelser
Mem —Memoirs, etc.
Mesik —Mesicnik
Met —Metallurgy
Mi —Mississippian
Mich —Michigan
Micropaleont—Micropaleontology
Mid —Middle
Midl —Midland
Min —Mining, Mines, etc.
Miner —Mineralogy, etc.
Minn —Minnesota
Miss —Mississippi, Mississippian
Mitt —Mitteilungen
Mo —Missouri
Mon —Monograph
Mont —Montana
Mus —Museum

N —North
Natfor —Naturforschenden
Natk —Naturkunde
Natw —Naturwissenschaftliche, etc.
Ne —Neues
N. C. —North Carolina
N. D. —North Dakota
Nebr —Nebraska
Nev —Nevada
N. F. —Neue Folge, Ny. Fölyd, etc.
N. H. —New Hampshire
N. J. —New Jersey
N. Mex —New Mexico
nomen —nomenclature
Nov —November
N. R. C. —National Research Council
n. s. —new series
N. Y. —New York

O —Ordovician
Oct —October
Okla —Oklahoma
opp —opposite
Ord —Ordovician
Oreg —Oregon

p —page
P —Pennsylvanian
Pa —Pennsylvania
Paleont —Paleontology, –aeont, –äont, etc.
Pam —Pamphlet
Pap —Paper
Penn —Pennsylvanian
Perm —Permian
Pet —Petroleum
Phil —Philadelphia
Phys —Physical, etc.
pl —plate
Pm —Permian
Pnt —Printing
Pol —Polonica
Prel —Preliminary
Preus —Preussischen
Prilu —Prilohou
Prirodoky —Prirodovedecky
Prof —Professional, Professor
pt —part
Pub —Publication, Publishing, etc.

Quar	—Quarterly
Que	—Quebec
Rec	—Record
ref	—reference, referred, etc.
repnt	—reprinted, etc.
Rept	—Report, –ed, etc.
Res	—Resources, Research, etc.
resp	—respectively
Rev	—Review
R. I.	—Rhode Island
rNRC	—review, National Research Council
Roy	—Royal
rP	—review, Priroda, USSR
Rsch	—Rundschau
Rus	—Russian
S	—South, Silurian
Sber	—Sitzungsberichte
S. C.	—South Carolina
Sci	—Science, Scientific, etc.
S. D.	—South Dakota
sec	—section
Sencken	—Senckenbergiana, –ischen, etc.
Sept	—September
ser	—series
Serv	—Service
sh	—shale
Sil	—Silurian
Soc	—Society, etc.
sp	—species, spelled
Spec	—Special
spm	—specimen
ss	—sandstone
summ	—summary
Surv	—Survey
syn	—synonym
T	—Triassic
Tab	—Table
Tech	—Technical, etc.
Tenn	—Tennessee
Tex	—Texas
Trans	—Transactions, translated
Trias	—Triassic
u	—und
U	—Upper
Univ	—University, etc.
unpub	—unpublished
USGS	—United States Geological Survey
USNM	—United States National Museum
USSR	—Union of Soviet Socialist Republics
Va	—Virginia
Verh	—Verhandlungen
Vol	—Volume
W	—West
Wash	—Washington
Wis	—Wisconsin
Wiss	—Wissenschaften, –liche, etc.
W. Va	—West Virginia
Wyo	—Wyoming
Zentrbl	—Zentralblatt
Zool	—Zoological, etc.
Zs	—Zeitschrift
&	—and (denoting closer union)

MORPHOLOGY OF CONODONTS

GENERAL

A general description of the nature of conodonts is contained in the introduction to this paper. Discussion of the morphology of conodonts given here takes up in more detail characters of their form and structure, and it is accompanied by a glossary. The glossary of terms is a modification of that published by HUDDLE (1934), with additional nomenclature used by other investigators, including me. Some workers have used the same term with different meanings and different terms with the same meaning. In order to be consistent, I have had to make choice in defining some terms. It is hoped that future workers will use this glossary as a standard reference, because morphologic characters of every described genus have been considered in its construction.

One plate is included to illustrate the anatomy of the conodonts (Fig. 1).

GLOSSARY OF TERMS

Aboral—lower or inferior surface of attachment.

Accessory lobes—small lobes, on platform types, between transverse ridges and anterior blade, generally on one side of blade; they are same as nodes but fewer in number and nearer to anterior end.

Anterior—(1) in simple cones: convex side of the cone, opposite to direction in which the curved cone is pointing. (2) In bars: end with main cusp, generally on convex side of denticles and toward end which bears anticusp. (3) In blades: direction opposite to inclination of denticles, or in direction of convex surface of denticles. (4) In platforms: direction of blade, or away from any divided plate-end. (5) In *Spathognathodus* and allied forms, the high end is anterior. In *Hibbardella* and *Diplododella*, with short lateral process facing observer, the left limb is anterior. In *Apatognathus*, with apical lamella facing observer, the left limb should be anterior. In *Lonchodus*, it is the direction opposite to inclination of the denticles.

Anterior deflection—anterior portion of an anterior limb or anterior process, bent downward and usually laterally bowed.

Anterior process—anterior extension of a bar, commonly denticulate and curved to one side, as in *Angulodus;* same as anterior limb of a blade. In *Trichonodella*, looking from front to back, the left limb could be considered the anterior process and right limb the inner lateral process, separated by an angle greater than 180 degrees. The same would be true of *Pteroconus* and allied forms. In *Hibbardella* and *Diplododella*, with short process facing observer, the left limb would be anterior, forming an angle of about 90 degrees with the inner lateral process. The same is true of *Apatognathus*, except that the angle is larger. This has been called the antero-inferior process.

Anticusp—spurlike projection extending directly downward below cusp from anterior end of bar; if extended more in an anterior direction it would become an anterior process.

Apex—point where two limbs join.

Apical denticle—large denticle at junction of two limbs.

Apical lamella—slight projection connecting two limbs of *Apatognathus*, on one side of the aboral surface. This should be an inner lateral process.

Apical lip—lateral extension of base of forms such as *Bryantodus*, the more developed side being called inner (see lateral ridge).

Appressed—denticles closely crowded.

Arched—any conodont which curves upwards so that the aboral surface is concave and the oral surface convex.

Bar—any conodont with one usually large denticle at one end above main part of escutcheon, with discrete denticles and generally with an anticusp, anterior process, or lateral

process. It is also referred to that portion of the conodont which holds the denticles.

Blade—any conodont with one large denticle in middle third above main part of escutcheon, with fused rather than discrete denticles, and commonly without anticusp, or lateral process as exemplified by *Spathognathodus, Ozarkodina,* and *Bryantodus.*

Bowed—bent laterally or curved to one side, in contrast to an arched surface which would be at right angles to this type of surface.

Buttress—aboral extension of apical denticle, generally on inner and outer sides, as in *Erismodus.*

Carina—in platforms or thickened blades (like *Pseudopolygnathus*), the central denticulated, nodose, or smooth ridge extending down the middle of the platform.

Cone axis—central axis of conodont, appearing as minute cones, one on top of the other.

Crest—same as carina, except higher and more predominant.

Cristula—small secondary carina developed at posterior end of plate, to either side of the carina and parallel with it.

Cross section—section at right angles to length and parallel with height and width.

Cusp—large main denticle which is ordinarily above the aboral attachment scar or escutcheon, sometimes called the superior fang or main cusp.

Denticles—small spinelike teeth inserted in bar or blade, generally smaller than main cusp, but otherwise similar to it.

Discrete—refers to denticles of a bar (usually), whereby the denticles are separate from each other the greater part of their height and are not fused laterally.

Escutcheon—basal attachment scar, navel, or pit.

Flange—large lateral ridge, commonly on one side only, roughly running parallel with oral and aboral surfaces, (see lateral ridge).

Flexed—same as bowed.

Germ denticles—minute teeth, not projecting beyond blade or bar, seen in transmitted light.

Height—see length.

Horizontal section—section parallel with base or parallel with length and width and at right angles to height.

Inner side—concave lateral side, or side that would have anything which breaks symmetry, such as a flange, one plate, or off-sided cusp, or lateral process. In *Apatognathus, Diplododella, Hibbardella, Microcoelodus, Pteroconus,* and *Trichonodella,* it should be the side with the lateral process or apical lamella.

Keel—on aboral surface, it is the ridge which extends from tip of bar, blade, or platform to the pit, and thence to the other end of the conodont. Usually this term is applied only to the platforms.

Lateral process—short bar extending out from basal part of main cusp, mostly at junction of main cusp with anticusp and posterior bar, as in *Prioniodus.* In *Trichonodella,* looking from front to back, the right bar should be the inner lateral process. In *Hibbardella* and *Diplododella,* it is approximately at right angles to the two limbs. In *Apatognathus,* it should be synonymous with the apical lamella.

Lateral ridge—on lateral face of a bar or blade, a ridge that extends the length of the side parallel with the base. If it is approximately equidistant from oral and aboral edges, it is called a median ridge. If it extends along the aboral margin and is not too pronounced, it is called an apical lip, and if extended into a pronounced little plate it is called a flange. A nodose or ridged flange is synonymous with a plate.

Length—measurement in an anterior-posterior direction. The height is measured in an aboral-oral direction and the width at right angles to these two.

Limb—refers to bar or blade which holds the denticles, generally on either side of a main middle cusp.

Longitudinal section — section parallel with length and height, at right angles to the width or parallel with the sides and normal to the oral surface. If directly down the center, it is called a median longitudinal section.

Nodes—tubercules or small bumps on the oral surface of the plate. The thickened ends of denticles on carina are spoken of as nodose denticles.

Oral—side toward mouth, away from attachment scar, sometimes called distal side.

Oral bar—outer limb in *Apatognathus,* toward which the apical denticle bends. The inner limb of this genus is the reverse, and is not called oral bar. (I would call the oral bar the anterior process, the inner limb the normal posterior bar, and the apical lamella the inner lateral process.)

Parapets—see platform.

Pinnate—nodes or tubercules arranged in a feather-like manner in the platform-type of conodonts.

Platform or plate—conodonts laterally thickened in the posterior half; actually two plates, one on either side of a carina, make a platform. In some forms, one plate may not be developed and in some the plates are called parapets if they are separated by a deep sulcus instead of a carina.

Posterior deflection—rear end of a posterior bar or limb, projected downward in direction of the aboral surface, as in *Falcodus.*

Rugae—wrinkled transverse ridges.

Striae—very faint lines associated with attachment scar, generally arranged in a concentric or symmetrical manner.

Sulcus—in forms like *Cavusgnathus,* refers to indentation or depression in the platform, situated like the carina and often called the oral trough; not to be confused with low areas between high ridges or nodes which are usually called grooves.

Terminal—on the end.

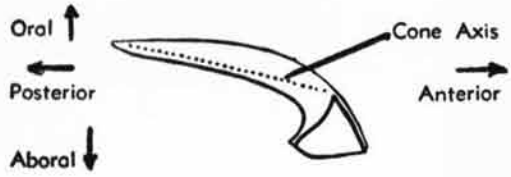
Tooth—entire specimen or unit.

Transverse ridges—ridges running at right angles to median carina, or extending over oral surface of a platform in a transverse or lateral direction. Ridges parallel to the carina are called longitudinal ridges or longitudinal plications, and are synonymous with cristula when applied to the posterior end of the platform.

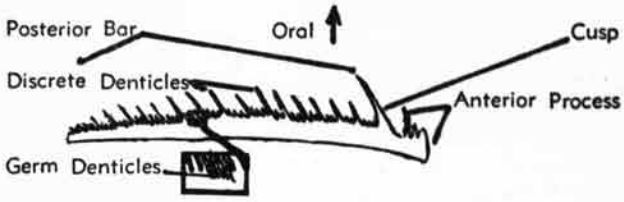
Transverse section—any section normal to direction of active growth.

Unit—entire specimen.

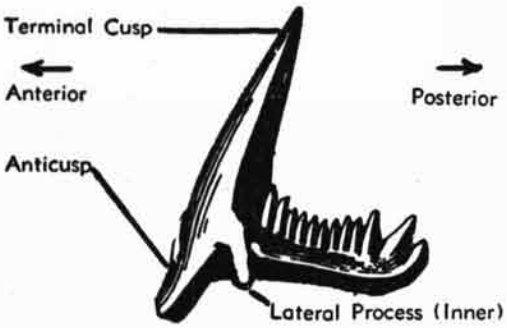
Width—see length.



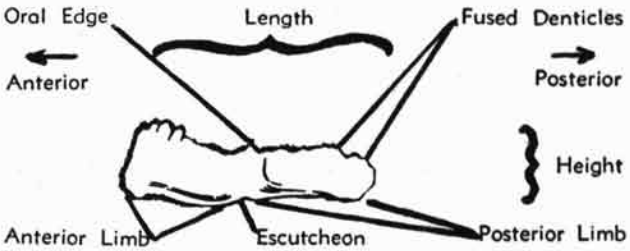
Simple Cone



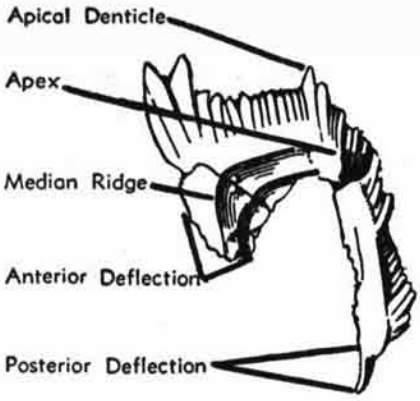
Bowed Bar



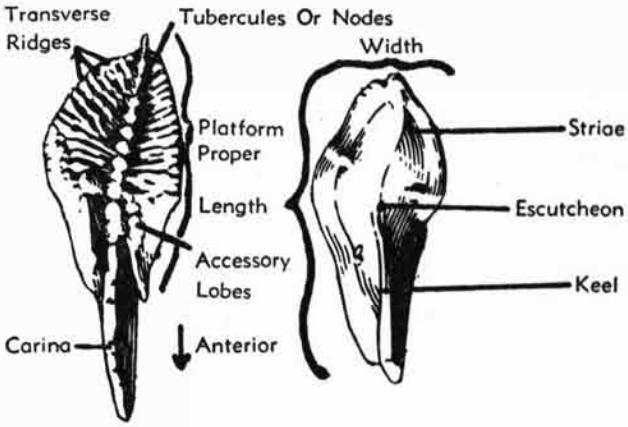
Arched Bar



Straight Blade



Arched Blade



Oral View Aboral View

Platform

FIGURE 1. Anatomy of conodonts.

TAXONOMY OF CONODONTS

GENERAL

Discussion of the classification of conodonts has been given briefly in the introduction in connection with description of the nature of conodonts.

When necessary, the characters in the key to genera, included in this section of the paper, have been taken from described attributes of the type species, but if atypical or gradational characters could be included, I have tried to embody them in the work. The key is offered for what it is worth and should not be considered an integral part of the catalogue, because most of it expresses my own ideas. As a general rule, I have followed ELLISON (1946) in rejecting names.

KEY TO GENERA

A. Fibrous conodonts, composed of bundles of fibers. — L-U Ordovician

I. Cones.

a. Simple.

1. No escutcheon ..... *Stereoconus*, LO-UO (Fig. 2, × 17)

2. Longitudinally grooved escutcheon ..... *Archeognathus*, MO (Fig. 3, × 7)

b. One to three or more additional small denticles on base ..... *Multioistodus*, MO (Fig. 4, × 16)

c. Like b, except additional denticles are larger, the base is longer, and main cusp is not sharply recurved.

1. Buttress on one side, base deeply excavated ..... *Microcoelodus*, MO (Fig. 5, × 27)

2. Like 1, except base is laterally compressed and the denticulate limbs are developed in a vertical plane. *Pteroconus*, MO (Fig. 6, × 27)

II. Blades and bars.

a. Escutcheon on inner side extending to aboral surface.

1. Hand-shaped dental units, with discrete denticles that are subcircular in cross section ... *Chirognathus*, MO (Fig. 7, × 34)

2. Like 1, but denticles are sharp and laterally fused ..... *Leptochirognathus*, MO (Fig. 8, × 31)

b. Escutcheon on aboral surface, fairly deep.

1. Base relatively straight in side view.

a′. Bladelike; thin crenulate oral edge ..... *Coleodus*, MO (Fig. 9, × 17)

b′. Like a′; oral edge deeply notched producing discrete denticles; end denticle usually largest. *Neocoleodus*, MO (Fig. 10, × 17)

c′. Like b′, except large central cusp with much smaller denticles on either side.

1′. Buttress on one side; base deeply excavated ..... *Microcoelodus*, MO (Fig. 11, × 34)

2′. Like 1′, but base is laterally compressed and denticulate limbs developed in vertical plane. *Pteroconus*, MO (Fig. 12, × 27)

2. Base arched at an obtuse angle in side view.

a′. Apical denticle extended into a buttress on both sides with somewhat longitudinally excavated base, not as deep as in b′ below ..... *Erismodus*, MO (Fig. 13, × 34)

b′. Like a′; buttress on one side and base deeply excavated ..... *Microcoelodus*, MO (Fig. 14, × 34)

c′. Like b′, except base is laterally compressed and denticulate limbs are developed in a vertical plane —two characters b′ does not possess ..... *Pteroconus*, MO (Fig. 15, × 27)

c. Escutcheon absent or very shallow on aboral surface.

1. Base strongly arched; discrete divergent denticles ..... *Curtognathus*, MO (Fig. 16, × 27)

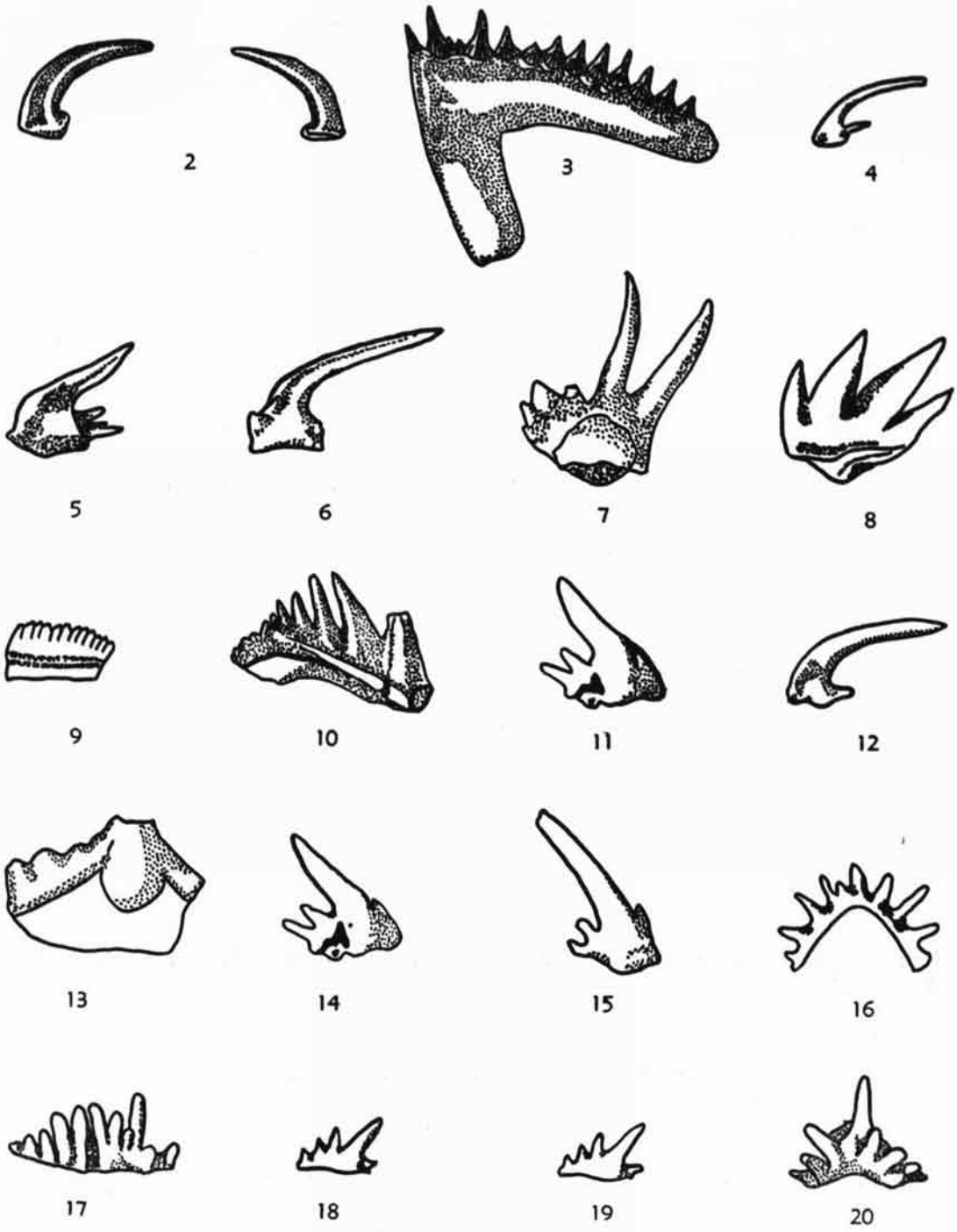
2. Base straight in side view, elongate; discrete divergent denticles ..... *Trucherognathus*, MO (Fig. 17, × 27)

3. Base straight in side view, short; discrete aligned denticles ..... *Polycaulodus*, MO (Fig. 18, × 27)

III. Platforms.

a. Short, flat to slightly concave (in side view) plate, with one row of discrete aligned denticles. *Polycaulodus*, MO (Fig. 19, × 27)

b. Arrow-, heart-, or crescent-shaped base in top view, with discrete divergent denticles ..... *Cardiodella*, MO (Fig. 20, × 27)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c. Triangular or crescent-shaped base in top view, with large denticle at apex in line with smaller fused denticles ..... *Ambalodus*, UO (Fig. 21, × 27)

d. Irregular branching nodes, with median row of denticles on each ..... *Amorphognathus*, MO-UO (Fig. 22, × 27)

B. Lamellar conodonts, composed of lamellar layers. L Ordovician-L Permian

I. Simple cones. L Ordovician-M Silurian

a. Escutcheon absent; in its place is a bulbous pitted basal portion ..... *Clavohamulus*, LO (Fig. 23, × 37)

b. Escutcheon present, fairly deep, subconial to tetrahedral generally.

1. Very low units; wider than high with four ridges extending from apex ..... *Lepodus*, MO (Fig. 24, × 34)

2. Units higher than wide.

a′. Attachment scar almost twice as wide as high.

1′. Bilaterally symmetrical units.

a″. Anterior rounded or broadly angular; posterior concave to keeled; lateral faces smooth. *Acontiodus*, LO-MO (Fig. 25, × 34)

b″. Like a″; posterior side may be sharp and lateral faces may have ridges; lower anterior margin somewhat indented and extending below basal plane, similar to a blunt anticusp. *Ulrichodina*, LO (Fig. 26, × 30) (Fig. 26a × 44)

2′. Bilaterally asymmetrical unit, one side is fluted and the other smooth ..... *Paltodus*, LO-MS (Fig. 27, × 27)

b′. Attachment scar about as high as wide.

1′. Bilaterally asymmetrical units; one lateral face has ridge and the other is flat or concave. *Acodus*, LO-MS (Fig. 28, × 27)

2′. Bilaterally symmetrical units.

a″. Sides gently convex; front margin projected downward into a fragile prong .... *Distomodus*, LS (Fig. 29, × 17)

b″. Front margin without prong.

1″. Lateral faces and posterior face fluted ..... *Scolopodus*, LO (Fig. 30, × 27)

2″. Lateral faces ridged or smooth.

aa. At base is a thin-lipped basal cup extended posteriorly and laterally ... *Oistodus*, LO-UO (Fig. 31, × 34)

bb. In mature forms only, small denticles are developed on posterior side of cone, inclined toward base, lacking basal cup of aa ..... *Acanthodus*, LO (Fig. 32, × 30)

cc. Lateral faces with ridge; sharp anterior and posterior edges; lacking basal cup of aa and denticles of bb ..... *Distacodus*, LO-MS (Fig. 33, × 27)

dd. Lateral faces smooth; sharp anterior and posterior edges; lacking basal cup of aa and denticles of bb ..... *Drepanodus*, LO-UO (Fig. 34, × 27)

c. Escutcheon very slightly concave (form not very well known) ..... *Prionognathus*, MO-US (Fig. 35, × 9)

II. Bars. The following five exceptions are also included in this group, none of which are found in combination.

(1) Unit without a main cusp, but denticles are discrete.
(2) Unit has denticles on the posterior surface of main cusp.
(3) One genus is a blade, with main escutcheon and cusp on end.
(4) One genus has a denticle on the anterior process, larger than the main cusp adjacent to it.
(5) Some genera have a main middle cusp, but discrete denticles.

a. Units of relatively equal-sized denticles; two genera without main cusp.

1. Blade, with escutcheon on end ..... *Loxodus*, LO (Fig. 36, × 30)

2. Discrete denticles; lateral process near anterior end; S-shaped or sigmoid in top view. *Centrognathodus*, UD (Fig. 37, × 17)

3. Discrete denticles; no lateral process; no main cusp present; straight in top and side views. *Lonchodus*, MO-L Perm (Fig. 38, × ?)

4. Discrete denticles sometimes fused near base; no lateral process; arched in side view; no main cusp present; posterior end produced into a blunt process ..... *Prioniodella*, UO-MP (Fig. 39, × 10)

b. Units with one prominent cusp and with smaller denticles arising from the posterior edge of the cone proper.

1. Denticles inclined toward base ..... *Acanthodus*, LO (Fig. 40, × 20)

2. Denticles almost parallel with base ..... *Belodus*, LO-UO (Fig. 41, × 48)

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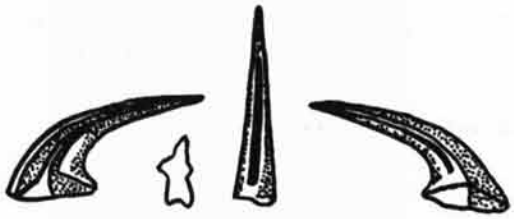

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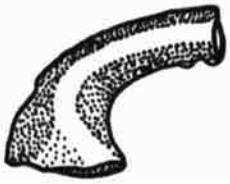

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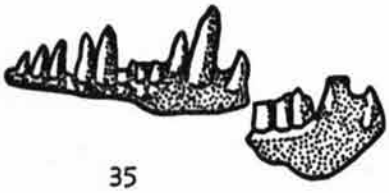

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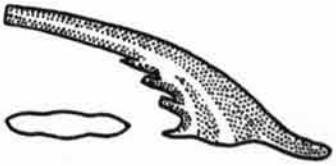

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c. Units with one main cusp, followed by smaller denticles, none of which are on the posterior edge of the main cusp.
  1. Bilaterally symmetrical units that have either two or three bars extending from a main middle cusp.
    a′. Two large limbs with central cusp, with a smaller lateral process at a right angle or greater; escutcheon beneath main cusp only.
      1′. In side view; aboral outline of each limb is straight to concave; denticles discrete, in same plane ..... *Hibbardella*, UD-UP (Fig. 42, × 23)

      2′. In side view, aboral outline of each limb is convex; denticles fused at base, with germ denticles; denticles diverge from a plane ..... *Diplododella*, UD (Fig. 43, × 27)

    b′. One large posterior bar with terminal cusp, with two smaller lateral processes (one an anterior process, the other an inner lateral process) on either side at about a 60-degree angle to the bar; many times the posterior bar is broken or suppressed; escutcheon extends into bar. *Trichonodella*, MO-L Perm (Fig. 44, × 34)

    c′. Two limbs only; the ends of each limb have one large cusp as big as the middle cusp. *Stephanodella*, UD (Fig. 45, × 20)

  2. Unit with two limbs almost parallel forming a U-shaped conodont; limbs twisted at their union with the apical denticle; apical lamella present ..... *Apatognathus*, UD (Fig. 46, × 27)

  3. Units not as in 1 or 2.
    a′. Units having no anterior process, no lateral process, and no anticusp.
      1′. Subequal denticles arise from the much expanded base of the main cusp ..... *Cordylodus*, LO-UO (Fig. 47, × 34)

      2′. Like 1′, except base is much more elongate ..... *Cyrtoniodus*, MO (Fig. 48, × 40)

      3′. Like 2′, except for large denticle near anterior end of posterior bar, almost as high as the main cusp which is anterior to it; between this denticle and the main cusp, there may or may not be denticles ..... *Phragmodus*, MO-UO (Fig. 49, × 27)

      4′. Like 3′, except large denticle is small and the same size as the others, with no denticles between it and the main cusp anterior to it ..... *Pachysomia*, MO (Fig. 50, × 27)

    b′. Units with anterior process, anticusp, or lateral process or any of these in combination.
      1′. Anterior process denticulate, having one large denticle larger than the main cusp. The large denticle is immediately adjacent and anterior to the main cusp ..... *Metalonchodina*, U Mi-L Perm (Fig. 51, × 24)

      2′. Anterior process denticulate with denticles on it smaller than main cusp; anterior process not in same plane as the posterior bar.
        a″. Alternating large and small denticles on a long bar ..... *Hindeodella*, UO-L Perm (Fig. 52, × 20)

        b″. Denticles not alternating large and small.
          1″. Bar with large flange on one side of main cusp; wide lamella connects the bar with the anterior process ..... *Oulodus*, MO (Fig. 53, × 27)

          2″. Bar without flange or lamellar connection.
            aa. Unit with anterior and posterior deflections ..... *Angulodus*, UD (Fig. 54, × 17)

            bb. Unit without deflections; anterior process at about a 45-degree angle to cusp, arising from its side; unit arched ..... *Lonchodina*, MS-L Perm (Fig. 55, × 20)

            cc. Like bb, except anterior process is about at right angles to the cusp and arises from its end; unit not arched ..... *Ligonodina*, MS-L Perm (Fig. 56, × 20)

      3′. Like 2′ but anterior process is almost in the same plane as the bar.
        a″. Anterior process as long or longer than the bar; arched down at a sharp angle to the bar; bearing quite large denticles that are fused more than discrete at times. *Palmatodella*, UD-MMi (Fig. 57, × 20)

        b″. Anterior process is generally short, but may be long; unit moderately arched with rather small discrete denticles ..... *Prioniodina*, UD-UP (Fig. 58, × 20)

        c″. Like b″, but anterior process is more sharply arched, is shorter, and the main cusp larger. *Euprioniodina*, UO-MP (Fig. 59, × 20)

        d″. Like c″, with anticusp smooth or denticulate; inner lateral process present; main cusp directed backward rather than forward as in c″; inner process may be absent. *Prioniodus*, LO-L Perm (Fig. 60, × 66)

III. Blades, with the following exceptions, none of which are found in combination.
  (1) One genus with no denticles on the two limbs on either side of the main middle cusp.
  (2) No main middle cusp but fused denticles.
  (3) Largest denticle on end but escutcheon is in middle of blade.
  (4) Inner lateral process present but denticles are fused.

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a. Unit without denticles on the two limbs on either side of a main middle cusp; unit arched . . . *Cornuramia*, MO (Fig. 61, × 27)

b. Units with denticles on either side of main middle cusp.
  1. Units L- or U-shaped in side view of aboral outline. Never S-shaped in top view.
    a′. Units with deflections; posterior end of bar usually with a few large denticles; no large denticles near anterior end of bar . . . . . *Falcodus*, UD-MMi (Fig. 62, × 13)
    b′. Units without deflections.
      1′. Limbs equal; unit symmetrical; inner lateral process present . . . . . *Elsonella*, UD (Fig. 63, × 30)
      2′. Limbs subequal, no inner lateral process . . . . . *Palmatodella*, UD-MMi (Fig. 64, × 20)
      3′. Limbs unequal, one much shorter than the other; larger cusp than in 2′; no inner lateral process. *Synprioniodina*, UD-L Perm (Fig. 65, × 27)
  2. Units gently S-shaped in top view; never L- or U-shaped in side view . . . . . *Pravognathus*, MO (Fig. 66, × 44)
  3. Units not like 1 or 2.
    a′. Blade short, high, with crenulate oral edge; one small middle denticle projects slightly above the other subequal denticles . . . . . *Pinacognathus*, LMi (Fig. 67, × 15)
    b′. Blade elongate.
      1′. Escutcheon thin, long, deep.
        a″. Escutcheon not expanded too much beneath main cusp; unit arched and bowed. *Subbryantodus*, LMi (Fig. 68, × 27)
        b″. Escutcheon much expanded beneath main middle cusp; unit arched; limbs offset laterally at mid-length . . . . . *Dichognathus*, MO (Fig. 69, × 34)
        c″. Escutcheon much expanded in middle of unit; middle cusp small; limbs not offset laterally. *Bryantodina*, MO (Fig. 70, × 80)
      2′. Escutcheon shallow, with slight pit beneath main cusp.
        a″. Blade bluntly rounded on sides of aboral edge due to pronounced flanges on both sides; sometimes a lateral process is preserved . . . . . *Bryantodus*, UD-MMi (Fig. 71, × 20)
        b″. Blade sharp on aboral edge . . . . . *Ozarkodina*, MO-L Perm (Fig. 72, × 34)
        c″. Like b″; one end of blade is flexed . . . . . *Plectospathodus*, MS (Fig. 73, × 34)
        d″. Blunt on aboral edge like a″, but to the extent that the basal flanges are now extended into plates to form a platform. One side is much more developed than the other.
          1″. Larger plate runs full length of unit; gently arched; middle denticle of blade not very high; denticles subequal . . . . . *Solenodella*, LMi-MMi (Fig. 74, × 15)
          2″. Like 1″, but unit more arched; middle denticles much higher than the others. *Polygnathellus*, MS-UD (Fig. 75, × 20)
          3″. Like 2″, but plate does not extend full length of conodont . . . . . *Nothognathella*, UD (Fig. 76, × 27)
        e″. Like d″, but plates are of equal size and oral surface is concave . . . . . *Polygnathoides*, MS (Fig. 77, × 34)

c. Units without a main middle cusp.
  1. Units with sharply bowed end; no main denticle present . . . . . *Bactrognathus*, LMi-MMi (Fig. 78, × 34)
  2. Units not bowed sharply; a large denticle on end.
    a′. Large, hornlike, isolated cusp on end; remainder of blade with some nodose denticles projecting from it slightly; base platform-like with large pit . . . . . *Pelekysgnathus*, LMi (Fig. 79, × 34)
    b′. Subequal denticles; anterior end denticles slightly larger than the rest; escutcheon small, central; base not platform-like . . . . . *Spathognathodus*, MS-L Perm (Fig. 80, × 17)
    c′. Like b′; escutcheon closer to anterior end. The above may be a synonym of this . . . . *Ctenognathus*, US (Fig. 81, × 9)
  3. Units not bowed; no main denticle present; denticles tend to become discrete . . . . . *Prioniodella*, UD-MP (Fig. 82, × 10)

IV. Platforms.
  a. Basal attachment scar large, elongate, wide the length of the specimen.
    1. Unit cross-shaped . . . . . *Staurognathus*, LMi (Fig. 83, × 34)

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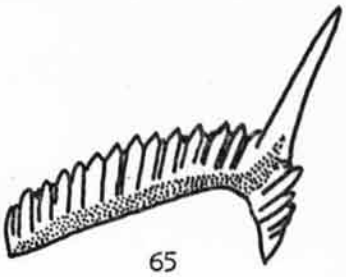
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2. Large, hornlike cusp on end of blade, almost as big as blade; base flared out to form a platform.
Pelekysgnathus, LMi
(Fig. 84, × 34)

3. Units not as in 1 or 2.
a′. Long, high, bladelike carina extending the full length of the platform; no accessory lobes.
Gnathodus, LMi-MP
(Fig. 85, × 48)
(Fig. 85a, × 24)

b′. Platform without bladelike carina; or if with one it does not extend the full length of the platform; or if it does it is very low on the platform.
1′. Units covered with blunt nodelike denticles on oral surface, sometimes connected laterally to form coarse transverse ridges.
a″. Nodes regular, usually in three longitudinal rows but may be two; escutcheon deep, widens at one end, and flares out so that the base is the widest part of the conodont.
Icriodus, MD-UD
(Fig. 86, × 27)

b″. Like a″; main cusp on one end; escutcheon narrow, not flaring out widely; oral edge widest part ..... *Scyphiodus*, MO
(Fig. 87, × 40)

c″. Irregular nodes, connected longitudinally and laterally by low narrow ridges; nodes never in three rows but in two rows; escutcheon widens evenly and not abruptly at one end.
Icriodina, LS
(Fig. 88, × 17)

2′. Units with medium to fine transverse ridges on oral surface of platform.
a″. Units with no median carina, but a lateral one.
1″. Units with a well-pronounced deep oral trough separating two parapets.
Cavusgnathus, UMi-L Perm
(Fig. 89, × 34)
(Fig. 89a, × 17)

2″. Units with no deep oral trough and no parapets ..... *Polygnathodella*, LP
(Fig. 90, × 22)

b″. Units with median carina.
1″. Unit with no median sulcus ..... *Idiognathodus*, LP-UP
(Fig. 91, × 24)

2″. Unit with median sulcus.
aa. Unit with fairly wide escutcheon ..... *Streptognathodus*, LP-L Perm
(Fig. 92, × 27)

bb. Unit with fairly long escutcheon ..... *Taphrognathus*, MMi
(Fig. 93, × 30)

b. Basal attachment scar small, elongate or limited to a small rounded pit.
1. Units with one keel on aboral surface with a central pit.
a′. Units with a median bladelike carina extending the length of the platform, not projecting beyond it.
1′. Oral surface deeply concave; plates equally developed; carina straight ..... *Polygnathoides*, MS
(Fig. 94, × 34)

2′. Convex oral surface; inner plate more strongly developed; surface tuberculated; straight carina; large denticles near middle ..... *Polygnathellus*, MS-UD
(Fig. 95, × 20)

3′. Like 2′, but carina has relatively subequal denticles and platform is not arched as much. Small nodes are sometimes on margin of the larger inner plate, but the plate is not tuberculated.
Solenodella, LMi-MMi
(Fig. 96, × 15)

b′. Units with carina that projects from end of platform.
1′. Unit arched; large central denticle on carina toward middle of platform, with denticles decreasing in size from it anteriorly and posteriorly; more bladelike than platform-like.
Nothognathella, UD
(Fig. 97, × 27)

2′. Unit relatively straight in side view; largest denticle on carina near anterior end; small central pit; transverse ridges on either side of the straight median carina; more platform-like than bladelike ..... *Polygnathus*, MD-MMi
(Fig. 98, × 27)

3′. Like 2′, but the posterior end is deflected downward into a shallow trough; small central pit.
Siphonodella, LMi-MMi
(Fig. 99, × 15)

4′. Like 2′, but escutcheon is about three times as large and is flaring; plates have coarse rugae.
Pseudopolygnathus, LMi
(Fig. 100, × 15)

5′. Like 2′ but oral surface is convex laterally and longitudinally and is covered with concentric ridges that grade into many small tubercules; short straight carina; small central pit.
Polylophodonta, UD
(Fig. 101, × 8)

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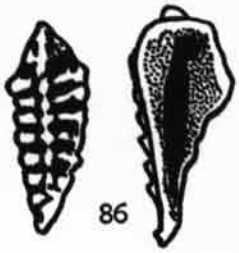
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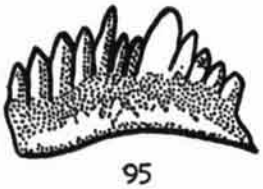
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6′. Median carina sigmoid in top view, with an azygous node near middle; surface tuberculate; more platform-like than bladelike; small central pit ..... *Palmatolepis*, UD (Fig. 102, × 10)

2. Units with several keels on aboral surface, at an angle to one another.
   a′. Unit with two keels on aboral surface, one of which is curved at about a 60-degree angle on either side of half the other, giving the appearance of four keels that terminate in a central point; unit arrow-shaped ..... *Ancyrodella*, MD-UD (Fig. 103, × 20)
   b′. Units with one and one-half keels or one main keel that bifurcates at the middle of the unit, giving the appearance of three keels that terminate in a central point.
      1′. Unit anchor-shaped ..... *Scaliognathus*, LMi-MMi (Fig. 104, × 34)
      2′. Unit not anchor-shaped.
         a″. Carina sigmoid in top view, extending slightly off platform, fairly high to middle of unit, higher on anterior end, with azygous node near middle; short carina extending from center of unit at right angles to main carina; outline in top view tongue-shaped with one side roughly triangular ..... *Palmatolepis*, UD (Fig. 105, × 10)
         b″. One high, straight, short carina restricted to one-half the platform or less; highest denticles toward the center of platform where they stop abruptly; outline in top view triangular. *Ancyroides*, MD-UD (Fig. 106, × 27)
         c″. Straight carina that forks or bifurcates posteriorly; triangular outline in top view.
            1″. Unit roughly bilaterally symmetrical, irregularly nodose, with medium high carina extending full length of specimen and extending anteriorly off the platform for one-fifth the length of the platform ..... *Ancyrognathus*, UD (Fig. 107, × 27)
            2″. Like 1″, but unit is not symmetrical; carina low at posterior end, composed of nodes, does not project beyond platform; oral surface with regular transverse ridges grading into nodes ..... *Doliognathus*, LMi-MMi (Fig. 108, × 23)
3. Unit with elongate escutcheon, terminally expanded, somewhat broad, but not broad enough to be included in group a ..... *Gondolella*, MP-L Perm (Fig. 109, × 27)

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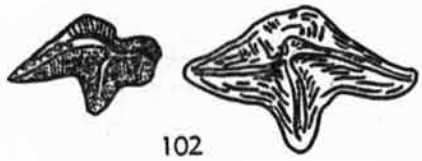
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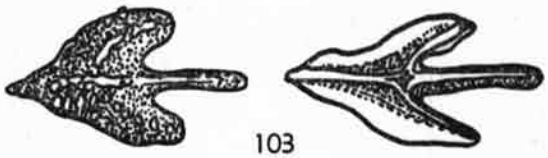
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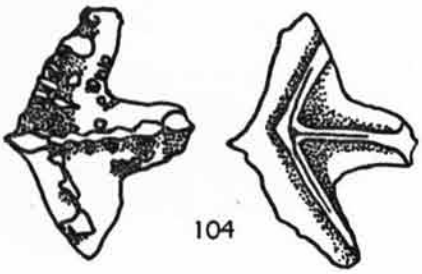
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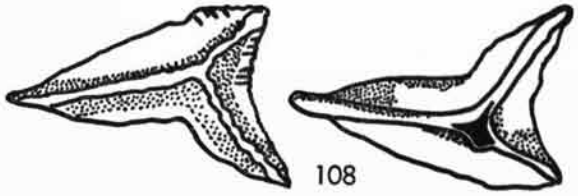
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134. CONODONT PETROLEUM COMMITTEE (1932, Jan. 26) *Conodonts, fishes and petroleum:* Noel Pnt. Co., separate copy, pp. 1-15, figs. 7-9. Quoted from the three papers by MacFarlane. Also a newspaper article from the New York *Times*, Tuesday, Jan. 26, 1932, is reproduced in the back of the article. (Palaeont. Zentrbl., vol. 4, no. 2, p. 112, Mar. 1, 1934).

135. CONSELMAN, FRANK B. (1935) *The geology and stratigraphic petrography of the Auxvasse Creek Quadrangle, Callaway County, Missouri:* Mo. Acad. Sci. Proc. 1934, vol. 1, pp. 101-120, figs. 1-2 (pp. 106, 115). Distacodid faunas of the Jefferson City-Cotter have been found near the limits of the quadrangle. Microfossils have been found in abundance in the Sylamore sandstone, especially the shaly lenses (this includes conodonts).

136. COOPER, CHALMER L. (1931, June) *Conodonts from the Arkansas novaculite, Woodford formation, Ohio shale, and Sunbury shale:* Jour. Paleont., vol. 5, no. 2, pp. 143-151, pl. 20. The types and figured specimens are in the Cooper coll. which will probably be given to the U. S. Nat. Mus. (Zool. Rec., vol. 68, VI Vermes, p. 10, 1931, William Nicoll. Palaeont. Zentrbl., vol. 3, no. 3, p. 182, Sept. 1933, E. B. Branson).

137. ——— (1931, Sept.) *New conodonts from the Woodford formation of Oklahoma:* Jour. Paleont., vol. 5, no. 3, pp. 230- 243, pl. 28. Types and figured specimens are in the Cooper coll. which will probably be given to the U. S. Nat. Mus. (Zool. Rec., vol. 68, VI Vermes, pp. 10, 103, 1931, William Nicoll. Palaeont. Zentrbl., vol. 3, no. 3, pp. 182-183, Sept. 1, 1933, E. R. Branson. Biol. Abs., vol. 9, no. 2, p. 436, Feb. 1935, E. P. G.).

138. ——— (1933a, Feb. 28) *Revision of Ligonodina Ulrich & Bassler, 1926, and Prioniodus Pander, 1856* (abstract): Geol. Soc. Am., Bull., vol. 44, no. 1, p. 210. (Palaeont. Zentrbl., vol. 4, no. 3, p. 173, Apr. 1, 1934. Biol. Abs., vol. 9, no. 5, pp. 1132-1133, May 1935, E. P. G.).

139. ——— (1933b, Feb. 28) *Conodonts from the upper and middle Arkansas novaculite Mississippian, at Caddo Gap, Arkansas* (abstract): Geol. Soc. Am., Bull., vol. 44, no. 1, p. 211.

140. ——— (1935, June) *Conodonts from the upper and middle Arkansas novaculite Mississippian, at Caddo Gap, Arkansas:* Jour. Paleont., vol. 9, no. 4, pp. 307-315, pl. 27. (Palaeont. Zentrbl., vol. 4, no. 3, p. 173, Apr. 1, 1934. *Ibid.*, vol. 9, no. 1, pp. 49-50, Dec. 1, 1936. *Ibid.*, vol. 10, no. 3, p. 175, Sept. 1, 1937, E. B. Branson & M. G. Mehl. Biol. Abs., vol. 10, no. 4, p. 1021, Apr. 1936, C. L. Cooper).

141. ——— (1935a, June) *Review of Conodont studies, by E. B. Branson, M. G. Mehl, and E. R. Branson, Univ. Mo. Studies, vol. 8, nos. 1-4, 1934:* Jour. Geol., vol. 43, no. 4, pp. 443-445.

142. ——— (1936, Mar.) *Actinopterygian jaws from the Mississippian black shales of the Mississippi Valley:* Jour. Paleont., vol. 10, no. 2, pp. 92-94, pl. 12 (p. 92).

143. ——— (1938, June) *Conodonts from a pre-Weldenpost-Woodford horizon in Oklahoma* (abstract): Geol. Soc. Am., Proc. 1937, p. 272. (Palaeont. Zentrbl., vol. 12, no. 5, p. 288, Jan. 1, 1939).

144. ——— (1939, July) *Conodonts from a Bushberg-Hannibal horizon in Oklahoma:* Jour. Paleont., vol. 13, no. 4, pp. 379-422, pls. 39-47, 2 text figs.

145. ——— (1942, Nov.) *Occurrence and stratigraphic distribution of Paleozoic ostracodes:* Jour. Paleont., vol. 16, no. 6, pp. 764-776, figs. 1-9 (p. 767).

146. ——— (1945, Nov.) *Devonian conodonts from northwestern Montana:* Jour. Paleont., vol. 19, no. 6, pp. 612-615, pl. 84. The types are in the Ill. State Geol. Surv coll., Urbana, Ill.

147. ——— (1945a, Dec.) *Conodont assemblages from the lower Kinderhook black shales* (abstract): Geol. Soc. Am., Bull., vol. 56, no. 12, p. 1153.

148. ——— (1945b, Dec.) *Microfauna of Pennsylvanian-Mississippian borderline formations* (abstract): Geol. Soc. Am., Bull., vol. 56, no. 12, p. 1153.

149. ——— (1946a, Mar. 27-29) *Role of microfossils in interregional Pennsylvanian correlations:* Am. Ass. Adv. Sci., Program and abstracts, Sec. E, joint meet. with Geol. Soc. Am., St. Louis, Mo., p. 8.

150. ——— (1946b, Apr. 3-4) *Upper Kinkaid (Mississippian) microfauna:* 20th ann. meet. Soc. Econ. Paleont. and Miner., Chicago, Ill., p. 57.

151. ——— (1947a, Mar.) *Upper Kinkaid (Mississippian) microfauna from Johnson County, Illinois:* Jour. Paleont., vol. 21, no. 2, pp. 81-94, pls. 19-23. Also Ill. Geol. Surv., Rept. Inv. 122.

152. ——— (1947b, May) *Role of microfossils in interregional Pennsylvanian correlations:* Jour. Geol., vol. 55, no. 3, pp. 261-270, 2 tabs. (pp. 261, 267, 269-270). (Geol. Soc. Am., Bull., abs., vol. 57, no. 12, p. 1265, Dec. 1946).

153. ——— (1948, July) *Kinderhook micropaleontology:* Jour. Geol., vol. 56, no. 4, pp. 353-366, 1 fig., 2 tabs. (pp. 353, 356-362). (Geol. Soc. Am., Bull., abs. vol. 58, no. 12, pp. 1272-1273 (p. 1272), Dec. 1947).

154. ——— & SLOSS, L. L. (1943, Mar.) *Conodont fauna and distribution of a Lower Mississippian black shale in Montana and Alberta:* Jour. Paleont., vol. 17, no. 2, pp. 168-176, pls. 28-29, 1 text fig. The types and figured specimens are in the Cooper coll. which will probably be donated to the U. S. Nat. Mus. (Biol. Abs., vol. 17, p. 1784, 1943, C. L. Cooper).

155. COOPER, G. A., *et al.* (1942, Dec.) *Correlation of the Devonian sedimentary formations of North America:* Geol. Soc. Am., Bull., vol. 53, no. 12, pp. 1729-1794, pl. 1 (pp. 1745, 1756-1757, 1774).

156. CORYELL, H. N. (1939, Mar.) *Mississippian formations in southern Illinois:* Jour. Paleont., vol. 13, no. 2, pp. 203-210, figs. 1-2 (p. 208).

157. CRESPIN, IRENE (1943, Nov. 30) *Conodonts from Waterhouse Range, Central Australia:* Trans. Roy. Soc. S. Aust., vol. 67, no. 2, pp. 231-232, pl. 31.

158. ——— (1948, Jan.) *Australia and New Zealand:* The Micropaleont., vol. 2, no. 1, pp. 17-18 (p. 18), Am. Mus. Nat. Hist., N. Y.

159. CRONEIS, CAREY (1930) *Geology of the Arkansas Paleozoic area:* Ark Geol. Surv., Bull. 3, pp. 1-457, pls. 1-45, figs. 1-30, tabs. 1-6 (pp. 41, 108).

160. ——— (1934) *Micropaleontology in the central states:* N. R. C., Dev. Geol. and Geog., ann. rept. 1933-1934, App. A, Rept. comm. on micropaleont., exhibit A, pp. 6-9 (pp. 7-8), Washington, D. C.

161. ——— (1935) *Micropaleontology in the central states:* *Ibid.*, ann. rept. 1934-1935, App. A, exhibit C, pp. 12-15 (p. 13), Washington, D. C.

162. ——— (1936, June 30) *Micropaleontology in the central states:* *Ibid.*, ann. rept. 1935-1936, App. A, exhibit A, pp. 1-3 (pp. 1-2).

163. ——— (1937, June 30) *Micropaleontology in the central states:* *Ibid.*, ann, rept. 1936-1937, App. E, exhibit B, pp. 12-15 (p. 14).

164. ——— (1938, Nov.) *Utilitarian classification for fragmentary fossils:* Jour. Geol., vol. 46, no. 7, pp. 975-984 (pp. 976-977, 984).

165. ——— (1941, July) *Micropaleontology—past and future:* Am. Ass. Pet. Geol. Bull., vol. 25, no. 7, pp. 1208-1255, figs. 1-16 (pp. 1231-1232, 1241).

166. ——— (1942, Feb.) *New frontiers in micropaleontology, with especial reference to petroleum exploration:* Econ. Geol., vol. 37, no. 1, pp. 16-38 (pp. 17, 25).

167. ——— & MCCORMACK, JOHN (1932, June) *Fossil Holothuroidea:* Jour. Paleont., vol. 6, no. 2, pp. 111-148, pls. 15-21, figs. 1-4 (p. 127).

168. ——— & SCOTT, HAROLD W. (1933, Feb. 28) *Scolecodonts and conodonts from fissure fillings in the Niagaran of Illinois* (abstract): Geol. Soc. Am., Bull., vol. 44, no. 1, pp. 207-208. (Palaeont. Zentrbl., vol. 4, no. 4, p. 274, May 1, 1934).

169. CULLISON, JAMES SHELLY (1938, May) *Dutchtown fauna of southeastern Missouri:* Jour. Paleont., vol. 12, no. 3, pp. 219-228, pl. 29 (pt.).

170. CUSHING, H. P. (1912, June) *The age of the Cleveland shale of Ohio:* Am. Jour. Sci., 4th ser., vol. 33, whole no. 183, no. 198, pp. 581-584 (p. 584).

171. ———, LEVERETT, FRANK, & VAN HORN, F. R. (1931) *Geology and mineral resources of the Cleveland district, Ohio:* USGS, Bull. 818, pp. 1-138, pls. 1-23, figs. 1-11 (pp. 37, 50).

172. CUSHMAN, J. A., & STAINBROOK, M. A. (1943, Dec.) *Some foraminifera from the Devonian of Iowa:* Contr. Cushman Lab. foram. Res., vol. 19, no. 248, pt. 4, pp. 73-79, pls. 13-14 (p. 74).

173. DAWSON, GEORGE M. (1885) *On the microscopic structure of certain boulder-clays and the organisms contained in them:* Geol. and Nat. Hist. Surv. Minn., 13th ann. rept. 1884, art. 19, pp. 150-163, figs. 12-14 (pp. 152-154, 156, 159, 161, 163, figs. 12-14). The descriptions of certain organisms might well be conodont descriptions.

174. DEAN, BASHFORD A. (1923) *Bibliography of fishes:* Am. Mus. Nat. Hist., vol. 3, p. 665.

175. DECKER, CHARLES E. (1925, Sept.) *Index to the stratigraphy of Oklahoma,* by Charles N. Gould, *with lists of characteristic fossils,* by Charles E. Decker: Okla. Geol. Surv., Bull. 35, pp. 1-115 (pp. 16, 34).

176. ——— (1941, Apr.) *Simpson group of Arbuckle and Wichita Mountains of Oklahoma:* Am. Ass. Pet. Geol. Bull., vol. 25, no. 4, pp. 650-667, fig. 1 (pp. 655, 664).

177. ——— (1942, May) *A Silurian graptolite zone in Crane County, Texas:* Am. Ass. Pet. Geol. Bull., vol. 26, no. 5, pp. 858-859, 861, fig. 3. A conodont compared with *Gyrognathus primus* is reported from a ls. of Wenlock age from a core.

178. DEFLANDRE, G. (1937) *Microfossiles des silex crétacés:* Ann. Paléont., vol. 25, pp. 151-191; vol. 26, pp. 51-103, pls. 1-28 (vol. 26, p. 96). A short discussion of O. Wetzel's work on microconodonts.

179. DEISS, CHARLES (1936, Aug.) *Devonian rocks in the Big Snowy Mountains, Montana:* Jour. Geol., vol. 44, no. 5, pp. 639-644, figs. 1-3 (pp. 639, 641, 643-644). (Geol. Zentrbl., vol. 58, no. 4, p. 251, Dec. 1, 1936. Palaeont. Zentrbl., vol. 9, no. 1, p. 8, Dec. 1, 1936).

180. DEMANET, FELIX (1938, July 31) *La Faune des Couches de passage du Dinantien au Namurien dans le synclinorium de Dinant:* Mém. Mus. Roy. d'Hist. Nat. Belg., no. 84, pp. 1-201, figs. 1-39, pls. 1-14 (pp. 21, 159-163, pl. 14, figs. 1-14). (Geol. Zentrbl., vol.

63, no. 7, p. 438, Jan. 1, 1939, A. Hacquaert. Palaeont. Zentrbl., vol. 12, no. 6, p. 332, Feb. 1, 1939, Henry Paul).

181. ——— (1939, May) *Filtering appendices on the branchial arches of Coelacanthus lepturus Agassiz:* Geol. Mag., vol. 76, no. 899, pp. 215-219, figs. 1-2.

182. ——— (1941, Nov. 30) *Fauna et stratigraphie de l'étage Namurien de la Belgique:* Mém. Mus. Roy. d'Hist. Nat. Belg., no. 97, pp. 1-327, pls. 1-18, figs. 1-49 (pp. 22-24, 29-31, 33, 35-36, 38-39, 41-42, 46, 48, 56-58, 60, 176-177, 321).

183. DENHAM, R. L. (1944, Mar.) *Conodonts:* Jour. Paleont., vol. 18, no. 2, pp. 216-218, 1 text fig. (Biol. Abs., vol. 18, p. 1921, 1944, R. L. Denham).

184. DEWOLF, F. W., & WEST, W. W. (1939, Apr.) *Stratigraphic studies of Baker-Glendive anticline, eastern Montana:* Am. Ass. Pet. Geol. Bull., vol. 23, no. 4, pp. 461-475, fig. 1 (p. 466).

185. DRESSER, JOHN ALEXANDER, & DENIS, THEOPHITE CONSTANT (1944) *Geology of Quebec:* Que. Dept. Min., Geol. Rept. 20, vol. 2, xiv, pp. 1-544, pls. 1-44, figs. 1-41, maps (pp. 259, 393).

186. DUBOIS, ERNEST PAUL (1941, Dec.) *Additional evidence on the origin of conodonts* (abstract): Ill. State Acad. Sci. Trans., vol. 34, no. 2, p. 168.

187. ——— (1943, Mar.) *Evidence on the nature of conodonts:* Jour. Paleont., vol. 17, no. 2, pp. 155-159, pl. 25. (Biol. Abs., vol. 17, p. 1784, 1943, E. P. DuBois. Rev. in N. R. C., Div. Geol. and Geog., ann. rept. 1942-1943, app. Q, rept. comm. marine ecology as related to paleont., no. 3, pp. 20-21, Dec.).

188. DUNBAR, CARL O. (1918, Dec.) *Stratigraphy and correlation of the Devonian of western Tennessee:* Am. Jour. Sci., 4th ser., vol. 46, whole no. 196, no. 276, pp. 732-756, fig. 1, 1 tab. (p. 755).

189. ——— (1919) *Stratigraphy and correlation of the Devonian of western Tennessee:* Tenn. Geol. Surv., Bull. 21, pp. 1-127, pls. 1-4, figs. 1-11 (p. 93).

190. EDINGER, TILLY (1926) *Conodonten:* Nat. u. Mus., Ber. Sencken. Natfor. Ges., vol. 56, no. 9, pp. 286-288, 2 figs., Frankfurt a. M. (Geol. Zentrbl., vol. 40, no. 1, p. 62, Sept. 1, 1929).

191. EDWARDS, WILFRID, & STUBBLEFIELD, CYRIL JAMES (1948) *Marine bands and other faunal marker-horizons in relation to the sedimentary cycles of the Middle Coal Measures of Nottinghamshire and Derbyshire, with an appendix by K. C. Dunham:* Quar. Jour. Geol. Soc. London, vol. 103, pt. 4, no. 412, pp. 209-260, pls. 13-15, figs. 1-10, tabs. 1-2 (pp. 219, 222-223).

192. EHLERS, ALLEN (1943, Dec.) *Williston Basin wildcat test, Oliver County, North Dakota:* Am. Ass. Pet. Geol. Bull., vol. 27, no. 12, pp. 1618-1622 (pp. 1619, 1621).

193. EHRENBERG, C. G. (1854, 1856) *Über den Grünsand und seine Erläuterung des organischen Lebens:* Abh. K. Akad. d. Wiss. Berlin 1855, pp. 85-176, pls. 1-7 (pp. 95-99, 112, 174, pl. 6, fig. 20) 1856. This work is copied from the following reference: Ber. über die zur Bekanntmachunggeeigneten Verh. d. K. Preus. Akad. d. Wiss. Berlin 1854, Sber. d. phys.-mat. Kl., pp. 374-377, 384-411 (pp. 392-397, 410) July 10. There are no plates to this work.

194. ——— (1859) *Mittheilung über fortschreitende Erkenntniss massenhafter mikroskopischer Lebensformen in den untersten silurischen Thonschichten bei Petersburg:* Mber. d. K. Preus, Akad. d. Wiss. Berlin 1858 (presented May 1858), pp. 295-311, 324-337, pl. 1 (pp. 297-299). (Rev., Ne. Jb. f. Miner., Geol., etc., 1858, C. Petrefakten-Kunde (p. 630). Abs., Sber. d. Ges. Natfor. Freunde Berlin, 1839-1859, p. 155, Mar. 16, 1858, repnt. 1912).

195. EICHENBERG, W. (1930, Dec. 12) *Conodonten aus dem Culm des Harzes:* Palaeont. Zs., vol. 12, pp. 177-182, 1 pl. One name is given to an assemblage of many different genera and species. (Biol. Abs., vol. 9, no. 3, p. 662, Mar. 1935, B. F. Howell).

196. EICHER, DONALD B. (1946, Apr.) *Conodonts from the Triassic of Sinai (Egypt):* Am. Ass. Pet. Geol. Bull., vol. 30, no. 4, pp. 613-616.

197. ——— (1947) *Micropaleontology of the Triassic of North Sinai:* Bull. d. l'Inst. d'Egypte, vol. 28, pp. 87-92. Session 1945-1946, presented 14th Jan. 1946. Imprimerie de l'Inst. Francais d'Archéologie Orientale, Le Caire.

198. ——— (1948, Jan.) *Egypt:* The Micropaleont., vol. 2, no. 1, p. 14, Am. Mus. Nat. Hist., N. Y.

199. EICHWALD, EDUARD (1854) *Die Grauwackenschichten von Liev-und Esthland:* Bull. d. l. Soc. Imp. d. Nat. d. Moscou, vol. 27, pt. 1, no. 1, pp. 1-111, pls. 1-2, figs. 1-5 (p. 6), manuscript dated Nov. 2, 1853. As far as I have been able to ascertain, this is the earliest possible reference to conodonts, announcing their discovery.

200. ——— (1856) *Beitrag zur geographischen Verbreitung der fossilen Thiere Russlands, alte Periode:* Bull. d. l. Soc. Imp. d. Nat. d. Moscou, vol. 28, pt. 2, no. 4, for 1855, pp. 433-466 (p. 439).

201. ——— (1858) *Beitrag zur geographischen Verbreitung der fossilen Thiere Russlands, alte Periode:* Bull. d. l. Soc. Imp. d. Nat. d. Moscou, vol. 30, pt. 2, no. 4, for 1857, pp. 305-354 (pp. 338-342). (Rev., Ne. Jb. f. Miner., Geol., etc. 1858, C. Petrafakten-Kunde, p. 239).

202. ——— (1860) *Lethaea Rossica ou Paléontologie de la Russie:* In 3 vols.: vol. 1 Ancient Period, sec. 1, pp. 1-681, sec. 2, pp. 682-1657 (conodonts pp. 661-662, 667, 1497), 1860, atlas 59 pls. separate, 1855. Vol. 2 Middle Period, pp. 1-1304, pls. 1-40 in atlas, 1865-1869. Vol. 3 Modern Period, pp. 1-533, pls. 1-15 in atlas, 1853. Vol. 1 is the only one that contains a reference to conodonts.

203. ——— (1864, Feb. 20) *Beitrag zur nähern Kenntniss der in meiner Lethaea Rossica beschriebenen Illaenen und über einige Isopoden aus andern Formationen Russlands:* Bull. d. l. Soc. Imp. d. Nat. d. Moscou, vol. 36, pt. 2, no. 4, for 1863, pp. 372-424 (p. 375).

204. EISENACK, ALFRED (1931) *Neue Mikrofossilien des baltischen Silurs I:* Palaeont. Zs., vol. 13, nos. 1-2, pp. 74-118, figs. 1-5, tabs. 1-5 (p. 78). These are probably not conodonts. (Abs., Zs. f. Gefor., vol. 7, no. 4, p. 185, 1931, K. Hucke).

205. ——— (1932, Dec. 1) *Neue Mikrofossilien des baltischen Silurs II:* Palaeont. Zs., vol. 14, no. 4, pp. 257-277, pls. 11-12, figs. 1-13 (pp. 257-258). Probably not conodonts.

206. ——— (1934, June 31) *Neue Mikrofossilien des baltischen Silurs III, und Neue Mikrofossilien des böhmischen Silurs I:* Palaeont. Zs., vol. 16, nos. 1-2, pp. 52-76, pls. 4-5, figs. 1-35 (p. 73). Probably not conodonts.

207. ELLISON, SAMUEL (1937, Mar. 15) *Phylogeny and stratigraphic distribution of the Pennsylvanian conodont genus Gondolella:* Mo. Acad. Sci. Proc., vol. 3, no. 2, whole no. 4, p. 19.

208. ——— (1938, June) *Stratigraphic distribution, relation to sedimentary cycles, and evolutionary tendencies of conodonts in the Missouri series (Pennsylvanian) of Jackson County, Missouri* (abstract): Geol. Soc. Am., Proc. 1937, p. 277. Univ. Mo. thesis, Columbia, Mo. (Palaeont. Zentrbl., vol. 12, no. 5, p. 288, Jan. 1, 1939).

209. ——— (1938, Dec. 1) *Conodonts as index fossils in the Pennsylvanian of Missouri and Kansas* (abstract): Geol. Soc. Am., Bull., vol. 49, no. 12, p. 1913.

210. ——— (1941, Mar.) *Revision of the Pennsylvanian conodonts:* Jour. Paleont., vol. 15, no. 2, pp. 107-143, pls. 20-23, figs. 1-4. Univ. Mo. thesis, Columbia, Mo., 1940.

211. ——— (1942, Jan. 25) *Color photography of conodonts:* Mo. Acad. Sci. Proc., vol. 7, no. 4, whole no. 24, p. 108.

212. ——— (1944, Mar.) *The composition of conodonts:* Jour. Paleont., vol. 18, no. 2, pp. 133-140, fig 1. (Biol. Abs., vol. 18, p. 1921, 1944, Samuel Ellison).

213. ——— (1944a, Oct.) *Ecology of conodonts:* N. R. C., Div. Geol. and Geog., ann. rept., App. K, rept. comm. marine ecology as related to paleont. 1943-1944, no. 4, pp. 1-4, Harry S. Ladd, Chairman (Biol. Abs., vol. 19, p. 2218, 1945, B. F. Howell).

214. ——— (1946, Jan.) *Conodonts as Paleozoic guide fossils:* Am. Ass. Pet. Geol. Bull., vol. 30, pp. 93-110, figs. 1-3. A chart of 80 genera is given, and a list of 132 genera, condensed from a catalogue of over 1,500 species, and 180 or more articles is presented. A short discussion is given about the identification and interpretation of some genera and faunas. The Chattanooga is considered to be Upper Devonian, as well as its correlatives. The simple cones and fibrous conodonts are excellent guides to the Ordovician, and the platforms are best guides to beds younger than Silurian. Of the 132 genera, 82 probably remain valid, 15 have been placed into synonymy, 25 are in need of more research, and 10 are questionable, and further research will show greater ranges of genera.

215. ——— (1947, Apr.) *Conodonts as Paleozoic guide fossils—a correction:* Am. Ass. Pet. Geol. Bull., vol. 31, no. 4, p. 778.

216. ——— & GRAVES, ROY W., JR. (1941, Dec.) *Lower Pennsylvanian (Dimple limestone) conodonts of the Marathon region, Texas:* Univ. Mo., Sch. Min. and Met. Bull., Tech. Ser., vol. 14, no. 3, pp. 1-13, pls. 1-3, fig. 1. Mo. Acad. Sci. Proc., vol. 6, no. 4, whole no. 20, p. 81, Mar. 25, 1941. *Ibid.*, vol. 6, no. 1, whole no. 17, p. 16 (title), Mar. 25, 1940.

217. FARMER, R. (1932) *The conodonts of the Chouteau limestone:* Univ. Mo., unpub. thesis, Columbia, Mo.

218. FOWLER, A. (1944, Dec.) *A deep bore in the Cleveland Hills:* Geol. Mag., vol. 81, no. 5, pp. 193-206; no. 6, pp. 254-265, figs. 2-3 (pp. 254-256, 258).

219. FOX, HOWARD (1900) *Notes on the geology and fossils of some Devonian rocks on the north coast of Cornwall:* Geol. Mag., n. s., De. 4, vol. 7, no. 4, pp. 145-152, pl. 7. This is not a conodont article, but it contains the name *Pteroconus* as a new name for a pteropod. It appears that this name is a synonym for *Nereitopsis* and is therefore a rejected synonym, which can be used again.

220. FURNISH, WILLIAM MADISON (1936, May) *Oneota conodonts* (abstract): Pan-Am. Geol., vol. 65, no. 4, p. 315. Iowa Acad. Sci. Proc., vol. 43, p. 250.

221. ——— (1938, July) *Conodonts from the Prairie du Chien (Lower Ordovician) beds of the Upper Mississippi Valley:* Jour. Paleont., vol. 12, no. 4, pp. 318-340, pls. 41-42, figs. 1-2. (Abs., Geol. Soc. Am., Proc. 1937, p. 278, 1938. Biol. Abs., vol. 12, pp. 1142-1143, 1938, W. M. Furnish. Palaeont. Zentrbl., vol. 12, no. 5, p. 288, Jan. 1, 1939).

222. ———, BARRAGY, E. J., & MILLER, A. K. (1936, Oct.) *Ordovician fossils from upper part of type section of Deadwood formation, South Dakota:* Am. Ass. Pet. Geol. Bull., vol. 20, no. 10, pp. 1329-1341, pls. 1-2 (pt.), fig. 1, tab. 1. (Palaeont. Zentrbl., vol. 10, no. 3, pp. 175-176, Sept. 1, 1937, E. B. Branson & M. G. Mehl).

223. GALLOWAY, J. J. (1919) *Geology and natural resources of Rutherford County, Tennessee:* Tenn. Geol. Surv., Bull. 22, pp. 1-81, pls. 1-3, map (p. 56).

224. GIRTY, GEORGE H. (1898, Nov.) *Description of a fauna found in the Devonian black shale of eastern Kentucky:* Am. Jour. Sci., 4th ser., vol. 6, no. 35, whole no. 156, pp. 384-395, pl. 1 (pp. 384, 386, 393-395, fig. 4).

225. ——— (1909) *The fauna of the Caney shale of Oklahoma:* USGS, Bull. 377, pp. 1-106, pls. 1-13 (p. 6).

226. ——— (1912, Nov. 13) *Geologic age of the Bedford shale of Ohio:* N. Y. Acad. Sci. Ann., vol. 22, p. 304.

227. ——— (1915) *A chapter on invertebrate paleontology, in:* The stratigraphy of the Pennsylvanian series of Missouri, by Henry Hinds and F. C. Greene: Mo. Bur. Geol. and Min., vol. 13, ser. 2, pp. 1-397, pls. 1-32, figs. 1-5 (pp. 268, 302, tab. opp. p. 268).

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302. IMBT, WILLIAM C. (1941, Dec.) *Zenith pool, Stafford County, Kansas, an example of stratigraphic trap accumulation, in:* Stratigraphic type oil fields, A. I. Levorsen, ed., pp. 139-165, figs. 1-12, tabs. 1-3 (p. 148). (Tulsa Geol. Soc. Dig., vol. 10, p. 34, 1942).

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309. ——— (1935b) *Conodonts from the Nowata shale of Oklahoma:* Univ. Okla., unpub. master's thesis, Norman, Okla.

310. ——— (1937, Apr. 10) *The conodonts of the Nowata shale:* Univ. Okla. Bull., n. s., no. 698, abs. of theses for higher degrees in the graduate sch., 1935, p. 142.

311. ——— (1938) *Conodont fauna of the Seminole formation:* Univ. Chi., unpub. doctor's thesis.

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314. JONES, VICTOR H. (1928) *Certain phases of the Missouri series of southwestern Iowa:* Univ. Iowa, unpub. master's thesis, p. 60. Conodonts rept. from the Deer Creek ls. of the Shawnee fm.

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STRATIGRAPHIC INDEX

GENERAL

The stratigraphic index is divided into three parts and can be used to (1) locate recorded species of each formation; (2) find all such species in part of a geologic system; (3) construct a key to genera for each part of a system; and (4) acquire readily a list of all authors who have written something about conodonts in each formation or division of a system.

The first part is an alphabetical list of formations in which conodonts have been found, including general location of the formation by state or country, followed by its time-stratigraphic position in the lower, middle, or upper part of a geologic system.

The second part consists of a list of the systems divided in threefold manner for the sake of convenience, with a list of genera reported in each, followed by an alphabetical list of conodont-bearing formations defined in each, with accompanying list of all authors who have written on conodonts in the formation cited. An asterisk (*) after an author's name indicates that he does not illustrate, describe, or even mention one or more conodonts by name in the article indexed. By referring to each genus in the catalogue, by consulting the entire list of unasterisked authors for each genus (*i. e.*, only the genera recorded in cited part of a given system), and by using the right-hand column of the catalogue as additional guide, one can find all reported species in each formation. Also, by consulting the key to genera, seeking those recorded in any part of a chosen system, it is possible to construct a key for conodont genera known in such stratigraphic unit.

The third part of the stratigraphic index comprises a list of the systems divided into three subdivisions, accompanied by indication of authors who have published data on conodonts of the subdivision.

CONODONT-BEARING FORMATIONS

A_3 alpha of Öpik 1927a (see Dictyonemaschiefer)	Estonia	LO
Adorfer Schichten to I	Germany	UD
Alaunschiefer (see SO_1)	Germany	LS
Alexandrian Stage	Iowa	LS
Alpena limestone	Michigan	MD
Alsate formation	Texas	L or MO
Altamont limestone (Desmoinesian)	Missouri	MP
Americus? limestone	Kansas	UP
Amsden formation (upper)	North Dakota	LP
Antrim shale	Michigan	UD
Araif el Naga formation	Egypt	MT
Ardmore limestone (see Cherokee)	Missouri	MP
"Arenig" red-green cherts and shales	Scotland	MO
Argentine limestone (Missourian Stage) (see Iola)	Missouri, Kansas	UP
Arkansas novaculite (upper)	Arkansas, Oklahoma	LMi
Arkansas novaculite (middle)	Arkansas, Oklahoma	UD
Arkona beds	Ontario	MD
Arnheim group (see Sunset)	Kentucky	UO
Arnsberger Grauwacke (lowest Namurian)	Germany	UMi
Atoka group	Oklahoma	LP
Attica shale (see Rhinestreet)	New York	UD
Auburn? shale (Virgilian Stage)	Kansas	UP
Aymestry limestone	England	US
B_1 of Walchow formation (see Glaukonitsand)	Baltic Basin	LO
Bainbridge limestone	Missouri	MS
Balticport formation (see Glaukonitsand)	Estonia	LO
Bandera shale (Desmoinesian Stage)	Missouri	MP
Barnett Hill formation	Okahoma	MP
Barnett shale	Texas	MMi
Bartlesville sand	Oklahoma, Texas	MP
Bear Spring formation	Texas (central)	MD
Bedford shale	Ohio	UD
Bellevue formation	Kentucky	UO
Bendian Stage	Oklahoma, Texas	LP
Benson formation	Kentucky	MO
Berea black shale (see Sunbury)	Ohio	LMi
"Bergkalk" (upper) at Moscow	Russia	UMi
"Bergkalk" (basal) at Tula	Russia	LMi
Beyrichien Kalk (Diluvial)	Germany (northern)	US
Big Blue Stage	Kansas	LPm
Bigfork chert	Oklahoma	MO
Bighorn sandstone	Wyoming	MO
Big Snowy group (see Heath)	North Dakota, Montana	UMi
Big Stone Gap shale (of Stose)	Virginia	UD
Blackiston formation (New Albany shale)	Indiana	UD
Black shale above unit A	Montana, Alberta	LMi
Black shale below La Salle limestone	Illinois	UP
Black shale below Nubian sandstone	Egypt	Carboniferous
Black shale, unnamed (Cooper, 1945, see D_c)	Montana	UD
Blocher formation (New Albany shale)	Indiana	M?D
Blue Earth beds (see Oneota)	Minnesota	LO
Boggy formation	Oklahoma	MP
Bone beds, Columbus, Delaware limestones	Ohio	MD
Boulder clays (reworked in Pleistocene)	Illinois, Minnesota	
Bourbon group (Missourian Stage)	Missouri	UP
Bowling Green dolomite, fillings in	Missouri	UD
Boyle limestone	Kentucky	MD
Brannon formation	Kentucky	MO
Bransford sandstone (member of Grassaway shale of Chattanooga shale)	Tennessee	UD
Brassfield limestone	Kentucky	LS
Bromide formation	Oklahoma	MO
Bronson group (Missourian Stage)	Missouri	UP
Brownwood shale	Texas	UP
Burbank sand	Oklahoma, Kansas	MP
Burlingame shale (Virgilian Stage)	Kansas	UP
Burlington limestone	Missouri	MMi
Bushberg sandstone	Missouri	LMi
C unit (of Sloss and Daird)	Montana	UD
Caballos novaculite (upper)	Texas	UD
Calichified material 0-8" below Chappel limestone	Texas	LMi
Callaway limestone	Missouri	MD
Camp Nelson formation	Kentucky	MO
Caney shale (upper)	Oklahoma	LP
Caney shale (lower)	Oklahoma	UMi
Capitol limestone (see Hardin sandstone)	Tennessee	UD

Carboniferous limestone	Scotland (western)	MMi
Carters formation	Tennessee	MO
Casey limestone	Kentucky	MD
Cedar Valley limestone	Minnesota	MD
Ceratopygeskiffern (Shumardia zone)	Sweden	LO
Chagrin shale	Ohio	UD
Chanute shale (Missourian Stage)	Missouri	UP
Chappel formation (basal)	Texas (central)	LMi
Chasmops series (basal)	Sweden	MO
Chattanooga shale (upper) (Grassaway)	Tennessee	LMi
Chattanooga shale (middle) (Dowelltown)	Tennessee	UD
Chattanooga shale (lower) (Hardin in some areas)	Tennessee	UD
Chazyan Series	United States	MO
Chazyan of Grenville, Quebec	Quebec	MO
Chemung group (see Portage)	New York	UD
Cherokee formation (Desmoinesian Stage)	Missouri	MP
Cherryvale shale (see Wea)	Missouri	UP
Chester of Indiana	Indiana	UMi
Chesterian Series	United States	UMi
Chouteau limestone	Missouri	LMi
Cincinnatian near Lexington, Kentucky	Kentucky	UO
Clay above Cedar Valley limestone	Minnesota	O, MD
Clay Cross Marine Band	England	MP
Cleveland shale	Ohio	UD
Clown Marine Band	England	MP
Clymenien Arker (above it)	Germany	UD
Coal Measure strata (of Smith 1907a)	Scotland	L or MP
Cobourg beds	Ontario	MO
Compton limestone	Missouri	LMi
Cooper limestone	Missouri	MD
Corryville formation	Ohio	UO
Crab Orchard shale	Kentucky	MS
Cromwell member (Wapanucka formation)	Oklahoma	LP
Curdsville formation	Kentucky	MO
Cynthiana group (see Gratz, Greendale)	Kentucky	MO
D_3 zone of Layer, 1949	Alberta	UD
D_5 Stage	Czechoslovakia	UO
D_e shales	Montana	UD
Darby formation	Wyoming	UD
Deadwood formation (upper)	South Dakota	MO
Decorah shale (see Ion, Spechts Ferry)	Minnesota	MO
Deer Creek limestone	Iowa	MP
Dennis limestone (Missourian Stage)	Missouri	UP
Desmoinesian Stage	Missouri	MP
Devonian limestone (of Newton Abbot)	England	?
Dictyonemaschiefer	Estonia	LO
Dimple limestone	Texas	LP
Dornick Hills formation (lower)	Oklahoma	LP
Dorr Run shale	Ohio	MP
Douglas group (Virgilian Stage)	Kansas	UP
Dowelltown shale (Chattanooga)	Alabama	UD
Dutchtown formation	Missouri	MO
*alpha	Czechoslovakia	LS
East Liberty bone bed	Ohio	MD
East Mountain shale	Texas	MP
Economy formation	Kentucky	UO
Eden group	Kentucky	UO
Elkhorn formation	Kentucky	UO
Ellenburger limestone	Texas	LO
Ellenburger limestone, fillings in	Texas	M?O
English River siltstone (Hannibal)	Iowa	LMi
Eudora shale (Missourian Stage)	Missouri, Kansas	UP
Eureka shale	Arkansas	UD
Exshaw shale	Alberta	UD
Fairmont formation	Kentucky	UO
Falling Run member (New Albany)	Indiana	LMi
Fern Glen limestone	Missouri	MMi
Fernvale limestone	Missouri	UO
Ferron Point shale	Michigan	MD
Fillings, see Bowling Green, Ellenburger, Niagara		
Fontana shale (see Cherryvale)	Missouri	UP
Fort Creek shale	Mackenzie Region	UD
Fort Pena formation	Texas	MO
Fort Scott limestone	Missouri	MP
Fortune formation	Missouri	MD
Francis formation	Oklahoma	UP
Fulton formation	Kentucky	UO
Fusselman dolomite, shale above	Texas	M?D
Galesburg shale (see Stark)	Missouri	UP
Garrard sandstone	Kentucky	UO
Gelben thone, mergel, kalkstein	Upa, Russia	MD
Gelblichgrauer Kalk	Prussia	US
Genesee shale (see Genundewa, Kettle Point)	New York, Ontario	UD
Geneseo black shale	New York	UD
Genundewa limestone and conodont bed	New York	UD
Glaukonit sand (Walchow B_1, Balticport)	Russia, Estonia	LO
Glen Eyrie formation	Colorado	MP
Glen Park limestone	Missouri	UD
Glenwood formation	Minnesota	MO
Graford formation	Texas	UP
Graptolithenschiefer (*alpha)	Bohemian Basin	LS
Grassaway shale (Bransford sandstone member) (Chattanooga)	Tennessee	LMi
Grassy Creek shale	Missouri	UD
Gratz formation	Kentucky	MO
Greendale formation	Kentucky	MO
Green shale zone (of Layer, 1949)	Alberta	UD
Hackberry formation (Lime Creek)	Iowa	UD
Hamden limestone	Ohio	MP
Hannibal formation (English River)	Missouri, Illinois	LMi
Hanover formation	New York	UD
Hardin limestone	Tennessee	U?D
Hardin sandstone[1] (basal Chattanooga)	Tennessee	M-UD
Harding sandstone	Colorado	MO
Hartville formation	Wyoming	LP
Haskell limestone	Missouri	UP
Hatch shales	New York	UD
Hauptmuschelkalk (see Trochitenkalk)	Germany	MT
Hayden Branch formation	Indiana	UP
Hazels Crop coal	England	UP
Heath formation	North Dakota, Montana	UMi
Heebner shale (Virgilian Stage)	Kansas	UP
Henrietta group	Missouri	MP
Henryville formation (New Albany)	Indiana	LM
Herington limestone	Kansas, Nebraska	LPm
Hermitage formation	Kentucky	MO
Hermosa formation	Utah	MP
Holt shale (Virgilian Stage)	Kansas	UP
Hominy sand	Oklahoma	L?O
Howard limestone	Missouri	UP

1. Probably basal Trousdale and basal Dowelltown only; probably no conodonts were described from basal Grassaway.

Hughes Creek shale	Kansas	LPm
Hungry Hollow beds	Ontario	MD
Huron shale	Ohio	UD
Hushpuckney shale (Missourian Stage)	Missouri	UP
Independence shale	Iowa	UD
Iola limestone (Missourian Stage)	Missouri	UP
Ion shale (upper Decorah)	Iowa	MO
Ipperwash limestone	Ontario	MD
Ives Breccia	Texas	LMi
Jackfork sandstone	Oklahoma	LP
Jacobs Chapel shale	Indiana	LMi
Jefferson City dolomite	Missouri	LO
"Jefferson" formation	Montana	UD
Jeffersonville limestone	Indiana	MD
Jessamine formation	Kentucky	MO
Joachim dolomite	Missouri	MO
J_2O_e of Luha (St. Johanis formation)	Estonia	MS
Johns Valley shale	Oklahoma	LP
J_2W_2 of Luha (St. Johanis formation)	Estonia	MS
K_1 of Luha (Öesel formation)	Estonia	US
K_1-K_2 (border) of Luha (Öesel formation)	Estonia	US
K_2 Kalk of Conodontenschicht	Öesel (Attel)	US
K_2 Eurypterus zone (Twenhofel, 1916)	Öesel Island	US
K_3 Kaugatoma zone (Twenhofel, 1916)	Öesel Island	US
K_4 Ohesaare zone	Öesel Island	US
Kalkplatten (of Rohon, 1893) (see Obersilur kalkstein, K_1, and Öesel formation)	Öesel Island	US
Kansas City group (Missourian Stage)	Missouri	UP
Keechi Creek shale	Texas	MP
"Kenwood" black shale	Wisconsin	UD
Keokuk limestone	Iowa, Missouri	MMi
Kettle Point beds (see Huron, Genesse)	Ontario	UD
Kiddville layer	Kentucky	MD
Kieselschiefer (of Gürich)	Poland	UD
Kiesgrube (of Gürich)	Silesia	UO
Kimmswick limestone	Missouri	MO
Kinkaid limestone	Illinois	UMi
Kukruse (C_2-C_3) Stufe	Estonia	MO
Kulm (lower)	Germany (Weigelt)	LMi
Labette shale (Desmoinesian Stage)	Missouri	MP
Lane shale (Missourian Stage)	Missouri	UP
Lansing group (Missourian Stage)	Missouri	UP
Larapintine Series	Australia (central)	MO
Larsh-Mission Creek shale	Kansas	UP
Lawrence shale (Virgilian Stage)	Kansas	UP
Lecompton limestone	Kansas	UP
Leray limestone	New York	MO
Levis formation	Quebec	LO
Lexington coal (Desmoinesian Stage)	Missouri	MP
Lexington formation (upper)	Kentucky	MO
Liberty formation	Kentucky	UO
Lime Creek formation	Iowa	UD
Limestone Gap shale	Oklahoma	LP
Linietta clay (black shale below)	Kentucky	LMi
Llandeilo chert and shales	Scotland	MO
Lodgepole limestone (basal shale) (see Madison group)	Montana	LMi
Long Rapids shale	Ontario	?
Lorraine-Dundas (see Pulaski)	Ontario	UO
Louisiana limestone	Missouri	UD
Lower shale (of Seager, 1942) (8830-9435 feet)	North Dakota	MO
Ludlow bone bed	England	US
Lyckholm Stufe	Baltic Region	UO
McAlester shale	Oklahoma	MP
McCraney limestone	Iowa	LMi
McLish formation	Oklahoma	MO
McMicken formation	Kentucky	UO
Madison shale (basal) (see Lodgepole)	Montana	LMi
Manticoceras Stufe to I_{gamma}	Germany	UD
Maple Mill shale	Iowa	UD
Maquoketa shale	Missouri	UO
Marathon formation	Texas	LO
Maravillas formation	Texas	UO
Marble Falls formation	Texas	LP
"Marcellus" black shale	Ontario	MD
Marmaton group	United States	MP
Maysville group	Kentucky	UO
Middlesex shale (see Portage)	New York	UD
Millboro shale (Marcellus member) (see Romney)	Virginia	MD
Million formation	Kentucky	UO
Mineola limestone	Missouri	MD
Mineral Wells formation	Texas	MP
Minnesota Devonian shale	Minnesota	U?D
Misener sand	Oklahoma	UD
Missouri Mountain shale	Oklahoma	US
Missourian Stage	Missouri	UP
Monograptus vomerinus zone	Texas	MS
Morrow group	United States	LP
Moscow shale (upper)	New York	MD
Mt. Auburn formation	Kentucky	UO
Mt. Hope formation	Kentucky	UO
Mt. Pleasant phosphate (Hardin sandstone)	Tennessee	UD
Moyers formation	Oklahoma	LP
Mulberry coal (Desmoinesian Stage)	Missouri	MP
Mulky coal (Desmoinesian Stage)	Missouri	MP
Muncie Creek shale (Missourian Stage)	Missouri, Kansas	UP
Muschelkalk formation (see Trochitenkalk)	Germany	MT
Namurian (lower) Nmla, lb, lc	Belgium	UMi
Naples shales (see Rhinestreet)	New York	UD
Nehdener Schichten to II	Germany	UD
New Albany shale (see Blackiston, Blocher, Falling Run, Henryville, Sanderson, Underwood)	Indiana	M?D-LMi
Niagara limestone, fillings in	Illinois	D or LMi
Noel shale	Arkansas	UD
Northview siltstone	Missouri	LMi
Norwood shale	Michigan	U?D
Nowata shale (upper)	Oklahoma	MP
Oberdevon Stufe	Germany	UD
Obersilur Kalkstein (see Kalkplatten, Öesel formation, and K_1)	Öesel (Rootsiküllе)	US
Öesel formation (of Twenhofel)	Öesel Island	US
Ohio shale	Ohio	UD
Oil Creek formation	Oklahoma	MO
Oldham limestone	Kentucky	MS
Olentangy shale (see Arkona, Hungry Hollow, Ipperwash, Plum Brook, Silica, Widder)	Ohio	UD
Olmsted shale (see Cleveland)	Ohio	UD
Oneota formation (see Prairie du Chien)	Iowa	LO
Orangeville shale	Ohio	LMi
Oregon formation	Kentucky	MO
Oregonia formation	Kentucky	UO
Oriskany sandstone	New York	LD

Osgood formation	Indiana	MS
Pahasapa-Englewood limestone	North Dakota	LMi
Palestine sandstone	Illinois	UMi
Paradox formation	Utah, Colorado	LP
Pawhuska formation	Oklahoma	UP
Pedee group (Missourian Stage)	Missouri	UP
Pentamerus beds	England	MS
Percha shale	Texas	UD
Permian beds, shale below	England (Cleveland Hills)	Carb
Perryville formation	Kentucky	MO
Phelps sandstone	Missouri	LMi
Phosphate beds (10-15 in. below Chappel limestone) (see Pre-Chappel)	Texas	LMi
Phosphoria formation	Wyoming	LPm
Pierson limestone	Missouri	MMi
Pillar Bluff limestone	Texas	L?D
Pitkin limestone	Oklahoma	UMi
Platteville formation	Minnesota	MO
Plattin limestone	Missouri	MO
Plattsburg limestone (Missourian Stage)	Missouri	UP
Pleasanton group (Desmoinesian Stage)	Missouri	MP
Plum Brook shale (see Prout, Olentangy)	North Ohio	MD
Plum Creek member (Brassfield formation)	Kentucky	LS
Post-Ellenburger, Pre-Devonian rocks	Texas	MO
Portage group (see Hanover, Naples, Rhinestreet, and Middlesex)	New York	UD
Prairie du Chien (see Oneota, Shakopee)	Iowa, Minnesota	LO
Pre-Chappel rocks	Texas	LMi
Pre-Greendale formation	Kentucky	MO
Pre-Welden formation	Oklahoma	LMi
Primrose formation	Oklahoma	LP
Prospect Hills siltstone	Iowa	LMi
Prout limestone (shale below) (see Plum Brook)	Ohio	MD
Pulaski formation	Ontario	UO
Quadrant formation (upper)	Montana	LP
Queen Hill shale (Virgilian Stage)	Kansas	UP
Quindaro shale (Missourian Stage)	Missouri	UP
Quivara shale (Missourian Stage)	Missouri, Kansas	UP
Radiolarian yellow and graycherts and shales (see Llandeilo)	Scotland	MO
Red limestone (8-10 in. below Chappel) (see Pre-Chappel)	Texas	LMi
Red Siliceous rock (0-8 in. below Ives breccia)	Texas	UD
Reeds Spring limestone	Missouri	MMi
Rhinestreet shale (see Naples, Portage)	New York	UD
Rockford limestone	Indiana	LMi
Rockland limestone	Ontario	MO
Roger's Gap formation	Kentucky	MO
Romney formation (upper) (see Millboro)	Virginia	UD
Romney formation (lower)	Maryland	MD
"Rose" limestone	Texas	LMi
Rothen Thonen, Mergeln	Russia (Wels, Gastinopolskoi)	UD
Round Prairie formation (see Johns Valley)	Oklahoma	LP
Sacajawea formation	Wyoming	M-UMi
St. Joe limestone	Missouri	MMi
St. Johannis formation (Twenhofel)	Estonia	MS
Saluda formation	Kentucky	UO
Sanderson formation (New Albany)	Indiana	LMi
Saverton shale	Missouri	UD
Scranton shale	Kansas	UP
Seminole formation	Oklahoma	MP
Severy shale (Virgilian Stage)	Kansas	UP
Shakopee dolomite (see Prairie du Chien)	Iowa, Minnesota	LO
Shale 0.4 mile west of Middle Amana	Iowa	UD
Shale near Knoxville	Iowa	MP
Shale northeast of North Liberty	Iowa	UD
Shale (of Sellards, 1933)	Texas	?
Shawnee group (Virgilian Stage)	Kansas	UP
Sheffield formation	Iowa	UD
Silica shale (see Olentangy)	North Ohio	MD
Silver Lake shale	Missouri	UP
Simpson group	Oklahoma	MO
Smithwick formation	Texas	LP
Snyder Creek shale	Missouri	UD
SO_1 (of Pietzsch)	Germany	LS
Southgate formation	Kentucky	UO
Spechts Ferry shale (lower Decorah)	Iowa	MO
Springville formation, shale below	Illinois	LMi
Stanley shale	Oklahoma	LP
Stanton limestone (Missourian Stage)	Kansas	UP
Stark shale (Missourian Stage)	Missouri	UP
Strawn sandstone	Texas	MP
Stribling formation	Texas	M?D
Sulphur Springs formation (see Glen Park, Bushberg)	Missouri	UD-LMi
Summit Coal (Desmoinesian Stage)	Missouri	MP
Sunbury shale (lower)	Ohio	LMi
Sunset formation	Kentucky	UO
Sweetland Creek shale	Iowa	UD
"Sycamore" formation	Oklahoma	MMi
Sylamore sandstone	Missouri	UD
Sylvan shale	Oklahoma	UO
Tanyard formation (lower)	Texas	LO
Tate formation (Corryville)	Kentucky	UO
Tensleep formation	Wyoming	MP
Thebes sandstone (Maquoketa)	Missouri	UO
Ti Valley Series	Oklahoma	LP
Trenton limestone	Ottawa, Canada	MO
Trivoli cycle	Illinois	MP
Trochitenkalk (lower Muschelkalk)	Germany	MT
Trousdale formation (basal is Hardin)	Tennessee	MD
Tulip Creek formation	Oklahoma	MO
Tyrone formation	Kentucky	MO
Underwood formation (New Albany)	Indiana	LMi
Undre Dicellograptusskiffern	Sweden	MO
Union Valley sandstone	Oklahoma	LP
Units 6, 35, 39	Illinois	MP
Unter Karbon, of Eichenberg (see Wetzschiefer)	Germany	LMi
Upper Carboniferous shales (of Fowler)	England	P
Utica formation	Canada (Ottawa)	UO
Valentine limestone	Pennsylvania	MO
Veins filling Carboniferous limestone	Scotland	MMi or higher
Viola formation (upper)	Oklahoma	UO
Viola formation (lower, middle)	Oklahmoa	MO
Virgilian Stage (above Missourian)	Missouri	UP
Visean ($V3_e$ Superior; D_3-P_2)	Belgium	UMi
Wabaunsee group (Virgilian Stage)	Kansas	UP

Walchow formation (B_1) (Glaukonitsand)	Baltic Region	LO
Wapanucka formation (Cromwell member)	Oklahoma	LP
Warsaw limestone	Missouri	MMi
Washingtonville shale	Ohio	MP
Waverly black shale (see Berea, Cleveland)	Ohio	UD
Waynesville formation	Kentucky	UO
Wea shale (see Cherryvale) (Missourian)	Missouri	UP
Welden limestone	Oklahoma	MMi
Wenlock shale	England	MS
Weston shale (Missourian Stage)	Missouri	UP
West River beds	New York	UD
Wetzschiefer (lowest Culm)	Germany	LMi
Whetstone Branch formation	Mississippi	UD
Whitewater formation	Kentucky	UO
Whitewood shale	South Dakota	M-UO
Widder beds (see Olentangy shale)	Ontario	MD
Willard shale (Virgilian Stage)	Kansas	UP
Winterset limestone (Missourian Stage)	Missouri	UP
Womble shale	Oklahoma	MO
Woodburn formation	Kentucky	MO
Woodford shale and chert	Oklahoma	UD
Wood's Hollow formation	Texas	MO
Yellow shale (0-22 in. above Ives breccia (see Pre-Chappel)	Texas	LMi
Zechstein formation	Germany	MPm
Zesch? formation	Texas	UD

CONODONTS IN MAIN DIVISIONS OF SYSTEMS

In this section, recorded genera of conodonts and formation units reported to contain conodonts are listed according to main divisions of the geologic systems, in sequence from oldest to youngest.

LOWER ORDOVICIAN CONODONT GENERA

Acanthodus	*Cordylodus*	*Paltodus*
Acodus	*Distacodus*	*Prioniodus*
Acontiodus	*Drepanodus*	*Scolopodus*
Belodus	*Loxodus*	*Stereoconus*
Clavohamulus	*Oistodus*	*Ulrichodina*

LOWER ORDOVICIAN CONODONT-BEARING FORMATIONS

Formations, listed alphabetically, are cited by authors and dates as listed in the Annotated Bibliography. An asterisk denotes lack of mention of individual genera or species of conodonts by name.

A_3 alpha (Dictyonemaschiefer)—•Bock, 1869; •Mickwitz, 1896; Öpik, 1927a, 1936; •Öpik, 1930; Ruedemann, 1934; •Schmidt, 1881; •Tammekann, 1924.

Alsate formation—Graves & Ellison, 1941.

B_1 of Walchow formation—•Barrell, 1916; Bock, 1869; Branson & Mehl, 1941d; •Conodont Comm., 1932; •Ehrenberg, 1854; Ehrenberg, 1856, 1859; •Eichwald, 1854, 1856; Eichwald, 1858, 1860; Furnish, 1938; Glaessner, 1945; •Grabau, 1936; •Grewingk, 1861; Hass, 1941; Holmes, 1928; Kayser, 1923; •Kozlowski, 1948; •Lapparent, 1906; •Mickwitz, 1896; •Miller, Cullison, & Youngquist, 1947; Moodie, 1929; •Murchison, 1854-1858; Nicholson, 1879, 1889; Öpik, 1927a, 1936; •Öpik, 1930; Owen, 1860; Pander, 1856; •Raymond, 1916; Reichenbach, 1909; •Roemer, 1862, 1897; Rohon, 1894; Romer, 1933; •Schmidt, 1858; •Schmidt, 1881, 1882; Smith, 1907; •Stauffer & Plummer, 1932; Steinmann, 1903; •Tammekann, 1924; Ulrich & Bassler, 1926; Zebera, 1936b; Zittel, 1890, 1900, 1910, 1913, 1924; Zittel & Rohon, 1886.

Blue Earth beds—Furnish, 1938.

Ceratopygeskiffern—•Moberg & Segerberg, 1906; •Öpik, 1927a; •Thorslund, 1937; Westergård, 1909; Wiman, 1903.

Ellenburger limestone—Barnes, Cloud, & Warren, 1945; •Hass, 1947b.

Hominy sand—Trowbridge & Mortimore, 1925.

Jefferson City dolomite—E. B. Branson, 1944; •Branson & Mehl, June 1933a, June 1933b, July 1933b, 1941d; Branson & Mehl, June 1933d, July 1933, 1944; Branson & Tarr, 1935; •Conselman, 1935; •Cullison, 1938; Ellison, 1946; Furnish, 1938; •Graves & Ellison, 1941; Imbt, 1941; •Miller, Cullison, & Youngquist, 1947; •Ryan, 1940; •Schuchert, 1943.

Levis formation—Dresser & Dennis, 1944.

Marathon formation—Ellison, 1946; Graves & Ellison, 1941.

Oneota formation—Branson & Mehl, 1944; •Furnish, 1936; Furnish, 1938; •Graves & Ellison, 1941; Miller, Cullison, & Youngquist, 1947; •Schuchert, 1943; Stauffer & Thiel, 1941; •Youngquist, 1948.

Prairie du Chien beds—Ellison, 1946; Furnish, 1938; •Miller, Cullison, & Youngquist, 1947; •Youngquist & Cullison, 1946; •Youngquist, 1948; •Youngquist & Downs, 1949.

Shakopee dolomite—Branson & Mehl, 1944; Furnish, 1938; •Graves & Ellison, 1941; •Schuchert, 1943; Stauffer & Thiel, 1941.

Tanyard formation—•Cloud & Barnes, 1948.

MIDDLE ORDOVICIAN CONODONT GENERA

Acodus	*Dichognathus*	*Pachysomia*
Acontiodus	*Distacodus*	*Paltodus*
Amorphognathus	*Drepanodus*	*Phragmodus*
Archeognathus	*Erismodus*	*Polycaulodus*
Belodus	*Lepodus*	*Pravognathus*
Bryantodina	*Leptochirognathus*	*Prioniodus*
Cardiodella	*Lonchodus*	*Prionognathus*
Chirognathus	*Microcoelodus*	*Pteroconus*
Coleodus	*Multioistodus*	*Scyphiodus*
Cordylodus	*Neocoleodus*	*Stereoconus*
Cornuramia	*Oistodus*	*Trichonodella*
Curtognathus	*Oulodus*	*Trucherognathus*
Cyrtoniodus	*Ozarkodina*	

MIDDLE ORDOVICIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Alsate formation—Graves & Ellison, 1941.

"Arenig" formation—Branson & Mehl, 1944; Edinger, 1926; •Ellison, 1944a; Furnish, 1938; Holmes, 1928; •Miller, Cullison, & Youngquist, 1947; Moodie, 1929; Smith, 1907; Ulrich & Bassler, 1926.

Benson formation—•C. Branson, 1942; •Branson & Branson, 1942.

Bigfork chert—•Hendricks, 1936, 1947; •Hendricks, Knechtel, & Bridge, 1937.

Bighorn sandstone—Amsden & Miller, 1942; •Youngquist & Cullison, 1946.

Brannon formation—•C. Branson, 1942; •Branson & Branson, 1942.

Bromide formation—•Branson & Mehl, 1940; Branson & Mehl, 1941d, 1943; Youngquist & Cullison, 1946.

Camp Nelson formation—•C. Branson, 1942; •Branson & Branson, 1942.

Carters formation—•Branson, Mehl, & Branson, 1946.

Chasmops Series—•Thorslund, 1940.

Chazy Series—Harris, 1932.

Chazyan, Quebec—Bassler, 1915; •Branson & Mehl, June 1933b; Branson & Mehl, July 1933d; •Bryant, 1921; Dresser & Dennis, 1944; Grabau, 1910, 1921; Hinde, 1879; Holmes, 1928; Nicolas, 1925; Reichenbach, 1909.

Cobourg beds—Wilson, 1948.

Curdsville formation—•C. Branson, 1942; •Branson & Branson, 1942.

Cynthiana group—•C. Branson, 1942.

Deadwood formation (Whitewood)—•Branson & Mehl, June 1933a, June 1933 b.

Decorah shale—Amsden & Miller, 1942; •Branson & Branson, 1942; •Branson & Mehl, June 1933a, June 1933b; Branson & Mehl, July 1933c, 1944; Crespin, 1943; •Croneis, 1934, 1936; Furnish, Barragy, & Miller, 1936; •Graves & Ellison, 1941; Harris, 1931; Loomis, 1936; •Schuchert, 1943; •Stauffer, 1933, 1934, 1935a; Stauffer, 1930, 1932, 1935b, 1936; Stauffer & Thiel, 1941; •Thiel, 1937; •Willman & Payne, 1942; Youngquist, 1948; Zebera, 1936b.

Dutchtown formation—E. B. Branson, 1944; Branson and Mehl, 1943, 1944; Branson, Mehl, & Branson, 1946; Camp, Taylor, & Wells, 1942; Cullison, 1938; Ellison, 1944; Imbt, 1941; •McLaughlin, 1941; •McQueen, 1937; Miller, Cullison, & Youngquist, 1947; Youngquist & Cullison, 1946.

Ellenburger limestone, fillings in—•Hass, 1947b; •Ellison, 1946, 1947; •Barnes, Cloud, & Warren, 1945, 1947; •Cloud & Barnes, 1948.

Fort Pena formation—Graves & Ellison, 1941.

Glenwood formation (see Platteville)—Branson & Mehl, 1941d, 1943, 1944; •Croneis, 1934, 1935; Ellison, 1946; •Furnish, 1938; •Howell, 1935; •Kay, 1935; Stauffer, 1935a; Stauffer & Thiel, 1941; •Theil, 1937; •Trowbridge, 1935; •Youngquist & Cullison, 1946; •Youngquist, 1948; •Zebera, 1936b.

Gratz formation (see Roger's Gap)—•McFarlan & Freeman, 1935.

Greendale formation—•C. Branson, 1942; •Branson & Branson, 1942.

Harding sandstone—Amsden & Miller, 1942; •Branson & Mehl, June 1933a, June 1933c, 1938c, 1941d; Branson & Mehl, June 1933b, 1943, 1944; Branson & Tarr, 1941; •Cullison, 1938; Ellison, 1946; Furnish, Barragy, & Miller, 1936; Johnson, 1945; Kirk, 1929; •Stauffer & Plummer, 1932; Stauffer, 1935a; •Theil, 1937; Youngquist & Cullison, 1946.

Hermitage formation—•C. Branson, 1942; •Branson & Branson, 1942.

Ion shale (see Decorah)—Stauffer, 1935b.

Jessamine formation—•C. Branson, 1942; •Branson & Branson, 1942.

Joachim dolomite—Amsden & Miller, 1942; E. B. Branson, 1944; •Branson & Branson, 1942; •Branson & Mehl, June 1933a, June 1933b, June 1933c, 1941d; Branson & Mehl, July 1933a, July 1933b, 1943, 1944; Branson, Mehl, & Branson, 1946; •Cullison, 1938; •Ellison, 1946; •Schuchert, 1943; •Stauffer, 1935a; Youngquist & Cullison, 1946.

Kimmswick limestone—E. B. Branson, 1944; •Branson & Mehl, 1940; Branson & Mehl, 1941d, 1943, 1944; Imbt, 1941; •Strothman, 1940.

Kukruse (C_2-C_3) Stufe—•Öpik, 1931; •Ruedemann, 1934.

Larapintine Series—Crespin, 1943; •Youngquist, 1948.

Leray limestone—Wetzel, 1940 ?.

Lexington formation (upper)—•Branson & Branson, 1942.

Llandeilo chert and shales—Branson & Mehl, 1944; Edinger, 1926; •Ellison, 1944a; Furnish, 1938; Glaessner, 1945; Holmes, 1928; Moodie, 1929; Smith, 1907; Ulrich & Bassler, 1926.

Lower shales (of Seager, 1942)—•Seager, 1942.

McLish formation—•Branson & Mehl, 1940; Branson & Mehl, 1941d, 1943, 1944; Ellison, 1946.

Oil Creek formation—•Branson & Mehl, June 1933b; •Cullison, 1938; Harris, 1931, 1932.

Oregon formation—•C. Branson, 1942; •Branson & Branson, 1942.

Perryville formation—•Branson & Branson, 1942.

Platteville formation—Amsden & Miller, 1942; •Branson & Mehl, 1941d; Furnish, Barragy, & Miller, 1936; •Schuchert, 1943; •Stauffer, 1935a.

Plattin limestone—Amsden & Miller, 1942; E. B. Branson, 1944; •Branson & Mehl, 1932a, June 1933a, June 1933b, June 1933c, July 1933c, 1940, 1941d; Branson & Mehl, July 1933b, 1943, 1944; Cooper, 1935a; •Ellison, 1946; Furnish, Barragy, & Miller, 1936; •Graves & Ellison, 1941; •Hass & Lindberg, 1946; Imbt, 1941; •Schuchert, 1943; •Theil, 1937.

Post-Ellenburger, Pre-Devonian—Cloud & Barnes, 1948.

Pre-Greendale formation—•Branson & Branson, 1942.

Rockland limestone—Wetzel, 1940 ?.

Roger's Gap formation (see Gratz)—•C. Branson, 1942; •Branson & Branson, 1942; •McFarlan & Freeman, 1935.

Simpson group—•Ellison, 1946, 1947; Imbt, 1941.

Spechts Ferry shale (see Decorah)—•Kay, 1935; Stauffer, 1935b; Stauffer & Thiel, 1941.

Trenton limestone—•Ami, 1896.

Tulip Creek formation—•Branson & Mehl, June 1933b; Decker, 1941; Harris, 1931, 1932.

Tyrone formation—•C. Branson, 1942; •Branson & Branson, 1942.

Undre Dicellograptusskiffern—Hadding, 1913; Holmes, 1928; Poulsen, 1936.

Valentine limestone—•Swartz, 1948.

Viola formation (lower and middle)—•Branson & Mehl, 1940; Branson & Mehl, 1941d, 1943; Imbt, 1941; Johnston, 1934.

Whitewood shale—Amsden & Miller, 1942; Furnish, etc., 1936; •Schuchert, 1943; •Seager, 1942.

Womble shale—•Hendricks, 1936, 1947.

Woodburn formation—•C. Branson, 1942; •Branson & Branson, 1942.

Wood's Hollow formation—Graves & Ellison, 1941.

UPPER ORDOVICIAN CONODONT GENERA

Acodus	*Drepanodus*	*Paltodus*
Ambalodus	*Euprioniodina*	*Phragmodus*
Amorphognathus	*Hindeodella*	*Prioniodella*
Belodus	*Lonchodus*	*Prioniodus*
Cordylodus	*Oistodus*	*Trichonodella*
Distacodus	*Ozarkodina*	

UPPER ORDOVICIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Arnheim group (see Sunset)—•C. Branson, 1942; •Branson & Branson, 1942; •Branson, Mehl, & Branson, 1945; •Case & Robinson, 1915.

Bellevue formation—•Branson & Branson, 1942.

Cincinnatian near Lexington, Kentucky—•Hass & Lindberg, 1946.

Collingwood member (Utica formation)—Parks, 1928.

Corryville formation—Bassler, 1915; •Branson & Branson, 1942; Holmes, 1928 (see Maysville); James, 1884.

D_5 stage—Bryant, 1921; Perner, 1894.

Economy formation—•Branson & Branson, 1942.

Eden group—•C. Branson, 1942.

Elkhorn formation—°Branson & Branson, 1942.

Fairmont formation—°C. Branson, 1942; °Branson & Branson, 1942.

Fernvale limestone—°Hardy, 1946; °Johnston, 1934.

Fulton formation—°Branson & Branson, 1942; °McFarlan & Freeman, 1935.

Garrard sandstone—°C. Branson, 1942.

Kiesgrube—Gürich, 1906; °Pietzsch, 1909.

Liberty formation—°C. Branson, 1942; °Branson & Branson, 1942; °Branson, Mehl, & Branson, 1945.

Lorraine-Dundas (see Pulaski)—Ami, 1900; Branson & Mehl, July 1933d.

Lyckholm-Stufe—°Teichert, 1930.

McMicken formation—°Branson & Branson, 1942.

Maquoketa shale—°E. B. Branson *et al.*, 1938b, 1941; E. B. Branson, 1944; °Branson & Branson, 1942; °Branson & Mehl, 1932a, June 1933a, Oct. 1934, 1940, 1941d; Branson & Mehl, July 1933c, 1944; °Condra, Schramm, & Lugn, 1931; °Graves & Ellison, 1941; Imbt, 1941; Ladd, 1929; °Lugn, 1934; °Schuchert, 1943; °Youngquist, 1948.

Maravillas formation—Graves & Ellison, 1941.

Maysville group—°C. Branson, 1942; °Branson & Mehl, June 1933b.

Million formation—°C. Branson, 1942.

Mt. Auburn formation—°Branson & Branson, 1942.

Mt. Hope formation—°Branson & Branson, 1942.

Oregonia formation—°C. Branson, 1942.

Pulaski formation (see Lorraine)—Bassler, 1915; °Branson & Mehl, June 1933b; Branson & Mehl, July 1933d; °Bryant, 1921; Grabau, 1910; Hinde, 1879; Holmes, 1928; Miller, 1883, 1889; Parks & Fritz, 1923; Trustees, etc., 1922.

Saluda formation—°Branson & Branson, 1942; °Branson, Mehl, & Branson, 1945.

Southgate formation—°Branson & Branson, 1942.

Sunset formation—°C. Branson, 1942; Shideler, 1934a. See Arnheim.

Sylvan shale—°Decker, 1925; Morgan, 1924; Reeds, 1927; Taff, 1903, 1904, 1928; Willis, 1912.

Tate formation (Corryville)—°C. Branson, 1942; °Branson & Branson, 1942.

Thebes sandstone (Maquoketa)—°Branson & Mehl., 1932a, June 1933a; Branson & Mehl, July 1933c, 1944.

Utica formation—°Ami, 1896.

Viola formation (upper)—°Branson & Mehl, 1940; Branson & Mehl, 1941d, 1943; Imbt, 1941; Johnston, 1934.

Waynesville formation—°C. Branson, 1942; °Branson & Branson, 1942; °Branson, Mehl, & Branson, 1945.

Whitewater formation—°Branson & Branson, 1942; °Branson, Mehl, & Branson, 1945.

Whitewood shale (see Deadwood)—Amsden & Miller, 1942; Furnish, Barragy, & Miller, 1936; °Schuchert, 1943; °Seager, 1942.

LOWER SILURIAN CONODONT GENERA

Acodus	*Hindeodella*	*Paltodus*
Distacodus	*Icriodina*	*Prioniodella*
Distomodus	*Lonchodus*	*Prioniodus*
Euprioniodina	*Ozarkodina*	*Trichonodella*

LOWER SILURIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Alaunschiefer (SO_1)—Pietzsch, 1909.

Alexandrian Stage—°Youngquist, 1948.

Brassfield limestone—°C. Branson, 1942; °Branson & Branson, 1945; Branson & Branson, 1947.

°**alpha**—Zebera, 1935, 1936a.

Graptolithenschiefer (°alpha)—Boucek, 1936a, 1936b; Camp, Taylor, & Wells, 1942.

Plum Creek member (Brassfield formation)—Branson & Branson, 1947.

SO_1—Pietzsch, 1909.

MIDDLE SILURIAN CONODONT GENERA

Acodus	*Lonchodus*	*Prioniodella*
Distacodus	*Ozarkodina*	*Prioniodus*
Euprioniodina	*Paltodus*	*Spathognathodus*
Hindeodella	*Plectospathodus*	*Trichonodella*
Ligonodina	*Polygnathellus*	
Lonchodina	*Polygnathoides*	

MIDDLE SILURIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Bainbridge limestone—E. B. Branson, 1944; °Branson & Branson, 1947; °Branson & Mehl, 1932a, June 1933a; Branson & Mehl, 1932b, June 1933c, 1944; °Schuchert, 1943.

Crab Orchard shale—°C. Branson, 1942.

J_2O_e—°Luha, 1930.

J_2W_2—°Luha, 1930.

Monograptus vomerinus zone—Decker, 1942.

Oldham limestone—°Branson & Branson, 1947.

Osgood formation—°Branson & Branson, 1947.

Pentamerus beds—°Whittard, 1928.

St. Johannis formation—Twenhofel, 1916 (same as **J_2O_e** and **J_2W_2**).

Wenlock shale—°Smith & Jones, 1881; °Smith, 1900; °Young, 1880.

UPPER SILURIAN CONODONT GENERA

Ctenognathus	*Lonchodus*	*Prionognathus*
Euprioniodina	*Ozarkodina*	*Spathognathodus*
Hindeodella	*Polygnathellus*	*Trichonodella*
Ligonodina	*Prioniodella*	
Lonchodina	*Prioniodus*	

UPPER SILURIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Aymestry limestone—°Smith & Jones, 1881; °Smith, 1900.

Beyrichien Kalk—Krause, 1877.

Gelblichgrauer Kalk—°Eisenack, 1932.

K_1 (Oesel formation, Obersilur Kalkstein)—°Hoppe, 1931; °Luha, 1930; Twenhofel, 1916 (see Kalkplatten also).

K_1-K_2 (Oesel formation)—°Luha, 1930.

K_2 Kalk of Conodonten-schicht—°Hoppe, 1931.

K_3 Kaugatoma zone—Twenhofel, 1916.

K_4 Ohesaare zone—Pander, 1856 (at Sandel); Schmidt, 1858; Ulrich & Bassler, 1926; Zittel, 1890.

Kalkplatten—Rohon, 1893 (see Öbersilur Kalkstein, K_1, and Öesel).

Ludlow bone bed—Bigsby, 1868; Harley, 1861; °Stauffer & Plummer, 1932; °Volborth, 1861.

Missouri Mountain shale—°Hendricks, Knechtel, & Bridge, 1937.

Obersilur Kalkstein (see Kalkplatten, K_1, Öesel)—°Branson & Mehl, June 1933c; Edinger, 1926; Glaessner, 1945; Holmes, 1928; Pander, 1856 (Rootsiküllе); Rohon, 1893; Roundy, 1926; Schmidt, 1858; Ulrich & Bassler, 1926; Zittel, 1890 (Same as lower Öesel formation).

LOWER DEVONIAN CONODONT GENERA

Euprioniodina	*Lonchodus*	*Prioniodus*
Hindeodella	*Ozarkodina*	*Spathognathodus*
Ligonodina	*Polygnathellus*	*Trichonodella*
Lonchodina	*Prioniodella*	

LOWER DEVONIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Oriskany sandstone—•Clarke, 1900.

Pillar Bluff limestone?—•Barnes, Cloud, & Warren, 1945, 1947; •Hass, 1947b.

MIDDLE DEVONIAN CONODONT GENERA

Ancyrodella	*Ligonodina*	*Prioniodella*
Ancyroides	*Lonchodina*	*Prioniodus*
Euprioniodina	*Lonchodus*	*Spathognathodus*
Hindeodella	*Ozarkodina*	*Trichonodella*
Icriodus	*Polygnathellus*	

MIDDLE DEVONIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Alpena limestone—Branson & Mehl, 1938a; Grohskopf, Clark, & Ellison, 1941; Youngquist & Patterson, 1947.

Arkona beds (see Olentangy)—Miller & Youngquist, 1947; Stauffer, 1938.

Bear Spring formation—•Barnes, Cloud, & Warren, 1947; •Hass, 1947b.

Blocher formation ? (New Albany)—•Campbell, 1946; •Cooper, 1948; Hass, 1947.

Bone beds of Columbus, Delaware limestones—•Stewart & Lampe, 1947; •Wells, 1944.

Boyle limestone—•C. Branson, 1942.

Callaway limestone—•Branson & Mehl, June 1933a, June 1934; Branson & Mehl, 1938a, 1938d; Youngquist & Patterson, 1947.

Casey limestone—•C. Branson, 1942.

Cedar Valley limestone—•Branson & Mehl, 1941d; •Schuchert, 1943; •Stauffer, 1939a; Stauffer, 1940; Stauffer & Thiel, 1941; Youngquist, 1945, 1947, 1948; Youngquist & Miller, 1948.

Cedar Valley limestone, clay above—Ellison, 1946; Youngquist, 1947; •Stauffer, 1939a; Stauffer, 1940.

Cooper limestone—•Branson & Mehl, 1941d; •Waldram, 1942.

East Liberty bone bed—•Wells, 1944.

Ferron Point shale—E. B. Branson, 1944b; Branson & Mehl, 1938a; Grohskopf, Clark, & Ellison, 1943; Youngquist, 1947; Youngquist & Peterson, 1947.

Fortune formation—E. B. Branson, 1944; Grohskopf, Clark, & Ellison, 1943; Youngquist, 1947; Youngquist & Peterson, 1947.

Fusselman dolomite ?, shale above—•King, 1932.

Gelben thone, mergel, kalkstein (Upa, Russia)—Bryant, 1921; Pander, 1856; Roundy, 1926; Zittel, 1890.

Hardin sandstone—•Bassler, 1911; Bassler, 1925, 1932; •E. B. Branson, 1944; •Branson & Mehl, June 1933a, June 1934; Branson & Mehl, 1938a, 1944; Campbell, 1946; Cooper, June 1931, 1935, 1939; •Cooper, Sept. 1931, 1933b; Cooper & Sloss, 1943; Edinger, 1926; Ellison, 1946; Glaessner, 1945; •Gunnell, 1931a, 1932; •Gunnell & Kraus, 1931; Hass, 1947; Holmes, 1928; Huddle, 1934; Knechtel & Hass, 1938; Miller & Youngquist, 1947; •Morse, 1930; •Olson, 1931; •Ruedemann, 1934; •Safford, 1901; •Schuchert, 1943; •Smith & Whitlatch, 1940; Ulrich & Bassler, 1926; •Wilmarth, 1938; Youngquist, 1945.

Hungry Hollow beds (see Olentangy)—Stauffer, 1938.

Ipperwash limestone—Stauffer, 1938.

Jeffersonville limestone—E. B. Branson, 1944b; Branson & Mehl, 1938a, 1944; Grohskopf, Clark, & Ellison, 1943; Youngquist, 1947; Youngquist & Peterson, 1947.

Kiddville layer—•C. Branson, 1942; •Wells, 1944.

"Marcellus" black shale—•Clarke, 1887; Kindle, 1912; Prosser, Kindle, & Swartz, 1913.

Millboro shale (Marcellus member) (see Romney)—Butts, 1940.

Mineola limestone—E. B. Branson, 1941, 1944, 1944b; Branson & Mehl, 1938a, 1944; Grohskopf, Clark, & Ellison, 1943; Youngquist, 1947; Youngquist & Peterson, 1947.

Moscow shale (upper)—Grabau, 1899, 1899a.

New Albany shale (see Blocher?)—•C. Branson, 1942; E. B. Branson, 1938c; Branson & Mehl, 1938a, 1938d, 1941d, 1944; Campbell, 1946; Cooper, 1939; Cooper & Sloss, 1943; Cooper, 1945, 1948; •G. Cooper, 1942; •Croneis, 1935; Ellison, 1946; Girty, 1898; Grohskopf, Clark, & Ellison, 1943; Hass, 1943, 1947; •Huddle, 1933; Huddle, 1934; Knechtel & Hass, 1938; •Laird, 1947; •McFarlan, 1943; Miller & Youngquist, 1948; •Reed & Campbell, 1939; Savage, 1930, 1931; •Schuchert, 1943; •Sloss & Hamblin, 1942; •Sloss & Laird, 1947; •Sutton, 1944; •Thomas, 1949; Weller *et al.*, 1948; •Wilmarth, 1938; •Youngquist, 1945; Youngquist, 1947; Youngquist & Peterson, 1947; Youngquist, Hibbard, & Reimann, 1948; Youngquist & Miller, 1948; Youngquist & Patterson, 1949.

Plum Brook shale (see Prout, Olentangy)—Stauffer, 1938; •Stewart & Hendrix, 1945a, 1945b.

Prout limestone (see Plum Brook)—•Stauffer, 1939; Stauffer, 1938.

Romney formation (lower)—•Woodward, 1932.

Silica shale—E. B. Branson, 1944b; Branson & Mehl, 1938a; Grohskopf, Clark, & Ellison, 1943; Stauffer, 1938; Youngquist & Peterson, 1947.

Stribling formation?—•Hass, 1947b.

Trousdale formation (basal part, Hardin)—See Hardin.

Widder beds (see Olentangy)—Stauffer, 1938.

UPPER DEVONIAN CONODONT GENERA

Ancyrodella	*Falcodus*	*Palmatolepis*
Ancyrognathus	*Hibbardella*	*Polygnathellus*
Ancyroides	*Hindeodella*	*Polygnathus*
Angulodus	*Icriodus*	*Polylophodonta*
Apatognathus	*Ligonodina*	*Prioniodella*
Bryantodus	*Lonchodina*	*Prioniodina*
Centrognathodus	*Lonchodus*	*Prioniodus*
Diplododella	*Nothognathella*	*Spathognathodus*
Elsonella	*Ozarkodina*	*Synprioniodina*
Euprioniodina	*Palmatodella*	*Trichonodella*

UPPER DEVONIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Adorfer schichten to I—Matern, 1933.

Antrim shale—•Caley, 1943, 1946; •G. Cooper, 1942; Glaessner, 1945; •Morse, 1938.

Arkansas novaculite (middle)—Campbell, 1946; Cooper, June 1931, 1933b, 1935, 1939; •Cooper, Sept. 1931; Cooper & Sloss, 1943; •Croneis, 1930, 1936; •Decker, 1925; Ellison, 1946; Harlton, 1934; •Henbest, 1936; •Hendricks, 1936, 1947; •Hendricks, Knechtel, & Bridge, 1937; •Honess, 1923; •King, 1937; Miller & Youngquist, 1947; •Miser, 1917, 1934, 1944; •Miser & Honess, 1927; •Miser & Purdue, 1929; •Schuchert, 1943; •Sellards, 1933; •Ulrich, 1927; •Ver Wiebe, 1932; •Wilmarth, 1938.

Attica shale (see Rhinestreet)—Youngquist, Hibbard, & Reimann, 1948; Youngquist & Miller, 1948.

Bedford shale—•Girty, 1912; Hass, 1946, 1947.

Big Stone Gap shale—•Bates, 1939; •Butts, 1933, 1940; •Schuchert, 1943; •Stose, 1923, 1924.

Blackiston formation (New Albany)—Campbell, 1946; Cooper, 1948; Hass, 1947.

Bowling Green dolomite, fillings in—•Branson & Mehl, 1941d; •Ellison, 1946.

Bransford sandstone (Grassaway, Chattanooga)—•Campbell, 1946.

C unit (of Sloss and Laird)—•Clark, 1949; •Sloss & Laird, 1947.

Caballos novaculite (upper)—•King, 1937; •Schuchert, 1943.

Capitol limestone (Hardin)—See Hardin.

Chagrin shale—•Kindle, Aug. 1912; •MacFarlane, 1923b; •Ulrich, 1912.

Chattanooga shale (Dowelltown and Hardin)—•Bassler, 1911; Bassler, 1925, 1932; •Bates, 1939; •Borden & Brant, 1941; •E. B. Branson, 1938, 1938c, 1944; •Branson & Mehl, June 1934, 1940a; Branson & Mehl, 1938d, 1944; Bryant, 1921; •Buehler *et al.*, 1933; •Butts, 1922, 1948; Butts, 1926; Campbell, 1946; Cooper, June 1931, 1935, 1939; •Cooper, Sept. 1931, 1933b, 1948; Cooper & Sloss, 1943; •Croneis, 1930; •Dunbar, 1918, 1919; Edinger, 1926; Ellison, 1946; Galloway, 1919; Glaessner, 1945; •Grabau, 1906; Grabau, 1910; •Gunnell & Kraus, 1931; •Gunnell, 1932, 1933; •Hass, 1947a; Hayes & Ulrich, 1903; •Hendricks, Knechtel, & Bridge, 1937; Holmes, 1928; •Honess, 1923; Huddle, 1934; Johnston, 1934; •Kindle, Feb. 1912; King, 1937; Knechtel & Hass, 1938; •Laudon & Bowsher, 1941; •Leatherock & Bass, 1936; •McFarlan, 1943; •MacFarlane, 1923b; •Miser, 1917, 1944; •Miser & Honess, 1927; •Miser & Purdue, 1929; •Moore, 1928; •Morse, 1930; •Olson, 1931; •Piper, 1932; •Ruedemann, 1934; •Schuchert, 1943; •Sloss & Hamblin, 1942; •Smith & Whitlatch, 1940; •Stockdale, 1948; •Stose, 1923, 1924; •Thomas, 1949; •Ulrich, 1912, 1915, 1927; Ulrich & Bassler, 1926; •Weller *et al.*, 1948; •Weller, 1920; •White, 1941; •Willis, 1912; •Wilmarth, 1938; Youngquist, 1945.

Chemung group (see Portage)—Ellison, 1946.

Cleveland shale—•Bassler, 1911; Branson & Mehl, July 1933d, 1938d, 1944; Bryant, 1921; Butts, 1926; •Caley, 1943; Conodont Comm., 1932; •Cushing, 1912; •Cushing, Leverett, & Van Horn, 1931; Ellison, 1946; Hass, 1946, 1947; Hinde, 1879, 1900; Kindle, Feb. 1912, Aug. 1912; MacFarlane, 1923a, 1923b, 1931; Miller, 1889; •Morse, 1930; •Newberry, 1873a, 1873b, 1875a, 1889; Newberry, 1875; Nicholson, 1879, 1889; •Orton, 1878, 1888; •Prosser, 1902; Prosser, 1912; •Roundy, 1926; •Ruedemann, 1934; •Schuchert, 1943; Smith, 1907, 1907a; •Stauffer, 1930; •Stauffer & Plummer, 1932; •Stose, 1923, 1924; •Ulrich, 1912; •Weller *et al.*, 1948; Youngquist, 1947; Youngquist, Hibbard, & Reimann, 1948.

Clymenien Arker (above)—Branson & Mehl, 1941c.

D_3 zone—Layer *et al.*, 1949.

D_c shales—•Laird, 1947; Cooper, 1945; Sloss & Laird, 1945; Youngquist & Peterson, 1947.

Darby formation—Branson & Branson, 1941; •Branson & Mehl, 1932a, 1938c; Branson & Mehl, 1938a.

Dowelltown shale (Chattanooga)—•Campbell, 1946.

Eureka shale—•Branson & Mehl, June 1934; Ellison, 1946; •Grabau, 1906; •Schuchert, 1943; •Williams, 1899, 1900.

Exshaw shale—•Weller *et al.*, 1949.

Fort Creek shale—•Hibbard, 1928; •Kindle & Bosworth, 1921; •Kindle, 1927.

Genessee shale (see Genundewa, Kettle Point)—Branson & Mehl, July 1933d, June 1934, 1938a, 1944; •Bryant, 1921; Butts, 1927; Caley, 1943, 1946; •Campbell, 1946; Chadwick, 1935a; •Clarke, 1885a, 1885b, 1887; •Clarke & Luther, 1904, 1908; Conodont Comm., 1932; Cooper, 1939; •Cooper, 1948; •Ellison, 1944a; Ellison, 1946; Goldring, 1929; Grabau, 1899, 1921; Hass, 1947; Hinde, 1879, 1900; Holmes, 1928; Kindle, Feb. 1912; •Luther, 1911; •McFarlan, 1943; MacFarlane, 1923a, 1923b, 1931; Miller & Youngquist, 1947; Miller, 1883, 1889; Prosser, 1912; Roundy, 1926; •Schuchert, 1943; Shimer, 1914; Smith, 1907; Stauffer, 1915; Trustees, etc., 1922; •Williams, 1887, 1899, 1900; Youngquist, 1947; Youngquist & Peterson, 1947; Youngquist & Miller, 1948; Zittel, 1890, 1900, 1910, 1913, 1924.

Geneseo black shale—•Hass, 1947b; •Hibbard, 1942; Youngquist, Hibbard, & Reimann, 1948.

Genundewa limestone and conodont bed—Branson & Mehl, 1938a, 1944; Bryant, 1921; •Campbell, 1946; Chadwick, 1935a; •Chadwick, 1935c; Clarke, 1885b; •Cooper, 1948; Goldring, 1929; Grabau, 1899, 1899a, 1910, 1921; •Grabau, 1917; Grohskopf, Clark, & Ellison, 1943; •Hass, 1947b; Hibbard, 1942; Hinde, 1879; Holmes, 1928; Huddle, 1934; Hussakof & Bryant, 1915, 1918; Kindle, Feb. 1912; Miller, 1883, 1889; Prosser, 1912; •Romer, 1935; •Ruedemann, 1934; Stauffer, 1915; Stauffer & Plummer, 1932; •Stose, 1923; •Thomas, 1949; Ulrich & Bassler, 1926; •Weller *et al.*, 1948; Youngquist, 1947; Youngquist & Peterson, 1947; Youngquist, Hibbard, & Reimann, 1948.

Glen Park limestone—•Branson & Mehl, June 1934, 1939a, 1941d; •Cloud & Barnes, 1948; •Gunnell & Kraus, 1931; •Gunnell, 1931b; Hass, 1947.

Grassy Creek shale—•C. Branson, 1934; •E. B. Branson, 1934, 1938, 1938b, 1941, 1944b; E. B. Branson, 1938c, 1944; •E. B. Branson *et al.*, 1941; •Branson & Mehl, 1932a, June 1933a, Oct. 1934, 1936, 1939a, 1941d; Branson & Mehl, June 1934, 1938a, 1938d, 1944; Campbell, 1946; •Cloud & Barnes, 1948; Cooper, 1939, 1945; Cooper & Sloss, 1943; •Cooper, 1948; Ellison, 1946; •Grabau, 1906; Grohskopf, Clark, & Ellison, 1943; •Gunnell, 1931a, 1931b; •Gunnell & Kraus, 1931; Hass, 1943, 1947; •Hass, 1947b; Knechtel & Hass, 1938; •Kraus, 1931; •Laudon & Bowsher, 1941; Miller & Youngquist, 1947; •Morey, 1935; •Olson, 1931; •Schuchert, 1943; •Thomas, 1949; Weller *et al.*, 1948; •Williams, 1943; •Youngquist, 1945; Youngquist, 1947; Youngquist & Peterson, 1947; Youngquist & Miller, 1948; Youngquist & Patterson, 1949.

Green shale zone (of Layer, 1949)—Layer, 1949.

Hackberry formation (Lime Creek)—Youngquist, 1948.

Hanover formation—•Hibbard, 1942; Youngquist, Hibbard, & Reimann, 1948.

Hardin limestone ?—•Ryan, 1943.

Hardin sandstone—For bibliography, see Middle Devonian.

Hatch shales—•Hibbard, 1942.

Huron shale—•E. B. Branson, 1944; Branson & Mehl, June 1934, 1938a; •Caley, 1943, 1946; Campbell, 1946; Ellison, 1946; Hass, 1946, 1947; Hinde, 1879; •Kindle, Aug. 1912, Feb. 1912; Knechtel & Hass, 1938; •MacFarlane, 1923b; •Prosser, 1912; •Ruedemann, 1934; •Schuchert, 1943; •Stockdale, 1948; •Stose, 1924; •Ulrich, 1912; Youngquist & Miller, 1948.

Independence shale—•Cushman & Stainbrook, 1943; •Stainbrook, 1945, 1946; •Youngquist, 1948.

"Kenwood" black shale—•Raasch, 1935; •Schuchert, 1943 ?; •Weller *et al.*, 1948.

Kettle Point beds (see Huron and Genesee)—Caley, 1943, 1946; Nicolas, 1925; Stauffer, 1915.

Kieselschiefer—Gürich, 1900.

Lime Creek formation (see Hackberry)—•Nelson, 1939; Thomas, 1921; •Youngquist, 1945, 1947, 1948.

Louisiana limestone—E. B. Branson, 1938c, 1944; •E. B. Branson, 1941, 1944b; •Branson & Mehl, 1932a, June 1933a, June 1934, 1936, 1939a, 1941d; Branson & Mehl, 1938a, 1938d; •Cloud & Barnes, 1948; •Grabau, 1906; •Gunnell, 1931a, 1931b; •Gunnell & Kraus, 1931; •Laudon & Bowsher, 1941; •Schuchert, 1943; •Thomas, 1949; •Weller *et al.*, 1948; •Williams, 1899; •Williams, 1943; Youngquist, 1947; Youngquist & Peterson, 1947.

Manticoceras-Stufe to Igamma—Matern, 1933.

Maple Mill shale—•Peterson, 1947; Thomas, 1949; •Youngquist, 1948.

Middlesex shale (see Portage)—Clarke, 1904; •Clarke & Luther, 1904; Hibbard, 1927, 1928; •Hibbard, 1942; Huddle, 1934; •Luther, 1911; Ruedemann, 1934.

Minnesota Devonian shale?—See "Kenwood."

Misener sand—•Borden & Brant, 1941; •Ellison, 1946; •Leatherock & Bass, 1936.

Mt. Pleasant phosphate (Hardin sandstone)—•Safford, 1901.

Naples shales (see Rhinestreet)—Bryant, 1921; Chadwick, 1935a; Clarke, 1885b, 1887, 1893; •Clarke, 1897; Clarke & Ruedemann, 1903; Grabau, 1899a; Schuchert, 1943.

Nehdener Schichten to II—Matern, 1933.

New Albany shale (Lower and upper Blackiston and Blocher beds)—See bibliography under Middle Devonian and above members.

Noel shale—•E. B. Branson, 1938, 1938c; •Branson & Mehl, 1932a, June 1933a, June 1934, Oct. 1934; Branson & Mehl, 1938d, 1944; Ellison, 1946; •Grabau, 1906; •Schuchert, 1943.

Norwood shale—•Morse, 1938.

Oberdevon Stufe—Matern, 1933.

Ohio shale—Bond, 1947; •Branson & Mehl, June 1934; E. B. Branson, 1938c; •Bryant, 1921; •Butts, 1922; •Caley, 1943; •Carman, 1947; Cooper, June 1931, 1935; •Cooper, 1933b; •Cushing, 1912; Hass, 1946, 1947; •Huddle, 1934; •Kindle, 1912; •McFarlan, 1943; •Morse, 1930; •Prosser, 1912; •Schuchert, 1943; •Stauffer, 1911; Stauffer, 1938; •Stewart & Hendrix, 1945b; •Thomas, 1949.

Olentangy shale—•Baker, 1942; E. B. Branson, 1944b; Branson & Mehl, 1941d; •Carman, 1947; •Croneis, 1937; Ellison, 1946; Miller & Youngquist, 1947; Stauffer, 1938, 1944; •Stauffer, 1938a; •Wells, 1947; Youngquist, 1945, 1947; Youngquist & Peterson, 1947; Youngquist & Miller, 1948.

Olmsted shale—•Hass, 1947.

Percha shale—•King, 1932.

Portage group—•E. B. Branson, 1944; Branson & Mehl, July 1933d, June 1934; •Bryant, 1921; •Butts, 1926; Caley, 1943, 1946; •Chadwick, 1935b; •Clarke, 1883; Clarke, 1885; •McFarlan, 1943; •Ruedemann, 1934; •Schuchert, 1943; •Stose, 1923, 1924; Youngquist, 1947; Youngquist & Miller, 1948.

Red siliceous rocks (0-8 in. below Ives breccia)—Cloud & Barnes, 1948; •Hass, 1947b.

Rhinestreet shale—Bassler, 1925; •Branson & Mehl, June 1933a; Branson & Mehl, July 1933d, June 1934, 1944; Bryant, 1921; •Campbell, 1946; Clarke, 1904; Clarke & Luther, 1904, 1908; Cooper, 1945; Edinger, 1926; Ellison, 1946; Glaessner, 1945; Hass, 1947; Hibbard, 1927, 1928, 1942; Holmes, 1928; Huddle, 1934; •Laird, 1947; •Luther, 1903; Luther, 1906, 1911; Miller & Youngquist, 1947; Moodie, 1929; •Pratt, 1925; Ruedemann, 1934; •Sloss & Laird, 1947; •Sutton, 1944; Ulrich & Bassler, 1926; •Weller *et al.*, 1948; •Youngquist, 1945; Youngquist, 1947; Youngquist, Hibbard, & Reimann, 1948; Zebera, 1936a.

Romney formation (upper)—•Woodward, 1932.

Rothen Thonen, Mergeln—Bryant, 1921; Holmes, 1928; Pander, 1856; Roundy, 1926; Zittel, 1890.

Saverton shale—•E. B. Branson, 1938; •Branson & Mehl, June 1934; •Laudon & Bowsher, 1941; •Schuchert, 1943; •Weller *et al.*, 1948; •Williams, 1943.

Shale 0.4 mile west of Middle Amana, Iowa—Miller & Youngquist, 1948; Youngquist, 1945, 1946; •Youngquist, 1947, 1948; Youngquist & Peterson, 1947.

Shale northeast of North Liberty, Iowa—Youngquist, 1947; Youngquist & Peterson, 1947; Youngquist, Hibbard, & Reimann, 1948; •Youngquist, 1948; Youngquist & Miller, 1948.

Sheffield formation—Miller & Youngquist, 1947; •Youngquist, 1947, 1948; Youngquist & Peterson, 1947.

Snyder Creek shale—•Branson & Mehl, 1932a, June 1933a, 1936; Branson & Mehl, June 1934, Oct. 1934, 1938a, 1944; Grohskopf, Clark, & Ellison, 1943; •Gunnell & Kraus, 1931; •Gunnell, 1931b; •Perry, 1932c; Youngquist, 1947; Youngquist & Peterson, 1947; Youngquist & Miller, 1948.

Sulphur Springs formation (Glen Park)—•E. B. Branson, 1938; •Branson & Mehl, June 1934.

Sweetland Creek shale—E. B. Branson, 1941, 1944b; •Branson & Mehl, June 1934; Branson & Mehl, 1938a, 1944; Ellison, 1946; Miller & Youngquist, 1947; •Thomas, 1949; Youngquist & Miller, 1946, 1948; •Youngquist, 1947, 1948; Youngquist & Peterson, 1947; Youngquist, Hibbard, & Reimann, 1948.

Sylamore sandstone—•Borden & Brant, 1941; •E. B. Branson, 1934, 1938; E. B. Branson, 1944; •Branson & Mehl, 1932a, June 1933a, June 1934, Oct. 1934; Branson & Mehl, 1938a, 1944; Clark, 1941; •Conselman, 1935; •Ellison, 1946; •Grabau, 1906; Grohskopf, Clark, & Ellison, 1943; •Gunnell & Kraus, 1931; •Gunnell, 1931b; Miller & Youngquist, 1947; McKnight, 1935; •Morey, 1935; •Quigley, 1942; •Schuchert, 1943; •Williams, 1900; Youngquist, 1947; Youngquist & Peterson, 1947; Youngquist & Miller, 1948.

Waverly black shale—•Prosser, 1902.

West River beds—•Hibbard, 1942.

Whetstone Branch formation—Morse, 1930.

Woodford shale and chert—•Borden & Brant, 1941; •E. B. Branson, 1938, 1938c, 1944; •Branson & Mehl, June 1934, 1936, 1941d; Branson & Mehl, 1938a, 1938d; Campbell, 1946; •Cloud & Barnes, 1948; Cooper, June 1931, Sept. 1931, 1935, 1939; •Cooper, 1933b, 1936, 1948; Cooper & Sloss, 1943; •Croneis, 1930; Ellison, 1946; •Girty, 1909; •Hendricks, 1947; •Hendricks, Knechtel, & Bridge, 1937; •Honess, 1923; Huddle, 1934; •Hyatt, 1936; •King, 1937; Knechtel & Hass, 1938; •McFarlan, 1943; •Miser, 1917; •Miser & Honess, 1927; •Miser & Purdue, 1929; Miser, 1944; •Rau & Ackley, 1939; •Schuchert, 1943; •Sloss & Hamblin, 1942; •Taff, 1903, 1904, 1928; •Thomas, 1949; •Ulrich, 1927; •Weller *et al.*, 1948; •Willis, 1912; •Wilmarth, 1938.

Zesch ? formation—•Barnes, Cloud, & Warren, 1947; •Hass, 1947b.

DEVONIAN CONODONT-BEARING FORMATIONS (PART UNKNOWN)

For explanation, see under Lower Ordovician formations.

Limestone of Newton Abbot, England—•Smith, 1900; •Young, 1880.

LOWER MISSISSIPPIAN CONODONT GENERA

Bactrognathus	*Lonchodus*	*Scaliognathus*
Bryantodus	*Ozarkodina*	*Siphonodella*
Doliognathus	*Palmatodella*	*Solenodella*
Euprioniodina	*Pelekysgnathus*	*Spathognathodus*
Falcodus	*Pinacognathus*	*Staurognathus*
Gnathodus	*Polygnathus*	*Subbryantodus*
Hibbardella	*Prioniodella*	*Synprioniodina*
Hindeodella	*Prioniodina*	*Trichonodella*
Ligonodina	*Prioniodus*	
Lonchodina	*Pseudopolygnathus*	

LOWER MISSISSIPPIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Arkansas novaculite (upper)—See Upper Devonian for bibliography.

Berea black shale (see Sunbury)—•Orton, 1888; •Prosser, 1902.

"Bergkalk" (basal, at Tula)—Bryant, 1921; Cooper, 1939; Edinger, 1926; Eichwald, 1858; Glaessner, 1945; Hinde, 1879, 1900; Holmes, 1928; Owen, 1860; Pander, 1856; Roundy, 1926; Smith, 1907, 1907a; Ulrich & Bassler, 1926; Zittel, 1890.

Black shale above unit A—•Sloss & Laird, 1947.

Bushberg sandstone—•Ball, 1949; •E. B. Branson, 1938, 1941, 1944b; E. B. Branson, 1938a, 1938b, 1938c, 1944; Branson & Mehl, Oct. 1934, 1938a, 1938d, 1941c, 1941d, 1944; •Branson & Mehl, 1936, 1938e, 1940a; Campbell, 1946; •Cloud & Barnes, 1948; •Cooper, 1938; Cooper, 1939, 1948; Cooper & Sloss, 1943; Ellison, 1946; •Gunnell & Kraus, 1931; •Gunnell, 1931b; Hass, 1941; •Hass, 1947b; Knechtel & Hass, 1938; Mehl & Thomas, 1947; Miller & Youngquist, 1947; •Schuchert, 1943; •Sloss & Hamblin, 1942; Thomas, 1949; •Weller *et al.*, 1948; Youngquist & Miller, 1948; Youngquist & Patterson, 1949.

Calichefied material 0-8 in. below Chappel limestone—Cloud & Barnes, 1948.

Chappel formation (basal)—•Cloud & Barnes, 1948; •Hass & Lindberg, 1946; •Hass, 1947b.

Chattanooga shale (upper, Grassaway)—See Upper Devonian for the bibliography.

Chouteau limestone—•E. B. Branson, 1938, 1938a; E. B. Branson, 1944; •Branson & Mehl, 1932a, June 1933a, June 1934, 1936; Cooper, 1939, 1948; •Cooper & Sloss, 1943; •Farmer, 1932; Grabau, 1906; Hass, 1943; •Hass, 1947b; Mehl & Thomas, 1947; Thomas, 1949; Youngquist & Patterson, 1949.

Compton limestone—•Branson & Mehl, 1938d.

English River siltstone (Hannibal)—Thomas, 1949; •Youngquist, 1948; •Youngquist & Patterson, 1949.

Falling Run member (New Albany)—Campbell, 1946; •Cooper, 1948.

Grassaway shale (Chattanooga, Bransford sandstone member)—•Campbell, 1946.

Hannibal formation (English River)—•C. Branson, 1934; E. B. Branson, 1938c; •E. B. Branson, 1938a, 1938b, 1941, 1944b; •Branson & Mehl, 1932a, June 1933a, June 1934, Oct. 1934, 1936, 1938a, 1941d; Branson & Mehl, 1938d, 1944; E. R. Branson, Oct. 1934; •Campbell, 1946; Cooper, 1939, 1948; Cooper & Sloss, 1943; •Grabau, 1906; •Gunnell, 1931a, 1931b; •Gunnell & Kraus, 1931; Hass, 1941, 1943, 1947; •Hass, 1947b; Knechtel & Hass, 1938; Mehl & Thomas, 1947; Miller & Youngquist, 1947; •Schuchert, 1943; •Sloss & Hamblin, 1942; Thomas, 1949; •Weller *et al.*, 1948; •Youngquist & Miller, 1948; Youngquist, 1948; Youngquist & Patterson, 1949.

Henryville (New Albany)—Campbell, 1946; Cooper, 1948; Hass, 1947.

Ives breccia—Cloud & Barnes, 1948; •Hass, 1947b.

Jacobs Chapel shale—Campbell, 1946; Cooper, 1948; •Weller *et al.*, 1948.

Kulm (lower)—•Weigelt, 1919.

Linietta clay (black shale below)—•Cooper, 1945a.

Lodgepole limestone (basal shale) (see Madison group)—Cooper & Sloss, 1943; •Deiss, 1936; Hass, 1943; Knechtel & Hass, 1938; •Sloss & Hamblin, 1942; •Sloss & Laird, 1947; •Weller *et al.*, 1948; Youngquist & Peterson, 1947; Youngquist & Miller, 1948; Youngquist & Patterson, 1949. (Also Big Snowy Mts. black shale).

McCraney limestone—•Thomas, 1949.

Madison shale (basal) (see Lodgepole)—Included in Lodgepole bibliography.

New Albany shale (see Falling Run, Henryville, Sanderson, Underwood)—See Middle Devonian for bibliography.

Niagara limestone?, fillings in—•Croneis & Scott, 1933; •Ellison, 1946; •Raasch, 1935. See Kenwood formation.

Northview siltstone—•E. B. Branson, 1938, 1938b, 1944; •Branson & Mehl, 1932a, June 1933a, 1938d; •Grabau, 1906.

Orangeville shale—•Cushing, Leverett, & Van Horn, 1931; Hass, 1946, 1947; Youngquist & Patterson, 1949.

Pahasapa-Englewood limestone—•Ballard, 1942.

Phelps sandstone—•E. B. Branson, 1938; Branson & Mehl, 1938a; •Branson & Mehl, 1939a.

Phosphate beds 10-15 in. below Chappel limestone (see Pre-Chappel)—Cloud & Barnes, 1948.

Pre-Chappel rocks—•Barnes, Cloud, & Warren, 1945.

Pre-Welden formation—•Branson & Mehl, 1936, 1941d; •Campbell, 1946; •Cooper, 1938; Cooper, 1939, 1948; Cooper & Sloss, 1943; Ellison, 1946; Hass, 1941, 1943; •Hass, 1947b; Mehl & Thomas, 1947; Miller & Youngquist, 1947; Youngquist, 1947; Youngquist & Peterson, 1947; Youngquist & Miller, 1948; Youngquist & Patterson, 1949.

Prospect Hill siltstone—Thomas, 1949; •Youngquist, 1948; Youngquist & Patterson, 1949.

Red limestone 8-10 in. below Chappel (see Pre-Chappel)—Cloud & Barnes, 1948.

Rockford limestone—Branson & Mehl, 1944; Youngquist & Patterson, 1949; •Cooper, 1948.

"Rose" limestone—•Cloud & Barnes, 1948 (p. 50).

Sanderson formation (New Albany)—Campbell, 1946; Cooper, 1948; Hass, 1947.

Springville formation, shale below—•Cooper, 1948.

Sulphur Springs formation (Bushberg)—•E. B. Branson, 1938; •Branson & Mehl, June 1934.

Sunbury shale—•Butts, 1922, 1940, 1948; Butts, 1926; Cooper, June 1931, 1935; •Cooper, Sept. 1931, 1933b, 1945a; •Cushing, 1912; Hass, 1946, 1947; •McFarlan, 1943; •Schuchert, 1943; Stauffer, 1944; •Stose, 1923, 1924; •Ulrich, 1912; •Weller, 1931; •Weller *et al.*, 1948; Youngquist & Patterson, 1949.

Underwood formation (New Albany)—•Campbell, 1946; Cooper, 1948; Hass, 1947.

Unterkarbon of Eichenberg—See Wetzschiefer.

Wetzschiefer—Eichenberg, 1930; Branson & Mehl, 1941c; Matern, 1933.

Yellow shale 0-22 in. above Ives breccia (see Pre-Chappel)—•Cloud & Barnes, 1948.

MIDDLE MISSISSIPPIAN CONODONT GENERA

Bactrognathus	*Ligonodina*	*Prioniodus*
Bryantodus	*Lonchodina*	*Scaliognathus*
Doliognathus	*Lonchodus*	*Siphonodella*
Euprioniodina	*Ozarkodina*	*Solenodella*
Falcodus	*Palmatodella*	*Spathognathodus*
Gnathodus	*Polygnathus*	*Synprioniodina*
Hibbardella	*Prioniodella*	*Taphrognathus*
Hindeodella	*Prioniodina*	*Trichonodella*

MIDDLE MISSISSIPPIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Barnett shale—Branson & Mehl, 1938d, 1941e; •Cloud & Barnes, 1948; Cooper, 1939; •Gunnell, 1931a; Hass, 1941; •Hass & Lindberg, 1946; •Hass, 1947b; Holmes, 1928; Roundy, 1926; •Schuchert, 1943; •Sellards, 1933.

Basal shale St. Joe limestone—See St. Joe.

Burlington limestone—•E. B. Branson, 1944; •Branson & Mehl, June 1933a.

Carboniferous limestone—Cooper, 1939; Hinde, 1900; Holmes, 1928; Mason, 1881; •Moore, 1863, 1864, 1870 (fillings in); Roundy, 1926; Smith, 1900, 1907a; Young, 1880; •Young, 1880a.

Fern Glen limestone—•Branson & Mehl, 1938d; •Gunnell & Kraus, 1931; •Gunnell, 1931b; Mehl & Thomas, 1947; •Thomas, 1942; Youngquist & Patterson, 1949.

Keokuk limestone—E. B. Branson, 1944; Branson & Mehl, 1941b, 1944; •Branson & Mehl, 1941d; Cloud & Barnes, 1948; •Cooper, 1947a; •Ellison, 1944a; •Youngquist, 1948.

Pierson limestone—•Branson & Mehl, 1938d; Branson & Mehl, 1941e, 1944; Cooper, 1948; •Grabau, 1906; Mehl & Thomas, 1949.

Reeds Spring limestone—•Branson & Mehl, 1938d; Mehl & Thomas, 1941.

Sacajawea formation—C. Branson, 1937; •Branson & Branson, 1941.

St. Joe limestone—•E. B. Branson, 1944; •Grabau, 1906.

"Sycamore formation"—•Branson & Mehl, 1936; Branson & Mehl, 1941c, 1941e, 1944; Cooper, 1948; •Williams, 1943. Some authors use this name to mean different things.

Veins filling Carboniferous limestone—See Carboniferous limestone.

Warsaw limestone—•E. B. Branson, 1944; •Cloud & Barnes, 1948; •Youngquist, 1948.

Welden limestone—•Branson & Mehl, 1936, 1941d; Branson & Mehl, 1941e, 1944; •Cooper, 1948; •Croneis, 1935; •Hass & Lindberg, 1946; Huddle, 1934; •Taylor, 1941; Thomas, 1949; Youngquist & Patterson, 1949.

UPPER MISSISSIPPIAN CONODONT GENERA

Cavusgnathus	*Lonchodina*	*Prioniodus*
Euprioniodina	*Lonchodus*	*Spathognathodus*
Gnathodus	*Metalonchodina*	*Synprioniodina*
Hibbardella	*Ozarkodina*	*Trichonodella*
Hindeodella	*Prioniodella*	
Ligonodina	*Prioniodina*	

UPPER MISSISSIPPIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Arnsberger Grauwacke—Camp, Taylor, & Welles, 1942; •Croneis, 1935; Öpik, 1936; •Schmidt, 1933; Schmidt, 1934; Zebera, 1936a, 1936b.

"Bergkalk" (upper, at Moscow)—See Lower Mississippian.

Big Snowy group (see Heath)—•Scott, 1935a.

Caney shale (lower)—•Branson & Mehl, 1936, 1939; Branson & Mehl, 1941a, 1944; •Cooper, 1947a; Harris & Hollingsworth, 1933; •Hendricks, 1947; •Stauffer, 1930; Sturgeon & Youngquist, 1949.

Chester of Indiana—•Branson & Mehl, 1941e.

Chesterian Series—Cooper. 1947b.

Heath formation—•Branson & Mehl, 1939, 1941e; Branson & Mehl, 1941a; •DeWolf & West, 1939; •Ehlers, 1943; •Ellison, 1944a; •Scott, 1935c; Scott, 1942. (See Big Snowy group).

Kinkaid limestone—•Cooper, 1946b; Cooper, 1947a.

Namurian (lower)—Camp, Taylor, & Welles, 1942; Demanet, 1938; •Demanet, 1941.

Palestine sandstone—•Coryell, 1939.

Pitkin limestone—•Branson & Mehl, 1939, 1941a; Branson & Mehl, 1941e.

Sacajawea formation—C. Branson, 1937; •Branson & Branson, 1941.

Viséan—Camp, Taylor, & Welles, 1942; Demanet, 1938; •Demanet, 1941; •Ellison, Dec. 1938.

LOWER PENNSYLVANIAN CONODONT GENERA

Cavusgnathus	*Lonchodina*	*Prioniodus*
Euprioniodina	*Lonchodus*	*Spathognathodus*
Gnathodus	*Metalonchodina*	*Streptognathodus*
Hibbardella	*Ozarkodina*	*Synprioniodina*
Hindeodella	*Polygnathodella*	*Trichonodella*
Idiognathodus	*Prioniodella*	
Ligonodina	*Prioniodina*	

LOWER PENNSYLVANIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Amsden formation (upper)—•Ehlers, 1943.

Atoka group—Cooper, 1947b; •Hendricks, 1947.

Bendian Stage—•Branson & Mehl, 1940a; •Harlton, 1934.

Caney shale (upper)—See Upper Mississippian for bibliography.

Coal Measure strata (of Smith 1907a?)—Smith, 1907a.

Cromwell member (Wapanucka formation)—Branson & Mehl, 1941e; Harris & Hollingsworth, 1933.

Dimple limestone—Ellison & Graves, 1941; Youngquist & Heezen, 1948; Youngquist & Downs, 1949.

Dornick Hills formation (lower)—Branson & Mehl, 1941e.

Hartville formation—Branson & Mehl, 1941e, 1944.

Jackfork sandstone—•Hendricks, 1947.

Johns Valley shale—Branson & Mehl, 1941e, 1944; •Ellison & Graves, 1941; •Harlton, 1932; Harlton, 1933; •Hollingsworth, 1934; •Miller & Owen, 1944; Miser, 1934.

Limestone Gap formation—•Harlton, 1938.

Marble Falls formation—Cloud & Barnes, 1948; •Plummer, 1945; •Roundy, 1926.

Morrow group—Cooper, 1947b.

Moyers formation—•Harlton, 1938.

Paradox formation—Baker, Dane, & Reeside, 1933; Johnson, 1945.

Primrose formation—•Harlton, 1938.

Quadrant formation (upper)—Branson & Mehl, 1941e; •Croneis, 1934, 1935; Scott, 1934; •Twenhofel & Shrock, 1935.

Round Prairie formation (Johns Valley)—•Harlton, 1938.

Smithwick formation—Ellison & Graves, 1941; •Plummer, 1945.

Stanley shale—Harlton, 1934; •Hendricks, Knechtel, & Bridge, 1937; •Hendricks, 1947.

Ti Valley Series—Cooper, 1947b.

Union Valley sandstone (Wapanucka)—•Hollingsworth, 1934; •Miller & Owen, 1944.

Wapanucka formation (see Cromwell and Union Valley)—Branson & Mehl, 1941e; •Ellison & Graves, 1941.

MIDDLE PENNSYLVANIAN CONODONT GENERA

Cavusgnathus	*Ligonodina*	*Prioniodus*
Euprioniodina	*Lonchodina*	*Spathognathodus*
Gondolella	*Lonchodus*	*Streptognathodus*
Gnathodus	*Metalonchodina*	*Synprioniodina*
Hibbardella	*Ozarkodina*	*Trichonodella*
Hindeodella	*Prioniodella*	
Idiognathodus	*Prioniodina*	

MIDDLE PENNSYLVANIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Altamont limestone—E. B. Branson, 1944.

Ardmore limestone—E. B. Branson, 1944; Ellison, 1941.

Bandera shale—E. B. Branson, 1944; Ellison, 1941.

Barnett Hill formation—•Harlton, 1938.

Bartlesville sand—•Leatherock, 1937.

Boggy formation—Harris & Hollingsworth, 1933.

Burbank sand—•Leatherock, 1937.

Cherokee formation—E. B. Branson, 1944; •Branson & Mehl, 1939, 1940a, 1941d, 1941e; Branson & Mehl, 1944; Cooper, 1947b; Ellison, 1941; •Girty, 1915; •Gunnell, 1931a, 1931b, 1932; •Gunnell & Kraus, 1931; McLaughlin, 1947; •Ruedemann, 1934; •Williams, 1938; Youngquist & Heezen, 1948; Youngquist & Downs, 1949.

Clay Cross Marine Band—Edwards & Stubblefield, 1948.

Clown Marine Band—Edwards & Stubblefield, 1948.

Coal Measure strata (of Smith 1907a?)—Smith, 1907a.

Deer Creek limestone—•Jones, 1928; •Youngquist & Heezen, 1948; •Youngquist, 1948.

Desmoinesian Stage—Branson & Mehl, 1944; •Condra, Schram, & Lugn, 1931; Cooper, 1947b; •Ellison, Dec. 1938; •Hass & Lindberg, 1946; •Warren, 1948; Youngquist & Heezen, 1948; Youngquist & Downs, 1949.

Dorr Run shale—Sturgeon & Merrill, 1949.

East Mountain shale (Mineral Wells formation)—•Huddle, 1934; Stauffer & Plummer, 1932.

Fort Scott limestone—Bailey, 1935; E. B. Branson, 1944; •Branson & Mehl, June 1933a, 1941d; Ellison, 1941; •Ellison, 1944a; •Gunnell & Kraus, 1931; Gunnell, 1931b; •Olson, 1931; •Williams, 1938; Youngquist & Heezen, 1948; Sturgeon & Youngquist, 1949.

Glen Eyrie formation—•Kellett, 1948; McLaughlin, 1947.

Hamden limestone—Sturgeon & Youngquist, 1949.

Henrietta group—E. B. Branson, 1944; Branson & Mehl, 1944; •Gunnell & Kraus, 1931; •Gunnell, 1931b; Youngquist & Heezen, 1948.

Hermosa formation—Baker, 1936.

Keechi Creek shale—Stuffer & Plummer, 1932.

Labette shale—E. B. Branson, 1944; Ellison, 1941.

Lexington coal—•Burnley, 1938; Ellison, 1941; Gunnell, 1933.

McAlester shale—Hendricks, 1937.

Marmaton group—Cooper, 1947b; McLaughlin, 1947.

Mineral Wells formation—Branson & Mehl, 1944; Youngquist & Heezen, 1948; Youngquist & Downs, 1949. (Also see East Mountain shale).

Mulberry coal—Ellison, 1941.

Mulky coal—Ellison, 1941; •Girty, 1915.

Nowata shale (Seminole)—•Croneis, 1936, 1937; •Jones, 1935a, 1935, 1935b, 1939; Jones, 1937.

Pleasanton group—E. B. Branson, 1944; Youngquist & Heezen, 1948; Branson & Mehl, 1944.

Seminole formation (Nowata)—•Jones, 1938, 1939, 1941.

Shale near Knoxville—Youngquist & Heezen, 1948; •Youngquist, 1948; Youngquist & Downs, 1949; Sturgeon & Youngquist, 1949.

Strawn sandstone—Stauffer & Plummer, 1932; •Plummer, 1945.

Summit coal—Ellison, 1941.

Tensleep formation—C. Branson, 1939; Branson & Branson, 1941; •Branson & Mehl, 1938c, 1939.

Trivoli cycle—•Jones, 1937.

Units 6, 35, 39—•Willman & Payne, 1942.

Washingtonville shale—Sturgeon & Youngquist, 1949.

UPPER PENNSYLVANIAN CONODONT GENERA

Cavusgnathus	*Lonchodina*	*Spathognathodus*
Gondolella	*Lonchodus*	*Streptognathodus*
Hibbardella	*Metalonchodina*	*Synprioniodina*
Hindeodella	*Ozarkodina*	*Trichonodella*
Idiognathodus	*Prioniodina*	
Ligonodina	*Prioniodus*	

UPPER PENNSYLVANIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Americus? limestone—Gunnell, 1933; •Lane, 1945.

Argentine limestone—Gunnell, 1933.

Auburn? shale—Ellison, 1941.

Black shale below LaSalle limestone—Dubois, 1941, 1943.

Bourbon group—Cooper, 1947b; Ellison, 1941; McLaughlin, 1947.

Bronson group—Cooper, 1947b; McLaughlin, 1947.

Brownwood shale (Graford)—•Plummer, 1930; Stauffer & Plummer, 1932.

Burlingame limestone—Ellison, 1941.

Chanute shale—Ellison, 1941; Gunnell, 1933. (See Lane and Quivira.)

Cherryvale shale—Gunnell, 1933; Sturgeon & Youngquist, 1949. (See Fontana and Wea.)

Dennis limestone—Ellison, 1941.

Douglas group—E. B. Branson, 1944; Cooper, 1947b; McLaughlin, 1947; Youngquist & Heezen, 1948.

Eudora shale—Ellison, 1941.

Fontana shale (see Cherryvale)—Gunnell, 1933.

Francis formation—•Harris & Jones, 1934.

Galesburg shale (see Stark)—Gunnell, 1933.

Graford formation (Brownwood)—Branson & Mehl, 1944; Stauffer & Plummer, 1932.

Haskell limestone—Ellison, 1941.

Hayden Branch formation—Payne, 1937.

Hazels Crop coal—Camp, Welles, & Green, 1949; Demanet, 1939; Huxley, 1866; Scott, 1942.

Heebner shale—Ellison, 1941; •Moore, 1936.

Holt shale—Ellison, 1941; •Moore, 1936.

Howard limestone—Ellison, 1941.

Hushpuckney shale—Cooper, 1947b; Ellison, 1941.

Iola limestone—Gunnell, 1933.

Kansas City group—E. B. Branson, 1944; Branson & Mehl, 1944; Cooper, 1947b; •Gunnell, 1931a, 1931b; •Gunnell & Kraus, 1931; •Lane, 1945; McLaughlin, 1947; Youngquist & Heezen, 1948.

Lane shale (see Chanute)—Gunnell, 1933.

Lansing group—E. B. Branson, 1944; Branson & Mehl, 1944; Cooper, 1947b; Gunnell, 1931a; •Gunnell & Kraus, 1931; •Gunnell, 1931b; McLaughlin, 1947; Youngquist & Heezen, 1948.

Larsh-Mission Creek shale—Ellison, 1941; •Moore, 1936.

Lawrence shale—Ellison, 1941.

Lecompton limestone—Cooper, 1947b.

Missourian Stage—Branson & Mehl, 1944; Cooper, 1947b; •Ellison, June 1938, Dec. 1938; •Johnson, 1936; •Jones, 1928; •Moore, 1936.

Muncie Creek shale—Ellison, 1941.

Pawhuska formation—Branson & Mehl, 1944; Harris & Hollingsworth, 1933.

Pedee group—E. B. Branson, 1944; Cooper, 1947b; McLaughlin, 1947.

Plattsburg limestone—Ellison, 1941.

Queen Hill shale—Ellison, 1941; •Moore, 1936.

Quindaro shale—Ellison, 1941.

Quivira shale—Ellison, 1941; Glaessner, 1945; Gunnell, 1933 (See Chanute).

Scranton shale—•Hass & Lindberg, 1946.

Severy shale—Ellison, 1941.

Shawnee group—E. B. Branson, 1944; Cooper, 1947b; •Gunnell & Kraus, 1931; •Gunnell, 1931b; McLaughlin, 1947; •Moore, 1936; •Moore *et al.*, 1936; Youngquist & Heezen, 1948.

Silver Lake shale—Ellison, 1941.

Stanton limestone—Ellison, 1941.

Stark shale—Cooper, 1947b; Ellison, 1941; Gunnell, 1933; •Moore, 1936. (See Galesburg).

Virgilian Stage—Branson & Mehl, 1944; Cooper, 1947b.

Wabaunsee group—E. B. Branson, 1944; Cooper, 1947b; Gunnell, 1931a; •Gunnell & Kraus, 1931; •Gunnell, 1931b; McLaughlin, 1947.

Wea shale (Cherryvale)—Ellison, 1941; Gunnell, 1933.
Weston shale—Ellison, 1941.
Willard shale—Ellison, 1941.
Winterset limestone—Gunnell, 1933.

CARBONIFEROUS CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Black shale below Nubian sandstone—•Croneis, 1941; •Eicher, 1946, 1947.
Shale below Permian beds—Fowler, 1949.

LOWER PERMIAN CONODONT GENERA

Cavusgnathus
Gondolella
Hindeodella
Ligonodina
Lonchodina
Lonchodus
Metalonchodina
Ozarkodina
Prioniodus
Spathognathodus
Streptognathodus
Synprioniodina
Trichonodella

LOWER PERMIAN CONODONT-BEARING FORMATIONS

For explanation, see under Lower Ordovician formations.

Big Blue Stage—•Ellison, Dec. 1938; Ellison, 1941; Youngquist & Heezen, 1948; Youngquist & Downs, 1949.
Herington limestone—•Kellett, 1943.
Hughes Creek shale—Ellison, 1941.
Phosphoria formation—•C. Branson, 1932a, 1932b, 1933; Branson & Branson, 1941; •Branson & Mehl, 1932a, June 1933a, 1938c; Branson & Mehl, 1941c; •Huddle, 1934; •Ruedemann, 1934.

MIDDLE PERMIAN CONODONT-BEARING FORMATION

Zechstein formation—Branson & Branson, 1941.

MIDDLE TRIASSIC CONODONT-BEARING FORMATIONS

Araif el Naga formation—Eicher, 1946; •Eicher, 1947.
Trochitenkalk (lower Muschelkalk)—Branson & Mehl, 1941c, 1941d; Branson & Branson, 1941; •Eicher, 1946.

PLEISTOCENE (REWORKED) CONODONT-BEARING DEPOSIT

Boulder clays of Chicago, Illinois and Minnesota—Dawson, 1885.

CONODONT-BEARING DEPOSITS OF UNKNOWN AGE

Long Rapids shale—•Hibbard, 1928.
Newton Abbot, England, Devonian limestone—•Smith, 1900; •Young, 1880.
Veins in Carboniferous limestone, Scotland—•Moore, 1863, 1864, 1870.

AUTHORS REFERRING TO CONODONTS, BY GEOLOGIC SYSTEMS

ORDOVICIAN (GENERAL)

Barrell, 1916
Bassler, 1915, 1925, 1926
Bush, 1930
Conodont Comm., 1932
Ellison, 1946
Holmes, 1928
Lalicker, 1949
Ruedemann, 1934
Schuchert, 1943
Shideler, 1929
Ulrich & Bassler, 1926
Volborth, 1861

LOWER ORDOVICIAN

Barnes, Cloud, & Warren, 1945, 1947
Bock, 1869
E. B. Branson, 1944
Branson & Mehl, June 1933d, 1941d, 1944
Branson & Tarr, 1935
Conselman, 1935
Dresser & Denis, 1944
Ehrenberg, 1854, 1856, 1859
Eichwald, 1854, 1856, 1858, 1860
Ellison, 1947
Furnish, 1936, 1938
Grabau, 1936
Graves & Ellison, 1941
Grewingk, 1861
Kayser, 1923
Kozlowski, 1948
Lapparent, 1906
Mickwitz, 1896
Moberg & Segerberg, 1906
Moodie, 1929
Murchison, 1854
Nicholson, 1879, 1889
Öpik, 1927a, 1930, 1931
Pander, 1856
Raymond, 1916
Reichenbach, 1909
Roemer, 1862, 1897
Rohon, 1894
Ryan, 1940
Schmidt, 1881, 1882
Stauffer & Thiel, 1941
Tammekann, 1924
Thorslund, 1937
Trowbridge & Mortimore, 1925
Westergård, 1909
Wiman, 1903
Youngquist, 1948
Zittel, 1890, 1900, 1910, 1913, 1924

MIDDLE ORDOVICIAN

Ami, 1896
Amsden & Miller, 1942
Barnes, Cloud, & Warren, 1945, 1947
C. Branson, 1942
E. B. Branson, 1944
Branson & Branson, 1942
Branson & Mehl, 1932a
Branson & Mehl, June 1933b, July 1933a, July 1933b, July 1933d, 1938c, 1940, 1941d, 1943, 1944
Branson, Mehl, & Branson, 1946
Branson & Tarr, 1941
Cloud & Barnes, 1948
Crespin, 1943
Cullison, 1938
Decker, 1941
Dresser & Denis, 1944
Ellison, 1947
Furnish, Barragy, & Miller, 1936
Graves & Ellison, 1941
Hadding, 1913
Hendricks, 1936, 1947
Hendricks, Knechtel, & Bridge, 1937
Hinde, 1879
Johnson, 1945
Kay, 1935
Kirk, 1929
McFarlan, 1935
McLaughlin, 1941
McQueen, 1937
Miller, Cullison, & Youngquist, 1947
Miller, 1883, 1889
Moodie, 1929
Poulsen, 1936
Reichenbach, 1909
Seager, 1942
Smith, 1907
Stauffer, 1930, 1932, 1933, 1934, 1935a, 1935b, 1936, 1940
Stauffer & Thiel, 1941
Strothmann, 1940
Swartz, 1948
Thorslund, 1940
Trowbridge, 1935
Wilson, 1948
Youngquist & Cullison, 1946
Youngquist, 1948

UPPER ORDOVICIAN

Ami, 1896, 1900
Amsden & Miller, 1942
Boucek, 1936a, 1936b
C. Branson, 1942
E. Branson *et al.*, 1941
E. B. Branson, 1944
Branson & Branson, 1942
Branson & Mehl, 1932a, July 1933c, July 1933d, 1941d, 1944
Branson, Mehl, & Branson, 1945
Case, 1915
Condra, 1931
Decker, 1925
Graves & Ellison, 1941
Gürich, 1906
Hardy, 1946
Hinde, 1879
Imbt, 1941
James, 1884
Johnston, 1934
Ladd, 1929
Lugn, 1934
McFarlan, 1935
Miller, 1883, 1889
Morgan, 1924
Parks, 1923, 1928
Perner, 1894
Reeds, 1927
Shideler, 1934a, 1937
Taff, 1903, 1904, 1928
Willis, 1912
Zebera, 1935, 1936a

SILURIAN (GENERAL)

Conodont Comm., 1932
Eichwald, 1858
Eisenack, 1934
Ellison, 1946
Holmes, 1928
Schuchert, 1943
Ulrich & Bassler, 1926
Youngquist, 1948

LOWER SILURIAN

Boucek, 1936a, 1936b
C. Branson, 1942
Branson & Branson, 1945, 1947
Branson & Mehl, 1941d, 1944
Pietzsch, 1909
Zebera, 1935, 1936a

MIDDLE SILURIAN

C. Branson, 1942
E. B. Branson, 1944
Branson & Mehl, 1932a, 1932b, June 1933c, 1944
Decker, 1942
Luha, 1930
Rohon, 1893
Smith, 1881, 1900
Whittard, 1928

UPPER SILURIAN

Barnes, Cloud, & Warren, 1945?
Bigsby, 1868
Branson & Mehl, 1944
Eisenack, 1931, 1932
Harley, 1861
Hendricks, Knechtel, & Bridge, 1937
Hoppe, 1931
Krause, 1877
Luha, 1930
Pander, 1856
Schmidt, 1858
Smith, 1881, 1900
Twenhofel, 1916
Volborth, 1861

DEVONIAN (GENERAL)

Bassler, 1915, 1925, 1926
Conodont Comm., 1932
Croneis, 1933
Ellison, 1946
Gunnell & Kraus, 1931
Holmes, 1928
Lalicker, 1949
Schuchert, 1943
Ulrich & Bassler, 1926
Young, 1880
Youngquist, 1948

LOWER DEVONIAN

Barnes, Cloud, & Warren, 1945, 1947
Branson & Mehl, 1944
Hass, 1947b
Clarke, 1900

MIDDLE DEVONIAN

Barnes, Cloud, & Warren, 1945, 1947 ?
C. Branson, 1942
E. B. Branson, 1941, 1944, 1944b
Branson & Mehl, 1936b, 1938a, 1941d, 1942a, 1944
Butts, 1922, 1940
Campbell, 1946
Carman, 1947
Clarke, 1885b
Cooper, 1948
Eichwald, 1858
Grabau, 1899, 1899a
Grohskopf *et al.*, 1943
Hass, 1947, 1947b
Huddle, 1934
Kindle, 1912
Pander, 1856
Prosser, Kindle, & Swartz, 1913
Savage, 1930, 1931
Stauffer, 1915, 1938, 1938a, 1939, 1940, 1944
Stauffer & Thiel, 1941
Stewart & Hendrix, 1945a, 1945b
Stewart & Lampe, 1947
Teichert, 1930
Thiel, 1937
Waldram, 1942
Weller, 1948
Wells, 1944, 1947

UPPER DEVONIAN

Barnes, Cloud, & Warren, 1945, 1947
Bassler, 1911, 1932
Bates, 1939
Bond, 1947
Borden, 1941
C. Branson, 1934, 1942
E. B. Branson, 1938, 1941, 1944, 1944b
E. B. Branson *et al.*, 1941
Branson & Branson, 1941
Branson & Mehl, 1932a, July 1933d, June 1934, 1935a, 1936, 1936b, 1937, 1938a, 1938c, 1938e, 1939a, 1941c, 1941d, 1942a, 1944
Bryant, 1921
Butts, 1922, 1926, 1927, 1933, 1940, 1948
Caley, 1943, 1946
Campbell, 1946
Carman, 1947
Chadwick, 1935a, 1935b
Clark, 1941, 1949
Clarke, 1883, 1885a, 1885b, 1887, 1893, 1904
Clarke & Ruedemann, 1903
Clarke & Luther, 1904, 1908
Conselman, 1935
Cloud & Barnes, 1948
Cooper, June 1931, 1933b, 1933a, 1935, 1936, 1945, 1948
G. Cooper, 1942
Croneis, 1930
Cushing, 1912, 1931
Cushman, 1943
Decker, 1925
Dunbar, 1918, 1919
Eichwald, 1858
Ellison, 1947
Galloway, 1919
Girty, 1898, 1909, 1912
Goldring, 1929
Grabau, 1899, 1899a, 1906, 1917, 1921
Grabau & Shimer, 1910
Gunnell, 1931a
Gürich, 1900
Harlton, 1934
Hass, 1946, 1947, 1947a, 1947b
Hayes & Ulrich, 1903
Henbest, 1936
Hendricks, 1936, 1947
Hendricks, Knechtel, & Bridge, 1937
Hibbard, 1927, 1928, 1942
Hinde, 1879
Holmes, 1928
Honess, 1923
Huddle, 1933, 1934
Hussakof & Bryant, 1915, 1918
Hyatt, 1936
Johnston, 1934
Kindle, 1912 (Feb.), 1912 (Aug.), 1921, 1927
King, 1932, 1937
Kraus, 1931
Laird, 1947
Laudon & Bowsher, 1941
Layer, 1949
Leatherock, 1936
Luther, 1903, 1906, 1911
McFarlan, 1943
MacFarlane, 1923a, 1923b, 1931
McKnight, 1935
Matern, 1933
Miller, 1883, 1889
Miller & Youngquist, 1947
Miser, 1917, 1927, 1929, 1934, 1944
Moodie, 1929
Moore, 1928
Morey, 1935
Morse, 1930
Morse, 1938
Nelson, 1939
Newberry, 1873, 1875, 1875a, 1889
Nicholson, 1879, 1889
Olson, 1931
Orton, 1878, 1888
Pander, 1856
Parks, 1923
Perry, 1932c
Peterson, 1947
Piper, 1932
Pratt, 1925
Prosser, 1912
Quigley, 1942
Rau & Ackley, 1939
Reed & Campbell, 1939
Raasch, 1935
Roundy, 1926
Ruedemann, 1934
Ryan, 1943
Safford, 1901
Savage, 1930, 1931
Sellards, 1933
Shimer & Grabau, 1902
Sloss & Laird, 1945, 1947
Smith & Whitlatch, 1940
Stainbrook, 1945, 1946
Stauffer, 1911, 1915, 1938
Stockdale, 1948
Stose, 1923, 1924
Sutton, 1944
Taff, 1903, 1904, 1928
Thomas, 1921, 1949
Trustees etc., 1922
Ulrich, 1912, 1915, 1927
Ulrich & Bassler, 1926
Ver Wiebe, 1932
Weller, 1948, 1920
White, 1941
Williams, 1887, 1899, 1900
Williams, 1943
Willis, 1912
Wilmarth, 1938
Woodward, 1932
Youngquist, 1945, 1946, 1947
Youngquist & Miller, 1946, 1948
Youngquist & Peterson, 1947
Youngquist, Hibbard, & Reimann, 1948
Zittel, 1890, 1900, 1910, 1913, 1924

MISSISSIPPIAN (GENERAL)

Bassler, 1925, 1926
Bush, 1930
Conodont Comm., 1932
Eicher, 1946, 1947
Ellison, 1946
Fowler, 1944
Gunnell & Kraus, 1931
Holmes, 1928
Lalicker, 1949
Ruedemann, 1934
Schuchert, 1943
Ulrich & Bassler, 1926
Youngquist, 1948

LOWER MISSISSIPPIAN

Ball, 1949
Ballard, 1942
Barnes, Cloud, & Warren, 1945, 1947
Bates, 1939
E. B. Branson, 1934, 1938, 1938a, 1938b, 1938c, 1944
Branson & Mehl, 1932a, Oct. 1934, 1935a, 1936, 1937, 1938d, 1938e, 1939a, 1941c, 1941d, 1944
E. R. Branson, 1934
Butts, 1948
Campbell, 1946
Cloud, 1948
Cooper, Sept. 1931, June 1931, 1933a, 1933b, 1935, 1938, 1939, 1945a, 1948
Cooper & Sloss, 1943
Croneis, 1933
Cushing, 1912, 1931
Deiss, 1936
Eichenberg, 1930
Eichwald, 1858, 1860
Farmer, 1932
Grabau, 1906
Gunnell, 1931a
Hass, 1943, 1946, 1947, 1947a, 1947b
Hendricks, 1947
Hendricks, Knechtel, & Bridge, 1937
Huddle, 1934
Knechtel & Hass, 1938
Laudon & Bowsher, 1941
McFarlan, 1943
McKnight, 1935
Matern, 1933
Miser, 1934
Orton, 1878, 1888
Pander, 1856
Prosser, 1902
Reed & Campbell, 1939
Roundy, 1926
Savage, 1931
Savage & Sutton, 1930, 1931
Sellards, 1933
Sloss & Hamblin, 1942
Sloss & Laird, 1945, 1947
Stauffer, 1944
Stockdale, 1948
Sutton, 1944
Thomas, 1949
Ulrich, 1912
Ver Wiebe, 1932
Weigelt, 1919
Weller, 1931, 1948
Wilmarth, 1938
Youngquist & Patterson, 1949

MIDDLE MISSISSIPPIAN

C. Branson, 1937
E. B. Branson, 1938b, 1938c, 1944
Branson & Branson, 1941
Branson & Mehl, 1941b, 1941d, 1941e, 1944
Cloud & Barnes, 1948
Hass, 1941, 1947b
Hinde, 1900
Mason, 1881
Mehl & Thomas, 1947
Moore, 1863, 1864, 1870
Roundy, 1926
Sellards, 1933
Taylor, 1941
Thomas, 1942
Young, 1880, 1880a

UPPER MISSISSIPPIAN

Anonymous, 1936
C. Branson, 1937
Branson & Branson, 1941
Branson & Mehl, 1938b, 1939, 1941a, 1941c, 1941e, 1944
Cooper, 1945b, 1946b, 1947a, 1947b
Coryell, 1939
Demanet, 1938, 1941
De Wolf, 1939
Ehlers, 1943
Eichwald, 1858
Ellison, 1938 (Dec.)
Harris & Hollingsworth, 1933
Hendricks, 1947
King, 1934
Pander, 1856
Roundy, 1926
Schmidt, 1933, 1934
Scott, 1935a, 1935b, 1935c, 1942

PENNSYLVANIAN (GENERAL)

Branson & Mehl, 1934 (Mar.), 1937
Conodont Comm., 1932
Cooper, 1946a
Eicher, 1946, 1947
Ellison, 1937, 1946
Fowler, 1944
Grubb, 1932
Gunnell & Kraus, 1931
Gunnell, 1932 (Mar.)
Moore, 1929
Ruedemann, 1934
Schuchert, 1943
Smith, 1907a
Sturgeon & Youngquist, 1949
Summerson, 1942
Ulrich & Bassler, 1926
Wanless, 1946, 1947
Wanless & Shepard, 1936
Weller, 1947
Youngquist, 1948

LOWER PENNSYLVANIAN

Baker, 1933
Branson & Mehl, 1941e, 1944
Bush, 1930
Cloud & Barnes, 1948
Cooper, 1945b, 1947b
Ehlers, 1943
Ellison, 1941
Ellison & Graves, 1941
Harlton, 1932, 1933, 1934, 1938
Harris, 1932
Harris & Hollingsworth, 1933
Hendricks, 1947
Hendricks, Knechtel, & Bridge, 1937
Hollingsworth, 1934
Johnson, 1945
Miller & Owen, 1944
Miser, 1934
Plummer, 1945

MIDDLE PENNSYLVANIAN

Bailey, 1935
Baker, 1936
C. Branson, 1939
E. B. Branson, 1944
Branson & Branson, 1941
Branson & Mehl, 1932a, 1938c, 1939, 1941d, 1941e, 1944
Burnley, 1938
Condra, 1931
Cooper, 1947b
Edwards & Stubblefield, 1948
Ellison, 1938 (Dec.), 1941
Girty, 1915
Gunnell, 1931a, 1931b, 1933
Harlton, 1938
Harris, 1931, 1932
Harris & Hollingsworth, 1933
Hendricks, 1937
Johnson, 1936
D. Jones, 1935, 1935a, 1935b, 1937, 1938, 1939, 1941
V. Jones, 1928
Kellett, 1948
Leatherock, 1937
McLaughlin, 1947
Plummer, 1945
Stauffer & Plummer, 1932
Sturgeon & Merrill, 1949
Sturgeon & Youngquist, 1949
Warren, 1948
Williams, 1938
Willman, 1942
Youngquist & Downs, 1949
Youngquist & Heezen, 1948

UPPER PENNSYLVANIAN

E. B. Branson, 1944
Branson & Mehl, 1932a, 1944
Camp *et al.*, 1949
Cooper, 1947b
Demanet, 1939
Dubois, 1941, 1943
Ellison, 1938 (June), 1938 (Dec.), 1941
Gunnell, 1931a, 1933
Harris & Hollingsworth, 1933
Harris & Jones, 1934
Huxley, 1866
Lane, 1945
Moore, 1936 (Aug.), 1936 (Sept.)
Payne, 1937
Plummer, 1930
Stauffer & Plummer, 1932

PERMIAN (MOSTLY LOWER)

C. Branson, 1932a, 1932b, 1933
Branson & Branson, 1941
Branson & Mehl, 1937, 1938c, 1944
Ellison, 1938 (Dec.)
Kellett, 1943
Moore, 1863, 1864, 1870?
Ruedemann, 1934
Schuchert, 1943
Sturgeon & Youngquist, 1949
Youngquist, 1948

POST-PERMIAN

General Mesozoic—Gunnell, 1932 (May)
Middle Triassic—Branson & Mehl, 1941c, 1941d; Eicher, 1946, 1947
Cretaceous—Stauffer, 1939a, 1940; O. Wetzel, 1932, 1933, 1940, 1948; W. Wetzel, 1923
Pleistocene—Dawson, 1885?

CATALOGUE OF GENERA AND SPECIES

The catalogue is complete through July 1949. I have endeavored to list every conodont name mentioned in the literature, including those in abstracts, reviews, and casual references. The names listed in the Zoological Record, Biological Abstracts, and Paläontologisches Zentralblatt are not indexed because many of the large conodont articles are tripled or quadrupled in some of these serials, and to list the species given in these would serve no useful purpose. Some reviewers in the Paläontologisches Zentralblatt have presented their own ideas about conodont names. If these ideas are new, the affected names are listed in the catalogue, which is not readily usable for locating valid species, because it includes differing ideas of all scientists in the field. Original usage is indicated by absence of parentheses around the author name, and usually the first name in any list is of this nature. All subsequent usages have a semicolon and dash preceding them, and the latest name is not necessarily the correct one. Usually some reference in the middle of the list gives clue to correct position of the species. Genera without specific names are listed at the end of the list of species of each generic group. Synonyms are used in an invalid sense. For example, if B is a junior (or senior) synonym *of* A, B is invalid. Distinction has been made between junior and senior synonyms. For example, if genus-A species-B is changed to genus-C species-D, and species-D is younger than B, then B is a senior synonym; if D is older than B, then B is a junior synonym. Where both generic and specific names have been changed, the date associated with the specific name obtains. Where only the generic name has been changed, the original date associated with the generic name obtains. A synonym invariably comes at the end of a citation, enclosed by parentheses. Misspelled words or deviations from accepted original spellings or citations are included in parentheses after the date. Type numbers after each citation are listed in the same order as their respective figures. Any special notes accompany the immediate main heading (usually a generic name). At the end of the bibliographic catalogue is a list of many miscellaneous unnamed objects, including many unidentified specimens that have been referred to conodonts. They are listed according to dates, with subsequent references in order. Some of these problematica perhaps offer a new line of study on the mysteries of the conodonts.

CATALOGUE OF GENERA AND SPECIES

ACANTHODUS FURNISH (1938), pp. 322-323, 330, 336-337. Type species, *A. uncinatus* FURNISH (1938); ——— ELLISON (Jan. 1946), pp. 94, 107, simple cone type, upper half of Beekmantown. LO

——**uncinatus** FURNISH (1938), pp. 320, 327, pl. 42, fig. 30, text-fig. 2, B. Syntypes, 1341-1343, Univ. Iowa (1341 is fig. 30), rare in Oneota fm., Minn.; ——— STAUFFER & THIEL (1941) (*uncinnatus*), p. 246. LO

ACODINA STAUFFER (1940), p. 418. Type species, *A. lanceolata* STAUFFER (1940); ——— BRANSON & MEHL (1941d), pp. 205-206; ——— ELLISON (Jan. 1946), p. 107, classed as jr. syn. of *Acontiodus*. O

——**concava** STAUFFER (1940), p. 418, pl. 60, fig. 31. Holotype, B5669, Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. O

——**covina** STAUFFER (1940), p. 418, pl. 60, fig. 33. Holotype, B5671, Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. O

——**curvata** STAUFFER (1940), p. 418, pl. 60, figs. 3, 14-16. Syntypes, B5642 (fig. 3), B5653-B5655 (figs. 14-16), Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. O

——**cuspidata** STAUFFER (1940), p. 418, pl. 60, figs. 21-25. Syntypes, B5660-B5664, Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. O

——**delata** STAUFFER (1940), pp. 418-419, pl. 60, fig. 7. Holotype, B5646, Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. O

——**formosus** (STAUFFER) (1940), p. 418. (*Acodus*).

——**inopinatus** (STAUFFER) (1940), p. 419. (*Acodus*).

——**lanceolata** STAUFFER (1940), pp. 418-419, pl. 60, figs. 29-30. Holotype, B5668, Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229, type species for *Acodina*. O

——**lirata** STAUFFER (1940), p. 419, pl. 60, figs. 18, 45. Holotype, B5657 (fig. 18); paratype, B5683 (fig. 45), Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. O

——**ursa** STAUFFER (1940), p. 419, pl. 60, figs. 1-2. Holotype, B5641, Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. O

——**velva** STAUFFER (1940), p. 419, pl. 60, figs. 19, 32, 39, 46. Syntypes, B5658 (fig. 19), B5670 (fig. 32), B5677 (fig. 39), B5684 (fig. 46), Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. O

——**zionensis** (STAUFFER) (1940), p. 419, pl. 60, fig. 38. Fig. spm., B5676, Univ. Minn., clay above ls., Minn. (*Acodus*); ——— STAUFFER & THIEL (1941), p. 229. O

ACODUS PANDER (1856), p. 21. Type species, *A. erectus* PANDER (1856), pp. 19, 27, 90; ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1858), p. 339; ——— EICHWALD (1860), p. 663; ——— HARLEY (1861), pp. 546, 550, see *Astacoderma spinosum;* ——— HARLEY (1861) (ab)N (1862), p. 747; ——— BOCK (1869), p. LO-MS

108, map; ——— ZITTEL (1890), p. 59; ——— ROHON (1894), p. 9; ——— BASSLER (1925), p. 218; ——— ULRICH & BASSLER (1926), pp. 5-7; ——— HOLMES (1928), pp. 2, 5; ——— GUNNELL (Mar. 1931a), p. 331; ——— GUNNELL (Apr. 1931a), p. 239; ——— GUNNELL (1931b), pp. 245-246; ——— HARRIS & HOLLINGSWORTH (1933), p. 195; ——— BRANSON & MEHL (June 1933 c, d), pp. 41, 56. Pander's desc. used; ——— BRANSON & MEHL (July 1933a), p. 79; ——— HUDDLE (1934), p. 34; ——— ZEBERA (1936b), p. 189; ——— FURNISH (1938), pp. 321-322, 324-325, good marker for Oneota fm.; ——— STAUFFER (1940), p. 418, comp. with *Acodina;* ——— BRANSON & MEHL (1941d), p. 205; ——— GRAVES & ELLISON (1941), pp. 3-4, 7; ——— BRANSON & MEHL (1944), p. 239; ——— ELLISON (Jan. 1946), pp. 94, 100, 107, simple cone, upper half of Beekmantown through Niagaran.

——**acutus** PANDER (1856), p. 21, pl. 1, fig. 12; pl. A to p. 20, fig. 2. Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— NICHOLSON (1879), p. 121, figs. 493 A-B. Pander's pl. 1, fig. 12a is fig. A and pl. A to p. 20, fig. 2 is fig. B; ——— NICHOLSON & LYDEKKER (1889), p. 921, figs. 847 A-B. Pander's pl. 1, fig. 12a is fig. A and pl. A to p. 20, fig. 2 is fig. B; ——— ULRICH & BASSLER (1926), p. 7, fig. 2, subfig. 3, transverse section. The center fig. is Pander's pl. A to p. 20, fig. 2; ——— HOLMES (1928), p. 5, pl. 1, fig. 20. Pander's pl. 1, fig. 12a is fig. 20 left and fig. 12b is fig. 20 rt.; ——— GLAESSNER (1945), p. 26, fig. 2, subfig. 3, after Ulrich & Bassler (1926). LO

——**bicostatus** BRANSON & MEHL (June 1933c), p. 42, pl. 3, fig. 1. Holotype, C153-1, Univ. Mo., Bainbridge fm., Mo.; ——— GRAVES & ELLISON (1941), pp. 4, 7, pl. 2, fig. 37. Hypotype, 2102, Mo. Sch. Min., Rolla, Maravillas fm., loc. G414, Tex.; ——— BRANSON & MEHL (1944), p. 239, pl. 93, figs. 30-31; ———BRANSON (1944), pp. 97, 110, pl. 16, fig. 1, after Branson & Mehl (June 1933c); ——— BRANSON & BRANSON (1947), p. 554, comp. with *Acodus unicostatus.* MO-MS

——**brevis** BRANSON & MEHL (June 1933d), pp. 56-57, pl. 4, fig. 3. Holotype, C301-4, Univ. Mo., Jefferson City fm., Mo.; ——— BRANSON & MEHL (1944), p. 239, pl. 93, figs. 32-33; ——— BRANSON (1944), p. 54. LO

——? **circulatus** GUNNELL (1931b), pp. 245-246, pl. 29, fig. 1, mid. sh. Fort Scott fm., Mo., comp. with *Acodus ? simplex;* ——— HARRIS & HOLLINGSWORTH (1933), pp. 195, 197. MP

——**crassus** PANDER (1856), p. 22, pl. 1, fig. 10; pl. 2, fig. 13. Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL & ROHON (1886), p. 116. Pander's pl. 2, fig. 13b is comp. with *Drepanodus sp.* Zittel & Rohon (1886), pl. 1, fig. 1 H; ——— HOLMES (1928), p. 5, pl. 1, figs. 21-22. Pander's pl. 1, fig. 10a is fig. 21 left; Pander's pl. 2, fig. 13a is fig. 22 left; Pander's pl. 2, fig. 13b is fig. 22 rt.; ——— GUNNELL (1931b), p. 245. LO

——**curvatus** BRANSON & BRANSON (1947), p. 554, pl. 81, fig. 20. Holotype, C672-4, Univ. Mo., Brassfield fm., loc. 1923, Ky. LS

——**delicatus** BRANSON & MEHL (June 1933d), p. 56, pl. 4, fig. 10. Holotype, C306-4, Univ. Mo., Jefferson City fm., Mo.; ——— GRAVES & ELLISON (1941), p. 8, comp. with *Acodus denticulatus;* ——— BRANSON (1944), p. 54. LO

——**denticulatus** GRAVES & ELLISON (1941), pp. 3, 7-8, pl. 1, fig. 18. Holotype, 7122, Mo. Sch. Min., Rolla, lower Marathon fm., loc. G223, Tex. LO

——**erectus** PANDER (1856), p. 21, pl. 1, fig. 1, type species for *Acodus.* Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ULRICH & BASSLER (1926), p. 7, fig. 2, subfig. 3, two large side view spms. Pander's pl. 1, fig. 1a is left fig. and pl. 1, fig. 1b is rt. fig.; ——— HOLMES (1928), p. 5, pl. 1, fig. 23. Pander's pl. 1, fig. 1a is fig. 23 left and pl. 1, fig. 1b is fig. 23 rt.; ——— FURNISH (1938), p. 325; ——— BRANSON & MEHL (1944), p. 239; ——— GLAESSNER (1945), p. 26, fig. 2, subfig. 3, after Ulrich & Bassler (1926). LO

——**expansus** GRAVES & ELLISON (1941), pp. 3, 7-8, pl. 1, fig. 6. Holotype, 7123, Mo. Sch. Min., Rolla, lower Marathon fm., loc. G223, Tex. LO

——**formosus** STAUFFER (1938), pp. 412, 417, pl. 49, fig. 33. Holotype, B4905, Univ. Minn., Olentangy sh. (probably admixture), locs. 147 (fig.), 148, Ohio; and 152, Ont.; ——— STAUFFER (1940), p. 418, now a sr. syn. of *Acodina;* ——— BRANSON & MEHL (1941d), p. 205. O

——**inopinatus** STAUFFER (1938), pp. 412, 417, pl. 49, figs. 23, 34-35. Syntypes, B4906 (fig. 23), B4904 (fig. 34), B4903 (fig. 35), Univ. Minn., Olentangy sh. (probably admixture), locs. 147 (figs. 23, 34), 114, 148, Ohio; 176 (fig. 35), 153, 161, 178, Ont.; ——— STAUFFER (1940), p. 418, now a sr. syn. of *Acodina;* ——— BRANSON & MEHL (1941d), p. 205. O

——**oneotensis** FURNISH (1938), pp. 321, 325, pl. 42, figs. 26-29; fig. 1N same as pl. 42, fig. 28. Syntypes, 1249a (fig. 29), 1249b (fig. 28), 1251 (fig. 27), 1253 (fig. 26), Univ. Iowa, common in Oneota fm. of Iowa (fig. 26) and Minn. (figs. 27-29); ——— STAUFFER & THIEL (1941), p. 246; ——— GRAVES & ELLISON (1941), p. 8, comp. with *Acodus expansus.* LO

——**planus** PANDER (1856), p. 22, pl. 1, fig. 9, Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1860), p. 663; ——— HOLMES (1928), p. 5, pl. 1, fig. 24. Pander's pl. 1, fig. 9a is fig. 24 left and fig. 9b is fig. 24 rt. LO

——**sigmoideus** PANDER (1856), p. 21, pl. 1, fig. 11, Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 5, pl. 1, fig. 25. Pander's pl. 1, fig. 11b is fig. 25 left; 11a is fig. 25 middle, and 11c is fig. 25 rt. LO

——? **simplex** GUNNELL (1931b), pp. 245-246, pl. 29, fig. 2, mid. sh. Ft. Scott fm., Mo.; ——— HARRIS & HOLLINGSWORTH (1933), p. 195. MP

——**unicostatus** BRANSON & BRANSON (1947), p. 554, pl. 82, figs. 9-10, 41, 43. Holotype, C678-3 (fig. 41); paratypes, C678-1 (figs. 9-10, 43), Univ. Mo., Brassfield fm., locs. 1784 (fig. 41), 1788 (figs. 9-10, 43), 1799, 1826, 1840, Ky. LS

——**zionensis** STAUFFER (1938), pp. 412, 417-418, pl. 49, fig. 30. Holotype, B4907, Univ. Minn., Olentangy sh. (probably admixture) loc. 147, Ohio; ——— STAUFFER (1940), pp. 418-419, now a sr. syn. of *Acodina;* ——— BRANSON & MEHL (1941d), p. 205. O

——**n. sp.** BRANSON (1944), p. 52, pl. 7, figs. 1-4, after Mehl and Ryan, from William Ryan's master's thesis (1940), Univ. Mo., Jefferson City fm., Mo. LO

ACONTIODUS PANDER (1856), pp. 19, 28, 90. Type species, *A. latus* PANDER (1856); ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1858) (*Acantiodus*), p. 339; ——— EICHWALD (1860), p. 664; ——— BOCK (1869), p. 109, map; ——— ZITTEL (1890) (*Acantiodus*), p. 59; ——— ROHON (1894), p. 9; ——— BASSLER (1925), p. 218; ——— ULRICH & BASSLER (1926), pp. 5-7; ——— HOLMES (1928), pp. 2, 5; ——— BRANSON & MEHL (June 1933d), p. 57, Pander's desc. given; ——— HUDDLE (1934), p. 34; ——— STAUFFER (1935b), p. 601, Pander's desc. trans.; ——— ZEBERA (1936b), p. 189; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334; ——— FURNISH (1938), pp. 323, 325-326; ——— STAUFFER (1940), p. 418, comp. with *Acodina;* ——— BRANSON & MEHL (1941d), pp. 205-206; ——— GRAVES & ELLISON (1941), p. 9; ——— AMSDEN & MILLER (1942), pp. 303, 306; ——— BRANSON & MEHL (1944), pp. 239-240; ——— ELLISON (Jan. 1946), pp. 94, 100, 107, *Acodina* is a jr. syn. of *Acontiodus,* simple cone type, upper half of Beekmantown through Black River. L-MO

——**abnormalis** BRANSON & MEHL (June 1933d), p. 57, pl. 4, figs. 24-25. Cotypes, C303-5, Univ. Mo., Jefferson City fm., Mo.; ——— GRAVES & ELLISON (1941), p. 9, comp. with *Acontiodus dubius;* ——— BRANSON (1944), p. 54. LO

——**alveolaris** STAUFFER (1935b), pp. 601-602, pl. 74, fig. 44. Holotype, B4677, Univ. Mo., Decorah sh., Spechts Ferry memb., loc. 40, Minn.; ——— FURNISH, BARRAGY, & MILLER (1936) (*aff. alveolaris* on pl.), p. 1334, pl. 2, fig. 1. Fig. spm., 1196, Univ. Iowa, lower Whitewood siltstone, S. D.; ——— FURNISH (1938), p. 325; ——— STAUFFER & THIEL (1941), p. 241. MO

——**dubius** GRAVES & ELLISON (1941), pp. 5, 7, 9, pl. 2, fig. 1. Holotype, 7124, Mo. Sch. Min., Rolla, basal Wood's Hollow fm., loc. G502, Tex. MO

——**gracilis** PANDER (1856), p. 28, pl. 2, figs. 2a-c; pl. A to p. 20, fig. 7b, Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL & ROHON (1886), p. 116, comp. Pander's pl. 2, fig. 2a with *Drepanodus sp.* Zittel & Rohon (1886), pl. 1, fig. 1 H; ——— HOLMES (1928), p. 5, pl. 1, fig. 26, Pander's pl. 2, fig. 2b is fig. 26 left; fig. 2a is fig. 26 mid., and fig. 2c is fig. 26 rt. LO

——**iowensis** FURNISH (1938), pp. 320-321, 325-326, pl. 42, figs. 16-17; fig. 1 L same as pl. 42, figs. 16-17. Syntypes, 1256 (fig. 16), 1257 (fig. 17), 1258-1259, Univ. Iowa, common in Oneota fm., Iowa (fig.) and Minn.; ——— STAUFFER & THIEL (1941), p. 246. LO

——**latus** PANDER (1856), p. 28, pl. 2, figs. 1a-c; pl. A to p. 20, fig. 7a, Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ULRICH & BASSLER (1926), p. 7, fig. 2, subfig. 4, Pander's pl. 2, fig. 1a is left fig.; 1b is mid. lower fig.; 1c is rt. fig.; pl. A to p. 20, fig. 7a is mid. upper fig.; ——— HOLMES (1928), p. 5, pl. 1, fig. 27, Pander's pl. 2, fig. 1a is left fig.; 1b is mid. fig.; 1c is rt. fig.; ——— BRANSON & MEHL (June 1933d), p. 57; ——— FURNISH (1938), pp. 325-326, comp. with *Acontiodus iowensis;* ——— BRANSON & MEHL (1944), p. 239; ——— GLAESSNER (1945), p. 26, fig. 2, subfig. 4, after Ulrich & Bassler (1926). LO

——**propinquus** FURNISH (1938), pp. 320, 326, pl. 42, figs. 13-15; fig. 1 M, same as pl. 42, figs. 13-14. Syntypes, 1260-1262, Univ. Iowa, common in Oneota blue earth beds, Minn. and ? Iowa; ——— STAUFFER & THIEL (1941), p. 246. LO

——**staufferi** FURNISH (1938), pp. 320, 326, pl. 42, figs. 11-12; fig. 1 K, same as pl. 42, fig. 11. Syntypes, 1263-1264, Univ. Iowa, comp. with *Acontiodus iowensis,* rare in Shakopee dol., Wis. LO

——**triangularis** PANDER (1856) (*triangulosus* on pl. 2), p. 28, pl. 2, figs. 35a-d; pl. A to p. 20, fig. 7c, Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1860), p. 664; ——— HOLMES (1928), p. 5, pl. 1, fig. 28, Pander's pl. 2, fig. 35b is left fig.; 35a is mid. left fig.; 35c is mid. rt. fig.; and 35d is rt. fig.; ——— BRANSON & MEHL (June 1933d), p. 57. LO

——**sp.** GRAVES & ELLISON (1941), pp. 4, 7, pl. 2, fig. 24. Fig. spm., 1818, Mo. Sch. Min., Rolla, upper Ft. Pena beds, loc. G409, Tex. MO

——**sp.** AMSDEN & MILLER (1942), p. 303, fig. 2 A. Fig. spm., 1618, Univ. Iowa, Bighorn ss., Wyo. MO

——**sp.** BRANSON & MEHL (1944), p. 239, pl. 93, figs. 28-29, 43, Tremadoc, Estonia. LO

——**n. sp.** BRANSON (1944), pp. 89-90, pl. 13, figs. 9-13, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

AMBALODUS BRANSON & MEHL (July 1933c), pp. 122, 127. Type species, *A. triangularis* BRANSON & MEHL (July 1933c); ——— HUDDLE (1934) (*Amabalodus*), p. 35; ——— GRAVES & ELLISON (1941), p. 5; ——— BRANSON & MEHL (1944) (*Ambolodus*), p. 237; ——— ELLISON (Jan. 1946) (*Ambolodus*), pp. 94, 107, fibrous type, confined to Richmond. UO

——**triangularis** BRANSON & MEHL (July 1933c), pp. 127-128, pl 10, figs. 35-37. Cotypes, C99-1, Univ. Mo., Thebes ss., Mo.; ——— GRAVES & ELLISON (1941), pp. 5, 7, pl. 3, figs. 29, 33-35. Hypotypes, 4756 (figs. 29, 33), 4757 (fig. 34), 4750 (fig. 35), Mo. Sch. Min., Rolla, Maravillas fm., locs. G616 (figs. 29, 33), G620 (fig. 34), G614 (fig. 35), G607, G601, Tex.; ——— IMBT (1941), p. 148, Maquoketa sh., Kans.; ——— BRANSON & MEHL (1944) (*Ambolodus* p. 237), p. 237, pl. 93, figs. 7-8; ——— BRANSON (1944), p. 95, after Branson & Mehl (July 1933c). UO

AMORPHOGNATHUS BRANSON & MEHL (July 1933c), pp. 122, 126-127. Type species, *A. ordovicica* BRANSON & MEHL (July 1933c); M-UO

——— HUDDLE (1934), p. 35; ——— GRAVES & ELLISON (1941), p. 5; ——— BRANSON & MEHL (1944), p. 237; ——— ELLISON (Jan. 1946), pp. 94, 97, 107, 109, *Polyplacognathus* is a jr. syn. of above, fibrous type, Trenton through Upper Ord.

——**ordovicica** BRANSON & MEHL (July 1933c), pp. 126-127, pl. 10, fig. 38. Holotype, C97-5, Univ. Mo., Thebes ss., Mo.; ——— GRAVES & ELLISON (1941), pp. 5, 7, pl. 3, figs. 32, 36-38. Hypotypes, 4760 (fig. 32), 4761-4763 (figs. 36-38), Mo. Sch. Min., Rolla, Maravillas fm., locs. G620 (fig.), G601-G602, G606-G607, G610-G611, G616, Tex.; ——— IMBT (1941), p. 148, Maquoketa sh., Kans.; ——— BRANSON & MEHL (1944), p. 237; ——— BRANSON (1944), p. 95, after Branson & Mehl (July 1933c). UO

——**ramosa** (BRANSON & MEHL) (1944), p. 237, pl. 93, figs. 5-6, Decorah sh., Minn., Kimmswick ls., Mo. (Perhaps *Polyplacognathus* is a jr. syn.); ——— BRANSON (1944), pp. 81, 89, pl. 12, figs. 33-36, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——**n. sp.** BRANSON (1944), pp. 81, 92, pl. 12, figs. 30-31, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——**sp.** BRANSON (1944), p. 81, pl. 12, fig. 32, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

ANCYRODELLA ULRICH & BASSLER (1926), pp. 6, 43-44, 48. Type species, *A. nodosa* ULRICH & BASSLER (1926); ——— HOLMES (1928), pp. 3, 5; ——— BRANSON & MEHL (June 1934a), pp. 238, 240, comp. with *Polygnathus* and *Ancyrognathus;* ——— BRANSON & MEHL (Oct. 1934a), pp. 265, 267; ——— HUDDLE (1934), p. 35; ——— CHADWICK (Feb. 1935a), p. 318; ——— BRANSON & MEHL (1938a), p. 157; ——— BRANSON & MEHL (1938d), p. 129; ——— BRANSON (1938c), p. 179; ——— BRANSON & MEHL (1941d), p. 202; ——— BRANSON & MEHL (1941e), p. 102, comp. with *Staurognathus;* ——— BRANSON & MEHL (1944), p. 244; ——— YOUNGQUIST (1945), p. 356; ——— ELLISON (Jan. 1946), pp. 94, 101, 104, 108, platform type, Hamilton through Upper Dev., found in Bushberg ss.; ——— CAMPBELL (1946), pp. 852-853, 876, char. of Blackiston fm. and does not range above its boundary; partly used to correlate lower Blackiston with Huron sh.; ——— YOUNGQUIST & MILLER (Dec. 1946), p. 1247; ——— YOUNGQUIST (1947), pp. 95-96, 110-111; ——— HASS (Mar. 1947), pp. 135, 137, restricted to the Dev.; ——— MILLER & YOUNGQUIST (1947), pp. 501-502, 504, comp. with *Ancyroides;* ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 49; ——— YOUNGQUIST & MILLER (1948), p. 440; ——— COOPER (July 1948a), p. 358, found in Blackiston fm. but not above it; ——— CLOUD & BARNES (1948), p. 317, red siliceous rock 21 in. below Ives breccia, loc. 16T-2-32C, Tex. UD

——**buckeyensis** STAUFFER (1938), pp. 412, 418, pl. 52, figs. 17-18, 23-24. Syntypes, B4942 (figs. 17-18), B4945 (figs. 23-24), Univ. Minn., Olentangy sh., locs. 112 (figs. 17-18), 118, 120 (figs. 23-24), Ohio; ——— YOUNGQUIST (1945), pp. 355-356, pl. 54, fig. 11. Plesiotype, 2903, Univ. Iowa, comp. with *Ancyrodella nodosa, hamata, lobata,* Independence sh.?, Iowa; ——— YOUNGQUIST (1947), p. 110, comp. with *Polygnathus rotundiloba.* UD

——**gigas** YOUNGQUIST (Mar. 1947), pp. 96-97, pl. 25, fig. 23. Holotype, 3358 (fig. 23); paratype, 3359 (unfig.), Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——**hamata** ULRICH & BASSLER (1926), pp. 44, 48, pl. 7, fig. 7; fig. 5, subfig. 10. Holotype, 11011, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 5; ——— BASSLER (1932), p. 234, pl. 26, fig. 14; ——— COOPER (1935), p. 310, pl. 27, fig. 39. Fig. spm., 38089, Univ. Chi., Ark. novaculite, beds 7, 13 (mid.), bed B (upper), Ark.; ——— YOUNGQUIST (1945), p. 356, comp. with *Ancyrodella buckeyensis;* ——— MILLER & YOUNGQUIST (1947), p. 503, comp. with *Ancyrodella lobata.* UD-LMi

——**lobata** BRANSON & MEHL (June 1934a), pp. 239-240, pl. 19, fig. 14; pl. 21, figs. 22-23. Cotypes, C245-1 (figs. 14, 22), C245-3 (fig. 23), Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), pp. 153, 158, pl. 26, figs. 43-44, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BRANSON (1944), p. 162, after Branson & Mehl (June 1934a); ——— YOUNGQUIST (1945), p. 356, comp. with *Ancyrodella buckeyensis;* ——— CAMPBELL (1946), p. 844, ident. by Huddle, basal Blackiston fm., Ind.; ——— MILLER & YOUNGQUIST (1947), pp. 502-503, pl. 74, figs. 10-12. Fig. spms., 5524, Univ. Iowa, *Ancyrodella sp.* Branson & Mehl (1944), p. 244, pl. 94, figs. 42-43 is classed as jr. syn., comp. with *Ancyrodella hamata, magister, subrotunda,* Sweetland Creek sh., Iowa. UD

——**magister** MILLER & YOUNGQUIST (1947), p. 503, pl. 74, fig. 14. Holotype, 5525, Univ. Iowa, comp. with *Ancyrodella lobata, subrotunda,* Sweetland Creek sh., Iowa. UD

——**malleus** ULRICH & BASSLER (1926), p. 49, pl. 7, figs. 1, 2. Cotypes, 11006, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 5; ——— BASSLER (1932), p. 234, pl. 26, fig. 13; ?——— WETZEL (1940), p. 76, Form VII is comp. with Ulrich & Bassler's (1926), pl. 7, fig. 1. UD

——**minutanodosa** BRANSON & MEHL (June 1934a), p. 239, pl. 19, figs. 12-13. Cotypes, C223-5 (figs. 12-13), C62-1 (unfig.), Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——**nodosa** ULRICH & BASSLER (1926), pp. 44, 48, pl. 1, figs. 10-13; fig. 5, subfigs. 8-9. Cotypes, 11303, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928), pp. 5-6; ——— EICHENBERG (1930), pp. 179, 181, comp. Eichenberg's figs. 23, 27-28 with Ulrich & Bassler's (1926) pl. 1, figs. 10-11; ——— BRANSON & MEHL (July 1933d), p. 147, *Polygnathus cristata* Clarke (1887), pl. A 1, fig. 1 is classed as a sr. syn.; ——— CHADWICK (Feb. 1935a), p. 316, diagnostic species confined to Naples gr.; ——— BRANSON & MEHL (1944), p. 244; ——— YOUNGQUIST (1945), p. 356, comp. with *Ancyrodella* UD

buckeyensis; ——— YOUNGQUIST & MILLER (1948), p. 441, pl. 68, figs. 13-14. Fig. spms., 5581-5582, Univ. Iowa, Sweetland Creek sh., Iowa.

——**plena** STAUFFER (1938), pp. 412, 418, pl. 52, figs. 21-22. Holotype, B4944, Univ. Minn., Olentangy sh., locs. 112 (fig.), 125, Ohio; ——— MILLER & YOUNGQUIST (1947), p. 503, comp. with *Ancyrodella subrotunda* and *Ancyrodella sp.* Miller & Youngquist (1947), pl. 74, fig. 13. UD

——**robusta** STAUFFER (1938), pp. 412, 418, pl. 52, figs. 28-29. Holotype, B4948, Univ. Minn., Olentangy sh., loc. 110, Ohio; ——— MILLER & YOUNGQUIST (1947), p. 503, comp. with *Ancyrodella subrotunda.* UD

——**rugosa** BRANSON & MEHL (June 1934a) p. 239, pl. 19, figs. 15, 17. Holotype, C224-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——**subrotunda** MILLER & YOUNGQUIST (1947), p. 503, pl. 74, fig. 17. Holotype, 5526, Univ. Iowa, comp. with *Ancyrodella lobata, magister,* Sweetland Creek sh., Iowa. UD

——**symmetrica** ULRICH & BASSLER (1926), p. 49, pl. 8, fig. 1. Holotype, 11008, USNM, comp. with *Ancyrodella malleus,* Hardin ss., Tenn.; ——— EDINGER (1926), p. 287, fig. 2 upper left cor., same as pl. 8, fig. 1 of Ulrich & Bassler (1926); ——— HOLMES (1928), p. 6. UD

——**tuberculata** (ULRICH & BASSLER) (1926), p. 49, comp. with *Ancyrodella symmetrica,* Genundewa ls., N. Y. (*Polygnathus*).

——**sp.** BRANSON & MEHL (1944), p. 244, pl. 94, figs. 42-43; ——— MILLER & YOUNGQUIST (1947), p. 502, classed as jr. syn. of *Ancyrodella lobata.* UD

——**n. sp.** BRANSON (1944), p. 153, pl. 26, fig. 42, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——**sp.** MILLER & YOUNGQUIST (1947), pp. 503-504, pl. 74, fig. 13. Fig. spm., 5527, Univ. Iowa, comp. with *Ancyrodella plena,* Sweetland Creek sh., Iowa. UD

——**sp.** LAYER *et al.* (1949), p. 594, D-3 zone 875 ft. below D-2 zone, Alta., Can. UD

ANCYROGNATHUS BRANSON & MEHL (June 1934a), pp. 181, 184, 240. Type species, *A. symmetricus* BRANSON & MEHL (June 1934a); ——— BRANSON & MEHL (Oct. 1934a), p. 265; ——— E. R. BRANSON (1934), p. 334; ——— STAUFFER (1935b), p. 602; ——— STAUFFER (1935b) (ab)Z (1937), p. 180, Branson & Mehl state that this name is probably incorrectly applied by Stauffer, because its range is near the Upper Dev. and not the Mid. Ord.; ——— BRANSON & MEHL (1938a), p. 157; ——— BRANSON & MEHL (1938d), pp. 129, 133; ——— BRANSON (1938c), p. 179; ——— BRANSON & MEHL (1941d), p. 202; ——— BRANSON & MEHL (1941e), p. 102, comp. with *Staurognathus;* ——— BRANSON & MEHL (1944), p. 244; ——— ELLISON (Jan. 1946), pp. 94, 101, 104, 108, platform type, Hamilton through Upper Dev., found in Bushberg ss.; ——— CAMPBELL (1946), p. 852, char. of Blackiston fm. and does not range above its boundary; ——— BOND (1947), p. 26; ——— YOUNGQUIST (1947), pp. 96-97; ——— HASS (Mar. 1947), pp. 132, 137, restricted to Dev., lower Ohio sh., Ohio; ——— MILLER & YOUNGQUIST (1947), p. 504, comp. with *Ancyroides;* ——— WELLER *et al.* (Feb. 1948), p. 103, partly used to draw Miss.-Dev. break at base of Hannibal sh., occurs in undoubted Dev. strata, possibly persists into beds younger than New Albany sh.; ——— COOPER (July 1948a), p. 358, found in Blackiston fm. but not above it; ——— CLOUD & BARNES (1948), p. 317, Lower Miss. Ives breccia, loc. 16T-2-32C, red siliceous rock 21 in. below Ives breccia, Tex.; ——— THOMAS (1949), pp. 407, 416, 418, abundant in Maple Mill sh. UD

——**asteroideus** STAUFFER (1938), pp. 412, 418, pl. 52, figs. 8-9. Holotype, B4753, Univ. Minn., Olentangy sh., loc. 110, Ohio. UD

——**asymmetrica** (CAMPBELL) (1946), pp. 844, 894, ident. by Huddle, basal Blackiston fm., Ind. (common); also from Hardin ss., Tenn. with ref. to Ulrich & Bassler (1926). (Perhaps *Palmatolepis* was the sr. syn.) UD

——**bifurcata** (BRANSON) (1944), pp. 153, 158, pl. 26, fig. 31, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— (CAMPBELL) (1946), pp. 844, 894, ident. by Huddle, basal Blackiston fm., Ind. (common); also from Hardin ss., Tenn. with ref. to Ulrich & Bassler (1926) (perhaps *Palmatolepis* was the sr. syn.); ——— (HASS) (Mar. 1947), pp. 134-135, lower Ohio sh., Ohio. UD

——**bryanti** (BRANSON) (1944), pp. 153, 158, pl. 26, fig. 39, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. (Perhaps *Euprioniodina* was the sr. syn.) UD

——**cava** YOUNGQUIST (Mar. 1947), p. 97, pl. 24, fig. 3. Holotype, 3360, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——**curvata** BRANSON & MEHL (June 1934a), p. 241, pl. 19, figs. 6, 11. Cotypes, C245-2 (fig.), C244-4 (unfig.), Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——**euglypheus** STAUFFER (1938), pp. 412, 418-419, pl. 53, fig. 18. Holotype, B4972, Univ. Minn., Olentangy sh., loc. 112, Ohio; ——— MILLER & YOUNGQUIST (1947), pp. 504-505, sr. syn. of *Ancyroides.* UD

——**inequalis** (CAMPBELL) (1946), pp. 844, 901, ident. by Huddle, lower Blackiston fm. (common), Ind. (perhaps *Palmatolepis* was the sr. syn.). UD

——**iowaensis** YOUNGQUIST (Mar. 1947), p. 97, pl. 25, fig. 22. Holotype, 3361 (fig.); paratype, 3362 (unfig.), Univ. Iowa, comp. with *Ancyrognathus cava,* unnamed sh. 1½ mi. NE of N. Liberty, Iowa; ——— MILLER & YOUNGQUIST (1948), p. 441, comp. with *Ancryoides ornatissimus.* UD

——**irregularis** BRANSON & MEHL (June 1934a), p. 242, pl. 19, figs. 1-2, 4, 10, 16. Types, C242-1 (fig. 1), C243-2 (figs. 4, 16), C222-5 (fig. 2), C328-2 (fig. 10), Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162; ——— BRANSON (1944), p. 173, Louisiana ls., Mo.; ——— BOND (1947), pp. 21, 26, pl. 2, fig. 26. Hypotype, 18417, Ohio Univ., lower Ohio sh., Ohio; ——— YOUNGQUIST (1947), pp. 97-98, pl. 25, fig. 21. Hypotype, 3363, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa; ——— THOMAS (1949), p. 408, pl. 1, fig. 11. Fig. spm., UD

C834-1, Univ. Mo., Maple Mill sh., loc. 14, Iowa.

——**minuta** THOMAS (1949), pp. 408, 416, pl. 1, fig. 20. Holotype, C833-1, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——**quadrata** BRANSON & MEHL (June 1934a), pp. 192, 241, pl. 19, figs. 3, 5. Cotypes, C329-5, Univ. Mo., comp. with *Spathodus ? ornatus*, Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——**symmetrica** BRANSON & MEHL (June 1934a), pp. 240-242, pl. 19, figs. 7-9. Cotypes, C328-1 (figs. 8-9), C223-3 (fig. 7), Univ. Mo., type species for *Ancyrognathus*, comp. with *Ancyrognathus curvata* and *irregularis*, Grassy Creek sh., Mo.; ———? E. R. BRANSON (1934), p. 334, pl. 25, fig. 2. Fig. spm., C211-2, Univ. Mo., Hannibal fm., Mo.; ———? BRANSON & MEHL (1938d), p. 133; ——— BRANSON & MEHL (1944), p. 244, pl. 94, figs. 27-28; ——— BRANSON (1944), pp. 153, 158, pl. 26, figs. 28, 32-36, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BRANSON (1944), p. 162. UD-LMi

——**triangularis** YOUNGQUIST (1945), pp. 356-357, pl. 54, fig. 7. Syntypes, 2904 (fig.), 2905 (unfig.), Univ. Iowa, Independence sh.?, Iowa. UD

——? **sp. a** STAUFFER (1935b), p. 602, pl. 75, fig. 24. Fig. spm., B4707, Univ. Minn., Spechts Ferry memb. (basal 1 in.) loc. 40, Minn.; ——— STAUFFER & THIEL (1941) (*Anchyrognathus*), p. 241. MO

——? **sp. b** STAUFFER (1935b), p. 602, pl. 75, figs. 60-61. Fig. spms., B4740, Univ. Minn., Spechts Ferry memb. (basal 1 in.) loc. 40, Minn.; ——— STAUFFER & THIEL (1941) (*Anchyrognathus*), p. 241. MO

——**sp.** STAUFFER (1938), p. 412, Olentangy sh., loc. 187, Ohio. UD

——**n. sp.** BRANSON (1944), p. 153, pl. 26, figs. 29-30, 37-38, 40, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— YOUNGQUIST & PETERSON (1947), p. 252, now a sr. syn. of *Polygnathus verrucosa*. UD

ANCYROIDES MILLER & YOUNGQUIST (1947), pp. 502, 504. Type species, *A. princeps* MILLER & YOUNGQUIST (1947); ——— YOUNGQUIST & MILLER (1948), pp. 440-442. UD

——**calvini** MILLER & YOUNGQUIST (1947), pp. 504-505, pl. 75, fig. 4. Holotype, 5528, Univ. Iowa, comp. with *Ancyroides princeps*, Sweetland Creek sh., Iowa; ——— YOUNGQUIST & MILLER (1948), p. 441, pl. 68, fig. 16. Fig. spm., 5583, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**euglypheus** (MILLER & YOUNGQUIST) (1947), p. 505, pl. 75, fig. 6. Fig. spm., 5529, Univ. Iowa, comp. with *Ancyroides princeps*, Sweetland Creek sh., Iowa (*Ancyrognathus*). UD

——**ornatissimus** YOUNGQUIST & MILLER (1948), p. 441, pl. 68, fig. 18. Holotype, 5584, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**princeps** MILLER & YOUNGQUIST (1947), pp. 504-505, pl. 75, figs. 2-3. Holotype, 5530 (fig. 3); paratype, 5531 (fig. 2), Univ. Iowa, type species for *Ancyroides*, Sweetland Creek sh., Iowa; ——— MILLER & YOUNGQUIST (1948), p. 441, pl. 68, fig. 20. Fig. spm., 5585, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——? **rudis** YOUNGQUIST & MILLER (1948), p. 442, pl. 68, fig. 19. Holotype, 5586, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**uddeni** MILLER & YOUNGQUIST (1947), pp. 505-506, pl. 74, fig. 16; pl. 75, fig. 5. Holotype, 5532 (fig. 5); paratype, 5533 (fig. 16), Univ. Iowa, comp. with *Ancyroides princeps*, Sweetland Creek sh., Iowa; ——— YOUNGQUIST & MILLER (1948), p. 442, pl. 68, fig. 15. Fig. spm., 5587, Univ. Iowa, Sweetland Creek sh., Iowa. UD

ANGULODUS HUDDLE (1934), pp. 26, 35-36, 57, 76. Type species, *A. demissus* HUDDLE (1934), comp. with *Metaprioniodus;* ——— COOPER (1939), p. 385; ——— STAUFFER (1940), p. 419; ——— BRANSON & MEHL (1944), p. 240; ——— ELLISON (Jan. 1946) (*Angolodus*), pp. 95, 104, 108, confined to Upper Dev., bar type; ——— YOUNGQUIST & MILLER (1948), pp. 440, 442. M?D-LMi

——**compressus** YOUNGQUIST & PETERSON (1947), p. 244, pl. 36, fig. 6. Holotype, 4060, Univ. Iowa, Sheffield fm., Iowa. UD

——**demissus** HUDDLE (1934), pp. 16, 76-77, pl. 10, fig. 15. Holotype, 2341, Ind. Univ., type species for *Angulodus*, rare in lower New Albany sh., locs. 27 (fig.), 28, Ind.; ——— BRANSON & MEHL (1944), p. 240, pl. 93, fig. 58. M?D

——**elongatus** STAUFFER (1940), pp. 419-420, pl. 58, figs. 1, 8, 21-22. Holotype, B5525 (fig. 1); paratypes, B5532 (fig. 8), B5544 (figs. 21-22), Univ. Minn., clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. MD

——**gravis** HUDDLE (1934), pp. 16, 77, pl. 3, figs. 3-4. Holotype, 1873 (fig. 3); paratype, 1874 (fig. 4), Ind. Univ., rare in mid. New Albany sh., locs. 20 (fig.), 21, Ind. UD

——**spissus** HUDDLE (1934) (*Angolodus* p. 78), pp. 16, 78, pl. 10, fig. 7. Holotype, 2286, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind.; ——— COOPER (1939) (*cf. spissus*), pp. 385, 419, pl. 47, fig. 78. Hypotype, 38801, Univ. Chi., pre-Welden sh., Okla. UD-LMi

——**walrathi** (HUDDLE) (1934) (*Angolodus*), pp. 16, 77-78, pl. 4, fig. 15; pl. 10, fig. 5. Plesiotypes, 2338 (fig. 15), 2339 (fig. 5), Ind. Univ., rare in upper New Albany sh., locs. 1 (fig.), 2-3, 6, 8, 10, (*Hindeodella*). LMi

——**sp.** STAUFFER (1940), p. 420, pl. 58, figs. 27, 30, 34. Fig. spms., B5549 (fig. 27), B5552 (fig. 30), B5556 (fig. 34), Univ. Minn., clay above ls., Minn. MD

——**sp.** STAUFFER (1944), p. 257, Olentangy sh., in ls. mine, Barberton, Ohio. UD

——**sp.** YOUNGQUIST (1945), p. 357, pl. 54, fig. 13. Fig. spms., 2906 (fig. 13), 2907 (unfig. 9 spms.), Univ. Iowa, Independence sh.?, Iowa. UD

——? **sp.** YOUNGQUIST & PETERSON (1947), p. 244, pl. 36, fig. 5. Fig. spm., 4061, Univ. Iowa, Sheffield fm., Iowa. UD

——**sp.** YOUNGQUIST & MILLER (1948), p. 442, pl. 67, fig. 17. Fig. spm., 5588, Univ. Iowa, Sweetland Creek sh., Iowa. UD

APATOGNATHUS BRANSON & MEHL (June 1934a), pp. 181, 184, 201. Type species, *A. varians* BRANSON & MEHL (June 1934a); ——— COOPER (1939), p. 385; ——— BRANSON & UD-?LMi

MEHL (1944), p. 240; ——— ELLISON (Jan. 1946) (*Apatagnathus*), pp. 95, 97, 104, 108, confined to Upper Dev., bar type; ——— WELLER *et al.* (Feb. 1948), p. 103, pt. used to draw Miss.-Dev. break at base Hannibal sh., possibly persists into beds younger than New Albany sh.

——**varians** BRANSON & MEHL (June 1934a), pp. 201-202, pl. 17, figs. 1-3. Cotypes, C227-5, Univ. Mo., Grassy Creek sh., Mo.; ——— COOPER (1939) (? *varians*), pp. 385, 419, pl. 47, fig. 30. Fig. spm., 38802, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON & MEHL (1944), p. 240, pl. 93, figs. 59-61; ——— BRANSON (1944), p. 162, Grassy Creek sh., Mo. UD-LMi

——**sp.** BRANSON (1944), p. 162, Grassy Creek sh., Mo. UD

——**sp.** LAYER *et al.* (1949), p. 594, D-3 zone 875 ft. below top D-2 zone, Alta., Can. UD

ARCHEOGNATHUS CULLISON (1938), pp. 219, 227. Type species, *A. primus* CULLISON (1938); ——— CAMP, TAYLOR, & WELLES (1942), p. 467, Pisces, *incertae sedis;* ——— ELLISON (Jan. 1946), p. 108, simple cone, may be a true conodont; ——— MILLER, CULLISON, & YOUNGQUIST (1947), p. 33. MO

——? **carinatus** CULLISON (1938), p. 228, pl. 29, fig. 17. Holotype, 7120, Mo. Sch. Min., Rolla, basal mid. Dutchtown fm., Mo.; ——— CAMP, TAYLOR, & WELLES (1942), p. 467, Pisces, *incertae sedis;* ——— BRANSON (1944), p. 66; ——— MILLER, CULLISON, & YOUNGQUIST (1947), p. 33. MO

——**primus** CULLISON (1938), pp. 227-228, pl. 29, figs. 16a, b. Holotype, 7119, Mo. Sch. Min., Rolla, 6 ft. above base mid. Dutchtown fm., Mo.; ——— CAMP, TAYLOR, & WELLES (1942), p. 467, Pisces, *incertae sedis;* ——— BRANSON (1944), p. 66; ——— ELLISON (1944), p. 139; ——— MILLER, CULLISON, & YOUNGQUIST (1947), pp. 31-32, 34, pl. 1, 2 figs. Holotype, 584, Univ. Iowa (newly moved). MO

ARCUGNATHUS COOPER & SLOSS (1943), p. 172. Type species, *A. tenuis* COOPER (1943); ——— ELLISON (Jan. 1946), p. 108, probably a fragment of *Hindeodella,* Lower Miss., bar type. LMi

——**tenuis** COOPER & SLOSS (1943), pp. 170, 172-173, pl. 29, fig. 15, black sh. base Madison gr., Alta., Can. LMi

ASTACODERMA HARLEY (1861), p. 549. Harley includes many Crustacean remains, possibly some fish remains, and conodonts under this general name, in the belief that these assemblages all belonged to the same animal; ——— HARLEY (1861) (ab)N (1862), p. 748; ——— BIGSBY (1868), p. 72; ——— HINDE (1879), p. 351; ——— HINDE (1879) (ab)N (1881), p. 106; ——— ZITTEL & ROHON (1886), pp. 110, 129; ——— PERNER (1894) (*Astacodermata*), p. 2. US

——**serratum** HARLEY (1861), pp. 546, 550, pl. 17, fig. 15. Fig. spm., A6935a, British Mus., Ludlow Bone bed, Eng. Named *Gnathodus mosquensis* and is "the serrated margin of some carapace or body-ring."; ——— HARLEY (1861) (ab)N (1862), p. 748; ——— BIGSBY (1868), p. 72. US

——**spinosum** HARLEY (1861), p. 550, pl. 17, figs. 16 a, b. Fig. spm., A6935b, British Mus., Ludlow Bone bed, Eng. Corresponds to *Acodus* and is the "spines of *Ceratiocaris,* or of some squilloid Crustacean"; ——— HARLEY (1861) (ab)N (1862), p. 748; ——— BIGSBY (1868), p. 72. US

BACTROGNATHUS BRANSON & MEHL (1941e), pp. 98, 100-101. Type species, *B. hamata* BRANSON & MEHL (1941e); ——— BRANSON & MEHL (1941a), p. 168; ——— BRANSON & MEHL (1944), p. 243; ——— ELLISON (Jan. 1946), pp. 95, 97, 108, upper Kinderhook through lower Osage, blade type; ——— MEHL & THOMAS (1947) (*Bractrognathus,* p. 8), pp. 6-8; ——— COOPER (July 1948a), pp. 361-362, indicative of a break above the Rockford ls.; ——— THOMAS (1949), p. 429. MMi

——**angularis** BRANSON & MEHL (1941e), p. 99, pl. 19, figs. 9, 18-19. Holotype, C419-1 (figs. 18-19), C573-4 (fig. 9), Univ. Mo., Sycamore fm., Okla.; ——— BRANSON & MEHL (1944), p. 243, pl. 94, figs. 15-16. MMi

——**claviger** (BRANSON & MEHL) (1941e), pp. 99-100. (*Polygnathus*).

——**distorta** BRANSON & MEHL (1941e), p. 99, pl. 19, figs. 10-11. Holotype, C421-1 (C521-1 on plate), Univ. Mo., Sycamore fm., Okla. MMi

——**excavata** BRANSON & MEHL (1941e), p. 99, pl. 10, figs. 12-13. Holotype, C418-3, Univ. Mo., Sycamore fm., Okla.; ——— BRANSON & MEHL (1944), p. 243, pl. 94, figs. 13-14. MMi

——**hamata** BRANSON & MEHL (1941e), pp. 98-99, pl. 19, figs. 5-8. Holotype, C25-3, Univ. Mo., type species for *Bactrognathus,* Pierson ls., Mo.; ——— BRANSON & MEHL (1944), p. 243. MMi

——**inornata** BRANSON & MEHL (1941e), p. 100, pl. 19, figs. 14-15. Holotype, C417-4, Univ. Mo., Sycamore fm., Okla. MMi

——**multidentata** MEHL & THOMAS (1947), p. 9, pl. 1, fig. 13. Holotype, C655-3, Univ. Mo., Fern Glen ls., Mo. MMi

——**perplana** MEHL & THOMAS (1947), p. 9, pl. 1, fig. 12. Holotype, C655-4, Univ. Mo., Fern Glen ls., Mo. MMi

——**recta** MEHL & THOMAS (1947), pp. 8-9, pl. 1, fig. 11. Holotype, C655-5, Univ. Mo., Fern Glen ls., Mo. MMi

——**sigmoides** MEHL & THOMAS (1947), p. 8, pl. 1, fig. 15. Holotype, C656-1, Univ. Mo., Fern Glen fm., Mo. MMi

BARBARODINA STAUFFER (1935b), pp. 602-603. Type species, *B. typicala* STAUFFER (1935b); ——— ELLISON (Jan. 1946), p. 108, probably a jr. syn. of *Cordylodus,* bar type. MO

——**grandis** STAUFFER (1935b), p. 603, pl. 73, figs. 6, 8. Syntypes, B4580 (fig. 6), B4582 (fig. 8), Univ. Minn., Spechts Ferry memb., locs. 37 (fig. 6), 94 (fig. 8), Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**typicala** STAUFFER (1935b), p. 603, pl. 73, figs. 4-5. Syntypes, B4578 (fig. 4), B4579 (fig. 5), Univ. Minn., type species for *Barbarodina,* Decorah sh., locs. 48 (fig.), 67, 70-71, 86, 89; ——— STAUFFER & THIEL (1941), pp. 238, 241. MO

BELODIDAE HUDDLE (1934), pp. 24, 34. Includes *Belodus, Idioprioniodus, Cordylodus, Cornuramia, Erismodus, Cardiodus, Polycaulodus, Microcoelodus, Pteroconus, Phragmodus, Chirognathus.*

BELODUS PANDER (1856) (*Beladus* p. 33), pp. 30, 33, 90. Type species, *B. gracilis* PANDER (1856), comp. with *Cordylodus;* ——— PANDER (1856) (ab)N (1858), pp. 112-113; ——— EICHWALD (1858), p. 339; ——— EICHWALD (1860), pp. 664-665, preoccupied by a fossil Saurian *Belodon;* ——— ZITTEL (1890), p. 59; ——— BASSLER (1925) (*Beltodus*), p. 218; ——— ULRICH & BASSLER (1926), pp. 6, 8; ——— HOLMES (1928), pp. 3, 6; ——— BRANSON & MEHL (June 1933b), p. 35; ——— BRANSON & MEHL (July 1933a, b, c), pp. 97-98, 102, 114, 122, 124, Pander's desc. used and revised; ——— HUDDLE (1934), p. 34; ——— STAUFFER (1935a), p. 131, Pander's desc. trans.; ——— STAUFFER (1935b), p. 603, Pander's desc. trans.; ——— ZEBERA (1936b), p. 189; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood siltstone, S. D.; ——— FURNISH (1938), pp. 323, 336, comp. with *Acanthodus;* ——— COOPER (1939), p. 396, comp. with *Neocordylodus;* ——— STAUFFER (1940), pp. 417, 420; ——— AMSDEN & MILLER (1942), pp. 303, 306, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1943), p. 386; ——— BRANSON & MEHL (1944), p. 240; ——— ELLISON (Jan. 1946), pp. 95, 97, 100, 108, upper half of Beekmantown through Upper Ord., bar type. L-UO

——**compressus** BRANSON & MEHL (July 1933b), p. 114, pl. 9, figs. 15-16. Cotypes, C101-4 (fig. 16), C77-5 (fig. 15), C26-3, Univ. Mo., Plattin ls., Mo.; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, pl. 1, fig. 10, pl. 2, fig. 13. Fig. spms., 1184 (fig. 10), 1208 (fig. 13), Univ. Iowa, lower Whitewood sh., S. D.; ——— WETZEL (1940), p. 77, ref. to Furnish, Barragy, & Miller (1936), comp. with Form X of Wetzel (1940); ——— BRANSON & MEHL (1944), p. 240, pl. 93, fig. 56; ——— BRANSON (1944), pp. 79-80, pl. 11, figs. 36-37, Plattin ls., Mo.; ——— BRANSON (1944), pp. 81, 89, pl. 12, figs. 9-10, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——**devonicus** STAUFFER (1940), p. 420, pl. 59, figs. 47-48. Holotype, B5611, Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. O

——**diminutivus** BRANSON & MEHL (July 1933c), p. 125, pl. 10, fig. 27. Holotype, C96-3, Univ. Mo., comp. with *Belodus profundus*, Thebes ss., Mo.; ——— BRANSON (1944), p. 95, Maquoketa sh., Mo. UO

——**gracilis** PANDER (1856), pp. 7, 30, pl. 2, fig. 21; pl. A to p. 20, fig. 9, Glaukonitsand, Russ., type species for *Belodus;* ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1860), p. 664; ——— ZITTEL & ROHON (1886), p. 119, with ref. to Pander (1856), pl. 3, fig. 8; ——— ULRICH & BASSLER (1926), p. 8, fig. 3, subfig. 5. Pander's (1856) pl. 2, fig. 21 reproduced; ——— HOLMES (1928), p. 6, pl. 1, fig. 16. Pander's (1856) pl. 3, fig. 8 reproduced; ——— MOODIE (1929), p. 21, fig. 10, subfig. 5. Pander's (1856) pl. 2, fig. 21 reproduced; ——— BRANSON & MEHL (July 1933a, c), pp. 97, 126, comp. with *Belodus inclinatus;* ——— WETZEL (1940), p. 74, Holmes' (1928) pl. 1, fig. 16 is comp. with Form III of Wetzel (1940); ——— BRANSON & MEHL (1944), p. 240, pl. 93, figs. 51-52, topotype, Tremadocian, Estonia; ——— GLAESSNER (1945), p. 27, fig. 3, subfig. 5, after Ulrich & Bassler (1926). LO

——**grandis** STAUFFER (1935b), pp. 603-604, pl. 72, figs. 46-47, 49, 53-54, 57. Syntypes, B4561-B4562 (figs. 46-47); paratypes, B4564 (fig. 49), B4568-B4569 (figs. 53-54), B4572 (fig. 57), Univ. Minn., Decorah sh., locs. 67 (fig. 46), 57 (figs. 47, 54), 94 (fig. 49), 37 (fig. 53), 62 (fig. 57); Spechts Ferry memb., locs. 17, 26, 40, 43, 48, 76, 78, 86, Iowa; ——— STAUFFER & THIEL (1941), pp. 238, 241. MO

——**inclinatus** BRANSON & MEHL (July 1933c), pp. 125-126, pl. 10, fig. 24. Holotype, C273-1, Univ. Mo., Maquoketa sh., Mo.; ——— IMBT (1941), p. 148, Maquoketa sh., Kans.; ——— BRANSON (1944), p. 95. UO

——**inornatus** BRANSON & MEHL (July 1933b), p. 115, pl. 9, fig. 18. Holotype, C26-4, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 79-80, pl. 11, fig. 42. MO

——**lineatus** STAUFFER (1930), p. 128, pl. 10, fig. 20. Type, Univ. Minn., spm. not found, probably lost, lower Decorah sh., Minn.; ——— STAUFFER (1935a), pp. 131, 157, pl. 12, fig. 13. Fig. spm., B4429, Univ. Minn., Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), pp. 241, 244. MO

——? **maniformis** BRANSON & MEHL (July 1933a), pp. 97-98, pl. 6, fig. 12. Holotype, C295-2, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 69. MO

——? **mutatus** BRANSON & MEHL (July 1933c), p. 126, pl. 10, fig. 17. Cotypes, C237-3, Univ. Mo., Thebes ss., Mo.; ——— BRANSON & MEHL (July 1933c), p. 126; ——— BRANSON (1944), p. 95. UO

——**ornatus** BRANSON & MEHL (July 1933c), pp. 124-125, pl. 10, figs. 26, 28. Holotype, C95-2, Univ. Mo., Thebes ss., Mo.; ——— IMBT (1941), p. 148, Maquoketa sh., Kans.; ——— BRANSON (1944), p. 95. UO

——**profundus** BRANSON & MEHL (July 1933c), p. 125, pl. 10, fig. 25. Holotype, C273-2, Univ. Mo., Maquoketa sh., Mo.; ——— IMBT (1941), p. 148, Maquoketa sh., Kans.; ——— BRANSON (1944), p. 95. UO

——**triangularis** STAUFFER (1940), p. 420, pl. 59, fig. 49. Holotype, B5612, Univ. Minn., admixture, clay above ls., Minn. O

——**wykoffensis** STAUFFER (1935b), p. 604, pl. 72, figs. 51-52, 55, 58-59. Syntypes, B4567 (fig. 52), B4573 (fig. 58); paratypes, B4566 (fig. 51), B4570 (fig. 55), B4574 (fig. 59), Univ. Minn., Decorah sh., locs. 37, 57 (figs. 51, 55, 58-59), 67 (fig. 52), 76, Minn.; ——— STAUFFER & THIEL (1941), pp. 238, 241; ——— GRAVES & ELLISON (1941), pp. 5, 7, pl. 3, fig. 26. Hypotype, 3550, Mo. Sch. Min., Rolla, lower Maravillas fm., loc. G601, Tex. M-UO

——? **sp.** BRANSON & MEHL (July 1933c), p. 126, pl. 10, fig. 11. Fig. spm., C127-5, Univ. Mo., Maquoketa-Thebes fm., Mo.; ——— BRANSON (1944), p. 95. UO

——**sp.** FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood sh., S. D. MO

——**sp.** GRAVES & ELLISON (1941), pp. 5, 7, pl. 3, fig. 14. Fig. spm., 3143, Mo. Sch. Min., Rolla, mid. Maravillas fm., loc. G610, Tex. UO

——**spp.** IMBT (1941), p. 148, Maquoketa sh., Kans. UO

——**sp.** AMSDEN & MILLER (1942), p. 303, fig. 2 D. Fig. spm., 1621, Univ. Iowa, Bighorn ss., Wyo. MO

——**sp.** BRANSON & MEHL (1944), p. 240, pl. 93, figs. 55, 57.

——**n. sp.** BRANSON (1944), pp. 81, 89, pl. 12, figs. 7-8, 11, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——**? n. sp.** BRANSON (1944), pp. 81, 89, pl. 12, figs. 12-13, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo. (no ? on p. 89), Kimmswick ls., Mo. MO

BRANSONELLA HARLTON (1933), pp. 4, 11, 14. Type species, *B. tridentata* HARLTON (1933); ——— HUDDLE (1934), p. 35, not a conodont; ——— HARLTON (1933)(ab)Z(1937), p. 177, Branson & Mehl state that this is a selachian; ——— CAMP, TAYLOR, & WELLES (1942), p. 477, Selachi, *incertae sedia;* ——— ELLISON (Jan. 1946), p. 108, probably not a true conodont. LP

——**tridentata** HARLTON (1933), p. 14, pl. 3, figs. 9a-c. Holotype, 85529, USNM, Johns Valley sh., Okla. LP

BRYANTODINA STAUFFER (1935a), pp. 131, 148-149. Type species, *B. typicalis* STAUFFER (1935a), comp. with *Ozarkodina;* ——— GRAVES & ELLISON (1941), pp. 4?, 9-10; ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1944), p. 243; ——— ELLISON (Jan. 1946), pp. 95, 108, 110, confined to Black River, blade type, probably *Tortoniodus* (pt.) is a syn.; ——— YOUNGQUIST & CULLISON (1946), p. 589; ——— YOUNGQUIST & DOWNS (1949), p. 169. MO

——**compacta** STAUFFER (1935a), pp. 131-132, 157, pl. 10, figs. 15, 22, 31. Holotype, B4330 (fig. 15); paratypes, B4337 (fig. 22), B4346 (fig. 31), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**digna** STAUFFER (1935a), pp. 132, 157, pl. 10, fig. 34. Holotype, B4349, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**dissimilis** STAUFFER (1935a), pp. 132, 157, pl. 10, fig. 17. Holotype, B4332, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**excellsa** STAUFFER (1935a), pp. 132, 157, pl. 10, figs. 33, 35. Holotype, B4350 (fig. 35); paratype, B4348 (fig. 33), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941) (*excelsa*), p. 244. MO

——**inaequalis** STAUFFER (1935a), pp. 133, 157, pl. 10, fig. 39. Holotype, B4354, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**incurvata** STAUFFER (1935a), pp. 133, 157, pl. 10, figs. 13-14. Cotypes, B4328 (fig. 13), B4329 (fig. 14), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**informis** STAUFFER (1935a), pp. 133, 158, pl. 10, fig. 49. Holotype, B4364, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**levicula** STAUFFER (1935a), pp. 133, 158, pl. 10, fig. 20. Holotype, B4335, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**limata** STAUFFER (1935a) (*linata* p. 158), pp. 134, 158, pl. 10, figs. 30, 36. Holotype, B4351 (fig. 36); paratype, B4345 (fig. 30), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941) (*linata*), p. 244. MO

——**maxima** STAUFFER (1935a), pp. 134, 158, pl. 10, fig. 28. Holotype, B4343, Univ. Minn., Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**parva** STAUFFER (1935a), pp. 134, 158, pl. 10, fig. 27. Holotype, B4342, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**sinuosa** GRAVES & ELLISON (1941) (*Bryantodus*, p. 9), pp. 4, 7, 9-10, pl. 2, fig. 13. Holotype, 7125, Mo. Sch. Min., Rolla, Ft. Pena fm., locs. G414 (fig.), G406, Tex. MO

——**typicalis** STAUFFER (1935a), pp. 131, 134, 158, pl. 10, figs. 16, 18-19, 23-25, 29. Holotype, B4338 (fig. 23); paratypes, B4331 (fig. 16), B4333-B4334 (figs. 18-19), B4339-B4340 (figs. 24-25), B4344 (fig. 29), Univ. Minn., type species for *Bryantodina*, upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244; ——— BRANSON & MEHL (1944), p. 243, pl. 94, fig. 25; ——— BRANSON (1944), pp. 67, 70, pl. 9, fig. 4, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo. MO

——**sp.** STAUFFER (1935a) (*Prioniodus sp.* on pl.), pp. 135, 158, pl. 10, fig. 21. Fig. spm., B4336, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**sp.** AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo. MO

——**n. sp.** BRANSON (1944), pp. 89-90, pl. 13, figs. 34-38, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

BRYANTODUS ULRICH & BASSLER (1926), pp. 4, 6, 15, 17-18, 21, 26, 53, 63. Type species, *B. typicus* ULRICH & BASSLER (1926), comp. with *Polygnathellus*, comp. recent shark teeth in jaw; ——— BASSLER (1925), p. 219, comp. with *Prioniodina;* ——— HOLMES (1928), pp. 3, 6, 27; ——— EICHENBERG (1930), p. 181; ——— GUNNELL (Mar. 1931a) (*Bryanthodus*), p. 331, Lansing of Mo.; ——— GUNNELL (Apr. 1931a) (*Bryanthodus*), p. 239; ——— COOPER (June 1931), p. 146; ——— COOPER (Sept. 1931), p. 233; ——— STAUFFER & PLUMMER (1932), pp. 29-30; ——— BRANSON & MEHL (June 1933c), p. 49, comp. with *Polygnathellus;* ——— BRANSON & MEHL (July 1933a, d), pp. 87, 140, comp. with *Curtognathus* and *Prioniodina;* ——— GUNNELL (1933), p. 267; ——— BRANSON & MEHL (June 1934a), pp. 216-217, 224, 227, comp. with *Nothognathella;* ——— SHIDELER (June 1934a), p. 342, lower Arnheim, north half Cincinnati Arch; ——— SCHMIDT (1934), pp. 79, 83-84; ——— BRANSON & MEHL (Oct. 1934a), pp. 283, 285, comp. with *Subbryantodus;* ——— E. R. BRANSON (1934), p. 324; ——— HUDDLE (1934), pp. M?D-MMi, ?UMi

13, 24, 27, 35-36, 63, 65, 67, 76, may have given rise to *Spathodus*, comp. with *Prioniodina, Prioniodella,* and *Angulodus;* ——— McKNIGHT (1935), p. 74, Sylamore ss., Ark.; ——— STAUFFER (1935a), p. 131, comp. with *Bryantodina;* ——— COOPER (1935), p. 314; ——— COOPER (1935a), pp. 444-445; ——— BAILEY (1935), p. 490; ——— SCHMIDT (1934) (r)P (1935) (*Bryanthodus*), p. 80; ——— ZEBERA (1936a), p. 3; ——— ZEBERA (1936b), pp. 191-192; ——— DEMANET (1938) (*Bryanthodus*), pp. 161,170; ——— STAUFFER (1938), p. 420; ——— BRANSON & MEHL (1938d), p. 140; ——— COOPER (1939), p. 385; ——— STAUFFER (1940), p. 420; ——— BRANSON & MEHL (1941c), p. 194; ——— GRAVES & ELLISON (1941), p. 4, Fort Pena beds, Tex., prob. *Bryantodina;* ——— DEMANET (1941) (*Bryanthodus*), p. 177; ——— ELLISON & GRAVES (1941), p. 2; ——— DUBOIS (1941) (*Bryantodids*), p. 168, black sh., McLeansboro age, near La-Salle, Ill.; ——— SCOTT (1942), pp. 295, 297, 300; ——— CAMP, TAYLOR, & WELLES (1942) (*Bryanthodus*), p. 478, Rhenanidi?; ——— COOPER & SLOSS (1943), p. 171; ——— SCOTT (1942) (r)NRC (1943), p. 21; ——— BRANSON & MEHL (1944), p. 243; ——— COOPER (1945), p. 613; ——— ELLISON (Jan. 1946), pp. 95, 104, 108, blade type, Upper Dev. through Osage; ——— EICHER (1946), p. 613, Araif el Naga fm. (Mid. Trias.), at Gebel Araif el Naga, NE Sinai, Egypt, near Palestine border; ——— BOND (1947), p. 26; ——— YOUNGQUIST (1947), p. 96; ——— HASS (Mar. 1947), p. 132, Cleveland and Bedford shs., Ohio; ——— MEHL & THOMAS (1947), p. 9; ——— MILLER & YOUNGQUIST (1947), pp. 507, 512; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), pp. 50-52, 59; ——— YOUNGQUIST & MILLER (1948), pp. 440, 444, 447; ——— YOUNGQUIST & HEEZEN (1948), p. 771; ——— YOUNGQUIST & PATTERSON (1949), pp. 57, 60; ——— YOUNGQUIST & DOWNS (1949), p. 169; ——— THOMAS (1949), p. 425.

——**abbreviatus** BRANSON & MEHL (1938d), pp. 140-141, pl. 34, fig. 21. Holotype, C348-5, Univ. Mo., Chouteau ls., Mo.; ——— BRANSON (1944), pp. 208e, 220, pl. 39, fig. 21. LMi

——**acutus** E. R. BRANSON (1934), p. 325, pl. 28, fig. 28. Holotype, C203-4, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 7, holotype fig.; ——— BRANSON (1944), pp. 181, 220, pl. 32, fig. 7, holotype fig. LMi

——**aequalis** YOUNGQUIST & MILLER (1948), p. 442, pl. 68, fig. 5. Holotype, 5589, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**amalitus** STAUFFER (1938), pp. 412, 419, pl. 48, figs. 18-19. Syntypes, B4758-B4759 (figs. 18-19), Univ. Minn., Olentangy sh., loc. 187, Ohio; ——— MILLER & YOUNGQUIST (1947), p. 506, pl. 73, fig. 5. Fig. spm., 5534, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**amanaensis** YOUNGQUIST (1945), p. 357, pl. 54, fig. 12. Holotype, 2908, Univ. Iowa, Independence sh.?, Iowa. UD

——**andersonensis** STAUFFER (1938), pp. 412, 419, pl. 49, fig. 17. Holotype, B4791, Univ. Minn., Olentangy sh., loc. 120, Ohio. UD

——**angulatus** COOPER (Sept. 1931), pp. 233-234, pl. 28, fig. 8, Woodford fm., Okla.; ——— COOPER (1935), p. 310, pl. 27, fig. 12. Fig. spm., 38062, Univ. Chi., mid. Ark. novaculite, bed 8, Ark.; ——— COOPER (1939), p. 416, classed as syn. of *Subbryantodus.* UD

——**aplatus** HUDDLE (1934), pp. 16, 76, pl. 10, fig. 11. Holotype, 2329, Ind. Univ., rare in lower New Albany sh., locs. 26 (fig.), 32-33, Ind. M?D-UD

——**arcuatus** BRANSON & MEHL (June 1934a), p. 223, pl. 16, figs. 13, 20. Holotype, C241-5 (fig. 20); paratype, (fig. 13), Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——**argutus** STAUFFER (1938), pp. 412, 419, pl. 48, figs. 16, 20. Holotype, B4756 (fig. 16); paratype, B5097 (fig. 20), Univ. Minn., Olentangy sh., loc. 187, Deep Run, Ohio; ——— YOUNGQUIST (1945), pp. 355, 357, pl. 54, fig. 10. Plesiotype, 2909, Univ. Iowa, Independence sh.?, Iowa. UD

——**attenuatus** BRANSON & MEHL (June 1934a) (*attentuatus* p. 219), pp. 219-220, pl. 16, fig. 4. Holotype, C231-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——**atticaensis** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), p. 50, pl. 15, fig. 3. Holotype, A16, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y. UD

——**ausablensis** STAUFFER (1938), pp. 412, 419, pl. 51, fig. 19. Holotype, B5068, Univ. Minn., Arkona beds, loc. 180, Ont. MD

——**bassleri** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), p. 50, pl. 15, fig. 11. Holotype, 417, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y. UD

——**bellatulus** STAUFFER (1938), pp. 412, 419-420, pl. 48, fig. 23. Holotype, B4760, Univ. Minn., Olentangy sh., loc. 187, Ohio. UD

——**bennerensis** STAUFFER (1938), pp. 412, 420, pl. 51, fig. 4. Holotype, B4838, Univ. Minn., Plum Brook sh., loc. 108, Ohio. MD

——? **bezoensis** STAUFFER (1938), pp. 412, 420, pl. 51, fig. 14. Holotype, B5064, Univ. Minn., Olentangy sh., loc. 112, Ohio. UD

——**bicornis** YOUNGQUIST & MILLER (1948), pp. 442-443, pl. 67, figs. 6-7. Holotype, 5590 (fig. 7); paratype, 5591 (fig. 6), Univ. Iowa, Sweetland Creek sh., Iowa, comp. with *Bryantodus bicristatus* and *eximus.* UD

——**bicristatus** YOUNGQUIST & MILLER (1948), p. 443, pl. 67, fig. 16. Holotype, 5592, Univ. Iowa, Sweetland Creek sh., Iowa, comp. with *Bryantodus eximus.* UD

——**brachyodontus** MILLER & YOUNGQUIST (1947), p. 506, pl. 73, fig. 17. Holotype, 5535, Univ. Iowa, Sweetland Creek sh., Iowa; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 51, comp. with *Bryantodus obtusicuspus.* UD

——**brevidens** BRANSON & MEHL (June 1934a), p. 221, pl. 16, fig. 14. Holotype, C232-1, Univ. Mo., Grassy Creek sh., Mo. UD

——**brevidens** HUDDLE (1934), pp. 15, 67, 72, pl. 3, figs. 1-2. Holotype, 1803 (fig. 1); paratype, 1804 (fig. 2), Ind. Univ., rare in upper New Albany sh., locs. 1 (fig.), 2-3, 8-11, 14, Ind., comp. with *Bryantodus multidens;* ——— COOPER (1939), p. 417, now a sr. syn. of *Subbryantodus;* ——— BRANSON (1944), p. 162. LMi

——**breviposteus** BRANSON & MEHL (June 1934a), pp. 221-222, pl. 16, fig. 22. Holotype, C241-2, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——**brickeri** STAUFFER (1940), p. 420, pl. 58, fig. 31. Holotype, B5553, Univ. Minn., clay above ls. (admix.), Minn.; ——— STAUFFER & THIEL (1941), p. 229. O, MD

——**bryanti** STAUFFER (1938), pp. 412, 420, pl. 49, fig. 18. Holotype, B5061, Univ. Minn., Plum Brook sh., loc. 121 (fig.); Olentangy sh., locs. 111, 117-118, Ohio; and Arkona sh., loc. 173, Ont.; ——— MILLER & YOUNGQUIST (1947), pp. 506-507, comp. with *Bryantodus flabellatus* and *latimarginatus*. M-UD

——**cameratus** GUNNELL (1933), pp. 264, 268-269, pl. 32, fig. 47. Holotype, Gunnell coll., 11, Univ. Mo., Quivira sh., Mo.; ——— ELLISON (1941), p. 118, classed as syn. of *Prioniodina*? UP

——**camurus** HUDDLE (1934), pp. 15, 68-69, pl. 2, figs. 6-9. Holotype, 1805 (fig. 6); paratypes, 1806 (figs. 7-8), 1807 (fig. 9), Ind. Univ., upper New Albany sh., abundant at loc. 2, common at 1, 3 (figs. 7-9), 6, 8 (fig. 6), rare at 5, 9-10; ——— BRANSON & MEHL (1938d), p. 131, classed as jr. syn. of *Solenodella lacerata;* ——— COOPER (1939), p. 410; ——— BRANSON & MEHL (1941d), p. 202. LMi

——**chesteri** YOUNGQUIST (1945), pp. 357-358, pl. 55, figs. 12-13. Syntypes, 2910 (fig.), 2911, Univ. Iowa, Independence sh.?, Iowa. UD

——**coalescenoides** HUDDLE (1934), pp. 15, 72-73, pl. 3, fig. 8. Holotype, 1808, Ind. Univ., rare in lower New Albany sh., loc. 26, Ind.; ——— CAMPBELL (1946), p. 844, ident. by Huddle, ss. layer top Blackiston fm., Ind. M?D

——**coalescens** ULRICH & BASSLER (1926), p. 25, pl. 4, fig. 28. Holotype, 11270, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 6; ——— HUDDLE (1934), p. 73, comp. with *Bryantodus coalescenoides;* ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ? ——— WETZEL (1940), p. 75, Form VII of Wetzel (1940) is comp. with fig. 28, pl. 4 of Ulrich & Bassler (1926). UD

——**cognatus** HUDDLE (1934) (*Bryentodus* pl. 1 and *cognotus* pl. 4), pp. 15, 67, pl. 1, fig. 12, pl. 4, fig. 10. Holotype, 2350 (fig. 10); paratype, 1826 (fig. 12) (1926 on pl.), Ind. Univ., rare in mid. New Albany sh., locs. 18-19, 20 (fig.), Ind.; ——— BRANSON (1944), pp. 156, 158, pl. 27, figs. 28-31, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——**colobus** COOPER (1939), p. 385, pl. 43, figs. 18-19. Holotype, 38804, Univ. Chi., pre-Welden sh., Okla. LMi

——? **commutatus** BRANSON & MEHL (June 1934a), pp. 223-224, pl. 16, fig. 15. Holotype, C230-5, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——**commutatus** HUDDLE (1934), pp. 15, 70, pl. 2, figs. 13-14. Holotype, 1809 (fig. 13); paratype, 1810 (fig. 14), Ind. Univ., abundant in lower New Albany sh., locs. 27 (fig.), 28, and rare at 29-31, Ind.; ——— BOND (1947) (*Bryanthodus* on pl.), pp. 21, 26, pl. 2, fig. 6. Holotype, 18396, Ohio Univ., lower Ohio sh., Ohio. M?-UD

——**concavus** HUDDLE (1934), pp. 15, 71, pl. 2, figs. 15-17. Holotype, 1811 (fig. 15); paratypes, 1812-1813 (figs. 16-17), Ind. Univ., common in lower New Albany sh., locs. 27 (fig.), 28, and rare at 29-30, Ind.; ——— STAUFFER (1938), pp. 412, 420, pl. 48, fig. 14. Fig. spm., B4754, Univ. Minn., Olentangy sh., loc. 117, Ohio; ——— COOPER (1945), p. 613, pl. 84, fig. 1. Fig. spm., Ill. Geol. Surv., black sh., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont.; ——— SLOSS & LAIRD (1945), on chart, DC unit, Mont.; ——— BOND (1947), pp. 21, 26-27, pl. 2, fig. 5. Hypotype, 18397, Ohio Univ., lower Ohio sh., Ohio. M?-UD

——**confluens** BRANSON & MEHL (June 1934a), pp. 220-221, pl. 16, fig. 10. Holotype, C313-3, Univ. Mo., Grassy Creek sh., Mo., comp. with *Bryantodus brevidens;* ——— BRANSON (1944), p. 162; ——— HASS (Mar. 1947), possible ref., see *Polylophodonta*. UD

——**confragus** BRANSON & MEHL (June 1934a), p. 218, pl. 16, fig. 8. Holotype, C313-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——**conjunctus** ULRICH & BASSLER (1926), p. 24, pl. 4, figs. 8-9. Cotypes, 11267, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 6; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——**crassidens** ULRICH & BASSLER (1926), pp. 23-24, pl. 6, figs. 17-18, lower Rhinestreet sh., N. Y., comp. with *Bryantodus obliquus* and *normalis;* ——— HOLMES (1928), p. 6; ——— EICHENBERG (1930), p. 181, pt. of figs. 12-15, p. 179 of Eichenberg is comp. with fig. 18, pl. 6 of Ulrich & Bassler (1926); ——— ? BRANSON & MEHL (June 1934a), pp. 218-219, 223, pl. 16, figs. 3, 5-7, 21. Fig. spms., C230-4, C231-1, C231-2, C241-1, C241-4, Univ. Mo., Grassy Creek sh., Mo., comp. with *Bryantodus arcuatus;* ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— BRANSON (1944), p. 162; ——— BRANSON (1944), p. 173, Louisiana ls., Mo. UD

——**crassus** ULRICH & BASSLER (1926), p. 27, pl. 10, fig. 14. Holotype, 11026, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 6. UD

——**cristatus** (ULRICH & BASSLER) (1926), p. 21. (*Prioniodus*); ——— (HOLMES) (1928), pp. 6, 20; ——— (CHADWICK) (Feb. 1935a), p. 311, diagnostic sp. confined to Genesee gr. UD

——**curtus** COOPER (1939), p. 385, pl. 43, figs. 16-17. Holotype, 38805, Univ. Chi., pre-Welden sh., Okla. LMi

——**curvatulus** ULRICH & BASSLER (1926), p. 28, pl. 9, fig. 13. Holotype, 11032, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 6. UD

——**curvatus** ULRICH & BASSLER (1926), p. 26, pl. 4, figs. 19-20. Cotype, 11271, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 6; ——— EICHENBERG (1930), p. 181, pt. of figs. 12-15 of Eichenberg are comp. with fig. 19, pl. 4, of Ulrich & Bassler (1926); ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——**delicatulus** STAUFFER & PLUMMER (1932), pp. 25, 29, pl. 2, fig. 27. Holotype, 19112, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., MP

Mineral Wells fm., loc. 181-T-9, Tex.; ——— GUNNELL (1933), p. 268, comp. with *Bryantodus strigatus;* ——— ELLISON (1941), p. 120, classed as syn. of *Ozarkodina;* ——— YOUNGQUIST & HEEZEN (1948), p. 771; ——— YOUNGQUIST & DOWNS (1949), p. 168.

——**delicatus** GUNNELL (1933), pp. 264, 267, 269, pl. 32, fig. 43. Holotype, Gunnell coll., 7, Univ. Mo., Quivira sh., Mo., comp. with *Bryantodus cameratus;* ——— ELLISON (1941), p. 120, classed as sr. syn. of *Ozarkodina.* UP

——**delicatus** BRANSON & MEHL (June 1934a), pp. 220-221, pl. 16, fig. 19. Cotypes, C230-2, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162; ——— YOUNGQUIST & HEEZEN (1948), pp. 771-772; ——— YOUNGQUIST & DOWNS (1949), p. 168. UD

——**deltoideus** COOPER (Sept. 1931), p. 234, pl. 28, fig. 10, Woodford fm., Okla. UD

——**dignatus** STAUFFER (1938), pp. 412, 420-421, pl. 48, fig. 29. Holotype, B4769, Univ. Minn., Olentangy sh., loc. 112, Ohio. UD

——**dubius** (ULRICH & BASSLER) (1926), p. 21. [*Polygnathus* Hinde (1900)]; ——— (HOLMES) (1928), pp. 6, 17, pl. 8, fig. 1, Hinde's (1900) pl. 9, fig. 1; ——— (BRANSON & MEHL) (June 1934a) (? *dubius*), p. 224, pl. 16, fig. 16. Holotype, C313-5, Univ. Mo., Grassy Creek sh., Mo.; ——— (BRANSON) (1944) (? *dubius*), p. 162. UD, MMi

——**duplicatus** (ULRICH & BASSLER) (1926), p. 21. (*Polygnathus*); ——— (HOLMES) (1928), pp. 6, 17, pl. 5, fig. 13; ——— BRANSON & MEHL (July 1933d), p. 166, pl. 11, fig. 24. UD

——**equalis** COOPER (Sept. 1931), p. 234, pl. 28, fig. 9, Woodford fm., Okla.; ——— COOPER & SLOSS (1943), p. 170, pl. 29, fig. 9, black sh., base Madison gr., Alta. UD-LMi

——**equilaterus** BRANSON & MEHL (June 1934a), pp. 222-223, pl. 16, fig. 11. Holotype, C314-2, Univ. Mo., Grassy Creek sh., Mo.; ——— ELLISON & GRAVES (1941), pp. 2, 4, pl. 1, fig. 18. Hypotype, 4777, Mo. Sch. Min., Rolla, Dimple fm., mid., loc. G926, Tex.; ——— BRANSON (1944), p. 162. UD, LP

——**eriensis** STAUFFER (1938), pp. 412, 421, pl. 48, fig. 11. Holotype, B4751, Univ. Minn., Olentangy sh., loc. 187 (fig.), Ohio; and Arkona beds, loc. 174, Ont. M-UD

——**eximus** YOUNGQUIST & MILLER (1948), p. 443, pl. 67, fig. 15. Holotype, 5593, Univ. Iowa, Sweetland Creek sh., Iowa, comp. with *Bryantodus bicristatus.* UD

——**flabellatus** MILLER & YOUNGQUIST (1947), p. 506, pl. 73, fig. 23. Holotype, 5536, Univ. Iowa, Sweetland Creek sh., Iowa; ——— YOUNGQUIST & MILLER (1948), p. 443, pl. 67, fig. 21. Fig. spm., 5594, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**flexus** BRANSON & MEHL (Oct. 1934a), p. 284, pl. 23, figs. 6-7. Holotype, C386-3 (fig. 6); fig. spm., C318-3 (fig. 7), Univ. Mo., Bushberg ss., Mo. LMi

——**flexus** HUDDLE (1934), pp. 15, 70, pl. 2, fig. 12. Holotype, 1814, Ind. Univ., rare in lower New Albany sh., locs. 27 (fig.), 28, Ind.; ——— BRANSON (1938a), p. 182; ——— COOPER (1939), pp. 385, 419, pl. 43, figs. 27-28. Hypotype, 38803, Univ. Chi., pre-Welden sh., Okla.; ——— ? THOMAS (1949), p. 411, pl. 4, fig. 29. Fig. spm., C808-4, Univ. Mo., English River siltstone, loc. 12, Iowa. M?D-LMi

——**germanus** ULRICH & BASSLER (1926), p. 25, pl. 10, fig. 18. Holotype, 11016, USNM, Hardin ss., Tenn. UD

——**germanus** HOLMES (1928), pp. 6, 28, pl. 10, fig. 5. Holotype, 11447, USNM, Chattanooga black sh., Ala.; ——— COOPER (June 1931), pp. 146, 151, pl. 20, fig. 4, upper Ohio sh., Ohio; ——— HUDDLE (1934) (*cf. germanus*), pp. 15, 72, pl. 3, fig. 5. Plesiotype, 1817, Ind. Univ., very rare in upper New Albany sh., loc. 1, Ind.; ——— COOPER (1935), p. 310, pl. 27, fig. 13. Fig. spm., 38063, Univ. Chi., mid. Ark. novaculite, beds 8, 13, Ark.; ——— BOND (1947), pp. 21, 27, pl. 2, fig. 8. Hypotype, 18399, Ohio Univ., lower Ohio sh., Ohio. UD-LMi

——**gibberosus** E. R. BRANSON (1934), pp. 324-325, pl. 28, fig. 27. Holotype, C203-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133. LMi

——**giganteus** E. R. BRANSON (1934), p. 326, pl. 28, fig. 30. Holotype, C203-3, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— THOMAS (1949), p. 411, pl. 4, fig. 19. Fig. spm., C811-2, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

——**gracilis** ULRICH & BASSLER (1926), p. 27, pl. 10, fig. 10. Holotype, 11021, USNM, Hardin ss., Tenn., comp. with *Bryantodus pergracilis;* ——— HOLMES (1928), p. 6; ——— COOPER (1935) (*gracilus*, p. 310), pp. 310, 314, pl. 27, fig. 14. Fig. spm., 38064, Univ. Chi., Ark. novaculine, beds 7-8, mid., and A, B of upper div., Ark. UD-LMi

——**grahami** STAUFFER (1938), pp. 412, 421, pl. 48, figs. 22, 24; pl. 49, fig. 8. Holotype, B4764 (fig. 24); paratypes, B4762 (fig. 22), B4782 (fig. 8), Univ. Minn., Olentangy sh., locs. 187 (fig.), 109, 117, Ohio. UD

——**hanoverensis** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), p. 50, pl. 15, fig. 14. Holotype, B 2, Hibbard coll., Buff. Mus. Sci., N. Y., Hanover sh., N. Y., comp. with *Bryantodus atticaensis.* UD

——**hickoki** STAUFFER (1940), pp. 420-421, pl. 58, fig. 18. Holotype, B5541, Univ. Minn., upper Cedar Valley ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. MD

——**hormeli** STAUFFER (1940), p. 421, pl. 58, fig. 20. Holotype, B5543, Univ. Minn., clay above ls., admixture, Minn.; ——— STAUFFER & THIEL (1941), p. 229. O, MD

——**humboltensis** STAUFFER (1938), pp. 412, 421, pl. 49, fig. 15. Holotype, B4789, Univ. Minn., Plum Brook sh., loc. 108 (fig.) and Olentangy sh., loc. 117, Ohio. M-UD

——**ignotus** STAUFFER (1938), pp. 412, 421, pl. 49, fig. 3. Holotype, B4777, Univ. Minn., Widder beds, loc. 164 (fig.), Ont.; and Silica sh., loc. 148, Ohio. MD

——**immersus** (ULRICH & BASSLER) (1926), p. 21. (*Polygnathus*); ——— (HOLMES) (1928), pp. 6, 18, 21, pl. 5, fig. 14, Hinde's (1879) pl. 16, fig. 21. [*Prioniodus* (Bryant) (1921) = *Polygnathus*]; ——— (BRANSON & MEHL) (July 1933d), p. 140, pl. 11, fig. 22. Holotype, A4253, Brit. Mus. *Polygnathus dubius* Hinde (1879) (pt.), pl. 16, fig. 8 is classed as a sr. syn. Bryant's (1921) pl. 6, fig. 2 is uncertain, Ulrich & Bassler's *Bryantodus* UD

nitidus may be conspecific, some of Bryant's figs. of *Prioniodus radiatus* may belong to this species; ——— CHADWICK (Feb. 1935a), pp. 312, 317, nondiagnostic sp. appearing first in Genesee rocks and last in Naples rocks.

——imparilis STAUFFER (1938), pp. 412, 421-422, pl. 48, fig. 3. Holotype, B4786, Univ. Minn., Olentangy sh., locs. 111, 120 (fig.), Ohio. UD

——incertus ULRICH & BASSLER (1926), pp. 27-28, pl. 10, fig. 8. Holotype, 11019, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 6. UD

——incisus HUDDLE (1934), pp. 15, 73, pl. 4, figs. 3-4. Holotype, 2300, Ind. Univ., rare in lower New Albany sh., locs. 26 (fig.), 28, 32, Ind. M?D

——inclinatus HOLMES (1928), pp. 27-28, pl. 10, fig. 3. Holotype, 11446, USNM, Chattanooga black sh., Ala.; ——— COOPER (June 1931), pp. 147, 151, pl. 20, fig. 6, lower pt., mid. Ark. novaculite, Okla.; ——— COOPER (1935), p. 310, pl. 27, fig. 15. Fig. spm., 38065, Univ. Chi., Ark. novaculite, beds 7, 13, mid., and bed B, upper div., Ark. UD-LMi

——? inequalis ULRICH & BASSLER (1926), p. 22, pl. 6, fig. 14. Holotype, 11260, USNM, lower Rhinestreet sh., N. Y. UD

——inequalis HOLMES (1928), pp. 6, 27, pl. 10, figs. 1-2. Cotypes, 11445, USNM, Chattanooga black sh., Ala.; ——— BUTTS (1926), p. 160, pl. 48, fig. 2, (*nomen nudum*); ——— COOPER (June 1931) (*inequialis*, p. 147), pp. 147, 151, pl. 20, fig. 5, lower Woodford fm., Okla.; ——— COOPER (Sept. 1931), p. 234, comp. with *Bryantodus equalis;* ——— HUDDLE (1934), pp. 71, 74, comp. with *Bryantodus serrula* and *parvus;* ——— CHADWICK (Feb. 1935a) (*inaequalis*), p. 315, diagnostic sp. confined to Naples gr.; ——— COOPER (1935) (*inequialis*), p. 310, pl. 27, fig. 16. Fig. spm., 38066, Univ. Chi., Ark. novaculite, mid., beds 7-8, 13-14, upper div., bed B, Ark.; ——— YOUNGQUIST (1945), p. 358, comp. with *Bryantodus chesteri;* ——— YOUNGQUIST (1945), pp. 355, 358, pl. 55, fig. 15. Plesiotypes, 2912 (fig. 15); 2913 (unfig.), Univ. Iowa, Independence sh.?, Iowa; ——— BOND (1947), pp. 21, 27, pl. 2, fig. 10. Hypotype, 18400, Ohio Univ., lower Ohio sh., Ohio. UD-LMi

——inequalis BRANSON & MEHL (June 1934a), p. 219, pl. 16, figs. 17-18. Cotypes, C242-5, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——insolens ULRICH & BASSLER (1926), pp. 25, 28, pl. 10, fig. 17. Holotype, 11015, USNM, Hardin ss., Tenn., comp. with *Bryantodus nelsoni;* ——— HOLMES (1928), p. 6. UD

——iowaensis YOUNGQUIST (Mar. 1947), pp. 98-99, pl. 24, fig. 18. Holotype, 3364, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa, comp. with *Bryantodus sp. C.* Youngquist (1947). UD

——lateralus THOMAS (1949), pp. 408, 425-426, pl. 2, fig. 12. Holotype, C832-3, Univ. Mo., Maple Mill sh., loc. 13, Iowa, comp. with *Bryantodus millensi.* UD

——latimarginatus MILLER & YOUNGQUIST (1947), pp. 506-507, pl. 72, fig. 13. Holotype, 5537, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——macer BRANSON & MEHL (Oct. 1934a), p. 283, pl. 23, fig. 4. Holotype, C386-5, Univ. Mo., Bushberg ss., Mo.; ——— COOPER (1939), pp. 385, 419, pl. 43, figs. 20-21, 31-32. Hypotypes, 38806-38807, Univ. Chi., pre-Welden sh., Okla.; ——— HASS (1943) (*cf. macer*), p. 308, *Bryantodus 2 n. spp.* of Knechtel & Hass (1938) are now changed to the above. LMi

——machaerodus YOUNGQUIST (Mar. 1947), p. 98, pl. 26, fig. 5. Holotype, 3365, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——macilentus BRANSON & MEHL (June 1934a), pp. 217-218, pl. 16, fig. 9. Holotype, C314-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——macrodentatus (ULRICH & BASSLER) (1926), p. 21, (*Prioniodus*); ——— (HOLMES) (1928), pp. 7, 21; ——— (CHADWICK) (Feb. 1935a), p. 311, diagnostic sp. confined to Genesee gr. UD

——masculus YOUNGQUIST & MILLER (1948), pp. 443-444, pl. 68, fig. 4. Holotype, 5595, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——microdens HUDDLE (1934), pp. 15, 69, pl. 2, fig. 10. Holotype, 1819, Ind. Univ., rare in upper New Albany sh., locs. 1, 3, 6 (fig.), 14, Ind.; ——— BRANSON & MEHL (1941d), p. 202, classed as sr. syn. of *Solenodella.* LMi

——millensi THOMAS (1949), pp. 408, 425-426, pl. 2, fig. 13. Holotype, C827-2, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——minutus ULRICH & BASSLER (1926), p. 27, pl. 10, fig. 6. Holotype, 11018, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 7. UD

——mirus HUDDLE (1934), pp. 15, 75, pl. 4, fig. 11. Holotype, 2302, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind. UD

——multidens ULRICH & BASSLER (1926), pp. 22-23, pl. 6, figs. 15-16, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 7; ——— HUDDLE (1934), pp. 15, 67-68, 72, pl. 2, figs. 1-3. Plesiotypes, 1815-1816, 1856, Ind. Univ., common in lower New Albany sh., loc. 26 (fig.), 27-28, 32; and mid. New Albany sh., loc. 33, comp. with *Bryantodus brevidens;* ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— CAMPBELL (1946), p. 844, ident. by Huddle, Blackiston fm., Ind.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 51, pl. 15, fig. 15. Fig. spm., 38, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y., same spm. as lower left fig., p. 273 of Hibbard (1942), comp. with *Bryantodus olentangiensis.* M?-UD

——mundus BRANSON & MEHL (Oct. 1934a), pp. 284-285, pl. 23, fig. 9. Holotype, C318-5, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— BRANSON & MEHL (1938d), pl. 33, fig. 37, holotype fig.; ——— COOPER (1939), pp. 385, 419, pl. 43 (pl. 46 given), figs. 25-26. Hypotype, 38808, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), p. 170, pl. 29, fig. 8, black sh., base Madison gr., Mont.; ——— BRANSON & MEHL (1944), p. 243, pl. 94, fig. 21; ——— BRANSON (1944), pp. 181, 220, pl. 32, fig. 37. LMi

——muricatus (HOLMES) (1928), pp. 7, 21, (*Prioniodus*); ——— (CHADWICK) (Feb. 1935a), p. 311, diagnostic sp. confined to Genesee gr. UD

——**nasutus** STAUFFER & PLUMMER (1932) (*Bryantodus*, p. 29), pp. 25, 29, pl. 2, fig. 28. Holotype, 19113, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex.; ——— ELLISON (1941), p. 120, classed as jr. syn. of *Ozarkodina delicatula;* ——— YOUNGQUIST & HEEZEN (1948), p. 771; ——— YOUNGQUIST & DOWNS (1949), p. 168. MP

——**nelsoni** ULRICH & BASSLER (1926), pp. 16-17, 25, 28, fig. 4, subfig. 13; pl. 10, fig. 9. Holotype, 11020, USNM, comp. with *Bryantodus insolens*, Hardin ss., Tenn.; ——— EDINGER (1926), p. 286, fig. 1 (pt.), 4th fig. from bottom in rt. vertical row, same as fig. 4, subfig. 13 of Ulrich & Bassler (1926); ——— HOLMES (1928), p. 7; ——— BASSLER (1932), p. 234, pl. 26, fig. 9, Hardin ss., Tenn.; ——— GLAESSNER (1945), p. 28, fig. 4, subfig. 13, after Ulrich & Bassler (1926), fig. 4, subfig. 13. UD

——**nitens** YOUNGQUIST & MILLER (1948), p. 444, pl. 68, fig. 1. Holotype, 5596, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**nitidus** ULRICH & BASSLER (1926), p. 24, pl. 4, figs. 12-14. Cotypes, 11266, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 7; ——— BRANSON & MEHL (July 1933d), p. 140, may be conspecific with *Bryantodus immersus;* ——— HUDDLE (1934), pp. 67, 70, 75, comp. with *Bryantodus cognatus, commutatus*, and *nodus;* ——— CHADWICK (Feb. 1935a) (*nitidens*), diagnostic sp. confined to Naples gr.; ——— YOUNGQUIST (1945), p. 358, comp. with *Bryantodus chesteri;* ——— COOPER (1945), p. 613, pl. 84, fig. 2. Fig. spm., Ill. Geol. Surv., black sh., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont.; ——— SLOSS & LAIRD (1945), on chart, DC unit, Mont.; ——— BOND (1947), pp. 21, 27, pl. 2, fig. 11. Hypotype, 18401, Ohio Univ., lower Ohio sh., Ohio. UD

——**nobilis** STAUFFER (1938), pp. 412, 422, pl. 49, fig. 14. Holotype, B4788, Univ. Minn., Olentangy sh., loc. 112, Ohio. UD

——**nodus** HUDDLE (1934), pp. 15, 75, pl. 4, fig. 12. Holotype, 1818, Ind. Univ., rare in upper New Albany sh., loc. 1, Ind. LMi

——**normalis** ULRICH & BASSLER (1926), pp. 24-25, pl. 4, figs. 25-27, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 7; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— THOMAS (1949), p. 425, comp. with *Bryantodus lateralus* Thomas (1949). UD

——**notatus** HUDDLE (1934), pp. 15, 73, pl. 4, figs. 1-2. Holotype, 2304 (fig. 1); paratype, 2303 (fig. 2), Ind. Univ., rare in mid. New Albany sh., locs. 20 (fig.), 21, Ind.; ——— YOUNGQUIST & MILLER (1948), p. 445, comp. with *Bryantodus spp.* Youngquist & Miller (1948), figs. 8-9. UD

——**obliquus** ULRICH & BASSLER (1926), pp. 23-24, pl. 6, figs. 19, 21. Cotypes, 11264, USNM, lower Rhinestreet sh., N. Y., comp. with *Bryantodus sinuatus* and *normalis;* ——— HOLMES (1928), p. 7; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——**obtusicuspus** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), p. 51, pl. 15, fig. 6. Holotype, 273, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y., same as Hibbard (1928), pl. 1, fig. 1 (in pt.). UD

——**obtusus** (ULRICH & BASSLER) (1926), p. 21, (*Prioniodus*); ——— (HOLMES) (1928), pp. 7, 21; ——— (CHADWICK) (Feb. 1935a), p. 311, diagnostic sp. confined to Genesee gr. UD

——**olentangiensis** STAUFFER (1938), pp. 412, 422, pl. 48, figs. 27-28. Syntypes, B4767-B4768 (figs. 27-28), Univ. Minn., Olentangy sh., loc. 187, Ohio; ——— MILLER & YOUNGQUIST (1947), p. 507, comp. with *Bryantodus latimarginatus;* ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 51, comp. with *Bryantodus multidens.* UD

——**orthus** COOPER (1939), p. 385, pl. 43, figs. 33-34. Holotype, 38809, Univ. Chi., pre-Welden sh., Okla. LMi

——**parvulus** (ULRICH & BASSLER) (1926), p. 21, (*Prioniodus*); ——— (HOLMES) (1928), pp. 7, 21; ——— (CHADWICK) (Feb. 1935a), p. 311, diagnostic sp. confined to Genesee gr. UD

——**parvus** (ULRICH & BASSLER) (1926), p. 21, (*Prioniodus*).

——**parvus** HUDDLE (1934), pp. 15, 74-75, pl. 4, fig. 9. Holotype, 2351, Ind. Univ., rare in mid. New Albany sh., loc. 20 (fig) and common in upper New Albany sh., locs. 1, 3, 6, 8, 10, Ind. M?-UD

——**pectenellus** HUDDLE (1934), pp. 15, 69, pl. 2, fig. 11. Holotype, 1820, Ind. Univ., rare in lower New Albany sh., loc. 26, Ind. M?D

——**pergracilis** ULRICH & BASSLER (1926), p. 27, pl. 10, fig. 11. Holotype, 11023, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 7; ——— HUDDLE (1934), pp. 15, 68, pl. 2, fig. 4. Plesiotype, 1827, Ind. Univ., rare in upper New Albany sh., locs. 3, 9, 11 (fig.), 13, Ind.; ——— CAMPBELL (1946), p. 894, common to Sanderson fm., Ind. UD-LMi

——**petilus** MILLER & YOUNGQUIST (1947), p. 507, pl. 72, figs. 6-7. Syntypes, 5538, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**planirostris** E. R. BRANSON (1934) (*Bryantotus* p. 326), p. 326, pl. 28, fig. 31. Holotype, C205-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 6, holotype fig.; ——— BRANSON (1944), pp. 181, 220, pl. 32, fig. 6. LMi

——**planulatus** STAUFFER & PLUMMER (1932), pp. 25, 29-30, pl. 2, figs. 20, 25. Cotypes, 19114, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex. MP

——**planus** BRANSON & MEHL (Oct. 1934a), p. 284, pl. 23, fig. 8. Holotype, C319-1, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— BRANSON & MEHL (1938d), pl. 33, fig. 35; ——— COOPER (1939), pp. 385, 419, pl. 43, figs. 29-30. Hypotype, 38810, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943) (*cf. planus*), p. 170, pl. 29, fig. 3, black sh., base Madison gr., loc. 4, Mont.; ——— BRANSON (1944), pp. 181, 220, pl. 32, fig. 35; ——— ? THOMAS (1949), p. 411, pl. 3, fig. 21; pl. 4, fig. 36. Fig. spms., C811-5 (fig. 21), loc. 2; C814-1 (fig. 36), loc. 12, Univ. Mo., English River siltstone (fig. 36), and Prospect Hill siltstone (fig. 21), Iowa. LMi

——**planus** HUDDLE (1934), pp. 16, 75-76, pl. 10, fig. 8. Holotype, 1932, Ind. Univ., rare in upper New Albany sh., loc. 1 (loc. 20 on pl.), Ind., see *Bryantodus plexus.* UD

——**plenus** HUDDLE (1934), pp. 15, 71, pl. 2, fig. 21. Holotype, 2305, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind., see *Bryantodus* UD

plexus; ——— COOPER (1945), p. 613, pl. 84, figs. 4-5. Fig. spm., Ill. Geol. Surv., black sh., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont.; ——— SLOSS & LAIRD (1945), on chart, DC unit, Mont.

——**plexus** (BRANSON & MEHL) (1941d), p. 202, ref. is to Huddle (1934), this may mean *planus* or *plenus*, classed as sr. syn. of *Solenodella*.

——**politus** (ULRICH & BASSLER) (1926), p. 21, (*Prioniodus*); ——— (HOLMES) (1928), pp. 7, 22, pl. 5, figs. 15-16, Hinde's (1879) pl. 15, figs. 12 and 11 resp.; ——— (BRANSON & MEHL) (July 1933d), p. 155, classed as sr. syn. of *Ozarkodina*?. UO

——**pravus** (HOLMES) (1928), pp. 7, 22, (*Prioniodus*); ——— (CHADWICK) (Feb. 1935a), p. 311, diagnostic sp. confined to Genesee gr. UD

——**prosseri** STAUFFER (1938), pp. 412, 422, pl. 49, figs. 1, 4. Holotype, B4775 (fig. 1); paratype, B4778 (fig. 4), Univ. Minn., Olentangy sh., locs. 111 (fig. 1), 112 (fig. 4), 118, 125, 187, Ohio; ——— YOUNGQUIST & MILLER (1948), p. 444, comp. with *Bryantodus nitens*. UD

——**radiatus** (ULRICH & BASSLER) (1926), pp. 21, 26, 28, comp. with *Bryantodus subradiatus* and *subbrevis*, (*Polygnathus*); ——— (HOLMES) (1928), pp. 7, 18, 22, pl. 5, fig. 12, Hinde's (1879) fig. 20, pl. 16 is reproduced, (*Prioniodus* = *Polygnathus*); ——— (BRANSON & MEHL) (July 1933d), pp. 140-141, pl. 11, fig. 23. Holotype, A4252, Brit. Mus., prob. none of Bryant's figs. are conspecific with the type; ——— (CHADWICK) (Feb. 1935a), pp. 312, 317, nondiagnostic sp. making its first appearance in the Genesee and last appearance in the Naples gr. UD

——**retusus** (ULRICH & BASSLER) (1926), p. 21, (*Prioniodus*); ——— (HOLMES) (1928), pp. 7, 22; ——— (CHADWICK) (Feb. 1935a), p. 311, diagnostic sp. confined to Genesee gr. UD

——**robustus** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), p. 51, pl. 15, fig. 1. Holotype, 29, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y. UD

——**rudis** E. R. BRANSON (1934), pp. 325-326, pl. 28, fig. 29. Holotype, C202-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— YOUNGQUIST & PATTERSON (1949), p. 59, pl. 15, fig. 4. Fig. spm., 4157, Univ. Iowa, lower Prospect Hill ss., Iowa. LMi

——**rugosus** GUNNELL (1933), pp. 264, 268, pl. 32, fig. 44. Holotype, 8, Gunnell coll., Univ. Mo., Quivira sh., Mo.; ——— ELLISON (1941), p. 120, classed as jr. syn. of *Ozarkodina delicatula;* ——— YOUNGQUIST & HEEZEN (1948), p. 771; ——— YOUNGQUIST & DOWNS (1949), p. 168. UP

——**sciotoensis** STAUFFER (1938), pp. 412, 422, pl. 48, fig. 21. Holotype, B4761, Univ. Minn., Olentangy sh., loc. 120, Ohio. UD

——**scitulus** BRANSON & MEHL (Oct. 1934a), p. 283, pl. 23, fig. 5. Holotype, C318-4, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— BRANSON & MEHL (1938d), pl. 33, fig. 36, holotype fig.; ——— COOPER (1939), p. 417, classed as sr. syn. of *Subbryantodus*?; ——— BRANSON (1944), pp. 181, 220, pl. 32, fig. 36. LMi

——**scolops** COOPER (1939), pp. 385-386, pl. 43, fig. 24. Holotype, 38811, Univ. Chi., pre-Welden sh., Okla.; ——— THOMAS (1949), p. 411, pl. 3, fig. 16. Fig. spm., C815-1, Univ. Mo., English River siltstone, loc. 10, Iowa. LMi

——**semiseparatus** ULRICH & BASSLER (1926), pp. 24, 26, pl. 4, fig. 16. Holotype, 11268, USNM, lower Rhinestreet sh., N. Y., comp. with *Bryantodus curvatus;* ——— HOLMES (1928), p. 7; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——**serrula** HUDDLE (1934), pp. 15, 71, 75, pl. 2, figs. 18-20. Holotype, 1821 (fig. 18); paratypes, 1822 (fig. 19), 1823 (fig. 20), Ind. Univ., upper New Albany sh., abundant at locs. 1 (figs. 18-19), 3, rare at locs. 9, 12-13, 14 (fig. 20), and common at locs. 6, 8, 10-11, Ind., comp. with *Bryantodus mirus;* ——— COOPER & SLOSS (1943) (*serrulus*), p. 170, pl. 29, fig. 4, black sh., base Madison gr., loc. 4, Mont.; ——— BOND (1947) (*serrulus*), pp. 21, 27, pl. 2, fig. 14. Hypotype, 18404, Ohio Univ., lower Ohio sh., Ohio. UD-LMi

——**simplex** BRANSON & MEHL (June 1934a), p. 222, pl. 16, fig. 12. Holotype, C314-3, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162; ——— YOUNGQUIST & MILLER (1948), p. 445, comp. with *Bryantodus spp.* (fig. 18) Youngquist & Miller (1948); ——— THOMAS (1949), p. 425, comp. with *Bryantodus lateralus*. UD

——**sinuatus** ULRICH & BASSLER (1926), pp. 23-24, pl. 6, figs. 22-24. Cotypes, 11265, USNM, lower Rhinestreet sh., N. Y., comp. with *Bryantodus normalis;* ——— HOLMES (1928), p. 7; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——**spatulatus** (ULRICH & BASSLER) (1926), p. 21, (*Prioniodus*); ——— (HOLMES) (1928), pp. 7, 22; ——— (CHADWICK) (Feb. 1935a), p. 311, diagnostic sp. confined to Genesee gr. UD

——**stratfordensis** STAUFFER (1938), pp. 412, 423, pl. 48, fig. 17, pl. 49, fig. 6. Holotype, B4757 (fig. 17); paratype, B4780 (fig. 6), Univ. Minn., Olentangy sh., locs. 111 (fig. 17), 187 (fig. 6); Plum Brook sh., loc. 108, Ohio; and Arkona beds, loc. 156, Ont.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 50, comp. with *Bryantodus hanoverensis;* ——— YOUNGQUIST & MILLER, (1948), pp. 444-445, pl. 68, fig. 3. Fig. spm., 5597, Univ. Iowa, Sweetland Creek sh., Iowa. M-UD

——**strigatus** GUNNELL (1933), pp. 264, 268, pl. 32, fig. 45. Holotype, 9, Gunnell coll., Univ. Mo., Quivira sh., Mo., comp. with *Bryantodus rugosus* and *strigillatus;* ——— ELLISON (1941), p. 120, classed as jr. syn. of *Ozarkodina delicatula;* ——— YOUNGQUIST & HEEZEN (1948), p. 771; ——— YOUNGQUIST & DOWNS (1949), p. 168. UP

——**strigillatus** GUNNELL (1933), pp. 264, 268, pl. 32, fig. 46. Holotype, 10, Gunnell coll., Univ. Mo., Quivira sh., Mo.; ——— ELLISON (1941), p. 120, classed as jr. syn. of *Ozarkodina delicatula;* ——— YOUNGQUIST & HEEZEN (1948), p. 772; ——— YOUNGQUIST & DOWNS (1949), p. 168. UP

——**subangulatus** HOLMES (1928), p. 28, pl. 10, fig. 6. Holotype, 11448, USNM, Chatta- UD

nooga black sh., Ala.; ——— BUTTS (1926) (*subangulata*), p. 160, pl. 48, fig. 3, (*nomen nudum*); ——— COOPER (June 1931), pp. 147, 151, pl. 20, fig. 7, lower Woodford fm., Okla.

——**subbrevis** ULRICH & BASSLER (1926), p. 28, pl. 10, figs. 15-16. Cotypes, 11027, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 8; ——— HUDDLE (1934), pp. 15, 68, pl. 2, fig. 5. Plesiotype, 1825, Ind. Univ., rare in upper New Albany sh., locs. 1-2, 14 (fig.), Ind.; ——— COOPER (1939), p. 399, classed as sr. syn. of *Pinacodus;* ——— CAMPBELL (1946), p. 894, common to Sanderson fm., Ind. UD-LMi

——**subcarinatus** HUDDLE (1934), pp. 15, 74, pl. 4, figs. 7-8. Holotype, 2348 (fig. 7); paratype, 2349 (fig. 8), Ind. Univ., rare in mid. New Albany sh., locs. 18, 20 (fig.), 21, Ind.; ——— CAMPBELL (1946), pp. 844-845, ident. by Huddle, Blackiston fm., Ind.; ——— BOND (1947), pp. 21, 27, pl. 2, fig. 15. Hypotype, 18405, Ohio Univ., lower Ohio sh., Ohio. UD

——**subequalis** COOPER (Sept. 1931), p. 234, pl. 28, fig. 11, Woodford fm., Okla.; ——— BOND (1947), pp. 21, 28, pl. 2, fig. 16. Hypotype, 18406, Ohio Univ., lower Ohio sh., Ohio. UD

——**sublimatus** STAUFFER (1938), pp. 412, 423, pl. 49, fig. 7. Holotype, B4781, Univ. Minn., Olentangy sh., locs. 111 (fig.), 117, Ohio. UD

——**subplanus** HUDDLE (1934), pp. 15, 73-74, pl. 4, figs. 5-6. Holotype, 2265 (fig. 5); paratype, 2312 (fig. 6), Ind. Univ., rare in mid. New Albany sh., locs. 18, 19 (fig. 6), 20 (fig. 5), 21, Ind.; ——— COOPER (1945), p. 613, comp. with *Bryantodus sp.* Cooper (1945); ——— BOND (1947), pp. 21, 28, pl. 2, fig. 17. Hypotype, 18407, Ohio Univ., lower Ohio sh., Ohio. UD

——**subradiatus** ULRICH & BASSLER (1926), pp. 25-27, 62, pl. 10, figs. 12-13. Cotypes, 11022, USNM, Hardin ss., Tenn., comp. with *Bryantodus germanus* and *gracilis;* ——— HOLMES (1928), p. 8; ——— BASSLER (1932), p. 234, pl. 26, figs. 8, 8′, Hardin ss., Tenn.; ——— COOPER (1935), p. 310, pl. 27, fig. 18. Fig. spm., 38068, Univ. Chi., Ark. novaculite, beds 7, 13, 15, mid.; bed A, upper div., Ark. UD-LMi

——**sulcatus** STAUFFER & PLUMMER (1932), pp. 25, 30, pl. 2, figs. 11, 14, 30. Holotype, 19115 (fig. 14); paratypes, 19116 (figs. 11, 30), Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex.; ——— GUNNELL (1933), p. 267, comp. with *Bryantodus delicatus;* ——— ELLISON (1941), p. 120, classed as jr. syn. of *Ozarkodina delicatula;* ——— YOUNGQUIST & HEEZEN (1948), p. 771; ——— YOUNGQUIST & DOWNS (1949), p. 168. MP

——**tenuis** ULRICH & BASSLER (1926), p. 26, pl. 10, fig. 7. Holotype, 11025, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 8. UD

——**transitans** ULRICH & BASSLER (1926), p. 26, pl. 4, figs. 10-11. Cotype, 11262, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 8; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——? **tridentatus** ULRICH & BASSLER (1926), p. 22, pl. 6, fig. 13. Holotype, 11259, USNM, lower Rhinestreet sh.; ——— HOLMES (1928) (no ?), p. 8; ——— CHADWICK (Feb. 1935a) (no ?), p. 316, diagnostic sp. confined to Naples gr. UD

——**tylus** COOPER (1939), p. 386, pl. 43, figs. 45-46. Holotype, 38812, Univ. Chi., pre-Welden sh., Okla. LMi

——**typicus** ULRICH & BASSLER (1926), pp. 16-17, 21-23, fig. 4, subfigs. 11-12; pl. 6, figs. 11-12. Cotype, 11258, USNM, lower Rhinestreet sh., N. Y., comp. with *Bryantodus crassidens*, type species for *Bryantodus;* ——— BASSLER (1925) (*typicalis*), p. 219, (*nomen nudum*); ——— EDINGER (1926), p. 286, fig. 1 (pt.), 5th and 6th figs. from bottom of rt. vertical row, same as subfigs. 12 and 11 resp. of fig. 4 of Ulrich & Bassler (1926); ——— HOLMES (1928), pp. 6, 8; ——— BRANSON & MEHL (June 1934a), pp. 217, 223, comp. with *Bryantodus arcuatus;* ——— HUDDLE (1934), p. 67; ——— CHADWICK (Feb. 1935a), p. 316, diagnostic sp. confined to Naples gr.; ——— BRANSON & MEHL (1944), p. 243; ——— GLAESSNER (1945), p. 28, fig. 4, subfigs. 11-12, after Ulrich & Bassler (1926), fig. 4, subfigs. 11-12; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), pp. 50-52, pl. 15, figs. 4, 9, 12. Fig. spms., 31 (fig. 4), 514 (fig. 9), 436 (fig. 12), Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y., *Bryantodus sp.* Hibbard (1928), pl. 1, fig. 5 is classed as a jr. syn. UD

——**ulrichi** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), p. 52, pl. 15, fig. 8. Holotype, 353, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y. UD

——**versus** STAUFFER (1940), p. 421, pl. 59, figs. 10, 14-16, 21. Syntypes, B5575 (fig. 10), B5579-B5581 (figs. 14-16), B5586 (fig. 21), Univ. Minn., clay above ls., admixture, and upper Cedar Valley ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. MD

——**wesleyianensis** STAUFFER (1938), pp. 412, 423, pl. 48, fig. 32. Holotype, B4772, Univ. Minn., Olentangy sh., locs. 125, 187 (fig.), Ohio. UD

——**winchelli** STAUFFER (1938), pp. 412, 423, pl. 48, fig. 33. Holotype, B4773, Univ. Minn., Olentangy sh., loc. 117, Ohio. UD

——**sp.** HOLMES (1928), p. 38, pl. 10, fig. 4, Chattanooga black sh., Ala. UD

——**sp.** (HOLMES) (1928), p. 37, pl. 8, figs. 2, 4, [*Polygnathus dubius* Hinde (1879) (pt.), pl. 16, figs. 6 and 8 resp.]. UD

——**sp.** (HOLMES) (1928), p. 37, pl. 8, figs. 17, 25, [*Polygnathus dubius* of Clarke (1887) (pt.), pl. A-1, figs. 6 and 13 resp.]; ——— (WETZEL) (1933), p. 87, comp. with pl. 6, fig. 31 of Wetzel. UD

——**sp.** HIBBARD (1928), p. 117, fig. 5, lower Rhinestreet sh., N. Y.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 51, classed as jr. syn. of *Bryantodus typicus.* UD

——**sp.** STAUFFER & PLUMMER (1932), p. 25, East Mt. sh. memb., Mineral Wells fm., locs. 181-T-9, A, and 181-T-9, B, Tex. MP

——? **sp.** GUNNELL (1933), pp. 263, 267, pl. 31, fig. 40. Fig. spm., Gunnell coll., Univ. Mo., basal sh., Winterset ls., Mo. UP

——**spp.** SCOTT (1934), pp. 452-454, pl. 59, figs. 10a, 13a, 13a′, 15a, 15a′, 17a, 18b, 18b′.

——**sp.** DEMANET (1938), p. 161, pl. 14, figs. 5-7. Fig. spms., Musée Royal d'Histoire Naturelle de Belgique, Couches de passage, V3c su- UMi

perieur, locs. 4 (fig. 6), 5, 17, 22354 (figs. 5, 7), lower Namurien, Nmla, loc. 17, Belgium.

——**sp.** STAUFFER (1938), p. 412, Olentangy sh., locs. 109-110, 117-118, 187, Ohio. UD

——**n. spp.** KNECHTEL & HASS (1938), p. 519, mentioned spms., USGS coll. 8432, basal sh., Lodgepole ls., Mont.; ——— HASS (1943), p. 308, two spp. classed as jr. syn. of *Bryantodus cf. macer* and one sp. classed as sr. syn. of *Bryantodus sp.* fragments. LMi

——**sp.** BUTTS (1940), p. 313, Millboro sh., Marcellus memb., Va. MD

——**sp.** STAUFFER (1940), p. 421, pl. 58, figs. 28, 32, 43, pl. 59, figs. 9, 11, 13, 22, 26, 28. Fig. spms., B5550 (pl. 58, fig. 28), B5554 (fig. 32), B5565 (fig. 43), B5574 (fig. 9), B5576 (fig. 11), B5578 (fig. 13), B5587 (fig. 22), B5591 (fig. 26), B5593 (pl. 59, fig. 28), Univ. Minn., upper Cedar Valley ls., (figs. 28, 32 of pl. 58, figs. 11, 13, 22, 28 of pl. 59) and clay above ls., (figs. 43, 9, 26), Minn. MD

——**sp.** HASS (1941), p. 75, pl. 16, fig. 1. Fig. spm., 7559, USGS, Bushberg-Hannibal horizon, Okla. LMi

——**sp. fragments** (HASS) (1943), p. 308 [*Bryantodus n. sp.* and *Ozarkodina n. sp.* Knechtel & Hass (1938)]. LMi

——**n. sp.** BRANSON (1944), p. 156, pl. 27, figs. 32-39, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——**sp.** STAUFFER (1944), p. 257, Olentangy sh., ls. mine, Barberton, Ohio. UD

——**sp.** FOWLER (1944), p. 255, sh. in well 4238′ deep, 1¾ mi. WSW of Chop Gate, Bilsdale, Yorkshire, Eng. P

——**sp.** COOPER (1945), p. 613, pl. 84, fig. 3. Fig. spm., Ill. Geol. Surv., black sh., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont., comp. with *Bryantodus subplanus.* UD

——**n. sp.** CAMPBELL (1946), p. 844, ident. by Huddle, Blackiston fm., Ind. UD

——**sp. A** YOUNGQUIST (1947), pp. 98-99, pl. 24, fig. 6. Fig. spm., 3366, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——**sp. B** YOUNGQUIST (1947), p. 99, pl. 24, fig. 12. Fig. spm., 3367, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——**sp. C** YOUNGQUIST (1947), p. 99, pl. 24, fig. 23. Fig. spm., 3368, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa, comp. with *Bryantodus iowaensis.* UD

——? **sp.** YOUNGQUIST (1947), p. 99, pl. 25, fig. 24. Fig. spm., 3369, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——? **sp. indet.** MEHL & THOMAS (1947) (*Bruantodus* on pl.), p. 9, pl. 1, fig. 39. Fig. spm., C655-2, Univ. Mo., Fern Glen fm., Mo. MMi

——? **spp.** MILLER & YOUNGQUIST (1947), p. 507, pl. 73, figs. 8, 19. Fig. spms., 5539 (fig. 8), 5540 (fig. 19), Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**spp.** YOUNGQUIST & MILLER (1948), p. 445, pl. 67, figs. 8-9, 18. Fig. spms., 5598 (figs. 8-9), 5599 (fig. 18), Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**sp. A** THOMAS (1949), pp. 408, 426, pl. 2, fig. 2. Fig. spm., C822-1, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——**sp. ?** THOMAS (1949), pp. 408, 426, pl. 2, fig. 14. Fig. spm., C826-4, Univ. Mo., Maple Mill sh., loc. 14, Iowa. UD

——**sp.** THOMAS (1949), pp. 408, 426, pl. 2, fig. 15. Fig. spm., C830-2, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——**sp. B** THOMAS (1949) (*sp. ? B* p. 411), pp. 411, 426, pl. 4, fig. 30. Fig. spm., C820-4, Univ. Mo., English River siltstone, loc. 11, Iowa. LMi

——**sp.** LAYER *et al.* (1949), p. 594, D-3 zone 875 ft. below top of D-2 zone, Alta. UD

CARDIODELLA (*Cardiodus*) BRANSON & MEHL (July 1933a), pp. 80-81. Type species, *Cardiodus tumidus* BRANSON & MEHL (July 1933a); ——— (*Cardiodus*) BRANSON & MEHL (July 1933a, b), pp. 82, 108; ——— (*Cardiodus*) HUDDLE (1934), p. 34; ——— (*Cardiodus*) BRANSON & MEHL (1943), pp. 381, 386; ——— (*Cardiodus* and *Cardiodella*) BRANSON & MEHL (1944), pp. 237, 239; ——— (*Cardiodus* and *Cardiodella*) ELLISON (Jan. 1946), pp. 94, 108, upper Chazy through Black River, fibrous type, *Cardiodus* is preoccupied; changed to *Cardiodella* but not in an official manner. MO

A dash (—) represents *Cardiodella* unless the name *Cardiodus* in parentheses ( ) precedes the author's name, in which case the name used was *Cardiodus.*

——**abbreviatus** (*Cardiodus*) BRANSON & MEHL (1943), pp. 385-386, pl. 64, fig. 18. Holotype, C540-1, Univ. Mo., upper Bromide fm., Okla. MO

——**arcuatus** (*Cardiodus*) BRANSON & MEHL (July 1933a), p. 82, pl. 5, fig. 16. Holotype, C277-3, Univ. Mo., Joachim fm., Mo.; ——— (*Cardiodus*) BRANSON & MEHL (1943), p. 382, pl. 64, fig. 48. Fig. spm., C534-4, Univ. Mo., lower Bromide fm., Okla.; ——— (*Cardiodus*) BRANSON (1944), pp. 69, 71, pl. 10, fig. 29. MO

——**bifidus** (*Cardiodus*) BRANSON & MEHL (July 1933a), p. 82, pl. 5, fig. 9. Holotype, C299-1, Univ. Mo., Joachim fm., Mo.; ——— (*Cardiodus*) BRANSON (1944), pp. 69, 71, pl. 10, fig. 15. MO

——**delicatus** (*Cardiodus*) BRANSON & MEHL (July 1933a), p. 82, pl. 6, fig. 14. Holotype, C278-4, Univ. Mo., Joachim fm., Mo.; ——— (*Cardiodus*) BRANSON (1944), p. 69. MO

——**densus** (*Cardiodus*) BRANSON & MEHL (July 1933a), p. 81, pl. 5, fig. 15. Holotype, C296-1, Univ. Mo., Joachim fm., Mo.; ——— (*Cardiodus*) BRANSON & MEHL (1943), pp. 376, 385, pl. 64, fig. 21. Fig. spm., C538-5, Univ. Mo., upper Bromide fm., Okla.; ——— (*Cardiodus*) BRANSON (1944), pp. 69, 71, pl. 10, fig. 28. MO

——**diminutivus** (*Cardiodus*) BRANSON & MEHL (July 1933a), p. 83, pl. 6, fig. 15. Holotype, C289-5, Univ. Mo., Joachim fm., Mo.; ——— (*Cardiodus*) BRANSON (1944), p. 69; ——— ? (*Cardiodus*) YOUNGQUIST & CULLISON (1946), pp. 580-581, pl. 89, fig. 11. Hypotype, 2963, Univ. Iowa, Dutchtown fm., Mo. MO

——? **distortus** (*Cardiodus*) BRANSON & MEHL (July 1933b), p. 108, pl. 8, fig. 11. Holotype, C113-3, Univ. Mo., Plattin ls., Mo.; ——— (*Cardiodus*) BRANSON (1944), pp. 79-80, pl. 11, fig. 20. MO

——**divaricatus** (*Cardiodus*) BRANSON & MEHL (July 1933a), pp. 82-83, pl. 6, fig. 16. Holotype, C279-1, Univ. Mo., Joachim fm., Mo.; ——— (*Cardiodus*) BRANSON (1944), p. 69. MO

——**divisus** (*Cardiodus*) BRANSON & MEHL (July 1933a), pp. 83-84, pl. 5, fig. 10. Holotype, C291-3, Univ. Mo., Joachim fm., Mo.; ——— (*Cardiodus*) BRANSON (1944), pp. 69, 71, pl. 10, fig. 16. MO

——? **leviculus** (*Cardiodus*) STAUFFER (1938), pp. 412, 423-424, pl. 51, fig. 22. Holotype, B5092, Univ. Minn., Olentangy sh., (admix?), loc. 153, Ont. O

——**robustus** (*Cardiodus*) BRANSON & MEHL (1943), p. 382, pl. 64, figs. 23-26. Holotype, C536-5 (fig. 24); fig. spms., C537-2 (fig. 23), C535-2 (fig. 25), C533-2 (fig. 26), Univ. Mo., lower Bromide fm., Okla. MO

——**tumidus** (*Cardiodus*) BRANSON & MEHL (July 1933a), p. 81, pl. 6, fig. 19, pl. 7, fig. 2. Holotype, C275-4, Univ. Mo., Joachim fm., Mo.; ——— (*Cardiodus*) BRANSON & MEHL (July 1933a), p. 81, type species for *Cardiodella;* ——— BRANSON & MEHL (1944), p. 239, pl. 93, figs. 17-18; ——— (*Cardiodus*) BRANSON & MEHL (1944), p. 237; ——— (*Cardiodus*) BRANSON (1944), pp. 69, 71, pl. 10, figs. 5, 21-23. MO

——**uniformis** (*Cardiodus*) BRANSON & MEHL (July 1933a), p. 83, pl. 6, fig. 13; pl. 5, fig. 11. Holotype, C286-1, Univ. Mo., Joachim fm., Mo.; ——— (*Cardiodus*) BRANSON (1944), pp. 69, 71, pl. 10, figs. 9, 17. MO

CAVUSGNATHUS HARRIS & HOLLINGSWORTH (1933), pp. 193-194, 200-201. Type species, *C. alta* HARRIS & HOLLINGSWORTH (1933); ——— GUNNELL (1933), p. 286; ——— HUDDLE (1934), p. 35; ——— BRANSON & MEHL (Mar. 15, 1939b), p. 167; ——— BRANSON & MEHL (1941a), pp. 169, 177, Caney sh., Okla.; ——— BRANSON & MEHL (1941b), p. 183; ——— BRANSON & MEHL (1941e), p. 103; ——— ELLISON (1941), pp. 109-111, 125-127, comp. with *Idiognathodus, Polygnathodella,* and *Streptognathodus;* ——— ELLISON & GRAVES (1941), pp. 2, 4, 10; ——— SCOTT (1942) (*Cavusgnathodus*), pp. 295, 300; ——— SCOTT (1942) (r)NRC (1943), p. 21; ——— BRANSON & MEHL (1944), p. 245; ——— ELLISON (Jan. 1946), pp, 94, 96, 98, 108-109, Chester through Wolfcamp, transition occurs between *Cavusgnathus* and *Polygnathodella,* platform type, *Lewistownella* (pt.) is classed as a jr. syn.; ——— COOPER (1947a), pp. 84, 91; ——— COOPER (1947b), p. 269; ——— MCLAUGHLIN (1947), p. 1947, Glen Eyrie beds, Colo.; ——— YOUNGQUIST & DOWNS (1949), pp. 161-162; ——— STURGEON & YOUNGQUIST (1949), pp. 380, 382-383. UMi-LPm

——**alta** HARRIS & HOLLINGSWORTH (1933), p. 201, pl. 1, figs. 10a-b. Type, 1505, Okla. Univ., Caney sh., Okla.; ——— BRANSON & MEHL (1944), p. 245. UMi

——**arca** STURGEON & YOUNGQUIST (1949), pp. 382-383, pl. 75, figs. 11-12. Holotype, 19620, Ohio Univ., Washingtonville sh., Allegheny fm., Ohio, comp. with *Cavusgnathus sp.* Sturgeon & Youngquist (1949). MP

——**cristata** BRANSON & MEHL (1941a), pp. 177-178, pl. 5, figs. 26-31. Holotype, C542-4 (fig. 29); fig. spms., C543-2 (figs. 26-28, 30-31), Univ. Mo., lower Caney sh., Okla.; ——— BRANSON & MEHL (1944), p. 245, pl. 94, figs. 75-78; ——— COOPER (1947a), pp. 84, 91, pl. 20, figs. 4-10. Hypotypes, Ill. Geol. Surv., Kinkaid fm., bed 4, Ill.; ——— COOPER (1947b), p. 267; ——— STURGEON & YOUNGQUIST (1949), p. 383, comp. with *Cavusgnathus arca.* UMi

——**flexa** ELLISON (1941), pp. 109-111, 126-127, pl. 21, figs. 42-43, 46. Holotype, C144-2, Univ. Mo., Larsh-Mission Creek sh., loc. 0043 (fig.); locs. 0128, 0044, 0006, Kans., comp. with *Cavusgnathus lauta* and *giganta;* ——— BRANSON (1944), pp. 308, 325, pl. 45, figs. 42-43, 46; ——— COOPER (1947b), p. 269; ——— MCLAUGHLIN (1947), p. 1974, Glen Eyrie beds, Colo. MP-LPm

——**gigantus** GUNNELL (1933) (*gigantea* p. 264), pp. 264, 286-287, pl. 33, figs. 7-8. Holotype, 83, Gunnell coll., Univ. Mo., Lane sh., Mo., comp. with *Cavusgnathus lautus* and *missouriensis;* ——— ELLISON (1941) (*giganta*), pp. 108-111, 126, pl. 21, figs. 44-45, 49. Holotype, C515-5 G; hypotypes, C556-4 (figs. 44-45), C143-4 (fig. 49), Univ. Mo., locs. 1367UM (figs. 44-45), 0043E (fig. 49), 672, 680, 0176, 0128, 1368, 0132, 1274, 1284, 1354, 0107, 1273, 1283, 0108, 0044, 0006, Mo., comp. with *Cavusgnathus lauta* and *flexa;* ——— ELLISON & GRAVES (1941) (*giganta*), pp. 2, 4, pl. 3, fig. 3. Hypotype, 4812, Mo. Sch. Min., Rolla, mid. Dimple fm., loc. G920, Tex.; ——— BRANSON (1944) (*giganta*), pp. 308, 325, pl. 45, figs. 44-45, 49; ——— COOPER (1947b) (*giganta*), p. 269; ——— MCLAUGHLIN (1947) (*giganta*), p. 1974, Glen Eyrie beds, Colo.; ——— YOUNGQUIST & DOWNS (1949) (*giganta*), pp. 161-162, pl. 30, figs. 18-20. Fig. spm., 14017, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa; ——— STURGEON & YOUNGQUIST (1949) (*giganta*), p. 383, comp. with *Cavusgnathus arca.* LP-LPm

——**lautus** GUNNELL (1933) (*lauta* p. 264), pp. 264, 286, pl. 31, figs. 67-68; pl. 33, fig. 9. Holotype, 82, Gunnell coll., Univ. Mo., (figs. 67-68), Cherryvale sh. (figs. 67-68), Quivira sh. (fig. 9), Mo.; ——— ELLISON (1941) (*lauta*), pp. 109-111, 126, pl. 21, figs. 47-48. Holotype, C502-3 G; hypotypes, C556-5 (figs. 47-48), C516-1 G, C516-2 G, C516-3 G, C502-4 G, locs. 1367UM (all types), 0128, 1368, 0132, 1274, 1284, 1354, 1273, 1283, 1275-1279, 0108, 0067, 0043, 0044, 0006, Mo., comp. with *Cavusgnathus flexa* and *giganta; Cavusgnathus missouriensis* is classed as a jr. syn.; ——— ELLISON & GRAVES (1941) (*lauta*), pp. 2, 4-6, pl. 3, fig. 2. Hypotype, 4811, Mo. Sch. Min., Rolla, mid. Dimple fm., loc. G907, Tex., comp. with *Cavusgnathus nodulifera* and *sinuata;* ——— BRANSON (1944) (*lauta*), pp. 308, 325, pl. 45, figs. 47-48; ——— COOPER (1947b) (*lauta*), p. 269; ——— STURGEON & YOUNGQUIST (1949) (*lauta*), p. 383, comp. with *Cavusgnathus arca.* LP-LPm

——**missouriensis** GUNNELL (1933), pp. 264, 286-287, pl. 33, figs. 10-11. Holotype, 84, Gunnell coll., Univ. Mo., Lane sh., Mo., comp. with *Cavusgnathus lautus* and *Cavusgnathus gigantus;* ——— ELLISON (1941), p. 126, classed as jr. syn. of *Cavusgnathus lauta.* UP

——**nodulifera** ELLISON & GRAVES (1941), pp. 2, 4, pl. 3, figs. 4, 6. Holotype, 7143 (fig. 4); paratype, 7164 (fig. 6), Mo. Sch. Min., Rolla, Dimple fm., lower, loc. G910, mid., locs. G901, G919 (fig. 6), G920, G923 (fig. 4), Tex. LP

——**sinuata** (HARRIS & HOLLINGSWORTH) (1933) (ab)Z (1937), p. 177, (*Idiognathoides*); ——— (ELLISON & GRAVES) (1941), pp. 2, 4-6, 9, pl. 3, figs. 1, 5, 7. Hypotypes, 7144 (fig. 5), 7145 (fig. 7), 7146 (fig. 1), Mo. Sch. Min., Rolla, Dimple fm., mid., locs. G902 LP

(figs. 5, 7), G907, G923, G906, G921, G905, G919, G903, G918, G917, G901, G926 (fig. 1), upper transition zone G928, lower transition zone G913, G912, G910, Tex., comp. with *Cavusgnathus nodulifera* and *lauta* and *Polygnathodella ouachitensis, attenuata,* and *convexa, (Polygnathodella = Idiognathoides).*

——? **spicata** YOUNGQUIST & DOWNS (1949), pp. 161-162, pl. 30, figs. 24-25. Holotype, 14018, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa. MP

——**sp.** HASS (1941), p. 76, pl. 14, fig. 6. Fig. spm., 7561, USGS, Barnett sh., Tex. MMi

——**spp.** SCOTT (1942), p. 300, pl. 39, figs. 11b, 12b, 13b, 8b, pl. 40, figs. 1, 20, black fissile sh., Heath fm., Mont. UMi

——**sp.** STURGEON & YOUNGQUIST (1949), pp. 381, 383, pl. 74, fig. 13. Fig. spm., 19621, Ohio Univ., Hamden ls., Allegheny fm., Ohio, comp. with *Cavusgnathus arca.* MP

CENTRODUS PANDER (1856), pp. 31-32, 80, 90. Type species, *C. simplex* PANDER (1856), on p. 80, Pander recognizes this name as being preoccupied and proposes the name *Lonchodus* in its place, comp. with *Ctenognathus;* ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1858), p. 339; ——— EICHWALD (1860), p. 665; ——— ZITTEL (1890), pp. 59-60; ——— BRYANT (1921), pp. 21-22; ——— ULRICH & BASSLER (1926), pp. 17, 42; ——— ROUNDY (1926), pp. 15-16; ——— HOLMES (1928), pp. 8, 14; ——— STAUFFER (1935a), p. 144; ——— ZEBERA (1936b), p. 189; ——— ELLISON (Jan. 1946), p. 108. MO-MMi

——**convexus** PANDER (1856), p. 31, pl. 2A, fig. 4 (figs. 7, 8 given), Bergkalk, Tula, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HINDE (1879), p. 365, comp. with *Polygnathus coronatus;* ——— HINDE (1900), p. 342, classed as sr. syn. of *Polygnathus;* ——— BRYANT (1921), p. 21, comp. with *Centrodus coronatus;* ——— ROUNDY (1926), p. 15; ——— HOLMES (1928), pp. 8, 14; ——— COOPER (1939), p. 392. LMi

——**coronatus** (BRYANT) (1921), p. 21, Rhinestreet sh., N. Y., (*Polygnathus*). UD

——**distans** SMITH (1907), p. 244, pl. 5, fig. 7. Type, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S. Uplands Scot.; ——— HOLMES (1928), pp. 8, 14, *Lonchodus = Centrodus (non).* MO

——**duplicatus** (*Lonchodus* on pl.) PANDER (1856), p. 31, pl. 2A, figs. 7-8, Bergkalk, Tula, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HINDE (1900), p. 341, pl. 9, fig. 12. Fig. type, Geol. Surv. Scot., Edinburgh, rare in Upper Carb. ls. (fig.), and Lower ls., W. Scot., comp. with *Polygnathus dubius* Hinde (1879), pl. 16, fig. 12; ——— ROUNDY (1926), p. 15; ——— HOLMES (1928), pp. 8, 11, classed as sr. syn. of *Hindeodella.* L-MMi

——**erectus** SMITH (1907), p. 244, pl. 5, figs. 1-2, 4-5. Fig. type, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S. Uplands Scot.; ——— HOLMES (1928), pp. 8, 14, *Lonchodus = Centrodus (non).* MO

——**invalidus** BRYANT (1921), pp. 21-22, pl. 3, figs. 3, 5, Genundewa ls., N. Y.; ——— ULRICH & BASSLER (1926), p. 18, classed as sr. syn. of *Prioniodella;* ——— ROUNDY (1926), p. 13; ——— HOLMES (1928), pp. 8, 19. UD

——**lineatus** (*Lonchodus* on pl.) PANDER (1856), p. 31, pl. 2A, fig. 9, Bergkalk, Tula, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1860), p. 665; ——— HINDE (1879), p. 363; ——— HINDE (1900), pp. 341-342, pl. 9, figs. 13-14. Fig. spms., Geol. Surv. Scot., Edinburgh, rare in Upper Carb. ls. (fig.), and Mid. lss., comp. with *Polygnathus dubius* Hinde (1879), pl. 16, fig. 13; and pl. 57, figs. 4, 8 Newberry (1875b); ——— SMITH (1907), p. 244, comp. with *Centrodus erectus;* ——— SMITH (1907a), p. 239, Upper Coal Measures, above Craigmark Ironstone, Scot.; ——— ROUNDY (1926), p. 15, *Lonchodus? = Centrodus (non);* ——— HOLMES (1928), pp. 8, 11, classed as sr. syn. of *Hindeodella;* ——— COOPER (1939), p. 390. L-MMi

——**obliquus** SMITH (1907), p. 244, pl. 5, fig. 3. Type, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S. Uplands Scot.; ——— HOLMES (1928), pp. 8, 14, on p. 12 *Centrodus obliquus* is listed under *Hindeodella* but *Ctenognathus* is meant in place of *Centrodus; Lonchodus = Centrodus (non).* MO

——**princeps** (BRYANT) (1921), p. 22, text fig. 6, *Lonchodus = Centrodus (non),* conodont bed, N. Y., (*Polygnathus*); ——— W. WETZEL (1923), p. 62, comp. with forms collected from the Cretaceous Geschiebefeuerstein extending from N. France to Poland; ——— HOLMES (1928), pp. 8, 15, [*Lonchodus = Centrodus (non) = Polygnathus*]; ——— WETZEL (1933), p. 83; ——— BRANSON & MEHL (July 1933d), p. 139, classed as sr. syn. of *Ligonodina?.* UD

——**simplex** (*Lonchodus* on pl.) PANDER (1856), p. 31, pl. 2A, figs. 2-3, 5-6, Bergkalk, Tula, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HINDE (1879), pp. 362, 365, comp. with *Polygnathus princeps;* ——— BRYANT (1921), pp. 21-22, comp. with *Centrodus invalidus* and *Centrodus princeps;* ——— ULRICH & BASSLER (1926), pp. 17, 42; ——— ROUNDY (1926), p. 15; ——— HOLMES (1928), pp. 8, 15; ——— WETZEL (1933), p. 88; ——— COOPER (1939), p. 392. LMi

——**sp.** KRAUSE (1877), pp. 42, 46, Beyrichien Kalk, diluvium of N. Germ. US

CENTROGNATHODUS (*Centrognathus*) BRANSON & MEHL (June 1934a), pp. 196-198. Type species, *Centrognathus sinuosa* BRANSON & MEHL (June 1934a); ——— BRANSON & MEHL (1944), p. 240 (*nomen nudum*); ——— (*Centrognathus* and *Centrognathodus*) ELLISON (Jan. 1946), pp. 95, 97, 104, 108, confined to Upper Dev., bar type, Grassy Creek, Sweetland Creek, Noel, and Eureka shs., of Mo., Iowa, and Ark.; ——— BRANSON & MEHL (1948), p. 527. *Centrognathus* is a homonym, name first used: F. E. Guerin-Memeville, Rev. Zool., vol. 3, p. 79, 1840, Col. Scarab. Ceton, now officially changed to *Centrognathodus;* ——— THOMAS (1949), p. 419. UD-LMi

A dash represents *Centrognathodus* unless the name *Centrognathus* in parentheses precedes the author, in which case the name used was *Centrognathus.*

——**delicata** (*Centrognathus*) BRANSON & MEHL (June 1934a), pp. 197-198, pl. 14, figs. 4-5. Holotype, C366-5, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Centrognathus*) BRANSON (1944), p. 162. UD

——**dubius** THOMAS (1949), pp. 411, 419-420, pl. 4, fig. 3. Holotype, C817-4, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

——**sinuosa** (*Centrognathus*) BRANSON & MEHL (June 1934a), p. 197, pl. 15, fig. 24. Holotype, C373-3, Univ. Mo., Grassy Creek sh., Mo., type species for *Centrognathodus;* ——— (*Centrognathus*, p. 240) BRANSON & MEHL (1944), p. 240, pl. 93, fig. 48; ——— (*Centrognathus*) BRANSON (1944), p. 162. UD

——**spuria** (*Centrognathus*) BRANSON & MEHL (June 1934a), p. 198, pl. 15, fig. 23. Holotype, C373-1, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Centrognathus*) BRANSON (1944), p. 162. UD

——? **sp.** BRANSON & MEHL (June 1934a), pl. 14, fig. 3. Fig. spm., C228-2, Univ. Mo., Grassy Creek sh., Mo. UD

——**sp.** BRANSON & MEHL (June 1934a), p. 198, pl. 15, fig. 25. Fig. spm., C373-2, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

CERVICORNOIDES STAUFFER (1938), p. 424. Type species, *C. alternatus* STAUFFER (1938); ——— STAUFFER (1940), p. 421; ——— ELLISON (Jan. 1946), p. 108, Mid. Dev., classed as jr. syn. of *Hindeodella*, bar type. M-UD

——**alternatus** STAUFFER (1938), pp. 412, 424, pl. 48, figs. 10, 13. Syntypes, B4922 (fig. 10), B4925 (fig. 13), Univ. Minn., Arkona beds, locs. 156, 162, Ont.; Silica sh., locs. 147-148; Plum Brook sh., locs. 104 (fig. 13), 105, 108; Olentangy sh., locs. 111, 120 (fig. 10), 125, 187, Ohio. M-UD

——**heterodentatus** STAUFFER (1938), pp. 412, 424, pl. 51, fig. 11. Holotype, B4845, Univ. Minn., Hungry Hollow beds, loc. 153, Ont. MD

——**minnesotensis** STAUFFER (1940), p. 421, pl. 58, fig. 23. Holotype, B5545, Univ. Minn., clay above ls., admixture, Minn.; ——— STAUFFER & THIEL (1941), p. 229. MD

——**sp.** STAUFFER (1940), p. 422, pl. 58, fig. 29; pl. 59, figs. 17, 27. Fig. spms., B5551, B5582, B5592, Univ. Minn., clay above ls., admixture, Minn. MD

CHIROGNATHIDAE BRANSON & MEHL (1944), p. 237, pl. 93.

CHIROGNATHUS BRANSON & MEHL (June 1933b), p. 28. Type species, *C. duodactyla* BRANSON & MEHL (June 1933b); ——— BRANSON & MEHL (July 1933b), p. 103; ——— HUDDLE (1934), pp. 26, 34; ——— STAUFFER (1935a), pp. 129, 135; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood sh., S. D.; ——— STAUFFER (1935b) (ab)Z (1937), p. 180, not found in the Decorah fauna; ——— COOPER (1939), p. 386; ——— BRANSON & MEHL (1941d), p. 201; ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1943), pp. 375, 377, comp. with *Leptochirognathus;* ——— BRANSON & MEHL (1944), p. 237; ——— BRANSON (1944), p. 67; ——— BARNES, CLOUD, & WARREN (1945), p. 176, above Ellenburger gr. and below Chappel fm., loc. 16T-2-27A$_1$, Tex.; ——— ELLISON (Jan. 1946), pp. 94, 96, 100, 108, Chazy through Black River, fibrous type; ——— BARNES, CLOUD, & WARREN (1947) (*Cheirognathus*), p. 140, mixed with Miss. and Dev., in rocks of basal Miss. age, loc. 16T-2-27A$_1$, Tex.; ——— CLOUD & BARNES (1948), p. 113, found in ls. of Glen Park age at loc. 16T-2-27A$_1$, Tex. MO

——**admirandus** STAUFFER (1935a), pp. 135, 158, pl. 9, figs. 6, 16, 22. Cotypes, B4278, B4288, B4294, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**aequidentata** BRANSON & MEHL (June 1933b), p. 30, pl. 2, fig. 18. Holotype, C175-2, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**alternata** BRANSON & MEHL (June 1933b), pp. 30, 32, pl. 2, figs. 16-17, 19, 32. Holotype, C175-5 (fig. 32); fig. spms., C176-3 (figs. 16-17, 19), Univ. Mo., Harding ss., Colo., comp. with *Chirognathus vulgaris;* ——— BRANSON & MEHL (June 1933b) (*cf. alternata*), pl. 2, fig. 15. Fig. spm., C177-2, Univ. Mo., Harding ss., Colo.; ——— STAUFFER (1935a) (*alternatus*), pp. 135-136, 158, pl. 9, fig. 31. Fig. spm., B4303, Univ. Minn., upper Glenwood beds, Minn.; ——— BRANSON & TARR (1941), p. 342, fig. 347, upper left cor.; ——— STAUFFER & THIEL (1941) (*alternatus*), p. 244; ——— AMSDEN & MILLER (1942), p. 303, pl. 41, fig. 26. Fig. spm., 1648, Univ. Iowa, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1944), p. 237, pl. 93, fig. 12; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**ambigua** BRANSON & MEHL (June 1933b), p. 33, pl. 2, fig. 38. Holotype, C184-3, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**curvidens** BRANSON & MEHL (June 1933b), p. 30, pl. 2, fig. 21. Holotype, C174-5, Univ. Mo., Harding ss., Colo.; ——— AMSDEN & MILLER (1942) (? after Branson and Mehl on pl.), p. 303, pl. 41, fig. 30. Fig. spm., 1652, Univ. Iowa, Bighorn ss., Wyo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**deformis** BRANSON & MEHL (June 1933b), p. 32, pl. 2, fig. 42. Holotype, C177-3, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**delicatulus** STAUFFER (1935a), pp. 136, 158, pl. 9, figs. 1-3, 5, 7-13, 17-19, 21. Cotypes, B4273 (fig. 1), B4275 (fig. 3), B4279 (fig. 7), B4281-B4284 (figs. 9-12), B4290-B4291 (figs. 18-19), B4293 (fig. 21); paratypes, B4274 (fig. 2), B4277 (fig. 5), B4280 (fig. 8), B4285 (fig. 13), B4289 (fig. 17), Univ. Minn., upper Glenwood beds, Minn.; ——— FURNISH, BARRAGY, & MILLER (1936) (*cf. delicatulus* on pl.), p. 1334, pl. 1, fig. 12. Fig. spm., 1186, Univ. Iowa, lower Whitewood sh., S. D.; ——— STAUFFER & THIEL (1941), p. 244; ——— AMSDEN & MILLER (1942), p. 303, pl. 41, fig. 27. Fig. spm., 1649, Univ. Iowa, Bighorn ss., Wyo. MO

——**divergens** BRANSON & MEHL (June 1933b), p. 31, pl. 2, fig. 28. Holotype, C176-4, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——? **dubia** BRANSON & MEHL (June 1933b), p. 34, pl. 2, figs. 33-34, 36. Holotype, C183-2 (fig. 36), Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**duodactyla** BRANSON & MEHL (June 1933b), p. 28, pl. 2, figs. 1-2. Cotypes, C173-4, Univ. Mo., Harding ss., Colo., comp. with *Chirognathus parallela*, type species for *Chirognathus;* ——— ? BRANSON & MEHL (June 1933b), pl. 2, fig. 4. Fig. spm., C179-2, Univ. Mo., Harding ss., Colo.; ——— STAUFFER (1935a) (*duodactylus*), pp. 136, 158, pl. 9, fig. 29. Fig. spm., B4301, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941) (*duodactylus*), p. 244; ——— BRANSON & MEHL (1944), p. 237; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**erecta** BRANSON & MEHL (June 1933b), p. 31, pl. 2, fig. 22. Holotype, C178-5, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**eucharis** STAUFFER (1935a), pp. 136, 158, pl. 9, figs. 23, 27-28, 34. Cotypes, B4299 (fig. 27), B4306 (fig. 34); paratypes, B4295 (fig. 23), B4300 (fig. 28), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**expatiatus** STAUFFER (1935a), pp. 137, 158, pl. 9, fig. 4. Holotype, B4276, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**gradata** BRANSON & MEHL (June 1933b), pp. 29-30, pl. 2, fig. 14. Cotypes, C179-3, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**hamatus** STAUFFER (1935a), pp. 137, 158, pl. 9, fig. 33. Holotype, B4305, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**idoneus** STAUFFER (1935a), pp. 137, 158, pl. 9, fig. 24. Holotype, B4296, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**invictus** STAUFFER (1935a), pp. 137, 158, pl. 9, fig. 43. Holotype, B4315, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**irregularis** STAUFFER (1935a), pp. 137-138, 158, pl. 9, fig. 32. Holotype, B4304, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**isodactyla** BRANSON & MEHL (June 1933b), p. 33, pl. 2, fig. 39. Holotype, C176-2, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**lanesboroensis** STAUFFER (1935a), pp. 138, 158, pl. 9, fig. 14. Holotype, B4286, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**magnificus** STAUFFER (1935a), pp. 138, 158, pl. 9, fig. 25. Holotype, B4297, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**maniformis** BRANSON & MEHL (June 1933b), p. 29, pl. 2, fig. 9. Holotype, C177-4, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**monodactyla** BRANSON & MEHL (June 1933b), pp. 29, 31, pl. 2, figs. 11-13. Cotypes, C173-5, Univ. Mo., Harding ss., Colo., comp. with *Chirognathus reversa;* ———? BRANSON & MEHL (June 1933b), pl. 2, fig. 20. Fig. spm., C174, Univ. Mo., Harding ss., Colo.; ——— BRANSON & MEHL (June 1933b) (*cf. monodactyla*), pl. 2, fig. 24. Fig. spm., C177-1, Univ. Mo., Harding ss., Colo.; ——— AMSDEN & MILLER (1942), p. 303, pl. 41, fig. 31. Fig. spm., 1653, Univ. Iowa, Bighorn ss., Wyo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**multidens** BRANSON & MEHL (June 1933b), p. 34, pl. 2, fig. 43. Holotype, C180-3, Univ. Mo., Harding ss., Colo.; ——— STAUFFER (1935a), pp. 138, 158, pl. 9, figs. 39-40. Fig. spm., B4311, Univ. Minn., upper Glenwood beds, Minn.; ——— BRANSON & TARR (1941), p. 342, fig. 347, lower left cor., same as pl. 2, fig. 43 of Branson & Mehl (June 1933b); ——— STAUFFER & THIEL (1941), p. 244; ——— AMSDEN & MILLER (1942), p. 303, pl. 41, fig. 28. Fig. spm., 1650, Univ. Iowa, Bighorn ss., Wyo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**neossa** COOPER (1939), p. 386, pl. 47, fig. 81. Holotype, 38813, Univ. Chi., pre-Welden sh., Okla. LMi

——**pachydactyla** BRANSON & MEHL (June 1933b), p. 33, pl. 2, fig. 10. Holotype, C174-3, Univ. Mo., Harding ss., Colo.; ——— BRANSON & MEHL (July 1933b) (*cf. pachydactyla*), p. 103, pl. 9, figs. 1-2. Fig. spm., C112-5, Univ. Mo., upper Plattin ls., Mo.; ——— BRANSON (1944), pp. 79-80, pl. 11, figs. 1-2; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**pannea** BRANSON & MEHL (June 1933b), p. 32, pl. 2, figs. 35, 40. Cotypes, C178-2, Univ. Mo., Harding ss., Colo.; ———? BRANSON & MEHL (June 1933b), pl. 2, fig. 41. Fig. spm., C178-2, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**parallela** BRANSON & MEHL (June 1933b), p. 28, pl. 2, fig. 3. Holotype, C175-3, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**plana** BRANSON & MEHL (June 1933b), pp. 28-29, pl. 2, fig. 5. Holotype, C179-4, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**quadridactylus** STAUFFER (1935a), pp. 138-139, 158, pl. 9, fig. 35. Holotype, B4307, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**radiatus** STAUFFER (1935a), pp. 139, 158, pl. 9, fig. 15. Holotype, B4287, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**reversa** BRANSON & MEHL (June 1933b), p. 31, pl. 2, fig. 25. Holotype, C177-5, Univ. Mo., Harding ss., Colo.; ——— AMSDEN & MILLER (1942) (? after Branson & Mehl), p. 303, Bighorn ss., Wyo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**scalenus** STAUFFER (1935a), pp. 139, 158, pl. 9, figs. 20, 26. Holotype, B4292 (fig. 20); paratype, B4298 (fig. 26), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**simplex** BRANSON & MEHL (June 1933b), p. 32, pl. 2, fig. 37. Holotype, C179-1, Univ. Mo., Harding ss., Colo.; ——— JOHNSON MO

(1945) (*Chirognatus*), p. 22, Harding ss., Colo.

——**tenuidentatus** STAUFFER (1935a), pp. 139, 158, pl. 9, fig. 36. Holotype, B4308, Univ. Minn., Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244; ——— AMSDEN & MILLER (1942) (? after Stauffer on pl.), p. 303, pl. 41, fig. 24. Fig. spm., 1646, Univ. Iowa, Bighorn ss., Wyo. MO

——**tridens** BRANSON & MEHL (June 1933b), p. 31, pl. 2, fig. 27. Holotype, C174-4, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**unguliformis** STAUFFER (1935a), pp. 139, 158, pl. 9, fig. 41. Holotype, B4313, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244; ——— AMSDEN & MILLER (1942) (? after Stauffer), p. 303, pl. 41, fig. 25. Fig. spm., 1647, Univ. Iowa, Bighorn ss., Wyo. MO

——**varians** BRANSON & MEHL (June 1933b), p. 29, pl. 2, figs. 6-7. Cotypes, C175-4, Univ. Mo., Harding ss., Colo.; ——— BRANSON & MEHL (June 1933b) (*cf. varians*), pl. 2, fig. 31. Fig. spm., C178-1, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**vulgaris** BRANSON & MEHL (June 1933b), p. 32, pl. 2, fig. 30. Holotype, C184-2, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945) (*Chirognatus*), p. 22, Harding ss., Colo. MO

——**sp. undet.** BRANSON & MEHL (June 1933b), p. 34, pl. 2, figs. 8, 23, 26, 29. Fig. spms., C184-1 (fig. 8), C176-5 (fig. 26), C175-1 (fig. 29), fig. 23 is lost, Univ. Mo., Harding ss., Colo. MO

——**spp.** AMSDEN & MILLER (1942), pl. 41, figs. 29, 32. Fig. spms., 1651, 1654, Univ. Iowa, Bighorn ss., Wyo. MO

——**n. sp.** BRANSON (1944), pp. 53, 67, 70, pl. 8, figs. 35-39; pl. 9, fig. 1, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo.; ——— BRANSON (1944) (*sp.*), p. 67. MO

CLAVOHAMULUS FURNISH (1938), pp. 321, 326-327. Type species, *C. densus* FURNISH (1938); ——— ELLISON (Jan. 1946), pp. 94, 108, upper half of Beekmantown, simple cone. LO

——**densus** FURNISH (1938), pp. 320, 327, pl. 42, figs. 18-21; fig. 1D, same as pl. 42, figs. 18-19. Syntypes, 1265-1268 (figs. 18-21), Univ. Iowa, common in Oneota fm., Minn. (fig. 21), and Iowa (figs. 18-20); ——— STAUFFER & THIEL (1941), p. 246. LO

COLEODONTIDAE BRANSON & MEHL (1944), p. 237, pl. 93.

COLEODUS BRANSON & MEHL (June 1933b), p. 24. Type species, *C. simplex* BRANSON & MEHL (June 1933b), comp. with *Neocoleodus;* ——— BRANSON & MEHL (July 1933a), p. 80; ——— HUDDLE (1934), p. 35; ——— FURNISH (1938), p. 339, comp. with *Loxodus;* ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1943), p. 375; ——— BRANSON & MEHL (1944), p. 237; ——— ELLISON (Jan. 1946), pp. 94, 108, confined to Chazy, fibrous type. MO

——**delicatus** BRANSON & MEHL (July 1933a), p. 80, pl. 6, figs. 3-4. Cotypes, C285-5, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 69. MO

——? **levis** BRANSON & MEHL (July 1933a), p. 80, pl. 6, fig. 1. Holotype, C296-3, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 69. MO

——**pectiniformis** YOUNGQUIST & CULLISON (1946), p. 581, pl. 89, figs. 7, 19. Holotype, 2964 (fig. 19); paratype, 2965 (fig. 7), Univ. Iowa, Dutchtown fm., Mo. MO

——**simplex** BRANSON & MEHL (June 1933b), p. 24, pl. 1, figs. 22-25. Cotypes, C171-1, Univ. Mo., Harding ss., Colo., type species for *Coleodus;* ——— BRANSON & MEHL (July 1933a), p. 80, comp. with *Coleodus delicatus;* ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1944), p. 237, pl. 93, fig. 22; ——— BRANSON (1944), pp. 53, 67, pl. 8, figs. 8-10, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo.; ——— JOHNSON (1945), p. 22, Harding ss., Colo.; ——— YOUNGQUIST & CULLISON (1946), pp. 581-582, pl. 90, figs. 16-17. Hypotypes, 2966-2967, Univ. Iowa, Dutchtown fm., Mo. MO

——**spp.** AMSDEN & MILLER (1942), pl. 41, figs. 1-2. Fig. spms., 1623-1624, Univ. Iowa, Bighorn ss., Wyo. MO

The following 17 entries are listed chronologically:

CONODONTEN PANDER (1856), pp. 5, 90, name as originally proposed for the first time, meaning conodonts or cone teeth. *Ὁ κωνος,* der Kegel. LO-MT

CONODONTS EICHWALD (1860), pp. 661-667, given under an Order (the 6th) Fistulidees, which is given the same rank as the crinoids, echinoids, cystoids, asteroids, and ophiuroids.

CONODONTES MACFARLANE (1923a), p. 257, given as an order under the Malacodermata of the class Pisces.

CONODONTOPHORIDA EICHENBERG (1930), p. 181, this name is now proposed for the conodonts.

CONODONTES STAUFFER & PLUMMER (1923), p. 18, MacFarlane gives Conodontes as the first order under the Malacodermata, a subclass which includes the most primitive living and fossil fishes.

CONODONTOPHORIDA SCHMIDT (1934), p. 82, conodonts may have some relation to the Rhenanida.

CONODONTA HUDDLE (1934), p. 34, given an order rank under the Cyclostomata.

CONODONTOPHORIDES ZEBERA (1935), p. 88.

CONODONTOPHORIDAE ZEBERA (1936a), pp. 4, 7.

CONODONTOPHORIDAE ZEBERA (1936b), pp. 192-193.

CONODONTIPHORIDA DEMANET (1938), p. 159, ref. to Eichenberg (1930), given as a subclass of the Elasmobranchii.

CONODONT HASS (1941), pp. 71-72, Pander's original def. of a conodont is trans.

CONODONTI CAMP, TAYLOR, & WELLES (1942), p. 493, Animalia, *incertae sedia* Branson (1938) (subclass of Pisces) is given.

CONODONTIPHORIDA CAMP, TAYLOR, & WELLES (1942), pp. 478, 493, 525, 532, 551, 600, 630, given order rank, spelled Conodontophoridae with ref. to Zebera (1935), (1936), and ref. to Conodontophorida Zebera (1936). There is a ref. to Rhenanidi? Demanet (1938) (Conodontiphorida, of Elasmobranchii) and Schmidt (1934), (1935), with ref. to Placodermi.

CONODONTOPHORIDIA BRANSON & MEHL (1944), p. 237, pl. 93, given an order rank.

CONODONTI CAMP, WELLES, & GREEN (1949), pp. 265, 347, Animalia, *incertae sedis*, exclusive of Conodontophorida.

CONODONTOPHORIDA CAMP, WELLES, & GREEN (1949), p. 347, distinguished from Conodonti, *incertae sedis*.

CONODONTIFORMES BRANSON & MEHL (1944), p. 239 and pl. 93, new suborder proposed to include all of the lamellar types of conodonts; ——— ELLISON (Jan. 1946), p. 96; ——— THOMAS (1949), p. 416.

CORDYLODUS PANDER (1856), pp. 33, 90. Type species, *C. angulatus* PANDER (1856); ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1858), p. 339; ——— OWEN (1860), p. 96, may have prob. claim to vertebrate rank; ——— HINDE (1879), p. 355; ——— YOUNG (1880), p. 10, collected by John Smith from Ayrshire coal field, W. Scot.; ——— ZITTEL & ROHON (1886), p. 110; ——— ZITTEL (1890), p. 59; ——— PERNER (1894) (*Cardylodus*), p. 2; ——— SMITH (1900), p. 338; ——— BASSLER (1925), p. 218; ——— ULRICH & BASSLER (1926), pp. 6, 8; ——— HOLMES (1928), pp. 3, 8; ——— BRANSON & MEHL (June 1933 b, d), pp. 34-35, 64, Pander's desc. quoted; ——— BRANSON & MEHL (July 1933 b, c, d), pp. 116, 122, 129-130, 153, comp. with *Prioniodus;* ——— HUDDLE (1934), p. 34; ——— ZEBERA (1936b), p. 189; ——— FURNISH, BARRAGY, & MILLER (1936), pp. 1334-1335, Whitewood sh., and siltstone, S. D.; ——— FURNISH (1938), pp. 322-323, 337-338, comp. with *Plectodina, Subcordylodus,* and *Oistodus;* ——— COOPER (1939), p. 396, comp. with *Neocordylodus;* ——— HASS (1941), p. 72; ——— GRAVES & ELLISON (1941), pp. 3-5, 10, makes its first appearance in the Marathon fm., Lower Ord., Tex.; ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1943), pp. 375, 381-382, 386; ——— BRANSON & MEHL (1944), p. 240; ——— ELLISON (Jan. 1946), pp. 95, 97, 108, 110, upper half of Beekmantown through Upper Ord., bar type, *Barbarodina* and *Subcordylodus* are prob. jr. syns. L-UO

——**angulatus** PANDER (1856), pp. 5-7, 18, 33, pl. A to p. 20, fig. 10; pl. 2, figs. 26-31, 34, Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL & ROHON (1886), pp. 119, 123, ref. Pander's (1856), pl. 2, figs. 26-31, 34 and pl. 3, figs. 10a, b; figs. 10a, b are comp. with Zittel & Rohon's pl. 1, fig. 4; ——— WIMAN (1903), p. 66, pl. 3, figs. 42-43, Ceratopygeschiefer from Biludden, N. Baltic region, Sweden; ——— MOBERG & SEGERBERG (1906), pp. 27?, 62, 108?, pl. 1, figs. 17-18, copied after Wiman (1903) from zone 3, Ceratopyge beds, Dictyograptus shs., of N. Öland, Sweden; ——— ULRICH & BASSLER (1926), p. 8, fig. 3, subfig. 3, Pander's (1856), pl. 2, fig. 34a is reproduced; ——— HOLMES (1928), p. 8, pl. 4, figs. 23-29, Pander's pl. 2, fig. 34a is 23 left; 34b is 23 rt., 26 is 24; 27 is 25; 30 is 26; 28 is 27; 29a is 28 lower left; 29b is 28 upper rt.; 31 is 29; ——— MOODIE (1929), p. 21, fig. 10, subfig. 3, Pander's (1856), pl. 2, fig. 34a; ——— FURNISH (1938), pp. 337-338, comp. with *Cordylodus intermedius;* ——— BRANSON & MEHL (1944), p. 240, pl. 93, fig. 71; ——— GLAESSNER (1945), p. 27, fig. 3, subfig. 3, after Ulrich & Bassler (1926). LO

——? **concinnus** BRANSON & MEHL (July 1933b), p. 117, pl. 10, figs. 1-3. Cotypes, C28-1 (fig. 2), C104-5 (fig. 3), C116-5 (fig. 1), Univ. Mo., Plattin ls., Mo.; ——— FURNISH, BARRAGY, & MILLER (1936) (no ?) (*cf. concinnus* on pl.), p. 1334, pl. 1, fig. 6. Fig. spm., 1180, Univ. Iowa, lower Whitewood sh., S. D.; ——— GRAVES & ELLISON (1941), pp. 5, 7, pl. 3, fig. 30. Hypotype, 4753, Mo. Sch. Min., Rolla, upper Maravillas fm., loc. G616, Tex.; ——— AMSDEN & MILLER (1942), p. 303, pl. 41, fig. 19. Fig. spm., 1641, Univ. Iowa, Bighorn ss., Wyo.; ——— BRANSON (1944), p. 79. M-UO

——? **delicatus** BRANSON & MEHL (July 1933c), p. 129, pl. 10, figs. 14-15. Cotypes, C128-3, Univ. Mo., Maquoketa sh., Mo.; ——— GRAVES & ELLISON (1941), pp. 5, 7, pl. 3, fig. 23. Hypotype, 3546, Mo. Sch. Min., Rolla, mid. Maravillas fm., locs. G610, G614 (fig.), Tex.; ——— BRANSON (1944), p. 98. UO

——**elegans** (BRANSON & MEHL) (July 1933d), p. 153, pl. 12, fig. 17. Holotype, A4327, Brit. Mus., (*Prioniodus*). UO

——? **gracilis** BRANSON & MEHL (June 1933b), p. 35, pl. 1, fig. 38. Holotype, C183-3, Univ. Mo., Harding ss., Colo.; ——— BRANSON & TARR (1941), p. 342, fig. 347, lower center; ——— JOHNSON (1945), p. 22, Harding ss., Colo. MO

——**intermedius** FURNISH (1938), pp. 320, 338, pl. 42, fig. 31; fig. 2C same as pl. 42, fig. 31. Syntypes, 1344 (fig. 31), 1345 (unfig.), Univ. Iowa, rare in Oneota blue earth beds, Minn.; ——— STAUFFER & THIEL (1941), p. 246. LO

——**multidentatus** GRAVES & ELLISON (1941), pp. 3, 7, 10-11, pl. 1, fig. 21. Holotype, 7126, Mo. Sch. Min., Rolla, lower pt. of upper Marathon fm., loc. G227 (fig.), and upper pt. of lower Marathon fm., loc. G201, Tex., comp. with *Cordylodus quadratus.* LO

——**plattinensis** BRANSON & MEHL (July 1933c), pp. 116-117, pl. 8, figs. 34, 36. Cotypes, C28-4, Univ. Mo., Plattin ls., Mo.; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, pl. 1, fig. 5. Fig. spm., 1179, Univ. Iowa, lower Whitewood siltstone, S. D.; ——— GRAVES & ELLISON (1941), pp. 5, 7, pl. 2, fig. 8; pl. 3, fig. 11. Hypotypes, 1488 (fig. 8), 2919 (fig. 11), Mo. Sch. Min., Rolla, Wood's Hollow fm., loc. G504 (fig. 8); and Maravillas fm., loc. G614 (fig. 11), Tex.; ——— ? BRANSON & MEHL (1943) (no ? p. 376), pp. 376, 381, pl. 63, fig. 7. Fig. spm., C527-5, Univ. Mo., McLish fm., Okla.; ——— BRANSON & MEHL (1944), p. 240, pl. 93, fig. 67; ——— BRANSON (1944), pp. 79-80, pl. 11, figs. 63, 65. M-UO

——**primus** BRANSON & MEHL (June 1933b), p. 35, pl. 1, fig. 35. Cotypes, C180-4, Univ. Mo., Harding ss., Colo.; ——— FURNISH, BARRAGY, & MILLER (1936) (? *aff. C.* ? *primus* MO

fig. 8), p. 1334, pl. 2, figs. 8, 12. Fig. spms., 1203 (fig. 8), 1207 (fig. 12), Univ. Iowa, lower Whitewood siltstone, S. D.; ——— BRANSON & MEHL (1943), pp. 376, 381, pl. 63, fig. 6. Fig. spm., C528-1, Univ. Mo., McLish fm., Okla.; ——— BRANSON (1944), pp. 53, 67, pl. 8, figs. 3-5, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo.; ——— JOHNSON (1945), p. 22, Harding ss., Colo.

——**quadratus** GRAVES & ELLISON (1941), pp. 3, 7, 10-11, pl. 1, figs. 22, 25. Holotype, 7127 (fig. 25), 7128 (fig. 22), Mo. Sch. Min., Rolla, Marathon fm., lower, locs. G201 (fig. 25), G223 (fig. 22), upper, loc. G227, Tex. LO

——**ramosus** HADDING (1913), pp. 31, 87, pl. 1, fig. 6. Holotype, LO 2345 T, Lund Mus., Sweden, *Dicellograptus* zone, *Climacograptus putillus* zone, loc. E 15, Sweden; ——— HOLMES (1928), p. 8, pl. 4, fig. 30, Hadding's fig. reproduced. MO

——**rotundatus** PANDER (1856), pp. 5-7, 33, pl. 2, figs. 32-33, Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL & ROHON (1886), p. 119, ref. to figs. 32-33, pl. 2, Pander (1856); ——— ULRICH & BASSLER (1926), p. 8, fig. 3, subfig. 4, Pander's (1856), pl. 2, fig. 32a is reproduced; ——— OPIK (1927a), p. 39, in A_3 alpha black sh., associated with *Dictyonema flabelliforme*, Little Rogö Island, Estonia; ——— HOLMES (1928), p. 8, pl. 4, figs. 31-32, Pander's (1856), pl. 2, fig. 33 is fig. 31; 32a is 32 left; and 32b is 32 rt.; ——— MOODIE (1929), p. 21, fig. 10, subfig. 4, Pander's pl. 2, fig. 32a reproduced; ——— RUEDEMANN (Nov. 1934), p. 12, associated with *Dictyonema flabelliforme* and *norvegicum;* ——— FURNISH (1938), p. 338, comp. with *Cordylodus subangulatus;* ——— GLAESSNER (1945), p. 27, fig. 3, subfig. 4, after Ulrich & Bassler (1926). LO

——**serratus** STAUFFER (1930), p. 124, pl. 10, fig. 7. Holotype, C5437, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**simplex** BRANSON & MEHL (June 1933d), p. 64, pl. 4, fig. 11. Cotypes, C304-1, Univ. Mo., Jefferson City fm., Mo.; ——— FURNISH (1938), pp. 330, 338, comp. with *Oistodus pandus;* ——— GRAVES & ELLISON (1941), pp. 3, 7, pl. 1, figs. 4, 11. Hypotypes, 1337 (fig. 4), 1338 (fig. 11), Mo. Sch. Min., Rolla, upper Marathon fm., loc. G227, Tex.; ——— BRANSON (1944), p. 55, Jefferson City fm., Mo. LO

——? **spurius** BRANSON & MEHL (July 1933b), p. 117, pl. 10, fig. 4. Cotypes, C100-4 (unfig.), C120-1 (fig. 4), Univ. Mo., Plattin ls., Mo.; ——— GRAVES & ELLISON (1941), pp. 3-4, 7, pl. 1, fig. 24; pl. 2, figs. 25, 30. Hypotypes, 1359 (fig. 24), 1880 (fig. 25), 1945 (fig. 30), Mo. Sch. Min., Rolla, Marathon fm., lower, loc. G201, upper, locs. G227 (fig. 24), G231; Fort Pena beds, locs. G406 (fig. 30), G407 (fig. 25), Tex.; ——— BRANSON (1944), p. 79. L-MO

——**subangulatus** FURNISH (1938), pp. 320, 338, pl. 42, figs. 32; fig. 2D, same as pl. 42, fig. 32. Syntypes, 1346 (fig. 32), 1347 (unfig.), Univ. Iowa, rare in Oneota blue earth beds, Minn.; ——— STAUFFER & THIEL (1941), p. 246. LO

——**sp.** GRAVES & ELLISON (1941) (*? sp.* on pl.), pp. 5, 7, pl. 3, fig. 15. Fig. spm., 3157 (fig. 15), Mo. Sch. Min., Rolla, Maravillas fm., loc. G614, Tex. UO

——? **sp.** IMBT (1941), p. 148, Maquoketa sh., Stafford Co., Kans. UO

——**sp. indet.** BRANSON & MEHL (1943), p. 382, pl. 64, figs. 42-43. Fig. spms., C535-1, C533-3, Univ. Mo., lower Bromide fm., Okla. MO

CORNURAMIA SMITH (1907), p. 246. Type species, *C. monodonta* SMITH (1907); ——— BASSLER (1924), p. 219; ——— ULRICH & BASSLER (1926), pp. 6, 15, 17, 42; ——— HOLMES (1928), pp. 3, 8; ——— BRANSON & MEHL (July 1933a), p. 87, comp. with *Curtognathus;* ——— HUDDLE (1934), p. 34; ——— FURNISH (1938), p. 326, comp. with *Clavohamulus;* ——— ELLISON (Jan. 1946), p. 108, relationships doubtful, Ord. MO

——**bicornua** SMITH (1907) (*Cornaramia*), p. 251, pl. 9, fig. 49. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S. Uplands Scot.; ——— HOLMES (1928), p. 8, pl. 4, fig. 33, Smith's fig. reproduced. MO

——**diplodonta** SMITH (1907), p. 246, pl. 5, fig. 25. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S. Uplands Scot.; ——— ULRICH & BASSLER (1926), pp. 16-17, fig. 4, subfig. 2, Smith's fig. reproduced; ——— EDINGER (1926), p. 286, fig. 1 (pt.), top row, second from upper left center, same as Ulrich & Bassler (1926), fig. 4, subfig. 2; ——— HOLMES (1928), p. 8, pl. 4, fig. 34, Smith's fig. reproduced; ——— GLAESSNER (1945), p. 28, fig. 4, subfig. 2, after Ulrich & Bassler (1926). MO

——**monodonta** SMITH (1907), p. 246, pl. 6, fig. 20. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S. Uplands Scot.; ——— ULRICH & BASSLER (1926), pp. 16-17, 42, fig. 4, subfig. 1, after Smith, type species for *Cornuramia;* ——— EDINGER (1926), p. 286, fig. 1 (pt.), upper left cor., same as Ulrich & Bassler (1926); ——— HOLMES (1928), p. 8, pl. 4, fig. 35, after Smith; ——— FURNISH (1938), p. 327, comp. with *Clavohamulus densus;* ——— GLAESSNER (1945), p. 28, fig. 4, subfig. 1, after Ulrich & Bassler (1926). MO

CTENOGNATHUS PANDER (1856), pp. 32, 90. Type species, *C. murchisoni* PANDER (1856); ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1858), p. 339; ——— OWEN (1860), p. 96, may have prob. claim to vertebrate rank; ——— HINDE (1879), p. 355; ——— YOUNG (1880), p. 10, collected by John Smith from Ayrshire coal-field, W. Scot.; ——— ZITTEL & ROHON (1886), p. 110; ——— ZITTEL (1890), p. 59; ——— ROHON (1893), pp. 10, 98; ——— PERNER (1894), p. 2; ——— SMITH (1900), p. 338; ——— BASSLER (1925), p. 220; ——— ULRICH & BASSLER (1926) (*? Ctenognathus* p. 6), pp. 6, 43-44, 54; ——— ROUNDY (1926), pp. 16-17, Pander's desc. trans., *Polygnathus dubius* Hinde (1879) (pt.), pl. 16, fig. 8, and Hinde (1900), pl. 9, fig. 1 are classed as jr. syns.; ——— HOLMES (1928), pp. 3, 8; ——— GUNNELL (Mar. 1931a) (*Clenognathus*), p. 331, Lansing gr., Mo.; ——— GUNNELL (Apr. 1931a) (*Clenognathus*), p. 239; ——— STAUFFER & PLUMMER (1932), p. 40; ——— BRANSON & MEHL (June 1933c), LO-MP

p. 51, comp. with *Ozarkodina;* ——— ZEBERA (1936b), p. 189; ——— STAUFFER (1940), p. 422; ——— ELLISON (Jan. 1946), p. 108, Sil. through Penn., classed (pt.) as sr. syn. of *Ozarkodina;* ——— YOUNGQUIST (1947), p. 100; ——— MILLER & YOUNGQUIST (1947), p. 507; ——— ? YOUNGQUIST & MILLER (1948), p. 440.

——**deparcus** STAUFFER (1938), pp. 412, 424, pl. 48, figs. 26, 31. Syntypes, B4750, B4766, Univ. Minn., Olentangy sh., locs. 109 (fig.), 139, 187, Ohio. UD

——**elegans** STAUFFER (1938), pp. 412, 424-425, pl. 48, figs. 9, 12. Syntypes, B4749, B4752, Univ. Minn., Olentangy sh., locs. 111, 118 (fig. 12), 120 (fig. 9), 125, 187, Ohio; and 161, 172, Arkona beds, Ont.; ——— STAUFFER (1940), p. 422, pl. 59, figs. 3-5, 8. Fig. spms., B5568-B5570 (figs. 3-5), B5573 (fig. 8), Univ. Minn., clay above ls., (figs. 3-5), and clay above Cedar Valley ls., (fig. 8), Minn.; ——— STAUFFER & THIEL (1941), p. 229. M-UD

——**falcatus** STAUFFER (1938), pp. 412, 425, pl. 48, figs. 1, 5. Syntypes, B5062 (fig. 1), B4745 (fig. 5), Univ. Minn., Olentangy sh., locs. 110, 111 (fig. 1), 118, 187 (fig. 5), Ohio; ——— YOUNGQUIST (1945), pp. 355, 358, pl. 55, fig. 1. Plesiotype, 2914, Univ. Iowa, Independence sh.?, Iowa; ——— YOUNGQUIST (1947), p. 99, comp. with *Ctenognathus falsiformis.* UD

——**falsiformis** STAUFFER (1938), pp. 412, 425, pl. 48, figs. 4, 7. Holotype, B4744 (fig. 4); paratype, B4747 (fig. 7), Univ. Minn., Plum Brook sh., loc. 121 (fig. 4), Olentangy sh., loc. 120 (fig. 7), Ohio; ——— YOUNGQUIST (1947), pp. 99-100, pl. 25, fig. 3. Hypotype, 3370, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa, comp. with *Ctenognathus falcatus, Nothognathella? abnormis,* and *Prioniodus colligatus.* M-UD

——**firmus** STAUFFER (1938), pp. 412, 425, pl. 48, figs. 2, 6, 15. Syntypes, B4742, B4746, B4755, Univ. Minn., Olentangy sh., locs. 110, 187 (fig.), Ohio. UD

——**keyserlingii** PANDER (1856) (*kayserlingii* p. 32), p. 32, pl. 2A, fig. 15, Bergkalk, Tula, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ULRICH & BASSLER (1926), p. 54; ——— HOLMES (1928) (*kayserlingii* p. 8), p. 8, pl. 7, fig. 24, Pander's fig. reproduced. LMi

——**murchisoni** PANDER (1856), p. 32, pl. 4, fig. 17; pl. 6, figs. 18 a, b, Rootsiküille, Öesel Island, Estonia; ——— PANDER (1856) (ab)N (1858), p. 112; ——— SCHMIDT (1858), pp. 168, 176, 181, from the "Lower Silurian," Lello bei Rootsiküll, and Nessoma bei Sandel Öesel Island, from the Grünsand; ——— ROHON (1893), p. 10; ——— TWENHOFEL (1916), pp. 331, 334, Kaugatoma zone of Öesel fm., Lello Brook, between Rootsiküll and Attel, and quarries at Nessoma, Öesel Island; ——— ULRICH & BASSLER (1926), pp. 44, 54, fig. 5, subfig. 13, Pander's (1856) figs. reproduced; ——— ROUNDY (1926), p. 16, pl. 2, fig. 2, one of Pander's (1856) figs. reproduced; ——— HOLMES (1928), p. 8, pl. 7, fig. 23, Holmes' fig. 23 upper is pl. 4, fig. 17a of Pander (1856); 23 lower is 17b, and 23 rt. is 17c.; ——— BRANSON & MEHL (June 1933c), p. 51; ——— MILLER & YOUNGQUIST (1947), p. 507, comp. with *Ctenognathus? sp.* Miller & Youngquist (1947). LO-US

——**obliquus** PANDER (1856), p. 33, pl. 2A, figs. 11-12, Rothen thonen and mergeln, from Gostinopolskii, Pristan am Wolchow, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HINDE (1900), p. 344, pl. 10, figs. 27-29. Types, Geol. Surv. Scot., Edinburgh, Lower Carb. lss., W. Scot.; ——— HOLMES (1928) (*Centrodus* p. 12), pp. 8, 12, classed as sr. syn. of *Hindeodella.* UD-MMi

——**verneuilli** PANDER (1856), p. 32, pl. 4, fig. 18, pl. 2A, figs. 13-14, 16-17, Rothen thonen and mergeln, Wells on the Wolchow River and Gelben thone at Upa near Tula, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HINDE (1879), p. 364, comp. with *Polygnathus immersus;* ——— HINDE (1900), p. 341, Pander (1856), pl. 2A, fig. 16 is comp. with Hinde's (1900) *Polygnathus dubius;* ——— BRYANT (1921), p. 16, comp. with *Prioniodus radiatus;* ——— ULRICH & BASSLER (1926), p. 54, suggests three generic types; ——— ROUNDY (1926), p. 16, pl. 2, fig. 1, comp. with *Ctenognathus sp. A* and *sp. B* of Roundy (1926), one of Pander's (1856) figs. reproduced; ——— HOLMES (1928), p. 8, pl. 7, figs. 25-29, Pander's (1856) pl. 2A, fig. 14 is Holmes' fig. 25; fig. 16 is 26; pl. 4, fig. 18 is 27; pl. 2A, fig. 17 is 28; fig. 13 is 29, species of *Valentia, Prioniodina,* and *Hindeodella* are classed as jr. syns.; ——— BRANSON & MEHL (June 1933c) (*verneuelli*), p. 51, some of Pander's spms. may be sr. syns. of *Ozarkodina.* M-UD

——**sp. A** ROUNDY (1926), pp. 15-16, pl. 2, fig. 3. Fig. spm., 115190, USNM, lower Barnett sh., locs. 2609 (fig.), 2610C, 2613 D, E, G, 2618, Tex., comp. with *Lonchodus? lineatus* and *Ctenognathus verneuilli.* MMi

——**sp. B** ROUNDY (1926), pp. 16-17, pl. 2, figs. 4-5. Fig. spms., 115080-115081 (figs. 4-5), USNM, lower Barnett sh., locs. 2609 (fig. 4), 2613E (fig. 5), comp. with *Ctenognathus verneuilli, Polygnathus radiatus, Polygnathus dubius* Hinde (1879), pl. 16, fig. 8, and Hinde (1900), pl. 9, fig. 1. MMi

——? **sp. A** STAUFFER & PLUMMER (1932), pp. 25, 40, pl. 2, fig. 13. Fig. spm., 19149, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex. MP

——? **sp.** MILLER & YOUNGQUIST (1947), p. 507, pl. 73, fig. 6. Fig. spm., 5541, Univ. Iowa, comp. with *Ctenognathus murchisoni.* UD

——**sp.** LAYER *et al.* (1949), p. 594, D-3 zone 875 ft. below top of D-2 zone, Alta., Can. UD

CURTOGNATHUS BRANSON & MEHL (July 1933a), p. 87. Type species, *C. typa* BRANSON & MEHL (July 1933a); ——— BRANSON & MEHL (July 1933a, b), pp. 81-82, 105, comp. with *Cardiodella;* ——— BRANSON & MEHL (1943), pp. 381, 386; ——— BRANSON & MEHL (1944), p. 239; ——— ELLISON (Jan. 1946), pp. 94, 108, upper Chazy through Black River, fibrous type. MO

——**calyculoides** BRANSON & MEHL (July 1933a), p. 88, pl. 5, fig. 18; pl. 7, fig. 19. Holotype, C284-3 (fig. 18); fig. spm., C292-3 (fig. 19), Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 69, 71, pl. 10, figs. 34, 39. MO

——**cordiformis** BRANSON & MEHL (1943), p. 386, pl. 64, fig. 19. Holotype, C538-4, Univ. Mo., upper Bromide fm., Okla. MO

——**coronata** BRANSON & MEHL (July 1933a), p. 88, pl. 5, fig. 26. Holotype, C295-4, Univ. Mo., Joachim fm., Mo.; ——— BRANSON & MEHL (1943), pp. 376, 384, pl. 64, fig. 47. Fig. spm., C532-5, Univ. Mo., lower Bromide fm., Okla.; ——— BRANSON & MEHL (1944), p. 239, pl. 93, fig. 15; ——— BRANSON (1944), pp. 69, 71, pl. 10, fig. 45. MO

——**limitaris** BRANSON & MEHL (July 1933a), p. 88, pl. 5, figs. 17, 23, 25. Holotype, C278-1 (fig. 25); fig. spms., C298-4 (fig. 17), C297-1 (fig. 23), Univ. Mo., Joachim fm., Mo.; ——— BRANSON & MEHL (1943) (*limitaris?*, p. 386), pp. 376, 384, 386, pl. 64, figs. 20, 49. Fig. spms., C536-1 (fig. 49), C539-5 (fig. 20), Univ. Mo., lower Bromide fm. (fig. 49), upper Bromide fm. (fig. 20), Okla.; ——— BRANSON (1944), pp. 69, 71, pl. 10, figs. 30, 42, 44. MO

——**pectinella** BRANSON & MEHL (July 1933a), p. 89, pl. 5, fig. 27. Holotype, C286-5, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 69, 71, pl. 10, fig. 51. MO

——**peculiaris** BRANSON & MEHL (July 1933a), p. 89, pl. 5, figs. 20, 22. Holotype, C297-2 (fig. 20); fig. spm., C284-1 (fig. 22), Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 69, 71, pl. 10, figs. 36, 41. MO

——**rustica** BRANSON & MEHL (July 1933b), p. 105, pl. 8, fig. 16. Holotype, C77-1, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 79-80, pl. 11, fig. 27. MO

——**tenuis** BRANSON & MEHL (July 1933b), p. 105, pl. 8, fig. 13. Holotype, C110-2, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 79-80, pl. 11, fig. 22. MO

——**typa** BRANSON & MEHL (July 1933a), p. 87, pl. 5, fig. 28. Holotype, C277-5, Univ. Mo., Joachim fm., Mo., type species for *Curtognathus;* ——— BRANSON & MEHL (1944), p. 239; ——— BRANSON (1944), pp. 69, 71, pl. 10, fig. 50. MO

——**varians** BRANSON & MEHL (July 1933a), p. 89, pl. 5, figs. 19, 21, 24. Holotype, C299-4 (fig. 24); fig. spm., C277-1 (figs. 19, 21), Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 69, 71, pl. 10, figs. 35, 40, 43. MO

——**sp.** BRANSON & MEHL (1943), p. 381, pl. 63, fig. 3. Fig. spm., C527-2, Univ. Mo., McLish fm., Okla. MO

——**sp.** BRANSON & MEHL (1943), p. 386, pl. 64, fig. 22. Fig. spm., C539-1, Univ. Mo., upper Bromide fm., Okla. MO

CYRTONIODUS STAUFFER (1935a), p. 140. Type species, *C. complicatus* STAUFFER (1935a); ——— STAUFFER (1935b), p. 604; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood sh., S. D.; ——— LOOMIS (Oct. 1936), pp. 663-664, the lateral teeth of the modern gastropod genera *Buccinum, Nassa,* and *Fulgur* resemble this genus; ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1944), p. 240; ——— ELLISON (Jan. 1946), pp. 95, 108, Chazy through Black River, bar type. MO

——**apicalis** STAUFFER (1935b), p. 604, pl. 73, figs. 1, 10, 43, 45. Holotype, B4575 (fig. 1); paratypes, B4584 (fig. 10), B4617 (fig. 43), B4619 (fig. 45), Univ. Minn., Decorah sh., Spechts Ferry memb., locs. 48 (figs. 1, 10), 94 (figs. 43, 45), Minn.; ——— LOOMIS (Oct. 1936), p. 664, Stauffer's pl. 73, fig. 10 is reproduced; ——— STAUFFER & THIEL (1941), p. 241. MO

——**complicatus** STAUFFER (1935a), pp. 140, 158, pl. 11, figs. 44, 46, 48-51. Cotypes, B4409, B4411, B4413-B4416, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 604, pl. 73, figs. 9, 11-13, 15-16, 18-20, 25, 27, 32, 38, 41-42, 47. Fig. spms., B4583, B4585-B4587, B4589-B4590, B4592-B4594, B4599, B4601, B4606, B4612, B4615-B4616, B4621, Univ. Minn., Decorah sh., locs. 37 (figs. 9, 18, 19), 94 (figs. 11-13, 15-16, 20, 25, 27, 38, 41-42, 47), 96 (fig. 32), Minn.; Spechts Ferry memb., locs. 10, 15-16, 26, 28, 40, 48-49, 51-52, 61, 68-69, 71, 74, 86, 89, Iowa; ——— STAUFFER & THIEL (1941), pp. 238, 241, 244; ——— AMSDEN & MILLER (1942), p. 303, pl. 41, fig. 34. Fig. spm., 1656, Univ. Iowa, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1944), p. 240, pl. 93, fig. 68. MO

——? **delicatus** STAUFFER (1938), pp. 412, 425, pl. 51, fig. 40. Holotype, B5082, Univ. Minn., Olentangy sh. (admixture), loc. 112, Ohio. O

——**erectus** STAUFFER (1935a), pp. 140, 158, pl. 9, figs. 30, 37-38. Cotypes, B4302 (fig. 30), B4309-B4310 (figs. 37-38), Univ. Minn., upper Glenwood beds, Minn.; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood sh., S. D.; ——— STAUFFER & THIEL (1941), p. 244; ——— AMSDEN & MILLER (1942), p. 303, pl. 41, fig. 33. Fig. spm., 1655, Univ. Iowa, Bighorn ss., Wyo.; ——— YOUNGQUIST & CULLISON (1946), p. 582, comp. with *Cyrtoniodus ? sp.* Youngquist & Cullison (1946). MO

——**worthingtonensis** STAUFFER (1938), pp. 412, 426, pl. 51, figs. 35, 41. Syntypes, B5077, B5083, Univ. Minn., Olentangy sh., locs. 117, 187 (fig.), Ohio; and Arkona beds, loc. 156, Ont. O

——? **sp.** YOUNGQUIST & CULLISON (1946), p. 582, pl. 89, fig. 4. Fig. spm., 2968, Univ. Iowa, Dutchtown fm., Mo., comp. with *Cyrtoniodus erectus.* MO

DERMATOLITHIS EHRENBERG (1854), p. 410. Since no type is designated by Ehrenberg, I designate *Dermatolithis punctulatus* as the type. This species is not a conodont thus eliminating this name from the conodont literature. LO

——**subtilis** EHRENBERG (1856), pl. 6, fig. 20. This may not be a conodont, but if it were, it would be an indeterminable fragment. Pander claims that it is the end of a tooth showing the characteristic structure of the conodonts that he described; Glauconite sandstone, Narwa, Estonia; ——— EHRENBERG (1859) (ab)N (1858), p. 630; ——— EHRENBERG (1859), pp. 297-298. LO

DICHOGNATHUS BRANSON & MEHL (June 1933b), p. 35. Type species, *D. prima* BRANSON & MEHL (June 1933b); ——— BRANSON & MEHL (July 1933a-d), pp. 99, 102, 112-113, 122, 128, 155; ——— HUDDLE (1934), p. 35; ——— STAUFFER (1935a), pp. 140-141; ——— COOPER (1935a), p. 444; ——— STAUFFER (1935b), p. 604; ——— STAUFFER (1940), pp. 417, 422; ——— BRANSON & MEHL (1941d), p. 201; ——— ? IMBT (1941), p. 148, Maquoketa sh., Stafford County, Kans.; ——— BRANSON & MEHL M-UO

(1944), p. 243; ——— ELLISON (Jan. 1946), pp. 95, 108-109, Chazy through Trenton, blade type, *Loxognathus* is a jr. syn.; ——— BRANSON, MEHL, & BRANSON (Dec. 1946), p. 1264.

——**attenuata** BRANSON & MEHL (July 1933b), pp. 113-114, pl. 9, figs. 22-23. Cotypes, C133-1, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 79-80, pl. 11, figs. 49-50. MO

——**brevis** BRANSON & MEHL (July 1933b), p. 113, pl. 9, figs. 24-26. Cotypes, C132-3, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 79-80, pl. 11, figs. 54-56. MO

——**decipiens** BRANSON & MEHL (July 1933a), pp. 99-100, pl. 6, figs. 24-25. Cotypes, C275-5, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 69, after Branson & Mehl (July 1933a). MO

——**extensa** BRANSON & MEHL (July 1933b), p. 114, pl. 9, fig. 21. Cotypes, C75-3, Univ. Mo., Plattin ls., Mo.; ——— BRANSON & MEHL (1943), pp. 376, 387, pl. 64, fig. 10. Fig. spm., C541-2, Univ. Mo., lower Viola fm., Okla.; ——— BRANSON (1944), pp. 79-80, pl. 11, fig. 48. MO

——**furcata** (BRANSON & MEHL) (July 1933d), p. 155, pl. 12, fig. 15. Holotype, A4329, Brit. Mus. (*Euprioniodina? = Prioniodus*). UO

——**peculiaris** STAUFFER (1935a), pp. 141, 158, pl. 11, figs. 1, 4, 6, 11. Cotypes, B4366, B4369, B4371, B4376, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 244. MO

——**politus** STAUFFER (1940), p. 422, pl. 59, figs. 43-44, 54-56. Syntypes, B5608-B5609, B5617-B5618, Univ. Minn., clay above ls. (admixture), Minn. O

——**prima** BRANSON & MEHL (June 1933b), pp. 35-36, pl. 1, fig. 27. Holotype, C180-5, Univ. Mo., Harding ss., Colo., type species for *Dichognathus;* ——— BRANSON & MEHL (1944), p. 243; ——— JOHNSON (1945), p. 22, Harding ss., Colo. MO

——**protexus** STAUFFER (1940), p. 422, pl. 59, figs. 45-46. Holotype, B5610, Univ. Minn., clay above ls. (admixture), Minn. O

——**typica** BRANSON & MEHL (July 1933b) (*typa* p. 114), pp. 113-114, pl. 9, figs. 27-29. Cotypes, C132-5 (fig. 27), C134-4 (figs. 28-29), Univ. Mo., Plattin ls., Mo., comp. with *Dichognathus extensa;* ———? BRANSON & MEHL (July 1933b), p. 163, pl. 9, fig. 19. Fig. spm., C132-4, Univ. Mo., Plattin ls., Mo.; ——— STAUFFER (1935a) (*typicus*), pp. 141, 159, pl. 11, figs. 2-3, 5, 8, 10. Fig. spms., B4367-B4368, B4370, B4373, B4375, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b) (*typicus*), p. 604, pl. 71, fig. 23. Fig. spm., B4487, Univ. Minn., Decorah sh., loc. 67 (fig. 23), Minn., Spechts Ferry memb., locs. 1, 8-9, 15, 17, 22, 30, 37, 40, 43, 47-48, 64, 70, 74, 77, 86, 91, 94, Iowa; ——— STAUFFER & THIEL (1941) (*typicus*), pp. 238, 241, 245; ——— GRAVES & ELLISON (1941), pp. 4, 7, upper Fort Pena beds, loc. G410, Tex.; ——— BRANSON & MEHL (1943), pp. 376, 387, pl. 64, fig. 9. Fig. spm., C524-4, Univ. Mo., lower Viola fm., Okla; ——— BRANSON & MEHL (1944), p. 243, pl. 94, fig. 10; ——— BRANSON (1944), pp. 79-80, pl. 11, figs. 60-62; ——— ? BRANSON (1944), pp. 79-80, pl. 11, fig. 43; ——— BRANSON (1944), pp. 89-90, pl. 13, figs. 39, 43-45, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——**variabilis** STAUFFER (1935a), pp. 141, 159, pl. 11, fig. 7. Holotype, B4372, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), pp. 604-605, pl. 73, figs. 14, 24, 30-31, 34-37, 40, 44, 50, 59; pl. 75, fig. 8. Syntypes, B4598 (fig. 24), B4618 (fig. 44); paratypes, B4588 (fig. 14), B4604-B4605 (figs. 30-31), B4608-B4611 (figs. 34-37), B4614 (fig. 40), B4624 (fig. 50), B4633 (fig. 59), B4691 (fig. 8), Univ. Minn., Decorah sh., Minn.; Ion memb., Iowa; locs. 1, 6-7, 15-16, 24, 35, 37 (fig. 24), 40, 48-49, 51-52, 61, 67, 69-70, 75, 86, 89, 94 (figs. 8, 14, 30-31, 34-37, 40, 44, 50, 59), 95-96; ——— STAUFFER & THIEL (1941), pp. 238, 241, 245. MO

——? **sp.** STAUFFER (1935b), p. 605, pl. 75, fig. 10. Fig. spm., B4693, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 94, Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

DINODUS COOPER (1939), p. 386. Type species, *D. leptus* COOPER (1939); ——— COOPER & SLOSS (1943), p. 173; ——— ELLISON (Jan. 1946), p. 108, Lower Miss., blade type, classed as jr. syn. of *Falcodus*. LMi

——**fragosus** (HASS) (1943), p. 308 (*Palmatodella*). LMi

——**granulosus** (COOPER & SLOSS) (1943), pp. 170, 173, pl. 29, figs. 31, 35, sh. memb., base Madison gr., loc. 2, Mont., (*Falcodus?*). LMi

——**leptus** COOPER (1939), p. 386, pl. 47, figs. 63, 75-76. Holotype, 38815 (fig. 75); paratypes, 38814, 38816, Univ. Chi., pre-Welden sh., Okla., type species for *Dinodus*. LMi

DIPLODODELLA ULRICH & BASSLER (1926), pp. 6, 15, 17, 38, 41. Type species, *D. bilateralis* ULRICH & BASSLER (1926); ——— BASSLER (1925), p. 219, comp. with *Hibbardella;* ——— HOLMES (1928), pp. 3, 9, 29; ——— BRANSON & MEHL (June 1934a) (*Diplodella*), pp. 203-204, comp. with *Trichonodella;* ——— HUDDLE (1934), pp. 28, 35; ——— COOPER (1935), p. 314; ——— BRANSON & MEHL (1944) (*Diplodella*), p. 240; ——— ELLISON (Jan. 1946) (*Diplodella*), pp. 95, 104, 108, confined to Upper Dev., bar type; ——— YOUNGQUIST & PETERSON (1947) (*Diplodella*), p. 244; ——— THOMAS (1949), pp. 420, 422. UD-LMi

——**alternata** BRANSON & MEHL (June 1934a) (*Diplodella*), p. 204, pl. 16, figs. 23-24. Cotypes, C371-1, Univ. Mo., Grassy Creek sh., Mo., comp. with *Diplododella? sp.* Branson & Mehl (June 1934a); ——— BRANSON & MEHL (1944) (*Diplodella*), p. 240, pl. 93, figs. 64-65; ——— BRANSON (1944) (*Diplodella*), p. 162; ——— CAMPBELL (1946) (*cf. alternata*), p. 845, ident. by Huddle, lower Blackiston fm., Ind.; ——— THOMAS (1949), p. 408, pl. 1, fig. 22. Fig. spm., C828-1, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——**bilateralis** ULRICH & BASSLER (1926), pp. 16, 41, fig. 4, subfig. 21. Holotype, 11306, USNM, Chattanooga sh., Ala. Type species for *Diplododella;* ——— BASSLER (1925), p. 219, (*nomen nudum*); ——— EDINGER (1926), p. 286, fig. 1 (pt.), bottom fig. in mid. vertical row, after Ulrich & Bassler (1926); ——— BUTTS (1926), p. 160, pl. 48, fig. 6, after Holmes (1928) (unpub.), Chattanooga sh., Ala.; ——— HOLMES UD-LMi

(1928), pp. 9, 29, pl. 10, fig. 8, Chattanooga black sh., Ala. (fig.), and Hardin ss., Tenn.; ——— BASSLER (1932), p. 234, pl. 26, fig. 22, Hardin ss., Tenn.; ——— COOPER (1935), pp. 310, 314, pl. 27, fig. 32. Fig. spm., 38082, Univ. Chi., Ark. novaculite, upper memb., bed A; mid. memb., bed 8, Ark.; ——— BRANSON & MEHL (1944) (*Diplodella*), p. 240; ——— GLAESSNER (1945), p. 28, fig. 4, subfig. 21, after Ulrich & Bassler (1926).

——**symmetrica?** (THOMAS) (1949), pp. 411, pl. 3, fig. 15. Fig. spm., C803-5, Univ. Mo., English River siltstone, loc. 11, Iowa, (*Hibbardella*). LMi

——**sp.** BRANSON & MEHL (June 1934a) (*Diplodella*), pp. 204-205, pl. 16, fig. 25. Fig. spm., C371-2, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944) (*? sp.*) (*Diplodella*), p. 162. UD

——**n. sp.** BRANSON (1944) (*Diplodella*), p. 153, pl. 26, fig. 18, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——**sp.** YOUNGQUIST & PETERSON (1947) (*Diplodella*), p. 244, pl. 36, fig. 4. Fig. spm., 4062, Univ. Iowa, Sheffield fm., Iowa. UD

——**sp. A** THOMAS (1949), pp. 408, 420, pl. 1, fig. 21. Fig. spm., C830-3, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——**? sp.** THOMAS (1949), pp. 411, 420, pl. 3, fig. 29. Fig. spm., C815-4, Univ. Mo., English River siltstone, loc. 4, Iowa. LMi

——**sp.** LAYER *et al.* (1949) (*Diplodella*), p. 594, D-3 zone 700 ft. below top of D-2 zone, Alta., Can. UD

DISTACODIDAE ULRICH & BASSLER (1926), pp. 5-6; ——— BASSLER (1925), p. 218, (*nomen nudum*); ——— HOLMES (1928), pp. 2, 9; ——— STAUFFER & PLUMMER (1932), p. 26; ——— BRANSON & MEHL (Mar. 1932b), p. 287; ——— STAUFFER (1932), p. 259; ——— HARLTON (1933), p. 11; ——— HARLTON (Aug. 1934), p. 1035, Stanley sh., Okla.; ——— HUDDLE (1934), pp. 24, 34, includes *Distacodus, Acodus, Acontiodus, Drepanodus, Scolopodus, Oistodus, Paltodus, Lepodus, Ichthyodus;* ——— CONSELMAN (1935), mentions *distacodid* fauna from Jefferson City fm., Mo.; ——— ZEBERA (1936b), pp. 190, 192; ——— FURNISH (June 1938), p. 278, mentions that *distacodid* teeth predominate in the Prairie du Chien beds; ——— FURNISH (1938), p. 323; ——— COOPER (1939), p. 396; ——— HASS (1941), pp. 74-75, mentioned in the form *distacodid;* ——— BRANSON & MEHL (1944), p. 239, pl. 93; ——— GLAESSNER (1945), pp. 26-27, 198; ——— BRANSON, MEHL, & BRANSON (Dec. 1945) (*Distacods*), p. 1149, one new genus of this family is added to the Richmond; ——— ELLISON (Jan. 1946), p. 97; ——— BOND (1947), pp. 24, 26; ——— THOMAS (1949), p. 407.

DISTACODID 1 BOND (1947), pp. 21, 24, pl. 1, fig. 1. Fig. spm., 18367c, Ohio Univ., lower Ohio sh., Ohio. UD

DISTACODID 2 BOND (1947), pp. 21, 24, pl. 1, fig. 2. Fig. spm., 18367a, Ohio Univ., lower Ohio sh., Ohio. UD

DISTACODID 3 BOND (1947), pp. 21, 24, pl. 1, fig. 3. Fig. spm., 18367b, Ohio Univ., lower Ohio sh., Ohio. UD

DISTACODUS HINDE (1879), p. 357, proposed for *Machairodus* Pander (1856) which is preoccupied. *Machairodus incurvus* is the type species; ——— HINDE (1879) (ab)N (1881), p. 107; ——— S. A. MILLER (1883), p. 313, *distazo*—to doubt; *odous*—a tooth; ——— S. A. MILLER (1889), pp. 516, 518-519; ——— ZITTEL (1890), p. 59; ——— BASSLER (1915), pp. 460, 1426; ——— PARKS & FRITZ (1923), p. 36; ——— BASSLER (1925), p. 218; ——— ULRICH & BASSLER (1926), pp 2, 5-7, 63, comp. recent fish *Myxine glutinosa* from Stonington, Conn., with this genus; ——— HOLMES (1928), pp. 2, 9, 15; ——— GUNNELL (Mar. 1931a), p. 331, Lansing gr., Mo.; ——— GUNNELL (Apr. 1931a), p. 239; ——— HARLTON (1933) (*Distocodus*), pp. 4, 11; ——— BRANSON & MEHL (June 1933c), p. 41, Pander's desc. given; ——— HUDDLE (1934), p. 34; ——— STAUFFER (1935a), p. 142, Pander's desc. trans.; ——— STAUFFER (1935b), p. 605, Pander's desc. trans.; ——— FURNISH (1938) (*? Distacodus*, p. 321), pp. 321, 327; ——— STAUFFER (1940), p. 418, comp. with *Acodina;* ——— DUBOIS (1941), p. 168, black sh., McLeansboro age, Ill.; ——— DUBOIS (1943), p. 156; ——— BRANSON & MEHL (1944), p. 239; ——— ELLISON (Jan. 1946), pp. 94, 108-109, upper half of Beekmantown through Niagara, simple cone, *Machairodia* Smith is a jr. syn., and *Machairodus* Pander is preoccupied. LO-MS

——**angustus** (HOLMES) (1928), p. 9, pl. 1, fig. 1, Pander's pl. 1, fig. 35a is Holmes' fig. 1 left, and 35b is 1 rt. (*Machairodus*). LO

——**arcuatus** STAUFFER (1930), p. 123, pl. 10, fig. 2. Holotype, 5431, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER (1932), p. 258, Decorah sh., Reno Co., Kans.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**bicurvatus** STAUFFER (1935a), pp. 142, 159, pl. 12, fig. 18. Holotype, B4434, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**canaliculatus** (HOLMES) (1928), p. 9, pl. 1, fig. 2, Pander's pl. 1, fig. 23a is Holmes' fig. 2 mid.; 23b is 2 left; and 23c is 2 rt., (*Machairodus*). LO

——**dilatatus** (HOLMES) (1928), p. 9, pl. 1, figs. 3-4, Pander's pl. 1, fig. 14a is Holmes' fig. 3 left; 14b is 3 rt.; pl. 2, fig. 14 is fig. 4, (*Machairodus*); ——— (FURNISH) (1938), p. 335, comp. with *Ulrichodina*. LO

——**ensiformis** (STEINMANN) (1903) (*Drepanodus arenatus*), p. 331, fig. 586a, after Pander, pl. 1, fig. 27a, (*Machairodus*); ——— (HOLMES) (1928), p. 9, pl. 1, figs. 5-9, Pander's pl. 1, fig. 25a is Holmes' fig. 5 left; 25b is 5 rt.; 26a is 6 left; 26b is 6 rt.; 27a is 7 left; 27b is 7 rt.; pl. 2, 36a is 8 left; 36b is 8 rt.; pl. 1, 28a is 9 left; 28b is 9 rt. LO

——**falcatus** STAUFFER (1935a), pp. 142, 159, pl. 12, fig. 16. Holotype, B4432, Univ. Minn., Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 605, pl. 74, fig. 30. Fig. spm., B4663, Univ. Minn., Decorah sh., locs. 10, 37, 40 (fig.), 64, Minn.; ——— STAUFFER & THIEL (1941), pp. 238, 241, 245. MO

——? **gracilis** FURNISH (1938), pp. 320, 327-328, pl. 42, fig. 23. Syntypes, 1269 (fig. 23), 1270-1273 (unfig.), Univ. Iowa, rare in Shakopee dol., Wis. (fig.), and Minn.; ——— STAUFFER & THIEL (1941), p. 245. LO

——**inaequalis** (HOLMES) (1928), p. 9, pl. 1, fig. 10, Pander's pl. 2, fig. 38a is Holmes' fig. 10 left; 38b is 10 rt.; and 38c is 10 mid., (*Machairodus*); ——— (FURNISH) (1938), p. 335, comp. with *Ulrichodina*. LO

——**incurvus** (HINDE) (1879), pp. 357-358, pl. 15, fig. 9, Cincinnati gr., Ont., (*Machairodus*); ——— (S. A. MILLER) (1883), pp. 313-314; ——— (S. A. MILLER) (1889), pp. 518-519; ——— (AMI) (1900) (*incurvatus*), pp. 151, 171; ——— (BASSLER) (1915), pp. 460, 776, 1473; ——— (PARKS & FRITZ) (1923), p. 36, pl. 6, fig. 23, Hinde's (1879) pl. 15, fig. 9 is reproduced; ——— (ULRICH & BASSLER) (1926), p. 7, fig. 2, subfig. 1, type species for *Distacodus*, Pander's pl. 1, fig. 22a is 1 left; 22b is 1 rt.; 22c is 1 mid.; ——— (HOLMES) (1928), p. 9, pl. 1, figs. 11-12, Pander's pl. 1, fig. 22a is Holmes' fig. 11 left: 22b is 11 rt.; 22c is 11 mid.; Hinde (1879) pl. 15, fig. 9 is Holmes' fig. 12; ——— (BRANSON & MEHL) (July 1933d), p. 154, classed as a syn. of *Drepanodus;* ——— (FURNISH) (1938), p. 327; ——— (GLAESSNER) (1945), p. 26, fig. 2, subfig. 1, after Ulrich & Bassler (1926). L-UO

——**longus** STAUFFER (1935a), pp. 142, 159, pl. 9, fig. 42. Holotype, B4314, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**obliquicostatus** BRANSON & MEHL (June 1933c), p. 41, pl. 3, fig. 2. Holotype, C152-5, Univ. Mo., Bainbridge ls., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, fig. 2. MS

——**oklahomensis** HARLTON (1933), pp. 11-12, pl. 4, fig. 1. Holotype, 85515, USNM, Johns Valley sh., Okla.; ——— HARLTON (1933) (ab)Z (1937), p. 177, Branson & Mehl state that this is not a conodont. LP

——**planus** (HOLMES) (1928), p. 9, pl. 1, fig. 13, Pander's pl. 2, fig. 39 is reproduced (*Machairodus*). LO

——**rectus** ULRICH & BASSLER (1926), p. 6, pl. 9, fig. 22. Holotype, 10982, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 9, Hardin ss., Tenn. UD

——**rhomboideus** (ULRICH & BASSLER) (1926), p. 7, fig. 2, subfig. 2, Pander's pl. 2, fig. 10 is reproduced (*Machairodus*); ——— (HOLMES) (1928), p. 9, pl. 1, figs. 17-18, Pander's pl. 2, fig. 10 is fig. 17; and fig. 12 is fig. 18 of Holmes; ——— (HOLMES) (1928) (*rhombeus*), p. 9, pl. 1, fig. 14, Smith's fig. 19 is reproduced (*Machairodia*); ——— BRANSON & MEHL (1944) (*romboideus*), p. 239; ——— (GLAESSNER) (1945), p. 26, fig. 2, subfig. 2, after Ulrich & Bassler (1926). LO

——? **simplex** FURNISH (1938), pp. 320, 328, pl. 42, figs. 24-25; text fig. 1, 0 same as fig. 25. Syntypes, 1274-1275, Univ. Iowa, rare in Oneota fm., Iowa; ——— STAUFFER & THIEL (1941), p. 246. LO

——**solidus** (HOLMES) (1928), p. 9, pl. 1, fig. 19, Pander's pl. 2, fig. 15 is reproduced (*Machairodus*). LO

——**sulcatus** (HOLMES) (1928), p. 9, pl. 1, fig. 15, Smith's fig. 17 is reproduced (*Machairodus*). LO

——**sp.** HARLTON (Aug. 1934), p. 1035, Stanley sh., Okla. LP

——**sp.** BRANSON & MEHL (1944), p. 239, pl. 93, figs. 40-41.

——? **n. sp.** BRANSON (1944), p. 45, pl. 6, figs. 25-26, from William Ryan's master's thesis (1940), Univ. Mo., Jefferson City fm., Mo. LO

DISTOMODUS BRANSON & BRANSON (1947), p. 553. Type species, *D. kentuckyensis* BRANSON & BRANSON (1947). LS

——**kentuckyensis** BRANSON & BRANSON (1947), p. 553, pl. 81, figs. 21-23, 27, 29-33, 36-41. Holotype, C675-1 (figs. 40-41); paratypes, C672-5 (figs. 21-22), C673-4 (fig. 27), C673-1 (fig. 23), C674-3 (figs. 29, 32-33), C675-4 (figs. 30-31), C674-4 (figs. 36-37), C674-5 (fig. 38), C675-2 (fig. 39), C575-4 (unfig.), Univ. Mo., Brassfield fm., locs. 1970 (figs. 36-37, 40-41), 1826 (figs. 21-23, 27, 29, 32-33, 38-39), 1788 (? not 1785) (figs. 30-31), 1799, 1840, Ky. LS

DOLIOGNATHUS BRANSON & MEHL (1941e), pp. 98, 100-101. Type species, *D. lata* BRANSON & MEHL (1941e); ——— BRANSON & MEHL (1941a), p. 168; ——— BRANSON & MEHL (1941c), p. 193; ——— BRANSON & MEHL (1944), p. 244; ——— ELLISON (Jan. 1946), pp. 94, 108, Kinderhook through lower Osage, platform type; ——— MILLER & YOUNGQUIST (1947), p. 504, comp. with *Ancyroides;* ——— COOPER (July 1948a), pp. 361-362, indicative of a break in conodont faunas above the Rockford ls. L-MMi

——**dubia** BRANSON & MEHL (1941e), p. 101, pl. 19, figs. 16-17. Holotype, C418-1, Univ. Mo., Sycamore fm., Okla., comp. with *Doliognathus excavata*. MMi

——**excavata** BRANSON & MEHL (1941e), p. 101, pl. 19, figs. 20-21, 24-25. Holotype, C573-2 (figs. 20-21), paratype, C594-2 (figs. 24-25), Univ. Mo., Pierson ls., Mo. MMi

——**lata** BRANSON & MEHL (1941e), pp. 100-101, pl. 19, figs. 22-23, 26. Holotype, C140-4, Univ. Mo., Pierson ls., Mo., comp. with *Doliognathus excavata;* ——— BRANSON & MEHL (1941c), p. 193, pl. 7, figs. 25-26. Fig. spms., Univ Mo., Harz Mountains, Germ. (fig. 25), and Miss. of Mo.; ——— BRANSON & MEHL (1944), p. 244, pl. 94, figs. 50-51. L-MMi

DREPANODUS PANDER (1856), pp. 19-20, 22, 90. Type species, *D. arcuatus* PANDER (1856); ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1858), p. 339; ——— EICHWALD (1860), p. 663; ——— BOCK (1869), p. 108 and map; ——— HINDE (1879), p. 357; ——— HINDE (1879) (ab)N (1881), p. 107; ——— S. A. MILLER (1883), p. 313, *drepane*—a sickle; *odous*—tooth; ——— S. A. MILLER (1889), pp. 516, 518, states that *arcuatus* is the type; ——— ZITTEL (1890), p. 59; ——— ROHON (1894), p. 9; ——— SMITH (1907), p. 244; ——— GRABAU & SHIMER (1910), p. 245; ——— BASSLER (1915), pp. 463, 1426, *Drepanodus arcuatus* is stated to be the type species; ——— BRYANT (1921), p. 13; ——— PARKS & FRITZ (1923), p. 36; ——— ZITTEL (1924), p. 288; ——— BASSLER (1925), p. 218; ——— ULRICH & BASSLER (1926), pp. 4, 6-7; ——— ROUNDY (1926) (*Drapanodus*), p. 12, comp. with *Prioniodus sp.* Roundy (1926); ——— HOLMES (1928), pp. 2, 9. Type species (first species) *Drepanodus inflexus* Pander (1856); ——— LO-LS

HENNIG (1932), p. 451; ——— STAUFFER (1932), p. 259; ——— WETZEL (1933), p. 81; ——— BRANSON & MEHL (June 1933c, d), pp. 41, 58, Pander's desc. given; ——— BRANSON & MEHL (July 1933a, d), pp. 79, 153; ——— HUDDLE (1934), p. 34; ——— ZEBERA (1936b), p. 189; ——— FURNISH (1938), pp. 320-323, 328; ——— GRAVES & ELLISON (1941), pp. 3-4, 11; ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1944), p. 239; ——— ELLISON (Jan. 1946), pp. 94, 108, upper half of Beekmantown through Upper Ord., simple cone type; ———? YOUNGQUIST & DOWNS (1949), pp. 161-163.

——**acinaciformis** LADD (1929), pp. 347, 366, 384, 395, Maquoketa sh., depauperate zone, locs. 1, 3-6, 8-9 (Iowa), 12 (Ill.), 13 (Mo.). UO

——**acutus** PANDER (1856), p. 21, pl. 2, fig. 9, Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 9, pl. 1, fig. 29, Pander's pl. 2, fig. 9 reproduced. LO

——**arcuatus** PANDER (1856), p. 20, pl. 1, figs. 2, 4-5, 17, 30-31, Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HINDE (1879), p. 357, pl. 15, figs. 7-8, abundant in Cincinnati gr., Ont.; ——— S. A. MILLER (1883), p. 313; ——— ZITTEL & ROHON (1886), p. 116 bottom, Pander's (1856) pl. 1, fig. 4b is comp. with pl. 1, fig. 1H *Drepanodus sp.* of Zittel & Rohon; ——— S. A. MILLER (1889), p. 518; ——— AMI (1900), pp. 150, 171; ——— STEINMANN (1903) (*arenatus*), p. 331, this fig. is *Machairodus ensiformis*, see *Distacodus ensiformis;* ——— GRABAU & SHIMER (1910), p. 245, fig. 1537d, e, Hinde's (1879) pl. 15, fig. 7 is d; and pl. 15, fig. 8 is e; ——— BASSLER (1915), pp. 463, 1473, type species for *Drepanodus;* ——— PARKS & FRITZ (1923), p. 36, pl. 6, figs. 21, 22, Hinde's (1879) pl. 15, fig. 7 is fig. 21; and pl. 15, fig. 8 is fig. 22; ——— ULRICH & BASSLER (1926), p. 7, fig. 2, subfig. 6, Pander's pl. 1, fig. 30a is 6 left; 30b is 6 rt.; ——— ÖPIK (1927a), pp. 39-40, Dictyonemaschiefer, A_3 alpha, black sh., Little Rogö Island and SE coast of Odensholm Island, N. Estonia; ——— HOLMES (1928), p. 9, pl. 1, figs. 30-37, Pander's (1856) pl. 1, fig. 2 is Holmes' fig. 30; 31a is 31 left; 31b is 31 rt.; 3a is 32 left; 3b is 32 rt.; 4a is 33 left; 4b is 33 rt.; 17a is 34 left; 17b is 34 rt.; 30a is 35 left; 30b is 35 rt.; Hinde's (1879) pl. 15, fig. 7 is 36; fig. 8 is 37; ——— HARRIS (1931), pp. 21, 24, 68, 95, pl. 5, figs. 1a, b, Oil Creek fm., Okla.; ——— HARRIS (1932), p. 59, pl. 1, fig. 1, Chazy, United States; ——— WETZEL (1933), pp. 89-90, comp. with Einzelborste *b* Wetzel (1933) and *Drepanodus setosus;* ——— RUEDEMANN (Nov. 1934), p. 12, associated with *Dictyonema flabelliforme* and *norvegicum;* ——— GLAESSNER (1945), p. 26, fig. 2, subfig. 6, after Ulrich & Bassler (1926). L-UO

——**arcuatus** BRANSON & MEHL (June 1933d), p. 58, pl. 4, fig. 13. Cotypes, C302-2, Univ. Mo., Jefferson City fm., Mo.; ——— BRANSON & MEHL (June 1933d), pl. 4, figs. 7-8. Fig. spms., C306-5 (fig. 8), C307-4 (fig. 7), Univ. Mo., Jefferson City fm., Mo.; ———? BRANSON & MEHL (June 1933d), pl. 4, fig. 16. Fig. spm., C307-2, Univ. Mo., Jefferson City fm., Mo.; ——— BRANSON & MEHL (July 1933d), pp. 153-154, pl. 12, figs. 12-13. Hinde's fig. spms., A4324-A4325, Brit. Mus., *Drepanodus arcuatus* Pander (1856) followed by others is prob. a syn. of *Oistodus;* ———? BRANSON & TARR (1935), p. 337, fig. 350, lower center, same as Branson & Mehl (June 1933d), pl. 4, fig. 16; ——— BRANSON & TARR (1935), p. 337, fig. 350, upper left cor., same as Branson & Mehl (June 1933d), pl. 4, fig. 8; ——— FURNISH (1938), p. 328; ——— FURNISH (1938) (*? Drepanodus*), pp. 328-329, ref. to Branson & Mehl (June 1933d), pl. 4, figs. 7-8, 13, 16, classed as sr. syns. of *Drepanodus subarcuatus;* ——— GRAVES & ELLISON (1941), pp. 3, 7, 12, pl. 1, figs. 1, 7, 23. Hypotypes, 1330 (figs. 1, 7), 1331 (fig. 23), Mo. Sch. Min., Rolla, upper pt. of upper Marathon fm., loc. G213 (fig. 23); and lower Marathon fm., loc. G218 (figs. 1, 7), Tex., comp. with *Drepanodus striatus;* ——— BRANSON & MEHL (1944), p. 239, pl. 93, fig. 42; ——— BRANSON (1944), p. 55, Jefferson City fm., Mo. L-UO

——**curvatus** STAUFFER (1932), pp. 258-259, pl. 40, fig. 1. Holotype, Univ. Minn., Decorah sh., Reno County, Kans. MO

——**falcatus** HADDING (1913), pp. 30-31, 87, pl. 1, fig. 3. Holotype, LO 2342 T, Lund Palaeontological Inst., Lund, Sweden, *Dicellograptus* zone, with *Climacograptus putillus* and *Nemagraptus gracilis*, Sweden, comp. with *Drepanodus verutus* Hadding (1913); ——— HOLMES (1928), p. 9, pl. 1, fig. 38, Hadding's fig. reproduced. MO

——**flexuosus** PANDER (1856), pp. 20-21, pl. A to p. 20, fig. 1, pl. 1, figs. 6-8, Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— SMITH (1907), p. 246, pl. 6, fig. 18. Fig. spm., Geol. Surv., Scot., Edinburgh, Arenig-Llandeilo gr., S. Uplands Scot.; ——— ULRICH & BASSLER (1926), p. 7, fig. 2, subfig. 5, transverse section, Pander's (1856) pl. A to p. 20, fig. 1 is center fig.; ——— HOLMES (1928), p. 9, pl. 1, figs. 39-41; pl. 2, fig. 1, Pander's pl. 1, fig. 6 is 39; 7 is 40; 8a is 41 upper; 8b is 41 lower, Smith's (1907) fig. 18 is fig. 1; ——— GLAESSNER (1945), p. 26, fig. 2, subfig. 5, transverse section, after Ulrich & Bassler (1926). L-MO

——**incurvus** (BRANSON & MEHL) (July 1933d), p. 154, pl. 12, fig. 11. Holotype, A4326, Brit. Mus., same as Hinde (1879), pl. 15, fig. 9, may be a syn. of *Oistodus*, (*Distacodus*). UO

——**inflexus** PANDER (1856), p. 20, pl. 1, fig. 3, pl. 2, fig. 16 (not fig. 15 which is *Machairodus solidus*), Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1860), p. 663; ——— ZITTEL & ROHON (1886), p. 116, pl. 1, fig. 3, comp. with Pander's (1856) pl. 1, fig. 3; ——— ULRICH & BASSLER (1926), p. 7, fig. 2, subfig. 5, Pander's pl. 1, fig. 1a is left subfig.; 1b is rt. subfig.; ——— HOLMES (1928), p. 10, pl. 1, fig. 42; pl. 2, fig. 2, Pander's (1856) pl. 1, fig. 3a is 42 left; 3b is 42 rt.; pl. 2, fig. 16 is fig. 2, type species for *Drepanodus;* ——— FURNISH (1938), p. 328; ——— BRANSON & MEHL (1944), p. 239; ——— GLAESSNER (1945), p. 26, fig. 2, subfig. 5, after Ulrich & Bassler (1926). LO

——**lineatus** FURNISH (1938), pp. 320, 322, 328, pl. 41, figs. 33-34; text fig. 1 H, same as pl. LO

41, fig. 33. Syntypes, 1276-1277 (figs. 33-34), Univ. Iowa, common in the Oneota fm., Blue earth beds, Minn.; ——— STAUFFER & THIEL (1941), p. 246.

——**obtusus** PANDER (1856), p. 21, pl. 2, fig. 11, Glaukonitsand, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 10, pl. 2, fig. 3, Pander's fig. reproduced. LO

——**parallelus** BRANSON & MEHL (June 1933d), p. 59, pl. 4, fig. 17. Cotypes, C302-5 (fig. 17), C306-5, Univ. Mo., Jefferson City fm., Mo.; ——— GRAVES & ELLISON (1941) (*parallelus?* on pl.), pp. 3, 7, pl. 1, fig. 13. Hypotype, 1344, Mo. Sch. Min., Rolla, upper pt. of upper Marathon fm., loc. G213, Tex.; ——— BRANSON (1944), p. 55, Jefferson City fm., Mo. LO

——**robustus** HADDING (1913), pp. 31, 87, pl. 1, fig. 5. Holotype, LO 2343 T, Lund Palaeontological Inst., Lund, Sweden, *Dicellograptus* zone, with *Climacograptus putillus* and *Nemagraptus gracilis*, loc. E 15, S. Sweden, comp. with *Drepanodus verutus* Hadding (1913); ——— HOLMES (1928), p. 10, pl. 2, fig. 4, Hadding's fig. reproduced. MO

——**setosus** WETZEL (1933), pp. 88-90, pl. 6, fig. 35. Type, from Präp. 455, prob. not a conodont, Geschiebefeuerstein, Cretaceous, comp. with *Drepanodus arcuatus*. Cret.

——**simplex** BRANSON & MEHL (June 1933d), p. 58, pl. 4, fig. 2. Cotypes, C302-3, Univ. Mo., Jefferson City fm., Mo.; ——— BRANSON (1944), pp. 52, 55, pl. 7, figs. 9-10, after Mehl and Ryan, from William Ryan's master's thesis (1940), Univ. Mo., Jefferson City fm., Mo. LO

——**simplex** BRANSON & BRANSON (1947), pp. 552-553, pl. 81, figs. 24-26, pl. 82, fig. 38. Holotype, C673-3 (figs. 24-26); paratypes, C681-3 (fig. 38), C681-5, Univ. Mo., Brassfield fm., locs. 1784 (figs. 25-26), 1840 (fig. 24), 1788 (fig. 38), 1826, Ky. LS

——**striatus** GRAVES & ELLISON (1941), pp. 4, 7, 11-12, pl. 1, figs. 3, 12. Holotype, 7129 (fig. 12); paratype, 7130 (fig. 3), Mo. Sch. Min., Rolla, Monument Springs memb. of Marathon fm., loc. G225 (fig. 12), mid. pt. of lower memb. of Marathon fm., loc. G223 (fig. 3) upper pt. of upper Marathon fm., loc. G213; upper pt. of lower Marathon, loc. G201; and Fort Pena beds, loc. G414, Tex. L-MO

——**subarcuatus** FURNISH (1938), pp. 320, 328-330, pl. 41, figs. 25-32; pl. 42, figs. 2-3; text fig. 1 F same as pl. 41, fig. 29; text fig. 1 G, same as pl. 41, fig. 30. Syntypes, 1278-1289 (figs. 25-32 are 1278-1285 resp.), Univ. Iowa, common and abundant in Shakopee dol., Minn. (figs. 25-27), Wis. (figs. 2-3, 28-30); common in Oneota fm., (figs. 31-32) Iowa; Blue earth beds, Minn. ? *Drepanodus arcuatus* Branson & Mehl (June 1933d), pl. 4, figs. 7-8, 13, 16 is classed as a sr. syn., comp. with *Drepanodus tortus* and *Oistodus pandus;* ——— STAUFFER & THIEL (1941), pp. 245-246; ——— HASS (1941), p. 77; ——— GRAVES & ELLISON (1941), pp. 4, 7, pl. 2, fig. 12. Hypotype, 1490, Mo. Sch. Min., Rolla, Fort Pena beds, loc. G421, Tex.; ——— BRANSON (1944), p. 52, pl. 7, figs. 11-12, after Mehl and Ryan, from William Ryan's master's thesis (1940), Univ. Mo., Jefferson City fm., Mo.; ——— YOUNGQUIST & DOWNS (1949), p. 163, comp. with *Drepanodus? sp.* Youngquist & Downs (1949). L-MO

——**tortus** FURNISH (1938), pp. 320, 329, pl. 42, fig. 6. Syntypes, 1290 (fig. 6), 1291, Univ. Iowa, rare in Shakopee dol., Wis. LO

——**verutus** HADDING (1913), pp. 31, 87, pl. 1, fig. 4. Holotype, LO 2343 T, Lund Palaeontological Inst., Lund, Sweden, *Dicellograptus* zone associated with *Climacograptus putillus* and *Nemagraptus gracilis*, loc. E 15, S. Sweden; ——— HOLMES (1928), p. 10, pl. 2, fig. 5, Hadding's fig. reproduced. MO

——**sp.** ZITTEL & ROHON (1886), pp. 116, 118, 120, pl. 1, figs. 1, 5, comp. with *Acontiodus gracilis, Scolopodus costatus,* and *Acodus crassus.*

——**sp.** KAYSER (1923), p. 126, fig. 37b, not a conodont and is an incorrect citation. This is Rohon's (1894) fig. 3 named *Palaeodus brevis.*

——**sp.** ÖPIK (1927a), p. 40, Glaukonitsand, Little Rogö Island, N. Estonia. LO

——**spp.** POULSEN (1936), pp. 53, 62, 66, unterer Dicellograptusschiefer overlying Orthoceratitenkalk, Bornholm Island, Denmark. MO

——**sp.** AMSDEN & MILLER (1942) (*Drepanodus?* on pl.), p. 303, pl. 41, figs. 20-21. Fig. spms., 1642-1643 (figs. 20-21), Univ. Iowa, Bighorn ss., Wyo. MO

——**n. sp.** BRANSON (1944), p. 52, pl. 7, figs. 27-32, after Mehl and Ryan, from William Ryan's master's thesis (1940), Univ. Mo., Jefferson City fm., Mo. LO

——? **sp.** YOUNGQUIST & DOWNS (1949), pp. 161, 163, pl. 30, fig. 9. Fig. spm., 14019, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa, comp. with *Drepanodus subarcuatus*, perhaps an example of homoeomorphy instead of stratigraphic admixture. MP

DRYPHENOTUS COOPER (1939), p. 386. Type species, *D. punctatus* COOPER (1939); ——— ELLISON (Jan. 1946), pp. 101, 108, Lower Miss., platform type, classed as jr. syn. of *Gnathodus.* LMi

——**litus** COOPER (1939), p. 386, pl. 42, figs. 34-35. Holotype, 38819, Univ. Chi., pre-Welden sh., Okla. LMi

——**macrolobus** COOPER (1939), p. 386, pl. 41, figs. 48-49; pl. 42, figs. 45-46. Holotype, (paratype on pl.) 38821 (figs. 48-49); paratype, (holotype on pl.) 38820 (figs. 45-46), Univ. Chi., pre-Welden sh., Okla. LMi

——**oxys** COOPER (1939), p. 386, pl. 42, figs. 12-13. Holotype, 38822, Univ. Chi., pre-Welden sh., Okla. LMi

——**punctatus** COOPER (1939), p. 386, pl. 41, figs. 42-43; pl. 42, figs. 10-11. Holotype, 38818 (figs. 10-11); paratype, (holotype on pl. 42) 38817 (figs. 42-43), Univ. Chi., pre-Welden sh., Okla. LMi

ELICTOGNATHUS COOPER (1939), pp. 386-387. Type species, *Solenognathus bialata* BRANSON & MEHL (Oct. 1934); ——— ELLISON (Jan. 1946), p. 108, Lower Miss., classed as jr. syn. of *Solenodella*, platform type. LMi

——**bialata** (COOPER) (1939), pp. 387, 419, pl. 45, figs. 1-2. Hypotype, 38823, Univ. Chi., pre-Welden sh., Okla., (*Solenodella*). LMi

ELSONELLA YOUNGQUIST (1945), p. 358. Type species, *E. prima* YOUNGQUIST (1945); ——— ELLISON (Jan. 1946), p. 108, Upper UD

Dev., blade type, classed as jr. syn. of either *Synprioniodina* or *Palmatodella*.

——**prima** YOUNGQUIST (1945), pp. 358-359, pl. 56, fig. 5. Syntypes, 2915 (fig. 5), 2916 (4 unfig. spms.), Univ. Iowa, Independence sh.?, Iowa, comp. with *Elsonella secunda*. UD

——**secunda** YOUNGQUIST (1945), p. 359, pl. 56, fig. 4. Syntypes, 2917 (fig. 4), 2918, Univ. Iowa, Independence sh.?, Iowa. UD

ERISMODUS BRANSON & MEHL (June 1933b), pp. 25-26. Type species, *E. typus* BRANSON & MEHL (June 1933b); ——— BRANSON & MEHL (July 1933b, d), pp. 104, 156; ——— HUDDLE (1934), p. 34; ——— STAUFFER (1935a) (*Erisomodus*), p. 143; ——— AMSDEN & MILLER (1942), p. 303; ——— BRANSON & MEHL (1943), pp. 375, 380, 384-385; ——— BRANSON & MEHL (1944), p. 237; ——— BRANSON (1944), p. 67; ——— ELLISON (Jan. 1946), pp. 94, 108, Chazy through Black River, fibrous type; ——— YOUNGQUIST & CULLISON (1946), p. 583; ——— BRANSON, MEHL, & BRANSON (Dec. 1946), p. 1264. MO

——**abbreviatus** BRANSON & MEHL (June 1933b), pp. 25-26, pl. 1, figs. 8, 17. Cotypes, C181-5, Univ. Mo., Harding ss., Colo., comp. with *Erismodus simplex;* ——— ? BRANSON & MEHL (June 1933b), pl. 1, figs. 7, 10. Fig. spms., C183-4, C182-1, Univ. Mo., Harding ss., Colo.; ——— CULLISON (1938), p. 227, comp. with *Archeognathus primus;* ——— AMSDEN & MILLER (1942) (? after Branson & Mehl), p. 303, Bighorn ss., Wyo.; ——— BRANSON (1944), pp. 53, 67, pl. 8, figs. 12-19, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo.; ——— JOHNSON (1945), p. 22, Harding ss., Colo. MO

——? **curvatus** BRANSON & MEHL (June 1933b), p. 26, pl. 1, fig. 18. Holotype, C182-3, Univ. Mo., Harding ss., Colo., prob. not an *Erismodus;* ——— JOHNSON (1945), p. 22, Harding ss., Colo. MO

——**digitatus** BRANSON & MEHL (June 1933b), p. 26, pl. 1, fig. 36. Holotype, C178-4, Univ. Mo., Harding ss., Colo.; ——— BRANSON (1944), pp. 67, 70, pl. 9, figs. 27-28, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo.; ——— JOHNSON (1945), p. 22, Harding ss., Colo. MO

——? **dubius** BRANSON & MEHL (July 1933b), p. 104, pl. 9, figs. 5-6. Cotypes, C123-3, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 79-80, pl. 11, figs. 9-10; ——— YOUNGQUIST & CULLISON (1946), p. 583. MO

——**dutchtownensis** YOUNGQUIST & CULLISON (1946), p. 582, pl. 90, fig. 9. Holotype, 2969, Univ. Iowa, Dutchtown fm., Mo. MO

——**radicans** (BRANSON & MEHL) (July 1933d), p. 156, pl. 12, figs. 14, 18-19. Cotypes, A4219 (fig. 14), A4220 (fig. 19), A4233 (fig. 18) and several spms., Brit. Mus. [*Euprioniodina?* (Holmes) = *Prioniodus radicans* Hinde (1879) (pt.), pl. 15, figs. 1-5 (fig. 3 is fig. 14; fig. 1 is fig. 19) (not fig. 6)]; ——— ?(BRANSON) (1944) (no ?, p. 67), pp. 53, 67, pl. 8, figs. 20-21, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo. MO

——**simplex** BRANSON & MEHL (June 1933b), p. 26, pl. 1, figs. 15-16. Cotypes, C182-5, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945), p. 22, Harding ss., Colo. MO

——? **striatus** BRANSON & MEHL (June 1933b), pp. 26-27, pl. 1, fig. 26. Holotype, C182-4, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945), p. 22, Harding ss., Colo. MO

——**symmetricus** BRANSON & MEHL (July 1933b), p. 104, pl. 10, fig. 10. Cotypes, C118-4, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), p. 79; ——— YOUNGQUIST & CULLISON (1946), p. 583. MO

——**tantus** STAUFFER (1935a), pp. 143, 159, pl. 12, fig. 7. Holotype, B4423, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**typus** BRANSON & MEHL (June 1933b), p. 25, pl. 1, figs. 9, 11-12. Holotype, C181-3; fig. spms., C181-4 (figs. 9, 11), Univ. Mo., Harding ss., Colo.; ——— BRANSON & MEHL (June 1933b), p. 25, type species for *Erismodus;* ——— BRANSON & MEHL (July 1933b), p. 104, comp. with *Erismodus symmetricus;* ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1944), p. 237; ——— BRANSON (1944), pp. 67, 70, pl. 9, figs. 29-30, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo.; ——— JOHNSON (1945), p. 22, Harding ss., Colo. MO

——**sp.** AMSDEN & MILLER (1942), pl. 41, fig. 17. Fig. spm., 1639, Univ. Iowa, Bighorn ss., Wyo. MO

——**sp. indet.** BRANSON & MEHL (1943), p. 380, pl. 63, figs. 1, 10. Fig. spms., C528-4 (fig. 1), C531-2 (fig. 10), Univ. Mo., McLish fm., Okla. MO

——? **sp.** BRANSON & MEHL (1943), p. 385, pl. 64, fig. 17. Fig. spm., C539-3, Univ. Mo., upper Bromide fm., Okla. MO

——**sp.** BRANSON & MEHL (1944), p. 237, pl. 93, fig. 14; ——— YOUNGQUIST & CULLISON (1946), p. 582, comp. with *Erismodus dutchtownensis*. MO

——**n. sp.** BRANSON (1944), pp. 53, 70, pl. 8, figs. 22-23; pl. 9, figs. 23-26, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo. MO

——**n. sp.** YOUNGQUIST & CULLISON (1946), pp. 582-583, pl. 90, figs. 3-4. Fig. spms., 2970-2971 (figs. 3-4), Univ. Iowa, Dutchtown fm., Mo. MO

EUPRIONIODELLA JONES (1937), p. 142, a new genus proposed by Jones in his thesis, not a valid name.

EUPRIONIODINA ULRICH & BASSLER (1926), pp. 6, 15, 17, 29-30, 35, 38-42, 57-58. Type species, *E. deflecta* ULRICH & BASSLER (1926), comp. with *Lonchodina*, *Hindeodella*, and *Synprioniodina;* ——— BASSLER (1925), p. 219, comp. with *Prioniodina;* ——— HIBBARD (1927), p. 201; ——— HOLMES (1928), pp. 3, 10, 28; ——— COOPER (Sept. 1931), pp. 234, 239, 241, comp. with *Hamulosodina* and *Telumodina;* ——— STAUFFER & PLUMMER (1932), p. 30; ——— STAUFFER (1932), p. 262; ——— COOPER (1933a), p. 210, some of these spp. will be changed to *Plagiodina;* ——— MATERN UO-MP, MT

(1933), pp. 15, 21; ——— BRANSON & MEHL (June 1933c), p. 47; ——— GUNNELL (1933), p. 269; ——— BRANSON & MEHL (June 1934a), pp. 208, 210, comp. with *Prioniodus;* ——— SHIDELER (June 1934a), p. 342, lower Arnheim gr., N. half of Cincinnati Arch; ——— E. R. BRANSON (1934), p. 330; ——— HUDDLE (1934), pp. 26, 34, 36, 51, 53, 59, comp. with *Ligonodina* and *Synprioniodina;* ——— STAUFFER (1935a), p. 143; ——— STAUFFER (1935b), pp. 605, 617; ——— MATERN (1933) (ab)Z (1937), p. 178, E. B. Branson states that he could not place generically the spms. referred to this genus; ——— STAUFFER (1938), p. 426; ——— COOPER (1939), p. 387; ——— STAUFFER (1940), p. 422; ——— DUBOIS (1941), p. 168, black sh., McLeansboro age, Ill.; ——— DUBOIS (1943), p. 156; ——— BRANSON & MEHL (1944), pp. 240-241; ——— COOPER (1945), p. 613; ——— ELLISON (Jan. 1946), pp. 95, 104, 108, 110, Richmond through Desmoinesian, bar type, *Telumodina* is classed as a jr. syn.; ——— EICHER (1946), p. 613, Araif el Naga fm., at Gebel Araif el Naga, NE Sinai, Egypt, near Palestine border; ——— BOND (1947), pp. 26, 28; ——— HASS (Mar. 1947), p. 132, basal Sunbury, and Huron shs., Ohio; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), pp. 49, 59; ——— YOUNGQUIST & MILLER (1948), p. 440; ——— YOUNGQUIST & DOWNS (1949), pp. 161-162; ——— THOMAS (1949), pp. 407, 420, Maple Mill sh., Iowa.

——**acicularis** (ULRICH & BASSLER) (1926), p. 29 (*Prioniodus*); ——— (HOLMES) (1928), pp. 10, 20, pl. 5, figs. 20-21, Hinde's (1879) pl. 15, fig. 18 is fig. 20; fig. 19 is fig. 21; ——— (BRANSON & MEHL) (July 1933d), p. 143, classed as a sr. syn. of *Hindeodella*. UD

——**alatus** (ULRICH & BASSLER) (1926), p. 29 (*Prioniodus*); ——— (HOLMES) (1928) (*? alata*), pp. 10, 20, pl. 5, figs. 17-18, Hadding's (1913) pl. 1, fig. 9 is fig. 17; fig. 10 is fig. 18.

——**aphanes** COOPER (1939), p. 387, pl. 46, figs. 3, 16. Holotype, 38824 (fig. 3); paratype, 38825 (fig. 16), Univ. Chi., pre-Welden sh., Okla.; ——— THOMAS (1949), p. 411, pl. 4, fig. 21. Fig. spm., C810-5, Univ. Mo., Prospect Hill siltstone, loc. 12, Iowa. LMi

——**? asema** COOPER (1939) (no ? on pl.), p. 387, pl. 46, fig. 4. Holotype, 38826, Univ. Chi., pre-Welden sh., Okla. LMi

——**bassleri** HIBBARD (1927), pp. 201, 203, fig. 4i. Holotype, 3, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y.; ——— HIBBARD (1928), p. 119, fig. 3, lower Rhinestreet sh., N. Y. UD

——**bryanti** ULRICH & BASSLER (1926), pp. 29-30, pl. 3, figs. 13-14; pl. 1, fig. 21. Cotypes, 11274, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 10; ——— CHADWICK (Feb. 1935a), p. 316, diagnostic sp. confined to Naples gr. UD

——**conferta** ULRICH & BASSLER (1926), pp. 12, 29, pl. 3, fig. 17. Holotype, 11273, USNM, lower Rhinestreet sh., N. Y., comp. with *Prioniodus curvidens;* ——— HOLMES (1928), p. 10, listed twice, the first listing has the pp., pls., and figs. of *Euprioniodina alata;* the second listing is correct; ——— CHADWICK (Feb. 1935a), p. 316, diagnostic sp. confined to Naples gr. UD

——**confluens** BRANSON & MEHL (June 1934a), pp. 209-210, pl. 15, fig. 22. Holotype, C369-5, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162; ——— HASS (Mar. 1947), see *Polylophodonta*. UD

——**coronata** STAUFFER & PLUMMER (1932), pp. 25, 30-31, pl. 2, figs. 7-9. Cotypes, 19117 (figs. 7-8); paratype, lost (fig. 9), Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., locs. 181-T-9, A (fig. 9), 181-T-9, B (figs. 7-8), Tex. MP

——**crassa** STAUFFER (1932), pp. 258, 262, pl. 40, fig. 24. Holotype, Univ. Minn., Decorah sh., Reno Co., Kans. MO

——**curvatus** (ULRICH & BASSLER) (1926), p. 29, (*Prioniodus*); ——— (HOLMES) (1928) (*curvata*), pp. 10, 20, pl. 5, fig. 30, Smith's (1907) fig. 40.

——**? cuspidatus** YOUNGQUIST (1945), p. 360, pl. 54, fig. 8. Syntypes, 2924 (fig.), 2925, Univ. Iowa, Independence sh?, Iowa. UD

——**debilis** HUDDLE (1934), pp. 14, 53, pl. 11, fig. 6. Holotype, 2259, Ind. Univ., rare in lower New Albany sh., locs. 27, 28 (fig.), Ind., comp. with *Euprioniodina falx;* ——— COOPER (1945), p. 613, pl. 84, fig. 6. Fig. spm., Ill. Geol. Surv., black sh., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont.; ——— SLOSS & LAIRD (1945), on chart, DC unit, Mont. M?-UD

——**deflecta** ULRICH & BASSLER (1926), pp. 16-17, 29-30, fig. 4, subfig. 14; pl. 3, figs. 11-12. Cotypes, 11272 (figs. 11-12), USNM, lower Rhinestreet shale, N. Y., comp. with *Euprioniodina bryanti;* type species for *Euprioniodina;* ——— BASSLER (1925), p. 219; ——— EDINGER (1926), p. 286, fig. 1 (pt.), 3rd fig. from bottom in mid. vertical row, same as subfig. 14, fig. 4 of Ulrich & Bassler (1926); ——— HOLMES (1928), p. 10; ——— HUDDLE (1934), p. 51; ——— CHADWICK (Feb. 1935a), p. 316, diagnostic sp. confined to Naples gr.; ——— BRANSON & MEHL (1944), p. 240, pl. 93, fig. 66; ——— GLAESSNER (1945), p. 28, fig. 4, subfig. 14, after Ulrich & Bassler (1926); ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 52, pl. 14, fig. 1. Fig. spm., 515, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y. UD

——**devexa** HUDDLE (1934), pp. 14, 52, pl. 11, fig. 4. Holotype, 2290, Ind. Univ., rare in mid. New Albany sh., loc. 23, Ind. UD

——**devonica** HIBBARD (1927), p. 203, fig. 4 h. Holotype, 168, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——**discedens** (ULRICH & BASSLER) (1926), p. 29 (*Prioniodus*); ——— (HOLMES) (1928) (*? discedens*), pp. 10, 20, pl. 5, fig. 19, Hadding's (1913) pl. 1, fig. 11 reproduced.

——**dora** STAUFFER (1938), pp. 412, 426, pl. 49, fig. 9. Holotype, B4783, Univ. Minn., Olentangy sh., loc. 187, Ohio. UD

——**dubia** STAUFFER (1935b), pp. 605-606, pl. 72, fig. 23. Holotype, B4538, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 94, Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**eximia** STAUFFER & PLUMMER (1932), pp. 25, 31, pl. 2, fig. 36. Holotype, 19118, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex. MP

——**exserta** STAUFFER & PLUMMER (1932), pp. 25, 31, pl. 2, fig. 22. Holotype, 19119, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex. MP

——**falx** HUDDLE (1934), pp. 14, 53, pl. 11, fig. 9. Holotype, 2292, Ind. Univ., common in lower New Albany sh., locs. 27 (fig.), 28, Ind. M?D

——**fornicata** HUDDLE (1934), pp. 14, 51, pl. 6, fig. 16. Holotype, 1828, Ind. Univ., rare in mid. New Albany sh., locs. 18-19, 20 (fig.), and upper New Albany sh., locs. 10, 14, Ind. UD-LMi

——**furcatus** (ULRICH & BASSLER) (1926), p. 29, (*Prioniodus*); ——— (HOLMES) (1928) (*? furcata*), pp. 10, 21, pl. 5, fig. 23, Hinde's (1879) pl. 15, fig. 13 reproduced; ——— (BRANSON & MEHL) (July 1933d) (*? furcata*), p. 155, classed as syn. of *Dichognathus*. UO

——**futilis** STAUFFER (1930), p. 126, pl. 10, fig. 10. Holotype, 5440, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**germana** HOLMES (1928), p. 28, pl. 10, fig. 7. Holotype, 11449, USNM, Chattanooga black sh., Ala. UD

——**gracilis** BRANSON & MEHL (June 1934a), p. 209, pl. 15, fig. 18. Holotype, C370-5, Univ. Mo., Grassy Creek sh., Mo.; ——— COOPER (1939), pp. 387, 419, pl. 46, fig. 14. Hypotype, 38827, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 162. UD-LMi

——**? hamulus** YOUNGQUIST (1945), p. 359, pl. 56, fig. 10. Holotype, 2919, Univ. Iowa, Independence sh?, Iowa. UD

——**? ignota** STAUFFER & PLUMMER (1932), pp. 25, 31, pl. 2, fig. 32. Holotype, 19120, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex. MP

——**insigna** STAUFFER (1935a), pp. 143, 159, pl. 10, fig. 26. Holotype, B4341, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**intertexta** STAUFFER & PLUMMER (1932), pp. 25, 32, pl. 2, fig. 35. Holotype, 19121, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex. MP

——**iowaensis** THOMAS (1949), pp. 408, 420-421, pl. 1, fig. 8. Holotype, C830-4, Univ. Mo., Maple Mill sh., loc. 14, Iowa, comp. with *Euprioniodina lateralis*. UD

——**isa** COOPER (1939), p. 387, pl. 47, fig. 66. Holotype, 38828, Univ. Chi., pre-Welden sh., Okla. LMi

——**lanceolatus** (ULRICH & BASSLER) (1926), p. 29, (*Prioniodus*); ——— (HOLMES) (1928) (*? lanceolata*), pp. 10, 18, pl. 5, fig. 22, Smith's (1907) fig. 16 reproduced.

——**lateralis** THOMAS (1949), pp. 408, 420-421, pl. 1, fig. 9. Holotype, C829-3, Univ. Mo., Maple Mill sh., loc. 14, Iowa. UD

——**lerbachensis** MATERN (1933), p. 15, fig. 10. Holotype, Preuss. Geol. Landest., Berlin, Lower Carboniferous, from Lerbach, Harz mountains, near Osterode, Germ. LMi?

——**macrodentata** COOPER (Sept. 1931), pp. 234-235, pl. 28, fig. 12, Woodford fm., Okla.; ——— COOPER (1935) (*Euprinodina*), p. 310, pl. 27, fig. 20. Fig. spm., 38070, Univ. Chi., mid. Ark. novaculite, bed A, Ark. UD

——**magnidens** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), pp. 52-53, pl. 14, fig. 13. Holotype, 450, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y. UD

——**munda** BRANSON & MEHL (June 1934a), p. 209, pl. 15, fig. 20. Holotype, C232-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——**obtusidens** YOUNGQUIST (1945), p. 360, pl. 54, fig. 1. Holotype, 2923, Univ. Iowa, Independence sh.?, Iowa; ——— YOUNGQUIST (1947), p. 100, comp. with *Euprioniodina sp. A* Youngquist (1947). UD

——**parvula** MILLER & YOUNGQUIST (1947), pp. 507-508, pl. 73, fig. 16. Holotype, 5542, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**peculiaris** ULRICH & BASSLER (1926), p. 30, pl. 10, fig. 3. Holotype, 11017, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 10. UD

——**perangulata** ULRICH & BASSLER (1926), p. 30, pl. 3, fig. 10. Holotype, 11275, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 10; ——— COOPER (Sept. 1931), p. 241; ——— HUDDLE (1934), pp. 14, 51-53, pl. 11, fig. 5. Plesiotype, 2323, Ind. Univ., common in lower New Albany sh., locs. 26 (fig.), 30, 32, comp. with *Euprioniodina sp.* Huddle (1934); ——— CHADWICK (Feb. 1935a), p. 316, diagnostic sp. confined to Naples gr.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 53, pl. 15, fig. 5. Fig. spm., 607, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y. M?-UD

——**prona** HUDDLE (1934), pp. 14, 52, pl. 6, fig. 19; pl. 11, fig. 8. Holotype, 1788 (fig. 19); paratype, 1789 (fig. 8), Ind. Univ., rare in upper New Albany sh., locs. 5, 9 (fig.), 11, 13; common at 8, 14; abundant at 1, 3, 6, 10, Ind.; ——— COOPER & SLOSS (1943), p. 170, pl. 28, fig. 24; pl. 29, fig. 24, black sh., base Madison gr., loc. 2 (pl. 29), loc. 4 (pl. 28), Mont.; ——— BOND (1947), pp. 21, 28, pl. 1, figs. 11-12. Hypotypes, 18374-18375, Ohio Univ., lower Ohio sh., Ohio, comp. with *Synprioniodina alternata*. UD-LMi

——**pulcella** YOUNGQUIST & DOWNS (1949), pp. 161, 163, pl. 30, fig. 6. Holotype, 14020, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa. MP

——**radicans** (ULRICH & BASSLER) (1926), p. 29 (*Prioniodus*); ——— (HOLMES) (1928) (*? radicans*), pp. 10, 22, pl. 5, figs. 24-29, Hinde's (1879) pl. 15, fig. 6 is 24; 2 is 25; 1 is 26; 5 is 27; 3 is 28; 4 is 29; ——— (BRANSON & MEHL) (July 1933d) (*? radicans*), p. 156, classed as sr. syn. of *Erismodus*. MO

——**regularis** E. R. BRANSON (1934), p. 330, pl. 28, fig. 1. Holotype, C208-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133. LMi

——**robusta** STAUFFER (1930), p. 123, pl. 10, fig. 1. Holotype, 5430, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER (1932), pp. 258, 262-263, pl. 40, fig. 25. Fig. spm., Univ. Minn., Decorah sh., Reno Co., Kans.; ——— STAUFFER (1935a), pp. 144, 159, pl. 11, fig. 29. Fig. spm., B4394, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 617, classed as sr. MO

syn. of *Pteroconus;* ——— STAUFFER & THIEL (1941), p. 245.

——staufferi YOUNGQUIST (1945), p. 359, pl. 54, figs. 5-6. Syntypes, 2920, Univ. Iowa, Independence sh.?, Iowa. UD

——symmetrica THOMAS (1949), pp. 411, 421, pl. 4, fig. 37. Holotype, C815-2, Univ. Mo., English River siltstone, loc. 11, Iowa. LMi

——? ungula YOUNGQUIST (1945), p. 359, pl. 56, fig. 7. Syntypes, 2921 (fig. 7), 2922, Univ. Iowa, Independence sh.?, Iowa. UD

——sp. (HOLMES) (1928), p. 37, pl. 8, figs. 29, 32 [*Polygnathus dubius* Clarke (1887), pl. A-1, fig. 11 is 29, fig. 8 is 32]. UD

——sp. A STAUFFER & PLUMMER (1932), pp. 25, 32, pl. 2, figs. 29, 31. Fig. spms., 19122, Bur. Econ. Geol. Mus., Tex., Graford fm., loc. 214-T-25, Tex. UP

——sp. B STAUFFER & PLUMMER (1932), pp. 25, 32, pl. 2, fig. 34. Fig. spm., lost, Bur. Econ. Geol. Mus., Tex., Graford fm., loc. 214-T-25, Tex.; ——— ELLISON (1941), p. 118, classed as sr. syn. of *Prioniodina? camerata.* UP

——? sp. BRANSON & MEHL (June 1933c), pp. 47-48, pl. 3, figs. 16-17. Fig. spms., C154-5, Univ. Mo., Bainbridge ls., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, figs. 16-17. MS

——? sp. BRANSON & MEHL (June 1933c), pl. 3, fig. 24. Fig. spm., C155-5, Univ. Mo., Bainbridge ls., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, fig. 24. MS

——? sp. GUNNELL (1933), pp. 264, 269, pl. 33, fig. 24. Fig. spm., Gunnell coll., Univ. Mo., Americus ls.?, Kans.; ——— ELLISON (1941), pp. 114, 138, classed as sr. syn. of *Prioniodus? conflexus,* and an indet. fragment. UP

——? sp. GUNNELL (1933), pp. 264, 269, pl. 33, fig. 6. Fig. spm., Gunnell coll., Univ. Mo., Quivira sh., Mo.; ——— ELLISON (1941), p. 115, classed as syn. of *Ligonodina lexingtonensis.* UP

——? sp. BRANSON & MEHL (June 1934a), p. 210, pl. 15, fig. 21. Fig. spm., C370-4, Univ. Mo., Grassy Creek sh., Mo., possibly *Ligonodina;* ——— BRANSON (1944), p. 162. UD

——sp. HUDDLE (1934), pp. 14, 51, pl. 6, fig. 15. Fig. spm., 2295, Ind. Univ., common in lower New Albany sh., locs. 26 (fig.), 32, comp. with *Euprioniodina perangulata.* M?D

——sp. a STAUFFER (1938), pp. 412, 426, pl. 49, fig. 20. Fig. spm., B5086, Univ. Minn., Olentangy sh., loc. 111, Ohio. UD

——sp. b STAUFFER (1938), pp. 412, 426, pl. 50, fig. 32; pl. 52, fig. 5. Fig. spms., B4826 (fig. 5), loc. 112; B4832 (fig. 32), loc. 117, Univ. Minn., Olentangy sh., Ohio. UD

——sp. STAUFFER (1938), p. 412, Arkona beds, loc. 162, Widder beds, loc. 168, Ont.; Plum Brook sh., locs. 105, 108, Olentangy sh., locs. 110-112, 117, 125, 187, Ohio. M-UD

——? sp. STAUFFER (1938), p. 426, pl. 52, figs. 2, 7. Fig. spms., B4927 (fig. 2), B4932 (fig. 7), Univ. Minn., Olentangy sh., loc. 111 (fig. 2), Ohio; Widder beds, loc. 168 (fig. 7), Ont.; ——— YOUNGQUIST (1947) (? *aff. E.* ? *sp.*), p. 100, pl. 26, fig. 8. Fig. spm., 3373, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa, ref. to fig. 7 of Stauffer (1938); ——— MILLER & YOUNGQUIST (1947), p. 508, ref. to fig. 7 of Stauffer (1938), comp. with *Euprioniodina? spp.* Miller & Youngquist (1947). M-UD

——sp. COOPER (1939), pl. 46, fig. 5. Fig. spm., 39862, Univ. Chi., pre-Welden sh., Okla. LMi

——sp. COOPER (1939), pl. 47, fig. 23. Fig. spm., 39878, Univ. Chi., pre-Welden sh., Okla. LMi

——sp. STAUFFER (1940), pp. 422-423, pl. 58, figs. 35, 37. Fig. spms., B5557, B5559, Univ. Minn., clay above Cedar Valley ls., Minn. MD

——sp. HASS (1941), p. 75, pl. 16, fig. 4. Fig. spm., 7558, USGS, Bushberg-Hannibal horizon, Okla. LMi

——spp. BRANSON & MEHL (1941a), p. 171, pl. 5, figs. 17-18. Fig. spms., C546-1, C545-1, Univ. Mo., lower Caney sh., Okla. UMi

——sp. A YOUNGQUIST (1947), p. 100, pl. 25, fig. 2. Fig. spm., 3371, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa, comp. with *Euprioniodina obtusidens.* UD

——sp. B YOUNGQUIST (1947), p. 100, pl. 26, fig. 10. Fig. spm., 3372, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——? sp. YOUNGQUIST (1947), p. 100, pl. 26, fig. 19. Fig. spm., 3374, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——? spp. MILLER & YOUNGQUIST (1947), p. 508, pl. 72, fig. 1, pl. 73, fig. 15. Fig. spms., 5543 (fig. 1), 5544 (fig. 15), Univ. Iowa, Sweetland Creek sh., Iowa, comp. with *Euprioniodina ? sp.* Stauffer (1938), pl. 52, fig. 7. UD

——sp. A THOMAS (1949), pp. 411, 421, pl. 3, fig. 23. Fig. spm., C806-5, Univ. Mo., English River siltstone, loc. 12, Iowa. LMi

——sp. LAYER *et al.* (1949), p. 594, D-3 zone 875 ft. below top of D-2 zone, Alta., Can. UD

FALCODUS HUDDLE (1934), pp. 26, 35-36, 48, 87-88. Type species, *F. angulus* HUDDLE (1934), comp. with *Hindeodelloides;* ——— BRANSON & MEHL (1938d), pp. 129, 131, 136; ——— COOPER (1939), p. 387; ——— COOPER & SLOSS (1943), p. 173; ——— ELLISON (Jan. 1946), pp. 95, 104, 108, Upper Dev. through Osage, blade type, *Dinodus* probably is a jr. syn.; ——— CAMPBELL (1946), p. 852, upper New Albany sh.; ——— HASS (Mar. 1947), p. 132, upper and basal Sunbury sh., Ohio; ——— COOPER (July 1948a), p. 359, upper New Albany sh. UD-LMi

——angulus HUDDLE (1934), pp. 16, 87-88, pl. 7, fig. 9, text fig. 3, subfig. 3. Holotype, 1830 (fig. 9); paratype, 1829 (fig. 3), Ind. Univ., abundant in upper New Albany sh., locs. 1 (fig.), 2; rare at 5-6, 8; and rare in mid. New Albany sh., loc. 20, Ind., type species for *Falcodus,* comp. with *Falcodus conflexus.* UD-LMi

——conflexus HUDDLE (1934), pp. 16, 87-89, pl. 7, fig. 6. Holotype, 1832, Ind. Univ., rare in upper New Albany sh., locs. 1 (fig.), 3, 8, 10, 14; common at 6, Ind., comp. with *Falcodus angulus;* ——— BRANSON & MEHL (1938d), p. 131, classed as jr. syn. of *Falcodus ultimus;* ——— COOPER (1939), pp. 387, 419, pl. 47, figs. 26, 34, 42-43, 45-46, 52. Hypotypes, 38829-38835, Univ. Chi., pre-Welden sh., Okla., *Palmatodella ultima* is classed as sr. syn.; ——— COOPER & SLOSS (1943), p. 173, ref. to Huddle (1934) and Cooper (1939), classed as jr. syn. of *Falcodus ultimus.* LMi

——**fragosus** (COOPER) (1939), pp. 387, 419, pl. 47, figs. 17, 24, 33, 35, 53. Hypotypes, 38836-38840, Univ. Chi., pre-Welden sh., Okla., (*Palmatodella*). LMi

——? **granulosus** HUDDLE (1934), pp. 16, 89, pl. 7, fig. 10. Holotype, 2254, Ind. Univ., rare in upper New Albany sh., locs. 1, 3 (fig.), 8, 14, Ind.; ——— COOPER & SLOSS (1943), p. 173, classed as sr. syn. of *Dinodus*. LMi

——**incultus** STAUFFER (1938), pp. 412, 426, pl. 49, fig. 10. Holotype, B4784, Univ. Minn., Olentangy sh., loc. 111, Ohio; ——— YOUNGQUIST (1945), pp. 355, 360, pl. 55, fig. 14. Plesiotype, 2926, Univ. Iowa, Independence sh.?, Iowa. UD

——**tortus** HUDDLE (1934), pp. 16, 88, pl. 7, fig. 4. Holotype, 1833, Ind. Univ., rare in upper New Albany sh., locs. 1 (fig.), 3, Ind. LMi

——**trypherus** COOPER (1939) (*typherus* on pl.), p. 387, pl. 47, fig. 25. Holotype, 38841, Univ. Chi., pre-Welden sh., Okla. LMi

——**ultimus** (BRANSON & MEHL) (1938d), p. 131, *Falcodus conflexus* is classed as a jr. syn., (*Palmatodella*); ——— (COOPER & SLOSS) (1943), pp. 170, 173, pl. 29, fig. 1, black sh., base Madison gr., loc. 4, Mont. LMi

——**sp.** HUDDLE (1934), pp. 16, 88, pl. 7, fig. 5. Fig. spm., 2355, Ind. Univ., upper New Albany sh., loc. 14, Ind. LMi

——**sp.** STAUFFER (1938), pp. 412, 426-427, pl. 51, fig. 23. Fig. spm., B4919, Univ. Minn., Olentangy sh., locs. 109, 112, 187 (fig.), Ohio. UD

——**n. sp.** A HASS (Mar. 1947), p. 137, upper Sunbury sh., Ohio. LMi

FORTSCOTTELLA GUNNELL (1931b), p. 251. Type species, *F. gigantea* GUNNELL (1931); ——— GUNNELL (Sept. 1931) (ab)Z (1933), p. 183, E. B. Branson states that he believes these to be denticles from Elasmobranch spines and not conodonts; ——— HUDDLE (1934), p. 35, not a conodont; ——— CAMP & VANDERHOOF (1940), p. 377, *Selachii, incertae sedis*. MP

——**gigantea** GUNNELL (1931b), pp. 251-252, pl. 29, fig. 30. Holotype, Univ. Mo., mid. sh., Fort Scott fm., Mo., comp. with *Fortscottella semiserrata*. MP

——**semiserrata** GUNNELL (1931b) (*seniserrata* on pl.), pp. 251-252, pl. 29, fig. 28. Holotype, Univ. Mo., mid. sh., Fort Scott fm., Mo., comp. with *Fortscottella gigantea;* ——— CAMP & VANDERHOOF (1940), p. 377. MP

——**serrata** GUNNELL (1931b), pp. 251-252, pl. 29, fig. 29. Holotype, Univ. Mo., mid. sh., Fort Scott fm., Mo., comp. with *Fortscottella gigantea* and *semiserrata*. MP

GNATHODELLA MATERN (1933), pp. 16-17, 21. Type species, *G. angulata* MATERN (1933). UD

——**angulata** MATERN (1933), pp. 16-17, figs. 13a, b. Holotype, XVI 7a, Senckenberg Mus., Frankfurt a.M., Germ., Manticoceras-Stufe to I, from Langenaubach by Dillenburg, Germ., comp. with *Gnathodella scheldensis;* type species for *Gnathodella;* ——— MATERN (1933) (ab)Z (1937), p. 178, ref. to fig. 13a. E. B. Branson states that the plates referred to this genus are obscured by the matrix and the downward projection shown in fig. 13A seems not to belong to the specimen, but seems to belong to *Polygnathus*. UD

——**scheldensis** MATERN (1933), p. 17, figs. 14 a, b. Holotype, XVI 3a, Senckenberg Mus., Frankfurt a.M., Germ., Manticoceras-Stufe (nach dem Aussehen des Kalkes) to I_{gamma} from Oberscheld, Sessacker, Germ., comp. with *Gnathodella angulata*. UD

GNATHODONTIDAE CAMP, TAYLOR, & WELLES (1942), p. 525, ref. to Schmidt (1934), name preoccupied, *Rhenanidi, incertae sedis*.

GNATHODONTIDAE new family BRANSON & MEHL (1944), p. 245, pl. 94; ——— ELLISON (Jan. 1946), p. 98, Mid. Dev. to Perm.; ——— THOMAS (1949), p. 416.

GNATHODUS PANDER (1856), pp. 33-34, 90. Type species, *G. mosquensis* PANDER (1856); ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1858), p. 339; ——— OWEN (1860), p. 96, may have claim to vertebrate rank; ——— HARLEY (1861), p. 550; ——— BIGSBY (1868), p. 72; ——— HINDE (1879), p. 355; ——— YOUNG (1880), p. 10, collected by John Smith from Ayrshire coal-field, W. Scot.; ——— ZITTEL & ROHON (1886), p. 110; ——— ZITTEL (1890), pp. 59-60; ——— PERNER (1894), p. 2; ——— SMITH (1900), p. 338; ——— ZITTEL (1924), p. 288; ——— BASSLER (1925), p. 220; ——— ULRICH & BASSLER (1926), pp. 6, 43-44, 54-55; ——— ROUNDY (1926), pp. 12, 14, Pander's desc. trans.; ——— HOLMES (1928), pp. 3, 10; ——— ?(HOLMES) (1928), p. 37, pl. 8, fig. 7, [*Polygnathus dubius* Hinde (1879) (pt.), pl. 16, fig. 15]; ——— GUNNELL (Mar. 1931a), p. 331, Lansing gr., Mo.; ——— GUNNELL (Apr. 1931a), p. 239; ——— GUNNELL (1931b), p. 249; ——— STAUFFER & PLUMMER (1932), p. 40; ——— MATERN (1933), p. 17, comp. with *Gnathodella;* ——— BAKER, DANE, & REESIDE (1933), p. 971, from 3250-3350 ft., on Cane Creek anticline SW of Moab, Utah; ——— BRANSON & MEHL (June 1934a), pp. 225, 227, comp. with *Icriodus* and *Nothognathella;* ——— SCHMIDT (1934), pp. 79-84; ——— HUDDLE (1934), pp. 35, 89, *Spathodus* may be a jr. syn. of *Gnathodus;* ——— CHADWICK (Feb. 1935a), p. 313, not reported outside Genesee; ——— SCHMIDT (1934) (ab)Na (1935), p. 789; ——— SCHMIDT (1934) (r)P (1935), p. 80; ——— ZEBERA (1936a), p. 3; ——— ZEBERA (1936b), pp. 189, 191-192; ——— SCHMIDT (1934) (ab)Z (1937), p. 179, Branson & Mehl state that the identification of this genus by Schmidt is uncertain; ——— DEMANET (1938), p. 161; ——— BRANSON & MEHL (1938d), pp. 136, 144, revised desc.; ——— COOPER (1939), pp. 383, 388; ——— WETZEL (1940), p. 75, ref. to Holmes (1928), pl. 8, fig. 7, comp. with Form V of Wetzel (1940); ——— BRANSON & MEHL (1941a), pp. 169, 172, Caney sh., Okla.; ——— BRANSON & MEHL (1941b), p. 183; ——— BRANSON & MEHL (1941c), p. 194, Eichenberg's (1930) figs. 24-25 should be referred to this genus; ——— BRANSON & MEHL (1941e), p. 98; ——— ELLISON (1941), pp. 109, 127, 138, comp. with *Streptognathodus;* ——— DEMANET (1941), p. 177; ——— ELLISON & GRAVES (1941), pp. 2, 5, 12; ——— CAMP, TAYLOR, & WELLES (1942), p. 525, *Rhenanidi, incertae sedis*, ref. to Demanet (1938) and Schmidt (1934); ——— BRANSON & MEHL (1944), p. 245; ——— JOHNSON (1945) UD-MT

(*Gynathodus*), p. 91, Paradox fm., Colo.; ——— ELLISON (Jan. 1946), pp. 94, 96, 98, 101, 108, Miss. through Desmoinesian, all gradational forms are known from *Spathognathodus* to *Gnathodus*, platform type, *Dryphenotus* is a jr. syn.; ——— EICHER (1946), p. 613, Araif el Naga fm., at Gebel Araif el Naga, NE Sinai, Egypt, near Palestine border; ——— HASS (Mar. 1947), p. 132, upper and basal Sunbury, basal Orangeville shs., Ohio; ——— MEHL & THOMAS (1947), p. 10; ——— COOPER (1947b), p. 269; ——— YOUNGQUIST & PATTERSON (1949), p. 58; ——— YOUNGQUIST & DOWNS (1949), pp. 161-165, 171, comp. with *Streptognathodus* and *Idiognathodus;* ——— THOMAS (1949), p. 416; ——— STURGEON & YOUNGQUIST (1949), pp. 380, 382-383.

——**americanus** BRYANT (1921), pp. 22-23, pl. 7, fig. 5, conodont bed, N. Y.; ——— ROUNDY (1926), p. 12; ——— ULRICH & BASSLER (1926), p. 54, pl. 1, fig. 5, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 10; ——— CHADWICK (Feb. 1935a), pp. 312, 317, nondiagnostic sp. making its first appearance in Genesee and last in Naples gr. UD

——**bilineatus** (COOPER) (1939), pp. 388, 419, pl. 42, figs. 59-60. Hypotype, 38844, Univ. Chi., pre-Welden sh., Okla., (*Polygnathus*). LMi

——? **crassus** (HOLMES) (1928), pp. 11, 17, pl. 6, fig. 32, (*Polygnathus*); ——— (CHADWICK) (Feb. 1935a), p. 311, diagnostic sp. confined to Genesee gr. UD

——**cuneiformis** MEHL & THOMAS (1947), p. 10, pl. 1, fig. 2. Holotype, C654-4, Univ. Mo., Fern Glen fm., Mo. MMi

——? **curvatus** (HOLMES) (1928), pp. 11, 17, pl. 6, fig. 33, (*Polygnathus*); ——— (BRANSON & MEHL) (July 1933d), p. 152, classed as sr. syn. of *Palmatolepis?*. UD

——**delicatus** BRANSON & MEHL (1938d), p. 145, pl. 34, figs. 25-27. Holotype, C68-5 (fig. 26); paratypes, C357-2 (figs. 25, 27), Univ. Mo., Chouteau ls., Mo.; ——— BRANSON (1944), pp. 208e, 220, pl. 39, figs. 25-27. LMi

——**dilatus** STAUFFER & PLUMMER (1932), pp. 25, 40-41, pl. 4, figs. 10-11, 13-14. Cotypes, 19150 (figs. 10-11); paratypes, 19151 (figs. 13-14), fig. 11 lost, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., locs. 181-T-9, A (figs. 10-11), 181-T-9, B (figs. 13-14), Tex.; ——— ELLISON (1941), p. 138, comp. with *Gnathodus roundyi*. MP

——**dubius** (BRANSON & MEHL) (July 1933d), p. 153, ref. to Holmes (1928), p. 37, pl. 8, fig. 7 now referred to *Spathognathodus sp.*, (*Polygnathus*).

——? **eriensis** (HOLMES) (1928) (no ? p. 17), pp. 11, 17, pl. 7, fig. 1, (*Polygnathus*); ——— (BRANSON & MEHL) (July 1933d) (no ?), p. 151, classed as sr. syn. of *Palmatolepis*. UD

——**integer** SCHMIDT (1934), pp. 77, 79-84, figs. 1-8; pl. 6, all assemblages; because there are many genera and spp. present in each assemblage, and none were found in an articulated position, I restrict the type to the platform-like teeth present in the upper pt. of figs. 5a, b and pl. 6, fig. 1, only the upper two spms. on fig. 5b being the types. Holotype, Geol. Inst., Göttingen Univ., Germ., lower pt., Upper Carboniferous, *Eumorphoceras bisulcatum* zone, Kieselschiefer, lowest unternamurien Arnsberger Grauwacke, Ziegelei by Hemer, Westphalia, Germ.; ——— STAUFFER (1935b), p. 598; ——— SCHMIDT (1934) (ab)Na (1935), p. 789; ——— SCHMIDT (1934) (r)P (1935), p. 80 and fig., same as pl. 6, fig. 4 of Schmidt (1934); ——— ÖPIK (1936), pp. 106-107, fig. 58, after Schmidt (1934), pl. 6, fig. 4; ——— ZEBERA (1936a), p. 4, fig. 2, Schmidt's reconstruction reproduced; ——— ZEBERA (1936b), pp. 191-192, fig. 1, Schmidt's reconstruction reproduced; ——— DEMANET (1938), pp. 160-163, 170, pl. 14, figs. 1-14, assemblage belonging to different genera and spp.; ——— DEMANET (1941), p. 177; ——— CAMP, TAYLOR, & WELLES (1942), p. 525, Rhenanidi, *incerta sedis*. UMi

——**isomeces** COOPER (1939), p. 388, pl. 42, figs. 61-62. Holotype, 38845, Univ. Chi., pre-Welden sh., Okla. LMi

——**linguiformis** BRANSON & MEHL (1941b), pp. 183-184, pl. 6, figs. 18-26. Holotype, C546-4 (fig. 19); fig. spms., C576-2 (figs. 20, 22, 26); C574-5 (figs. 21, 24-25); C374-5 (fig. 18); C574-3 (fig. 23), Univ. Mo., Keokuk ls., Mo.; ——— BRANSON (1944), p. 240. MMi

——**lius** COOPER (1939), p. 388, pl. 42, figs. 71-72. Holotype, 38846, Univ. Chi., pre-Welden sh., Okla. LMi

——**loncotus** COOPER (1939), p. 388, pl. 42, figs. 65-66. Holotype, 38847, Univ. Chi., pre-Welden sh., Okla. LMi

——(*Dryphenotus*) **macrolobatus** (BRANSON & MEHL) (1944), p. 245, pl. 94, fig. 69.

——**mosquensis** PANDER (1856), p. 34, pl. 2A, figs. 10 a, b, c, Carbon., Bergkalk, Moscow, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HARLEY (1861), p. 546, said to be same as pl. 17, fig. 15. Fig. spm., A6935a, British Mus.; ——— HARLEY (1861) (ab)N (1862), p. 747; ——— HINDE (1879), pp. 363, 365, comp. with *Polygnathus? serratus* Hinde (1879); ——— ZITTEL & ROHON (1886), p. 131, ref. to Pander (1856), pl. 2A, figs. 10, 10a, comp. with *Staurocephalus rubrovittatus* Ehlers (1868); ——— HINDE (1900), p. 342, classed as sr. syn. of *Polygnathus;* ——— SMITH (1907a), p. 239, upper Coal-Measures, probably short distance above Craigmark Ironstone, Scot.; ——— BRYANT (1921), p. 23, comp. with *Gnathodus americanus* Bryant (1921); ——— ULRICH & BASSLER (1926), pp. 44, 54, fig. 5, subfig. 14, Pander's type species reproduced; ——— ROUNDY (1926), p. 12, pl. 2, figs. 6a-d, Pander's figs. reproduced, comp. with *Gnathodus texanus;* ——— HOLMES (1928), pp. 10-11, 18, pl. 6, fig. 31; pl. 7, figs. 2-4, Hinde's (1900) ref. is changed back to *Gnathodus*, Pander's (1856) pl. 2A, fig. 10 is 31 lower left, 10a is 31 upper left, 10b is 31 upper rt., 10c is 31 rt. Hinde's (1900) fig. 4 is fig. 2 of Holmes, 2 is 3, 3 is 4;——— GUNNELL (1931b), p. 249, comp. with *Gnathodus roundyi;* ——— BRANSON & MEHL (July 1933d), p. 152; ——— COOPER (1939), pp. 388, 419, pl. 41, figs. 23-25, 30-32; pl. 42, figs. 75-76. Hypotypes, 38848-38850, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON & MEHL (1944), p. 245. UMi-M?P

——**parallelus** COOPER (1939), p. 388, pl. 42, figs. 73-74. Holotype, 38851, Univ. Chi., pre-Welden sh., Okla. LMi

——**perplexus** BRANSON & MEHL (1938d), p. 145, pl. 34, fig. 24. Holotype, C167-2, Univ. Mo., Chouteau ls., Mo.; ——— COOPER (1939), L-MMi

p. 388, pl. 42, figs. 47-50. Hypotypes, 38842 (figs. 47-48), 38843 (figs. 49-50), Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), pp. 208e, 220, pl. 39, fig. 24; ——— MEHL & THOMAS (1947), pp. 7, 10, pl. 1, fig. 4. Fig. spm., C654-5, Univ. Mo., Fern Glen ls., Mo.

——**pustulosus** BRANSON & MEHL (1941a), pp. 172-173, pl. 5, figs. 32-39. Holotype, C542-1 (fig. 36); fig. spms., C543-1, Univ. Mo., lower Caney sh., Okla.; ——— BRANSON & MEHL (1944), p. 245, pl. 94, figs. 59-61. UMi

——**roundyi** GUNNELL (1931b), p. 249, pl. 29, figs. 19-20. Holotype, Univ. Mo., mid. sh., Fort Scott fm., Mo.; ——— STAUFFER & PLUMMER (1932), pp. 25, 41, East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex.; ——— ELLISON (1941), pp. 108, 111, 138, pl. 23, figs. 23, 25-28 (misprinted on pl. as 24, 26-28). Holotype, C487-3 (G); hypotypes, C193-5 (figs. 27-28), C189-5 (figs. 25-26), C184-5 (fig. 23), C570-2 (B), Univ. Mo., Desmoinesian series, Cherokee sh. through Bandera sh., locs. 0124E (fig. 23); 0161E (figs. 25-28), 0111, 0104, 1266, 1346-51, 0110, 675, 0120, 1027, 1038, 682, 680, 0176, 716, 0175, 0159, 0158, 0117, 0118, 0123, 717, 1102, 0174, Mo., comp. with *Gnathodus dilatus;* ——— BRANSON (1944), p. 325, Cherokee and Henrietta, Mo.; ——— YOUNGQUIST & DOWNS (1949), p. 163, ref. to Ellison (1941), pl. 23, figs. 27-28 (28 they state is misprinted), comp. with *Gnathodus websteri;* ——— THOMAS (1949), p. 416, comp. with *Gnathodus sp. indet.* Thomas (1949); ——— STURGEON & YOUNGQUIST (1949), p. 383, ref. to Ellison (1941), pl. 23, fig. 25 and Gunnell (1931), pl. 29, figs. 19-20, comp. with *Gnathodus sp.* Sturgeon & Youngquist (1949). MP

——**stinus** COOPER (1939), p. 388, pl. 41, figs. 40-41. Holotype, 38852, Univ. Chi., pre-Welden sh., Okla. LMi

——**texanus** ROUNDY (1926), p. 12, pl. 2, figs. 7a-8b. Holotype, 115090 (fig. 8), loc. 2688; 115092 (fig. 7), loc. 2609, USNM, Barnett sh., 2688 upper pt., 2609 lower pt., 2613 D, E, G, H, Tex.; ——— HOLMES (1928), p. 11; ——— COOPER (1939), p. 416, ref. to Roundy (1926), pl. 2, figs. 7a-8b, classed as sr. syn. of *Spathognathodus;* ——— (COOPER) (1939), pp. 388, 419, pl. 41, figs. 26-27. Hypotype, 38853, Univ. Chi., pre-Welden sh., Okla. (*Polygnathus*); ——— HASS (1941), pp. 75-76, pl. 15, fig. 4. Fig. spm., 7556, USGS, Barnett sh., Tex.; ——— BRANSON & MEHL (1941a), p. 173, pl. 5, figs. 23-25. Fig. spms., C546-2 (fig. 23), C542-3 (figs. 24-25), Univ. Mo., lower Caney sh., Okla.; ——— ELLISON & GRAVES (1941), pp. 2, 4, pl. 2, figs. 8-10, 12. Hypotypes, 4793 (figs. 8, 10), 4794 (fig. 9), 4795 (fig. 12), Mo. Sch. Min., Rolla, Dimple fm., mid., locs. G926 (fig. 12), G908 (figs. 8, 10), G921; lower transition zone at base, loc. G912 (fig. 9), Tex.; ——— MEHL & THOMAS (1947), p. 10, pl. 1, fig. 3. Fig. spm., C655-1, Univ. Mo., Fern Glen fm., Mo. LMi-LP

——**texanus var. bicuspidus** ROUNDY (1926), p. 12, pl. 2, figs. 9a-9b. Holotype, 115091, USNM, Barnett sh., loc. 2613 E, Tex.; ——— HOLMES (1928), p. 11; ——— BRANSON & MEHL (1941b), p. 184, comp. with *Gnathodus linguiformis.* MMi

——**typicus** COOPER (1939), p. 389, pl. 42, figs. 77-78. Holotype, 38854, Univ. Chi., pre-Welden sh., Okla. LMi

——**wapanuckensis** (ELLISON & GRAVES) (1941), pp. 2, 4, pl. 2, figs. 13-17. Hypotypes, 4797 (fig. 13), 4798 (fig. 14), 4799 (figs. 15, 17), 4800 (fig. 16), Mo. Sch. Min., Rolla, Dimple fm., mid., locs. G923, G922, G921, G905, G918 (fig. 13), G917 (fig. 14), G902 (fig. 16), G901; lower transition zone, locs. G912 (figs. 15, 17), G910, Tex. (*Polygnathus*); ——— (YOUNGQUIST & DOWNS) (1949), p. 171, ref. to Ellison & Graves (1941), pl. 2, fig. 14, comp. with *Streptognathodus sp.* Youngquist & Downs (1949). LP

——**websteri** YOUNGQUIST & DOWNS (1949), pp. 161, 163-165, pl. 31, figs. 4-5. Holotype, 14048, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa. MP

——**sp.** ULRICH & BASSLER (1926) (? *Gnathodus*), p. 54, pl. 1, fig. 5, lower Rhinestreet sh., N. Y., comp. with *Polygnathus.* UD

——**sp.** BAKER (1936), p. 22, upper Hermosa fm., San Juan County, Utah, ident. by Girty. MP

——**spp.** HENDRICKS (1937), p. 16, upper McAlester sh., Okla. MP

——**sp.** DEMANET (1938), p. 161, pl. 14, figs. 1-4. Fig. spms., Musée Royal d'Histoire Naturelle de Belgique, Couches de passage, V3c supérieur, locs. Pl. Bioul. 4-5, 17, 22354 (fig.), Belgium. UMi

——**sp.** HASS (1941), p. 78, pl. 14, fig. 2. Fig. spm., 7549, USGS, Bushberg-Hannibal horizon, Okla. LMi

——**sp.** ELLISON & GRAVES (1941), pp. 2, 4, pl. 2, fig. 11. Fig. spm., 4769, Mo. Sch. Min., Rolla, mid. Dimple fm., G902, Tex. LP

——**n. sp. A** HASS (Mar. 1947), pp. 136-137, basal Orangeville-basal Sunbury sh., upper Sunbury sh., Ohio. LMi

——**sp. indet.** THOMAS (1949), pp. 411, 416, pl. 3, fig. 24. Fig. spm., C812-4, Univ. Mo., English River siltstone, loc. 5, Iowa, comp. with *Gnathodus roundyi.* LMi

——**sp.** STURGEON & YOUNGQUIST (1949), pp. 381, 383, pl. 74, figs. 7-8. Fig. spm., 19622, Ohio Univ., Hamden ls., Allegheny fm., Ohio, comp. with *Gnathodus roundyi.* MP

GONDOLELLA STAUFFER & PLUMMER (1932), pp. 41-42. Type species, *G. elegantula* STAUFFER & PLUMMER (1932); ——— GUNNELL (1933), p. 287; ——— HUDDLE (1934), pp. 24, 26, 35-36, 93-94, probably derived from *Spathognathodus,* could have given rise to some higher genera of Polygnathidae; ——— BRANSON & MEHL (1937), p. 232; ——— BRANSON & MEHL (1938a), p. 160; ——— BRANSON & MEHL (Mar. 15, 1939b), p. 167; ——— BRANSON & BRANSON (Jan. 1941), p. 133, Phosphoria fm., no conodonts are known elsewhere above the Lower Perm. except a *Gondolella* from the Muschelkalk of Germ., which probably came from the Zechstein instead; ——— BRANSON & MEHL (1941c), p. 194, Trochitenkalk, unterer Muschelkalk, at Neustadt by Weiblungen; ——— BRANSON & MEHL (1941d), p. 197; ——— ELLISON (1941), pp. 109, 120-121, 125; ——— ELLI- LP-MT

SON & GRAVES (1941), p. 2; ——— BRANSON & MEHL (1944), pp. 244-245; ——— GLAESSNER (1945), p. 200; ——— ELLISON (Jan. 1946), pp. 94, 96, 98, 108, Desmoinesian through Wolfcamp, platform type, the sequence from *Prioniodina* to *Gondolella* is perfect; ——— COOPER (1947b), p. 269; ——— YOUNGQUIST & HEEZEN (1948), pp. 767-768; ——— YOUNGQUIST & DOWNS (1949), p. 162.

——**bella** STAUFFER & PLUMMER (1932), pp. 25, 42, pl. 3, figs. 3-4. Holotype, 19152, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex.; ———ELLISON (1941), pp. 109, 111, 121-122, pl. 21, figs. 6, 10, 14. Hypotype, C557-2 (fig.), Univ. Mo., Bourbon fm. through Stanton ls., locs. 0084, 0039, 0001, 0106, 0119, 0162 (fig.), 1354, 0107, 0144, 0148, 1362, 0017, 0149, 0116, 0155, 0140, 1359, 0138, 0127, Mo., *Gondolella minuta* is classed as a jr. syn.; comp. with *Gondolella elegantula* and *symmetrica;* ——— BRANSON (1944), pp. 308, 325, pl. 45, figs. 6, 10, 14, Pleasanton, Kansas City, Lansing grs., Mo. M-UP

——**costata** ELLISON (1941), pp. 109, 111, 124-125, pl. 21, figs. 20, 24. Holotype, C559-2, Univ. Mo., Hushpuckney sh. through Quivira sh., locs. 1362 (fig.), 0107, 0103, 0085, 0144, 0148, 0108, 0115, 0142, 0151, 0141, 0017, 0149, 0155, 0140, 1359, Mo., comp. with *Gondolella neolobata;* ——— BRANSON (1944), pp. 308, 325, pl. 45, figs. 20, 24, Pleasanton through Kansas City gr., Mo. M-UP

——**curvata** STAUFFER & PLUMMER (1932), pp. 25, 42, pl. 3, figs. 13-14, 17. Cotypes, 19153, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex.; ——— ELLISON (1941), pp. 108-109, 111, 123-124, pl. 21, figs. 25, 29, 33, 38-39. Hypotypes, C169-4; C169-5 (figs. 25, 29), C159-4, C159-5, Univ. Mo., Cherokee into Marmaton, locs. 0110 (fig.), 672, 680, 0158, Mo., comp. with *Gondolella elegantula* and *merrilli;* ——— BRANSON (1944), pp. 308, 325, pl. 45, figs. 25, 29, 33, 38-39, Cherokee and Henrietta, Mo.; ——— COOPER (1947b) (*cruvata*), pp. 267, 269, Marmaton. MP

——**denuda** ELLISON (1941), pp. 109-111, 119, 121, pl. 20, fig. 54; pl. 21, figs. 1-2, 36. Holotype, C557-1 (fig. 54); paratypes, C184-4 (fig. 1), C170-5 (fig. 2), C169-2 (fig. 36), Univ. Mo., Hushpuckney through Queen Hill sh., locs. 0155 (fig. 36), 0017 (figs. 1-2, 54), 0149, 0116, 0140, 1359, Mo., grades into *Prioniodina? camerata;* ——— BRANSON (1944), pp. 308, 325, pl. 45, figs. 1-2, 36, Pleasanton gr., Mo.; ——— COOPER (1947b), p. 270. M-UP

——**dubia** ELLISON (1941), pp. 109-111, 124-125, pl. 21, figs. 8, 12, 16. Holotype, C559-1, Univ. Mo., Mo. series, Bronson gr., locs. 0017, 0149, 0116, 0155, 0140, 1357 (fig.), 1359, Mo., comp. with *Gondolella lobata;* ——— BRANSON (1944), pp. 308, 325, pl. 45, figs. 8, 12, 16, Pleasanton gr., Mo.; ——— COOPER (1947b), p. 269. M-UP

——**elegantula** STAUFFER & PLUMMER (1932), pp. 25, 42-43, pl. 3, figs. 5, 8-9. Cotypes, 19154 (figs. 8-9); paratype, 19155 (fig. 5), Bur. Econ. Geol. Mus., Tex., Graford fm., loc. 214-T-25, Tex.; ——— HUDDLE (1934), p. 94; ——— ELLISON (1941), pp. 109-111, 121-123, pl. 21, figs. 7, 11, 15. Hypotype, C557-4, Univ. Mo., Hushpuckney sh. through Stanton ls., locs. 0084, 0039, 0106, 0119, 1354, 0107, 0103, 0144, 0148, 0108, 0142, 0151, 0141, 0017, 0116, 0155, 1362 (fig.), Mo., *Gondolella insolita* and *lanceolata* are classed as jr. syns., comp. with *Gondolella bella, sublanceolata,* and *curvata;* ——— BRANSON (1944) (*elgantula*), pp. 308, 325, pl. 45, figs. 7, 11, 15, Pleasanton, Kansas City, Lansing grs., Mo.; ——— BRANSON & MEHL (1944), p. 244; ——— COOPER (1947b), p. 270. M-UP

——**insolita** STAUFFER & PLUMMER (1932), pp. 25, 43, pl. 3, figs. 15, 22. Cotypes, 19156, Bur. Econ. Geol. Mus., Tex., Graford fm., loc. 214-T-25, Tex.; ——— ELLISON (1941), p. 122, classed as jr. syn. of *Gondolella elegantula.* UP

——**lanceolata** STAUFFER & PLUMMER (1932), pp. 25, 43, pl. 3, figs. 12, 16. Cotypes, 19157, Bur. Econ. Geol. Mus., Tex., Graford fm., loc. 214-T-25, Tex.; ——— ELLISON (1941), p. 122, classed as jr. syn. of *Gondolella elegantula.* UP

——**lingulata** GUNNELL (1933), pp. 264, 287, pl. 32, figs. 51-52. Holotype, Gunnell coll., 87, Univ. Mo., Quivira sh., Mo., comp. with *Gondolella merrilli;* ——— ELLISON (1941), p. 123, classed as sr. syn. of *Gondolella merrilli;* ——— GLAESSNER (1945), pp. 64, 200, pl. 4, figs. 8a-b, after Gunnell (1933), pl. 32, figs. 51-52. UP

——**lobata** ELLISON (1941), pp. 109, 111, 125, pl. 21, figs. 27, 31, 41. Holotype, C558-4 (figs. 27, 31); paratype, C144-5 (fig. 41), Univ. Mo., Hushpuckney sh. through Eudora sh., locs. 0084, 0039, 0001, 0107 (fig.), 0144, 0148, 1362, 0017, 0149, 0116, 0155, 0140, 1359, Mo., comp. with *Gondolella neolobata* and *dubia;* ——— BRANSON (1944), pp. 308, 325, pl. 45, figs. 27, 31, 41, Pleasanton, Kansas City, Lansing grs., Mo. M-UP

——**magna** STAUFFER & PLUMMER (1932), pp. 25, 43-44, pl. 3, figs. 6-7, 10-11. Cotypes, 19158, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., locs. 181-T-9, A (fig.), B, Tex.; ——— ELLISON (1941), pp. 108-109, 111, 124, pl. 21, fig. 37. Hypotype, C169-1 (fig. 37), Univ. Mo., upper Cherokee sh. through Labette sh., locs. 0110 (fig.), 680, Mo.; ——— BRANSON (1944), pp. 308, 325, pl. 45, fig. 37, Cherokee, Henrietta, Mo.; ——— COOPER (1947b), pp. 267, 269, Marmaton gr. MP

——**merrilli** GUNNELL (1933), pp. 264, 287-288, pl. 32, figs. 48-50. Types, 85-86, Gunnell coll., Univ. Mo., Quivira sh., Mo., comp. with *Gondolella lingulata, sublanceolata,* and *sinuata;* ——— ELLISON (1941), pp. 109, 111, 123, pl. 21, figs. 5, 9, 13, 40. Holotype, C512-4 (G); hypotypes, C557-5 (figs. 5, 9, 13), C159-3 (fig. 40), C512-5 (G), C513-2 (G), Univ. Mo., Bronson into Lansing, Hushpuckney sh. through Stanton ls., locs. 0084, 0001, 0106, 0119, 1354, 0107 (fig. 40), 0103, 0085, 0144, 0148, 1273, 1283, 1362 (figs. 5, 9, 13), 0108, 0142, 0151, 0141, 0017, 0149, 0116, 0155, 0140, 1359, Mo., *Gondolella lingulata, sinuata,* and pl. 32, fig. 54 (not figs. 53, 55) of *sublanceolata* Gunnell (1933) are classed as syns., comp. with *Gondolella sublanceolata* and *curvata;* ——— BRANSON & MEHL (1944), p. 245, pl. 94, figs. 32-34; ——— BRANSON (1944), pp. 308, 325, pl. 45, figs. 5, 9, 13, 40, Henrietta, Pleasanton, M-UP

Kansas City grs., Mo.; ——— GLAESSNER (1945), p. 64, pl. 4, figs. 7a-c, after Gunnell (1933), pl. 32, figs. 48-50.

——**minuta** STAUFFER & PLUMMER (1932), pp. 25, 44, pl. 3, figs. 1-2. Holotype, 19159, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, A, Tex.; ——— ELLISON (1941), p. 121, classed as syn. of *Gondolella bella*. MP

——**neolobata** ELLISON (1941), pp. 109, 111, 124-125, pl. 21, figs. 28, 32. Holotype, C558-5, Univ. Mo., Bronson into Lansing, Quivira sh. through Stanton ls., locs. 0084, 0039, 0001, 0107, 0103, 0085, 0144, 0148, 1362 (fig.), Mo., comp. with *Gondolella costata, lobata,* and *dubia;* ——— BRANSON (1944), pp. 308, 325, pl. 45, figs. 28, 32, Henrietta, Pleasanton, Kansas City grs., Mo. M-UP

——? **nodosa** HUDDLE (1934), pp. 16, 94, pl. 8, figs. 24-25. Holotype, 1940, Ind. Univ., rare in lower New Albany sh., locs. 27 (fig.), 28; and mid. New Albany sh., loc. 33, Ind.; ——— BRANSON & MEHL (1938a), p. 160, classed as sr. syn. of *Icriodus;* ——— BRANSON & MEHL (1941d), p. 202. M?-UD

——**sinuata** GUNNELL (1933), pp. 264, 287-288, pl. 32, figs. 56-58. Types, 89-90, Gunnell coll., Univ. Mo., Chanute sh., Quivira memb., Mo.; ——— ELLISON (1941), p. 123, classed as jr. syn. of *Gondolella merrilli*. UP

——**sublanceolata** GUNNELL (1933), pp. 264, 287, pl. 32, figs. 53-55. Types, 88, Gunnell coll., Univ. Mo., Quivira sh., Mo., comp. with *Gondolella merrilli;* ——— ELLISON (1941), pp. 109, 111, 122-123, pl. 21, figs. 18-19, 22-23, 34-35. Holotype, C513-1 (G); hypotypes, C557-3 (figs. 18, 22), C558-3 (figs. 19, 23), C169-3 (figs. 34-35), Univ. Mo., Hushpuckney sh. through Stanton ls., Bourbon into Lansing, locs. 0084, 0039, 0001, 0106, 0119, 1354, 0107 (figs. 19, 23, 34-35), 0085, 0144, 0148, 1273, 1283, 1362 (figs. 18, 22), 0108, 0142, 0151, 0141, 0017, 0149, 0116, 0155, 1359, Mo., *Gondolella sublanceolata* Gunnell (1933) (pt.), pl. 32, fig. 54 (not figs. 53, 55) is classed as a syn. of *Gondolella merrilli,* comp. with *Gondolella symmetrica, elegantula,* and merrilli; ——— BRANSON (1944), pp. 308, 325, pl. 45, figs. 18-19, 22-23, 34-35, Henrietta, Pleasanton, and Kansas City grs., Mo. M-UP

——**symmetrica** ELLISON (1941), pp. 109-111, 121, pl. 21, figs. 3-4, 17, 21, 26, 30. Holotype, C558-2 (figs. 17, 21); paratypes, C558-1 (figs. 26, 30), C170-4 (figs. 3-4), Univ. Mo., Hushpuckney sh. through Stark sh., locs. 0108, 0115, 0142, 0151, 0141, 0017 (figs. 17, 21, 26, 30), 0149, 0116, 0155 (figs. 3-4), 0140, 1359, Mo., comp. with *Gondolella bella;* ——— BRANSON (1944), pp. 308, 325, pl. 45, figs. 3-4, 17, 21, 26, 30, Henrietta gr., Mo.; ——— COOPER (1947b), p. 269. M-UP

——**sp. A** STAUFFER & PLUMMER (1932), pp. 25, 44, pl. 3, figs. 18-19. Fig. spm., lost, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex. MP

——**spp.** BRANSON & MEHL (1941c), p. 194, pl. 7, figs. 7-10, 18-20. Fig. spms., Univ. Mo., figs. 7, 9-10, 19, Trochitenkalk, unterer Muschelkalk, Neustadt by Weiblungen, Germ., figs. 8, 18, 20, Phosphoria fm., Wyo. LPm-MT

——**sp.** ELLISON & GRAVES (1941), pp. 2, 4, pl. 2, fig. 20. Fig. spm., 4802, Mo. Sch. Min., Rolla, mid. Dimple fm., loc. G926, Tex. LP

——**spp.** COOPER (1947b), p. 267.

GYROGNATHUS STAUFFER (1935a), p. 144. Type species, *G. primus* STAUFFER (1935a); ——— STAUFFER (1935b), p. 606; ——— ELLISON (Jan. 1946) (*Gyrocanthus*), p. 108, Mid. Ord. and Dev., classed as a jr. syn. of *Oulodus*, bar type. UD, MO

——**carinatus** STAUFFER (1938), pp. 412, 427, pl. 51, fig. 12. Holotype, B5063, Univ. Minn., Olentangy sh., loc. 112, Ohio. UD

——**planus** STAUFFER (1935b), p. 606, pl. 71, figs. 36, 48. Syntypes, B4500 (fig. 36), B4512 (fig. 48), Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 94, Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**primus** STAUFFER (1935a), pp. 144, 159, pl. 12, figs. 8-9. Cotypes, B4424-B4425, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 606, pl. 71, figs. 25, 29-35, 38, 40, 42, 49, 51; pl. 72, fig. 24. Fig. spms., B4489 (figs. 25, 33), B4493-B4499 (figs. 29-35, excluding 33), B4502 (fig. 38), B4504 (fig. 40), B4506 (fig. 42), B4513 (fig. 49), B4515 (fig. 51), B4539 (fig. 24), Univ. Minn., Decorah sh., Minn., Spechts Ferry memb., Iowa, locs. 5, 15, 16 (figs. 30-31, 51), 24, 26, 37 (fig. 42), 40 (fig. 29), 48-49, 52, 57 (fig. 40), 61, 64, 67 (fig. 38), 70, 76, 86, 89, 94 (figs. 25, 32-35, 49, 24), 95-96; ——— STAUFFER & THIEL (1941), pp. 238, 241, 245; ——— DECKER (1942), pp. 858-859, fig. 3, black ls., 9340 ft. deep, Crane Co., Tex. MS, MO

HAMULOSODINA COOPER (Sept. 1931), pp. 230, 239. Type species, *H. bidens* COOPER (Sept. 1931); ——— HUDDLE (1934), pp. 34, 36, 47-48, comp. with *Hindeodelloides;* ——— ELLISON (Jan. 1946), p. 108, Upper Dev., classed as jr. syn. of *Hindeodella*, bar type. UD-LMi

——**bidens** COOPER (Sept. 1931), pp. 239-240, pl. 28, fig. 27, Woodford fm., Okla.; ——— HUDDLE (1934), p. 47. UD

——**nodosa** COOPER (Sept. 1931), pp. 240-241, pl. 28, fig. 29, Woodford fm., Okla.; ——— COOPER (1935), p. 310, pl. 27, fig. 30. Fig. spm., 38080, Univ. Chi., mid. Ark. novaculite, beds 7, 14, Ark. UD

——**parilis** COOPER (Sept. 1931), p. 240, pl. 28, fig. 25, Woodford fm., Okla. UD

——? **perangulata** HUDDLE (1934) (*parangulata* on pl.), pp. 14, 47-48, pl. 5, fig. 8. Holotype, 1790, Ind. Univ., rare in upper New Albany sh., locs. 2, 3 (fig.), 8, 13-14, Ind. LMi

——**perdentata** COOPER (Sept. 1931), p. 240, pl. 28, fig. 26, Woodford fm., Okla. UD

——**simplex** COOPER (Sept. 1931), pp. 239-240, pl. 28, fig. 24, Woodford fm., Okla., comp. with *Hamulosodina unica;* ——— COOPER (1935), p. 310, pl. 27, fig. 31. Fig. spm., 38081, Univ. Chi., upper Ark. novaculite, bed A, Ark. UD-LMi

——**tridens** COOPER (Sept. 1931), pp. 239-240, pl. 28, fig. 23, Woodford fm., Okla., comp. with *Hamulosodina simplex* and *bidens*. UD

——**unica** COOPER (Sept. 1931), p. 240, pl. 28, fig. 28, Woodford fm., Okla. UD

——**sp.** HUDDLE (1934), p. 14.

——? HUDDLE (1934), p. 48, pl. 12, fig. 5. Fig. spm., 2336, Ind. Univ., rare in upper New Albany sh., locs. 1 (fig.), 2, 5-6, Ind. LMi

HETEROGNATHUS STAUFFER (1935b), pp. 606-607. Type species, *H. idoneus* STAUFFER (1935b); ——— STAUFFER (Jan. 1936), p. 79, *Heterognathus* is a homonym that is preoccupied and now changed to *Pravognathus;* L-UO

——— GRAVES & ELLISON (1941), pp. 3, 5, makes its first appearance in Marathon fm., Tex.; ——— ELLISON (Jan. 1946), p. 108.

——**brevis** STAUFFER (1935b), p. 607, pl. 72, figs. 17, 30. Holotype, B4532 (fig. 17); paratype, B4545 (fig. 30), Univ. Minn., Decorah sh., Spechts Ferry memb., locs. 48, 61, 94 (fig.), Minn.; ——— STAUFFER (Jan. 1936), p. 79, classed as sr. syn. of *Pravognathus* because generic name is preoccupied; ——— STAUFFER & THIEL (1941), p. 241. MO

——**idoneus** STAUFFER (1935b), p. 607, pl. 72, figs. 9, 14-15, 18, 20, 26, 29, 32. Syntypes, B4529 (fig. 14), B4533 (fig. 18); paratypes, B4524 (fig. 9), B4530 (fig. 15), B4535 (fig. 20), B4541 (fig. 26), B4544 (fig. 29), B4547 (fig. 32), Univ. Minn., Decorah sh., locs. 1, 27, 43, 48 (figs. 14, 18), 51, 70, 74, 86, 94 (figs. 9, 15, 20, 26, 32), 95, 96 (fig. 29), Minn. and Iowa; ——— STAUFFER (Jan. 1936), p. 79, classed as sr. syn. of *Pravognathus* because generic name is preoccupied; ——— STAUFFER & THIEL (1941), pp. 238, 241; ——— GRAVES & ELLISON (1941), pp. 4, 7, pl. 1, figs. 5, 9. Hypotypes, 1340, Mo. Sch. Min., Rolla, upper Marathon fm., locs. G227 (fig.), G231; Maravillas fm., locs. G602, G605, Tex. L-UO

——**simplex** STAUFFER (1935b), p. 607, pl. 72, figs. 21-22, 31. Syntypes, B4536-B4537 (figs. 21-22), B4546 (fig. 31), Univ. Minn., Decorah sh., Minn., Spechts Ferry memb., Iowa, locs. 1-2, 15-17, 19, 22, 27, 30, 37, 40, 48, 51, 55, 61-63, 69-71, 74-75, 86, 89, 92, 94 (figs. 21, 31), 95 (fig. 22); ——— STAUFFER (Jan. 1936), p. 79, classed as sr. syn. of *Pravognathus* because generic name is preoccupied; ——— STAUFFER & THIEL (1941), pp. 238, 241. MO

——**sp.** GRAVES & ELLISON (1941) (*Heterognathus?* on pl.), pp. 5, 7, pl. 3, figs. 19-20, 25. Fig. spms., 3430 (fig. 19), 3484 (fig. 20), 3492 (fig. 25), Mo. Sch. Min., Rolla, lower Maravillas fm., locs. G602 (fig. 19), G605 (figs. 20, 25), Tex. UO

HIBBARDELLA ULRICH & BASSLER (1926), pp. 3-4, 6, 15, 17, 30, 34, 37-38, 41. Type species, *Prioniodus angulatus* HINDE (1879), comp. with *Diplododella;* ——— BASSLER (1925), p. 219 (*nomen nudum*); ——— HIBBARD (1927), p. 204; ——— HOLMES (1928), pp. 3, 11, 29; ——— STAUFFER & PLUMMER (1932), p. 37, comp. with *Lonchodus;* ——— STAUFFER (1932), p. 263; ——— MATERN (1933), p. 18, comp. with *Stephanodella;* ——— BRANSON & MEHL (July 1933d), p. 141; ——— GUNNELL (1933), p. 269; ——— BRANSON & MEHL (June 1934a), pp. 201, 203, comp. with *Apatognathus;* ——— HUDDLE (1934), pp. 28, 34, 36, 78, 112-113; ——— CHADWICK (Feb. 1935a), p. 318, begins in Naples gr.; ——— BRANSON & MEHL (Mar. 15, 1939b), p. 167; ——— BRANSON & MEHL (1941a), pp. 175-177, revised desc., Caney sh., Okla.; ——— BRANSON & MEHL (1941b), p. 180; ——— ELLISON (1941), pp. 109, 111, 118, 138; ——— IMBT (1941), p. 148; ——— DUBOIS (1941), p. 168, black sh., McLeansboro age, Ill.; ——— DUBOIS (1943), p. 156; ——— BRANSON & MEHL (1944), pp. 241, 243; ——— COOPER (Dec. 1945a), p. 1153, Linietta clay, top of black sh., E. Lincoln Co., Ky.; ——— ELLISON (Jan. 1946), pp. 95, 104, 108, Upper Dev. through Penn., bar type; ——— BOND (1947), p. 28; ——— YOUNGQUIST (1947), pp. 96, 101; ——— COOPER (1947b), p. 269; ——— MILLER & YOUNGQUIST (1947), pp. 508, 511, comp. with *Lonchodina aff. L. transversa* Miller & Youngquist (1947); ——— YOUNGQUIST & MILLER (1948), p. 440; ——— BRANSON & MEHL (1948), p. 527, comp. with *Trichonodella;* ——— YOUNGQUIST & HEEZEN (1948), p. 770; ——— THOMAS (1949), p. 421; ——— STURGEON & YOUNGQUIST (1949), pp. 380, 382. M?D-UP

——**abnormis** BRANSON & MEHL (1941b), pp. 184-185, pl. 6, fig. 14. Holotype, C577-1, Univ. Mo., Keokuk ls., Mo.; ——— BRANSON (1944), p. 240. MMi

——**angulata** (ULRICH & BASSLER) (1926), pp. 16-17, 37-38, pl. 3, figs. 1-4; text fig. 4, subfig. 15. Plesiotypes, 11295, USNM, lower Rhinestreet sh., N. Y., comp. with *Hibbardella subequalis,* designated the type species for *Hibbardella,* (*Prioniodus*); ——— (BASSLER) (1925), p. 219 (*nomen nudum*); ——— (EDINGER) (1926), p. 286, fig. 1 (pt.), 2nd fig. from bottom in mid. vertical row, same as text fig. 4, subfig. 15 of Ulrich & Bassler (1926); ——— (HOLMES) (1928), pp. 11, 20, pl. 5, figs. 31-33, Hinde's (1879) pl. 15, fig. 17 is 31; Hinde's (1900) fig. 18 is 32 and 19 is 33; ——— (BRANSON & MEHL) (July 1933d), pp. 141-142, pl. 11, fig. 16. Holotype, A4180, Brit. Mus.; ——— (HUDDLE) (1934), pp. 16, 21-22, 78-79, pl. 3, figs. 6-7; pl. 10, fig. 12. Plesiotypes, 1835 (fig. 7), 1836 (fig. 6), 2293 (fig. 12), Ind. Univ., rare in New Albany sh., upper, locs. 2, 6, 8, 9 (fig. 6), 10, 13-14, mid., 20 (fig. 12), lower, 26, 27 (fig. 7), 30-31, Ind.; ——— (CHADWICK) (Feb. 1935a), p. 316, diagnostic sp. confined to Naples gr.; ——— (BRANSON & MEHL) (1941a), p. 175; ——— (BRANSON & MEHL) (1944), p. 241, pl. 93, fig. 73; ——— (GLAESSNER) (1945), p. 28, fig. 4, subfig. 15, after Ulrich & Bassler (1926); ——— (CAMPBELL) (1946), p. 845, ident. by Huddle, lower Blackiston fm., Ind.; ——— (BOND) (1947), pp. 21, 28, pl. 2, fig. 9. Hypotype, 18409, Ohio Univ., lower Ohio sh., Ohio; ——— (YOUNGQUIST) (1947), pp. 100-101, pl. 24, figs. 16-17; pl. 25, fig. 7. Hypotypes, 3375-3376 (figs. 16-17), 3377 (fig. 7), 3378, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa, comp. with *Hibbardella sp.* Youngquist (1947); ——— (YOUNGQUIST, HIBBARD, & REIMANN) (1948), p. 53, pl. 15, figs. 2, 13. Fig. spms., 347 (fig. 2), 601 (fig. 13), Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y.; ——— (THOMAS) (1949), p. 422, comp. with *Hibbardella macrodentata.* M?D-LMi

——? **confertissima** ULRICH & BASSLER (1926), p. 38, pl. 3, fig. 5. Holotype, 11298, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 11; ——— BRANSON & MEHL (June 1934a), p. 232, comp. with *Nothognathella? abnormis;* ——— CHADWICK (Feb. 1935a), p. 316, diagnostic sp. confined to Naples gr. UD

——**curvata** HOLMES (1928), p. 29, pl. 10, fig. 9. Holotype, 11450, USNM, Chattanooga black sh., Ala.; ——— BUTTS (1926), p. 160, pl. 48, fig. 5, after Holmes (1928), Chattanooga black sh., Ala., (*nomen nudum*); ——— UD

HUDDLE (1934), p. 80, comp. with *Hibbardella pandata.*

——distans HUDDLE (1934), pp. 16, 80, pl. 3, fig. 14. Holotype, 2258, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind. UD

——? divergens HUDDLE (1934), pp. 16, 81, pl. 10, fig. 6. Holotype, 1837, Ind. Univ., rare in upper New Albany sh., locs. 1, 3, 8, 13 (fig.), Ind.; ——— COOPER & SLOSS (1943) (no ?), p. 170, pl. 29, figs. 10, 16, black sh., base Madison gr., loc. 1, Alta.; ——— CAMPBELL (1946), p. 844, ident. by Huddle, Blackiston fm., Ind. UD-LMi

——? gracilis STAUFFER (1930), pp. 127-128, pl. 10, fig. 17. Holotype, spm. not found, Univ. Minn., lower Decorah sh., Minn.;——— STAUFFER (1932), p. 258, Decorah sh., Reno Co., Kans.; ——— STAUFFER & THIEL (1941), p. 241. MO

——hawkeyensa YOUNGQUIST (Mar. 1947), p. 101, pl. 25, fig. 20. Holotype, 3379, Univ. Iowa, unnamed sh. above Cedar Valley ls., 1½ mi. NE of N. Liberty, Iowa. UD

——insignis HUDDLE (1934) (*Hibbardella?* on pl.), pp. 16, 80-81, pl. 3, fig. 15. Holotype, 2252, Ind. Univ., rare in upper New Albany sh., locs. 1, 3, 8 (fig.), 10, 13-14, Ind. LMi

——longipostica THOMAS (1949) (*Hibrardella* p. 408), pp. 408, 421, pl. 1, fig. 16. Holotype, C825-1, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——macrodentata THOMAS (1949), pp. 411, 422, pl. 4, fig. 25. Holotype, C820-5, Univ. Mo., English River siltstone, loc. 12, Iowa. LMi

——multidens ULRICH & BASSLER (1926), p. 38, pl. 3, figs. 8-9. Cotypes, 11297, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 11; ——— CHADWICK (Feb. 1935a), p. 316, diagnostic sp. confined to Naples gr.; ——— MILLER & YOUNGQUIST (1947), p. 508; ——— MILLER & YOUNGQUIST (1947) (*cf. multidens*), p. 508, pl. 72, figs. 8-9; pl. 73, figs. 10-11. Fig. spms., 5545, Univ. Iowa, Sweetland Creek sh., Iowa; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948) (*cf. H. multidens*) (*? Hibbardella*), p. 53, ref. to Miller & Youngquist (1947); ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), pp. 50, 53-54, pl. 15, fig. 10. Fig. spm., 18, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y. UD

——pandata HUDDLE (1934), pp. 16, 80, pl. 3, fig. 13. Holotype, 1898, Ind. Univ., abundant in lower New Albany sh., loc. 32 (fig.), common at 26, Ind. M?D

——? peculiaris STAUFFER (1932) (no ? p. 258), pp. 258, 263, pl. 40, figs. 26-27. Type, Univ. Minn., Decorah sh., Reno Co., Kans. MO

——plana THOMAS (1949), pp. 408, 422, pl. 2, fig. 28. Holotype, C827-5, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——recurvata THOMAS (1949), pp. 408, 422, pl. 2, fig. 3. Holotype, C824-4, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——subacoda (ELLISON) (1941), pp. 108-111, 118, 138, pl. 20, figs. 22, 26. Holotype, C484-5 (G); hypotypes, C554-3 (figs. 22, 26), C485-4 (G), C510-5 (G), C566-3 (B), Univ. Mo., Cherokee through Heebner sh., locs. 0111, 0104, 1266, 1346-51, 0110, 389, 672, 1038, 682, 967, 680, 0176, 0158, 1145, 0084, 0039, 0001, 0132, 1274, 1284, 1367, 1354, 0103, 0144, 0148, 1362 (fig.), 1352, 0108, 0017, 0149, 0116, 0155, 0140, 1359, 0138, 1371, 0081, 0094, Mo., *Prioniodus missouriensis* and *Idioprioniodus striatus* are jr. syns., (*Prioniodus*); ——— (BRANSON) (1944), p. 325, Cherokee into Shawnee; ——— (YOUNGQUIST & HEEZEN) (1948), pp. 768-769, pl. 118, fig. 13. Fig. spm., 4158, Univ. Iowa, black sh. ¾ mi. NW of Knoxville, Iowa; ——— (YOUNGQUIST & DOWNS) (1949), p. 161, sh. ¾ mi. NW of Knoxville, Iowa. M-UP

——subequalis ULRICH & BASSLER (1926), p. 38, pl. 3, figs. 6-7. Cotypes, 11296, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928) (*subaequalis*), p. 11; ——— CHADWICK (Feb. 1935a) (*subaequalis*), p. 316, diagnostic sp. confined to Naples gr.;——— YOUNGQUIST (1947) (*subaequalis*), p. 101, pl. 26, fig. 14. Hypotype, 3380, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——subgrandis HIBBARD (1927), pp. 204-205, fig. 3 h. Holotype, 7, Hibbard coll., Buff. Mus. Sci., N. Y., Rhinestreet sh., N. Y.; ——— HUDDLE (1934), p. 79, comp. with *Hibbardella symmetrica.* UD

——symmetrica HUDDLE (1934), pp. 16, 79, pl. 3, fig. 9. Holotype, 1839, Ind. Univ., rare in upper New Albany sh., locs. 2 (fig.), 9-10, 13-14, Ind., see *Diplododella symmetrica?* Thomas (1949). LMi

——? telum HUDDLE (1934), pp. 16, 21, 79-80, pl. 3, figs. 10-12. Holotype, 2251 (fig. 10); paratypes, 1840 (fig. 12), 1841 (fig. 11), Ind. Univ., rare in lower New Albany sh., locs. 27 (fig. 11), 28; mid. New Albany, loc. 20 (fig. 10); upper New Albany, locs. 1 (fig. 12), 10, 13, Ind. M?D-LMi

——? sp. STAUFFER (1930), p. 127, pl. 10, fig. 16. Type, spm. not found, Univ. Minn., lower Decorah sh., Minn. MO

——sp. GUNNELL (1933), pp. 263, 269, pl. 31, fig. 61. Type, Gunnell coll., Univ. Mo., Winterset ls., Mo. UP

——? sp. GUNNELL (1933), pp. 263, 269, pl. 31, fig. 46. Type, Gunnell coll., Univ. Mo., Winterset ls., Mo. UP

——? sp. STAUFFER (Sept. 1938), pp. 412, 427, pl. 49, fig. 24. Fig. spm., B4909, Univ. Minn., Olentangy sh., locs. 120, 187 (fig.), Ohio; ——— STAUFFER & THIEL (1941), p. 241. UD

——? sp. indet. BRANSON & MEHL (1941a), pp. 176-177, pl. 5, fig. 4. Fig. spm., C544-5, Univ. Mo., lower Caney sh., Okla. UMi

——sp. unident. CAMPBELL (1946), p. 845, ident. by Huddle, lower Blackiston fm., Ind. UD

——sp. YOUNGQUIST (1947), p. 101, pl. 25, fig. 6. Fig. spm., 3381, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa, comp. with *Hibbardella angulata.* UD

——sp. YOUNGQUIST & MILLER (1948), p. 445, pl. 67, fig. 19. Fig. spm., 5600, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——sp. A THOMAS (1949), pp. 411, 422, pl. 4, fig. 31. Fig. spm., C818-2, Univ. Mo., Prospect Hill siltstone, loc. 11, Iowa. LMi

——? sp. STURGEON & MERRILL (1949), p. 10, Dorr Run sh., Allegheny fm., Ohio. MP

——fragments STURGEON & YOUNGQUIST (1949), p. 382, Washingtonville sh., Allegheny fm., Ohio. MP

HINDEODELLA ULRICH & BASSLER (1926), pp. 6, 15, 17, 25, 28, 38-41, 62. **Type species, *H. subtilis* ULRICH & BASSLER (1926);** ——— BASSLER (1925), p. 219; ——— HIBBARD (1927), pp. 200, 205; ——— HOLMES (1928), pp. 3, 8, 11, 25; ——— HIBBARD (1928), p. 117; ——— EICHENBERG (1930), p. 180; ——— GUNNELL (Mar. 1931a), p. 331, Lansing gr., Mo.; ——— GUNNELL (Apr. 1931a), p. 239; ——— COOPER (June 1931), p. 147; ——— COOPER (Sept. 1931), pp. 232, 235, 237; ——— GUNNELL (1931b), p. 249; ——— STAUFFER & PLUMMER (1932), pp. 32-33, 36-37, comp. with *Lonchodus;* ——— STAUFFER (1932), pp. 258, 262; ——— HARLTON (1933) (*Hindiodella*), pp. 4, 12; ——— MATERN (1933), pp. 14-15, 21; ——— BRANSON & MEHL (June 1933c), p. 45; ——— **BRANSON & MEHL (July 1933d)**, p. 142; ——— BAKER, DANE, & REESIDE (1933), p. 971, from 3250-3350 ft., Cane Creek anticline, SW of Moab, Utah, Girty states it is lower half of Penn.; ——— GUNNELL (1933), p. 269; ——— BRANSON & MEHL (June 1934a), pp. 194-195; ——— SCHMIDT (1934), pp. 80, 83-84; ——— BRANSON & MEHL (Oct. 1934a), pp. 265, 278, 282; ——— E. R. BRANSON (1934), p. 323; ——— HUDDLE (1934), pp. 34, 36, 39, 42, 48, 57, comp. with *Hindeodelloides* and *Metaprioniodus;* ——— MCKNIGHT (1935), p. 74, Sylamore ss., Ark.; ——— BAILEY (1935), pp. 487, 490, 493, common in lower Henrietta and above and below Bevier coal in Cherokee gr., rare at F1, G4, G10, J1, J6, K1, K5, T2, T12, U5, U6, V6, Y5; common at A4, D5, Y2, Y6, Y16; abundant at G1, Y1, Y7, Y12, Y13; ——— SCHMIDT (1934) (r)P (1935), p. 80; ——— ZEBERA (1936b), p. 191; ——— BRANSON & MEHL (June 1936a) (*Hindeodellids*), p. 436; ——— FURNISH (1938), p. 323; ——— BRANSON & MEHL (1938d), p. 141; ——— DEMANET (1939), p. 219; ——— COOPER (1939), pp. 383, 389; ——— C. C. BRANSON (Aug. 1939), pp. 1207, 1216, Tensleep fm., Wyo.; ——— STAUFFER (1940), p. 424; ——— BRANSON & BRANSON (Jan. 1941), p. 133, Phosphoria fm.; ——— BRANSON & MEHL (1941a), p. 169, pl. 5, figs. 1-2, 9. Fig. spms., C543-3 (fig. 1), C545-2 (fig. 2), C544-3 (fig. 9), Univ. Mo., lower Caney sh., Okla.; ——— BRANSON & MEHL (1941c), p. 194; ——— ELLISON (1941), pp. 109-111, 117; ——— DEMANET (1941), p. 177; ——— ELLISON & GRAVES (1941), p. 2; ——— DUBOIS (1941) (*Hindeodellids*), p. 168, black sh., McLeansboro age, Ill.; ——— SCOTT (1942), pp. 293, 295-300; ——— CAMP, TAYLOR, & WELLES (1942), p. 532, *Rhenanidi?* with ref. to Demanet (1938); ——— DUBOIS (1943), pp. 156-157; ——— COOPER & SLOSS (1943), pp. 171-173, comp. with *Arcugnathus;* ——— SCOTT (1942) (r)NRC (1943), p. 21; ——— BRANSON & MEHL (1944), pp. 240-241; ——— JOHNSON (1945), p. 91, Paradox fm., Colo.; ——— COOPER (1945), p. 613; ——— ELLISON (Jan. 1946), pp. 95, 104, 108-109, Richmond through Wolfcamp, bar type, *Arcugnathus, Cervicornoides, Hamulosodina, Hindeodelloides, Lewistownella* (pt.), and *Lochriea* (pt.), are classed as jr. syns.; ——— BOND (1947), pp. 26, 28, 30-31, comp. with *Hindeodelloides* and *Metaprioniodus;* ——— COOPER (1947a), pp. 84, 91; ——— HASS (Mar. 1947), pp. 132, 135, basal Sunbury, Bedford, upper and lower Ohio, Cleveland and Huron shs., Ohio; ——— YOUNGQUIST (1947), p. 102; ——— MEHL & THOMAS (1947), pp. 7, 10; ——— YOUNGQUIST & PETERSON (1947), pp. 243, 245; ——— COOPER (1947b), p. 269; ——— MILLER & YOUNGQUIST (1947), p. 509; ——— BRANSON & BRANSON (1947), p. 554; ——— YOUNGQUIST & MILLER (1948), pp. 440, 446; ——— YOUNGQUIST & PATTERSON (1949), p. 57; ——— YOUNGQUIST & DOWNS (1949), pp. 161-162; ——— THOMAS (1949), p. 422; ——— LAYER *et al.* (1949), p. 594, green sh., zone 300 ft. below top of D-2 zone, Alta, Can.; ——— STURGEON & YOUNGQUIST (1949), pp. 380, 382. UO-LPm

——**acicularis** (BRANSON & MEHL) (July 1933d), p. 143, pl. 11, figs. 17-18, 21. **Cotypes, A4178-A4179, A4193, Brit. Mus.;** on pl., fig. 18 is A4199, and 17, 21 are A4178, A4173; *Polygnathus dubius* Hinde (1879) (pt.), pl. 16, fig. 12 (A4199), and Holmes (1928), p. 10, pl. 8, fig. 9 and *Hindeodella longidens* Ulrich & Bassler (1926) are classed as sr. and jr. syns., Genesee sh., Ont. and N. Y., (*Euprioniodina = Prioniodus*). UD

——**aculeata** HUDDLE (1934) (*aculaeta* pp. 40-41), pp. 14, 27, 40-41, 43, pl. 4, figs. 19-21; pl. 5, figs. 2-3. Holotype, 2274 (fig. 2); paratypes, 1850 (fig. 19), 2288 (fig. 21), 2289 (fig. 3), 2267 (fig. 20), Ind. Univ., upper New Albany sh., locs. 1 (abundant), 2 (common), 3 (fig. 2) (common), 6 (fig. 19) (abundant), 8-9 (common), 10-11 (rare); mid. New Albany sh., locs. 18-19 (rare), 20 (figs. 3, 21), 21 (fig. 20) (abundant), Ind., comp. with *Hindeodella laticlavis;* ——— COOPER (1939), pp. 389, 419, pl. 46, fig. 36. Hypotype, 38855, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), p. 170, pl. 28, fig. 29, black sh., base Madison gr., loc. 1, Alta.; ——— COOPER (1945), p. 613, pl. 84, figs. 7, 9. Fig. spm., Ill. Geol. Surv., black sh., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont.; ——— SLOSS & LAIRD (1945), on chart, DC unit, Mont.; ——— CAMPBELL (1946), pp. 844-845, ident. by Huddle, lower Blackiston fm., Ind.; ——— BOND (1947), pp. 21, 28-29, pl. 1, figs. 19, 21. Hypotypes, 18383-18384, Ohio Univ., lower Ohio sh., Ohio, comp. *Hindeodella subtilis;* ——— YOUNGQUIST & PETERSON (1947), pp. 244-245, pl. 38, fig. 9. Hypotypes, 4063 (fig. 9), 4064, Univ. Iowa, Sheffield fm., Iowa; ——— LAYER *et al.* (1949) (*cf. aculeata*), p. 594, D-3 zone 700 ft. below top of D-2 zone, Alta., Can. UD-LMi

——**acuta** BRANSON & MEHL (June 1934a), p. 196, pl. 14, fig. 8. Cotypes, C362-5, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON & MEHL (June 1934a) (*cf. acuta*), pl. 14, fig. 10. Fig. spm., C363-1, Univ. Mo., Grassy Creek sh., Mo.; ——— COOPER (1939), pp. 389, 419, pl. 46, figs. 15, 23, 29. Hypotypes, 38856-38858, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON & MEHL (1944), p. 241, pl. 93, fig. 47; ——— BRANSON (1944), p. 162; ——— COOPER (1945), p. 614, classed as sr. syn. of *Metaprioniodus biangulatus;* ——— YOUNGQUIST & PETERSON (1947), p. 245, pl. 38, figs. 7-8. Hypotypes, UD-LMi

4065-4066, Univ. Iowa, Sheffield fm., Iowa; ——— MILLER & YOUNGQUIST (1947), pp. 508-509, pl. 72, figs. 2-3; pl. 73, fig. 14. Fig. spms., 5546, Univ. Iowa, Sweetland Creek sh., Iowa; ——— THOMAS (1949), p. 411, pl. 3, fig. 31. Fig. spm., C809-3, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa.

——**alternata** ULRICH & BASSLER (1926), p. 40, pl. 1, figs. 14-15. Cotypes, 11300, USNM, lower Rhinestreet sh., N. Y.; ——— HIBBARD (1927), p. 208, comp. with *Hindeodella deflecta;* ——— HOLMES (1928), p. 11; ——— HUDDLE (1934), pp. 39, 45, comp. with *Hindeodella priodon* and *deflecta;* ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— COOPER & SLOSS (1943), pl, 29, fig. 18, black sh., base Madison gr., loc. 4, Mont.; ——— BOND (1947), pp. 21, 29, pl. 1, fig. 23. Hypotype, 18387, Ohio Univ., lower Ohio sh., Ohio, comp. with *Hindeodella germana.* UD-LMi

——**alternidens** HUDDLE (1934), pp. 14, 44, 47, pl. 5, figs. 12-13. Holotype, 1842 (fig. 13); paratype, 1843 (fig. 12), Ind. Univ., upper New Albany sh., locs. 1 (fig.), 2, 10, 14 (common); 3, 6, 8-9, 13 (rare), comp. with *Hindeodella? perangulata;* ——— COOPER & SLOSS (1943), p. 170, pl. 28, fig. 23, black sh., base Madison gr., loc. 2, Mont. LMi

——**ampla** COOPER & SLOSS (1943), pp. 170, 173, pl. 28, fig. 30, black sh., base Madison gr., loc. 2, Mont., *Hindeodella sp.* Huddle (1934) is classed as a sr. syn. LMi

——**angulus** HUDDLE (1934), pp. 14, 44, pl. 5, fig. 14. Holotype, 2315, Ind. Univ., rare in lower New Albany sh., locs. 26, 30, 32 (fig.), Ind. M?D

——**anomaloda** COOPER (1939) (*anomalodus* p. 419), pp. 389, 419, pl. 46, fig. 27. Holotype, 38859, Univ. Chi., pre-Welden sh., Okla., *Hindeodella sp.* Branson & Mehl (June 1934a), pl. 14, fig. 14 is classed as a sr. syn. LMi

——**armata** STAUFFER & PLUMMER (1932), pp. 25, 33, pl. 1, figs. 19-20. Holotype, 19123, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex. MP

——**austinensis** STAUFFER (1940), p. 424, pl. 58, figs. 3-7, 9. Syntypes, B5527-B5528 (figs. 3-4); paratypes, B5529 (figs. 5-6), B5531 (fig. 7), B5533 (fig. 9), Univ. Minn., clay above Cedar Valley ls. (fig.), and upper Cedar Valley ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. MD

——**bella** STAUFFER & PLUMMER (1932), pp. 25, 33, pl. 1, fig. 4. Holotype, 19124, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, A. MP

——**beta** STAUFFER (1938), pp. 412, 427, pl. 50, figs. 16, 19. Syntypes, B4816 (fig. 16), B4819 (fig. 19), Univ. Minn., Olentangy sh., locs. 110, 112 (fig. 16), 117 (fig. 19), 131, Ohio; Arkona beds, locs. 160, 162, Ont. M-UD

——**brevis** BRANSON & MEHL (June 1934a), p. 195, pl. 14, figs. 6-7. Holotype, C367-3, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON & MEHL (June 1934a) (*cf. brevis*), pl. 14, fig. 12. Fig. spm., C361-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 162. UD

——**catacta** HUDDLE (1934), pp. 14, 40, pl. 4, fig. 18. Holotype, 2275, Ind. Univ., rare in upper New Albany sh., locs. 1, 3 (fig.), 4, 6, 8, 10, 14, Ind.; ——— CAMPBELL (1946) (*aff. catacta*), p. 844, ident. by Huddle, Blackiston fm., Ind. UD-LMi

——**compressa** HUDDLE (1934), pp. 14, 41-42, pl. 5, fig. 4. Holotype, 1858, Ind. Univ., rare in upper New Albany sh., locs. 1 (fig.), 6, Ind.; ——— COOPER & SLOSS (1943), p. 170, pl. 28, fig. 25, black sh., base Madison gr., loc. 1, Alta.; ——— YOUNGQUIST & PETERSON (1947), p. 246, comp. with *Hindeodella sp.* of these authors. LMi

——**conferta** STAUFFER (1938), pp. 412, 427, pl. 50, figs. 21-22. Syntypes, B4821-B4822, Univ. Minn., Olentangy sh., locs. 114, 117, 118 (fig. 22), 120 (fig. 21), 125, Ohio; ——— YOUNGQUIST & MILLER (1948) (*converta*), p. 446, comp. with *Hindeodella spp.* Youngquist & Miller (1948). UD

——**confluens** BRANSON & MEHL (June 1933c), pp. 45-46, pl. 3, figs. 21-23. Cotypes, C157-3, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, figs. 21-23. MS

——**conidens** HUDDLE (1934), pp. 14, 47, pl. 10, fig. 16. Holotype, 2260, Ind. Univ., rare in upper New Albany sh., locs. 1, 3, 5-6, 8, 9 (fig.), 10, 14, Ind. LMi

——**conoides** COOPER & SLOSS (1943), pp. 170, 174, pl. 29, fig. 34, black sh., base Madison gr., loc. 2, Mont. LMi

——**corpulenta** BRANSON & MEHL (Oct. 1934a), p. 281, pl. 22, figs. 32-33. Cotypes, C388-3, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— THOMAS (1949) (*cf. corpulenta*), p. 408, pl. 1, fig. 4. Fig. spm., C826-5, Univ. Mo., Maple Mill sh., loc. 11, Iowa. UD-LMi

——**crassidens** C. L. COOPER (Sept. 1931), p. 236, pl. 28, fig. 16, Woodford fm., Okla.; ——— COOPER (1935), p. 310, pl. 27, fig. 24. Fig. spm., 38074, Univ. Chi., mid. Ark. novaculite, beds 7-8, Ark. UD

——**curvata** BRANSON & MEHL (Oct. 1934a), pp. 279-280, pl. 22, figs. 25, 27. Cotypes, C387-2, Univ. Mo., Bushberg ss., Mo., comp. with *Hindeodella hamata;* ——— BRANSON (1938a), p. 182; ——— ? COOPER (1939), p. 417, classed as jr. syn. of *Synprioniodina alternata;* ——— THOMAS (1949), p. 411, pl. 3, fig. 32; pl. 4, fig. 12. Fig. spms., C803-1, Univ. Mo., English River siltstone, loc. 11, Iowa. LMi

——**curvidens** COOPER (Sept. 1931), pp. 235-237, pl. 28, fig. 15, Woodford fm., Okla., comp. with *Hindeodella subgracilis;* ——— COOPER (1935), p. 310, pl. 27, fig. 23. Fig. spm., 38073, Univ. Chi., mid. Ark. novaculite, beds, 7, 14, Ark.; ——— COOPER & SLOSS (1943), p. 170, black sh., base Madison gr., loc. 4, Mont. UD-LMi

——**decurrens** ULRICH & BASSLER (1926), p. 40, pl. 8, fig. 13. Holotype, 10987, USNM, Hardin ss., Tenn.; ——— EDINGER (1926), p. 287, fig. 2 (pt.), 1st fig. to left in 3rd row from top, same as Ulrich & Bassler (1926); ——— HOLMES (1928), p. 11; ——— EICHENBERG (1930), p. 180, Ulrich & Bassler's pl. 8, fig. 13 is comp. in pt. with Eichenberg's figs. 4-9, p. 179. UD

——**deflecta** HIBBARD (1927), pp. 207-208, fig. 4 c. Holotype, A-3, Hibbard coll., Buff. Mus. Sci., N. Y., Middlesex sh., N. Y.; ——— HIBBARD (1928), p. 117, fig. 4, Middlesex sh., N. Y.; ——— HUDDLE (1934), pp. 14, UD-LMi

44-45, pl. 5, fig. 15. Plesiotype, 1846, Ind. Univ., rare in upper New Albany sh., locs. 2 (fig.), 4, 6, 10; mid. New Albany, loc. 20, Ind.; ——— COOPER & SLOSS (1943), p. 170, pl. 28, figs. 27, 34, black sh., base Madison gr., loc. 2, Mont.; ——— BOND (1947), p. 29, comp. with *Hindeodella sp.* 1 Bond (1947); ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 54, pl. 14, fig. 5. Fig. spm., 354, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y.

——**delicatula** STAUFFER & PLUMMER (1932), pp. 25, 34, pl. 1, figs. 3, 7. Holotype, 19125; paratype, 19126, Bur. Econ. Geol. Mus., Tex., Graford fm., loc. 214-T-25 (fig.), Mineral Wells fm., loc. 181-T-9, B, Tex. M-UP

——**delicatula** BRANSON & MEHL (Oct. 1934a), p. 280, pl. 22, fig. 30. Holotype, C388-2, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON & MEHL (Oct. 1934a) (*delicatula?*), pl. 22, fig. 29. Fig. spm., C388-1, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— BRANSON & MEHL (1938d), pl. 33, fig. 34, holotype; ——— COOPER (1939), pp. 389, 419, pl. 46, fig. 33. Hypotype, 38860, Univ. Chi., pre-Welden sh., Okla.; ——— (HASS) (1943) (*cf. delicatula*), p. 308, [*Hindeodella* 2 *n. spp.* Knechtel & Hass (1938)]; ——— BRANSON (1944), pp. 181, 220, pl. 32, fig. 34. LMi

——**denticulata** YOUNGQUIST (1945), pp. 360-361, pl. 55, fig. 2. Syntypes, 2927 (fig.), 2928, Univ. Iowa, Independence sh.?, Iowa. UD

——**diseriata** STAUFFER & PLUMMER (1932), pp. 25, 34, pl. 1, figs. 8, 10, 16-17. Cotypes, 19127 (figs. 8,16); paratypes, 19128, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., locs. 181-T-9, B (fig.) and A, Tex.; ——— YOUNGQUIST & DOWNS (1949), p. 166, comp. with *Hindeodella iowaensis.* MP

——**dubia** (HOLMES) (1928), pp. 11, 17, pl. 4, fig. 36, [*Polygnathus* Smith (1907)].

——**duplicata** (HOLMES) (1928), pp. 8, 11, 14, pl. 4, figs. 37-39, Pander's figs. 7-8, Hinde's (1900) fig. 12 resp., (*Centrodus*).

——**echinata** E. R. BRANSON (1934), p. 324, pl. 28, fig. 17. Holotype, C208-4, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 10, holotype; ——— COOPER (1939), pp. 389, 419, pl. 47, figs. 31, 77. Hypotypes, 38861-38862, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), pp. 181, 220, pl. 32, fig. 10. LMi

——**elongata** HUDDLE (1934), pp. 14, 42, pl. 5, figs. 5-6. Holotype, 1848; paratype, 1849, Ind. Univ., common in upper New Albany sh., locs. 1 (fig.), 3, 6, 8, 10, 14, rare at 5, 11-12, Ind.; ——— COOPER (1939), pp. 389, 419, pl. 46, fig. 26. Hypotype, 38863, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), p. 170, pl. 28, figs. 18-19, 21, 36, black sh. base of Madison gr., locs. 1-2, 4-5, Mont. and Alta. LMi

——**emacerata** HUDDLE (1934), pp. 14, 45, pl. 5, fig. 16. Holotype, 1852, Ind. Univ., rare in upper New Albany sh., locs. 4-5, 10 (fig.), 11-13, common at 1-3, 6, 8-9, 14, Ind. LMi

——**fishingerensis** STAUFFER (1938), pp. 412, 427-428, pl. 50, figs. 12, 33. Holotype, B4812; paratype, B4793, Univ. Minn., Olentangy sh., locs. 110, 117 (fig. 12), Plum Brook sh., loc. 105, Ohio; Widder beds, loc. 164 (fig. 33), Ont. M-UD

——**germana** HOLMES (1928), p. 25, pl. 9, fig. 9. Holotype, 11437, USNM, Chattanooga sh., Ala.; ——— COOPER (1935), p. 310, pl. 27, fig. 25. Fig. spm., 38075, Univ. Chi., mid. Ark. novaculite, beds 8, 15, Ark.; ——— COOPER & SLOSS (1943), p. 170, pl. 28, fig. 28, black sh. base of Madison gr., loc. 2, Mont.; ——— BOND (1947), pp. 21, 29, pl. 1, fig. 22. Hypotype, 18386, Ohio Univ., lower Ohio sh., Ohio, comp. with *Hindeodella alternata.* UD-LMi

——**gladiola** E. R. BRANSON (1934), p. 324, pl. 28, fig. 18. Holotype, C208-1, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 9, holotype; ——— COOPER (1939), pp. 389, 419, pl. 46, figs. 24-25. Hypotypes, 38864-38865, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), pp. 181, 220, pl. 32, fig. 9; ——— THOMAS (1949) (*cf. gladiola*), p. 408, pl. 1, fig. 3. Fig. spm., C824-2, Univ. Mo., Maple Mill sh., loc. 13, Iowa. ?UD-LMi

——**gracilis** HUDDLE (1934), pp. 14, 43, pl. 5, fig. 11. Holotype, 1857, Ind. Univ., rare in lower New Albany sh., locs. 26 (fig.), 28-30; common at 27; abundant at 31, Ind.; ——— COOPER (1945), pp. 613-614, pl. 84, fig. 11. Fig. spm., Ill. Geol. Surv., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont., comp. with *Hindeodella grandis;* ——— SLOSS & LAIRD (1945), on chart, DC unit, Mont. M?-UD

——**grandis** HUDDLE (1934), pp. 14, 41, pl. 4, fig. 22. Holotype, 2270, Ind. Univ., rare in upper New Albany sh., locs. 3 (fig.), 9, 11, 13, Ind.; ——— COOPER & SLOSS (1943), p. 170, pl. 28, figs. 31, 37, 39, black sh. base of Madison gr., loc. 1 (fig. 31), Alta., loc. 2 (figs. 37, 39), Mont.; ——— COOPER (1945), pp. 612-614, pl. 84, fig. 10. Fig. spm., Ill. Geol. Surv., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont., comp. with *Hindeodella gracilis;* ——— SLOSS & LAIRD (1945), on chart, DC unit, Mont.; ——— HASS (Mar. 1947), pp. 134-135, 140, Cleveland, upper Ohio, upper New Albany shs., Ohio. UD-LMi

——**hamata** BRANSON & MEHL (Oct. 1934a), p. 279, pl. 22, figs. 24, 31. Cotypes, C387-3, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON & MEHL (Oct. 1934a) (*hamata?*), pl. 22, fig. 26. Fig. spm., C395-3, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— COOPER (1939) (*? hamata*), pp. 389, 419, pl. 47, figs. 79-80. Hypotype, 38866, Univ. Chi., pre-Welden sh., Okla. LMi

——**iowaensis** YOUNGQUIST & DOWNS (1949) (*iowaensa* p. 161), pp. 161, 165-166, pl. 30, fig. 12. Holotype, 14021, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa. MP

——**irregularis** STAUFFER & PLUMMER (1932), pp. 25, 35, pl. 1, figs. 5-6, 9, 12. Holotype, 19129 (fig. 9); paratypes, 19130-32, Bur. Econ. Geol. Mus., Tex., Graford fm., loc. 214-T-25 (figs. 5, 9); Mineral Wells fm., East Mt. sh. memb., locs. 181-T-9, B (fig. 6), A (fig. 12), Tex.; ——— YOUNGQUIST & HEEZEN (1948), p. 769, comp. with *Hindeodella sp.* M-UP

——**jubata** HUDDLE (1934), pp. 14, 46-47, pl. 10, fig. 13. Holotype, 2319, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind. UD

——**kindlei** HIBBARD (1927), p. 207, fig. 4 e. Holotype, 44, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——**lambtonensis** STAUFFER (1938), pp. 412, 428, pl. 50, figs. 2, 5, 8, 13-14, 17, 20, 25, 28, 31. Syntypes, B4802, B4805, B4808; fig. spms., B4813-B4814, B4817, B4820, B4825, B4828, B4831, Univ. Minn., Olentangy sh., locs. 110, 111 (figs. 2, 5), 117, 120 (fig. 31), 125, 187 (figs. 13-14, 20, 28); Plum Brook sh., loc. 105, Ohio; Widder beds, locs. 168 (fig. 8), 169 (fig. 17), Hungry Hollow beds, locs. 175, 176 (fig. 25), Arkona beds, locs. 173-174, 180, Ont.; ——— YOUNGQUIST (1945), pp. 355, 361, pl. 55, fig. 10. Plesiotype, 2929, Univ. Iowa, Independence sh.?, Iowa, comp. with *Hindeodella denticulata;* ——— YOUNGQUIST & PETERSON (1947), p. 245, pl. 38, fig. 6. Hypotype, 4067, Univ. Iowa, Sheffield fm., Iowa; ——— MILLER & YOUNGQUIST (1947), p. 509, pl. 73, fig. 1. Fig. spm., 5547, Univ. Iowa, Sweetland Creek sh., Iowa. M- UD

——**laticlavis** HUDDLE (1934), pp. 14, 42-43, pl. 5, figs. 9-10. Holotype, 1854; paratype, 2356, Ind. Univ., common in upper New Albany sh., locs. 1 (fig.), 2-3, 6; rare at 8-12, Ind., comp. with *Hindeodella compressa;* ——— COOPER & SLOSS (1943), p. 170, pl. 28, fig. 38, black sh. base Madison gr., loc. 4, Mont. LMi

——**lineata** (HOLMES) (1928), pp. 8, 11, 14, pl. 4, figs. 40-42, Hinde's (1900) figs. 14, 13, Pander's fig. 9 resp., (*Lonchodus? = Centrodus*); ——— (MATERN) (1933), pp. 15-16, fig. 1. Fig. spm., Preuss. Geol. Landest., Berlin, Germ., Lower Carboniferous, near Osterode, Harz, Germ., comp. with *Hindeodella sp.;* ——— (MATERN) (1933) (ab)Z (1937), p. 178, E. B. Branson states that this is a fragment of some other spp.; ——— (DEMANET) (1938), pp. 162-163, 170, pl. 14, figs. 12-14. Fig. spms., Mus. Roy. d'Hist. Nat. de Belg., Couches de Passage, $V3_e$ sup., locs. 4-5, 17 (figs. 12, 14), 22354 (fig. 13); lower Namurien, Nm1a, loc. 17, Belg.; ——— (COOPER) (1939), pp. 389-390, 419, pl. 46, figs. 28, 31. Hypotypes, 38867-38868, Univ. Chi., pre-Welden sh., Okla. L- UMi

——**longidens** ULRICH & BASSLER (1926), pp. 40, 61, pl. 8, figs. 14-15. Cotypes, 10988, USNM, Hardin ss., Tenn., comp. with *Hindeodella recta* and *alternata;* ——— EDINGER (1926), p. 287, fig. 2 (pt.), left fig. 4th row from top; mid. fig. of 5th row from top; ——— HOLMES (1928), p. 12; ——— EICHENBERG (1930), p. 180, comp. with figs. 4-9; ——— COOPER (June 1931), pp. 149, 151, pl. 20, fig. 10, lower and mid. Ark. novaculite, Okla.; ——— BRANSON & MEHL (July 1933d), p. 143, classed as jr. syn. of *Hindeodella acicularis;* ——— HARLTON (Aug. 1934) (*longodens*), p. 1032, mid. Ark. novaculite, Ark. UD

——**macilenta** HIBBARD (1927), p. 206, fig. 4 d. Holotype, 233, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——**macrodentata** COOPER (Sept. 1931), pp. 238-239, pl. 28, fig. 22, Woodford fm., Okla. UD

——**mediana** COOPER (Sept. 1931), p. 237, pl. 28, fig. 20, Woodford fm., Okla. UD

——**megastyla** MILLER & YOUNGQUIST (1947), p. 509, pl. 72, fig. 10. Holotype, 5548, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**millerella** YOUNGQUIST & PETERSON (1947), pp. 245-246, pl. 38, figs. 1-5. Syntypes, 4068-4072, Univ. Iowa, Sheffield fm., Iowa; ——— MILLER & YOUNGQUIST (1947), p. 509, comp. with *Hindeodella megastyla.* UD

——**milleri** STAUFFER (1938), pp. 412, 428, pl. 50, figs. 1, 3a-b, 4, 9-11. Syntypes, B4801, B4803, B4810 (fig. 10); paratypes, B4804, B4809, B4811, Univ. Minn., Olentangy sh., locs. 110 (fig. 4), 112 (fig. 3), 117, 118 (fig. 1), 120 (fig. 10), 125, 187 (fig. 11), Ohio; Widder beds, locs. 159, 168 (fig. 9), Arkona beds, loc. 177, Ont.; ——— YOUNGQUIST (1947), p. 102, comp. with *Hindeodella sp. A;* ——— YOUNGQUIST & MILLER (1948), pp. 445-446, pl. 67, fig. 4. Fig. spm., 5601, Univ. Iowa, Sweetland Creek sh., Iowa. M- UD

——**minuta** BRANSON & MEHL (June 1934a), p. 196, pl. 14, fig. 9. Holotype, C248-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163. UD

——**minutidens** HOLMES (1928), p. 25, pl. 9, fig. 8. Holotype, 11436, USNM, Chattanooga sh., Ala.; ——— HUDDLE (1934), p. 42, comp. with *Hindeodella elongata.* UD

——**modesta** STAUFFER (1938), pp. 412, 428, pl. 50, figs. 7, 23, 24a-b, 27, 30. Syntypes, B4807, B4823, B4824a-b, B4827, B4830, Univ. Minn., Arkona beds, locs. 152, 172 (fig. 7), Hungry Hollow beds, loc. 176, Ont.; Olentangy sh., locs. 112 (fig. 30), 118 (fig. 24), 136, 187 (fig. 27), Plum Brook sh., locs. 104 (fig. 23), 105, 108, Ohio. M- UD

——**moweri** STAUFFER (1940), p. 424, pl. 58, figs. 2, 10-11. Syntypes, B5526, B5534-35, Univ. Minn., clay above ls. (fig.), and upper Cedar Valley ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. MD

——**nasuta** (BRANSON & MEHL) (July 1933d), p. 144, pl. 12, fig. 9. Holotype, A4254, British Mus., (*Synprioniodina = Polygnathus*); ——— (BRANSON & MEHL) (June 1934a), p. 195; ——— (COOPER) (1935a), p. 444, should be *Synprioniodina.* UD

——**notha** BRANSON & MEHL (June 1934a), p. 195, pl. 14, fig. 11. Holotype, C367-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163. UD

——**obliqua** (HOLMES) (1928) (*Centrodus*), pp. 8, 12, pl. 5, figs. 1-5, Pander's figs. 11-12, Hinde's (1900) figs. 29, 27, 28 resp., (*Ctenognathus*).

——**panderi** HIBBARD (1927), pp. 205-206, fig. 4 g. Holotype, A-2, Hibbard coll., Buff. Mus. Sci., N. Y., Middlesex sh. (fig.), lower Rhinestreet sh., N. Y., comp. with *Hindeodella macilenta;* ——— HUDDLE (1934), pp. 14, 45-46, pl. 5, fig. 17. Plesiotype, 2266, Ind. Univ., common in upper New Albany sh., loc. 1 (fig.), rare at 3, 6, 8, 10, 14, Ind. UD-LMi

——**parva** ELLISON (1941), pp. 109, 111, 117-118, pl. 20, fig. 29. Holotype, C555-3, Univ. Mo., Quivira sh., locs. 0103, 0144, 0148, 1362 (fig.), Mo., comp. with *Hindeodella pulchra;* ——— BRANSON (1944), p. 325, Kansas City gr., Mo. UP

——**pertenuis** HIBBARD (1927), pp. 206-207, fig. 4 j. Holotype, 175, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——**petila** COOPER (Sept. 1931), pp. 237-238, pl. 28, fig. 21, Woodford fm., Okla.; ——— COOPER (1935), p. 310, pl. 27, fig. 29. Fig. UD-LMi

spm., 38079, Univ. Chi., mid. Ark. novaculite, bed 13, Ark.; ——— COOPER & SLOSS (1943), p. 170, pl. 28, figs. 26, 35, black sh. base of Madison gr., locs. 2 (fig. 26), 3 (fig. 35), Mont.

——**plumatella** STAUFFER (1938), pp. 412, 428-429, pl. 50, figs. 15, 18. Syntypes, B4815, B4818, Univ. Minn., Olentangy sh., locs. 109, 139, 187 (fig.), Ohio. UD

——**priodon** HUDDLE (1934), pp. 14, 39, pl. 4, fig. 16. Holotype, 1855, Ind. Univ., common in lower New Albany sh., loc. 27 (fig.), abundant at 31, rare at 26, 28-30, Ind., comp. with *Hindeodella sp.* pl. 4, fig. 17; ——— COOPER (1945) (*prioniodon*), pp. 613-614, pl. 84, fig. 12. Fig. spm., Ill. Geol. Surv., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont.; ——— SLOSS & LAIRD (1945) (*prioniodon*), on chart, DC unit, Mont. M?D

——**priscilla** STAUFFER (1938), pp. 412, 429, pl. 50, fig. 6. Holotype, B4806, Univ. Minn., Olentangy sh., locs. 110, 118, 120 (fig.), Ohio; Arkona sh., loc. 178, Ont.; ——— YOUNGQUIST (1947), p. 102, comp. with *Hindeodella sp. A.* M-UD

——**pulchra** ELLISON (1941), pp. 109, 111, 117, pl. 20, fig. 20. Holotype, C555-2, Univ. Mo., Hushpuckney sh., locs. 0149, 0116, 0140, 1359 (fig.), Mo.; ——— BRANSON (1944), p. 325, Pleasanton gr., Mo. M-UP

——**pumilla** COOPER (Sept. 1931), pp. 236-237, pl. 28, fig. 18, Woodford fm., Okla.; ——— COOPER (1935), p. 310, pl. 27, fig. 26. Fig. spm., 38076, Univ. Chi., mid. Ark. novaculite, bed 8, Ark. UD

——**recta** ULRICH & BASSLER (1926), p. 40, pl. 8, fig. 16. Holotype, 10984, USNM, Hardin ss., Tenn.; ——— EDINGER (1926), p. 287, fig. 2 (pt.), rt. fig., 5th row from top; ——— HOLMES (1928), p. 12; ——— EICHENBERG (1930), p. 180, comp. with figs. 4-9; ——— COOPER (June 1931), pp. 149, 151, pl. 20, fig. 11, lower Woodford fm., Okla.; ——— HARLTON (Aug. 1934), p. 1032, mid. Ark. novaculite, Ark. UD

——**rotunda** HIBBARD (1927), p. 206, fig. 4 f. Holotype, 50, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y.; ——— HUDDLE (1934), p. 39, comp. with *Hindeodella priodon;* ——— COOPER (1945), pp. 613-614, pl. 84, fig. 8. Fig. spm., Ill. Geol. Surv., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont.; ——— SLOSS & LAIRD (1945), on chart, DC unit, Mont. UD

——**serrata** STAUFFER (1932), pp. 258, 262, pl. 40, fig. 22. Holotype, Univ. Minn., Decorah sh., Kans. MO

——**similis** ULRICH & BASSLER (1926), p. 39, pl. 8, fig. 20. Holotype, 11299, USNM, Hardin ss., Tenn.; ——— EDINGER (1926), p. 287, fig. 2 (pt.), lower rt. cor.; ——— HOLMES (1928), p. 12; ——— HASS (Mar. 1947), p. 134, Huron sh., Ohio. UD

——**spuria** BRANSON & MEHL (Oct. 1934a), pp. 278-279, pl. 22, fig. 23. Holotype, C387-4, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182. LMi

——**subequalis** ULRICH & BASSLER (1926), p. 41, pl. 4, fig. 21. Holotype, 11301, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 12; ——— CHADWICK (Feb. 1935a) (*subaequalis*), p. 315. UD

——**subgracilis** COOPER (Sept. 1931), p. 237, pl. 28, fig. 19, Woodford fm., Okla. UD

——**subtilis** ULRICH & BASSLER (1926), pp. 16-17, 38-40, 61, fig. 4, subfig. 3; pl. 8, figs. 17-19. Cotypes, 10985, USNM, Hardin ss., Tenn., type species for *Hindeodella,* comp. with *Hindeodella similis* and *longidens;* ——— BASSLER (1925), p. 219 (*nomen nudum*); ——— EDINGER (1926), pp. 286-287, fig. 1 (pt.), top row, 2nd from upper rt. cor.; fig. 2 (pt.), lower left cor., left fig. of 5th row from top, rt. fig. of 4th row from top; ——— BUTTS (1926), p. 160, pl. 48, fig. 14, after Holmes (1928), unpub.; ——— HOLMES (1928), pp. 11-12, 25-26, pl. 9, figs. 10-11. Plesiotypes, 11438, USNM, Chattanooga sh., Ala.; ——— EICHENBERG (1930), pp. 180-181, comp. with figs. 4-9; ——— COOPER (June 1931), pp. 147-148, 151, pl. 20, fig. 9, lower Sunbury sh., Ohio; ——— BASSLER (1932), p. 234, pl. 26, fig. 21, Hardin ss., Tenn.; ——— COOPER (1933b), p. 211, Ark. novaculite, Ark.; ——— (BRANSON & MEHL) (July 1933d), pp. 142-143, pl. 12, fig. 10. Fig. spm., A4196, British Mus. [*Polygnathus dubius* Hinde (1879) (pt.), pl. 16, figs. 13 (fig.), 14]; ——— BRANSON & MEHL (Oct. 1934a), p. 280, comp. with *Hindeodella delicatula;* ——— HUDDLE (1934), p. 39; ——— COOPER (1935), pp. 309-310, pl. 27, fig. 27. Fig. spm., 38077, Univ. Chi., Ark. novaculite, mid., beds 7-8, 13-15, upper pt., beds A-B, Ark.; ——— COOPER & SLOSS (1943), p. 170, pl. 28, figs. 22, 32-33, black sh. base of Madison gr., locs. 1 (fig. 32), Alta., 2 (fig. 22), 3 (fig. 33), Mont.; ——— BRANSON & MEHL (1944), p. 241; ——— GLAESSNER (1945), p. 28, fig. 4, subfig. 3; ——— BOND (1947), pp. 21, 29, pl. 1, fig. 25. Hypotype, 18388, Ohio Univ., lower Ohio sh., Ohio, comp. with *Hindeodella aculeata.* UD-LMi

——**subtilita** COOPER (Sept. 1931), p. 236, pl. 28, fig. 17. Holotype, Cooper coll., Woodford fm., Okla.; ——— COOPER (1935), p. 310, pl. 27, fig. 28. Fig. spm., 38078, Univ. Chi., mid. Ark. novaculite, bed 15, Ark. UD

——**tenerrima** HOLMES (1928), p. 25, pl. 9, figs. 6-7. Cotypes, 11435, USNM, Chattanooga sh., Ala.; ——— BUTTS (1926) (*tenerimma*), p. 160, pl. 48, fig. 8, after Holmes unpub.; ——— HUDDLE (1934) (*tenerrima?*), pp. 14, 46, pl. 5, fig. 18. Fig. spm., 2287, Ind. Univ., rare in upper New Albany sh., locs. 9 (fig.), 10, Ind.; ——— COOPER (1945), p. 614, Huddle's ref. classed as sr. syn. of *Metaprioniodus biangulatus;* ——— CAMPBELL (1946), p. 901. UD-LMi

——**tortuosa** BRANSON & MEHL (Oct. 1934a), p. 281, pl. 22, fig. 34. Holotype, C386-4, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182. LMi

——**transitionis** BRANSON & MEHL (Oct. 1934a), p. 282, pl. 22, fig. 35. Holotype, C387-1, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— COOPER (1939), p. 391, jr. syn. of *Ligonodina.* LMi

——? **triradiata** YOUNGQUIST (Mar. 1947), p. 101, pl. 26, fig. 3. Holotype, 3382, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——**undata** BRANSON & MEHL (1941a), pp. 169-170, pl. 5, fig. 3. Syntypes, C543-4, Univ. Mo., lower Caney sh., Okla. UMi

——**walrathi** HIBBARD (1927), p. 205, figs. 4a-b. Cotypes, 81, 225C, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——sp. (HOLMES) (1928), p. 37, pl. 8, figs. 5, 8. [*Polygnathus dubius* Hinde (1879) (pt.), pl. 16, figs. 13-14]. UD

——sp. (HOLMES) (1928), p. 37, pl. 8, figs. 26-28, 31. [*Polygnathus dubius* Clarke (1887) (pt.), pl. A-1, figs. 14-16, 7]. UD

——sp. GUNNELL (1931b), p. 249, pl. 29, figs. 11-12. Fig. spms., Univ. Mo., mid. Fort Scott fm., Mo.; ——— ELLISON (1941), p. 118. MP

——sp. A STAUFFER & PLUMMER (1932), pp. 25, 35, pl. 1, fig. 15. Fig. spm., 19133, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, B, Tex.; ——— ELLISON (1941), p. 118. MP

——sp. B STAUFFER & PLUMMER (1932), pp. 25, 35, pl. 1, fig. 13. Fig. spm., 19134, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., locs. 181-T-9, B (fig.), A, Tex.; ——— ELLISON (1941), p. 118. MP

——sp. C STAUFFER & PLUMMER (1932), pp. 25, 36, pl. 1, fig. 14. Fig. spm., 19135, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, B, Tex.; ——— ELLISON (1941), p. 118. MP

——? sp. D STAUFFER & PLUMMER (1932) (no ? p. 25), pp. 25, 36, pl. 1, figs. 1-2. Fig. spm., lost, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, A, Tex.; ——— ELLISON (1941), p. 118. MP

——sp. E STAUFFER & PLUMMER (1932), pp. 25, 36, pl. 1, fig. 18. Fig. spm., 19136, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, B, Tex.; ——— ELLISON (1941), p. 118. MP

——sp. F STAUFFER & PLUMMER (1932), pp. 25, 36-37, pl. 1, fig. 11. Fig. spm., lost, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, A, Tex.; ——— ELLISON (1941), p. 118. MP

——sp. HARRIS & HOLLINGSWORTH (1933), p. 198, pl. 1, figs. 3 a-b. Fig. spm., 1503, Okla. Univ., common in top Cromwell ls., Wapanucka fm., Okla. LP

——sp. HARLTON (1933) (*Hindiodella*), p. 12, pl. 4, figs. 6-7. Fig. spm., 85519, USNM, Johns Valley sh., loc. 11, Okla. LP

——sp. MATERN (1933), p. 16, fig. 2, Stufe?, near Osterode, Harz, Germ. UD

——? sp. BRANSON & MEHL (July 1933d), p. 166, pl. 11, fig. 33. Fig. spm., A4210, British Mus., fragment attached to *Ligonodina perlonga*, Genesee sh., N. Y. UD

——sp. GUNNELL (1933), pp. 264, 269, pl. 32, fig. 34. Fig. spm., Gunnell coll., Univ. Mo., Quivira sh., Mo.; ——— ELLISON (1941), p. 118. UP

——sp. BRANSON & MEHL (June 1934a), pl. 14, figs. 13-15. Fig. spms., C91-4, C80-3, C92-2, Univ. Mo., Grassy Creek sh., Mo.; ——— COOPER (1939), p. 389, Branson & Mehl's fig. 13 classed as sr. syn. of *Hindeodella anomaloda*. UD

——sp. indet. BRANSON & MEHL (Oct. 1934a), p. 282, pl. 22, fig. 28. Fig. spm., C387-5, Univ. Mo., Bushberg ss., Mo. LMi

——sp. E. R. BRANSON (1934), p. 323, pl. 28, fig. 6. Fig. spm., C209-1, Univ. Mo., Hannibal fm., Mo. LMi

——sp. HUDDLE (1934), pp. 14, 39-40, pl. 4, fig. 17. Fig. spm., 1856, Ind. Univ., lower New Albany sh., loc. 26, Ind., comp. with *Hindeodella priodon*. M?D

——sp. HUDDLE (1934), pp. 14, 41, pl. 5, fig. 1. Fig. spm., 1853, Ind. Univ., upper New Albany sh., locs. 1 (fig.), 6, Ind.; ——— COOPER & SLOSS (1943), p. 173, classed as sr. syn. of *Hindeodella ampla*. LMi

——sp. HUDDLE (1934), pp. 14, 42-43, pl. 5, fig. 7. Fig. spm., 1845, Ind. Univ., upper New Albany sh., loc. 1, Ind. LMi

——sp. HUDDLE (1934), pp. 14, 46, pl. 5, fig. 19. Fig. spm., 2264, Ind. Univ., mid. New Albany sh., loc. 18, Ind. UD

——spp. SCOTT (1934), pp. 448, 450-454, pl. 58, fig. 1, left five spms., figs. 2, 3a, 4, 5a, a′, 6, 7c, 8c, 9c; pl. 59, figs. 10c, 11b, 12b, 13c, 14b, 15b, 16, 18d, d′, d″, d‴.

——sp. STAUFFER (1938), p. 412, Hungry Hollow beds, loc. 176, Ont.; Olentangy sh., loc. 187, Ohio. M-UD

——n. spp. KNECHTEL & HASS (1938), p. 519, USGS coll. 8432, basal sh. of Lodgepole ls., Mont.; ——— HASS (1943), p. 308, classed as *Hindeodella sp.* fragments and jr. syn. of *Hindeodella cf. delicatula*. LMi

——sp. BRANSON & MEHL (1938d), p. 141, pl. 34, fig. 36. Fig. spm., C34-4, Univ. Mo., Chouteau ls., Mo.; ——— BRANSON (1944), pp. 208e, 221, pl. 39, fig. 36. LMi

——sp. COOPER (1939), pl. 46, figs. 30, 32, 37, 43. Fig. spms., 39863-39866, Univ. Chi., pre-Welden sh., Okla. LMi

——sp. BUTTS (1940), p. 313, Millboro sh., Marcellus memb., Va. MD

——sp. STAUFFER (1940), p. 424, pl. 58, figs. 12-15, 19, 42. Fig. spms., B5536-B5539, B5542, B5564, (B5538 fig. 14 is lost), Univ. Minn., clay above ls. (figs. 12, 14, 42), upper Cedar Valley ls. (figs. 13, 15, 19), Minn. MD

——sp. HASS (1941), p. 77, pl. 15, figs. 2-3; pl. 16, fig. 6. Fig. spms., 7535, USGS, Barnett sh., Tex. MMi

——sp. ELLISON (1941), pp. 108-111, 118, pl. 20, figs. 18-19, 23-24, 32-33. Hypotypes, C131-3 (fig. 18), C131-1 (fig. 19), C129-3, C555-4 (fig.), C486-1 (G), C567-2 to 5 (B), C569-1 to 5 (B), Univ. Mo., Cherokee sh. through Big Blue series, locs. 0111, 0104, 1266, 1346-51, 0086, 0110, 389, 675, 683, 672, 1038, 682, 967, 680, 0176, 716, 0158, 1102, 1145, 0084, 0039, 0001, 0132, 1274, 1284, 1367, 0106, 0119, 0130, 1354, 0107 (fig.), 0144, 0148, 1273, 1283, 1362, 1352, 0108, 0017, 0149, 0116, 0155, 0140, 1359, 0138, 0127, 1371, 0043, 0044, 0112, 0081, 0094, 0097, Mo.; ——— BRANSON (1944), p. 325. MP-LPm

——sp. ELLISON & GRAVES (1941), pp. 2, 4, pl. 1, figs. 1-7. Fig. spms., 4764-4769, Mo. Sch. Mines, Rolla, Dimple fm., mid., locs. G927, G926, G923, G906 (fig. 6), G921, G905, G919, G904 (fig. 1), G903 (fig. 4), G902 (fig. 2), G901 (fig. 7); lower transition zone, locs. G912, G910 (figs. 3, 5), Tex.; ——— YOUNGQUIST & HEEZEN (1948), p. 769, comp. figs. 1, 2, 7 of Ellison with *Hindeodella sp.* LP

——spp. SCOTT (1942), pp. 299-300, pl. 37, figs. 1a-6a; pl. 38, figs. 1a-4a, 6a-8a, 10a-12a; pl. 39, figs. 1, 4-7, 8a, 13c; pl. 40, figs. 1a, 2, 6-8, 11, 14, 18. Fig. spms., Univ. Ill., Heath fm., Mont. UMi

——sp. fragments (HASS) (1943), p. 308, [*Hindeodella 2 n. spp.* Knechtel & Hass (1938)].

——sp. BRANSON (1944), pp. 153, 158, pl. 26, fig. 19, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——spp. BRANSON (1944), p. 173, Louisiana ls., Mo. UD

——sp. BRANSON (1944), p. 305, pl. 44, fig. 25, Mid. Penn., Mo. MP

——sp. STAUFFER (1944), p. 257, Olentangy sh., ls. mine, Barberton, Ohio. UD

——spp. FOWLER (1944), pp. 254-256, 258, Upper Carboniferous, Yorkshire, Eng. P

——n. sp. CAMPBELL (1946), p. 844, Blackiston fm., Ind., ident. by Huddle. UD

——sp. 1 BOND (1947), pp. 21, 29, pl. 1, fig. 24. Fig. spm., 18389, Ohio Univ., lower Ohio sh., Ohio, comp. with *Hindeodella deflecta*. UD

——sp. 2 BOND (1947), pp. 21, 29-30, pl. 1, fig. 20. Fig. spm., 18385, Ohio Univ., lower Ohio sh., Ohio. UD

——sp. COOPER (1947a), p. 91, pl. 20, figs. 11-13. Hypotypes, Ill. Geol. Surv., Kinkaid fm., beds 1, 4, 6, Ill. UMi

——sp. A YOUNGQUIST (1947), p. 102, pl. 24, fig. 20. Fig. spm., 3383, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa, comp. with *Hindeodella priscilla* and *milleri*. UD

——sp. B YOUNGQUIST (1947), p. 102, pl. 25, fig. 4. Fig. spm., 3384, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa, comp. with *Polygnathus dubius* Hinde (1879), pl. 16, fig. 12, and Clarke (1887), pl. A-1, fig. 19. UD

——sp. C YOUNGQUIST (1947), p. 102, pl. 25, fig. 9. Fig. spm., 3385, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——sp. indet. MEHL & THOMAS (1947), p. 10, pl. 1, fig. 1. Fig. spm., C654-3, Univ. Mo., Fern Glen fm., Mo. MMi

——sp. YOUNGQUIST & PETERSON (1947), p. 246, pl. 36, fig. 13. Fig. spm., 4073, Univ. Iowa, Sheffield fm., Iowa, comp. with *Hindeodella compressa*. UD

——sp. ? BRANSON & BRANSON (1947), pp. 554-555, pl. 82, fig. 42. Fig. spm., C680-5, Univ. Mo., Brassfield fm., loc. 1786, Ky. LS

——sp. EDWARDS & STUBBLEFIELD (1948), pp. 219, 222-223, Mid. Coal Measures, Nottinghamshire and Derbyshire, locs. 11-12, 29, 35, 38a, 44, 46, Eng. P

——spp. YOUNGQUIST & MILLER (1948), p. 446, pl. 67, figs. 10, 20. Fig. spms., 5602-5603, Univ. Iowa, Sweetland Creek sh., Iowa, comp. fig. 10 with *Hindeodella converta* Stauffer (1938), pl. 50, fig. 22. UD

——sp. YOUNGQUIST & HEEZEN (1948), p. 769, pl. 118, fig. 2. Fig. spm., 4159, Univ. Iowa, black sh. 2 mi. S of Knoxville, Iowa, comp. with *Hindeodella sp.* Ellison & Graves (1941), pl. 1, figs. 1-2, 7, and *Hindeodella irregularis* Stauffer & Plummer (1932), pl. 1, figs. 5, 12. MP

——sp. YOUNGQUIST (1948), p. 202, Cedar Valley ls., Iowa. MD

——sp. YOUNGQUIST & PATTERSON (1949), p. 60, pl. 15, fig. 6. Fig. spm., 4111, Univ. Iowa, lower Prospect Hill ss., Iowa. LMi

——fragments THOMAS (1949), p. 407, common to Maple Mill sh., Iowa. UD

——sp. THOMAS (1949), pl. 1, fig. 2. Fig. spm., C833-2, Univ. Mo., Maple Mill sh., Iowa. UD

——sp. ? THOMAS (1949), p. 408, pl. 1, fig. 5. Fig. spm., C825-3, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——? sp. THOMAS (1949), pp. 408, 423, pl. 1, fig. 12. Fig. spm., C833-2, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——sp. ? THOMAS (1949), pl. 3, fig. 30. Fig. spm., C816-5, Univ. Mo., English River siltstone, loc. 1, Iowa. LMi

——sp. A THOMAS (1949), pp. 411, 423, pl. 4, fig. 1. Fig. spm., C809-4, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

——sp. indet. THOMAS (1949), pp. 411, 422-423, pl. 4, fig. 2. Fig. spm., C818-4, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

——sp. LAYER *et al.* (1949), p. 594, D-3 zone 700-875 ft. below top of D-2 zone, Alta., Can. UD

——sp. STURGEON & MERRILL (1949), p. 10, Allegheny fm., Dorr Run sh., Ohio. MP

——fragments STURGEON & YOUNGQUIST (1949), pp. 381-382, Allegheny fm., Hamden ls. and Washingtonville sh., Ohio. MP

HINDEODELLOIDES HUDDLE (1934), pp. 34, 36, 48, 59. Type species, *H. bicristatus* HUDDLE (1934), comp. with *Ligonodina;* ——— ELLISON (Jan. 1946), p. 108, bar type, classed as jr. syn. of *Hindeodella;* ——— BOND (1947), p. 30; ——— HASS (Mar. 1947), p. 132, Cleveland, Huron, lower Ohio shs., Ohio. M?D-LMi

——abnormale STAUFFER (1938), pp. 412, 429, pl. 51, fig. 25. Holotype, B5070, Univ. Minn., Olentangy sh., loc. 112, Ohio. UD

——alatus HUDDLE (1934), pp. 14, 49, pl. 7, fig. 7. Holotype, 1865, Ind. Univ., rare in mid. New Albany sh., locs. 18 (fig.), 19, 21, common at 20, Ind., comp. with *Hindeodelloides minutus*. UD

——bicristatus HUDDLE (1934), pp. 14, 21, 48-49, pl. 7, figs. 2-3; pl. 12, fig. 6. Holotype, 1862 (fig. 6); paratype, 1863-1864 (figs. 3, 2), Ind. Univ., rare in lower New Albany sh., loc. 27 (fig. 2); mid. New Albany, locs. 20-21; upper New Albany, locs. 1 (fig. 6), 3 (fig. 3), 6, 10, 14, Ind.; ——— CAMPBELL (1946), p. 845, lower Blackiston fm., Ind., ident. by Huddle; ——— BOND (1947), pp. 21, 30, pl. 1, figs. 16-17. Hypotypes, 18381-18382, Ohio Univ., lower Ohio sh., Ohio, comp. with *Hindeodella pumilla*. M?D-LMi

——cynthiana STAUFFER (1938), pp. 412, 429, pl. 51, fig. 27. Holotype, B5072, Univ. Minn., Olentangy sh., loc. 187, Ohio. UD

——gracilis HUDDLE (1934), pp. 14, 50-51, pl. 12, fig. 12. Holotype, 2331, Ind. Univ., rare in upper New Albany sh., locs. 1, 5-6, 9, 10 (fig.); mid. pt., loc. 2, Ind. UD-LMi

——minutus HUDDLE (1934), pp. 14, 49, pl. 7, fig. 12. Holotype, 2281, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind.; ——— HASS (Mar. 1947), p. 134, Huron, lower Ohio shs., Ohio, Blackiston fm., Ind. UD

——sp. HUDDLE (1934), pp. 14, 49-50, pl. 10, fig. 9. Fig. spm., 2320, Ind. Univ., mid. New Albany sh., loc. 20, Ind. UD

——? sp. HUDDLE (1934) (no? on pl.), pp. 14, 50, pl. 10, fig. 14. Fig. spm., 2298, Ind. Univ., mid. New Albany sh., loc. 20, Ind. UD

——sp. HUDDLE (1934), pp. 14, 50, pl. 12, fig. 9. Fig. spm., 2332, Ind. Univ., upper New Albany sh., loc. 1, Ind. LMi

——**sp.** STAUFFER (1938), pp. 412, 429, pl. 51, fig. 36. Fig. spm., B5078, Univ. Minn., Olentangy sh., locs. 114, 187 (fig.), Ohio. UD

——**sp.** STAUFFER (1944), p. 257, Olentangy sh., ls. mine, Barberton, Ohio. UD

——**sp. unident.** CAMPBELL (1946), p. 845, lower Blackiston fm., Ind., ident. by Huddle. UD

HOLMESELLA GUNNELL (1931b), p. 252. Type species, *H. quadrata* GUNNELL (1931b); ——— STAUFFER & PLUMMER (1932), p. 50; ——— HARLTON (1933), pp. 4, 14; ——— HARRIS & HOLLINGSWORTH (1933), pp. 197-198; ——— BRANSON & MEHL (June 1933a) (*Holmsella*), p. 5, body scales or denticles on spines; ——— GUNNELL (1931b) (ab)Z (1933), p. 183, E. B. Branson states these are denticles from elasmobranch spines and not conodonts; ——— STAUFFER & PLUMMER (1932) (ab)Z (1933), p. 184, E. B. Branson states that this is not a conodont; ——— GUNNELL (1933), p. 288, placed under Acanthodei of the class Plagiostomi; ——— HUDDLE (1934), p. 35. L-MP

——**quadrata** GUNNELL (1931b), p. 252, pl. 29, figs. 31-32. Fig. spms., Univ. Mo., mid. Fort Scott fm., Mo.; ——— HARRIS & HOLLINGSWORTH (1933), p. 198, pl. 1, fig. 6. Fig. spm., 1502, Okla. Univ., common in Cromwell memb., Wapanucka fm., Okla. L-MP

——**rotunda** STAUFFER & PLUMMER (1932), pp. 25, 50, pl. 3, figs. 20-21. Cotypes, 19173, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, A, Tex. MP

——**triangularis** HARLTON (1933), p. 14, pl. 3, figs. 10a-d. Cotype, 85527, USNM, Johns Valley sh., loc. 2-53, Okla., comp. with *Holmesella wapanuckensis.* LP

——**wapanuckensis** HARLTON (1933), p. 14, pl. 3, figs. 11a-b. Cotype, 85528, USNM, Johns Valley sh., loc. 2-53, Okla.; mid. Wapanucka ls., Okla. LP

HOLMESELLIDAE STAUFFER & PLUMMER (1932), pp. 49-50. Type genus, *Holmesella* GUNNELL (1931); ——— GUNNELL (1933), p. 288, discards family as valid conodont name because it is like the Acanthoessidae of the order Acanthodei of the class Plagiostomi.

ICRIODINA BRANSON & BRANSON (1947), pp. 549-551. Type species, *I. irregularis* BRANSON & BRANSON (1947). LS

——**irregularis** BRANSON & BRANSON (1947), p. 551, pl. 81, figs. 3-11, 18-19. Holotype, C671-5 (figs. 3-4, 18-19); paratypes, C671-1 (figs. 6-11), C671-2 (fig. 5), C671-3, 4, Univ. Mo., Brassfield fm., locs. 1923 (figs. 3-5, 18-19), 1788 (figs. 6-11), 1786, 1840-1841, 1970, Ky. LS

ICRIODUS BRANSON & MEHL (June 1934a), pp. 181, 184, 225. Type species, *I. expansus* BRANSON & MEHL (1938a); ——— BRANSON & MEHL (Apr. 1936b), p. 234; ——— BRANSON & MEHL (June 1936b), p. 436; ——— BRANSON & MEHL (1938a), pp. 156-160; ——— BRANSON & MEHL (1938d), p. 129; ——— BRANSON (1938c), p. 179; ——— COOPER (1939), p. 390; ——— STAUFFER (1940), p. 424; ——— BRANSON & BRANSON (Jan. 1941), p. 130, Darby black sh., Wyo.; ——— BRANSON & MEHL (1941c), p. 192, Dev., Wildungen, Germ.; ——— BRANSON & MEHL (1941d), p. 202; ——— GROHSKOPF, CLARK, & ELLISON (1943), pp. 15-16; ——— BRANSON & MEHL (1944), pp. 245-246; ——— ELLISON (Jan. 1946), pp. 94, 101, 104-105, 108, platform type; ——— CAMPBELL (1946), p. 852, Blackiston fm., Ind.; ——— BARNES, CLOUD, & WARREN (1947), p. 139, Zesch? fm. and ?Dev. in cracks in Ellenburger ls. near Cypress Mill and Honeycut Bend, Tex.; ——— YOUNGQUIST (1947), p. 96; ——— HASS (Mar. 1947), pp. 135, 137, basal Huron sh., Ohio; ——— YOUNGQUIST & PETERSON (1947), pp. 242-243, Sheffield fm., Ohio; ——— MILLER & YOUNGQUIST (1947), p. 502; ——— BRANSON & BRANSON (1947), p. 550, comp. with *Icriodina;* ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 49; ——— WELLER *et al.* (Feb. 1948), p. 103; ——— COOPER (July 1948a), p. 358; ——— YOUNGQUIST & MILLER (1948), p. 440; ——— THOMAS (1949), pp. 407, 416, 424, Maple Mill sh., Iowa, comp. with *Pelekysgnathus.* M-UD, ?LMi

——**alternatus** BRANSON & MEHL (June 1934a), pp. 225-226, pl. 13, figs. 4-6. Cotypes, C220-3, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON & MEHL (1938a), pp. 156, 158, 161, 164, pl. 26, figs. 4-6, Cotypes fig., Snyder Creek and Grassy Creek shs., Mo.; ——— GROHSKOPF, CLARK, & ELLISON (1943), p. 15, pl. 2, figs. 3, 6. Fig. spm., 7165, Mo. Sch. Mines, Rolla, Fortune ls., Mo.; ——— BRANSON & MEHL (1944), p. 245; ——— BRANSON (1944), pp. 153, 158, pl. 26, figs. 1-5, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BRANSON (1944), pp. 155, 157, 163, pl. 28, figs. 11, 13; ——— YOUNGQUIST & PETERSON (1947), p. 246, pl. 37, figs. 18-19, 21. Hypotypes, 4074-4075, 4076, Univ. Iowa, Sheffield fm., Iowa. M-UD

——**arkonensis** STAUFFER (1938), pp. 412, 429, pl. 52, figs. 10, 15. Syntypes, B4935, B4940, Univ. Minn., Arkona beds, locs. 152, 154, 162 (fig.), Hungry Hollow beds, loc. 153, Ont.; Plum Brook sh., locs. 105, 107-108, Ohio. MD

——**brevis** STAUFFER (1940), p. 424, pl. 60, figs. 36, 43-44, 52. Syntypes, B5674, B5681-B5682, B5689, Univ. Minn., clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. MD

——**circularis** YOUNGQUIST & PETERSON (1947), p. 246, pl. 37, fig. 15. Holotype, 4077, Univ. Iowa, Sheffield fm., Iowa. UD

——**constrictus** THOMAS (1949), pp. 408, 416, pl. 1, fig. 25. Holotype, C831-2, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——**curvatus** BRANSON & MEHL (1938a), pp. 156, 158, 162-164, pl. 26, figs. 23-26. Syntypes, C250-3, Univ. Mo., sh. E. of Boaz, Mo. on James River (fig.), Sweetland Creek sh., Iowa, Grassy Creek sh., Mo. and Ill., Dev. channel fill in Niagaran dol. near Elmhurst, Ill., comp. with *Icriodus cymbiformis;* ——— BRANSON & MEHL (1941c) (*cf. curvatus* figs. 1, 12), p. 192, pl. 7, figs. 1-2, 12, 14. Fig. spms., C64-5 (figs. 1, 12), C250-3, Univ. Mo., bed above Clymenien Arker, at Hauern Feldweg, Wildungen, Germ. (figs. 1, 12), Upper Dev., Mo. (figs. 2, 14); ——— BRANSON & MEHL (1944), p. 245, pl. 94, fig. 62; ——— BRANSON (1944), pp. 153, 158, pl. 26, fig. 10, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— MILLER & YOUNGQUIST (1947), p. 502. UD

——**cymbiformis** BRANSON & MEHL (1938a), pp. 156, 158-159, 164-165, pl. 26, figs. 27-29. Syntypes, C197-1, Univ. Mo., Snyder Creek sh. (fig.) and Callaway ls., Mo., comp. with *Icriodus latericrescens;* ——— ? STAUFFER (1938), pp. 413, 430, pl. 52, figs. 11, 13. Fig. spms., B4936, B4938, Univ. Minn., Plum Brook sh., locs. 104 (fig. 13), 105, 107, 108 (fig. 11), Olentangy sh., loc. 114, Silica sh., loc. 140 B, Ohio; Arkona sh., locs. 152, 154, 162, Ont., comp. with *Polygnathus;* ——— STAUFFER (1940), p. 425, pl. 60, figs. 37, 51, 56-58, 68. Fig. spms., B5675, B5688, B5693, B5702, Univ. Minn., clay above ls., Minn.; ——— ? STAUFFER & THIEL (1941), p. 229. M-UD

——**derus** COOPER (1939), p. 390, pl. 47, fig. 40. Holotype, 38869, Univ. Chi., pre-Welden sh., Okla. LMi

——**elegantulus** STAUFFER (1938), pp. 412, 430, pl. 52, figs. 26-27. Holotype, B4947, Univ. Minn., Olentangy sh., loc. 110 (fig.), Plum Brook sh., loc. 108, Ohio; Hungry Hollow beds, locs. 153, 175, Arkona beds, locs. 156, 180, Ont. M-UD

——**elevatus** BRANSON & MEHL (1938a), pp. 159, 161-162, pl. 26, figs. 7-9. Holotype, C249-2, Univ. Mo., Mineola ls., Mo.; ——— BRANSON (1944), p. 134. MD

——**expansus** BRANSON & MEHL (1938a), pp. 156, 158-161, 164, pl. 26, figs. 18-21. Syntypes, C249-3 (figs. 18-19), C257-1, C250-4, Univ. Mo., Mineola ls. (figs. 18-19), Snyder Creek sh. (fig. 21), Mo.; Genundewa ls. (fig. 20), N. Y.; Silica sh., Ohio; Alpena ls., Ferron sh., Mich. Type species for genus, comp. with *Icriodus nodosus* and *postiflexus;* ——— BRANSON & MEHL (June 1934a), p. 225. Type species for *Icriodus* proposed at this time but the authors failed to figure or describe the species until 1938; ——— STAUFFER (1938), pp. 412, 430, pl. 52, figs. 12, 14, 16, 19-20, 25, 33, 35. Fig. spms., B4937, -39, -41, -43, -46, -52, -54 (lost), Univ. Minn., Hungry Hollow beds, locs. 153, 175 (figs. 12, 33, 35), Arkona sh., locs. 151-152, 156, 158, 162, 173, 180 (figs. 19-20), Ont.; Silica sh., locs. 140B, 147-148, 185, Plum Brook sh., locs. 105 (figs. 16, 25), 107, 108 (fig. 14), Olentangy sh., loc. 114, Ohio; ——— STAUFFER (1940), p. 425, pl. 60, figs. 40, 47-48, 59-64, 70-71. Fig. spms., B5678, -85, -94-98, B5704, Univ. Minn., clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229; ——— GROHSKOPF, CLARK, & ELLISON (1943), pp. 15-16, pl. 2, figs. 1-2, 5, 8, 11, 13. Fig. spms., 7166, Mo. Sch. Mines, Rolla, Fortune fm., Mo.; ——— BRANSON & MEHL (1944), p. 245, pl. 94, fig. 63; ——— BRANSON (1944), pp. 153, 158, pl. 26, figs. 7-9, 13-14, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BRANSON (1944), p. 155; ——— YOUNGQUIST & PETERSON (1947), pp. 246-247, pl. 37, figs. 5-7, 10, 20. Hypotypes, 4078-4080, Univ. Iowa, Sheffield fm., Iowa, comp. with *Icriodus lanceolatus.* M-UD

——**incrassatus** YOUNGQUIST & PETERSON (1947), p. 247, pl. 37, figs. 1-2, 25. Syntypes, 4081-4082, Univ. Iowa, Sheffield fm., Iowa. UD

——**iowaensis** YOUNGQUIST & PETERSON (1947), p. 247, pl. 37, figs. 22-24, 27-29. Syntypes, 4083-4084, Univ. Iowa, Sheffield fm., Iowa; ——— THOMAS (1949), p. 416, comp. with *Icriodus constrictus.* UD

——**lanceolatus** YOUNGQUIST & PETERSON (1947), pp. 247-248, pl. 37, figs. 16-17. Holotype, 4085, Univ. Iowa, Sheffield fm., Iowa. UD

——**latericrescens** BRANSON & MEHL (1938a), pp. 156, 158, 164-165, pl. 26, figs. 30-37. Syntypes, C249-1 (figs. 34-35), C250-1 (figs. 33, 36-37), C250-2 (figs. 30, 32), C249-4 (fig. 31), Univ. Mo., Mineola ls. (figs. 30-32, 34-35), Mo.; Jeffersonville ls. (figs. 33, 36-37), Ind.; Silica sh., Ohio; Ferron sh., Mich.; worn forms from Genundewa ls., N. Y.; ——— STAUFFER (1938), pp. 413, 430, pl. 52, figs. 30-32, 34. Fig. spms., B4949-B4951, B4953, Univ. Minn., Arkona beds, locs. 152 (figs. 31, 34), 162, Hungry Hollow beds, loc. 153 (fig. 30), Ont.; Plum Brook sh., locs. 107, 108 (fig. 32), Ohio; ——— BRANSON & MEHL (1941e), p. 100; ——— E. B. BRANSON (Aug. 1941), p. 83; ——— GROHSKOPF, CLARK, & ELLISON (1943), p. 16, pl. 2, figs. 4, 7. Fig. spm., 7167, Mo. Sch. Mines, Rolla, Fortune ls., Mo.; ——— BRANSON & MEHL (1944), p. 245, pl. 94, fig. 64; ——— BRANSON (1944), pp. 134, 155; ——— BRANSON (1944b), p. 175; ——— YOUNGQUIST (1947), pp. 102-103, pl. 25, fig. 12. Hypotypes, 3386 (fig.), 3387, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. M-UD

——**nodosus** (BRANSON & MEHL) (1938a), pp. 156, 158-160, 163, pl. 26, figs. 14-17, 22. Holotype, 1940 (fig. 22), Ind. Univ.; hypotypes, C250-5, Univ. Mo., lower New Albany sh. (fig. 22), Ind.; Genundewa ls. (figs. 14-17), N. Y.; Louisiana ls., Mo.; Sweetland Creek sh., Iowa, comp with *Icriodus expansus* and *curvatus,* (*Gondolella*); ——— (BRANSON) (1944), pp. 153, 158, pl. 26, fig. 6, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——**parvus** YOUNGQUIST & PETERSON (1947), p. 248, pl. 37, figs. 11-12. Syntypes, 4086-4087, Univ. Iowa, Sheffield fm., Iowa. UD

——**postiflexus** BRANSON & MEHL (1938a) (*pastiflexus,* p. 159), pp. 156, 159, 163, pl. 26, figs. 10-13. Syntypes, C438-1, Univ. Mo., Silica sh., Ohio, comp. with *Icriodus expansus;* ——— YOUNGQUIST (1948), p. 202, Cedar Valley ls., Iowa. MD

——**rectus** YOUNGQUIST & PETERSON (1947), p. 248, pl. 37, figs. 3-4, 13-14, 26. Syntypes, 4088-4090, Univ. Iowa, Sheffield fm., Iowa; ——— THOMAS (1949) (*cf. rectus*), p. 408, pl. 1, figs. 17-18. Fig. spms., C831-1, Univ. Mo., Maple Mill sh., loc. 9, Iowa. UD

——**spicatus** YOUNGQUIST & PETERSON (1947), pp. 248-249, pl. 37, figs. 8-9. Holotype, 4091, Univ. Iowa, Sheffield fm., Iowa. UD

——**subterminatus** YOUNGQUIST (Mar. 1947), p. 103, pl. 25, fig. 14. Holotype, 3388, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——**symmetricus** BRANSON & MEHL (June 1934a), p. 226, pl. 13, figs. 1-3. Cotypes, C243-1, Univ. Mo., Grassy Creek sh., Mo., comp. with *Icriodus alternatus;* ——— BRANSON & MEHL (1938a), pp. 156, 158, 161, pl. 26, figs. 1-3, Grassy Creek sh. (fig.) Mo., Ill., Sylamore ss., Ark.; ———? BRANSON & MEHL (1938a), p. 156, Woodford fm., Okla., Huron sh., Ohio; ——— BRANSON & MEHL (1944), pp. 245-246, pl. 94, fig. 65; ——— BRANSON (1944), pp. 157, 163, 173, pl. 28, figs. 1-3, Grassy Creek sh. (fig.), Louisiana ls., Mo.; ——— YOUNGQUIST (1947), p. 103, pl. 25, fig. 5. Hypotypes, 3389 (fig.), 3390, Univ. UD

Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa; ——— LAYER *et al.* (1949), p. 594, D-3 zone 700 ft. below top of D-2 zone, Alta., Can.

——? **tylus** COOPER (1939), p. 390, pl. 47, figs. 60-61, 73-74. Holotype, 38870; paratype, 38871, Univ. Chi., pre-Welden sh., Okla. LMi

——**sp. undet.** BRANSON & MEHL (1938a), p. 156.

——**n. sp.** BRANSON (1944), p. 153, pl. 26, figs. 11-12, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——**sp.** STAUFFER (1944), p. 257, Olentangy sh., ls. mine, Barberton, Ohio. UD

ICTHYODUS HARRIS & HOLLINGSWORTH (1933), pp. 193, 195. Type species, *I. gunneli* HARRIS & HOLLINGSWORTH (1933); ——— HUDDLE (1934), pp. 28, 34; ——— HARRIS & HOLLINGSWORTH (1933) (ab)Z (1937), pp. 177-178, Branson & Mehl do not recognize this name as a valid conodont genus. MP

——**gunneli** HARRIS & HOLLINGSWORTH (1933), pp. 195-196, pl. 1, figs. 1a-c. Holotype, 1501, Okla. Univ., Boggy fm., Okla.; ——— HARRIS & HOLLINGSWORTH (1933) (ab)Z (1937), pp. 177-178, not a conodont. MP

IDIOGNATHINAE HARRIS & HOLLINGSWORTH (1933), pp. 193-194, 200, new subfamily of conodonts in the Penn.

IDIOGNATHODUS GUNNELL (1931b), p. 249. Type species, *I. claviformis* GUNNELL (1931b); ——— STAUFFER & PLUMMER (1932), p. 44; ——— HARRIS & HOLLINGSWORTH (1933), pp. 193-194; ——— GUNNELL (1933), pp. 262, 269, 276; ——— BRANSON & MEHL (Mar. 1934), p. 17; ——— BRANSON & MEHL (June 1934a), p. 225, comp. with *Icriodus;* ——— HUDDLE (1934), p. 35; ——— BAILEY (1935), pp. 487, 490, 493, common in lower Henrietta and Cherokee above and below Bevier coal, rare at locs. E4, 5; J 1, 6; R 9; T 1-2, 4, 6, 9, 12; U 5; V 5-7; W 6-7; X 2, 12; Y 5, 7, 9; CC 1; DD 9. Common at B 10; G 10, 11; K 5; L 1; T 16; U 6; Y 9, 12; DD 1. Abundant at A 4; D 5; F 1; G 1, 4; K 1; Y 1-2, 4, 6-7, 9, 12-13, 16, Mo.; ——— PAYNE (1937), p. 279, upper Conemaugh, Hayden Branch fm., Ind.; ——— GUNNELL (1933) (ab)Z (1937), p. 176, Branson & Mehl state that 45 spp. should be reduced to 10 or less; ——— BRANSON & MEHL (1937), p. 232; ——— BRANSON & MEHL (Mar. 15, 1939b), p. 167; ——— C. C. BRANSON (Aug. 1939), pp. 1207, 1210, 1216, Tensleep fm., Wyo.; ——— BRANSON & MEHL (1941e), p. 103; ——— ELLISON (1941), pp. 109, 126-127, 133-135, *Idiognathodus* Harris & Hollingsworth (1933) (pt.), is incl. in this genus, derived from *Spathognathodus,* comp. with *Cavusgnathus, Streptognathodus,* and *Polygnathodella;* ——— ELLISON & GRAVES (1941), pp. 2, 6; ——— SCOTT (1942), pp. 294-295; ——— BRANSON & MEHL (1944), p. 246; ——— GLAESSNER (1945), p. 200; ——— ELLISON (Jan. 1946), pp. 94, 96, 108, platform type, a transition occurs between *Streptognathodus* and *Idiognathodus;* ——— MCLAUGHLIN (1947), p. 1947, Glen Eyrie beds, Colo.; ——— ? EDWARDS & STUBBLEFIELD (1948), p. 219, Mid. Coal Measures, Nottinghamshire and Derbyshire, loc. 44, Eng.; ——— YOUNGQUIST & HEEZEN (1948), pp. 770, 772; ——— CLOUD & BARNES (1948), p. 318, Marble Falls ls., Tex.; ——— YOUNGQUIST & PATTERSON (1949), p. 58; ——— YOUNGQUIST & DOWNS (1949), pp. 161-162, 164-165; ——— STURGEON & YOUNGQUIST (1949), pp. 380, 382-384. L-UP

——**acutus** ELLISON (1941), pp. 108, 111, 137, pl. 23, figs. 21, 24. Holotype, C308-4 (fig. 21); paratype, C308-5, Univ. Mo., Cherokee through Labette sh., locs. 0110, 0161, 680, 0176, 0175, 0109, 0117 (fig.), Mo.; ——— BRANSON (1944), p. 325; ——— COOPER (1947b) (*Idiognathus*), pp. 267, 269; ——— YOUNGQUIST & DOWNS (1949) (*cf. acutus*), pp. 161, 166, pl. 30, figs. 30-31. Fig. spms., 14022-14023, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa. MP

——**antiquus** STAUFFER & PLUMMER (1932), pp. 25, 44-45, pl. 4, fig. 17. Holotype, 19160, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, A, Tex.; ——— ELLISON (1941), pp. 108-109, 111, 136, pl. 23, figs. 1, 7, 18. Hypotypes, C561-1 (figs. 1, 7), C197-5 (fig. 18); unfig. C493-4G, C495-1G, C494-5G, C504-5G, Univ. Mo., Cherokee sh. through Iola ls., locs. 682, 0158, 0106, 0119, 0130, 0146, 1352, 0108 (fig. 18), 0142, 1267, 1280, 0149, 0116, 0155, 0140, 1359 (figs. 1, 7), Mo., *Idiognathodus porcatus, chiriformis, liratus,* and *corrugatus* are jr. syns., comp. with *Idiognathodus magnificus;* ——— BRANSON (1944), p. 325. M-UP

——**arcuatus** GUNNELL (1931b), pp. 250-251, pl. 29, fig. 26. Holotype, Univ. Mo., mid. Fort Scott fm., Mo. MP

——**attenuata** HARRIS & HOLLINGSWORTH (1933), pp. 203-204, pl. 1, figs. 9a-b. Holotype, 1508, Okla. Univ., Wapanucka fm., Okla.; ——— HARRIS & HOLLINGSWORTH (1933) (ab)Z (1937), p. 177, Branson & Mehl class this as sr. syn. of *Polygnathodella;* ——— BRANSON & MEHL (1941e), p. 104; ——— ELLISON & GRAVES (1941), p. 8. LP

——**attenuatus** YOUNGQUIST & HEEZEN (1948), p. 769, pl. 118, fig. 5. Holotype, 4160, Univ. Iowa, black sh. ¾ mi. NW of Knoxville, Iowa; ——— YOUNGQUIST & DOWNS (1949), pp. 161, 166, pl. 31, fig. 18. Fig. spm., 14024, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa. MP

——**bellatulus** YOUNGQUIST & DOWNS (1949), pp. 161, 166-167, pl. 31, figs. 1-3, 19-21. Holotype, 14025 (figs. 1-2); paratypes, 14026-14027, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa. MP

——**biconvexus** GUNNELL (1933), pp. 263, 273, pl. 31, fig. 26. Holotype, Gunnell coll. 27, Univ. Mo., Galesburg sh., Mo. UP

——**biliratus** GUNNELL (1933), pp. 263, 276, pl. 31, fig. 59. Holotype, Gunnell coll. 43, Univ. Mo., Winterset ls., Mo.; ——— ELLISON (1941), p. 131, jr. syn. of *Streptognathodus cancellosus.* UP

——**binodosus** GUNNELL (1933), pp. 263, 274, pl. 31, fig. 35. Holotype, Gunnell coll. 34? (see *I. cicatricosus*), Univ. Mo., Winterset ls., Mo.; ——— ELLISON (1941), p. 131, jr. syn. of *Streptognathodus cancellosus.* UP

——**cancellosus** GUNNELL (1933), pp. 263, 270-272, pl. 31, fig. 10. Holotype, Gunnell coll. 14, Univ. Mo., basal Galesburg sh., Mo., comp. with *Idiognathodus modulatus* and *rugulatus;* ——— ELLISON (1941), p. 131, sr. syn. of *Streptognathodus.* UP

——**cariniferus** GUNNELL (1933), pp. 263, 276, pl. 31, fig. 52. Holotype, Gunnell coll. 42, Univ. Mo., Winterset ls., Mo., comp. with *Idiognathodus biliratus.* UP

——**cherryvalensis** GUNNELL (1933), pp. 264, 277, pl. 32, fig. 5. Holotype, Gunnell coll. 46, Univ. Mo., Cherryvale sh., Mo.; ——— ELLISON (1941), p. 134, jr. syn. of *Idiognathodus delicatus.* UP

——**chiriformis** GUNNELL (1933), pp. 263, 272, pl. 31, fig. 23. Holotype, Gunnell coll. 24, Univ. Mo., Galesburg sh., Mo.; ——— ELLISON (1941), p. 136, jr. syn. of *Idiognathodus antiquus.* UP

——**cicatricosus** GUNNELL (1933), pp. 263, 274, pl. 31, fig. 34. Holotype, Gunnell coll. 34 (see *I. binodosus*), Univ. Mo., Winterset ls., Mo.; ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**clavatus** GUNNELL (1933), pp. 263, 271-272, pl. 31, fig. 19. Holotype, Gunnell coll. 21, Univ. Mo., basal Galesburg sh., Mo.; ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**claviformis** GUNNELL (1931b), pp. 249-251, pl. 29, figs. 21-22. Holotype, Univ. Mo., mid. Fort Scott fm., Mo., type species for *Idiognathodus,* comp. with *Idiognathodus arcuatus;* ——— ? STAUFFER & PLUMMER (1932), pp. 25, 45, Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, B, Tex.; ——— HARRIS & HOLLINGSWORTH (1933), p. 202; ——— GUNNELL (1933), p. 270, comp. with *Idiognathodus fustiformis;* ——— ELLISON (1941), pp. 108-109, 111, 135-137, pl. 23, figs. 12-17, 19-20, 22. Genolectotype, C487-4G (fig. 12); hypotypes, C248-5 (fig. 13), C205-4 (figs. 14, 17), C233-5 (fig. 15), C561-5 (figs. 16, 19), C197-1 (figs. 20, 22), C490-3G, C493-3G, Univ. Mo., Cherokee sh. through Dennis ls., locs. 1266 (fig. 12), 0155 (fig. 13), 0140 (figs. 14, 17), 0107 (fig. 15), 1371 (figs. 16, 19), 1359 (figs. 20, 22), 1346-51, 0110, 675, 0161, 672, 682, 0159, 0158, 0117, 1352, 0108, 0142, 1267, 1280, 0017, 0149, 0116, 0155, 0140, 1359, 0138, Mo., the type is Gunnell (1931b), pl. 29, fig. 21 (fig. 12 of Ellison); and fig. 22 is a sr. syn. of *Idiognathodus lobatus. Idiognathodus fustiformis* and *nodostriatus* are jr. syns., comp. with *Idiognathodus lobatus, delicatus,* and *magnificus;* ——— SCOTT (1942) (*cladiformis*), p. 295; ——— BRANSON & MEHL (1944), p. 246; ——— BRANSON (1944), p. 325; ——— MCLAUGHLIN (1947) (*aff. claviformis*), pp. 1973-1974, Glen Eyrie beds, Colo.; ——— YOUNGQUIST & HEEZEN (1948), pp. 769-770, pl. 118, figs. 19-20. Fig. spm., 4161, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa; ——— YOUNGQUIST & DOWNS (1949), pp. 161, 167, sh. ¾ mi. NW of Knoxville, Iowa, comp. with *Idiognathodus bellatulus.* M-UP

——**confragus** GUNNELL (1933), pp. 263, 275, pl. 31, fig. 43. Holotype, Gunnell coll. 37, Univ. Mo., Winterset ls., Mo., comp. with *Idiognathodus gemmiformis;* ——— STURGEON & YOUNGQUIST (1949), p. 384, comp. with *Idiognathodus sp.* pl. 74, fig. 18. UP

——**corrugata** HARRIS & HOLLINGSWORTH (1933), pp. 202-204, pl. 1, figs. 7, 8a-b. Holotype, 1507, Okla. Univ., Wapanucka fm., Cromwell memb., Okla., comp. with *Idiognathodus attenuata;* ——— HARRIS & HOLLINGSWORTH (1933) (ab)Z (1937), p. 177, sr. syn. of *Polygnathodella;* ——— BRANSON & MEHL (1941e), p. 105; ——— ELLISON & GRAVES (1941), p. 10, jr. syn. of *Polygnathodella ouachitensis.* LP

——**corrugatus** GUNNELL (1933), pp. 264, 277, pl. 32, figs. 6-7. Holotype, Gunnell coll. 47, Univ. Mo., Cherryvale sh., Mo., comp. with *Idiognathodus walteri;* ——— ELLISON (1941), pp. 134, 136, Gunnell's fig. 6 a jr. syn. of *Idiognathodus delicatus,* fig. 7 a jr. syn. of *Idiognathodus antiquus.* UP

——**cuneiformis** GUNNELL (1933), pp. 263, 270-271, pl. 31, fig. 8. Holotype, Gunnell coll. 13, Univ. Mo., Galesburg sh., Mo., comp. with *Idiognathodus cancellosus, harkeyi,* and *jugosus;* ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**delicatus** GUNNELL (1931b), p. 250, pl. 29, figs. 23-25. Holotype, Univ. Mo., mid. Fort Scott fm., Mo.; ——— STAUFFER & PLUMMER (1932), pp. 23-25, 45, pl. 4, figs. 4, 21, 24-26. Fig. spms., 19161 (figs. 21, 24), 19162, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., locs. 181-T-9, A (fig. 4), B; Graford fm., loc. 214-T-25 (figs. 21, 24-25); Brownwood sh. memb., loc. 248-T-6 (fig. 26); Mineral Wells fm., Keechi Creek sh. memb., loc. 181-T-80; Strawn, loc. 205-T-29, Tex.; ——— ELLISON (1941), pp. 108-111, 132, 134-137, pl. 22, figs. 31-36. Holotype, C488-1G; hypotypes, C252-4 (fig. 36), C561-3 (fig. 35), C561-2 (figs. 32, 34), C234-2 (fig. 33), C248-3 (fig. 31), C492-3G, C495-1G to 2G, C495-4G, C496-1G, C498-2G, C513-3G to 4G, C504-5G, C569-2B to 3B, C573-1B, Univ. Mo., Desmoinesian through Virgilian, locs. 0104, 1266, 1346-51, 0110, 389, 675, 0161, 0120, 0124, 1138, 1027, 672, 1142, 1038, 682, 967, 680, 0176 (fig. 36), 716, 0175, 0159, 0158, 0117-0118, 0123, 0109, 717, 1102, 1145, 0122, 0174, 0001, 0132, 1274, 1284, 1367, 0106, 0119, 0130, 1354, 0107, 0103, 0085, 0144, 0148, 1273, 1283, 1362 (figs. 32, 34), 0143, 0101, 1275-9, 0146, 1268-72, 1281-2, 1352, 0108 (fig. 33), 0115, 0142, 0151, 0141, 348, 1267, 1280, 0017, 0149, 0116, 0155 (fig. 31), 0140, 1359 (fig. 35), 0138, 0127, 1371, 0006-0007, Mo., comp. with *Idiognathodus magnificus, lobatus, claviformis, tersus* and *Streptognathodus cancellosus. Idiognathodus magnificus* Stauffer & Plummer (1932) (pt.), pl. 4, fig. 19, and *Idiognathodus modulatus, spathodus, semipapulatus, lanceolatus, folium, gemmiformis, warei, kansensis, corrugatus,* and *cherryvalensis* are jr. syns.; ——— ELLISON & GRAVES (1941), pp. 2, 4, pl. 3, figs. 20, 23. Hypotypes, 4815-4816, Mo. Sch. Mines, Rolla, Dimple fm., mid., locs. G901, G906, G908, G919, upper transition zone, loc. G928, lower transition zone, locs. G912 (fig.), G910, Tex.; ——— BRANSON & MEHL (1944), p. 246, pl. 94, figs. 56-58; ——— BRANSON (1944), pp. 309, 325, pl. 46, figs. 31-36; ——— YOUNGQUIST & HEEZEN (1948), p. 772, comp. with *Streptognathodus delicatulus.* M-UP

——**erodus** GUNNELL (1933), pp. 263, 275-276, pl. 31, fig. 48. Holotype, Gunnell coll. 40, Univ. Mo., Winterset ls., Mo., comp. with *Idiognathodus fusiformus;* ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**expansus** STAUFFER & PLUMMER (1932), pp. 25, 46, pl. 4, figs. 1, 3. Cotypes, 19163, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., locs. 181-T-9, A (fig.), B; Graford fm., loc. 214-T-25, Tex. M-UP

——**farrelli** GUNNELL (1933), pp. 264, 279, pl. 33, fig. 4. Holotype, Gunnell coll. 56, Univ. Mo., Quivira sh., Mo., comp. with *Idiognathodus multinodosus;* ——— ELLISON (1941), p. 136, jr. syn. of *Idiognathodus lobatus.* UP

——**folium** GUNNELL (1933), pp. 263, 274, pl. 31, fig. 33. Holotype, Gunnell coll. 33, Univ. Mo., Winterset ls., Mo.; ——— ELLISON (1941), p. 134, jr. syn. of *Idiognathodus delicatus.* UP

——**fusiformis** GUNNELL (1933), pp. 263, 275-276, pl. 31, fig. 49. Holotype, Gunnell coll. 41, Univ. Mo., Winterset ls., Mo., comp. with *Idiognathodus erodus;* ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**fustiformis** GUNNELL (1933), pp. 263, 269-270, 272, pl. 31, fig. 7. Holotype, Gunnell coll. 12, Univ. Mo., Cherokee sh., Mo., comp. with *Idiognathodus nodostriatus;* ——— ELLISON (1941), p. 137, jr. syn. of *Idiognathodus claviformis;* ——— YOUNGQUIST & HEEZEN (1948), pp. 769-770. MP

——**gemmiformis** GUNNELL (1933), pp. 263, 275-276, pl. 31, fig. 44. Holotype, Gunnell coll. 38, Univ. Mo., Winterset ls., Mo., comp. with *Idiognathodus confragus* and *cariniferus;* ——— ELLISON (1941), p. 134, jr. syn. of *Idiognathodus delicatus.* UP

——**gomphus** YOUNGQUIST & DOWNS (1949), pp. 161, 167, pl. 1, figs. 14-15. Holotype, 14028, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa. MP

——**harkeyi** GUNNELL (1933) (*harkyi* p. 271), pp. 263, 270-271, pl. 31, fig. 11. Holotype, Gunnell coll. 15, Univ. Mo., basal Galesburg sh., Mo., comp. with *Idiognathodus siculus;* ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**iowaensis** YOUNGQUIST & HEEZEN (1948), p. 770, pl. 118, figs. 3-4, 17-18. Holotype, 4162 (figs. 3-4); paratypes, 4163, Univ. Iowa, black sh. ¾ mi. NW of Knoxville, Iowa, ? *Idiognathodus sp.* Branson (1944), pl. 44, figs. 26-28 classed as sr. syn.; ——— YOUNGQUIST & DOWNS (1949), p. 161, pl. 31, figs. 11-13, 22-23. Topotypes, Univ. Iowa. MP

——**jugosus** GUNNELL (1933), pp. 263, 270-271, pl. 31, fig. 13. Holotype, Gunnell coll. 16, Univ. Mo., basal Galesburg sh., Mo. UP

——**kansensis** GUNNELL (1933), pp. 264, 279, pl. 32, figs. 62-64. Syntypes, Gunnell coll. 53-55, Univ. Mo., Quivira sh., Mo., comp. with *Idiognathodus warei;* ——— ELLISON (1941), p. 134, jr. syn. of *Idiognathodus delicatus;* ——— GLAESSNER (1945), pp. 64, 200, pl. 4, figs. 9a-c. UP

——**lanceolatus** GUNNELL (1933), pp. 263, 273-274, 279, pl. 31, figs. 31-32. Holotype, Gunnell coll. 32, Univ. Mo., Winterset ls., Mo., comp. with *Idiognathodus binodosus* and *simplex;* ——— ELLISON (1941), p. 134, jr. syn. of *Idiognathodus delicatus.* UP

——**liratus** GUNNELL (1933), pp. 263, 273, pl. 31, fig. 27. Holotype, Gunnell coll. 28, Univ. Mo., Galesburg sh., Mo., comp. with *Idiognathodus biconvexus, spathodus,* and *lanceolatus;* ——— ELLISON (1941), p. 136, jr. syn. of *Idiognathodus antiquus.* UP

——**lobatus** GUNNELL (1933), pp. 263, 271-272, pl. 31, figs. 17-18. Holotype, Gunnell coll. 20, Univ. Mo., basal Galesburg sh., Mo., comp. with *Idiognathodus porcatus* and *chiriformis;* ——— ELLISON (1941), pp. 109-111, 135-137, pl. 23, figs. 8, 10. Holotype, C492-5G; hypotypes, C561-4 (fig. 8), C487-5 (fig. 10), C504-3G, C515-2G, Univ. Mo., Hushpuckney sh. through Stanton ls., locs. 0084, 0001, 1367, 0106, 0119, 0130, 0107, 0144, 0148, 1273, 1283, 1275-9, 0108, 0115, 0151, 1267, 1280, 0017, 0149, 0116, 0155, 0140, 1359, 1362 (fig. 8), 1266 (fig. 10), Mo., *Idiognathodus claviformis* Gunnell (1931b) (pt.), pl. 29, fig. 22, *Idiognathodus rotundus,* and *farrelli* are sr. and jr. syns. resp., comp. with *Idiognathodus delicatus, magnificus,* and *claviformis;* ——— BRANSON (1944), p. 325; ——— COOPER (1947b), p. 269; ——— MCLAUGHLIN (1947), pp. 1973-1974, Glen Eyrie beds, Colo. M-UP

——**magnificus** STAUFFER & PLUMMER (1932), pp. 25, 46-47, pl. 4, figs. 8, 18-20. Cotypes, 19164 (figs. 18-20); paratype, 19165, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., locs. 181-T-9, A (fig. 8), B; Graford fm., loc. 214-T-25 (figs. 18-20), Tex.; ——— GUNNELL (1933), pp. 270, 273, comp. with *Idiognathodus cuneiformis* and *liratus;* ——— ELLISON (1941), pp. 108-109, 111, 132, 134-136, pl. 23, figs. 2-3, 6, 9. Hypotypes, C571-5 (fig. 2), C223-2 (figs. 3, 6), C217-1 (fig. 9), C490-5G, C491-3G, C492-2G, C492-4G, C493-2G, C494-3G, C495-3G, C496-4 to 5G, C499-1 to 2G, C499-4G, C498-3G, C505-2G, Univ. Mo., Bourbon fm. and Cherokee through Quindaro sh., locs. 0111, 0104, 1346-51 (fig. 2), 0110, 675, 0161, 1138, 1027, 1142, 1038, 682, 680, 0176 (figs. 3, 6), 0175, 0158, 0117 (fig. 9), 0118, 0123, 717, 1102, 0174, 0132, 1274, 1284, 1367, 1354, 0107, 0103, 0144, 0148, 1283, 1275-9, 1268-72, 1281-2, 1352, 0108, 0115, 0141, 1267, 1280, 0017, 0149, 0116, 0155, 0140, 1359, 0138, 1371, Mo., comp. with *Streptognathodus cancellosus, Idiognathodus tersus, delicatus, claviformis, antiquus, lobatus,* and *acutus. Idiognathodus magnificus* Stauffer & Plummer (1932) (pt.), pl. 4, fig. 19, is jr. syn. of *Idiognathodus delicatus. Idiognathodus cuneiformis, harkeyi, siculus, sulciferus, clavatus, ruidus, megistus, cicatricosus, wintersetensis, strigillatus, fusiformis, vadosus, erodus, walteri,* and *pustulata* are jr. syns.; ——— ELLISON & GRAVES (1941), pp. 2, 4, pl. 3, figs. 25-27. Hypotypes, 4817-4819, Mo. Sch. Mines, Rolla, Dimple fm., mid., locs. G907-G908, G904 (fig. 27), G901, lower transition zone, locs. G913, G912 (figs. 25-26), G910, Tex.; ——— BRANSON (1944), p. 325, Cherokee through Kansas City grs., Mo.; ——— YOUNGQUIST & HEEZEN (1948), p. 770, comp. with *Idiognathodus iowaensis* and *Idiognathodus sp.,* ——— YOUNGQUIST & DOWNS (1949), p. 167, comp. with *Idiognathodus mundulus.* L-UP

——**megistus** GUNNELL (1933), pp. 263, 273, pl. 31, fig. 30. Holotype, Gunnell coll. 31, Univ. Mo., basal Winterset ls., Mo.; ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**modulatus** GUNNELL (1933), pp. 263, 271, pl. 31, fig. 15. Holotype, Gunnell coll. 18, Univ. Mo., basal Galesburg sh., Mo., comp. with *Idiognathodus sulciferus;* ——— ELLISON (1941), p. 134, jr. syn. of *Idiognathodus delicatus.* UP

——**mucronatus** YOUNGQUIST & DOWNS (1949), p. 166, probably *Streptognathodus* was meant.

——**multinodosus** GUNNELL (1933), pp. 264, 279, pl. 33, fig. 5. Holotype, Gunnell coll. 57, Univ. Mo., Quivira sh., Mo., comp. with *Idiognathodus farrelli;* ——— ELLISON (1941), p. 132, changed to *Streptognathodus oppletus* because the species belongs to *Streptognathodus* but the specific name is preocc. UP

——**mundulus** YOUNGQUIST & DOWNS (1949), pp. 161, 167, pl. 31, figs. 16-17. Holotype, 14032, Univ. Iowa, ? *Idiognathodus sp.* Branson (1944), pl. 44, fig. 27 is classed as sr. syn., unnamed sh. ¾ mi. NW of Knoxville, Iowa. MP

——**nodostriatus** GUNNELL (1933), pp. 263, 272, pl. 31, fig. 20. Holotype, Gunnell coll. 22, Univ. Mo., basal Galesburg sh., Mo., comp. with *Idiognathodus ruidus;* ——— ELLISON (1941), p. 137, jr. syn. of *Idiognathodus claviformis.* UP

——**ohioensis** STURGEON & YOUNGQUIST (1949), pp. 381, 383-384, pl. 74, figs. 1-2, 25-26. Holotype, 19623 (figs. 25-26); paratype, 19624, Ohio Univ., Allegheny fm., Hamden ls., Ohio. MP

——**ornatus** YOUNGQUIST & DOWNS (1949), p. 161, perhaps *Streptognathodus* was meant.

——**porcatus** GUNNELL (1933), pp. 263, 272, pl. 31, fig. 21. Holotype, Gunnell coll. 23, Univ. Mo.?, basal Galesburg sh., Mo.; ——— ELLISON (1941), p. 136, jr. syn. of *Idiognathodus antiquus.* UP

——**pustulata** HARRIS & HOLLINGSWORTH (1933), p. 204, pl. 1, fig. 11. Holotype, 1509, Okla. Univ., Boggy fm., Okla.; ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* MP

——**rectus** YOUNGQUIST & DOWNS (1949), pp. 161, 167-168, pl. 30, figs. 21-23. Holotype, 14033, Univ. Iowa, unnamed sh. ¾ mi. NW of Knoxville, Iowa. MP

——**rotundus** GUNNELL (1933), pp. 264, 276-277, pl. 32, fig. 4. Holotype, Gunnell coll. 45, Univ. Mo.?, Cherryvale sh., Mo., comp. with *Idiognathodus symmetricus* and *cherryvalensis;* ——— ELLISON (1941), p. 136, jr. syn. of *Idiognathodus lobatus.* UP

——**rugulatus** GUNNELL (1933) (*regulatus* on pl.), pp. 263, 272, pl. 31, fig. 24. Holotype, Gunnell coll. 25, Univ. Mo.?, Galesburg sh., Mo.; ——— ELLISON (1941) (*regulatus*), p. 131, jr. syn. of *Streptognathodus cancellosus.* UP

——**ruidus** GUNNELL (1933), pp. 263, 272, 274, pl. 31, fig. 25. Holotype, Gunnell coll. 26, Univ. Mo., Galesburg sh., Mo., comp. with *Idiognathodus wintersetensis;* ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**semipapulatus** GUNNELL (1933), pp. 263, 273-274, 276, pl. 31, figs. 29, 50. Syntypes, Gunnell coll. 30 (fig. 29), Univ. Mo., Winterset ls., Mo., comp. with *Idiognathodus folium;* ——— ELLISON (1941), p. 134, jr. syn. of *Idiognathodus delicatus.* UP

——**siculus** GUNNELL (1933), pp. 263, 271-272, pl. 31, fig. 14. Holotype, Gunnell coll. 16, Univ. Mo., basal Galesburg sh., Mo., comp. with *Idiognathodus clavatus;* ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**simplex** GUNNELL (1933), pp. 264, 277-279, pl. 32, fig. 19. Holotype, Gunnell coll. 49, Univ. Mo., Cherryvale sh., Mo.; ——— ELLISON (1941), p. 131, jr. syn. of *Streptognathodus cancellosus;* ——— STURGEON & YOUNGQUIST (1949), p. 384, comp. with *Idiognathodus spp.* pl. 75, fig. 7. UP

——**sinuosus** ELLISON & GRAVES (1941), pp. 2, 4, 6, pl. 3, fig. 22. Holotype, 7147, Mo. Sch. Mines, Rolla, Dimple fm., mid., locs. G905, G906 (fig.), lower transition zone, locs. G913, G912, G910, Tex. LP

——**spathodus** GUNNELL (1933), pp. 263, 273, pl. 31, fig. 28. Holotype, Gunnell coll. 29, Univ. Mo., Winterset ls., Mo., comp. with *Idiognathodus semipapulatus;* ——— ELLISON (1941), p. 134, jr. syn. of *Idiognathodus delicatus.* UP

——**strigillatus** GUNNELL (1933), pp. 263-264, 274-275, 277, pl. 31, fig. 37; pl. 32, fig. 8. Syntypes, Gunnell coll. 36 (fig. 37), Univ. Mo., Winterset ls. (fig. 37), Cherryvale sh. (fig. 8), Mo., comp. with *Idiognathodus cicatricosus, vadosus,* and *corrugatus;* ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**sulciferus** GUNNELL (1933), pp. 263, 271, pl. 31, fig. 16. Holotype, Gunnell coll. 19, Univ. Mo., basal Galesburg sh., Mo., comp. with *Idiognathodus lobatus;* ——— ELLISON (1941) (*sulciferous*), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**symmetricus** GUNNELL (1933), pp. 263, 276-277, pl. 32, fig. 3. Holotype, Gunnell coll. 44, Univ. Mo., Cherryvale sh., Mo., comp. with *Idiognathodus rotundus;* ——— ELLISON (1941), p. 131, jr. syn. of *Streptognathodus cancellosus.* UP

——**tersus** ELLISON (1941), pp. 109-111, 134, pl. 23, figs. 4-5. Holotype, C252-3, Univ. Mo., Iola ls., Muncie sh., Heebner sh. through Queen Hill sh., locs. 0106, 0119, 0130, 0006-0007, 0094, 0097 (fig.), Mo., Kans.; ——— BRANSON (1944), p. 325; ——— YOUNGQUIST & DOWNS (1949), p. 168, comp. with *Idiognathodus rectus.* UP

——**vadosus** GUNNELL (1933), pp. 263, 275, pl. 31, fig. 45. Holotype, Gunnell coll. 39, Univ. Mo., Winterset ls., Mo.; ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**walteri** GUNNELL (1933), pp. 264, 277, pl. 32, fig. 9. Holotype, 48, Gunnell coll., Univ. Mo., Cherryvale sh., Mo.; ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.* UP

——**warei** GUNNELL (1933), pp. 264, 279, pl. 32, figs. 59-61. Syntypes, 50-52, Gunnell coll., Univ. Mo., comp. with *Idiognathodus kansensis,* Quivira sh., Mo.; ——— ELLISON (1941), p. 134, jr. syn. of *Idiognathodus delicatus.* UP

——**wintersetensis** GUNNELL (1933), pp. 263, 273-276, pl. 31, figs. 36, 51. Holotype, Gunnell coll. 35 (fig. 36), Univ. Mo., Winterset ls., Mo., comp. with *Idiognathodus megistus* and UP

strigillatus; ——— ELLISON (1941), p. 135, jr. syn. of *Idiognathodus magnificus.*

——**sp.** STAUFFER & PLUMMER (1932), p. 25, Graford fm., loc. 214-T-25, Tex. UP

——? **sp.** ELLISON (1941), pp. 137-138, pl. 23, fig. 11. Fig. spm., C252-5, Univ. Mo., loc. 0017, Mo., comp. with *Streptognathodus oppletus.* UP

——**sp.** BRANSON (1944), p. 305, pl. 44, figs. 26-28, after Bailey (1934); ?——— YOUNGQUIST & HEEZEN (1948), p. 770, classed as sr. syn. of *Idiognathodus iowaensis;* ——— YOUNGQUIST & DOWNS (1949), p. 167, Branson's pl. 44, fig. 27 classed as sr. syn. of *Idiognathodus mundulus.* MP

——**sp.** YOUNGQUIST & HEEZEN (1948), p. 770, pl. 118, fig. 14. Fig. spm., 4164, Univ. Iowa, black sh. 2 mi. S of Knoxville, Iowa, comp. with Ellison (1941), pl. 23, figs. 2-3; ——— STURGEON & YOUNGQUIST (1949), p. 384, comp. with *Idiognathodus sp.* fig. 20. MP

——**sp.** STURGEON & MERRILL (1949), p. 10, Allegheny fm., Dorr Run sh., Ohio. MP

——**spp.** STURGEON & YOUNGQUIST (1949), pp. 381-382, 384, pl. 74, figs. 4-6, 16-24; pl. 75, figs. 1-9, 13-18, 20-24. Fig. spms., 19625-19648, Ohio Univ., Hamden ls., locs. 1 (pl. 74, figs. 4-5, 16, 21-22; 19625, -27, -31), 2 (pl. 74, figs. 20, 23; 19630, -32), 5 (pl. 74, figs. 6, 17-18, 24; 19626, -28, -33), 7 (pl. 74, fig. 19; 19629). Washingtonville sh., locs. 1 (pl. 75, figs. 1-3, 4, 7, 9, 15-16, 22; 19634, -35, -37, -39, -42, -47), 2 (pl. 75, figs. 8, 13, 14, 17, 18; 19638, -40, -41, -43, -44), 3 (pl. 75, figs. 5-6, 20, 21, 23-24; 19636, -45, -46, -48), Ohio, comp. with *Idiognathodus simplex,* and *confragus* of Gunnell (1933) and *Idiognathodus sp.* Youngquist & Heezen (1948), pl. 118, fig. 14. MP

IDIOGNATHOIDES HARRIS & HOLLINGSWORTH (1933), pp. 193-194, 201. Type species, *I. sinuata* HARRIS & HOLLINGSWORTH (1933); ——— HUDDLE (1934), p. 35; ——— HARRIS & HOLLINGSWORTH (1933) (ab)Z (1937), p. 177, Branson & Mehl do not recognize this as a valid genus; ——— BRANSON & MEHL (1941e), p. 103, classed as syn. of *Polygnathodella;* ——— ELLISON (Jan. 1946), p. 108. LP

——**sinuata** HARRIS & HOLLINGSWORTH (1933), pp. 201-202, pl. 1, fig. 14. Holotype, 1506, Okla. Univ., Wapanucka fm., Okla.; ——— HARRIS & HOLLINGSWORTH (1933) (ab)Z (1937), p. 177, syn. of *Cavusgnathus;* ——— BRANSON & MEHL (1941e), p. 105, syn. of *Polygnathodella;* ——— ELLISON & GRAVES (1941), p. 5, syn. of *Cavusgnathus.* LP

IDIOPRIONIODUS GUNNELL (1933), p. 265. Type species, *I. typus* GUNNELL (1933); ——— HUDDLE (1934), p. 34; ——— ELLISON (1941), p. 138, invalid and type is now jr. syn. of *Ligonodina;* ——— ELLISON (Jan. 1946), p. 108, jr. syn. of *Ligonodina* and *Trichonodella.* UP

——**camurus** GUNNELL (1933), pp. 264-265, pl. 32, fig. 30. Holotype, Gunnell coll. 2, Univ. Mo., Quivira sh., Mo., comp. with *Idioprioniodus typus* and *striatus;* ——— ELLISON (1941) (*camerus*), pp. 115, 138, jr. syn. of *Ligonodina lexingtonensis.* UP

——**striatus** GUNNELL (1933) (*Idioprioniadus* on pl.), pp. 264-265, pl. 32, figs. 36-37. Holotype, Gunnell coll. 3, Univ. Mo., Quivira sh., Mo., comp. with *Idioprioniodus camurus;* ——— ELLISON (1941), pp. 118, 138, jr. syn. of *Hibbardella subacoda;* ——— YOUNGQUIST & HEEZEN (1948), p. 768. UP

——**typus** GUNNELL (1933), pp. 263, 265, pl. 31, fig. 47. Holotype, Gunnell coll. 1, Univ. Mo., Winterset ls., Mo.; ——— ELLISON (1941), pp. 114, 138, jr. syn. of *Ligonodina.* UP

LEPODUS BRANSON & MEHL (June 1933b), p. 37. Type species, *L. minutus* BRANSON & MEHL (June 1933b); ——— BRANSON & MEHL (July 1933b), p. 103; ——— HUDDLE (1934), p. 34; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood fm., S. D.; ——— ELLISON (Jan. 1946), p. 108, may not be a true conodont. MO

——**minutus** BRANSON & MEHL (June 1933b), p. 38, pl. 1, figs. 33-34. Holotype, C181-1, Univ. Mo., Harding ss., Colo.; ——— BRANSON & MEHL (June 1933b), p. 37; ——— JOHNSON (1945), p. 22. MO

——**plattinensis** BRANSON & MEHL (July 1933b), p. 103, pl. 8, fig. 27. Holotype, C100-5, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 79-80, pl. 11, fig. 47. MO

——**sp.** FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood fm., S. D. MO

LEPTOCHIROGNATHUS BRANSON & MEHL (1943), pp. 374-375, 377, 380-382. Type species, *L. quadrata* BRANSON & MEHL (1943); ——— BRANSON & MEHL (1944), p. 237; ——— ELLISON (Jan. 1946), pp. 94, 96, 108, fibrous group, upper half of Chazy through lower half of Black River. MO

——**coalescens** BRANSON & MEHL (1944), p. 237, pl. 93, fig. 1, McLish fm., Okla. MO

——**erecta** BRANSON & MEHL (1943), pp. 376-377, pl. 63, fig. 18. Holotype, C528-5, (C65-3 on pl.), Univ. Mo., McLish fm., Okla. MO

——**extensa** BRANSON & MEHL (1943), pp. 376, 383, pl. 64, figs. 35, 51-52. Syntypes, C535-5 (fig. 35), C533-5 (figs. 51-52), Univ. Mo., comp. with *Leptochirognathus? sp.* Branson & Mehl (1943), pl. 64, fig. 34, Bromide fm., Okla. MO

——**gracilis** BRANSON & MEHL (1943), pp. 376-377, pl. 63, figs. 39-40. Cotypes, C530-3, Univ. Mo., McLish fm., Okla. MO

——**obesa** BRANSON & MEHL (1943), pp. 376-378, pl. 63, figs. 36-38. Cotypes, C531-4, Univ. Mo., McLish fm., Okla. MO

——**prima** BRANSON & MEHL (1943), pp. 376, 378, pl. 63, figs. 29-35. Holotype, C529-2 (fig. 31); fig. spms., C531-1, Univ. Mo., McLish fm., Okla. MO

——**quadrata** BRANSON & MEHL (1943), pp. 376-379, pl. 63, figs. 23-28. Holotype, C530-2 (fig. 28); fig. spms., C527-1 (fig. 23), C531-5 (figs. 24-27), Univ. Mo., McLish fm., Okla.; ——— BRANSON & MEHL (1944), p. 237, pl. 93, fig. 11. MO

——**semiflorealis** BRANSON & MEHL (1943), pp. 376, 379-380, 383, pl. 63, figs. 11-16. Holotype, C530-5 (fig. 16); C529-5 (fig. 11), C529-1 (figs. 12-15), comp. with *Leptochirognathus extensa,* McLish fm., Okla.; ——— BRANSON & MEHL (1944), p. 237, pl. 93, fig. 13. MO

——**tridactyla** BRANSON & MEHL (1943), pp. 376, 380, pl. 63, figs. 17, 19-22. Holotype, C531-3 (fig. 21); fig. spms., C529-3 (fig. 19), C528-5 (figs. 17, 20, 22), Univ. Mo., McLish fm., Okla. MO

——? sp. BRANSON & MEHL (1943), p. 380, pl. 63, fig. 5. Fig. spm., C527-3, Univ. Mo., McLish fm., Okla. MO

——? sp. BRANSON & MEHL (1943), p. 383, pl. 64, fig. 34. Fig. spm., C532-2, Univ. Mo., comp. with *Leptochirognathus extensa*, lower Bromide fm., Okla. MO

LEWISTOWNELLA SCOTT (1942), pp. 293, 297, 299-300. Type species, *L. agnewi* SCOTT (1942); ——— ELLISON (Jan. 1946), p. 109, an assemblage including *Hindeodella, Prioniodus, Subbryantodus,* and *Cavusgnathus.* UMi

——agnewi SCOTT (1942), p. 300, pl. 39, figs. 2-3?, 10-13; pl. 40, figs. 1, 6-7, 17, 20-21. Holotype, X-1322; paratypes, X-1323, Univ. Ill., see *Prioniodus spp., Subbryantodus spp., Hindeodella spp.,* and *Cavusgnathus spp.* of Scott (1942), Heath fm., Mont. UMi

——? sp. SCOTT (1942), pl. 39, fig. 8. Type, Univ. Ill., see *Cavusgnathus spp.* and *Hindeodella spp.* of Scott (1942), Heath fm., Mont. UMi

LIGONODINA ULRICH & BASSLER (1926), pp. 6, 8, 12-13, 55. Type species, *L. pectinata* Ulrich & Bassler (1926); ——— BASSLER (1925), p. 218 (*nomen nudum*); ——— HIBBARD (1927), pp. 193, 199-200; ——— HIBBARD (1928), p. 117; ——— COOPER (1933a), p. 210, in need of revision, some species will be changed to *Plagiodina* and some are the same as *Prioniodus;* ——— HOLMES (1928), pp. 3, 12, 24; ——— BRANSON & MEHL (June 1933c), p. 48, full desc. and disc. given; ——— BRANSON & MEHL (July 1933d), pp. 138-139; ——— BRANSON & MEHL (June 1934a), pp. 194, 198-199, 210; ——— BRANSON & MEHL (Oct. 1934a), pp. 282, 289; ——— E. R. BRANSON (1934), p. 328; ——— HUDDLE (1934), pp. 13, 26, 33-34, 36, 48, 58-60. *Plagiodina* Cooper (1933) is placed into syn. because no type species was given by Cooper (Int. Rules of Zool. Nomenclature, amendment to Art. 25, Sec. c, 3) and since *Ligonodina pectinata,* the type species for *Ligonodina,* has all of the characters of the genus, *Ligonodina* is redefined and *Plagiodina* becomes a syn., comp. with *Euprioniodina, Synprioniodina,* and *Hindeodelloides;* ——— CHADWICK (Feb. 1935a), p. 318, makes its debut in Naples gr.; ——— COOPER (1935), p. 313; ——— COOPER (1935a), p. 444; ——— STAUFFER (1938), pp. 430-431; ——— BRANSON & MEHL (1938d), p. 142; ——— BRANSON & MEHL (Mar. 15, 1939b), p. 167; ——— COOPER (1939), pp. 383, 390; ——— STAUFFER (1940), pp. 425-426; ——— BRANSON & MEHL (1941a), pp. 170-171, 177, pl. 5, fig. 11. Fig. spm., C544-1, Univ. Mo., lower Caney sh., Okla.; ——— BRANSON & MEHL (1941b), pp. 180, 185; ——— ELLISON (1941), pp. 109, 111, 114, 138; ——— ELLISON & GRAVES (1941), pp. 2, 7; ——— COOPER & SLOSS (1943), pp. 171, 174; ——— BRANSON & MEHL (1944), p. 241; ——— ELLISON (Jan. 1946), pp. 95, 104, 108-109, bar type, Niagara through Wolfcamp, *Idioprioniodus* (pt.) and *Neocordylodus* (pt.) are classed as jr. syns.; ——— BOND (1947), p. 30; ——— COOPER (1947a), p. 91; ——— HASS (Mar. 1947), p. 132, upper and basal Sunbury, Bedford, upper and lower Ohio, basal Orangeville, Cleveland, and Huron shs., Ohio; ——— MEHL & THOMAS (1947), p. 11; ——— COOPER (1947b), p. 269; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), pp. 49, 54-55; ——— YOUNGQUIST & MILLER (1948), p. 440; ——— YOUNGQUIST & HEEZEN (1948), p. 770; ——— YOUNGQUIST & DOWNS (1949), pp. 161-162, 168; ——— THOMAS (1949), pp. 407, 409, 423, present in Maple Mill sh.; ——— STURGEON & YOUNGQUIST (1949), pp. 380, 382, 385. MS-LPm

——? abbreviata YOUNGQUIST & HEEZEN (1948), p. 770, pl. 118, fig. 11. Holotype, 4165, Univ. Iowa, black sh. ¾ mi. NW Knoxville, Iowa; ——— YOUNGQUIST & DOWNS (1949), p. 161. MP

——abnormis BRANSON & MEHL (Oct. 1934a), p. 289, pl. 23, fig. 18. Holotype, C394-4, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 181; ——— BRANSON (1944), p. 221, Bushberg ss., Mo. LMi

——abnormis (YOUNGQUIST, HIBBARD, & REIMANN) (1948), p. 54, pl. 14, figs. 7, 11-12. Fig. spms., 449 (fig. 7), 22 (fig. 11), 555A (fig. 12), Hibbard coll., Buff. Mus. Sci., N. Y., *Prioniodus spicatus* Hibbard (1927), and Hibbard (1942), p. 273, mid. upper fig. is a syn., lower Attica sh., N. Y., (*Prioniodus*). UD

——acuta BRANSON & MEHL (June 1934a), p. 200, pl. 15, fig. 32. Holotype, C367-4, Univ. Mo., Grassy Creek sh., Mo.; ——— ? BRANSON & MEHL (June 1934a), pl. 15, fig. 27. Fig. spm., C368-2, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163, Grassy Creek sh., Mo.; ——— YOUNGQUIST (1947) (*cf. acuta*), pp. 103-104, pl. 24, figs. 13, 19. Fig. spms., 3391 (fig. 13), 3392 (fig. 19), unfig. spms., 3393, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——alternata HIBBARD (1927), p. 200, fig. 2, i. Holotype, 225B, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——angulata BRANSON & MEHL (1938d), p. 142, pl. 34, fig. 43. Holotype, C354-5, Univ. Mo., Chouteau ls., Mo.; ——— COOPER (1939), p. 390, classed as jr. syn. of *Ligonodina conidens;* ——— BRANSON (1944), pp. 208e, 221, pl. 39, fig. 43, Chouteau ls., Mo. LMi

——? apora COOPER (1939), p. 390, pl. 45, fig. 48. Holotype, 38872, Univ. Chi., pre-Welden sh., Okla. LMi

——arcuata HUDDLE (1934), pp. 15, 63, pl. 12, figs. 20-21, text fig. 3, subfig. 4. Holotype, 2276, Ind. Univ., rare in lower New Albany sh., locs. 27 (fig.), 28, Ind. M-UD

——arcuata (COOPER) (1939) (*arcuatus* p. 419), pp. 390, 419, pl. 45, figs. 3-4. Hypotype, 38873, Univ. Chi., pre-Welden sh., Okla., (*Subbryantodus*). LMi

——armena STAUFFER (1940), p. 425, pl. 59, figs. 62-63, 65, 71. Syntypes, B5625 (fig. 63), B5627 (fig. 65); paratypes, B5624 (fig. 62), B5633 (fig. 71), Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. O, MD

——atana STAUFFER (1940), p. 425, pl. 59, fig. 73. Holotype, B5635, Univ. Minn., admixture, clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. O, MD

——bicincta HUDDLE (1934), pp. 15, 62, pl. 12, fig. 15. Holotype, 2279, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind.; ——— BOND (1947), p. 30, comp. with *Ligonodina sp. 1* Bond (1947); ——— YOUNGQUIST (1947), p. 104, pl. 25, figs. 10, 18. Hypotypes, UD

3394 (fig. 10), 3395 (fig. 18), unfig. spms., 3396, Univ. Iowa, sh. 1½ mi. NE of N. Liberty, Iowa.

——**brevipostica** BRANSON & MEHL (Oct. 1934a), pp. 289-290, pl. 23, fig. 32. Holotype, C393-5, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 181; ——— COOPER (1939), pp. 390, 419, pl. 47, figs. 27, 36. Hypotypes, 38874-38875, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 221, Bushberg ss., Mo. LMi

——**compressa** MEHL & THOMAS (1947), p. 11, pl. 1, fig. 31. Holotype, C653-5, Univ. Mo., Fern Glen fm., Mo. MMi

——**conidens** HUDDLE (1934), pp. 15, 62-63, pl. 12, figs. 18-19. Holotype, 2334, Ind. Univ., comp. with *Ligonodina sp.* Huddle (1934), p. 62, pl. 12, fig. 8, rare in upper New Albany sh., at locs. 1 (fig.), 3, 5-6, 8, 10, Ind.; ——— COOPER (1939), pp. 390, 419, pl. 45, fig. 45. Hypotype, 38876, Univ. Chi., pre-Welden sh., Okla., *Ligonodina angulata* is classed as a jr. syn. LMi

——**conulatus** YOUNGQUIST (1945), p. 361, pl. 54, fig. 3. Holotype, 2930, Univ. Iowa, Independence sh.?, Iowa. UD

——? **coronata** (BRANSON & MEHL) (July 1933d), p. 139, pl. 11, fig. 28. Holotype, A4249, Brit. Mus., Genesee sh., Kettle Pt., Ont. (*Lonchodus* = *Polygnathus*); ——— (COOPER) (1935a), p. 444, this name is incorrect and *Lonchodus coronatus* as redefined by Holmes (1928) is correct. UD

——**cryptodens** HUDDLE (1934), pp. 15, 62-63, pl. 12, figs. 16-17. Holotype, 2277, Ind. Univ., rare in lower New Albany sh., locs. 27 (fig.), 28, Ind. MD

——**curvata** COOPER (1935), pp. 310, 313, pl. 27, fig. 9. Holotype, 38059, Univ. Chi., upper Ark. novaculite, bed A, Ark. LMi

——**curvidens** HIBBARD (1927), pp. 199-200, fig. 2h. Holotype, 1, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y.; ——— HIBBARD (1928), p. 117, fig. 2, lower Rhinestreet sh., N. Y. UD

——**curvidens** MEHL & THOMAS (1947), p. 11, pl. 1, fig. 25. Holotype, C654-1, Univ. Mo., Fern Glen fm., Mo. MMi

——**cyra** COOPER (1939), p. 390, pl. 45, fig. 59. Holotype, 38881, Univ. Chi., pre-Welden sh., Okla. LMi

——**deflecta** ULRICH & BASSLER (1926), pp. 13-14, pl. 2, figs. 3-4. Cotypes, 11247 USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 12, Rhinestreet sh., N. Y.; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— COOPER (1935), p. 313, comp. with *Ligonodina gouldi.* UD

——**delicata** BRANSON & MEHL (June 1934a), p. 199, pl. 14, figs. 22-23. Holotype, C243-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON & MEHL (Oct. 1934a), p. 290, comp. with *Ligonodina sp.* Branson & Mehl (Oct. 1934a); ——— E. R. BRANSON (1934), p. 328, pl. 27, fig. 3. Fig. spm., C215-3, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— COOPER (1939) (*delicatula*), pp. 390, 419, pl. 45, figs. 50, 60-61. Hypotypes, 38877-38879, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), p. 170, pl. 29, figs. 21, 23, black sh., base Madison gr., Alta.; ——— COOPER & SLOSS (1943), p. 174, ref. to E. R. Branson (1934) and Cooper (1939), classed as sr. syns. of *Ligonodina tenera;* ——— BRANSON & MEHL (1944), p. 241, pl. 93, fig. 74; ——— BRANSON (1944), pp. 153, 158, pl. 26, fig. 23, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BRANSON (1944), p. 163, Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 221, Hannibal fm., Mo.; ——— BRANSON & BRANSON (1947) (*P. delicata*), p. 555, comp. with *Ligonodina kentuckyensis;* ——— MILLER & YOUNGQUIST (1947) (*delicatula*), p. 509; ——— MILLER & YOUNGQUIST (1947), pp. 509-510, pl. 73, fig. 12. Fig. spm., 5549, Univ. Iowa, Branson (1944), pl. 26, fig. 23 is excluded from the above sp. Cooper & Sloss (1943) list the above from the New Albany with ref. to Huddle (1934), but Huddle does not mention its occurrence; Sweetland Creek sh., Iowa; ——— THOMAS (1949), pp. 408, 411, pl. 4, fig. 22. Fig. spm., C805-4, Univ. Mo., English River siltstone, loc. 8, and (unfig.) Maple Mill sh., Iowa; ——— ? THOMAS (1949), pl. 3, fig. 41. Fig. spm., C805-2, Univ. Mo., English River siltstone, loc. 14, Iowa. UD-LMi

——**dubia** THOMAS (1949), pp. 411, 423, pl. 4, figs. 23-24. Syntypes, C810-2, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

——**duplicata** STAUFFER (1938), pp. 413, 431, pl. 51, fig. 2. Holotype, B4836, Univ. Minn., Olentangy sh., loc. 120, Ohio. UD

——? **erratica** STAUFFER (1938), pp. 413, 431, pl. 51, fig. 10. Holotype, B4844, Univ. Minn., Olentangy sh., loc. 120, Ohio. UD

——**eva** STAUFFER (1938), pp. 413, 431, pl. 51, fig. 3. Holotype, B4837, Univ. Minn., Olentangy sh., loc. 120, Ohio. UD

——**falciformis** ULRICH & BASSLER (1926), p. 14, pl. 2, figs. 11-13. Cotypes, 11249, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 12, Rhinestreet sh., N. Y.; ——— COOPER (1933a), p. 210, the reverse of this is similar to *Prioniodus sublimis;* ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Genesee gr.; ——— BOND (1947), p. 31, comp. with *Ligonodina sp. 3* Bond (1947); ——— MILLER & YOUNGQUIST (1947), p. 510, comp. with *Ligonodina spp.* Miller & Youngquist (1947). UD

——**falx** YOUNGQUIST (1945), pp. 361-362, pl. 55, fig. 9. Syntypes, 2938 (fig. 9), 2939 (3 unfig. spms.), Univ. Iowa, Independence sh.?, Iowa. UD

——**flexuosa** BRANSON & MEHL (June 1934a), p. 199, pl. 15, fig. 28. Holotype, C368-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON & MEHL (June 1934a) (*cf. flexuosa*), pl. 15, fig. 26. Fig. spm., C368-2, Univ. Mo., this has been removed from the C368-2 slide, Grassy Creek sh., Mo.; ——— COOPER (1939), pp. 390-391, 419, pl. 45, fig. 46. Hypotype, 38880, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943) (*cf. flexuosa*), p. 170, pl. 29, fig. 28, black sh., base Madison gr., Mont.; ——— BRANSON (1944), p. 163, Grassy Creek sh., Mo.; ——— THOMAS (1949), p. 411, pl. 3, fig. 14. Fig. spm., C818-5, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. UD-LMi

——**franklinensis** STAUFFER (1938), pp. 413, 431, pl. 51, figs. 5, 16. Holotype, B4839 (fig. O, MD-

5); paratype, B5065 (fig. 16), Univ. Minn., Olentangy sh., locs. 120 (fig. 5), 187 (fig. 16), 125, Ohio; ——— ? STAUFFER (1940), p. 425, pl. 58, fig. 24. Fig. spm., B5546, Univ. Minn., clay above ls., Minn.; ——— LAYER *et al.* (1949) (*Lignoidina cf. franklinensis*), p. 594, D-3 zone 700 ft. below top of D-2 zone, Alta. LMi

——**gigantea** THOMAS (1949), pp. 411, 423, pl. 4, fig. 33. Holotype, C810-1, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

——**gouldi** COOPER (1935), pp. 310, 313, pl. 27, fig. 8. Holotype, 38058, Univ. Chi., Ark. novaculite, upper, bed A; mid. div., bed 13, Ark.; ——— COOPER & SLOSS (1943), p. 170, pl. 29, fig. 27, black sh., base Madison gr., Mont.; ——— BOND (1947), p. 31, comp. with *Ligonodina sp. 2* Bond (1947). UD-LMi

——**grandicula** MEHL & THOMAS (1947), p. 11, pl. 1, fig. 35. Holotype, C654-2, Univ. Mo., Fern Glen fm., Mo. MMi

——**hibbardi** ULRICH & BASSLER (1926), pp. 14-15, pl. 2, figs. 7-8. Cotypes, 11251, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 12, Rhinestreet sh., N. Y.; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Genesee gr. UD

——**hindei** ULRICH & BASSLER (1926), p. 14, pl. 2, figs. 14-16. Cotypes. 11250. USNM, comp. with *Ligonodina hibbardi*, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 12, Rhinestreet sh., N. Y.; ——— HUDDLE (1934), pp. 15, 25, 60-61, text fig. 3, subfig. 5; pl. 7, figs. 13, 22; pl. 12, figs. 13-14. Plesiotypes, 2255 (fig. 22), 2309 (pl. 12, fig. 13), 2310 (fig. 14), 1886 (pl. 7, fig. 13), Ind. Univ., common in lower New Albany sh., loc. 26, rare at locs. 32 (type nos. 2255, 2309, 2310), 30 (type no. 1886), 33. Ind.; ——— CHADWICK (Feb. 1935a) (*hindii*), p. 315, diagnostic sp. confined to Naples gr.; ——— STAUFFER (1938) (*Ligonodina sp. cf. L. hindei*), pp. 413, 431, pl. 51, fig. 9. Fig. spm., B4843, Univ. Minn., Arkona sh., loc. 151, Ont.; ——— MILLER & YOUNGQUIST (1947), p. 510, comp. with *Ligonodina spp.* Miller & Youngquist (1947); ——— MILLER & YOUNGQUIST (1947) (*cf. hindei*), p. 510, pl. 72, fig. 15. Fig. spm., 5550, Univ. Iowa, in syn. list is *?Ligonodina hindei* Ulrich & Bassler; Holmes; and Huddle; Sweetland Creek sh., Iowa; ——— YOUNGQUIST & MILLER (1948), p. 446, comp. with *Ligonodina sp.* Youngquist & Miller (1948). M?-UD

——**kentuckyensis** BRANSON & BRANSON (1947), p. 555, pl. 82, figs. 28, 35. Holotype, C674-5, Univ. Mo., Brassfield fm., locs. 1788 (fig.) and (unfig.) 1826, and Plum Creek memb., 1787, Ky. LS

——**lepta** COOPER (1939), p. 391, pl. 45, fig. 49. Holotype, 38882, Univ. Chi., pre-Welden sh., Okla. LMi

——**levis** BRANSON & MEHL (1941b), p. 185, pl. 6, fig. 10. Holotype, C574-1, Univ. Mo., Keokuk ls., Mo.; ——— BRANSON (1944), p. 240, Keokuk ls., Mo.; ——— Cooper (1947a) (*cf. levis*), pp. 91-92, pl. 20, fig. 17. Hypotype, Ill. Geol. Surv., Kinkaid fm., beds 5-6, Ill. M-UMi

——**lexingtonensis** (ELLISON) (1941), pp. 108-111, 115, 138, pl. 20, figs. 13-15. Holotype, C484(G); hypotypes, C554-5 (figs. 13-15), C484-3(G), C509-3(G), C515-4(G), Univ. Mo., Cherokee into Shawnee, locs. 1362 (figs. 13-15), 0111, 0104, 1266, 0110, 389, 675, 683, 1038, 682, 716, 0158, 0109, 717, 0132, 1274, 1284, 1367, 1354, 0107, 0103, 0144, 0148, 1273, 1283, 1352, 0017, 0149, 0116, 0155, 0140, 1359, 0138, 0127, 1371, 0081, 0094, 0097, 0054, Mo., comp. with *Ligonodina typa. Prioniodus tridentatus lexingtonensis, Idioprioniodus camerus,* and *Euprioniodina? sp.*, pl. 33, fig. 6 of Gunnell (1933) are syns., (*Prioniodus*); ——— (ELLISON & GRAVES) (1941), pp. 2, 4, 7, pl. 1, figs. 23-24. Hypotypes, 4781-4782, Mo. Sch. Mines, Rolla, Dimple fm., mid., loc. G926 (fig. 24), lower transition zone, loc. G912 (fig. 23), Tex., comp. with *Ligonodina suppressa;* ——— (BRANSON) (1944), p. 325; ——— (STURGEON & YOUNGQUIST) (1949), pp. 381, 384-385, pl. 74, figs. 14-15. Fig. spms., 19649-19650, Ohio Univ., Hamden ls., Allegheny fm., Ohio. L-UP

——**longirostris** YOUNGQUIST (1945), p. 362, pl. 56, fig. 8. Syntypes, 2933 (fig. 8), 2934 (3 unfig. spms.), Univ. Iowa, Independence? sh., Iowa. UD

——**magnidens** ULRICH & BASSLER (1926), p. 14, pl. 2, figs. 5-6. Cotypes, 11248, USNM, lower Rhinestreet sh., N. Y.; ——— HIBBARD (1927), p. 199, comp. with *Ligonodina seducta;* ——— HOLMES (1928), p. 12; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— YOUNGQUIST (1947), p. 104, pl. 26, fig. 17. Fig. spm., 3397, Univ. Iowa, sh. 1½ mi. NE of N. Liberty, Iowa, previous references have ? in front of names. UD

——**? minuta** MEHL & THOMAS (1947), pp. 11-12, pl. 1, fig. 27. Holotype, C653-3, Univ. Mo., Fern Glen fm., Mo. MMi

——**minuta** THOMAS (1949) (*minaut* p. 411), pp. 411, 423-424, pl. 3, fig. 27. Holotype, C815-5, Univ. Mo., English River siltstone, loc. 12, Iowa. LMi

——**mucronata** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), pp. 50, 54-55, pl. 14, fig. 6. Holotype, 521, Hibbard coll., Buff. Mus. Sci., N. Y. One of the largest conodonts recorded in the literature, 3.74 mm. long, same spm. as Hibbard (1942), p. 273, lower rt. hand fig., lower Attica sh., N. Y. UD

——**munda** (YOUNGQUIST, HIBBARD, & REIMANN) (1948), p. 55, pl. 14, fig. 9. Fig. spm., A-60, Hibbard coll., Buff. Mus. Sci., N. Y., Hibbard (1942), p. 273, mid. upper fig. is the same spm., lower Attica sh., N. Y. (*Prioniodus*). UD

——**nitida** HIBBARD (1927), p. 201, fig. 2 j. Holotype, 277, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——**oliga** COOPER (1939), p. 391, pl. 45, fig. 58. Holotype, 38883, Univ. Chi., pre-Welden sh., Okla. LMi

——**ortha** (MEHL & THOMAS) (1947), p. 12, pl. 1, fig. 34. Fig. spm., C653-2, Univ. Mo., Fern Glen fm., Mo. (*Neocordylodus*). MMi

——**panderi** (ULRICH & BASSLER) (1926), pp. 13, 56, pl. 2, figs. 1-2. Plesiotype, 11246, USNM, Rhinestreet sh., N. Y. (*Prioniodus*); ——— (HOLMES) (1928), pp. 12, 21, pl. 4, fig. 43, Hinde's (1879) pl. 16, fig. 4 is reproduced, Genesee or Portage sh., N. Y.; ——— (BRANSON & MEHL) (July 1933d), p. 139, Branson did not find spm. at Brit. Mus.; ——— (CHADWICK) (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——**parvula** HOLMES (1928), pp. 24-25, pl. 9, fig. 5. Holotype, 11434, USNM, Chattanooga black sh., Ala. UD

——**pectinata** ULRICH & BASSLER (1926), p. 13, pl. 2, figs. 9-10. Cotype, 11245, USNM, Rhinestreet sh., N. Y., type species for *Ligonodina;* ——— BASSLER (1925), p. 218 (*nomen nudum*); ——— ULRICH & BASSLER (1926), pp. 8, 12, 14, fig. 3, subfig. 6, comp. with *Ligonodina falciformis,* Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 12, Rhinestreet sh., N. Y.; ——— MOODIE (1929), p. 21, fig. 10, subfig. 6, same as Ulrich & Bassler (1926), fig. 3, subfig. 6; ——— COOPER (1933a), p. 210, the reverse of this is indistinguishable from *Prioniodus expolitis;* ——— HUDDLE (1934), p. 59, has all of the characters of *Plagiodina,* and *Plagiodina* is placed into syn. under *Ligonodina;* ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— BRANSON & MEHL (1944), p. 241, pl. 93, fig. 75; ——— GLAESSNER (1945), p. 27, fig. 3, subfig. 6, after Ulrich & Bassler (1926), fig. 3, subfig. 6; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 55, pl. 14, fig. 8. Fig. spm., 4, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y. UD

——? **peculiaris** ELLISON & GRAVES (1941), pp. 2, 7, pl. 1, fig. 17. Holotype, 7148, Mo. Sch. Min., Rolla, mid. Dimple fm., locs. G902, G903 (fig. 17), Tex. LP

——**pinguis?** (HUDDLE) (1934), pp. 15, 61, pl. 7, fig. 14. Plesiotype, 1931, Ind. Univ., common in upper New Albany sh., loc. 3, rare at locs. 1 (fig. 14), 2, 4, 8, 10, 14, Ind. (*Prioniodus*). LMi

——**platys** COOPER (1939), p. 391, pl. 45, fig. 47. Holotype, 38884, Univ. Chi., pre-Welden sh., Okla. LMi

——**princeps** (HIBBARD) (1927), p. 200, figs. 3, b, c. Plesiotypes, 39, 5, Hibbard coll., Buff. Mus. Sci., N. Y., common in Rhinestreet sh., N. Y. (*Polygnathus*); ——— (BRANSON & MEHL) (July 1933d) (*?princeps*), p. 139, pl. 11, fig. 7. Holotype, A4255, Brit. Mus., (fig.), Genesee sh., N. Y. [*Lonchodus* = *Centrodus* Bryant (1921) (*non*) = *Polygnathus,* pl. 16, fig. 23]; ——— (COOPER) (1935a) (*? princeps*), p. 444. UD

——**recedens** (ULRICH & BASSLER) (1926), p. 13 (*Prioniodus*). UD

——**recurvata** BRANSON & MEHL (June 1934a), p. 200, pl. 14, fig. 24. Holotype, C367-5, Univ. Mo., Grassy Creek sh., Mo.; ——— ? BRANSON & MEHL (June 1934a), pl. 15, fig. 29. Fig. spm., C244-1, Univ. Mo., Grassy Creek sh., Mo.; ——— COOPER (1939), pp. 391, 419, pl. 45, figs. 56-57. Hypotypes, 38885-38886, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 163, Grassy Creek sh., Mo.; ——— YOUNGQUIST (1945), p. 361, comp. with *Ligonodina falx;* ——— MILLER & YOUNGQUIST (1947), p. 510, pl. 73, fig. 20. Fig. spm., 5551, Univ. Iowa, Sweetland Creek sh., Iowa. UD-LMi

——**robusta** BRANSON & MEHL (June 1934a), pp. 200-201, pl. 15, fig. 30. Holotype, C62-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163, Grassy Creek sh., Mo.; ——— THOMAS (1949), p. 408, pl. 1, fig. 30. Fig. spm., C812-1, Univ. Mo., Maple Mill sh., loc. 5, Iowa. UD

——**seducta** HIBBARD (1927), p. 199, fig. 3f. Holotype, 23, Hibbard coll., Buff. Mus. Sci., N. Y., Rhinestreet sh., N. Y. UD

——**silurica** BRANSON & MEHL (June 1933c), pp. 48-49, pl. 3, figs. 18-20. Cotypes, C155-1, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, figs. 18-20. MS

——**simplex** ULRICH & BASSLER (1926), p. 15, pl. 9, fig. 28. Holotype, 10983, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 12, Hardin ss., Tenn. UD

——**spicata** (BRANSON & MEHL) (July 1933d), p. 138, pl. 11, figs. 25, 27. Cotypes, A4172, A4176, Brit. Mus., fig. 25 is a retouched photograph of Hinde's (1879) pl. 16, fig. 3, and fig. 27 corresponds the same way with Hinde's fig. 2, Genesee sh., N. Y. (*Prioniodus*). UD

——**styrax** COOPER (1939), p. 391, pl. 45, fig. 51. Holotype, 38887, Univ. Chi., pre-Welden sh., Okla. LMi

——**subclavata** MEHL & THOMAS (1947), p. 12, pl. 1, fig. 26. Holotype, C653-4, Univ. Mo., Fern Glen fm., Mo. MMi

——**suppressa** ELLISON & GRAVES (1941), pp. 3, 7, pl. 1, fig. 16. Holotype, 7149, Mo. Sch. Min., Rolla, mid. Dimple fm., loc. G923 (fig.), lower transition zone base fm., loc. G910, Tex. LP

——**tenera** COOPER & SLOSS (1943), pp. 170, 174, pl. 29, fig. 29. *Ligonodina delicata* E. R. Branson (1934), pl. 27, fig. 3, and Cooper (1939), pl. 45, figs. 50, 60-61, and *Ligonodina sp.* Branson & Mehl (Oct. 1934a), pl. 23, fig. 31, and E. R. Branson (1934), pl. 28, figs. 11-12 are sr. syns., black sh., base Madison gr., Mont. LMi

——**tenuis** BRANSON & MEHL (1941a), pp. 170-171, pl. 5, figs. 13-14. Holotype, C545-3, C550-3 (unfig.), Univ. Mo., lower Caney sh., Okla. UMi

——**transitionis** (COOPER) (1939), pp. 391, 419, pl. 47, fig. 55. Hypotype, 38888, Univ. Chi., pre-Welden sh., Okla. (*Hindeodella*). LMi

——**triangulata** HIBBARD (1927), p. 201, fig. 3e. Holotype, 323, Hibbard coll., Buff. Mus. Sci., N. Y., Rhinestreet sh., N. Y. UD

——**tridentata** ULRICH & BASSLER (1926), p. 15, pl. 9, fig. 5. Holotype, 11029, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 12, Hardin ss., Tenn. UD

——**typa** (ELLISON) (1941), pp. 108-111, 114-115, 138, pl. 20, figs. 8-11. Holotype, C498-5 (G); hypotypes, C554-4, C140-5, C491-4 (G), C563-1 to 2 (B), Univ. Mo., Cherokee through Big Blue, locs. 0107E (figs. 8-11), 0111, 0104, 1266, 0110, 389, 675, 1027, 683, 672, 1038, 682, 0176, 716, 0158, 0109, 717, 1102, 0144, 0148, 1362, 1268-1272, 1281-82, 1352, 0141, 348, 1267, 1280, 0017, 0149, 0116, 0155, 0140, 1359, 0138, 0127, 1371, 0081, 0094, 0097, Kans., *Prioniodus? galesburgensis* is a syn., (*Idioprioniodus*); ——— ELLISON & GRAVES (1941), p. 7, comp. with *Ligonodina suppressa;* ——— BRANSON (1944), p. 325, Penn. of Mo. MP-LPm

——**sp.** BRANSON & MEHL (Oct. 1934a), p. 290, pl. 23, fig. 31. Fig. spm., C394-1, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON & MEHL (1938d), pl. 33, fig. 43; ——— COOPER & SLOSS (1943), p. 174, sr. syn. of LMi

Ligonodina tenera; ——— BRANSON (1944), p. 181, pl. 32, fig. 43.

——sp. E. R. BRANSON (1934), p. 329, pl. 28, figs. 11-12. Fig. spms., C213-2, C212-5, Univ. Mo., Hannibal fm., Mo.; ——— COOPER & SLOSS (1943), p. 174, sr. syn. of *Ligonodina tenera;* ——— BRANSON (1944), p. 221. LMi

——sp. HUDDLE (1934), pp. 15, 60-62, pl. 7, figs. 8, 11, 18-19. Fig. spms., 2278 (fig. 11), 2253 (fig. 8), 1792 (fig. 18), 1794 (fig. 19), Ind. Univ., upper New Albany sh., locs. 8, 3, 2, and 10 resp., Ind. LMi

——sp. HUDDLE (1934), pp. 15, 62, pl. 12, fig. 8. Fig. spm., 2273, Ind. Univ., comp. with *Ligonodina conidens,* upper New Albany sh., loc. 1, Ind. LMi

——sp. A STAUFFER (1938), p. 434, pl. 51, fig. 17. Fig. spm., B5066, Univ. Minn., Widder beds, loc. 165, Ont. MD

——sp. B STAUFFER (1938), p. 434, pl. 51, figs. 18, 20. Fig. spms., B5067 (fig. 18), B5069 (fig. 20), Univ. Minn., Olentangy sh., loc. 111 (fig. 20), Plum Brook sh., loc. 121 (fig. 18), Ohio. M-UD

——? sp. STAUFFER (1938), pp. 413, 434, pl. 52, figs. 1, 4, 6. Fig. spms., B4926 (fig. 1), B4934 (fig. 4), B4933 (fig. 6), Univ. Minn., Olentangy sh., locs. 111 (fig. 6), 117, 120, 125, 136, 187, Plum Brook sh., locs. 120 (fig. 4), 121, Ohio; Widder beds, locs. 167 (fig. 1), 165, Ont. M-UD

——n. spp. KNECHTEL & HASS (1938), p. 519, basal sh., Lodgepole ls., USGS coll., 8432, Mont.; ——— HASS (1943) (*cf. sp.*), p. 308, comp. with *Ligonodina sp.* Branson & Mehl (Oct. 1934a), classed as jr. syn. of *Ligonodina cf. sp.* E. R. Branson (1934). LMi

——sp. COOPER (1939), pl. 47, fig. 15. Fig. spm., 39877, Univ. Chi., pre-Welden sh., Okla. LMi

——sp. STAUFFER (1940), p. 426, pl. 58, figs. 33, 36, 40. Fig. spms., B5555 (fig. 33), B5558 (fig. 36), B5562 (fig. 40), Univ. Minn., clay above the ls., Minn. O, MD

——sp. COOPER & SLOSS (1943), p. 170, pl. 29, fig. 25, black sh., base Madison gr., Mont. LMi

——sp. BRANSON (1944), p. 153, pl. 26, fig. 20, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——sp. BRANSON (1944), p. 173, Louisiana ls., Mo. UD

——sp. STAUFFER (1944), p. 257, Olentangy sh., ls. mine, Barberton, Ohio. UD

——sp. unident. CAMPBELL (1946), p. 845, ident. by Huddle, lower Blackiston fm., Ind. UD

——sp. 1 BOND (1947), pp. 21, 30, pl. 1, fig. 10. Fig. spm., 18378, Ohio Univ., comp. with *Ligonodina bicincta,* lower Ohio sh., Ohio. UD

——sp. 2 BOND (1947), pp. 21, 31, pl. 1, fig. 14. Fig. spm., 18380, Ohio Univ., comp. with *Ligonodina gouldi,* lower Ohio sh., Ohio. UD

——sp. 3 BOND (1947), pp. 21, 31, pl. 1, fig. 18. Fig. spm., 18379, Ohio Univ., comp. with *Ligonodina falciformis,* lower Ohio sh., Ohio. UD

——? sp. A YOUNGQUIST (1947), pp. 104-105, pl. 24, figs. 15, 22. Fig. spms., 3398 (fig. 15), 3399 (fig. 22), 4025 (unfig.), Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——sp. B YOUNGQUIST (1947), p. 105, pl. 25, fig. 15. Fig. spm., 4026 (fig. 15), 4027 (unfig.), Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——sp. C YOUNGQUIST (1947), p. 105, pl. 26, fig. 15. Fig. spm., 4028, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——? sp. YOUNGQUIST (1947), pp. 105-106, pl. 26, fig. 18. Fig. spm., 4029, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——spp. MILLER & YOUNGQUIST (1947) (*Lidonodina* pl. 73, fig. 4), p. 510, pl. 72, fig. 16; pl. 73, figs. 4, 22. Fig. spms., 5552 (fig. 16), 5553 (fig. 4), 5554 (fig. 22), Univ. Iowa, comp. with *Ligonodina hindei* and *Ligonodina falciformis,* Sweetland Creek sh., Iowa. UD

——sp. YOUNGQUIST & MILLER (1948), p. 446, pl. 67, figs. 11-12. Fig. spms., 5604-5605 (figs. 11-12), Univ. Iowa, Sweetland Creek sh., Iowa. UD

——sp. YOUNGQUIST & DOWNS (1949), pp. 161, 168, pl. 30, fig. 2. Fig. spm., 14035, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa. MP

——sp. A THOMAS (1949), pp. 408, 424, pl. 2, fig. 1. Fig. spm., C830-1, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——sp. LAYER *et al.* (1949), p. 594, D-3 zone 875 ft. below top of D-2 zone, Alta., Can. UD

LIGONODINOIDES STAUFFER (1938), p. 434. Type species, *L. ohioensis* STAUFFER (1938); ——— ELLISON (Jan. 1946), p. 109. Bar type, classed as jr. syn. of *Ozarkodina* and *Prioniodus.* M-UD

——lewisensis STAUFFER (1938), pp. 413, 434, pl. 51, figs. 31, 37-39. Syntypes, B5074 (fig. 31), B5079 (fig. 37); paratypes, B5080 (fig. 38), B5081 (fig. 39), Univ. Minn., Olentangy sh., locs. 187 (figs. 31, 37, 38), 112 (fig. 39), Ohio. UD

——ohioensis STAUFFER (1938), pp. 413, 434-435, pl. 51, fig. 26. Holotype, B5071, Univ. Minn. Type species for *Ligonodinoides,* Olentangy sh., loc. 120, Ohio. UD

——welleri STAUFFER (1938), pp. 413, 435, pl. 51, figs. 30, 32, 34, 42. Holotype, B5075 (fig. 32), paratypes, B5073 (fig. 30), B5076 (fig. 34), B5084 (fig. 42), Univ. Minn., Olentangy sh., locs. 111 (fig. 32), 187 (figs. 30, 34, 42), 112, Ohio. UD

——sp. STAUFFER (1938), p. 413. Olentangy sh., locs. 111, 118, 187, Ohio. UD

LOCHRIEA SCOTT (1942), pp. 293, 296-298. Type species, *L. montanaensis* SCOTT (1942); ——— ELLISON (Jan. 1946), p. 109, an assemblage consisting of *Hindeodella, Prioniodus, Spathognathodus,* and *Prioniodella.* UMi

——bigsnowyensis SCOTT (1942), pp. 297, 299, pl. 38, fig. 8; pl. 39, fig. 6; pl. 40, figs. 3-5, 8, 14. Holotype, x-1320 (pl. 38, fig. 8); paratype, x-1321, Univ. Ill., see *Hindeodella spp., Spathognathodus spp., Prioniodus spp., Prioniodella spp.* of Scott (1942), Heath fm., Mont. UMi

——montanaensis SCOTT (1942), pp. 295-299, pl. 37, figs. 1-7; pl. 38, figs. 1-4, 6-7, 10, 12; pl. 39, figs. 1, 4, 7, 9; pl. 40, figs. 2, 9-10, 12-13, 15, 18-19; text fig. 1. Holotype, x-1318 (pl. 37, figs. 2, 6); paratype, x-1319, Univ. Ill., comp. with *Lochriea bigsnowyensis,* see *Hindeodella spp., Spathognathodus spp., Prioniodus spp.,* and *Prioniodella spp.* of Scott (1942), Heath fm., Mont. UMi

——? sp. SCOTT (1942), pl. 38, fig. 5; pl. 39, fig. 6. Fig. spms., Univ. Ill., Heath fm., Mont., see *Hindeodella sp.* Scott (1942) for fig. 6. UMi

——sp. a SCOTT (1942), p. 296, pl. 38, fig. 11. Fig. spm., Univ. Ill., see *Hindeodella spp.*, *Prioniodus spp.*, *Spathognathodus spp.*, and *Prioniodella spp.* of Scott (1942), Heath fm., Mont. UMi

LONCHODINA ULRICH & BASSLER (1926), pp. 6, 15, 17, 30, 31, 35, 36, 39, comp. with *Hindeodella*. Type species, *L. typicalis* ULRICH & BASSLER (1926); ——— BASSLER (1925), p. 219, comp. with *Euprioniodina* (*nomen nudum*); ——— HIBBARD (1927), pp. 203, 204; ——— HOLMES (1928), pp. 3, 12, 14, 26. *Lonchodus coronatus* may belong to this genus; ——— COOPER (June 1931), p. 147; ——— COOPER (Sept. 1931), p. 235; ——— GUNNELL (1931b), p. 248; ——— BRANSON & MEHL (July 1933d), pp. 136, 139; ——— GUNNELL (1933), p. 269; ——— BRANSON & MEHL (June 1934a), pp. 210-211, 213, comp. with *Prioniodina;* ——— BRANSON & MEHL (Oct. 1934a), p. 291; ——— E. R. BRANSON (1934), p. 330; ——— HUDDLE (1934), pp. 26, 35-36, 63, 81, 113, comp. with *Prioniodina;* ——— MCKNIGHT (1935), p. 74, Sylamore ss., Ark.; ———? CHADWICK (Feb. 1935a), p. 313. Not reported outside the Genesee; ——— COOPER (1935), p. 314; ——— BRANSON & MEHL (1938d), p. 141; ——— COOPER (1939), p. 391; ——— BRANSON & MEHL (1941e), p. 106. *Metalonchodina* seems to have come from *Lonchodina;* ——— ELLISON (1941), pp. 109, 111, 115-116, 138, comp. with *Metalonchodina;* ——— ELLISON & GRAVES (1941), p. 2; ——— DUBOIS (1941), p. 168, black shs., McLeansboro age, Ill.; ——— DUBOIS (1943), p. 156; ——— COOPER & SLOSS (1943), p. 174; ——— BRANSON & MEHL (1944), p. 243; ——— ELLISON (Jan. 1946), pp. 95, 104, 109. Bar type, *Neocordylodus* is a jr. syn. (in pt.), Niagara through Wolfcamp; ——— BOND (1947), pp. 26, 31; ——— YOUNGQUIST (1947), pp. 105-106; ——— HASS (Mar. 1947), p. 132, basal Sunbury sh., Bedford, upper and lower Ohio, Cleveland, and Huron shs., Ohio; ——— MEHL & THOMAS (1947), pp. 7, 12; ——— COOPER (1947b), p. 269; ——— MILLER & YOUNGQUIST (1947), p. 511; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 56; ——— YOUNGQUIST & MILLER (1948), p. 440; ——— YOUNGQUIST & DOWNS (1949), pp. 161-162; ——— THOMAS (1949), pp. 407, 426, present in Maple Mill sh. MS-LPm

——abnormis ULRICH & BASSLER (1926), p. 34, pl. 6, figs. 8-10. Cotypes, 11288, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 13. Rhinestreet sh., N. Y.; ——— CHADWICK (Feb. 1935a), p. 315. Diagnostic sp. confined to Naples gr. UD

——acutula HUDDLE (1934), pp. 16, 85, pl. 6, fig. 14. Holotype, 1918, Ind. Univ., rare in lower New Albany sh., loc. 26, Ind. M?D

——alternata ULRICH & BASSLER (1926), p. 35, pl. 6, fig. 4. Holotype, 11290, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 13. Rhinestreet sh., N. Y.; ——— CHADWICK (Feb. 1935a), p. 315. Diagnostic sp. confined to Naples gr. UD

——angulata COOPER (Sept. 1931), p. 235, pl. 28, fig. 13. Holotype, Cooper coll., USGS, Woodford fm., Okla.; ——— COOPER (1939), pp. 391, 419, pl. 47, fig. 54. Hypotype, 38889, Univ. Chi., ? *Lonchodina spinosa* E. R. Branson (Oct. 1934) is a jr. syn., pre-Welden sh., Okla. UD-LMi

——angustidens YOUNGQUIST (1945), p. 362, pl. 56, fig. 9. Syntypes, 2931 (fig. 9), 2932 (unfig.), Univ. Iowa, Independence sh.?, Iowa. UD

——arcuata ULRICH & BASSLER (1926), pp. 32, 35, pl. 5, fig. 15. Holotype, 11279, USNM, comp. with *Lonchodina alternata*, Rhinestreet sh., N. Y.; ——— HIBBARD (1927), p. 203, comp, with *Lonchodina multidens;* ——— HOLMES (1928), p. 13. Rhinestreet sh., N. Y.; ——— COOPER (Sept. 1931), p. 235, comp. with *Lonchodina subarcuata;* ——— BRANSON & MEHL (June 1934a), p. 211, comp. with *Lonchodina pulchra;* ——— CHADWICK (Feb. 1935a), p. 315. Diagnostic sp. confined to Naples gr. UD

——bicornis HUDDLE (1934), pp. 16, 85-86, pl. 10, figs. 1-2. Holotype, 1866 (fig. 2); paratype, 1867 (fig. 1), Ind. Univ., upper New Albany sh., loc. 1, Ind., rare at locs. 1-2, 11, 14. LMi

——bidens HIBBARD (1927), p. 204, fig. 3a. Holotype, 49, Hibbard coll., Buff. Mus. Sci., N. Y., rare occurrence, Rhinestreet sh., N. Y. UD

——bilateralis ULRICH & BASSLER (1926), pp. 32-33, pl. 5, fig. 18. Holotype, 11280, USNM, comp. with *Lonchodina perarcuata*, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 13. Rhinestreet sh., N. Y.; ——— YOUNGQUIST & MILLER (1948), p. 446, pl. 68, fig. 2. Fig. spm., 5606, Univ. Iowa, Sweetland Creek sh., Iowa; ——— CHADWICK (Feb. 1935a), p. 315. Diagnostic sp. confined to Naples gr. UD

——brevipennata BRANSON & MEHL (June 1934a), p. 212, pl. 15, fig. 13. Holotype, C242-2, Univ. Mo., Grassy Creek sh., Mo.; ——— ? BRANSON & MEHL (June 1934a), pl. 15, fig. 11. Fig. spm., C79-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163. Grassy Creek sh., Mo.; ——— YOUNGQUIST & MILLER (1948), pp. 446, pl. 67, fig. 13. Fig. spm., 5607, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——clarki (ELLISON) (1941), pp. 108-111, 116, pl. 20, figs. 21, 27, 30-31. Holotype, C485-3 (G); hypotypes, C555-1 (figs. 21, 27, 3?), C127-1 (3?), C563-3 (B), Univ. Mo., *Prioniodus cornutus* is a syn., comp. with *Lonchodina? ponderosa*, locs. 0111, 0104, 1266, 0110, 389, 675, 683, 672, 1038, 682, 680, 0176, 716, 0158, 0117, 717, 0084, 0039, 0001, 1274, 1284, 1367, 1354, 0107, 0103, 0144, 0148, 1362, 1352, 0108, 0017, 0149, 0116, 0155, 0140, 1355, 0138, 0127, 1371, 1362UM (figs. 21, 27, 3?), 0017 (fig. 3?), Cherokee through Big Blue, Kans. (*Prioniodus*); ——— (ELLISON & GRAVES) (1941), pp. 3-4, pl. 1, figs. 15, 22. Hypotype, 4776 (figs. 15, 22), loc. G912, Mo. Sch. Min., Rolla, Dimple fm., mid., locs. G923, G919; lower transition zone at base of fm., loc. G912, Tex.; ——— (BRANSON) (1944), p. 325. Penn., Mo. LP-LPm

——clavata (HOLMES) (1928), pp. 13, 20, pl. 5, fig. 9. Hinde's (1879) pl. 15, fig. 16, Genundewah ls., N. Y. (*Prioniodus*); ——— (BRANSON & MEHL) (July 1933d), pp. 137-138, pl. 11, figs. 30-31. Holotype, A4186, Brit. Mus., Genesee sh., N. Y.; ——— (CHADWICK) (Feb. 1935a), p. 311, diagnostic sp. confined to Genesee gr.; ——— UD

(YOUNGQUIST) (1947), p. 106, pl. 26, fig. 12. Hypotype, 4030, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa.

——**curvidens** E. R. BRANSON (1934), pp. 330-331, pl. 28, fig. 14. Holotype, C219-4, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON & MEHL (1938d) (*cf. curvidens*), p. 141, pl. 34, fig. 29. Fig. spm., C33-5, Univ. Mo., Chouteau ls., Mo.; ——— COOPER (1939), pp. 391, 419, pl. 47, figs. 67-68. Hypotype, 38890, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 221, Hannibal fm., Mo.; ——— BRANSON (1944) (*cf. curvidens*), pp. 208e, 221, pl. 39, fig. 29. Chouteau ls., Mo. LMi

——**delicatula** ULRICH & BASSLER (1926), pp. 31, 33, 58, pl. 5, fig. 11. Holotype, 11284, USNM, comp. with *Lonchodina separata* Ulrich & Bassler (1926), Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 13, Rhinestreet sh., N. Y.; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——**discreta** ULRICH & BASSLER (1926), p. 36, pl. 10, figs. 1-2; cotypes, 11014, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), pp. 13, 26, pl. 9, fig. 13. Plesiotype, 11440, USNM, Chattanooga black sh., Ala., Hardin ss., Tenn.; ——— COOPER (Sept. 1931), p. 235, comp. with *Lonchodina angulata;* ——— BASSLER (1932), p. 234, pl. 26, fig. 6, Hardin ss., Tenn.; ——— HUDDLE (1934), p. 84, comp. with *Lonchodina distans;* ——— COOPER (1935), p. 310, pl. 27, fig. 21. Fig. spm., 38071, Univ. Chi., mid. Ark. novaculite, bed 15, Ark.; ——— COOPER (1939), pp. 391, 419, pl. 47, figs. 50-51, 71-72. Hypotypes, 38891, 38892, Univ. Chi., *?Lonchodina spinosa* E. R. Branson (1934) is a jr. syn., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943) (*Lonchodus* on pl.), pp. 170, 174, pl. 29, fig. 2. *Lonchodina distans* is a jr. syn., black sh., base of Madison gr., Alta.; ——— CAMPBELL (1946), pp. 844-845, 894, 901, ident. by Huddle, Blackiston fm., Ind.; ——— MEHL & THOMAS (1947), p. 13, pl. 1, fig. 16. Fig. spm., C652-2, Univ. Mo., Fern Glen fm., Mo.; ——— MILLER & YOUNGQUIST (1947), p. 511, comp. with *Lonchodina? spp.* Miller & Youngquist (1947). UD-MMi

——**disjuncta** STAUFFER (1938), pp. 413, 435, pl. 51, fig. 7. Holotype, B4841, Univ. Minn.; Plum Brook sh., locs. 121 (fig.), and 162, Ohio and Ontario resp. MD

——**distans** HUDDLE (1934), pp. 16, 84, pl. 6, fig. 13; pl. 10, fig. 3. Holotype, 2327 (fig. 3); paratype, 1892 (fig. 13), Ind. Univ., upper New Albany sh., loc. 13 (fig. 3), loc. 1 (fig. 13), Ind., rare at locs. 1-3, 6, 8-10, 12-14; ——— COOPER (1939), pp. 392, 419, pl. 46, fig. 69. Hypotype, 38893, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), p. 174. Classed as a jr. syn. of *Lonchodina discreta*, black sh., base of Madison gr., Alta.; ——— MILLER & YOUNGQUIST (1947), pp. 510-511, pl. 73, fig. 3, Sweetland Creek sh., Iowa. UD-LMi

——? **erecta** HUDDLE (1934), pp. 16, 82, pl. 6, figs. 6-7. Holotype, 1895, Ind. Univ., mid. New Albany sh., rare at locs. 18 (fig.), 19-20, Ind. UD

——**erratica** (HOLMES) (1928), pp. 13, 21, pl. 5, fig. 8, Genundewa ls., N. Y. (*Prioniodus*); ——— (BRANSON & MEHL) (July 1933d), p. 136, pl. 11, fig. 29. Holotype, A4178, Brit. Mus., Hinde's type fig., Genesee sh., N. Y.; ——— (CHADWICK) (Feb. 1935a), pp. 312, 317, nondiagnostic species making its first appearance in conodont bed and last appearance in Naples gr.; ——— MEHL & THOMAS (1947) (*? excavata*), p. 13, pl. 1, fig. 33. Holotype, C652-3, Univ. Mo., Fern Glen fm., Mo. UD

——**extenta** HIBBARD (1927), p. 204, fig. 3d. Holotype, 267, Hibbard coll., Buff. Mus. Sci., N. Y., Rhinestreet sh., N. Y.; ——— (HUDDLE) (1934) (*cf. extenta*) (*Loncaodina* on plate), pp. 16, 81-82, pl. 6, fig. 2. Fig. spm., 1938, Ind. Univ., upper New Albany sh., loc. 1, Ind. UD

——**geniculata** ULRICH & BASSLER (1926), p. 36, pl. 4, fig. 15. Holotype, 11294, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 13; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——**inaequalis** STAUFFER (1938), pp. 413, 435, pl. 49, fig. 29. Holotype, B5089, Univ. Minn., Olentangy sh., loc. 111, Ohio. UD

——? **increbescens** ULRICH & BASSLER (1926), p. 35, pl. 5, fig. 20; pl. 3, figs. 15-16. Cotypes, 11291, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 13; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— YOUNGQUIST (1947) (*aff. ? increbescens*), p. 106, pl. 26, fig. 13. Fig. spm., 4031, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——**irregularis** HOLMES (1928), p. 26, pl. 9, fig. 12. Holotype, 11439, USNM, Chattanooga black sh., Ala.; ——— BUTTS (1926), p. 160, pl. 48, fig. 9 (*nomen nudum*); ——— COOPER (June 1931), pp. 147, 151, pl. 20, fig. 8, lower mid. Ark. novaculite, Okla.; ——— COOPER (Sept. 1931), p. 235, comp. with *Lonchodina angulata;* ——— HUDDLE (1934), pp. 84-85, comp. with *Lonchodina sp.* Huddle (1934), pl. 6, fig. 11, and *Lonchodina tenuis;* ——— COOPER (1935), pp. 310, 314, pl. 27, fig. 22. Fig. spm., 38072, Univ., Chi., mid. Ark. novaculite, bed 8, Ark.; ——— CAMPBELL (1946), pp. 844, 901, ident. by Huddle, Blackiston fm., Ind. UD

——**latericrescens** BRANSON & MEHL (June 1934a), pp. 212, 215, pl. 15, fig. 12. Holotype, C369-2, Univ. Mo., comp. with *Lonchodina profunda, Prioniodina symmetrica,* Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163, Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 173, Louisiana ls., Mo. UD

——**microcyra** COOPER (1939), p. 392, pl. 47, figs. 41, 47, 56-57. Holotype, 38895 (figs. 56-57); paratype, 38894, Univ. Chi., pre-Welden sh., Okla. LMi

——**minuta** MEHL & THOMAS (1947), p. 12, pl. 1, fig. 20. Holotype, C653-1, Univ. Mo., Fern Glen fm., Mo. MMi

——**multidens** HIBBARD (1927), p. 203, fig. 3i. Holotype, 47, Hibbard coll., Buff. Mus. Sci., N. Y., Rhinestreet sh., N. Y.; ——— HUDDLE (1934), pp. 16, 82-83, 85, pl. 6, fig. 8. Plesiotype, 1890, Ind. Univ., comp. with *Lonchodina tenuis,* rare in lower New Albany sh., at locs. 26 (fig.), 27-28, Ind.; ——— BOND (1947), pp. 21, 31, pl. 2, fig. 3. Hypotype, 18393, Ohio Univ., lower Ohio sh., Ohio. M?-UD

——**nitela** HUDDLE (1934), pp. 16, 82, pl. 6, figs. 3-5. Holotype, 2317 (fig. 4); paratypes, 2325 (fig. 5), 2326 (fig. 3), Ind. Univ., com- M?D

mon in lower New Albany sh., at locs. 26 (fig. 3), 30, 32 (figs. 4, 5), Ind.

——? **paridens** YOUNGQUIST (1945), p. 362, pl. 56, fig. 6. Holotype, 2937, Univ. Iowa, Independence sh.?, Iowa. UD

——**paucidens** ULRICH & BASSLER (1926), p. 34, pl. 6, fig. 1. Holotype, 11286, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 13; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——**pectinella** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), p. 55, pl. 14, fig. 14. Holotype, 555B, Hibbard coll., Buff. Mus. Sci., N. Y., same spm. as Hibbard (1942), p. 273, rt. mid. fig., 2nd from bottom, rt. spm., lower Attica sh., N. Y. UD

——? **peculiaris** GUNNELL (1931b), p. 248, pl. 29, fig. 18. Holotype, Univ. Mo., mid. sh., Ft. Scott fm., Mo. MP

——**perarcuata** ULRICH & BASSLER (1926), pp. 33-34, pl. 5, fig. 19. Holotype, 11285, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928) (*peracuta*), p. 13; ——— CHADWICK (Feb. 1935a) (*peracuta*), p. 315, diagnostic sp. confined to Naples gr.; ——— BOND (1947), pp. 21, 31, pl. 2, fig. 2. Hypotype, 18394, Ohio Univ., lower Ohio sh., Ohio. UD

——**perlonga** ULRICH & BASSLER (1926), pp. 32, 34-35, 58, pl. 5, figs. 6-7. Holotype, 11280, USNM, comp. with *Lonchodina subangulata, Lonchodina subsymmetrica,* and *Lonchodina transversa,* Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 13; ——— (BRANSON & MEHL) (July 1933d), pp. 136-137, pl. 11, fig. 32. Fig. type, A4210, Brit. Mus., *Polygnathus dubius* Hinde (1879) (pt.), pl. 16, fig. 9 is a sr. syn., Genesee sh., N. Y., types from Rhinestreet sh., N. Y.; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— BOND (1947), pp. 21, 31, pl. 2, fig. 4. Hypotype, 18395, Ohio Univ., lower Ohio sh., Ohio. UD

——? **ponderosa** ELLISON (1941), pp. 108-111, 116, pl. 20, figs. 37-39. Holotype, C90-4 (fig. 38), loc. 0110E; paratypes, C99-2 (fig. 37), loc. 0017E; C87-5 (fig. 39), loc. 0017E, Univ. Mo., comp. with *Lonchodina clarki,* locs. 1346-51, 0086, 0110, 389, 675, 682, 716, 0158, 0117, 1145, 0039, 0144, 0148, 0108, 0017, 0149, 0116, 0155, 0140, 0081, 0094, Cherokee through Heebner sh., Mo.; ——— BRANSON (1944), p. 325. M-UP

——**prava** HUDDLE (1934), pp. 16, 86, pl. 10, fig. 10. Holotype, 2297, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind.; ——— COOPER & SLOSS (1943), pp. 170-171, pl. 29, fig. 13, black sh., base of Madison gr., loc. 1, Alta.; ——— THOMAS (1949) (*cf. prava*), p. 408, pl. 1, fig. 27. Fig. spm., C826-3, Univ. Mo., Maple Mill sh., loc. 2, Iowa. UD-LMi

——**profunda** BRANSON & MEHL (June 1934a), p. 212, pl. 15, fig. 17. Holotype, C369-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163. UD

——? **projecta** ULRICH & BASSLER (1926), pp. 34-36, pl. 5, figs. 9-10. Cotypes, 11292, USNM, comp. with *Lonchodina paucidens* and *Lonchodina? prona,* Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 13; ——— HUDDLE (1934), pp. 16, 21, 82-84, pl. 6, fig. 10; pl. 11, fig. 1. Plesiotypes, 1893 (fig. 10), loc. 2; 1894 (fig. 1), loc. 14, Ind. Univ., comp. with *Lonchodina nitela,* doubtfully rept. in mid. New Albany sh., rare in upper New Albany at locs. 1-3, 14, and rare in the lower New Albany at locs. 26-27, 32, Ind.; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. M?D-LMi

——? **prona** ULRICH & BASSLER (1926), p. 36, pl. 5, figs. 16-17. Cotypes, 11293, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 13; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——**pulchra** BRANSON & MEHL (June 1934a), p. 211, pl. 15, fig. 16. Holotype, C242-3, Univ. Mo., Grassy Creek sh., Mo.; ——— COOPER (1939), pp. 392, 419, pl. 47, figs. 58, 59. Hypotype, 38896, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON & MEHL (1944), p. 243, pl. 94, fig. 22; ——— BRANSON (1944), p. 163, Grassy Creek sh., Mo.; ——— YOUNGQUIST (1947) (*aff. pulchra*), p. 106, pl. 26, fig. 9. Fig. spm., 4032 (fig. 9), unfig. spm., 4033, Univ. Iowa., unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD-LMi

——**rectangulata** ULRICH & BASSLER (1926), p. 37, pl. 10, fig. 4. Holotype, 11024, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 13; ——— BASSLER (1932), p. 234, pl. 26, fig. 7. Hardin ss., Tenn. UD

——**rectidens** ULRICH & BASSLER (1926), pp. 31-32, 34, pl. 5, figs. 13-14. Cotype, 11278, USNM, comp. with *Lonchodina perarcuata,* Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 14; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— MILLER & YOUNGQUIST (1947), p. 511; ——— MILLER & YOUNGQUIST (1947) (*aff. rectidens*), p. 511, pl. 72, fig. 12. Fig. spm., 5556, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——? **robusta** BRANSON & MEHL (June 1934a), p. 213, pl. 15, fig. 19. Cotypes, C368-5, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163. UD

——**separata** ULRICH & BASSLER (1926), pp. 31, 34, pl. 5, fig. 12. Holotype, 11277, USNM, comp. with *Lonchodina paucidens,* Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 14. UD

——**separata** BRANSON & MEHL (June 1934a), pp. 211, 214, pl. 15, fig. 14. Holotype, C228-5, Univ. Mo., comp. with *Prioniodina curvata,* Grassy Creek sh., Mo.; ——— BRANSON & MEHL (Oct. 1934a) (*cf. separata*), pp. 291-292, pl. 23, fig. 22. Fig. spm., C393-4, Univ. Mo., Bushberg ss., Mo.; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— BRANSON (1938a) (*cf. separata*), p. 182; ——— COOPER (1939), pp. 392, 419, pl. 47, figs. 69-70. Hypotype, 38897, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON & MEHL (1944), p. 243, pl. 94, fig. 23; ——— BRANSON (1944), p. 163; ——— BRANSON (1944) (*cf. separata*), p. 221. UD-LMi

——? **serrata** MEHL & THOMAS (1947), pp. 12-13, pl. 1, fig. 22. Holotype, C652-5, Univ. Mo., Fern Glen fm., Mo. MMi

——? **spinata** (HOLMES) (1928), pp. 14, 19, pl. 5, fig. 7. Hadding's (1913), pl. 1, fig. 8, *Dicellograptus* zone, S. Sweden, (*Polygnathus*). MO

——**spinosa** E. R. BRANSON (1934), p. 330, pl. 28, fig. 10. Holotype, C205-3, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ? ——— COOPER (1939), p. 391, ref. to E. R. Branson (Oct. 1934), LMi

classed as a jr. syn. of *Lonchodina angulata* and *Lonchodina discreta;* ——— BRANSON (1944), p. 221, Hannibal fm., Mo.

——**subangulata** ULRICH & BASSLER (1926), pp. 32-36, pl. 5, fig. 3. Holotype, 11282, USNM, comp. with *Lonchodina paucidens, Lonchodina alternata, Lonchodina? projecta, Lonchodina? prona,* and *Lonchodina geniculata,* Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 14; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr. UD

——**subarcuata** COOPER (Sept. 1931), p. 235, pl. 28, fig. 14. Holotype, Cooper coll., USGS, Woodford fm., Okla. UD

——**subrecta** ULRICH & BASSLER (1926), p. 33, pl. 5, figs. 4-5. Cotypes, 11283, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 14; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 56, pl. 14, figs. 2, 4. Fig. spms., 512 (fig. 2), 663 (fig. 4), Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y. UD

——**subsymmetrica** ULRICH & BASSLER (1926), p. 34, pl. 6, figs. 5-7; pl. 5, fig. 8; pl. 1, fig. 24. Cotypes, 11287, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 14; ——— BRANSON & MEHL (July 1933d), p. 137, pl. 11, fig. 15. Type, A4215, Brit. Mus., *Polygnathus dubius* Hinde (1879) (pt.), pl. 16, fig. 7, is a sr. syn.; ——— HUDDLE (1934), pp. 16, 82, 86-87, pl. 11, fig. 2. Plesiotype, 2280, Ind. Univ., comp. with *Lonchodina? erecta* and *Lonchodina prava,* rare in mid. New Albany sh., loc. 20, Ind.; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 56, comp. with *Lonchodina ungula.* UD

——**tenuis** HUDDLE (1934), pp. 16, 85, pl. 6, fig. 17. Holotype, 1891, Ind. Univ., rare in lower New Albany sh., at locs. 26 (fig.), 27-28, Ind. M?D

——**torta** HUDDLE (1934), pp. 16, 86, pl. 10, fig. 4. Holotype, 1948, Ind. Univ., rare in upper New Albany sh., locs. 10, 11 (fig.), Ind.; ——— MILLER & YOUNGQUIST (1947) (*aff. torta*), p. 511, pl. 73, fig. 13. Fig. spm., 5557, Univ. Iowa, Sweetland Creek sh., Iowa. UD-LMi

——**transversa** ULRICH & BASSLER (1926), pp. 34-35, pl. 6, figs. 2-3. Cotypes, 11289, USNM, Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 14; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— MILLER & YOUNGQUIST (1947), p. 511; ——— MILLER & YOUNGQUIST (1947) (*aff. transversa*), p. 511, pl. 72, fig. 5. Fig. spm., 5558, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**typicalis** ULRICH & BASSLER (1926), pp. 16-17, 31-33, pl. 5, figs. 1-2; fig. 4, subfigs. 5-7. Cotypes, 11276, USNM, comp. with *Lonchodina perlonga, Lonchodina subrecta,* and *Lonchodina delicatula,* Rhinestreet sh., N. Y.; ——— BASSLER (1925), p. 219, (*nomen nudum*); ——— EDINGER (1926), p. 286, fig. 1 (pt.), 4th, 5th, and 6th fig. from bottom in first vertical row (left row); same as numbers 7, 6, and 5, resp., of fig. 4, Ulrich & Bassler (1926); ——— HOLMES (1928), pp. 12, 14; ——— HIBBARD (1928), p. 119, fig. 7, lower Rhinestreet sh., N. Y.; ——— HUDDLE (1934), p. 81; ——— CHADWICK (Feb. 1935a), p. 315, diagnostic sp. confined to Naples gr.; ——— BRANSON & MEHL (1944), p. 243; ——— GLAESSNER (1945), p. 28, fig. 4, subfigs. 5-7, after Ulrich & Bassler (1926). UD

——**unguicula** YOUNGQUIST & DOWNS (1949), pp. 161, 168, pl. 30, fig. 8. Holotype, 14036, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa. MP

——**ungula** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), p. 56, pl. 14, fig. 3. Holotype, 422, Hibbard coll., Buff. Mus. Sci., N. Y., same spm. as Hibbard (1942), p. 273, rt. mid. fig., 2nd from top, lower Attica sh., N. Y. UD

——**sp.** (HOLMES) (1928), p. 37, pl. 8, fig. 13, ref. to *Polygnathus dubius* as used by Clarke (1887), pl. A-1, figs. 5, 13, now split (in pt.) in the above manner. UD

——**sp.** GUNNELL (1931b), p. 248, pl. 29, figs. 15-16. Fig. spm., Univ. Mo., mid. sh., Ft. Scott fm., Mo.; ——— ELLISON (1941), p. 138, indet. fragments. MP

——**sp.** GUNNELL (1933), pp. 263, 269, pl. 31, fig. 3. Fig. spm., Gunnell coll., Univ. Mo., Cherokee sh., Mo.; ——— ELLISON (1941), p. 138, indet. fragments. MP

——? **sp.** GUNNELL (1933), pp. 264, 269, pl. 32, figs. 40-42. Fig. spm., Gunnell coll., Univ. Mo., Quivira sh., Mo.; ——— ELLISON (1941), p. 138, indet. fragments. UP

——**sp.** HUDDLE (1934), pp. 16, 84, pl. 6, fig. 11. Fig. spms., 2268, Ind. Univ., comp. with *Lonchodina irregularis,* upper New Albany sh., loc. 3, Ind. LMi

——? **sp.** HUDDLE (1934) (no ? on pl.), p. 83, pl. 6, fig. 9. Fig. spm., 1939, Ind. Univ., lower New Albany sh., loc. 29, Ind. M?D

——**sp.** STAUFFER (1938), pp. 413, 435, pl. 49, fig. 21. Fig. spm., B5088, Univ. Minn., Arkona sh., loc. 162 (fig.), Ont.; Plum Brook sh., loc. 107, Ohio; Olentangy sh., locs. 110, 111, 125, Ohio. M-UD

——? **sp.** COOPER (1939), pl. 46, fig. 56. Fig. spm., 39870, Univ. Chi., pre-Welden sh., Okla. LMi

——**sp.** BUTTS (1940), p. 313, Millboro sh., Marcellus memb., Virginia. MD

——**spp.** BRANSON & MEHL (1941a) (*Lonchodina?* for fig. 12), pp. 171-172, pl. 5, figs. 10, 12. Figured spms., C544-2 (fig. 12), C544-4 (fig. 10), Univ. Mo., lower Caney sh., Okla. UMi

——? **sp.** ELLISON & GRAVES (1941) (no ? pp. 3-4), pp. 3-4, pl. 1, fig. 26. Fig. spm., 4785, Mo. Sch. Min., Rolla, lower transition zone, base of Dimple fm., locs. G913, G912, G910 (fig. 26), Tex. LP

——**sp.** BRANSON (1944), pp. 153, 158, pl. 26, fig. 22. After Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——**sp.** STAUFFER (1944), p. 256, Olentangy sh., ls. mine, Barberton, Ohio. UD

——**sp.** YOUNGQUIST (1947), pp. 106-107, pl. 25, fig. 11. Fig. spm., 4034, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——? **sp.** YOUNGQUIST (1947), p. 107, pl. 24, fig. 7. Fig. spm., 4035, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——? **spp.** MILLER & YOUNGQUIST (1947), p. 511, pl. 72, fig. 4; pl. 73, figs. 2, 18, 21. Figured spms., 5559 (fig. 4), 5560 (fig. 2), 5561 (fig. 18), 5562 (fig. 21), Univ. Iowa, comp. UD

with *Lonchodina discreta*, Sweetland Creek sh., Iowa.

——sp. A THOMAS (1949), pp. 408, 426-427, pl. 2, fig. 4. Fig. spm., C829-4, Univ. Mo., Maple Mill sh., loc. 2, Iowa. UD

——sp. B THOMAS (1949), pp. 408, 427, pl. 1, fig. 6. Fig. spm., C823-5, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——sp. C THOMAS (1949), pp. 411, 427, pl. 4, fig. 14. Fig. spm., C820-1, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

LONCHODUS PANDER (1856), pp. 80, 90. This name is to replace *Centrodus* because *Centrodus* is preoccupied. Type species, *Centrodus simplex* PANDER (1856); ——— EICHWALD (1858), p. 339; ——— YOUNG (1880), p. 10, coll. by John Smith from Ayrshire coal-field, Glencart Bridge, W. Scot.; ——— ZITTEL (1890), p. 59; ——— BASSLER (1925), p. 219; ——— ULRICH & BASSLER (1926), pp. 6, 15, 17, 42; ——— ROUNDY (1926), pp. 12-13, 15-16, comp. with *Prioniodus sp.*, Pander's desc. trans.; ——— HOLMES (1928), pp. 3, 8, 14; ——— EICHENBERG (1930), p. 180; ——— GUNNELL (Mar. 1931a), p. 331, Lansing gr., Mo.; ——— GUNNELL (Apr. 1931a), p. 239; ——— GUNNELL (1931b), p. 248; ——— STAUFFER & PLUMMER (1932), p. 37, comp. with *Hindeodella* and *Hibbardella;* ——— STAUFFER (1932), p. 263; ——— HARLTON (1933), pp. 4, 12; ——— MATERN (1933), pp. 16, 21; ——— BRANSON & MEHL (July 1933a), p. 87, comp. with *Curtognathus;* ——— BAKER, DANE, & REESIDE (1933), p. 971, from 3250-3350 ft., Frank Shafer well no. 1, about 9 mi. SW of Moab, Utah; ——— GUNNELL (1933), p. 269; ——— BRANSON & MEHL (June 1934a), p. 202, comp. with *Trichonodella;* ——— SCHMIDT (1934), pp. 80, 83-84; ——— HUDDLE (1934), p. 35, not recognizable as to family; ——— STAUFFER (1935a), p. 144. Pander's desc. trans.; ——— ? ZEBERA (1935), p. 90; ——— BAILEY (1935), p. 490; ——— SCHMIDT (1934) (r)P (1935), p. 80; ——— STAUFFER (1935b), p. 607. Pander's desc. trans.; ——— ZEBERA (1936a), pp. 3-4, 10. A ? is after generic name on p. 10; ——— ZEBERA (1936b), pp. 189, 191-192; ——— LOOMIS (Oct. 1936), p. 663. The median teeth of the modern gastropods *Buccinum, Nassa,* and *Fulgur* resemble this genus; ——— LOOMIS (Oct. 1936), p. 664. Stauffer's (1935b) pl. 72, fig. 3 is reproduced, meant to be *Lonchodus? sp. b;* ——— MATERN (1933) (ab)Z (1937), p. 178. E. B. Branson states that he could not place generically the spms. ref. to this genus; ——— DEMANET (1938), p. 162; ——— DEMANET (1939), p. 219; ——— COOPER (1939), pp. 392, 396, comp. with *Neocordylodus;* ——— WETZEL (1940), p. 75, ref. to Holmes (1928), pl. 8, fig. 6, comp. with form VI, Wetzel (1940); ——— STAUFFER (1940), p. 426; ——— DEMANET (1941), p. 177; ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— CAMP, TAYLOR, & WELLES (1942), p. 551, ref. to Demanet (1938), Rhenanidi?; ——— JOHNSON (1945), p. 91, Paradox fm., Colo.; ——— YOUNGQUIST (1945), p. 362; ——— ELLISON (Jan. 1946), pp. 95, 108-110, *Centrodus* was a homonym changed to *Lonchodus;* Bar type; *Valentia* prob. is a jr. syn., Black River through Wolfcamp; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 49; ——— YOUNGQUIST & MILLER (1948), p. 440. MO-LPm

——**aequidentatus** STAUFFER (1930), p. 128, pl. 10, fig. 21. Holotype, 5449, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER (1932), p. 258, Decorah sh., Kans.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**arcuatus** STAUFFER & PLUMMER (1932), pp. 25, 37, pl. 2, fig. 2. Holotype, 19137, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., locs. 181-T-9, A (fig.), B, Tex.; ——— STAUFFER (1932), pp. 258, 263, pl. 40, fig. 28. Holotype, Univ. Minn., Decorah sh., Kans. MO, MP

——**brevidentatus** STAUFFER (1932), pp. 258, 263, pl. 40, fig. 29. Holotype, Univ. Minn., Decorah sh., Kans. MO

——**confluens** GUNNELL (1931b), p. 248, pl. 29, fig. 17. Holotype, Gunnell coll., Univ. Mo., mid. sh., Ft. Scott fm., Mo.; ——— ELLISON (1941), p. 138, an indeterminable fragment that could belong to any one of five genera. MP

——**connatus** STAUFFER & PLUMMER (1932), pp. 25, 37-38, pl. 2, figs. 3, 17. Holotype, 19138 (fig. 17); paratype, 19139 (fig. 3), Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex. MP

——? **constrictiterminatus** YOUNGQUIST (Mar. 1947), p. 107, pl. 25, fig. 19. Holotype, 4036, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa; ——— MILLER & YOUNGQUIST (1947), p. 511, pl. 73, fig. 9. Fig. spm., 5563, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**convexus** PANDER (1856) (*Centrodus*, p. 31), pp. 31, 83, pl. 2A, fig. 4. Figs. 7-8 given instead of fig. 4. Fig. 4 is correct and figs. 7-8 are *Lonchodus duplicatus* on pl., Bergkalk, Tula, Russ.; ——— HOLMES (1928), pp. 8, 14, 17, pl. 6, figs. 11-14. Fig. 11 is Carboniferous ls., Scot., named *Polygnathus convexus* by Hinde (1900), fig. 11 is Pander's fig.; figs. 12-14 are Hinde's (1900) figs. 6, 8, and 7 resp.; ———? COOPER (1939), pp. 392, 419, pl. 46, fig. 35. Hypotype, 38898, Univ. Chi., pre-Welden sh., Okla. LMi

——**coronatus** (HOLMES) (1928), p. 14, pl. 6, fig. 22. Hinde's occurrence is Genesee sh., Ont., and Bryant's is Portage sh., N. Y., possibly a sp. of *Lonchodina* but Hinde's restoration does not match any of the sp. so far noted. (*Polygnathus*, pl. 17, fig. 1); ——— (BRANSON & MEHL) (July 1933d), p. 139, classed as a syn. of *Ligonodina?;* ——— (CHADWICK) (Feb. 1935a), p. 316, diagnostic sp. confined to Naples gr.; ——— (COOPER) (1935a), p. 444. The name *Lonchodus coronatus* as redefined by Holmes (1928) is correct and Branson & Mehl's *Ligonodina? coronata* is incorrect. UD

——**crassidentatus** STAUFFER (1932), pp. 258, 263, pl. 40, fig. 30. Holotype, Univ. Minn., Decorah sh., Kans. MO

——**curvatus** (HOLMES) (1928), pp. 14, 17, pl. 6, fig. 21, Arenig-Llandeilo gr., S. Uplands, Scot. (*Polygnathus*). MO

——**dentatus** STAUFFER (1930), pp. 123-124, pl. 10, figs. 5-6, 8. Types, 5435 (fig. 5), 5436 (fig. 6), 5438 (fig. 8), Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER (1932), p. 258, Decorah sh., Kans.; ——— STAUFFER (1935a), pp. 145, 159, pl. 10, figs. 10-11. MO

Fig. spms., B4325 (fig. 10), B4326 (fig. 11), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), pp. 241, 245.

——**distans** (HOLMES) (1928), pp. 8, 14, pl. 6, fig. 15, Arenig-Llandeilo gr., S. Uplands, Scot. (*Centrodus*). MO

——**duplicatus** PANDER (1856) (*Centrodus* p. 31), pp. 31, 83, pl. 2A, figs. 7-8, Bergkalk, Tula, Russ.; ——— ZITTEL & ROHON (1886), p. 123, comp. pl. 2A, fig. 8, Pander, with pl. 1, fig. 4, Zittel & Rohon (1886); ——— HOLMES (1928), pp. 11, 14, classed as a syn. of *Hindeodella;* ——— EICHENBERG (1930), p. 180. Pander's (1856) pl. 2a, figs. 7-8 are comp. with figs. 4-9, p. 179, Eichenberg (1930) (in pt.). LMi

——**erectus** (HOLMES) (1928), pp. 8, 14, pl. 6, figs. 7-10. Smith (1907), figs. 5, 2, 1, and 4 are 7-10 resp., Arenig-Llandeilo gr., S. Uplands, Scot. (*Centrodus*); ——— (STAUFFER) (1930), p. 124, ref. to Smith (1907) comp. with *Lonchodus dentatus* Stauffer (1930). MO

——**ischnus** COOPER (1939), p. 392, pl. 46, fig. 39. Holotype, 38899, Univ. Chi., pre-Welden sh., Okla. LMi

——**lineatus** PANDER (1856) (*Centrodus* on p. 31), pp. 31, 83, pl. 2A, fig. 9, Bergkalk, Tula, Russ.; ——— ROUNDY (1926) (*? lineatus*), pp. 15-16, pl. 3, figs. 6-8. Types, 115077 (fig. 7), 115076 (fig. 8), USNM, Newberry's (1875) pl. 57, fig. 8 is placed into syn. questionably; *Polygnathus dubius* Hinde (1879) (pt.), pl. 16, fig. 14 (fig. 13?) is a jr. syn.; *Centrodus lineatus* Hinde (1900), pl. 9, figs. 13-14 is a jr. syn.; comp. with *Ctenognathus sp. A* Roundy (1926). Fig. 6, Pander's pl. 2A, fig. 9 reproduced. Barnett sh., locs. 2609 (fig. 7), 2613E (fig. 8), 2613D and H, 7016, Tex.; ——— HOLMES (1928) (*? lineatus*), p. 11, ref. to Roundy (1926) not Pander (1856) classed as a sr. syn. of *Hindeodella;* ——— HOLMES (1928), pp. 11, 14, ref. to Pander (1856), classed as a sr. syn. of *Hindeodella;* ——— EICHENBERG (1930), p. 180. Pander (1856), pl. 2a, fig. 9 is now comp. with figs. 4-9 (in pt.) of Eichenberg (1930), p. 179; ——— MATERN (1933), p. 15; ——— SCHMIDT (1934), p. 80; ——— DEMANET (1938), p. 170; ——— COOPER (1939), pp. 389-390. MMi

——**minus** (HOLMES) (1928), pp. 14, 18, pl. 6, fig. 23, Arenig-Llandeilo gr., S. Uplands, Scot. (*Polygnathus*). MO

——**obliquus** (HOLMES) (1928), pp. 8, 14, pl. 6, fig. 6, Arenig-Llandeilo gr., S. Uplands, Scot. (*Centrodus*). MO

——**parallelus** COOPER (1939), p. 392, pl. 46, fig. 42. Holotype, 38900, Univ. Chi., pre-Welden sh., Okla.; ——— MILLER & YOUNGQUIST (1947), pp. 511-512, pl. 72, fig. 14. Fig. spm., 5564, Univ. Iowa, comp. with *Prioniodina sp.* Branson & Mehl (June 1934a), pl. 14, fig. 19, Sweetland Creek sh., Iowa; ——— YOUNGQUIST & MILLER (1948), p. 447, pl. 67, fig. 14. Fig. spm., 5608, Univ. Iowa, Sweetland Creek sh., Iowa. UD-LMi

——**parvus** (HOLMES) (1928), pp. 14, 18, pl. 6, fig. 1, Arenig-Llandeilo gr., S. Uplands, Scot. (*Polygnathus*). MO

——**pectinellus** STAUFFER (1932), pp. 258, 263, pl. 40, fig. 31. Holotype, Univ. Minn., Decorah sh., Kans. MO

——**princeps** (HOLMES) (1928), pp. 8, 15, 18, pl. 6, figs. 16-20. Hinde (1879) pl. 17, fig. 4 (fig. 16 of Holmes) is a syn. of *Centrodus* according to Bryant (1921) and this is now a syn. of *Lonchodus.* Smith (1907), figs. 9-10, 12-13 (figs. 17-20 resp.) is also a syn. of *Lonchodus*, Arenig-Llandeilo gr., S. Uplands, Scot., (figs. 17-20); Genundewah ls., N. Y. (fig. 16), (*Polygnathus*); ——— (BRANSON & MEHL) (July 1933d), p. 139. Holmes' usage is ref. to *Ligonodina?;* ——— (CHADWICK) (Feb. 1935a), p. 311, diagnostic sp. confined to Genesee gr. MO, UD

——**simplex** PANDER (1856) (*Centrodus* on p. 31), pp. 31, 83, pl. 2A, figs. 2-3, 5-6, Bergkalk, Tula, Russ.; ——— ULRICH & BASSLER (1926), pp. 16-17, 42, fig. 4, subfig. 16. Pander's pl. 2a, fig. 2; ——— EDINGER (1926), p. 286, fig. 1 (pt.), 2nd from bottom in first vertical row (left row), same as fig. 4, subfig. 16, Ulrich & Bassler (1926); ——— ROUNDY (1926), p. 15, pl. 3, figs. 1-5. Type, 115082 (fig. 5), USNM, *Polygnathus dubius* Hinde (1879) (pt.), pl. 16, figs. 10-11 is a jr. syn. Figs. 1-4 are reproductions of Pander's figs. of the type species. Pander's desc. trans. Barnett sh., locs. 2609 (fig. 5), 2613D?, E, G, H?, 2688, 2610c, 2609, Tex.; ——— HOLMES (1928), pp. 8, 14-15, pl. 6, figs. 2-5. Pander's pl. 2A, figs. 2, 6, 3, 5 are figs. 2-5 resp.; ——— EICHENBERG (1930), pp. 179-180. Pander's (1856) pl. 2A, figs. 2-3, 5-6 are comp. (in pt.), with Eichenberg's (1930) figs. 4-9, on p. 179; ——— GUNNELL (1931b), p. 248, pl. 1, figs. 10-11; instead of pl. 1, pl. 29 is meant; instead of figs. 10-11, figs. 13-14 are meant. Fig. spm., Gunnell coll., Univ. Mo., comp. with *Lonchodus confluens*, mid. sh. of Ft. Scott fm., Mo.; ——— ? STAUFFER & PLUMMER (1932), pp. 25, 38, pl. 2, fig. 1. Fig. spm., 19140, Bur. Econ. Geol. Mus., Texas, E. Mt. sh. memb., Mineral Wells fm., Tex.; ——— WETZEL (1933), p. 87, comp. with pl. 6, fig. 33; ——— MATERN (1933) (*cf. simplex*), p. 16, figs. 11-12. Fig. spms., (fig. 11), XVI 1a-2, Senckenberg Mus., Frankfurt a.M.; (fig. 12) Preuss. Geol. Landest., Berlin, Germ. (Fig. 11), Gemeindesteinbruch, from Donsbach bei Dillenburg; (fig. 12) from Lower Carboniferous, Lerback (Bl. Osterode), Harz, Germ.; ——— ? GUNNELL (1933), pp. 263, 269, pl. 1, fig. 2. Pl. 31 is meant. Fig. spm., Gunnell coll., Univ. Mo., Cherokee sh., Mo.; ——— SCHMIDT (1934) (*cf. simplex*), p. 80; ——— DEMANET (1938) (*cf. simplex*), p. 170; ——— COOPER (1939), pp. 392, 419, pl. 46, figs. 34, 38. Hypotypes, 38901, 38902, Univ. Chi., pre-Welden sh., Okla.; ——— ELLISON (1941), p. 138, ref. to Gunnell (1931b), pl. 29, figs. 13-14; Gunnell (1933), pl. 31, fig. 2, indet. spms. that could belong to at least five genera; ——— ELLISON & GRAVES (1941), pp. 3-4, pl. 1, fig. 21. Fig. spm., 4780, Mo. Sch. Min., Rolla, mid. Dimple fm., loc. G926, Tex.; ——— GLAESSNER (1945), p. 28, fig. 4, subfig. 16. After Ulrich & Bassler (1926), p. 17, fig. 4, subfig. 16; ——— ? YOUNGQUIST & HEEZEN (1948), p. 771, ref. to Stauffer & Plummer (1932), pl. 2, fig. 1, comp. with *Lonchodus ? sp.* Youngquist & Heezen (1948). UD-MP

——**spinuliferus** STAUFFER (1932), pp. 258, 263, pl. 40, fig. 32. Holotype, Univ. Minn., Decorah sh., Kans.; ——— STAUFFER (1935a), pp. 145, 159, pl. 10, figs. 1-7, 9. Fig. spms., MO

B4316-B4322 (figs. 1-7), B4324 (fig. 9), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), pp. 607-608, pl. 72, figs. 2, 4-7, 10, 25. Fig. spms., B4517 (fig. 2), B4519-B4522 (figs. 4-7), B4525 (fig. 10), B4540 (fig. 25), Univ. Minn., locs. 48 (figs. 2, 5), 94 (figs. 4, 6, 10, 25), 95 (fig. 7), 4, 6-7, 9, 17, 23-24, 27, 37, 52, 57, 61-62, 67, 70, 76-77, 79, 86, 92, 96, Spechts Ferry memb., Iowa; ——— STAUFFER & THIEL (1941), pp. 238, 241, 245.

——**striatus** STAUFFER (1932), pp. 258, 264, pl. 40, fig. 33. Holotype, Univ. Minn., Decorah sh., Kans. MO

——**textiligerus** STAUFFER & PLUMMER (1932), pp. 25, 38, pl. 2, fig. 6. Holotype, 19141, Bur. Econ. Geol. Mus., Tex., East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, A, Tex. MP

——? (HOLMES) (1928), p. 37, pl. 8, figs. 6, 9, 11-12. [*Polygnathus dubius* Hinde (1879) (pt.), pl. 16, figs. 10, 12, 9, 11 are figs. 6, 9, 11-12 of Holmes resp.; she states that these spms. may be undetermined.] UD

——**sp.** (HOLMES) (1928), p. 37, pl. 8, figs. 20, 23-24, [ref. to *Polygnathus dubius* Clarke (1887) (pt.), pl. A-1, fig. 10, lower rt. (fig. 20); fig. 13, lower (fig. 23); fig. 13, upper rt. (fig. 24)]. UD

——**sp.** STAUFFER (1930), p. 127, pl. 10, fig. 14. Type, spm. not found, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**sp.** STAUFFER & PLUMMER (1932), p. 25, East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, B, Tex. MP

——**sp.** HARLTON (1933), pp. 12-13, pl. 4, fig. 5. Fig. spm., 85520, USNM, Johns Valley sh., Okla. LP

——**sp.** GUNNELL (1933), pp. 264, 269, pl. 32, fig. 38. Fig. spm., Gunnell coll., Univ. Mo., Quivira sh., Mo.; ——— ELLISON (1941), p. 138, indet. fragments. UP

——? **sp.** MISER (Aug. 1934), p. 1000, Johns Valley sh.; partly indicative of Springer fm., Wapanucka ls., and Morrow gr., Okla. LP

——**sp.** STAUFFER (1935a), pp. 145, 159, pl. 10, fig. 12. Fig. spm., B4327, Univ. Minn., Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**sp. a** STAUFFER (1935b), p. 608, pl. 72, fig. 19. Fig. spm., B4534, Univ. Minn., Decorah sh., loc. 95, Minn.; ——— STAUFFER & THIEL (1941), p. 238. MO

——? **sp. b** STAUFFER (1935b), p. 608, pl. 72, fig. 3. Fig. spm., B4518, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 94, Minn.; ——— STAUFFER & THIEL (1941) (no ?), p. 241. MO

——? **sp. b** LOOMIS (Oct. 1936), p. 664. Stauffer's (1935b) pl. 72, fig. 3 is reproduced but not named. MO

——**sp.** COOPER (1939), pl. 46, figs. 40-41. Fig. spms., 39867, 39868, Univ. Chi., pre-Welden sh., Okla. LMi

——**sp.** STAUFFER (1940), p. 426, pl. 58, fig. 39. Fig. spm., B5561, Univ. Minn., clay above ls., Minn. MD, O

——**sp.** HASS (1941), p. 76, pl. 16, fig. 2. Type, 7554, USGS, Barnett sh., Tex. MMi

——**sp.** HASS (1941), p. 77, pl. 14, fig. 1. Fig. spm., 7557, USGS, Bushberg-Hannibal horizon, Okla. LMi

——**sp.** AMSDEN & MILLER (1942), p. 303, pl. 41, fig. 4. A ? after genus on pl. Fig. spm., 1626, Univ. Iowa, Bighorn ss., Wyo. MO

——**sp.** YOUNGQUIST (1945), p. 362, pl. 55, fig. 3. Fig. spm., 2935, unfig. spm., 2936, Univ. Iowa, Independence sh.?, Iowa. UD

——? **sp.** YOUNGQUIST (1947), p. 107, pl. 24, figs. 2, 8, 11. Fig. spms., 4037 (fig. 2), 4038 (fig. 8), 4039 (fig. 11), Univ. Iowa, comp. with *Polygnathus dubius* Hinde (1879), pl. 16, fig. 11, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——? **spp.** YOUNGQUIST (1947), p. 107, pl. 25, fig. 17; pl. 26, figs. 2, 16. Fig. spms., 4040 (fig. 17), 4041 (fig. 2), 4042 (fig. 16), Univ. Iowa, comp. with *Polygnathus princeps* Hinde (1879), pl. 16, fig. 23, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——? **sp.** YOUNGQUIST & HEEZEN (1948), p. 771, pl. 118, fig. 12. Fig. spm., 4166, Univ. Iowa, comp. with *Lonchodus simplex* ? Stauffer & Plummer (1932), pl. 2, fig. 1, black sh. ¾ mi. NW of Knoxville, Iowa; ——— YOUNGQUIST & DOWNS (1949), p. 161, sh. ¾ mi. NW of Knoxville, Iowa. MP

——**sp.** LAYER *et al.* (1949), p. 594, D-3 zone 875 ft. below top of D-2 zone, Alta. UD

LOXODUS FURNISH (1938), pp. 322-323, 338-339. Type species, *L. bransoni* FURNISH (1938); ——— BRANSON & MEHL (1944), p. 241; ——— ELLISON (Jan. 1946), pp. 95, 109. Bar type, confined to upper pt. of Beekmantown. LO

——**bransoni** FURNISH (1938), pp. 320, 339, pl. 42, figs. 33-34, 2A. Syntypes, 1348 (fig. 33), 1350 (fig. 34), Univ. Iowa, Oneota fm., Iowa (fig.) (common), Blue Earth beds, Minn. (rare); ——— STAUFFER & THIEL (1941), p. 246; ——— BRANSON & MEHL (1944), p. 241, pl. 93, figs. 45-46. LO

LOXOGNATHUS GRAVES & ELLISON (1941), p. 12. Type species, *L. flabellata* GRAVES & ELLISON (1941); ——— ELLISON (Jan. 1946), p. 109. Classed as a jr. syn. of *Dichognathus*. MO

——**flabellata** GRAVES & ELLISON (1941), pp. 4-5, 7, 12, pl. 2, figs. 29, 31-32. Genoholotype, 7131 (fig. 31); paratypes, 7132 (fig. 29), 7133 (fig. 32), Mo. Sch. Min., Rolla, Ft. Pena fm., locs. G408, G407, G406, G405, G419, G421 (fig. 31), G414 (figs. 29, 32), Tex. MO

MACHAIRODIA SMITH (1907), p. 246. Proposed in place of *Machairodus* Pander (1856) which was preocc.; ——— ULRICH & BASSLER (1926), pp. 5-7. Belongs under *Distacodus* Hinde (1879) which was already proposed for *Machairodus;* ——— HOLMES (1928), pp. 2, 9, 15; ——— HUDDLE (1934), p. 34; ——— ELLISON (Jan. 1946), p. 109. Syn. for *Distacodus*. MO

——**rhombea** (SMITH) (1907), p. 246, pl. 6, fig. 19. This is supposedly Pander's *Machairodus rhomboideus* with the specific name shortened and the generic name preocc. and changed to *Machairodia*. Fig. spm., Geol. Surv., Scot., Edinburgh, Arenig-Llandeilo gr., S. Uplands, Scot.; ——— (HOLMES) (1928), p. 9. Classed as a jr. syn. of *Distacodus*. MO

——**sulcata** SMITH (1907), p. 246, pl. 6, fig. 17. Fig. spm., Geol. Surv., Scot., Edinburgh, MO

Arenig-Llandeilo gr., S. Uplands, Scot., see *Machairodus*.

MACHAIRODUS PANDER (1856) (*Machairodonten*), pp. 19, 22, 24, 91, comp. with *Paltodus;* ——— PANDER (1856) (ab)N (1858), pp. 112-113; ——— EICHWALD (1858), p. 339; ——— EICHWALD (1860), pp. 663-665. Preocc. by a fossil mammal; ——— OWEN (1860), p. 98; ——— BOCK (1869), p. 108, map; ——— HINDE (1879), p. 357. Now changed to *Distacodus* because *Machairodus* was preocc.; ——— HINDE (1879) (Benecke) (1881), p. 107; ——— S. A. MILLER (1883), p. 314; ——— S. A. MILLER (1889), p. 519; ——— ZITTEL (1890), p. 59; ——— ROHON (1894), p. 9; ——— SMITH (1907), pp. 244, 246. Smith proposes the name *Machairodia* to replace *Machairodus,* apparently overlooking Hinde's (1879) work; ——— BASSLER (1915), p. 460; ——— PARKS & FRITZ (1923), p. 36; ——— ULRICH & BASSLER (1926), pp. 5-7; ——— HOLMES (1928), pp. 2, 9, 15; ——— BRANSON & MEHL (June 1933c), p. 41; ——— HUDDLE (1934), p. 34; ——— STAUFFER (1935a), p. 142. Original desc. of Pander trans.; ——— STAUFFER (1935b), p. 605; ——— ZEBERA (1936b), p. 189; ——— BRANSON & MEHL (1944), p. 239; ——— ELLISON (Jan. 1946), p. 109. LO

——**angustus** PANDER (1856), p. 23, pl. 1, fig. 35, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 9. Classed as a sr. syn. of *Distacodus.* LO

——**canaliculatus** PANDER (1856), p. 24, pl. 1, fig. 23, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 9. Classed as a sr. syn. of *Distacodus.* LO

——**dilatatus** PANDER (1856), pp. 7, 22, pl. 1, fig. 14; pl. 2, fig. 14, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858) (*dilatata*), p. 112; ——— ZITTEL & ROHON (1886), p. 118. Ref. is made to Pander, pl. 3, fig. 6; ——— HOLMES (1928), p. 9. Classed as a sr. syn. of *Distacodus.* LO

——**ensiformis** PANDER (1856), p. 23, pl. 1, figs. 25-28; pl. 2, fig. 36, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856), p. 23, Tab. A to p. 20, fig. 3; comp. with *Machairodus angustus,* Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— STEINMANN (1903) (*Drepanodus arenatus*), p. 331, fig. 586A, after Pander, pl. 1, fig. 27a, St. Petersburg area, Russ.; I change this to *Distacodus,* because the generic name was preocc.; ——— HOLMES (1928), p. 9. Classed as a sr. syn. of *Distacodus.* LO

——**inaequalis** PANDER (1856), p. 23, pl. 2, fig. 38, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 9. Classed as a sr. syn. of *Distacodus.* LO

——**incurvus** PANDER (1856), p. 23, pl. 1, fig. 22. Type species for *Distacodus,* Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HINDE (1879), p. 357. Classed as a sr. syn. of *Distacodus;* ——— S. A. MILLER (1883), pp. 313-314; ——— S. A. MILLER (1889), pp. 518-519; ——— BASSLER (1915), pp. 460, 776; ——— PARKS & FRITZ (1923), p. 36; ——— ULRICH & BASSLER (1926), p. 7. Selected as type species by S. A. Miller; ——— HOLMES (1928), p. 9. LO

——**planus** PANDER (1856), p. 24, pl. 2, fig. 39, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 9. Classed as a sr. syn. of *Distacodus.* LO

——**rhomboideus** PANDER (1856) (*Drepanodus obtusus* for fig. 11), p. 22, pl. 2, figs. 10-12, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856), p. 24. Comp. with *Machairodus planus;* ——— PANDER (1856) (ab)N (1858), p. 112; ——— ULRICH & BASSLER (1926), p. 7, fig. 2, subfig. 2. Classed as a sr. syn of *Distacodus;* ——— HOLMES (1928), p. 9; ——— BRANSON & MEHL (1944) (*romboideus*), p. 239. LO

——**solidus** PANDER (1856), p. 23, pl. 2, fig. 15, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 9. Classed as a sr. syn. of *Distacodus.* LO

——**sulcata** (HOLMES) (1928) (*Machairodus*), p. 9, jr. syn. of *Distacodus,* (*Machairodia*).

MACROPOLYGNATHUS COOPER (1939), pp. 392-393. Type species, *M. itha* COOPER (1939); ——— ELLISON (Jan. 1946), p. 109. Classed as a jr. syn. of *Polygnathus,* platform type; ——— COOPER (July 1948a), p. 362, absent from Rockford ls. fauna. LMi

——**allocota** COOPER (1939), p. 393, pl. 42, figs. 53-54. Holotype, 38904, Univ. Chi., pre-Welden sh., Okla. LMi

——**anameda** COOPER (1939), p. 393, pl. 42, figs. 28-30. Holotype, 38905, Univ. Chi., pre-Welden sh., Okla. LMi

——**anodosa** COOPER (1939), p. 393, pl. 42, figs. 17-19. Holotype, 38906, Univ. Chi., pre-Welden sh., Okla. LMi

——**anomala** COOPER (1939), p. 393, pl. 42, figs. 1-3. Holotype, 38907, Univ. Chi., pre-Welden sh., Okla. LMi

——**bela** COOPER (1939), p. 393, pl. 42, figs. 20-22. Holotype, 38908, Univ. Chi., pre-Welden sh., Okla. LMi

——**campsa** COOPER (1939), p. 394, pl. 42, figs. 14-16. Holotype, 38913, Univ. Chi., pre-Welden sh., Okla. LMi

——**curta** COOPER (1939), p. 394, pl. 43, figs. 5-7. Holotype, 38914, Univ. Chi., pre-Welden sh., Okla. LMi

——**diamesa** COOPER (1939), p. 393, pl. 42, figs. 69-70; pl. 43, figs. 1-2. Holotype, 38909 (figs. 69-70); paratype, 38910, Univ. Chi., pre-Welden sh., Okla. LMi

——**idia** COOPER (1939), p. 393, pl. 42, figs. 67-68. Holotype, 38911, Univ. Chi., pre-Welden sh., Okla. LMi

——**isa** COOPER (1939), p. 393, pl. 42, figs. 36-38. Holotype, 38912, Univ. Chi., pre-Welden sh., Okla. LMi

——**itha** COOPER (1939), pp. 392-393, pl. 42, figs. 4-6. Holotype, 38903, Univ. Chi., pre-Welden sh., Okla. Type species for *Macropolygnathus.* LMi

——**leyra** COOPER (1939), p. 394, pl. 42, figs. 39-41. Holotype, 38915, Univ. Chi., pre-Welden sh., Okla. LMi

——**lita** COOPER (1939), pp. 394-395, pl. 43, figs. 8-9. Holotype, 38916, Univ. Chi., pre-Welden sh., Okla. LMi

——**nodus** COOPER (1939), p. 395, pl. 42, figs. 57-58. Holotype, 38917, Univ. Chi., pre-Welden sh., Okla. LMi

——**olca** COOPER (1939), p. 395, pl. 42, figs. 31-33. Holotype, 38918, Univ. Chi., pre-Welden sh., Okla. LMi

——**platys** COOPER (1939), p. 395, pl. 42, figs. 25-27. Holotype, 38919, Univ. Chi., pre-Welden sh., Okla. LMi

——**radina** COOPER (1939), pp. 395-396, pl. 42, figs. 7-9. Holotype, 38920, Univ. Chi., pre-Welden sh., Okla. LMi

——**stena** COOPER (1939) (*stenna* on pl.), p. 396, pl. 42, figs. 51-52; pl. 43, figs. 3-4. Holotype, 38921, Univ. Chi., pre-Welden sh., Okla. LMi

——**tetrodus** COOPER (1939), p. 396, pl. 42, figs. 55-56. Holotype, 38922, Univ. Chi., pre-Welden sh., Okla. LMi

MEHLINA YOUNGQUIST (1945), p. 363. Type species, *M. irregularis* YOUNGQUIST (1945); ——— ELLISON (Jan. 1946), p. 109. Probably belongs to *Spathognathodus*, blade type. UD

——**gradatus** YOUNGQUIST (1945), p. 363, pl. 56, fig. 3. Syntypes, 2942 (fig. 3), unfig. spm., 2943, Univ. Iowa, comp. with *Mehlina irregularis*, Independence sh.?, Iowa. UD

——**irregularis** YOUNGQUIST (1945), pp. 363, 365, pl. 56, fig. 2. Syntypes, 2940 (fig. 2), 2941 (3 unfig. spms.), Univ. Iowa, comp. with *Mehlina gradatus* and *Polygnathus angustidiscus*, Independence sh.?, Iowa. UD

METALONCHODINA BRANSON & MEHL (1941e), pp. 105-106. Type species, *Prioniodus bidentatus* GUNNELL (1931b); ——— BRANSON & MEHL (1941a), p. 172, pl. 5, fig. 15. Fig. spm., C543-5, Univ. Mo., lower Caney sh., Okla.; ——— ELLISON (1941), pp. 109, 116, comp. with *Lonchodina;* ——— ELLISON & GRAVES (1941), p. 2; ——— BRANSON & MEHL (1944), p. 243; ——— ELLISON (Jan. 1946), pp. 95, 109. Bar type, mid. Chester through Wolfcamp; ——— MEHL & THOMAS (1947), pp. 6-7, 13; ——— COOPER (1947b), p. 269; ——— YOUNGQUIST & DOWNS (1949), pp. 161-162. MMi-LPm

——**acutirostris** MEHL & THOMAS (1947), p. 13, pl. 1, fig. 21. Holotype, C659-3, Univ. Mo., Fern Glen fm., Mo. MMi

——**alternata** MEHL & THOMAS (1947), p. 14, pl. 1, fig. 19. Holotype, C652-4, Univ. Mo., Fern Glen fm., Mo. MMi

——**bidentata** (BRANSON & MEHL) (1941e), p. 106, pl. 19, fig. 34. Holotype, Gunnell coll. C485-1; hypotype, CB 8-10, Univ. Mo., Lexington coal zone, Mo., *Prioniodus dactylodus* is a jr. syn., (*Prioniodus*); ——— (ELLISON) (1941), pp. 108, 111, 116-117, pl. 20, figs. 35-36. Holotype, C485-1(G); hypotypes, C99-3 to 4 (figs. 35-36), C489-4(G), C560-3 to 5(B), Univ. Mo., Cherokee through Bandera sh., locs. 0111, 0104, 1266, 1346-51, 0086, 0110 (fig.), 389, 0161, 682, 680, 0176, 716, 0175, 0158, 0117, 0118, 717, 1102, 1145, Mo., comp. with *Metalonchodina tenora;* ——— (BRANSON & MEHL) (1944), p. 243, pl. 94, fig. 20; ——— (BRANSON) (1944), p. 325. MP

——**deflecta** YOUNGQUIST & HEEZEN (1948), p. 771, pl. 118, fig. 7. Holotype, 4167, Univ. Iowa, black sh. ¾ mi. NW of Knoxville, Iowa; ——— YOUNGQUIST & DOWNS (1949), p. 161. MP

——**tenora** ELLISON (1941), pp. 108, 111, 116-117, pl. 20, fig. 34. Holotype, C99-5, Univ. Mo., Cherokee sh. through lower Ft. Scott ls., locs. 682, 0175 (fig.), 0176, Mo., comp. with *Metalonchodina bidentata;* ——— ELLISON & GRAVES (1941), pp. 3-4, pl. 1, fig. 9. Hypotype, 4771, Mo. Sch. Min., Rolla, mid. Dimple fm., loc. G908, Tex.; ——— BRANSON (1944), p. 325. L-MP

——**sp. A** BRANSON & MEHL (1941e), pl. 19, fig. 33. Fig. spm., C425-2, Univ. Mo., Sycamore fm., Okla. MMi

——**sp.** ELLISON & GRAVES (1941), p. 3, pl. 1, fig. 20. Fig. spm., 4779, Mo. Sch. Min., Rolla, mid. Dimple fm., loc. G907, Tex. LP

——**sp.** YOUNGQUIST & DOWNS (1949), pp. 161, 168, pl. 30, fig. 10. Fig. spm., 14037, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa. MP

METAPRIONIODUS HUDDLE (1934), pp. 26, 34, 36, 57, 76. Type species, *M. biangulatus* HUDDLE (1934), comp. with *Angulodus;* ——— BRANSON & MEHL (1938d), p. 129; ——— STAUFFER (1940), p. 426; ——— COOPER (1945), p. 614; ——— BOND (1947), p. 31, comp. with *Hindeodella*. MD-LMi

——**biangulatus** HUDDLE (1934), pp. 15, 57-58, pl. 11, figs. 12-13. Holotype, 1870 (fig. 12); paratype, 1869 (fig. 13), Ind. Univ., type species for *Metaprioniodus*, rare in upper New Albany sh., locs. 1 (fig.), 2-3, 6, 10, Ind., comp. with *Metaprioniodus fractus;* ——— COOPER (1945), pp. 613-614, pl. 84, figs. 13-14. Fig. spms., Ill. Geol. Surv., black sh., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont., *Hindeodella tenerrima* and *acuta* are classed as sr. syns.; ——— SLOSS & LAIRD (1945), on chart, DC unit, Mont.; ——— BOND (1947), pp. 21, 31-32, pl. 2, fig. 1. Hypotype, 18391, Ohio Univ., lower Ohio sh., Ohio. UD-LMi

——**fractus** HUDDLE (1934) (*fracta* p. 15), pp. 15, 58, pl. 11, figs. 14-15. Holotype, 1871 (fig. 14); paratype, 1868 (fig. 15), Ind. Univ., rare in upper New Albany sh., locs. 1 (fig.), 3, 10, Ind., comp. with *Metaprioniodus biangulatus*. LMi

——**sp.** STAUFFER (1940), p. 426, pl. 58, fig. 26. Fig. spm., B5548, Univ. Minn., clay above ls. (fig.) and upper Cedar Valley ls., Minn. MD

——**sp.** STAUFFER (1944), p. 257, Olentangy sh., ls. mine, Barberton, Ohio. UD

——**sp. unident.** CAMPBELL (1946), p. 845, ident. by Huddle, lower Blackiston fm., Ind. MD

MICROCOELODUS BRANSON & MEHL (July 1933a), pp. 89-90. Type species, *M. typus* BRANSON & MEHL (1933); ——— BRANSON & MEHL (July 1933a, b), pp. 88, 97, 102, 104, comp. with *Curtognathus calyculoides* and *Erismodus? dubius;* ——— HUDDLE (1934), p. 34; ——— STAUFFER (1935a), p. 145; ——— STAUFFER (1935b), p. 608; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood sh., S. D.; ——— COOPER (1939), p. 396; ——— STAUFFER (1940), p. 426; ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1943), pp. 381-382, 386; ——— BRANSON & MEHL (1944), p. 241; ——— ELLISON (Jan. 1946) (*Microcoleodus*), pp. 95, 97, 100, 109, bar type, may be fibrous; ——— YOUNGQUIST & CULLISON (1946), p. 583. MO

——**abnormalis** BRANSON & MEHL (July 1933a), p. 90, pl. 6, fig. 9. Holotype, C282-5, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 69. MO

——**alatus** BRANSON & MEHL (July 1933a), p. 91, pl. 6, figs. 27-28. Holotype, C276-2, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 69. MO

——**alatus** ? BRANSON & MEHL (July 1933a), p. 160, pl. 7, fig. 28. Fig. spm., C290-5, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 69. MO

——**asymmetricus** BRANSON & MEHL (July 1933a), pp. 91, 96, pl. 7, figs. 5, 10-11, 14-15. Cotypes, C280-3 (figs. 10-11), C276-4 (fig. 5), C298-5 (figs. 14-15), Univ. Mo., Joachim fm., Mo., comp. with *Microcoelodus unilateralis;* ———? COOPER (1939), pp. 396, 419, pl. 46, figs. 44, 67. Hypotypes, 38923-38924, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON & MEHL (1943), pp. 376, 383-384, pl. 64, figs. 37, 39, 41, 46. Fig. spms., C535-4 (figs. 37, 39), C536-3, C537-4, Univ. Mo., lower Bromide fm., Okla.; ——— BRANSON (1944), pp. 69, 71, pl. 10, figs. 13-14, 24-25, 31-32, Joachim fm., Mo. MO, ?LMi

——**brevibrachiatus** BRANSON & MEHL (July 1933a), pp. 91-92, pl. 7, figs. 3, 27. Holotype, C283-3, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 69, 71, pl. 10, fig. 6. MO

——**breviconus** BRANSON & MEHL (July 1933a), pp. 90, 93, pl. 6, fig. 29. Holotype, C290-3, Univ. Mo., Joachim fm., Mo., comp. with *Microcoelodus abnormalis;* ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON (1944), p. 69, Joachim fm., Mo. MO

——**cuspus** YOUNGQUIST & CULLISON (1946), p. 583, pl. 89, figs. 20, 22. Syntypes, 2972 (fig. 20), 2973 (fig. 22), Univ. Iowa, Dutchtown fm., Mo. MO

——**dubius** BRANSON & MEHL (July 1933a), pp. 96-97, pl. 6, fig. 8. Holotype, C292-4, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 69, Joachim fm., Mo.; ——— BRANSON (1944) (*cf. dubius*), pp. 53, 67, pl. 8, figs. 28-29, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo. MO

——**duodentatus** BRANSON & MEHL (July 1933a), p. 92, pl. 7, fig. 7. Holotype, C285-1, Univ. Mo., Joachim fm., Mo., comp. with *Microcoelodus brevibrachiatus;* ——— BRANSON (1944), pp. 69, 71, pl. 10, fig. 18, Joachim fm., Mo. MO

——**expansus** BRANSON & MEHL (July 1933a), p. 93, pl. 6, fig. 7; pl. 7, fig. 16. Holotype, C282-4 (fig. 7), Univ. Mo., Joachim fm., Mo.; ——— STAUFFER (1935a), pp. 145-146, 159, pl. 12, figs. 10, 15. Fig. spms., B4426 (fig. 10), B4431 (fig. 15), Univ. Minn., upper Glenwood beds, Minn.; ——— FURNISH, BARRAGY, & MILLER (1936) (*cf. expansus* on pl.), pl. 1, figs. 11, 13. Fig. spms., 1185 (fig. 11), 1187 (fig. 13), Univ. Iowa, lower Whitewood sh., S. D.; ——— STAUFFER & THIEL (1941), p. 245; ——— BRANSON (1944), pp. 53, 67, pl. 8, figs. 26-27, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo.; ——— BRANSON (1944), pp. 69, 71, pl. 10, fig. 33, Joachim fm., Mo.; ——— YOUNGQUIST & CULLISON (1946), p. 583, comp. with *Microcoelodus cuspus.* MO

——**inornatus** BRANSON & MEHL (1943), p. 384, pl. 64, fig. 45. Holotype, C535-3, Univ. Mo., lower Bromide fm., Okla. MO

——**intermedius** BRANSON & MEHL (1943), p. 384, pl. 64, figs. 38, 40, 53. Syntypes, C532-1, Univ. Mo., lower Bromide fm., Okla., *Microcoelodus sp.* Branson & Mehl (July 1933), pl. 7, fig. 6 is classed as a sr. syn.; ——— YOUNGQUIST & CULLISON (1946), pp. 583-584, pl. 90, fig. 6. Hypotype, 2974, Univ. Iowa, Dutchtown fm., Mo., comp. with *Microcoelodus lobosus.* MO

——**lobosus** YOUNGQUIST & CULLISON (1946), p. 584, pl. 89, fig. 6. Holotype, 2975, Univ. Iowa, Dutchtown fm., Mo. MO

——**machaerodus** YOUNGQUIST & CULLISON (1946), p. 584, pl. 90, fig. 12. Syntypes, 2976 (fig. 12), 2977, Univ. Iowa, Dutchtown fm., Mo. MO

——**magnicornis** BRANSON & MEHL (July 1933a), pp. 93-94, pl. 7, figs. 13, 17. Holotype, C291-2 (fig. 17); fig. spm., C287-5 (fig. 13), Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 69, 71, pl. 10, figs. 27, 37, Joachim fm., Mo. MO

——**minutidentatus** BRANSON & MEHL (July 1933a), p. 94, pl. 7, figs. 8-9. Holotype, C285-2, Univ. Mo., Joachim fm., Mo.; ——— BRANSON & MEHL (1943), pp. 376, 384, pl. 64, fig. 50. Fig. spm., C532-3, Univ. Mo., lower Bromide fm., Okla.; ——— BRANSON (1944), pp. 69, 71, pl. 10, figs. 19-20, Joachim fm., Mo. MO

——**missouriensis** YOUNGQUIST & CULLISON (1946), pp. 584-585, pl. 89, fig. 21. Holotype, 2978, Univ. Iowa, Dutchtown fm., Mo. MO

——**nodosus** YOUNGQUIST & CULLISON (1946), pp. 583, 585, pl. 89, fig. 5. Holotype, 2979, Univ. Iowa, Dutchtown fm., Mo., comp. with *Microcoelodus cuspus.* MO

——**obliquus** (STAUFFER) (1935b), p. 608, pl. 73, figs. 53, 56. Fig. spms., B4627 (fig. 53), B4630 (fig. 56), Univ. Minn., Decorah sh., locs. 6-8, 86, 94 (fig.), Minn. (*Prioniodus*); ——— (STAUFFER & THIEL) (1941), pp. 238, 241. MO

——**oklahomensis** COOPER (1939), p. 396, pl. 46, fig. 55. Holotype, 38925, Univ. Chi., pre-Welden sh., Okla. LMi

——**scolops** COOPER (1939), p. 396, pl. 46, figs. 57-58, 65. Holotype, 38926 (39826 on pl.) (fig. 57); paratypes, 38927-38928, Univ. Chi., pre-Welden sh., Okla. LMi

——**simplex** BRANSON & MEHL (July 1933a), pp. 91, 94-95, pl. 6, fig. 30; pl. 7, fig. 23. Holotype, C286-3 (fig. 30); fig. spm., C279-4 (fig. 23), Joachim fm., Mo., comp. with *Microcoelodus asymmetricus* and *symmetricus;* ——— ? BRANSON & MEHL (July 1933a), p. 160, pl. 7, fig. 18. Fig. spm., C286-2, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 69, 71, pl. 10, figs. 48, 54, Joachim fm., Mo.; ——— ? BRANSON (1944), p. 69. MO

——**spicatus** YOUNGQUIST & CULLISON (1946), pp. 583, 585, pl. 89, fig. 16. Syntypes, 2980 (fig. 16), 2981, Univ. Iowa, Dutchtown fm., Mo., comp. with *Microcoelodus cuspus.* MO

——**symmetricus** BRANSON & MEHL (July 1933a), p. 95, pl. 7, fig. 21. Holotype, C294-5, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 69, 71, pl. 10, fig. 47. MO

——**typus** BRANSON & MEHL (July 1933a), pp. 89-90, pl. 6, figs. 31-32. Holotype, C283-4, MO

Univ. Mo., Joachim fm., Mo., type species for *Microcoelodus;* ——— BRANSON & MEHL (1943), pp. 376, 383, 385, pl. 64, figs. 12, 36, 54-56. Fig. spms., C533-1 (figs. 36, 54-56), C538-1 (fig. 12), Univ. Mo., Bromide fm., lower (figs. 36, 54-56), upper (fig. 12), Okla.; ——— BRANSON & MEHL (1944), p. 241, pl. 93, fig. 70; ——— BRANSON (1944), p. 69, Joachim fm., Mo.; ——— YOUNGQUIST & CULLISON (1946), pp. 585-586, pl. 90, fig. 7. Hypotype, 2982, Univ. Iowa, Dutchtown fm., Mo., comp. with *Microcoelodus sp.* Youngquist & Cullison (1946), pl. 89, fig. 10.

——**unibrachiatus** BRANSON & MEHL (July 1933a), pp. 92-93, 95, pl. 6, fig. 23. Holotype, C281-5, Univ. Mo., Joachim fm., Mo., comp. with *Microcoelodus brevibrachiatus, duodentatus,* and *breviconus;* ——— BRANSON (1944), p. 69, Joachim fm., Mo. MO

——**unicornis** BRANSON & MEHL (July 1933a), pp. 94-96, pl. 6, fig. 33. Holotype, C290-2, Univ. Mo., Joachim fm., Mo., comp. with *Microcoelodus magnicornis* and *simplex;* ——— ? BRANSON & MEHL (July 1933a), p. 160, pl. 7, figs. 20, 24-25. Fig. spms., C285-4, Univ. Mo., Joachim fm., Mo.; ——— AMSDEN & MILLER (1942) (? after Branson & Mehl), p. 303, pl. 41, fig. 5. Fig spm., 1627, Univ. Iowa, Bighorn ss., Wyo.; ——— BRANSON (1944), p. 69, Joachim fm., Mo.; ——— ? BRANSON (1944), pp. 69, 71, pl. 10, figs. 46, 52-53, Joachim fm., Mo.; ——— YOUNGQUIST & CULLISON (1946), p. 584, comp. with *Microcoelodus machaerodus;* ——— YOUNGQUIST & CULLISON (1946) (*cf. unicornis*?), pp. 585-586, pl. 89, fig. 2. Fig. spm., 2983, Univ. Iowa, Dutchtown fm., Mo. MO

——**unilateralis** BRANSON & MEHL (July 1933a), p. 96, pl. 7, fig. 4. Holotype, C286-4, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 69, 71, pl. 10, fig. 12., Joachim fm., Mo. MO

——**? sp.** BRANSON & MEHL (July 1933a), p. 160, pl. 7, figs. 22, 26, 29. Fig. spms., C288-1 (figs. 22, 26), C272-4 (fig. 29), Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 71, pl. 10, figs. 48, 54. MO

——**sp.** BRANSON & MEHL (July 1933a), p. 160, pl. 7, figs. 6, 12. Fig. spms., C281-2 (fig. 6), C283-1 (fig. 12), Univ. Mo., Joachim fm., Mo.; ——— BRANSON & MEHL (1943), p. 384, ref. to pl. 7, fig. 6 only, classed as sr. syn. of *Microcoelodus intermedius;* ——— BRANSON (1944), p, 71. pl. 10, fig. 26; ——— YOUNGQUIST & CULLISON (1946), p. 583, ref. to pl. 7, fig. 6 only, classed as syn. of *Microcoelodus intermedius.* MO

——**sp.** STAUFFER (1935a), p. 608, pl. 74, fig. 24. Fig. spm., B4657, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 94, Minn. MO

——**sp.** STAUFFER (1940), p. 426, pl. 59, figs. 52, 68-69. Fig. spms., B5615 (fig. 52), B5630-B5631 (figs. 68-69), Univ. Minn., upper Cedar Valley ls. (fig. 52), clay above ls. (figs. 68-69), Minn.; ——— STAUFFER & THIEL (1941), p. 241. O, MD

——**sp.** AMSDEN & MILLER (1942), pl. 41, figs. 6, 14, 23. Fig. spms., 1628 (fig. 6), 1636 (fig. 14), 1645 (fig. 23), Univ. Iowa, Bighorn ss., Wyo. MO

——**? sp.** BRANSON & MEHL (1943), p. 384, pl. 64, fig. 44. Fig. spm., C532-4, Univ. Mo., lower Bromide fm., Okla. MO

——**n. sp.** YOUNGQUIST & CULLISON (1946), p. 586, pl. 89, fig. 15. Fig. spm., 2984, Univ. Iowa, Dutchtown fm., Mo. MO

——**sp.** YOUNGQUIST & CULLISON (1946), p. 586, pl. 89, fig. 10. Fig. spm., 2985, Univ. Iowa, Dutchtown fm., Mo., comp. with *Microcoelodus typus.* MO

MULTIDENTODUS HARLTON (1933), pp. 4, 13. Type species, *M. johnsvalleyensis* HARLTON (1933); ——— HUDDLE (1934), p. 35, not a conodont; ——— HARLTON (1933) (ab)Z (1937), p. 177, Branson and Mehl state this is a selachian; ——— CAMP, TAYLOR, & WELLES (1942), p. 568, Selachi, *incertae sedis.* MMi-LP

——**brevis** HARLTON (1933), p. 13, pl. 3, fig. 7. Holotype, 85524, USNM, Johns Valley sh., Okla. LP

——**gracilis** HARLTON (1933), pp. 13-14, pl. 3, figs. 5a, b. Holotype, 85526, USNM, Johns Valley sh., Okla. LP

——**irregularis** HARLTON (1933), p. 13, pl. 3, fig. 8. Holotype, 85525, USNM, Johns Valley sh., Okla. LP

——**johnsvalleyensis** HARLTON (1933), p. 13, pl. 3, fig. 3. Holotype, 85521, USNM, Johns Valley sh., Okla. LP

——**typicus** HARLTON (1933), p. 13, pl. 3, fig. 4. Holotype, 85523, USNM, Johns Valley sh., Okla. LP

——**wapanuckensis** HARLTON (1933), p. 13, pl. 3, fig. 2. Holotype, 85522, USNM, Johns Valley sh., Okla. LP

——**sp.** C. C. BRANSON (1937), pp. 653, 660, Sacajawea fm., Wyo. M-UMi

MULTIOISTODUS CULLISON (1938), pp. 219, 226. Type species, *M. subdentatus* CULLISON (1938); ——— CAMP, TAYLOR, & WELLES (1942), p. 568, Pisces, *incertae sedis;* ——— BRANSON & MEHL (1944), p. 237; ——— BRANSON (1944), p. 67; ——— ELLISON (Jan. 1946), pp. 94, 96, 109, fibrous type, upper half of Chazy; ——— YOUNGQUIST & CULLISON (1946), p. 579; ——— BRANSON, MEHL, & BRANSON (Dec. 1946), p. 1264. MO

——**lateralis** CULLISON (1938), pp. 222, 226-227, pl. 29, fig. 14. Holotype, 7166, Mo. Sch. Min., Rolla, Dutchtown fm., Mo., comp. with *Multioistodus tridens;* ——— CAMP, TAYLOR, & WELLES (1942), p. 568, Pisces, *incertae sedis;* ——— BRANSON (1944), pp. 66, 70, pl. 9, figs. 2, 10-11, 14-15, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo. MO

——**subdentatus** CULLISON (1938), pp. 222, 226-227, pl. 29, figs. 13a-b. Syntypes, 7114-7115, Mo. Sch. Min., Rolla, Dutchtown fm., Mo., comp. with *Multioistodus tridens;* ——— CAMP, TAYLOR, & WELLES (1942), p. 568, Pisces, *incertae sedis;* ——— BRANSON & MEHL (1944), p. 237, pl. 93, figs. 10, 19; ——— BRANSON (1944), pp. 66, 70, pl. 9, figs. 17-21, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo.; ——— YOUNGQUIST & CULLISON (1946), p. 586, pl. 89, figs. 12, 17-18; pl. 90, figs. 2, 13. Hypotypes, 2986 (fig. 12), 2987-2988 (figs. 17-18), 2989 (fig. 2), 2990 (fig. 13), Dutchtown fm., Mo. MO

——**tridens** CULLISON (1938), pp. 222, 227, pl. 29, figs. 15a-b. Syntypes, 7117-7118, Mo. Sch. Min., Rolla, Dutchtown fm., Mo.; ——— MO

CAMP, TAYLOR, & WELLES (1942), p. 568, Pisces, *incertae sedis;* ——— BRANSON (1944), pp. 66, 70, pl. 9, figs. 12-13, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo.; ——— YOUNGQUIST & CULLISON (1946), p. 587, pl. 90, figs. 10-11, 18. Hypotypes, 2991 (figs. 10-11), 2992 (fig. 18), Univ. Iowa, Dutchtown fm., Mo.

——**n. sp.** BRANSON (1944), p. 70, pl. 9, figs. 3, 7-9, 16, 22, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo. MO

NEOCOLEODUS BRANSON & MEHL (June 1933b), p. 24. Type species, *N. spicatus* BRANSON & MEHL (1933); ——— HUDDLE (1934), p. 35; ——— STAUFFER (1935b), p. 608; ——— LOOMIS (Oct. 1936), pp. 663-664, the median teeth of the modern gastropods *Buccinum, Nassa,* and *Fulgur* resemble this genus; ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1943), p. 375; ——— BRANSON & MEHL (1944), p. 237; ——— ELLISON (Jan. 1946), pp. 94, 109, fibrous type, Chazy through Black River; ——— YOUNGQUIST & CULLISON (1946), p. 587; ——— MILLER, CULLISON, & YOUNGQUIST (1947), p. 32. MO

——**breviconus** BRANSON & MEHL (June 1933b), pp. 24-25, pl. 1, figs. 1-3. Cotypes, C171-5, Univ. Mo., Harding ss., Colo.; ——— STAUFFER (1935b), p. 608, pl. 72, fig. 13. Fig. spm., B4528, Univ. Minn., Decorah sh., Minn.; ——— LOOMIS (Oct. 1936), p. 664, Stauffer's fig. reproduced; ——— ? STAUFFER & THIEL (1941), p. 238; ——— JOHNSON (1945), p. 22, Harding ss., Colo. MO

——**dutchtownensis** YOUNGQUIST & CULLISON (1946), pp. 587-588, pl. 90, figs. 14-15. Holotype, 2993 (figs. 14-15); paratype, 2994, Univ. Iowa, Dutchtown fm., Mo., comp. with *Neocoleodus spicatus.* MO

——**furcatus** YOUNGQUIST & CULLISON (1946), pp. 587-588, pl. 90, fig. 19. Holotype, 2995, Univ. Iowa, Dutchtown fm., Mo. MO

——**gracilis** YOUNGQUIST & CULLISON (1946), p. 588, pl. 89, fig. 1. Holotype, 2996, Univ. Iowa, Dutchtown fm., Mo. MO

——**spicatus** BRANSON & MEHL (June 1933b), p. 24, pl. 1, figs. 5-6, 37. Holotype, C171-4 (fig. 37); fig. spms., C171-2 (figs. 5-6), Univ. Mo., Harding ss., Colo., type species for *Neocoleodus;* ———? BRANSON & MEHL (June 1933b), pl. 1, figs. 4, 39. Fig. spms., C171-3 (fig. 4), C173-3 (fig. 39), Univ. Mo., Harding ss., Colo.; ——— STAUFFER (1935b), pp. 608-609, pl. 72, fig. 1. Fig. spm., B4516, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 94, Minn.; ———? STAUFFER & THIEL (1941), p. 241; ——— BRANSON & TARR (1941), p. 342, fig. 347, upper rt. cor., after Branson & Mehl (June 1933), pl. 1, fig. 37; ——— AMSDEN & MILLER (1942) (? after Branson & Mehl), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1944), p. 237, pl. 93, fig. 20; ——— JOHNSON (1945), p. 22, Harding ss., Colo.; ——— YOUNGQUIST & CULLISON (1946), pp. 587-588, pl. 89, fig. 14. Hypotype, 2997, Univ. Iowa, Dutchtown fm., Mo., comp. with *Neocoleodus dutchtownensis.* MO

——**sp.** AMSDEN & MILLER (1942), pl. 41, fig. 3. Fig. spm., 1925, Univ. Iowa, Bighorn ss., Wyo. MO

NEOCORDYLODUS COOPER (1939), p. 396. Type species, *N. orthus* COOPER (1939); ——— ELLISON (Jan. 1946), p. 109, bar type, Lower Miss., classed as a jr. syn. of *Ligonodina, Trichonodella,* and *Lonchodina.* LMi

——**alcus** COOPER (1939), p. 397, pl. 46, fig. 54; pl. 47, figs. 6-9, 38-39. Holotype, 38938 (38936 on pl.) (fig. 7); paratypes, 38936 (fig. 54), 38937, 38939-38942 (figs. 6, 8-9, 38-39), Univ. Chi., pre-Welden sh., Okla. LMi

——**apalus** COOPER (1939), p. 397, pl. 47, fig. 10. Holotype, 38943, Univ. Chi., pre-Welden sh., Okla. LMi

——**colobus** COOPER (1939) (*colbus* on pl.), p. 397, pl. 47, figs. 1-2. Holotype, 38947 (fig. 1); paratype, 38946 (fig. 2), Univ. Chi., pre-Welden sh., Okla. LMi

——**cyclus** COOPER (1939), p. 397, pl. 46, fig. 52. Holotype, 38944, Univ. Chi., pre-Welden sh., Okla. LMi

——**exochus** COOPER (1939), p. 397, pl. 47, fig. 3. Holotype, 38945, Univ. Chi., pre-Welden sh., Okla. LMi

——**macrodus** COOPER (1939), p. 397, pl. 46, fig. 62; pl. 47, fig. 12. Holotype, 38948 (fig. 62); paratype, 38949 (fig. 12), Univ. Chi., pre-Welden sh., Okla,; ——— MEHL & THOMAS (1947), p. 18, ref. to pl. 46, fig. 62 only, of Cooper (1939), classed as jr. syn. of *Trichonodella.* LMi

——**orthus** COOPER (1939), p. 396, pl. 46, figs. 53, 59-60, 66, 72; pl. 47, figs. 4, 14. Holotype, 38929 (fig. 53); paratypes, 38930-38933 (figs. 59-60, 66, 72), 38934-38935 (figs. 4, 14), Univ. Chi., pre-Welden sh., Okla.; ——— MEHL & THOMAS (1947), p. 12, classed as jr. syn. of *Ligonodina.* LMi

——**sp.** COOPER (1939), pl. 46, figs. 64, 70, 73. Fig. spms., 39871-39873, Univ. Chi., pre-Welden sh., Okla. LMi

——**sp.** COOPER (1939), pl. 47, figs. 5, 11, 13. Fig. spms., 39874-39876, Univ. Chi., pre-Welden sh., Okla. LMi

NEURODONTIFORMES BRANSON & MEHL (1944), p. 237, pl. 93. A suborder comprising the fibrous conodonts; ——— ELLISON (Jan. 1946), p. 96.

NODOGNATHUS COOPER (1939), p. 397. Type species, *N. spicata* COOPER (1939); ——— ELLISON (Jan. 1946), p. 109, platform type, Lower Miss., classed as jr. syn. of *Pseudopolygnathus.* LMi

——**campyla** COOPER (1939), pp. 397-398, pl. 40, figs. 46-48. Holotype, 38952, Univ. Chi., pre-Welden sh., Okla. LMi

——**cariis** COOPER (1939), p. 397, pl. 41, figs. 33-35. Holotype, 38951, Univ. Chi., pre-Welden sh., Okla. LMi

——**linguifera** (COOPER) (1939), pp. 398, 419, pl. 40, figs. 56-58. Hypotype, 38953, Univ. Chi., pre-Welden sh., Okla. (*Spathognathodus*). LMi

——**omphanoda** COOPER (1939), p. 398, pl. 41, figs. 11-12. Holotype, 38954, Univ. Chi., pre-Welden sh., Okla. LMi

——**spicata** COOPER (1939), p. 397, pl. 40, figs. 32-34. Holotype, 38950, Univ. Chi., pre-Welden sh., Okla. LMi

NOTHOGNATHELLA BRANSON & MEHL (June 1934a), pp. 181, 184, 225-227, 231-232. Type species, *N. typicalis* BRANSON & MEHL (1934); ——— STAUFFER (1938), p. 420; M-UD

——— BRANSON & MEHL (1938d), p. 129; ——— BRANSON & MEHL (1944), p. 243; ——— ELLISON (Jan. 1946), pp. 94, 104, 109, platform type, confined to Upper Dev.; ——— YOUNGQUIST (1947), p. 96; ——— HASS (Mar. 1947), p. 132, lower Ohio, Huron shs., Ohio; ——— MILLER & YOUNGQUIST (1947), p. 512; ——— WELLER *et al.* (Feb. 1948), p. 103, occurs in undoubted Dev. strata, used in pt. to draw break between Miss. and Dev. at base Hannibal sh.; ——— YOUNGQUIST & MILLER (1948), pp. 440, 447; ——— THOMAS (1949), pp. 407, 427, abundant in Maple Mill sh.

——**abbreviata** BRANSON & MEHL (June 1934a), p. 229, pl. 13, fig. 15. Cotypes, C311-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), pp. 157, 163, pl. 28, fig. 31. Grassy Creek sh., Mo. UD

——? **abnormis** BRANSON & MEHL (June 1934a), pp. 231-232, pl. 14, figs. 1-2. Cotypes, C371-3, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163; ——— YOUNGQUIST (1947), p. 99, comp. with *Ctenognathus falsiformis;* ——— YOUNGQUIST & MILLER (1948), p. 447, pl. 67, fig. 5. Fig. spm., 5609, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**angusta** STAUFFER (1938), pp. 413, 435-436, pl. 48, fig. 34. Holotype, B4774, Univ. Minn., Olentangy sh., locs. 111 (fig.), 118, Ohio. UD

——**bicristata** YOUNGQUIST & MILLER (1948), p. 447, pl. 68, fig. 7. Holotype, 5610, Univ. Iowa, Sweetland Creek sh., Iowa, comp. with *Nothognathella sp.* Miller & Youngquist (Nov. 1947), pl. 73, fig. 7. UD

——**bogartensis** STAUFFER (1938), pp. 413, 436, pl. 48, fig. 30. Holotype, B4770, Univ. Minn., Olentangy sh., locs. 111, 112 (fig.), Ohio. UD

——**brachyodonta** YOUNGQUIST & MILLER (1948), pp. 447-448, pl. 68, fig. 8. Holotype, 5611, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**brevidonta** YOUNGQUIST (Mar. 1947), p. 108, pl. 25, fig. 1. Holotype, 4043, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——**condita** BRANSON & MEHL (June 1934a), p. 230, pl. 13, figs. 25-26. Holotype, C312-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 49-50. UD

——**delawarensis** STAUFFER (1938), pp. 413, 436, pl. 48, fig. 25. Holotype, B4765, Univ. Minn., Olentangy sh., loc. 111, Ohio. UD

——? **dubia** MILLER & YOUNGQUIST (1947), p. 512, pl. 72, fig. 18. Holotype, 5565, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**gigantea** THOMAS (1949), pp. 408, 427-428, pl. 1, fig. 14. Holotype, C833-5, Univ. Mo., Maple Mill sh., loc. 13, Iowa, comp. with *Nothognathella minuta.* UD

——**incurva** BRANSON & MEHL (June 1934a), p. 228, pl. 13, figs. 13-14. Cotypes, C312-5, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 29-30; ——— BRANSON (1944) (*incurvata*), pp. 156, 158, pl. 27, fig. 23, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——**iowaensis** YOUNGQUIST (1945), pp. 363-364, pl. 55, fig. 7. Syntypes, 2944 (fig. 7), 2945 (5 spms.), Univ. Iowa, Independence sh.(?), Iowa. UD

——**irregularis** BRANSON & MEHL (June 1934a), pp. 230-231, pl. 13, fig. 11. Holotype, C311-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), pp. 156, 158, pl. 27, fig. 42, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BRANSON (1944), pp. 157, 163, pl. 28, fig. 25, Grassy Creek sh., Mo. UD

——**minuta** THOMAS (1949), pp. 408, 427-428, pl. 1, fig. 15. Holotype, C827-1, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——**polygnathoidea** BRANSON & MEHL (June 1934a), pp. 228-229, pl. 13, figs. 16-20. Cotypes, C310-5, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 34-36, 39-40, Grassy Creek sh., Mo. UD

——**reversa** BRANSON & MEHL (June 1934a), p. 231, pl. 13, figs. 9-10. Cotypes, C309-5, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944) (*Nothagnothella*, p. 157), pp. 157, 163, pl. 28, figs. 21-22, Grassy Creek sh., Mo. UD

——**solida** BRANSON & MEHL (June 1934a), p. 232, pl. 13, figs. 23-24. Holotype, C313-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 45-46, Grassy Creek sh., Mo.; ——— MILLER & YOUNGQUIST (1947), p. 515, comp. with *Polygnathus? rugicosta.* UD

——**typicalis** BRANSON & MEHL (June 1934a), pp. 227-228, pl. 13, figs. 7-8. Cotypes, C309-1, Univ. Mo., Grassy Creek sh., Mo., type species for *Nothognathella;* ——— BRANSON & MEHL (1944), p. 243, pl. 94, fig. 26; ——— BRANSON (1944), pp. 156, 158, pl. 27, fig. 24, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 16-17, Grassy Creek sh., Mo. UD

——**sp.** STAUFFER (1938), p. 413, Olentangy sh., locs. 118, 125, Plum Brook sh., loc. 121, Silica sh., loc. 148, Ohio. M-UD

——**n. sp.** BRANSON (1944), p. 156, pl. 27, figs. 40-41, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——? **n. sp.** BRANSON (1944), p. 156, pl. 27, figs. 10-17, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——**spp.** MILLER & YOUNGQUIST (1947), p. 512, pl. 72, fig. 17; pl. 73, fig. 7. Fig. spms., 5566 (fig. 17), 5567 (fig. 7), Univ. Iowa, Sweetland Creek sh., Iowa; ——— YOUNGQUIST & MILLER (1948), p. 447, ref. to pl. 73, fig. 7 only, of Miller & Youngquist (1947), comp. with *Nothognathella bicristata.* UD

NOWATELLA JONES (1937), p. 142. A new genus proposed only in Jones' thesis.

OISTODUS PANDER (1856), pp. 19, 27, 91. Type species, *O. lanceolatus* PANDER (1856); ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1858), p. 339; ——— EICHWALD (1860), p. 664; ——— L-UO

BOCK (1869), pp. 108-109, map; ——— ZITTEL (1890), p. 59; ——— ROHON (1894), p. 9; ——— BASSLER (1925), p. 218; ——— ULRICH & BASSLER (1926), pp. 6-7; ——— HOLMES (1928), pp. 2, 15; ——— BRANSON & MEHL (June 1933 b, d), pp. 27, 59, comp. with *Stereoconus*, Pander's desc. given; ——— BRANSON & MEHL (July 1933a-c), pp. 79, 102, 109, 131; ? ——— BRANSON & MEHL (July 1933c), p. 131, pl. 10, fig. 13. Fig. spm., C98-4, Univ. Mo., Maquoketa-Thebes fm., Mo.; ——— HUDDLE (1934), p. 34; ——— STAUFFER (1935a), p. 146, Pander's desc. trans.; ——— STAUFFER (1935b), p. 609, Pander's desc. trans.; ——— ZEBERA (1936b), p. 189; ——— LOOMIS (Oct. 1936), pp. 663-664, the marginal teeth of the modern gastropods *Trochus* and *Haliotis* resemble this genus; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood sh., S. D.; ——— CULLISON (1938), p. 226, comp. with *Multioistodus;* ——— FURNISH (1938), pp. 320-323, 329, 336, 338, comp. with *Acanthodus* and *Cordylodus;* ——— STAUFFER (1940), pp. 417, 426; ——— HASS (1941), p. 71; ——— BRANSON & MEHL (1941d), p. 201; ——— GRAVES & ELLISON (1941), pp. 3-5, 13; ——— AMSDEN & MILLER (1942), pp. 303, 306, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1943), pp. 375, 381; ——— CRESPIN (1943), pp. 231-232; ——— BRANSON & MEHL (1944), pp. 239-240; ——— ELLISON (Jan. 1946), pp. 94, 100, 109, simple cone, upper half of Beekmantown through Upper Ord.

——**abundans** BRANSON & MEHL (July 1933b), p. 109, pl. 9, figs. 11, 17. Cotypes, C107-2, Univ. Mo., Plattin ls., Mo.; ——— STAUFFER (1935a), pp. 146, 159, pl. 12, fig. 22. Fig. spm., B4438, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 609, pl. 75, figs. 2, 7, 11-13, 19. Fig. spms., B4685 (fig. 2), B4690 (fig. 7), B4694-B4696 (figs. 11-13), B4702 (fig. 19), Univ. Minn., Decorah sh., locs. 6, 8, 17, 37 (fig. 19), 43, 48 (figs. 7, 12-13), 40 (fig. 11), 49, 57, 61, 65-66, 67 (fig. 2), 75, 77, 79, 86-87, 89, 92, 94, Minn.: ——— LOOMIS (Oct. 1936), p. 664, Stauffer's (1935b) pl. 75, fig. 13 reproduced; ——— STAUFFER (1940), p. 426, pl. 60, fig. 20. Fig. spm., B5659, Univ. Minn., clay above ls., Minn.; ——— STAUFFER & THIEL (1941), pp. 238, 241, 245; ——— GRAVES & ELLISON (1941), pp. 4, 7, 14, pl. 2, figs. 19-20. Hypotypes, 1688 (fig. 19), 1759 (fig. 20), Mo. Sch. Min., Rolla, Fort Pena beds, locs. G414 (fig. 20), G421 (fig. 19), Tex., comp. with *Oistodus prodentatus;* ——— IMBT (1941), p. 148, Maquoketa sh., Kans.; ——— BRANSON & MEHL (1943), pp. 376, 386, pl. 64, fig. 11. Fig. spm., C524-5, Univ. Mo., lower Viola ls., Okla.; ——— BRANSON (1944), pp. 79-80, pl. 11, figs. 26, 38, Plattin ls., Mo.; ——— YOUNGQUIST (1945), p. 364, comp. with *Oistodus ? sp.* Youngquist (1945). M-UO

——**acuminatus** PANDER (1856), pp. 5-7, Table A to p. 20, fig. 6; p. 27, pl. 2, fig. 20, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 15, pl. 2, fig. 14, Pander's pl. 2, fig. 20a is fig. 14 left; 20b is 14 rt.; ——— BRANSON & MEHL (1944), p. 240, pl. 93, figs. 24-25. LO

——**acuminatus** STAUFFER (1935a), pp. 146, 159, pl. 12, fig. 33. Holotype, B4449, Univ. Minn., Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**arcuatus** (BRANSON & MEHL) (July 1933d), p. 153 (possibly *Drepanodus*).

——**breviconus** BRANSON & MEHL (July 1933b), pp. 109-110, pl. 9, figs. 13-14. **Cotypes,** C106-3, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 79-80, pl. 11, figs. 31-32, Plattin ls., Mo.; ——— BRANSON (1944), pp. 89-90, pl. 13, figs. 7-8, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——**brevis** STAUFFER (1935b), p. 609, pl. 74, fig. 32. Holotype, B4665, Univ. Minn., Decorah sh., locs. 17, 40 (fig.), Minn.; ——— STAUFFER & THIEL (1941), pp. 238, 241. MO

——**concavus** BRANSON & MEHL (June 1933d), p. 59, pl. 4, fig. 6. **Cotypes, C302-4, Univ.** Mo., Jefferson City fm., Mo.; ——— BRANSON & MEHL (July 1933b), p. 110, comp. with *Oistodus curvatus;* ——— FURNISH (1938), pp. 320, 329, pl. 41, figs. 16-17. Hypotypes, 1292-1293 (figs. 16-17), Univ. Iowa, rare in Shakopee beds (fig. 16), Wis., and Blue Earth beds (fig. 17), Minn.; ——— STAUFFER & THIEL (1941), p. 246; ——— BRANSON (1944), p. 55, Jefferson City fm., Mo. LO

——**curvatus** BRANSON & MEHL (July 1933b), pp. 110-111, pl. 9, figs. 4, 10, 12. Cotypes, C106-5, Univ. Mo., Plattin ls., Mo.; ——— STAUFFER (1935a), pp. 146, 159, pl. 12, figs. 20, 23-24, 27, 29-30, 36. Fig. spms., B4436 (fig. 20), B4439-B4440 (figs. 23-24), B4443 (fig. 27), B4445-B4446 (figs. 29-30), B4452 (fig. 36), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 609, pl. 74, figs. 5, 10, 12, 17, 20-23, 25-29, 31, 33-40, 47-49. Fig. spms., B4638 (fig. 5), B4643 (fig. 10), B4645 (fig. 12), B4650 (fig. 17), B4653-B4656 (figs. 20-23), B4658-B4662 (figs. 25-29), B4664 (fig. 31), B4666-B4673 (figs. 33-40), B4680-B4682 (figs. 47-49), Univ. Minn., Decorah sh., Minn.; Spechts Ferry memb., Iowa, locs. 2, 6-7, 9-10, 15, 16 (fig. 34), 17, 19, 23, 24 (fig. 21), 26-27, 30, 37, 40 (figs. 22, 33), 48 (fig. 47), 49 (fig. 23), 52, 55-57, 61, 62 (figs. 25, 27), 64-66, 67 (figs. 17, 39), 68-69, 71, 76-78, 86-87, 89, 92, 94 (figs. 10, 12, 20, 26, 28-29, 31, 35-37, 40, 48), 95 (fig. 38), 96 (fig. 49); ——— LOOMIS (Oct. 1936), p. 664, Stauffer's (1935b) pl. 74, figs. 28, 35, 40 reproduced; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, pl. 1, fig. 8; pl. 2, figs. 17-18. Fig. spms., 1212 (fig. 17), 1213 (fig. 18), Univ. Iowa, lower Whitewood sh., S. D.; ——— WETZEL (1940), p. 77, comp. Form XI with Stauffer's (1935a) pl. 12, fig. 20; ——— STAUFFER & THIEL (1941), pp. 238, 241, 245; ——— GRAVES & ELLISON (1941), pp. 4, 6-7, pl. 1, fig. 8; pl. 3, figs. 17, 21, 24, 27. Hypotypes, 1341 (fig. 8), 3171 (fig. 17), 3287 (fig. 21), 3312 (figs. 24, 27), Mo. Sch. Minn., Rolla, lower Marathon fm., locs. G218 (fig. 8), G223; Maravillas fm., locs. G616 (figs. 24, 27), G620 (fig. 17), G606 (fig. 21), Tex.; ——— IMBT (1941), p. 148, Maquoketa sh., Kans.; ——— AMSDEN & MILLER (1942), p. 303, fig. 2 B. Fig. spm., 1619, Univ. Iowa, Bighorn ss., Wyo.; ——— L-UO

CRESPIN (1943), p. 232, comp. with *Oistodus larapintinensis;* ——— BRANSON (1944), pp. 79-80, pl. 11, figs. 8, 25, 30, Plattin ls., Mo.; ——— BRANSON (1944), pp. 81, 89, pl. 12, figs. 37-38, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo.

——**erectus** STAUFFER (1935b), pp. 609-610, pl. 74, fig. 50. Holotype, B4683, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 40, Minn.; ——— FURNISH (1938), pp. 320, 329-330, pl. 42, fig. 4. Syntypes, 1294 (fig.), 1295-1298, Univ. Iowa, rare in Oneota fm., Iowa (fig.) and Minn., Blue Earth beds, Minn., Shakopee dol., Wis.; ——— STAUFFER & THIEL (1941), pp. 241, 246. L-MO

——**excelsus** STAUFFER (1935b), p. 610, pl. 74, fig. 43. Holotype, B4676, Univ. Minn., Decorah sh., Minn.; Spechts Ferry memb., Iowa, locs. 10 (fig. 43), 15, 26-27, 62; ——— STAUFFER & THIEL (1941), pp. 238, 241. MO

——**expansus** BRANSON & MEHL (June 1933d), p. 60, pl. 4, fig. 4. Cotypes, C301-2 (fig.), C304-4, Univ. Mo., Jefferson City fm., Mo.; ——— BRANSON & MEHL (July 1933b), p. 109, comp. with *Oistodus abundans;* ——— BRANSON (1944), p. 55, Jefferson City fm., Mo. LO

——**extensus** GRAVES & ELLISON (1941), pp. 3-4, 7, 13, pl. 1, figs. 16, 28. Holotype, 7134 (fig. 16); paratype, 7135 (fig. 28), Mo. Sch. Min., Rolla, Marathon fm., locs. G201 (lower memb., fig. 16), G209 (upper memb., fig. 28), Tex., comp. with *Oistodus prodentatus.* LO

——**fornicalus** STAUFFER (1935b), p. 610, pl. 75, figs. 3-6. Syntypes, B4686-B4688 (figs. 3-5); paratype, B4689 (fig. 6), Univ. Minn., Decorah sh., locs. 40, 43, 57 (fig. 4), 67 (fig. 6), 94 (fig. 5), 96 (fig. 3), Minn., Iowa; ——— LOOMIS (Oct. 1936), p. 664, Stauffer's (1935b) pl. 75, fig. 4 reproduced; ——— STAUFFER & THIEL (1941), pp. 238, 241; ——— GRAVES & ELLISON (1941), pp. 4, 7, pl. 1, figs. 15, 17; pl. 2, figs. 15, 18. Hypotypes, 1352 (pl. 1, fig. 15), 1354 (fig. 17), 1492 (fig. 15), 1493 (fig. 18), Mo. Sch. Mines, Rolla, Fort Pena beds, locs. G407 (pl. 2, fig. 15), G408, G414 (fig. 18); lower pt. of upper Marathon fm., loc. G203 (fig. 15); Monument Springs memb. of Marathon fm., loc. G225 (fig. 17), Tex. L-MO

——**giganteus** STAUFFER (1935b), p. 610, pl. 74, fig. 45. Holotype, B4678, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 94, Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**gracilis** BRANSON & MEHL (June 1933d), p. 60, pl. 4, fig. 20. Cotypes, C303-4 (fig. 20), C305-4, Univ. Mo., Jefferson City fm., Mo.; ——— BRANSON & TARR (1935), p. 337, fig. 350, lower rt. cor., same as C303-4; ——— GRAVES & ELLISON (1941), pp. 4, 6, 7, pl. 1, figs. 26, 30, 33; pl. 3, fig. 16. Hypotypes, 1362 (figs. 26, 33), 1363 (fig. 30), 3160 (fig. 16), Mo. Sch. Mines, Rolla, Maravillas fm., loc. G611 (fig. 16); Fort Pena beds, locs. G414, G416, G419; Marathon fm., upper memb., locs. G204 (fig. 30), G209 (figs. 26, 33), G210, lower memb., loc. G223, Tex.; ——— BRANSON (1944), p. 55, Jefferson City fm., Mo. L-UO

——**humilis** STAUFFER (1938), pp. 413, 436, pl. 49, fig. 26. Holotype, B5085, Univ. Minn., specimen lost, Silica sh. admixture, loc. 147, Ohio. O & MD

——**inaequalis** PANDER (1856), p. 27, pl. 2, fig. 37. Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 15, pl. 2, fig. 13. Pander's pl. 2, fig. 37a is fig. 13 left and 37b is fig. 13 rt.; ——— BRANSON & MEHL (1944), p. 240, pl. 93, fig. 44, Tremadoc, Estonia. LO

——**inclinatus** BRANSON & MEHL (July 1933b), p. 110, pl. 9, fig. 8. Cotypes, C100-1, Univ. Mo., Plattin ls., Mo.; ——— STAUFFER (1935a), pp. 147, 159, pl. 12, fig. 21. Fig. spm., B4437, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), pp. 610-611, pl. 74, fig. 41; pl. 75, figs. 9, 14. Fig. spms., B4674 (fig. 41), B4692 (fig. 9), B4697 (fig. 14), Univ. Minn., Decorah sh., loc. 94 (fig.), Minn.; Spechts Ferry memb., locs. 27, 30, 40, 70, 91, Iowa; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, pl. 1, fig. 7; pl. 2, fig. 19. Fig. spms., 1181 (fig. 7), 1214 (fig. 19), Univ. Iowa, lower Whitewood sh., S. D.; ——— FURNISH (1938), pp. 320, 330, pl. 41, fig. 18. Hypotypes, 1299 (fig.), 1300-1302, Univ. Iowa, rare in Blue Earth beds and Oneota fm., Minn., and Shakopee beds (fig.), Wis.; ——— STAUFFER & THIEL (1941), pp. 238, 241, 245-246; ——— GRAVES & ELLISON (1941), pp. 5-7, pl. 2, fig. 16; pl. 3, fig. 18. Hypotypes, 1494 (fig. 16), 3382 (fig. 18), Mo. Sch. Mines, Rolla, Maravillas fm., locs. G602, G607 (fig. 18); Fort Pena beds, locs. G407, G410 (fig. 16), Tex.; ——— BRANSON & MEHL (1943), pp. 376, 386, pl. 64, fig. 1. Fig. spm., C541-4, Univ. Mo., lower Viola fm., Okla.; ——— BRANSON (1944), pp. 79-80, pl. 11, fig. 16, Plattin ls., Mo. L-UO

——**incurvus** (BRANSON & MEHL) (July 1933d), p. 154, possibly *Drepanodus incurvus* should be changed to *Oistodus.*

——**lanceolatus** PANDER (1856), pp. 5-7, 27, pl. 2, figs. 17-19; pl. 3, fig. 1, type species for *Oistodus,* Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1860), p. 664; ——— ULRICH & BASSLER (1926), p. 7, fig. 2, subfig. 8, Pander's pl. 2, figs. 19a, 19b, and 19c are the left, rt., and mid. figs. resp.; ——— HOLMES (1928), p. 15, pl. 2, figs. 15-17, Pander's pl. 2, figs. 17, 18b, 18a, 18c, 19a, 19c, 19b are figs. 15, 16 left, 16 mid., 16 rt., 17 left, 17 mid., and 17 rt., resp.; ——— FURNISH (1938), pp. 329, 338, comp. with *Cordylodus subangulatus;* ——— HASS (1941), p. 75, pl. 15, fig. 1, Pander's pl. 3, fig. 1 is fig.; ——— BRANSON & MEHL (1944), pp. 239-240, pl. 93, fig. 23, topotype from Tremadoc of Estonia; ——— GLAESSNER (1945), p. 26, fig. 2, subfig. 8, after Ulrich & Bassler (1926). LO

——**larapintinensis** CRESPIN (1943), pp. 231-232, pl. 31, figs. 1-13. Holotype, 234 (fig. 1); paratypes, 235-246 (figs. 2-13), Commonwealth Paleont. Coll., Canberra, Australia, Larapintine series, Australia. MO

——**mehli** FURNISH (1938), pp. 320, 330, pl. 42, figs. 7-8. Syntypes, 1303 (fig. 7), 1304-1305, 1306 (fig. 8), Univ. Iowa, common in Oneota fm., Minn. (fig. 7), rare in Iowa (fig. LO

8); ——— STAUFFER & THIEL (1941), p. 246.

——ovatus STAUFFER (1935a), pp. 147, 159, pl. 12, fig. 34. Holotype, B4450, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——pandus BRANSON & MEHL (June 1933d), p. 61, pl. 4, figs. 21-22. Cotypes, C307-3, Univ. Mo., Jefferson City fm., Mo.; ——— BRANSON & MEHL (July 1933b), pp. 110-111, comp. with *Oistodus curvatus;* ——— FURNISH (1938), pp. 320, 330, 336, pl. 42, fig. 5. Hypotypes, 1307 (fig. 5), 1308-1309, Univ. Iowa, rare in Blue Earth beds, Minn. (fig. 5) and Shakopee dol., Wis., comp. with *Drepanodus subarcuatus, Cordylodus simplex,* and *Acanthodus;* ——— STAUFFER & THIEL (1941), p. 246; ——— GRAVES & ELLISON (1941), pp. 4-5, 7, pl. 1, figs. 2, 31, 34; pl. 2, fig. 34. Hypotypes, 1333 (figs. 2, 34 of pl. 1), 1336 (fig. 31), 2102 (pl. 2, fig. 34), Mo. Sch. Mines, Rolla, Fort Pena beds, locs. G408, G416 (pl. 2, fig. 34); Marathon fm., upper memb., locs. G229, G203 (figs. 2, 34 of pl. 1), Monument Springs memb., loc. G225 (fig. 31), Tex.; ——— BRANSON (1944), p. 55, Jefferson City fm., Mo. L-MO

——parallelus PANDER (1856), pp. 6, 27, pl. 2, fig. 40, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 15, pl. 2, fig. 12, same as Pander's pl. 2, fig. 40. LO

——prodentatus GRAVES & ELLISON (1941), pp. 4-5, 7, 13-14, pl. 2, figs. 6, 22-23, 28. Holotype, 7136 (fig. 28); paratypes, 7137-7139 (figs. 22, 23, 6 resp.), Mo. Sch. Mines, Rolla, Wood's Hollow fm., loc. G504 (fig. 6); Fort Pena beds, locs. G403, G407 (fig. 23), G412 (fig. 28), G414 (fig. 22), G419, Tex., comp. with *Oistodus extensus.* MO

——suberectus BRANSON & MEHL (July 1933b), p. 111, pl. 9, fig. 7. Cotypes, C106-4, Univ. Mo., Plattin ls., Mo.; ——— STAUFFER (1935a), pp. 147, 159, pl. 12, figs. 14, 19, 28, 31, 35. Fig. spms., B4430 (fig. 14), B4435 (fig. 19), B4444 (fig. 28), B4447 (fig. 31), B4451 (fig. 35), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 611, pl. 74, figs. 18, 42, 46. Fig. spms., B4651 (fig. 18), B4675 (fig. 42), B4679 (fig. 46), Univ. Minn., Decorah sh., locs. 16, 37, 40 (fig. 42), 48 (fig. 18), 64, 71, 89, 94 (fig. 46), Minn.; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, pl. 1, fig. 9. Fig. spm., 1183, Univ. Iowa, lower Whitewood siltstone, S. D.; ——— STAUFFER & THIEL (1941), pp. 238, 241, 245; ——— GRAVES & ELLISON (1941), pp. 4, 7, pl. 1, fig. 32. Hypotype, 1367, Mo. Sch. Mines, Rolla, upper Marathon fm., loc. G209, Tex.; ——— BRANSON & MEHL (1943), pp. 376, 385, pl. 64, fig. 16. Fig. spm., C539-2, Univ. Mo., upper Bromide fm., Okla.; ——— BRANSON (1944), pp. 79-80, pl. 11, fig. 15, Plattin ls., Mo.; ——— BRANSON (1944), pp. 89-90, pl. 13, fig. 40, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. L-MO

——? triangularis FURNISH (1938), pp. 320, 322, 330-331, pl. 42, fig. 22; fig. 1 P, same as fig. 22. Syntypes, 1310 (fig. 22), 1311, Univ. Iowa, common in Oneota fm., Minn.; ——— STAUFFER & THIEL (1941), p. 246. LO

——venustus STAUFFER (1935a), pp. 147, 159, pl. 12, fig. 12. Holotype, B4428, Univ. Minn., Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——vulgaris BRANSON & MEHL (June 1933d), pp. 60-61, pl. 4, fig. 5. Holotype, C306-2, Univ. Mo., Jefferson City fm., Mo.; ——— GRAVES & ELLISON (1941), pp. 5, 7, pl. 2, fig. 14. Hypotype, 1491, Mo. Sch. Mines, Rolla, Fort Pena beds, loc. G414, Tex.; ——— BRANSON (1944), p. 55, Jefferson City fm., Mo. L-MO

——? sp. BRANSON & MEHL (July 1933b), p. 162, pl. 9, fig. 3. Fig. spm., C101-2, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 79-80, pl. 11, fig. 3. MO

——spp. IMBT (1941), p. 148, Maquoketa sh., Kans. UO

——? sp. indet. BRANSON & MEHL (1943), p. 381, pl. 63, fig. 9. Fig. spm., C528-2, Univ. Mo., McLish fm., Okla. MO

——n. sp. BRANSON (1944), p. 52, pl. 7, figs. 5-6, after Mehl and Ryan, from William Ryan's master's thesis (1940), Univ. Mo., Jefferson City fm., Mo. LO

——n. sp. BRANSON (1944), pp. 89-90, pl. 13, figs. 1-6, 41, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——? sp. YOUNGQUIST (1945), p. 364, pl. 55, fig. 6. Fig. spm., 2946, Univ. Iowa, Independence sh.?, Iowa. UD

OLIGODUS COOPER (1939), p. 398. Type species, *O. curtus* COOPER (1939). LMi

——curtus COOPER (1939), p. 398, pl. 47, figs. 48-49. Holotype, 38955, Univ. Chi., pre-Welden sh., Okla. LMi

OTTAWELLA WILSON (1948), p. 55. Type species, *O. sinclairi* WILSON (1948). Miss Wilson states that this is a scolecodont (personal correspondence). MO

——sinclairi WILSON (1948), pp. 5, 55, pl. 24, fig. 6. Holotype, G. W. Sinclair coll., Cobourg beds, Ont. MO

OTTAWINA WILSON (1948), p. 56. Type species, *O. trentonensis* WILSON (1948). Miss Wilson states that this is a scolecodont (personal correspondence). MO

——trentonensis WILSON (1948), pp. 5, 56, pl. 25, fig. 5. Holotype, G. W. Sinclair coll., Cobourg beds, Ont. MO

OULODUS BRANSON & MEHL (July 1933b), p. 116. Type species, *O. mediocris* BRANSON & MEHL (July 1933b); ——— HUDDLE (1934), p. 35; ——— BRANSON & MEHL (1944), p. 244; ——— ELLISON (Jan. 1946), pp. 95, 108-109, bar type, confined to Black River; *Gyrognathus* (sp. *Gyrocanthus*) is classed as a jr. syn. MO

——mediocris BRANSON & MEHL (July 1933b), p. 116, pl. 10, figs. 8-9. Cotypes, C113-4, Univ. Mo., Plattin ls., Mo.; ——— BRANSON & MEHL (1944), p. 244, pl. 94, figs. 7-8; ——— BRANSON (1944), p. 79, Plattin ls., Mo. MO

——? n. sp. BRANSON (1944), pp. 89-90, pl. 13, figs. 14-15 (no. ? p. 89), after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

OZARKODINA BRANSON & MEHL (June 1933c), pp. 47, 51. Type species, *O. typica* BRANSON & MEHL (June 1933c), comp. with *Plectospathodus* Branson & Mehl (June 1933c); ——— BRANSON & MEHL (July 1933 a, b, c, d), pp. 100, 118, 122, 128, 130, 155-156, comp. with *Prioniodus;* ——— BRANSON & MEHL (June 1934a), p. 192; ——— BRANSON & MEHL (Oct. 1934a), pp. 285, 287, comp. with *Subbryantodus;* ——— E. R. BRANSON (1934), p. 322; ——— HUDDLE (1934), p. 35; ——— STAUFFER (1935a), pp. 147-149, comp. with *Bryantodina;* ——— STAUFFER (1935b), p. 611; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood sh. and siltstone, S. D.; ——— BRANSON & MEHL (1938d), p. 140; ——— BRANSON & MEHL (Mar. 15, 1939b), p. 167; ——— COOPER (1939), p. 398; ——— STAUFFER (1940), pp. 417, 426; ——— BRANSON & MEHL (1941a), p. 177, Caney sh., Okla.; ——— BRANSON & MEHL (1941b), pp. 180, 184; ——— ELLISON (1941), pp. 109, 120; ——— GRAVES & ELLISON (1941), pp. 5, 14; ——— ELLISON & GRAVES (1941), p. 2; ——— SCOTT (1942), p. 295; ——— DUBOIS (1943), pp. 156-157; ——— SCOTT (1942) rNRC (1943), p. 21; ——— BRANSON & MEHL (1944), p. 244; ——— BRANSON (1944), p. 67; ——— ELLISON (Jan. 1946), pp. 95-96, 104, 108-110, Black River through Wolfcamp, *Ozarkodina* grades into *Solenodella; Ctenognathus* (pt.) is a sr. syn. and *Ligonodinoides* (pt.), *Plectodina* (pt.), and *Tortoniodus* (pt.) are classed as jr. syns.; ——— YOUNGQUIST & CULLISON (1946), pp. 588-589; ——— BOND (1947), p. 32; ——— HASS (Mar. 1947), p. 132; ——— MEHL & THOMAS (1947), p. 14; ——— COOPER (1947b), p. 269; ——— YOUNGQUIST & HEEZEN (1948), p. 771; ——— YOUNGQUIST & PATTERSON (1949), p. 60; ——— YOUNGQUIST & DOWNS (1949), pp. 161-162, 168-169; ——— THOMAS (1949), p. 428; ——— STURGEON & YOUNGQUIST (1949), pp. 380, 382, 385. MO-LPm

——**abnormis** BRANSON & MEHL (June 1934a), pp. 193-194, pl. 17, fig. 6. Holotype, C364-3, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163. UD

——**abnormis** (COOPER) (1939), p. 398, pl. 43, figs. 43-44. Hypotype, 38957, Univ. Chi., pre-Welden sh., Okla., [*Spathognathodus abnormis* Branson & Mehl (1938), p. 138, pl. 34, fig. 11]. LMi

——? **abrupta** BRANSON & MEHL (July 1933a), p. 100, pl. 6, fig. 11. Holotype, C295-1, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 69. MO

——**amorphina** STAUFFER (1935a), pp. 148, 159, pl. 10, fig. 50. Holotype, B4365, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**arcuata** BRANSON & MEHL (June 1934a), p. 193, pl. 17, fig. 7. Holotype, C229-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163. UD

——**campbelli** YOUNGQUIST & HEEZEN (1948), p. 771, pl. 118, fig. 1. Holotype, 4168, Univ. Iowa, black sh. ¾ mi. NW of Knoxville, Iowa, comp. with *Ozarkodina delicatula;* ——— YOUNGQUIST & DOWNS (1949), p. 161. MP

——**concinna** STAUFFER (1935a), pp. 148, 159, pl. 10, figs. 41, 45-46. Cotypes, B4356, B4360-B4361, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 611, pl. 71, figs. 2, 4-5, 8, 14, 17-19, 22, 26. Fig. spms., B4466, B4468-B4469, B4472, B4478, B4481-B4483, B4486, B4490, Univ. Minn., Decorah sh., Minn., and Spechts Ferry memb., Iowa, locs. 8, 11, 15, 17, 19, 24, 28, 30, 37, 40, 48, 52, 55, 61, 64, 70-71, 74-76, 78, 86, 93, 94 (figs. 2, 5, 8, 14, 17-18, 22, 26), 96 (figs. 4, 19); ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, pl. 2, fig. 10. Fig. spm., 1205, Univ. Iowa, lower Whitewood sh., S. D.; ——— STAUFFER (1940), pp. 426-427, pl. 59, figs. 1-2, 6-7. Fig. spms., B5566-B5567, B5571-B5572, Univ. Minn., Ord. and Mid. Dev. clay above ls., Austin, Minn.; ——— STAUFFER & THIEL (1941), pp. 238, 241, 245; ——— BRANSON (1944), pp. 67, 70, pl. 9, figs. 5-6, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo.; ——— BRANSON (1944), pp. 89-90, pl. 13, figs. 29-33, 42, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——**congesta** STAUFFER (1940), p. 427, pl. 59, fig. 12. Holotype, B5577, Univ. Minn., clay above ls., Austin, Minn., and upper Cedar Valley ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. MD

——**crenulata** STAUFFER (1935a), pp. 148, 159, pl. 10, fig. 43. Holotype, B4358, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**ctenulata** YOUNGQUIST & CULLISON (1946), p. 588, pl. 89, fig. 3. Holotype, 2998, Univ. Iowa, Dutchtown fm., Mo. MO

——**delecta** STAUFFER (1935a), pp. 148, 159, pl. 10, fig. 40. Holotype, B4355, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**delicatula** (ELLISON) (1941), pp. 108-111, 120, pl. 20, figs. 40-42, 47. Hypotypes, C556-3 (fig. 40), C85-4 (fig. 47), C-B9-7B, C-B9-2B, C511-4,5(G), C512-1,2(G), C563-4, 5(B), C564-1 to 5(B), C565-1 to 5(B), Univ. Mo., Cherokee through Big Blue, locs. 0111, 1346-51 (figs. 41-42), 0110, 389, 675, 1027, 683, 672, 1038, 682, 716, 0158, 717, 1102, 0084, 0039, 0001, 0128, 1368, 0132, 1274, 1284, 1367, 1354, 0107, 0144, 0148, 1273, 1283, 1362, 0108, 0151, 0141, 0017 (fig. 40), 0149, 0116, 0155, 0140, 1359, 0138, 1371, 0043 (fig. 47), 0112, 0006-0007, 0081, 0094, Mo. and Kans.; *Bryantodus nasutus, sulcatus* Stauffer & Plummer (1932) and *Bryantodus delicatus, rugosus, strigatus, strigillatus* Gunnell (1933) are classed as jr. syns. (*Bryantodus delicatulus*); ——— (ELLISON & GRAVES) (1941), pp. 3-4, pl. 1, figs. 12-14. Hypotypes, 4773-4775, Mo. Sch. Mines, Rolla, Dimple fm., mid., locs. G903, G907 (fig. 14), G917 (fig. 13), G926 (fig. 12), Tex.; ——— (BRANSON) (1944), p. 327; ——— (BOND) (1947), pp. 21, 32, pl. 2, figs. 7, 12. Hypotypes, 18398, 18402, Ohio Univ., lower Ohio sh., Ohio; ——— (YOUNGQUIST & HEEZEN) (1948), pp. 771-772, pl. 118, fig. 6. Fig. spm., 4169, Univ. Iowa, black sh. ¾ mi. NW Knoxville, Iowa; ——— (YOUNGQUIST & DOWNS) (1949), pp. 161, 168-169, pl. 30, figs. 1, 3, 7, 11. Fig. spms., 14038-14041, Univ. Iowa, sh ¾ mi. NW Knoxville, Iowa, comp. with *Ozarkodina* UD, LP-LPm

lauta; ——— (STURGEON & YOUNGQUIST) (1949), p. 385, comp. with *Ozarkodina sp.* Sturgeon & Youngquist (1949).

——**dera** COOPER (1939), p. 398, pl. 43, fig. 14. Holotype, 38956, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), p. 170, pl. 28, figs. 11, 17, black sh. base Madison gr., locs. 1-2, Alta. and Mont. LMi

——**elongata** E. R. BRANSON (1934), p. 323, pl. 28, fig. 25. Holotype, C205-4, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), pp. 133, 140, comp. with *Ozarkodina sp.* of above authors; ——— BRANSON (1944), p. 221; ——— THOMAS (1949) (*cf. elongata*), p. 411, pl. 4, fig. 28. Fig. spm., C813-5, Univ. Mo., English River siltstone, loc. 10, SE Iowa. LMi

——? **equilatera** BRANSON & MEHL (July 1933b), p. 118, pl. 10, fig. 7. Holotype, C29-3, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), p. 79. MO

——**fragilis** E. R. BRANSON (1934), pp. 322-323, pl. 28, fig. 23. Holotype, C207-3, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 8; ——— BRANSON (1944), pp. 181, 221, pl. 32, fig. 8. LMi

——**insolita** STAUFFER (1935a), pp. 149, 159, pl. 10, figs. 44, 47. Holotype, B4362 (fig. 47); paratype, B4359 (fig. 44), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**lauta** YOUNGQUIST & DOWNS (1949), pp. 161, 169, pl. 30, fig. 5. Holotype, 14042, Univ. Iowa, sh. ¾ mi. NW Knoxville, Iowa. MP

——**macra** BRANSON & MEHL (June 1934a), p. 192, pl. 17, fig. 5. Cotypes, C364-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163. UD

——**macrodentata** GRAVES & ELLISON (1941), pp. 4-5, 7, 14, pl. 2, figs. 33, 35-36. Holotype, 7140 (fig. 35); paratypes, 7141 (fig. 33), 7142 (fig. 36), Mo. Sch. Mines, Rolla, Fort Pena fm., locs. G406-G407, G414 (fig.), Tex. MO

——**millensis** THOMAS (1949) (*mellensis* p. 408), pp. 408, 428, pl. 2, fig. 18. Holotype, C829-5, Univ. Mo., Maple Mill sh., loc. 13, SE Iowa. UD

——**missouriensis** YOUNGQUIST & CULLISON (1946), pp. 588-589, pl. 90, fig. 20. Holotype, 2999, Univ. Iowa, Dutchtown fm., Mo. MO

——**multidentata** BRANSON & MEHL (June 1934a), p. 193, pl. 17, fig. 8. Holotype, C364-2, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 163. UD

——**mutabilis** BRANSON & MEHL (1941a), p. 177, pl. 5, fig. 16. Syntypes, C542-5, Univ. Mo., lower Caney sh., Okla. UMi

——**parva** CAMPBELL (1946), pp. 844-845, Blackiston fm., Ind., ident. by Huddle. UD

——**pauperata** STAUFFER (1935b), p. 611, pl. 71, figs. 16, 24. Syntypes, B4480, B4488, Univ. Minn., Decorah sh., locs. 47, 48 (fig. 16), 67 (fig. 24), 85, 89, 94, Minn.; ——— STAUFFER & THIEL (1941), pp. 238, 241. MO

——? **polita** (BRANSON & MEHL) (July 1933d), pp. 155-156, pl. 12, fig. 16 (no ? on pl.). Cotype, A4330, British Mus., Lorraine-Dundas gr., Garrison Common, Ont., [*Prioniodus ? politus* Hinde (1879), pl. 15, fig. 11 = *Bryantodus* Holmes (1928), pl. 5, fig. 16]. UO

——**regularis** BRANSON & MEHL (Oct. 1934a), p. 287, pl. 23, figs. 13-14. Cotypes, C386-2, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 181; ——— BRANSON & MEHL (1938d), pl. 33, fig. 32; ——— COOPER & SLOSS (1943), p. 170, pl. 29, fig. 12, black sh. base Madison gr., loc. 1, Alta.; ——— BRANSON & MEHL (1944), p. 244, pl. 94, fig. 17; ——— BRANSON (1944), pp. 181, 221, pl. 32, fig. 32; ——— THOMAS (1949) (*cf. regularis*), p. 408, pl. 2, fig. 11. Fig. spm., C829-1, Univ. Mo., Maple Mill sh., loc. 13, SE Iowa. UD?, LMi

——**reperta** STAUFFER (1935a), pp. 149, 159, pl. 10, fig. 37. Holotype, B4352, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**robusta** STAUFFER (1935b), p. 612, pl. 71, figs. 1, 3, 6-7, 9-13, 15, 21. Syntypes, B4467, B4471, B4476 (figs. 3, 7, 12 resp.); paratypes, B4465, B4470, B4473-B4475, B4477, B4479, B4485, Univ. Minn., Decorah sh., Minn., and Spechts Ferry memb., Iowa, locs. 16, 22, 27, 37, 52, 68, 94 (figs. 1, 3, 6-7, 9-11, 13, 21), 95, 96 (figs. 12, 15); ——— FURNISH, BARRAGY, & MILLER (1936) (*cf. robusta* on pl.), p. 1334, pl. 1, fig. 14. Fig. spm., 1188, Univ. Iowa, lower Whitewood siltstone, S. D.; ——— STAUFFER & THIEL (1941), pp. 238, 241. MO

——**simplex** BRANSON & MEHL (June 1933c), p. 52, pl. 3, figs. 46-47. Cotypes, C159-2, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, figs. 46-47. MS

——? **subplanus** CAMPBELL (1946), p. 845, lower Blackiston fm., Ind., ident. by Huddle. UD

——**tenuis** BRANSON & MEHL (July 1933c), pp. 128-129, pl. 10, figs. 19-21, 23. Cotypes, C129-1, Univ. Mo., Maquoketa sh., Mo.; ——— GRAVES & ELLISON (1941), pp. 6-7, pl. 3, figs. 3,6. Hypotypes, 2197, 2219, Mo. Sch. Mines, Rolla, Maravillas fm., loc. G614, Tex.; ——— IMBT (1941), p. 148, Maquoketa sh., Kans.; ——— BRANSON (1944), p. 98. UO

——**typica** BRANSON & MEHL (June 1933c), pp. 51-52, pl. 3, figs. 43-45. Cotypes, C154-4, Univ. Mo., Bainbridge fm., Mo., type species for genus; ——— BRANSON & MEHL (1944), p. 244; ——— BRANSON (1944), pp. 97, 110, pl. 16, figs. 43-45. MS

——**sp. a** STAUFFER (1935a), pp. 149, 159, pl. 10, fig. 32. Fig. spm., B4347, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——? **sp. b** STAUFFER (1935a), p. 149, pl. 11, fig. 40. Fig. spm., B4405, Univ. Minn., upper Glenwood beds, Minn. MO

——**sp.** FURNISH, BARRAGY, & MILLER (1936) (*? sp.* on pl.), p. 1334, pl. 2, fig. 7. Fig. spm., 1202, Univ. Iowa, lower Whitewood sh., S. D. MO

——**n. sp.** KNECHTEL & HASS (1938), p. 519, USGS coll. 8432, basal sh. Lodgepole ls., N Mont.; ——— HASS (1943), p. 308, classed as sr. syn. of *Bryantodus sp.* fragments. LMi

——**sp.** BRANSON & MEHL (1938d), p. 140, pl. 34, figs. 17-18. Fig. spms., C50-1, C37-4, Univ. Mo., Chouteau ls., Mo.; ——— BRANSON (1944), pp. 208e, 221, pl. 39, figs. 17-18. LMi

——**indet.** BRANSON & MEHL (1941b), p. 184, pl. 6, figs. 2-3. Fig. spms., C577-3, C575-1, Univ. Mo., Keokuk fm., Mo.; ——— BRANSON (1944) (*sp.*), p. 240. MMi

——n. sp. BRANSON (1944), p. 53, pl. 8, fig. 11, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo. MO

——? sp. YOUNGQUIST & CULLISON (1946), p. 589, pl. 90, fig. 8. Fig. spm., 3351, Univ. Iowa, Dutchtown fm., Mo. MO

——n. sp. BRANSON (1944), pp. 81, 89, pl. 12, figs. 14-17, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——sp. MEHL & THOMAS (1947), p. 14, pl. 1, fig. 7. Fig. spm., C659-2, Univ. Mo., Fern Glen fm., Mo. MMi

——sp. BRANSON & BRANSON (Nov. 1947), p. 550, pl. 81, fig. 1; pl. 82, figs. 45-46. Fig. spms., C671-4, C683-4, Univ. Mo., Brassfield fm., locs. 1840, 1923 (fig. 1), 1970 (figs. 45-46), Ky. LS

——? sp. EDWARDS & STUBBLEFIELD (1948), p. 219, mid. Coal Measures, Nottinghamshire and Derbyshire, locs. 41c, 44, 46, Eng. P

——sp. A THOMAS (1949), pp. 411, 428, pl. 3, fig. 13. Fig. spm., C817-2, Univ. Mo., Prospect Hill siltstone, loc. 2, SE Iowa. LMi

——sp. STURGEON & MERRILL (1949), p. 10, Dorr Run sh., Ohio. MP

——sp. STURGEON & YOUNGQUIST (1949), pp. 381-382, 385, pl. 74, fig. 3; pl. 75, fig. 10. Fig. spms., 19651-19652. Ohio Univ., Hamden ls., Ohio, comp. with *Ozarkodina delicatula*. MP

PACHYSOMIA SMITH (1907), p. 246. Type species, *P. wanlockensis* SMITH (1907); ——— BASSLER (1925), p. 219; ——— ULRICH & BASSLER (1926), pp. 6, 15, 17, 43; ——— HOLMES (1928), pp. 3, 15; ——— HUDDLE (1934), pp. 26, 34; ——— ELLISON (Jan. 1946), p. 109. MO

——wanlockensis SMITH (1907), p. 246, pl. 6, fig. 23. Type, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands Scot.; ——— ULRICH & BASSLER (1926), pp. 16-17, 43, fig. 4, subfig. 4; ——— EDINGER (1926), p. 286, fig. 1 (pt.) (upper rt. cor.); ——— HOLMES (1928), p. 15, pl. 5, fig. 6; ——— GLAESSNER (1945), p. 28, fig. 4, subfig. 4. MO

PALMATODELLA ULRICH & BASSLER (1926), pp. 6, 15, 17, 22, 41-42. Type species, *P. delicatula* ULRICH & BASSLER (1926); ——— BASSLER (1925), p. 219, comp. with *Prioniodina* and *Synprioniodina*, (*nomen nudum*); ——— HOLMES (1928), pp. 3, 15, 29; ——— COOPER (June 1931), p. 149; ——— COOPER (Sept. 1931), p. 241; ——— STAUFFER & PLUMMER (1932), p. 38; ——— BRANSON & MEHL (Oct. 1934a), p. 292; ——— E. R. BRANSON (1934), p. 333; ——— HUDDLE (1934), pp. 26, 34, 36, 53-57, comp. with *Synprioniodina;* ——— COOPER (1939), pp. 387, 398; ——— BRANSON & MEHL (1944), p. 244; ——— YOUNGQUIST (1945), p. 358, comp. with *Elsonella;* ——— ELLISON (Jan. 1946), pp. 95, 104, 108-109, bar type, Upper Dev. through Osage, *Elsonella* may be a jr. syn.; ——— BOND (1947), p. 32; ——— HASS (Mar. 1947), p. 132; ——— MEHL & THOMAS (1947), pp. 6, 14; ——— THOMAS (1949), p. 428. UD-MMi

——delicatula ULRICH & BASSLER (1926), pp. 16, 41, pl. 10, fig. 5; fig. 4, subfig. 20. Holotype, 11307, USNM, Chattanooga sh., Ala.; ——— BASSLER (1925), p. 219 (*nomen nudum*); ——— EDINGER (1926), p. 286, fig. 1 (lower fig. of left vertical row); ——— BUTTS (1926), p. 160, pl. 48, fig. 13, after Holmes (1928) unpub., Chattanooga sh., Ala.; ——— HOLMES (1928), pp. 15, 29, pl. 10, fig. 10, Chattanooga sh., Ala., and Hardin ss., Tenn.; ——— COOPER (June 1931), pp. 149, 151, pl. 20, fig. 12, lower Woodford fm., Okla.; ——— COOPER (Sept. 1931), p. 241, comp. with *Palmatodella inflexa;* ——— BASSLER (1932), p. 234, pl. 26, fig. 24, Hardin ss., Tenn.; ——— HUDDLE (1934), pp. 15, 56, pl. 7, fig. 1. Plesiotype, 1884, Ind. Univ., mid. New Albany sh., common at locs. 19-20, rare at 18, 23 (fig.), Ind.; ——— COOPER (1935), p. 310, pl. 27, fig. 33. Fig. spm., 38083, Univ. Chi., mid. Ark. novaculite, bed 8, Ark.; ——— BRANSON & MEHL (1944), p. 244, pl. 94, fig. 18; ——— GLAESSNER (1945), p. 28, fig. 4, subfig. 20; ——— CAMPBELL (1946), pp. 845, 894, 901, 903, Blackiston fm., Ind., ident. by Huddle; ——— BOND (1947), pp. 21, 32, pl. 1, fig. 15. Hypotype, 18377, Ohio Univ., lower Ohio sh., Ohio, comp. with *Palmatodella ? sp.* Bond (1947); ——— HASS (Mar. 1947), pp. 134-135. UD

——fragosa E. R. BRANSON (1934), p. 333, pl. 27, fig. 5. Holotype, C218-3, Univ. Mo., Hannibal fm., Mo.; ——— E. R. BRANSON (1934) (*fragosa ?*), pl. 27, figs. 2, 4, 6. Fig. spms., C209-2, C203-2, C215-2, Univ. Mo., Hannibal fm., Mo.; ——— KNECHTEL & HASS (1938), p. 519, USGS coll. 8432, basal sh. of Lodgepole ls., Mont.; ——— BRANSON & MEHL (1938d) (*frugosa?* on pl.), p. 133, pl. 33, fig. 20. Fig. spm., C203-2, Univ. Mo., Hannibal fm., Mo.; ——— COOPER (1939) (*fragosa?*), p. 387, ref. to E. R. Branson (1934), sr. syn. of *Falcodus;* ——— HASS (1943), p. 308, ref. to Knechtel & Hass (1938), sr. syn. of *Dinodus;* ——— BRANSON (1944) (*fragosa?*) (*frugosa*, p. 221), pp. 181, 221, pl. 32, fig. 20. LMi

——inflexa COOPER (Sept. 1931), p. 241, pl. 28, fig. 30. Type, USGS Cooper coll., Woodford fm., Okla.; ——— COOPER (1935), p. 310, pl. 27, fig. 34. Fig. spm., 38084, Univ. Chi., mid. Ark. novaculite, bed 14, Ark. UD

——microdentata E. R. BRANSON (1934), p. 334, pl. 27, fig. 11. Holotype, C204-2, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 19; ——— BRANSON (1944), pp. 181, 221, pl. 32, fig. 19. LMi

——? paridens HUDDLE (1934), pp. 15, 57, pl. 11, fig. 3. Holotype, 1885, Ind. Univ., rare in upper New Albany sh., locs. 1 (fig.), 2-3, 5-6, 14, Ind.; ——— COOPER (1939) (*paridens*), pp. 398, 419, pl. 47, fig. 44. Hypotype, 38958, Univ. Chi., pre-Welden sh., Okla.; ——— CAMPBELL (1946) (*? cf. paridens*), p. 845, Blackiston fm., Ind., ident. by Huddle. UD?, LMi

——triangularis MEHL & THOMAS (1947), p. 14, pl. 1, fig. 6. Holotype, C659-4, Univ. Mo., Fern Glen fm., Mo. MMi

——ultima BRANSON & MEHL (Oct. 1934a), pp. 292-293, pl. 23, fig. 21. Cotypes, C393-1, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— BRANSON & MEHL (1938d), p. 131, sr. syn. of *Falcodus;* ——— COOPER (1939), p. 387, sr. syn. of *Falcodus conflexus;* ——— COOPER & SLOSS LMi

(1943), p. 173; ——— BRANSON (1944), p. 221.

——? **sp.** A STAUFFER & PLUMMER (1932), pp. 25, 38-39, pl. 2, fig. 18. Fig. spm., 19142, Bur. Econ. Geol. Mus., Tex., East Mt. sh., Mineral Wells fm., loc. 181-T-9, B, Tex. MP

——**sp.** E. R. BRANSON (1934), pl. 27, fig. 1. Fig. spm., C218-1, Univ. Mo., Hannibal fm., Mo. LMi

——**n. sp.** BRANSON (1944), p. 153, pl. 26, fig. 21, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——? **sp.** BOND (1947), pp. 21, 32, pl. 1, fig. 26. Fig. spm., 18390, Ohio Univ., lower Ohio sh., Ohio, comp. with *Palmatodella delicatula.* UD

——**sp. indet.** THOMAS (1949), pp. 411, 428, pl. 3, fig. 4. Fig. spm., C814-2, Univ. Mo., English River siltstone, loc. 12, SE Iowa. LMi

PALMATOLEPIS ULRICH & BASSLER (1926), pp. 6, 43-44, 49. Type species, *P. perlobata* ULRICH & BASSLER (1926); ——— HOLMES (1928), pp. 3, 15, 33; ——— COOPER (June 1931), p. 150; ——— COOPER (Sept. 1931), p. 242; ——— BRANSON & MEHL (July 1933d), pp. 149, 152; ——— BRANSON & MEHL (June 1934a), pp. 181, 184, 227, 233, comp. with *Nothognathella;* ——— SCHMIDT (1934), pp. 79, 81, 83, supposedly pl. 6, fig. 3; ——— BRANSON & MEHL (Oct. 1934a), pp. 265, 267; ——— HUDDLE (1934), pp. 26, 35-36, 106, 109, may have come from *Polygnathellus;* ——— MCKNIGHT (1935), p. 74, Sylamore ss., N. Ark.; ——— CHADWICK (Feb. 1935a), p. 313, rept. in Genesee; ——— COOPER (1935), p. 314; ——— SCHMIDT (1934) (r)P (1935), p. 80; ——— ZEBERA (1936b), p. 191; ——— BRANSON & MEHL (1938a), p. 157; ——— KNECHTEL & HASS (1938), pp. 519-520, USGS coll., 8432, basal sh. of Lodgepole ls., Mont.; ——— BRANSON & MEHL (1938d), p. 129; ——— BRANSON (1938c), p. 179; ——— BRANSON & BRANSON (Jan. 1941), p. 130; ——— BRANSON & MEHL (1941c), p. 192; ——— BRANSON & MEHL (1941d), p. 202; ——— ELLISON & GRAVES (1941), p. 2; ——— HASS (1943), p. 307; ——— BRANSON & MEHL (1944), p. 245; ——— YOUNGQUIST (1945), pp. 356, 364; ——— ELLISON (Jan. 1946), pp. 94, 101, 104-105, 109, platform type, found in Bushberg ss., *Panderodella* is probably a broken fragment of *Palmatolepis;* ——— CAMPBELL (1946), p. 852; ——— YOUNGQUIST & MILLER (Dec. 1946), p. 1247; ——— BOND (1947), pp. 26, 33; ——— YOUNGQUIST (1947), pp. 95-96, 111; ——— HASS (Mar. 1947), pp. 132, 135, 137, 139; ——— MILLER & YOUNGQUIST (1947), pp. 501-502, 504, comp. with *Ancyroides;* ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 49; ——— WELLER *et al.* (Feb. 1948), p. 103; ——— COOPER (July 1948a), p. 358; ——— YOUNGQUIST & MILLER (1948), pp. 440, 448; ——— CLOUD & BARNES (1948), p. 317, Ives breccia, red siliceous rock 21 in. below Ives breccia, and 27 in. above Ives breccia, Tex.; ——— THOMAS (1949), pp. 407, 416, 418. UD, LMi?

——**asymmetrica** ULRICH & BASSLER (1926), p. 50, pl. 7, fig. 18. Holotype, 11000, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 15. UD

——**bifurcata** ULRICH & BASSLER (1926), p. 50, pl. 7, figs. 16-17. Cotypes, 11010, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 15; ——— BASSLER (1932) (*Pelmatolepis bifurcatus*), p. 234, pl. 26, figs. 16-17; ——— HUDDLE (1934), p. 109, comp. with *Palmatolepis ? inequalis.* UD

——? **curvata** (BRANSON & MEHL) (July 1933d), p. 152, pl. 12, fig. 4. Holotype, A4243, British Mus., Genesee sh., Bear Creek, Ont. [*Polygnathus* Hinde (1879), pl. 17, fig. 7 = *Gnathodus* Holmes (1928), pl. 6, fig. 33]. UD

——**cymbula** HUDDLE (1934), pp. 17, 107, pl. 9, figs. 4-5. Holotype, 2367 (fig. 5); paratype, 2366 (fig. 4), Ind. Univ., rare in mid. New Albany sh., locs. 18 (fig.), 20, Ind.; ——— CAMPBELL (1946), p. 844, Blackiston fm., Ind., ident. by Huddle. UD

——**delicatula** BRANSON & MEHL (June 1934a), p. 237, pl. 18, figs. 4, 10. Cotypes, C327-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON & MEHL (1941c), p. 193; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 7, 19. UD

——**distorta** BRANSON & MEHL (June 1934a), pp. 237-238, pl. 18, figs. 13-14. Cotypes, C222-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 23-24; ——— HASS (Mar. 1947), pp. 134, 140, Huron sh., lower Ohio sh., Ohio; Blackiston fm., Ind.; Glen Park ls. at type loc., Mo.; ——— THOMAS (1949), p. 408, Maple Mill sh., Iowa. UD

——**elongata** HOLMES (1928), p. 33, pl. 11, fig. 13. Holotype, 11460, USNM, Chattanooga sh., Ala.; ——— BRANSON & MEHL (June 1934a), pp. 233-234, jr. syn. of *Palmatolepis glaber* (sp. *glabra*); ——— HUDDLE (1934), pp. 17, 107-108, pl. 9, figs. 8-10. Plesiotypes, 1782 (fig. 10), 2282 (fig. 8), 2283 (fig. 9), Ind. Univ., mid. New Albany sh., locs. 20 (rare, figs. 8-9), 23 (common, fig. 10), Ind., comp. with *Palmatolepis cymbula* and *pectenifera;* ——— COOPER (1935), pp. 310, 314, pl. 27, fig. 40. Fig. spm., 38090, Univ. Chi., mid. Ark. novaculite, beds 8, 13-14, Ark.; ——— CAMPBELL (1946), p. 901, common in lower Blackiston fm., Ind. UD

——? **eriensis** (BRANSON & MEHL) (July 1933d), pp. 151-152, pl. 12, figs. 2, 5. Holotype, A4244 (fig. 2); other type, A4248 (fig. 5), British Mus., Genesee erratic nodule, N shore Lake Erie, Ont. [*Polygnathus* Hinde (1879) = *Gnathodus* (Holmes) (1928) = *Polygnathus solidus* Hinde (1879) (A4248)]. UD

——**extralobata** ULRICH & BASSLER (1926), pp. 50-51, pl. 8, fig. 3. Holotype, 11007, USNM, Hardin ss., Tenn., comp. with *Palmatolepis peculiaris;* ——— EDINGER (1926), p. 287, fig. 2 (pt.), top row, 2nd fig. from left; ——— HOLMES (1928), p. 15. UD

——**flabelliformis** STAUFFER (1938), pp. 413, 436-437, pl. 53, figs. 2, 4, 9, 12, 14. Syntypes, B4956, B4958, B4963, B4966, B4968, Univ. Minn., Olentangy sh., locs. 109-110, 111 (figs. 4, 9, 12), 114, 117 (fig. 2), 118, 125, 136, 187 (fig. 14), Ohio; ——— YOUNGQUIST (1945), pp. 355, 364, pl. 56, fig. 1. Plesiotypes, 2947 (fig.), 2948 (unfig.), Univ. Iowa, Independence sh.?, Iowa; ——— YOUNGQUIST (1947), p. 109, comp. with *Palmatolepis sp.* Youngquist (1947); ——— UD

MILLER & YOUNGQUIST (1947), p. 513, may be jr. syn. of *Palmatolepis perlobata*.

——**foliaceus** YOUNGQUIST (1945), pp. 364-365, pl. 56, figs. 11-12. Syntypes, 2949 (fig.), 2950 (unfig.), Univ. Iowa, Independence sh.?, Iowa. UD

——**gigas** MILLER & YOUNGQUIST (1947), pp. 512-513, pl. 75, fig. 1. Holotype, 5568, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**glaber** ULRICH & BASSLER (1926), p. 51, pl. 9, figs. 18-20. Cotypes, 11043, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 15; ——— BRANSON & MEHL (June 1934a) (*glabra*), pp. 233-234, 238, pl. 18, figs. 9, 22, 26. Paratypes, C225-1, C81-3, C79-2, Univ. Mo., Grassy Creek sh., Mo., comp. with *Palmatolepis distorta; Palmatolepis elongata* Holmes (1928) is a jr. syn.; ——— BRANSON & MEHL (1941c) (*glabra* p. 192, *glabra?* fig. 13, *cf. glabra* figs. 15-16), pp 192-193, pl. 7, figs. 13, 15-16. Fig. spms., C61-5 (figs. 15-16), Univ. Mo., über dem Clymenien Arker, near Wildungen, Germ. (figs. 15-16), Upper Dev., Mo. (fig. 13); ——— COOPER & SLOSS (1943) (*glabra*), p. 170, pl. 29, figs. 5, 36, black sh. base Madison gr., locs. 1 (fig. 5), Alta., 3 (fig. 36), Mont.; ——— BRANSON & MEHL (1944) (*glabra*), p. 245, pl. 94, fig. 40; ——— BRANSON (1944) (*glabra*), pp. 157, 163, pl. 28, figs. 15, 42, 51; ——— BRANSON (1944) (*glabra*), p. 173, Louisiana ls., Mo.; ——— CAMPBELL (1946) (*glabra*), pp. 845, 903, lower Blackiston fm., Ind., ident. by Huddle; ——— BOND (1947) (*glabra*), pp. 21, 33, pl. 2, fig. 25. Hypotype, 18416, Ohio Univ., lower Ohio sh., Ohio; ——— HASS (Mar. 1947) (*glabra*), pp. 134-135, 140, Huron sh., lower Ohio sh., Ohio, Glen Park ls., type loc., Mo.; ——— THOMAS (1949) (*glabra*), p. 408, pl. 1, fig. 19. Fig. spm., C822-4, Univ. Mo., Maple Mill sh., loc. 14, SE Iowa. UD, LMi

——**gracilis** BRANSON & MEHL (June 1934a), p. 238, pl. 18, figs. 2, 5, 8. Cotypes, C226-4, C226-5, C226-3, C359-3 (not. fig.), Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON & MEHL (1941c), p. 192; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 6, 10, 14; ——— HASS (Mar. 1947), p. 140, Glen Park ls., type loc., Mo. UD

——**inequalis** HOLMES (1928), p. 33, pl. 11, figs. 8-10. Cotypes, 11458, USNM, Chattanooga sh., Ala.; ——— BUTTS (1926), p. 160, pl. 48, fig. 7, after Holmes (1928) unpub.; ——— HUDDLE (1934) (*? inequalis*), pp. 17, 108-109, pl. 9, figs. 15-18. Plesiotype, 2344, 2347, 2346, 2345, Ind. Univ., rare in mid. New Albany sh., locs. 18-19, 20 (fig.), Ind., comp. with *Palmatolepis bifurcata;* ——— BRANSON & MEHL (1941d) (*? inequalis*), p. 202, ref. to Huddle (1934), sr. syn. of *Ancyrognathus*. UD

——**? irregularis** THOMAS (1949), pp. 408, 416-417, pl. 2, fig. 27. Holotype, C830-5, Univ. Mo., Maple Mill sh., loc. 14, SE Iowa. UD

——**lobatula** ULRICH & BASSLER (1926), pp. 50-51, pl. 7, figs. 3-4. Cotypes, 11005, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 15; ——— COOPER (1935), pp. 310, 314, pl. 27, fig. 41. Fig. spm., 38091, Univ. Chi., mid. Ark. novaculite, bed 15, Ark. UD

——**marginatus** STAUFFER (1938), pp. 413, 437, pl. 53, figs. 3, 7-8, 13, 17. Syntypes, B4957, B4795, B4962, B4967, B4796, Univ. Minn., Olentangy sh., locs. 109 (fig. 7), 110 (fig. 17), 111, 117-118, 125, 187 (figs. 3, 8, 13), Ohio; ——— YOUNGQUIST (1947) (*marginata*), p. 108, pl. 24, figs. 4, 14. Hypotypes, 4044-4045 (fig.), 4046, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——**minuta** BRANSON & MEHL (June 1934a), pp. 236-237, pl. 18, figs. 1, 6-7. Cotypes, C225-5 (fig. 1), C248-4 (figs. 6-7), C248-3, Univ. Mo., Grassy Creek sh., Mo.; ——— HUDDLE (1934), pp. 17, 109-110, pl. 9, fig. 24. Holotype, 1784, Ind. Univ., rare in upper New Albany sh., loc. 1, Ind.; ——— BRANSON & MEHL (1941d), p. 202; ——— ELLISON & GRAVES (1941), pp. 3-4, pl. 2, fig. 25. Hypotype, 4806, Mo. Sch. Mines, Rolla, mid. Dimple fm. (reworked), loc. G919, Tex.; ——— BRANSON (1944), pp. 153, 158, pl. 26, fig. 25, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 4, 8-9, Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 173, Louisiana ls., Mo. UD, LMi

——**ovatus** COOPER (1935), pp. 310, 314-315, pl. 27, fig. 44. Holotype, 38094, Univ. Chi., Ark. novaculite, beds 15 (mid.), A (upper), Ark. UD-LMi

——**pectenifera** HUDDLE (1934), pp. 17, 107-108, pl. 9, figs. 6-7. Holotype, 1781, Ind. Univ., abundant in mid. New Albany sh., locs. 18, 19 (fig.), 20, common at 21, rare at 16, Ind.; ——— COOPER & SLOSS (1943) (*pectenifera?*), pp. 170-171, pl. 29, fig. 32, black sh. base of Madison gr., loc. 4, Mont. UD, LMi?

——**peculiaris** ULRICH & BASSLER (1926), p. 51, pl. 8, figs. 11-12. Cotypes, 10999, USNM, Hardin ss., Tenn.; ——— EDINGER (1926), p. 287, fig. 2 (pt.), 2nd row from top, 3rd and 4th figs.; ——— HOLMES (1928), p. 15; ——— BRANSON & MEHL (June 1934a), p. 234, a jr. syn. of *Palmatolepis perlobata*. UD

——**perlobata** ULRICH & BASSLER (1926), pp. 44, 49-50, fig. 5, subfigs. 11-12; pl. 7, figs. 19-23. Cotypes, 10995, USNM, Hardin ss., Tenn., comp. with *Palmatolepis extralobata;* type species for *Palmatolepis;* ——— HOLMES (1928) (*perlobatus* p. 34), pp. 15-16, 33-34, pl. 11, figs. 16-19. Plesiotype, 11463, USNM, Chattanooga sh., Ala. (fig.), Hardin ss., Tenn., comp. with *Palmatolepis elongata;* ——— COOPER (June 1931), pp. 150-151, pl. 20, fig. 16, lower Woodford fm., Okla.; ——— BASSLER (1932) (*Pelmatolepis perlobatus*), p. 234, pl. 26, fig. 18, Hardin ss., Tenn.; ——— BRANSON & MEHL (June 1934a), pp. 234-235, pl. 18, figs. 12, 23-25. Paratypes, C78-3, C224-3, C224-5, Univ. Mo., Grassy Creek sh., Mo., comp. with *Palmatolepis subperlobata; Palmatolepis peculiaris* Ulrich & Bassler (1926) is a jr. syn.; ——— HUDDLE (1934) (*parlobata* on pl.), pp. 17, 106, 109-110, pl. 9, figs. 21-23. Plesiotype, 2256, 1783, 1785, Ind. Univ., abundant in mid. New Albany sh., loc. 20 (figs. 22-23), common at 18 (fig. 21), 21, rare at 16-17, 22, Ind., comp. with *Palmatolepis minuta;* ——— COOPER (1935) (*perlobatus*), p. 310, pl. 27, fig. 42. Fig. spm., 38092, Univ. Chi., mid. Ark. novaculite, beds 8, 14-15, Ark.; ——— COOPER (1935a), p. 443, *Palmatolepis punctata* (Branson & Mehl) (July 1933d), pl. 11, figs. 1, 11 is a sr. syn.; ——— BRANSON & MEHL (1941d), p. 202; ——— BRANSON & MEHL (1944), p. 245; UD

——— BRANSON (1944), pp. 153, 158, pl. 26, fig. 26, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 20, 47-48, 52, Grassy Creek sh., Mo.; ——— CAMPBELL (1946), pp. 844-845, 894, 901, 903, Blackiston fm., Ind., ident. by Huddle; ——— YOUNGQUIST (1947), p. 108, comp. with *Palmatolepis marginata;* ——— HASS (Mar. 1947), pp. 134-135, Huron sh., lower Ohio sh., Ohio; ——— MILLER & YOUNGQUIST (1947), p. 513, comp. with *Palmatolepis subperlobata; Palmatolepis flabelliformis* may be a jr. syn.; ——— THOMAS (1949), p. 408, pl. 1, figs. 10, 13, 26. Fig. spms., C822-3 (figs. 10, 26), C822-2, Univ. Mo., Maple Mill sh., loc. 14, SE Iowa.

——**punctata** (ULRICH & BASSLER) (1926), pp. 51-52, pl. 1, figs. 6, 6', 7. Plesiotypes, 11309, USNM, Rhinestreet sh., N. Y. (*Polygnathus*); ——— (HOLMES) (1928), pp. 16, 18, pl. 7, fig. 17; ——— (BRANSON & MEHL) (July 1933d), pp. 149, 151, pl. 11, figs. 1, 6, 11. Holotype, A4317 (fig. 6); other types, (Hinde's pl. 17, fig. 17) A4314 (fig. 1), British Mus., *Polygnathus palmatus* is a jr. syn.; ——— (HUDDLE) (1934) (*puncata*), p. 107, comp. with *Palmatolepis sp.* Huddle (1934), pl. 9, fig. 3; ——— (CHADWICK) (Feb. 1935a), pp. 312, 317, Genesee, Naples grs.; ——— (COOPER) (1935a), p. 443, ref. to Branson & Mehl (July 1933d), pl. 11, figs. 1, 11, classed as jr. syn. of *Palmatolepis perlobata.* UD

——**pustulosa** HUDDLE (1934), pp. 17, 106-107, 110, pl. 9, figs. 1-2. Holotype, 2364 (fig. 2); paratype, 2365, Ind. Univ., common in mid. New Albany sh., loc. 18, Ind., comp. with *Palmatolepis minuta.* UD

——**quadrantinodosa** BRANSON & MEHL (June 1934a), pp. 235-236, pl. 18, figs. 3, 17, 20. Cotypes, C226-2, C86-1 (figs. 17, 20), Univ. Mo., Grassy Creek sh., Mo., comp. with *Palmatolepis rugosa;* ——— ELLISON & GRAVES (1941), pp. 3-4, pl. 2, fig. 28. Hypotype, 4810, Mo. Sch. Mines, Rolla, mid. Dimple fm., loc. G908, Tex.; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 5, 12, 32, 37; ——— BOND (1947), pp. 21, 33, pl. 2, fig. 28. Hypotype, 18419, Ohio Univ., lower Ohio sh., Ohio. UD

——**regularis** COOPER (Sept. 1931), p. 242, pl. 28, fig. 36. Type, Cooper coll., USGS, Woodford fm., Okla.; ——— COOPER (1935), p. 310, pl. 27, fig. 43. Fig. spm., 38093, Univ. Chi., mid. Ark. novaculite, beds 8, 13, Ark.; ——— BOND (1947), pp. 21, 33, pl. 2, fig. 29. Hypotype, 18420, Ohio Univ., lower Ohio sh., Ohio. UD

——**rugosa** BRANSON & MEHL (June 1934a), p. 236, pl. 18, figs. 15-16, 18-19. Cotypes, C78-5 (fig. 15), C326-2 (fig. 16), C326-3 (figs. 18-19), C247-3, Univ. Mo., Grassy Creek sh., Mo., and sh. near Bedford, Ill. (figs. 18-19); ——— KNECHTEL & HASS (1938) (*aff. rugosa*), p. 519, USGS coll., 8432, basal sh. of Lodgepole ls., Mont.; ——— ELLISON & GRAVES (1941) (*rugosa?*), pp. 3-4, pl. 2, fig. 23. Hypotype, 4804, Mo. Sch. Mines, Rolla, mid. Dimple fm., loc. G923, Tex.; ——— HASS (1943) (*aff. rugosa*), p. 308, ref. to Knechtel & Hass (1938), ident. as *rugosa;* also *Palmatolepis sp. fragments* is ident. same; ——— BRANSON & MEHL (1944), p. 245, pl. 94, fig. 39; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 27-28, 33, 38; ——— HASS (Mar. 1947), pp. 134-135, Huron sh., lower Ohio sh., Ohio. UD

——? **serrata** (BRANSON & MEHL) (July 1933d), pp. 151-152, pl. 12, figs. 1, 8. Cotypes, A4245, British Mus., Genesee sh., Kettle Pt., Ont. [*Polygnathus* Hinde (1879) = *Panderodella* Holmes (1928)]. UD

——**simplex** COOPER (Sept. 1931), p. 243, pl. 28, fig. 37. Type, Cooper coll., USGS, Woodford fm., Okla. UD

——**subperlobata** BRANSON & MEHL (June 1934a), p. 235, pl. 18, figs. 11, 21. Cotypes, C330-1, C85-2, C226-1 (unfig.), Univ. Mo., Grassy Creek sh., Mo.; ——— ELLISON & GRAVES (1941) (*superlobata*), pp. 3-4, pl. 2, figs. 27, 29. Hypotypes, 4808-4809, Mo. Sch. Mines, Rolla, Dimple fm., mid., locs. G902 (fig. 29), G923 (fig. 27), lower transition zone, G913, Tex.; ——— SCOTT (1942) (*Palmatolyepis*), p. 297; ——— BRANSON & MEHL (1944), p. 245, pl. 94, fig. 41; ——— BRANSON (1944), pp. 153, 158, pl. 26, fig. 27, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 18, 41, Grassy Creek sh., Mo.; ——— CAMPBELL (1946), p. 844, Blackiston fm., Ind., ident. by Huddle; ——— BOND (1947), pp. 21, 33, pl. 2, fig. 27. Hypotype, 18418, Ohio Univ., lower Ohio sh., Ohio; ——— YOUNGQUIST (1947), p. 108, comp. with *Palmatolepis marginata;* ——— HASS (Mar. 1947), p. 134; ——— MILLER & YOUNGQUIST (1947), p. 513, pl. 75, figs. 12-14. Fig. spms., 5569, Univ. Iowa, Sweetland Creek sh., Iowa, comp. with *Palmatolepis perlobata* of Branson & Mehl (June 1934a), pl. 18, fig. 25 and *flabelliformis;* also in Branson (1944) pl. 26, fig. 26 is questionable and fig. 27 is to be omitted from this species. UD

——**subrecta** MILLER & YOUNGQUIST (1947), pp. 513-514, pl. 75, figs. 7-11. Syntypes, 5570, Univ. Iowa, Sweetland Creek sh., Iowa; ——— YOUNGQUIST & MILLER (1948), p. 448, pl. 68, fig. 17. Fig. spm., 5612, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**unicornis** MILLER & YOUNGQUIST (1947), p. 514, pl. 75, fig. 15. Holotype, 5571, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**sp.** HUDDLE (1934), pp. 17, 107, pl. 9, fig. 3. Fig. spm., 1801, Ind. Univ., rare in lower New Albany sh., locs. 30 (fig.), 33, Ind., comp. with *Palmatolepis punctata* (sp. *puncata*). M?D

——**fragments** KNECHTEL & HASS (1938), p. 519, USGS coll., 8432, basal sh. of Lodgepole ls., Mont.; ——— HASS (1943) (*sp. fragments*), p. 308, now ident. as *Palmatolepis rugosa.* LMi

——**spp.** BRANSON & MEHL (1941c), pp. 192-193, pl. 7, figs. 3-6, 11, 17. Fig. spms., C62-5 (? figs. 3, 17), C63-1 (? figs. 4-5), Univ. Mo., über dem Clymenien Arker, near Wildungen, Germ. (figs. 3-5, 17); Mo. (figs. 6, 11). UD

——**sp.** ELLISON & GRAVES (1941) (*? sp.* on pl.), pp. 3-4, pl. 2, fig. 26. Fig. spm., 4807, Mo. Sch. Mines, Rolla, mid. Dimple fm., loc. G917, Tex., reworked from Dev. ?

——**n. sp.** BRANSON (1944), p. 153, pl. 26, fig. 24, after Mehl and Quigley, from Claude Quig- UD

ley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.

——sp. STAUFFER (1944), p. 257, Olentangy sh., ls. mine, Barberton, Ohio. UD

——sp. YOUNGQUIST (1947), pp. 108-109, pl. 24, fig. 5. Fig. spm., 4047, Univ. Iowa, sh. 1½ mi. NE of N. Liberty, Iowa, comp. with *Palmatolepis flabelliformis*. UD

——sp. CLOUD & BARNES (1948), p. 317, 5 in. phosphate bed, 22 in. above Ives breccia, loc. 16T-2-32C, cent. Tex. UD

——sp. LAYER *et al.* (1949), p. 594, D-3 zone, 875 ft. below top of D-2 zone, Millet Leduc well, Alta., Can. UD

PALTODUS PANDER (1856), pp. 24, 91. Type species, *P. subaequalis* PANDER (1856); ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1858), p. 339; ——— EICHWALD (1860), pp. 663-664; ——— BOCK (1869), p. 108, map; ——— ZITTEL (1890), p. 59; ——— ROHON (1894), p. 9; ——— ZITTEL (1924), p. 288; ——— BASSLER (1925), p. 218; ——— ULRICH & BASSLER (1926), pp. 6-7; ——— HOLMES (1928), pp. 2, 16; ——— WETZEL (1933), p. 81; ——— BRANSON & MEHL (June 1933 c, d), pp. 42, 61; ——— BRANSON & MEHL (July 1933 a, b), pp. 79, 108-109; ——— HUDDLE (1934), p. 34; ——— STAUFFER (1935a), pp. 149-150, Pander's desc. trans.; ——— STAUFFER (1935b), p. 612, Pander's desc. trans.; ——— ZEBERA (1936b), p. 189; ——— LOOMIS (Oct. 1936), pp. 663-664, marginal teeth of modern gastropods *Trochus* and *Haliotis* resemble genus; ——— FURNISH, BARRAGY, & MILLER (1936), pp. 1334-1335; ——— FURNISH (1938), pp. 321-324, 331, comp. with *Scolopodus;* ——— STAUFFER (1940), pp. 417, 427; ——— BRANSON & MEHL (1941d), p. 201; ——— GRAVES & ELLISON (1941), pp. 3-5; ——— AMSDEN & MILLER (1942), pp. 303, 306; ——— CRESPIN (1943), pp. 231-232; ——— BRANSON & MEHL (1944), p. 240; ——— ELLISON (Jan. 1946), pp. 94, 100, 109, simple cone, upper Beekmantown through Niagaran; ——— BRANSON & BRANSON (1947), p. 554. LO-MS

——acostatus BRANSON & BRANSON (1947), p. 554, pl. 82, figs. 1-5, 23-24. Holotype, C676-4 (figs. 23-24); paratypes, C675-3 (figs. 1-3), C675-5 (figs. 4-5), Univ. Mo., Brassfield fm., locs. 1826 (figs. 1-3), 1799 (figs. 4-5), 1923 (figs. 23-24), Ky. LS

——arcuatus STAUFFER (1935b), p. 612, pl. 74, figs. 6, 8-9. Syntypes, B4639, B4641-B4642, Univ. Minn., Decorah sh., Spechts Ferry memb., locs. 34, 86-87, 94 (fig.), Minn. and Iowa; ——— WETZEL (1940), p. 77, comp. with Form XI from Trenton, Rockland; Kirkfield, Ont.; ——— STAUFFER & THIEL (1941), p. 241; ——— CRESPIN (1943), p. 232, comp. with *Paltodus madigani;* ——— BRANSON & MEHL (1944), p. 240, pl. 93, fig. 26; ——— BRANSON (1944), pp. 81, 89, pl. 12, figs. 27-28, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——bassleri FURNISH (1938), pp. 320, 322, 331, pl. 42, fig. 1. Syntypes, 1312 (fig. 1), 1313, Univ. Iowa, rare in Oneota fm., Minn., comp. with *Paltodus variabilis;* ——— STAUFFER & THIEL (1941), p. 246. LO

——belatus STAUFFER (1940), p. 427, pl. 60, fig. 6. Holotype, B5645, Univ. Minn., clay above ls. admixture near Austin, Minn. ?O

——bicostatus PANDER (1856), p. 25, pl. 1, fig. 21; tab. A to p. 20, fig. 4d, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL (1890), p. 59, fig. 51 b, this is *Scolopodus sublaevis;* ——— HOLMES (1928), p. 16, pl. 2, fig. 18, Pander's pl. 1, figs. 21 b, a, c are figs. 18 left, mid., rt. resp. LO

——canaliculatus PANDER (1856), p. 25, pl. 1, fig. 36; tab. A to p. 20, fig. 4f, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 16, pl. 2, fig. 19, Pander's pl. 1, figs. 36 b, a, c are figs. 19 left, mid., rt. resp. LO

——compressus BRANSON & MEHL (July 1933b), p. 109, pl. 8, fig. 19. Cotypes, C107-4 (fig. 19), C27-3, C27-5, Univ. Mo., Plattin ls., Mo.; ——— STAUFFER (1935a), pp. 150, 159, pl. 12, figs. 17, 26. Fig. spms., B4433, B4442, Univ. Minn., upper Glenwood beds, Minn.; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, pl. 2, fig. 5. Fig. spm., 1200, Univ. Iowa, lower Whitewood sh., S. D.; ——— WETZEL (1940), p. 77, comp. Stauffer's figs. 17, 26 with Form X; ——— STAUFFER & THIEL (1941), p. 245; ——— BRANSON & MEHL (1943), pp. 376, 386, pl. 64, fig. 6. Fig. spm., C540-4, Univ. Mo., lower Viola fm., Okla.; ——— BRANSON (1944), pp. 79-80, pl. 11, fig. 33. MO

——comptus BRANSON & MEHL (June 1933d), p. 61, pl. 4, fig. 9. Holotype, C301-5, Univ. Mo., Jefferson City fm., Mo.; ——— BRANSON (1944), p. 55. LO

——cornutus STAUFFER (1935b), p. 612, pl. 74, figs. 1-2, 11, 13-15, 19. Syntypes, B4634-B4635; paratypes, B4644, B4646-B4648, B4652, Univ. Minn., Decorah sh., locs. 1-2, 6, 11, 15-16, 19, 24, 26-27, 30, 37, 40-41, 48 (figs. 13-15), 49, 65, 68-70, 74-75, 86-88, 93, 94 (figs. 2, 11, 19), 95, 96 (fig. 1), Minn. and Iowa; ——— STAUFFER (1940), p. 427, pl. 60, fig. 10. Fig. spm., B5649, Univ. Minn., clay above ls. admixture, Minn.; ——— STAUFFER & THIEL (1941), pp. 238, 241; ——— CRESPIN (1943), p. 232, comp. with *Paltodus madigani*. MO

——distortus BRANSON & MEHL (June 1933d), p. 62, pl. 4, fig. 12. Holotype, C306-1, Univ. Mo., Jefferson City fm., Mo.; ——— GRAVES & ELLISON (1941), pp. 4-5, 7, pl. 1, fig. 19; pl. 2, fig. 7. Hypotypes, 1356, 1487, Mo. Sch. Mines, Rolla, upper Marathon fm., locs. G209 (fig. 19), G204; Wood's Hollow fm., loc. G502 (fig. 7), Tex.; ——— BRANSON (1944), p. 55. L-MO

——elegans STAUFFER (1935b), pp. 612-613, pl. 74, figs. 4, 7. Syntypes, B4637, B4640, Univ. Minn., Decorah sh., Spechts Ferry memb. in Iowa, locs. 1, 10-11, 15-17, 24, 26-28, 30, 37, 40, 48 (figs. 4, 7), 49, 52, 61, 65, 68, 70-71, 75, 86-87, 92, 94-95, Minn.; ——— LOOMIS (Oct. 1936), p. 664, fig. 4'; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood sh., S. D.; ——— STAUFFER & THIEL (1941), pp. 238, 241; ——— BRANSON & MEHL (1944), p. MO

240, pl. 93, figs. 34-35; ——— BRANSON (1944), pp. 81, 89, pl. 12, figs. 25-26, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo.

——**fragilis** BRANSON & MEHL (June 1933c), p. 43, pl. 3, fig. 6. Holotype, C158-2, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, fig. 6. MS

——**gracilis** BRANSON & MEHL (July 1933b), p. 108, pl. 8, figs. 20-21. Cotypes, C27-2 (fig.), C27-1, C122-4, Univ. Mo., Plattin ls., Mo.; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, pl. 1, fig. 3. Fig. spm., 1177, Univ. Iowa, lower Whitewood sh., S. D.; ——— FURNISH (1938), p. 324; ——— GRAVES & ELLISON (1941) (*gracilis?* pl. 2), pp. 5-7, pl. 2, fig. 5; pl. 3, figs. 4, 10, 22. Hypotypes, 1486, 2236, 2330, 2348, Mo. Sch. Mines, Rolla, Maravillas fm., locs. G611 (fig. 22), G614 (fig. 4), G615 (fig. 10); Wood's Hollow fm., loc. G502 (fig. 5); Fort Pena beds, loc. G414, Tex.; ——— IMBT (1941), p. 148, Maquoketa sh., Kans.; ——— BRANSON & MEHL (1943), pp. 376, 386, pl. 64, figs. 7-8. Fig. spms., C541-1, Univ. Mo., lower Viola fm., Okla.; ——— BRANSON (1944), pp. 80, 82, pl. 11, figs. 34-35; ——— BRANSON (1944), pp. 81, 89, pl. 12, figs. 20-23, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. M-UO

——**jeffersonensis** BRANSON & MEHL (June 1933d), pl. 4, fig. 18. Cotype, C303-1, Univ. Mo., Jefferson City fm., Mo.; ——— BRANSON & TARR (1935), p. 337, fig. 350, lower left cor.; ——— BRANSON (1944), p. 55. LO

——**madigani** CRESPIN (1943), pp. 231-232, pl. 31, figs. 14-16. Holotype, 247; paratype, 248 (fig. 16), Commonwealth Pal. Coll., Canberra, Australia, Larapintine ser., cent. Australia. MO

——**multicostatus** BRANSON & MEHL (June 1933c), p. 43, pl. 3, fig. 5. Holotype, C158-4, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, fig. 5. MS

——**obtusus** PANDER (1856), p. 24, pl. 1, figs. 13, 16, 29, 32; tab. A to p. 20, fig. 4b, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL & ROHON (1886), p. 116, bottom, comp. fig. 1 H *Drepanodus sp.* with Pander's pl. 1, fig. 16c; ——— REICHENBACH (1909), p. 110, fig. 134, A, B; ——— HOLMES (1928), p. 16, pl. 2, figs. 22-25, Pander's figs. 32a, b, 13 a, b, 16 a, c, b, 29 a, b are figs. 22 left, rt., 23 left, rt., 24 left, mid., rt., and 25 left, rt. resp.; ——— WETZEL (1940), p. 77, comp. with Form X. LO

——**panderi** STAUFFER (1940), p. 427, pl. 60, figs. 8-9. Holotype, B5647 (fig. 8); paratype, B5648, Univ. Minn., clay above ls. admixture, Minn. O

——**rotundatus** PANDER (1856), p. 25, pl. 1, figs. 33-34; tab. A to p. 20, fig. 4c, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 16, pl. 2, figs. 20-21, Pander's figs. 33 b, a, 34 a, b are figs. 20 upper, lower, 21 left, rt. resp.; ——— WETZEL (1933), p. 89, comp. with Einzelborste *a;* ——— BRANSON & MEHL (June 1933d), p. 61, comp. with *Paltodus comptus.* LO

——**simplex** BRANSON & MEHL (June 1933c), pp. 42-43, pl. 3, fig. 4. Holotype, C152-3, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, fig. 4. MS

——**striatus** STAUFFER (1935b), p. 613, pl. 74, figs. 3, 16. Syntypes, B4636, B4649, Univ. Minn., Decorah sh., locs. 10 (fig. 16), 16, 22, 37, 40, 51-52, 62, 68, 70, 86-87, 91, 93, 94 (fig. 3), Minn.; ——— STAUFFER (1940), p. 428, pl. 60, figs. 5, 12-13, 17. Fig. spms., B5644, B5651-B5652, B5656, Univ. Minn., clay above ls. admixture, Minn.; ——— STAUFFER & THIEL (1941), pp. 238, 241. MO

——**subaequalis** PANDER (1856), p. 24, pl. 1, fig. 24; tab. A to p. 20, fig. 4a, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1860), p. 664; ——— ULRICH & BASSLER (1926) (*subequalis*), p. 7, fig. 2, subfig. 9, Pander's figs. 24a, 4a, 24 b, c are figs. mid. rt., mid. left, left, and rt. resp.; ———HOLMES (1928), p. 16, pl. 2, fig. 26, Pander's figs. 24 b, a, c are figs. 26 left, mid., rt. resp.; ——— FURNISH (1938), p. 331; ——— BRANSON & MEHL (1944), p. 240; ——— GLAESSNER (1945), p. 26, fig. 2, subfig. 9. LO

——**subquadratus** STAUFFER (1940), p. 428, pl. 60, fig. 11. Holotype, B5650, Univ. Minn., clay above ls. admixture, Minn. O

——**truncatus** PANDER (1856), p. 25, pl. 1, figs. 18-20; tab. A to p. 20, fig. 4e, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL & ROHON (1886), p. 116, bottom, comp. pl. 1, fig. 1 H *Drepanodus sp.* with Pander's fig. 18a; ——— ZITTEL (1890), p. 59, fig. 51 a; ——— ZITTEL (1900), p. 255, figs. 408 A, B, the fig. B is *Scolopodus sublaevis;* ——— ZITTEL (1910), p. 247, figs. 439 a, b, the fig. b is *Scolopodus sublaevis;* ——— ZITTEL (1913), p. 140, figs. 223 A, B, the fig. B is *Scolopodus sublaevis;* ——— ZITTEL (1924), p. 288, figs. 457 a, b, the fig. b is *Scolopodus sublaevis;* ——— TROWBRIDGE & MORTIMORE (1925), pp. 415, 420, fig. 9, Hominy sand, Okla.; ——— HOLMES (1928), p. 16, pl. 2, figs. 27-29, Pander's pl. 1, figs. 20 b, a, c, 18 b, a, c, 19 a, b are figs. 27 left, mid., rt., 28 left, mid., rt., and 29 left, rt., resp.; ——— WETZEL (1933), pp. 81, 89, comp. with pl. 6, fig. 18 and Einzelborste *b.* LO

——**unicostatus** BRANSON & MEHL (June 1933c), p. 42, pl. 3, fig. 3. Cotypes, C153-3, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, fig. 3; ——— BRANSON & BRANSON (1947), p. 554, pl. 82, figs. 6-8, 11-22. Hypotypes, C674-2 (figs. 6-7), C676-2 (fig. 8), C676-3 (figs. 11, 14-16), C677-2 (figs. 17-19), C676-5 (figs. 20-22 on pl. only), Univ. Mo., Brassfield fm., locs. 1784 (fig. 8), 1786, 1787 (figs. 17-22), 1799 (figs. 6-7), 1840, 1841 (figs. 11, 14-16), Ky. L-MS

——**variabilis** FURNISH (1938), pp. 320-321, 331, fig. 1E; pl. 42, figs. 9, 10. Syntypes, 1314-1315 (fig.), 1316-1319, Univ. Iowa, common in Oneota fm., Minn. (fig. 9), and Iowa (fig. 10), comp. with *Paltodus bassleri;* ——— STAUFFER & THIEL (1941), p. 246; ——— GRAVES & ELLISON (1941), pp. 5, 7, pl. 2, fig. 17. Hypotype, 1508, Mo. Sch. Mines, Rolla, Fort Pena beds, loc. G414, Tex. L-MO

——**sp.** STAUFFER (1940), p. 428, pl. 60, fig. 4. Fig. spm., B5643, Univ. Minn., clay above ls. admixture, Minn. O

——**sp.** GRAVES & ELLISON (1941), p. 6, pl. 3, fig. 31. Fig. spm., 4759, Mo. Sch. Mines, Rolla, Maravillas fm., loc. G615, Tex. UO

——**spp.** IMBT (1941), p. 148, Maquoketa sh., Kans. UO

——**sp.** AMSDEN & MILLER (1942), p. 303, fig. 2 E. Fig. spm., 1622, Univ. Iowa, Bighorn ss., Wyo. MO

——**n. sp.** BRANSON (1944), p. 52, pl. 7, figs. 7-8, 13-14, 17-24, after Mehl and Ryan, from William Ryan's master's thesis (1940), Univ. Mo., Jefferson City fm., Mo. LO

——**n. sp.** BRANSON (1944) (*? n. sp.* figs. 24, 29), pp. 81, 92, pl. 12, figs. 18-19, 24, 29, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

PANDERODELLA ULRICH & BASSLER (1926), pp. 6, 43-44, 52-53. Type species, *P. truncata* ULRICH & BASSLER (1926), comp. with *Polygnathellus;* ——— BASSLER (1925), p. 220 (*nomen nudum*); ——— HOLMES (1928), pp. 3, 16, 30; ——— COOPER (June 1931), p. 150; ——— STAUFFER (1932), p. 264; ——— HUDDLE (1934), pp. 26, 28, 35, 89, 112, comp. with *Spathognathodus;* ——— MCKNIGHT (1935), p. 74, Sylamore ss., N. Ark.; ——— CHADWICK (Feb. 1935a), p. 313, not rept. outside Genesee; ——— ELLISON (Jan. 1946), p. 109, probably fragment of *Palmatolepis.* UD

——**falciformis** STAUFFER (1932), pp. 258, 264, pl. 40, figs. 34-35. Type, Univ. Minn., Decorah sh., Kans. MO

——**maxillaris** ULRICH & BASSLER (1926), p. 53, pl. 9, fig. 21. Cotypes, 11041, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 16. UD

——**recta** HOLMES (1928), pp. 30-31, pl. 10, fig. 14. Holotype, 11452, USNM, Chattanooga black sh., Ala., comp. with *Panderodella subrecta;* ——— BUTTS (1926), p. 160, pl. 48, fig. 1, after Holmes unpub. (*nomen nudum*); ——— HUDDLE (1934), p. 92, classed as sr. syn. of *Spathognathodus;* ——— WETZEL (1940), p. 74, comp. with Form I. UD

——**scitulus** (ULRICH & BASSLER) (1926), p. 52 (*Polygnathus*); ——— (HOLMES) (1928), pp. 16, 18, pl. 6, figs. 26-28, Hinde's figs. 9-11 resp. MMi

——**serrata** (HOLMES) (1928), pp. 16, 18, pl. 6, figs. 29-30, Hinde's pl. 17, figs. 4-5 resp. (*Polygnathus*); ——— (BRANSON & MEHL) (July 1933d), p. 151, classed as sr. syn. of *Palmatolepis?.* UD

——**solidus** (ULRICH & BASSLER) (1926), p. 52 (*Polygnathus*); ——— (HOLMES) (1928) (*solida*), pp. 16, 19, pl. 6, fig. 25, Genundewah ls., N. Y.; ——— (CHADWICK) (Feb. 1935a) (*solida*), p. 311, Genesee gr. UD

——**subcrassa** ULRICH & BASSLER (1926), pp. 44, 53, fig. 5, subfig. 3; pl. 9, fig. 14. Holotype, 11042, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 16; ——— BASSLER (1932), p. 234, pl. 26, fig. 5. UD

——**subrecta** HOLMES (1928), p. 31, pl. 10, fig. 15. Holotype, 11453, USNM, Chattanooga sh., Ala.; ——— COOPER (June 1931), p. 151, pl. 20, fig. 18, upper Ohio sh., Ohio; ——— HUDDLE (1934), p. 91, classed as sr. syn. of *Spathognathodus;* ——— COOPER (1935), p. 315; ——— WETZEL (1940), p. 74, comp. with Form I; ——— BOND (1947), p. 35, classed as sr. syn. of *Spathognathodus.* UD

——**truncata** ULRICH & BASSLER (1926), pp. 44, 52-53, fig. 5, subfigs. 1-2; pl. 9, figs. 15-17. Cotypes, 11040, USNM, Hardin ss., Tenn., type species for genus, comp. with *Panderodella subcrassa;* ——— BASSLER (1925), p. 220 (*nomen nudum*); ——— HOLMES (1928), p. 16; ——— COOPER (June 1931), pp. 150-151, pl. 20, fig. 17, lower Sunbury sh., Ohio; ——— BASSLER (1932), p. 234, pl. 26, fig. 4. UD

PANDORINA STAUFFER (1940), p. 428. Type species, *P. insita* STAUFFER (1940); ——— ELLISON (Jan. 1946), p. 109, blade type, classed as jr. syn. of *Spathognathodus.* MD

——**brambona** STAUFFER (1940), p. 428, pl. 59, figs. 34-36. Holotype, B5600 (fig. 35); paratypes, B5599, B5601, Univ. Minn., upper Cedar Valley ls., Minn.; ——— STAUFFER & THIEL (1941) (*bambona*), p. 229. MD

——**gratiosa** STAUFFER (1940), p. 428, pl. 59, figs. 18-20, 24. Syntypes, B5583-B5585, B5589, Univ. Minn., upper Cedar Valley ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229; ——— YOUNGQUIST (1947), p. 111, classed as jr. syn. of *Spathognathodus.* MD

——**insita** STAUFFER (1940), pp. 428-429, pl. 59, figs. 23, 25. Syntypes, B5588, B5590, Univ. Minn., upper Cedar Valley ls., Minn., type species for genus; ——— STAUFFER & THIEL (1941), p. 229. MD

——**sp.** STAUFFER (1940), p. 429, pl. 58, fig. 38. Fig. spm., B5560, Univ. Minn., clay above ls., admixture, Minn. MD

PELEKYSGNATHUS THOMAS (1949), p. 424. Type species, *P. inclinata* THOMAS (1949). UD

——**communis** THOMAS (1949), pp. 408, 424, pl. 2, figs. 6-8. Syntypes, C831-3, Univ. Mo., Maple Mill sh., loc. 14, SE Iowa. UD

——**costata** THOMAS (1949), pp. 408, 424, pl. 2, fig. 9. Holotype, C831-4, Univ. Mo., Maple Mill sh., loc. 2, SE Iowa. UD

——**inclinata** THOMAS (1949), pp. 408, 424-425, pl. 2, fig. 10. Holotype, C834-4, Univ. Mo., Maple Mill sh., loc. 14, SE Iowa, type species for genus. UD

——**nodosa** THOMAS (1949), pp. 408, 425, pl. 2, fig. 5. Holotype, C831-5, Univ. Mo., Maple Mill sh., loc. 14, SE Iowa. UD

PHRAGMODUS BRANSON & MEHL (July 1933a), p. 98. Type species, *P. primus* BRANSON & MEHL (July 1933a); ——— BRANSON & MEHL (July 1933b, c), pp. 102, 115, 122; ——— HUDDLE (1934), p. 34; ——— STAUFFER (1935a), p. 150; ——— STAUFFER (1935b), p. 613; ——— FURNISH (1938), p. 323; ——— BRANSON & MEHL (1941d), p. 201; ——— GRAVES & ELLISON (1941), pp. 4-5, Fort Pena beds, Tex.; ——— ELLISON & GRAVES (1941), p. 2; ——— BRANSON & MEHL (1943), pp. 375, 381; ——— BRANSON & MEHL (1944), p. 241; ——— ELLISON (Jan. 1946), pp. 94, 100, 109, bar type; ——— BRANSON, MEHL, & BRANSON (Dec. 1946), p. 1264. M-UO

——**cognitus** STAUFFER (1935a), pp. 150-151, 160, pl. 11, figs. 12-14, 18, 31, 41. Cotypes, B4377-B4379; paratypes, B4383, B4396, B4406, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 613, MO

pl. 72, figs. 27-28, 33-37, 39-45, 50. Fig. spms., B4542-B4543, B4548-B4552, B4554-B4560, B4565, Univ. Minn., Decorah sh., Minn., Spechts Ferry memb., Iowa, locs. 1-2, 6, 9-10, 15-16, 19, 22, 24, 26-28, 30, 37, 40, 47, 48 (figs. 36, 45), 49, 51-52, 55-56, 57 (fig. 50), 61-63, 65, 68-71, 74-75, 77-79, 86-89, 92-93, 94 (figs. 33, 35, 37, 39-44), 95 (fig. 27), 96 (figs. 28, 34); ——— STAUFFER & THIEL (1941), pp. 238, 241, 245.

——**delicatus** BRANSON & MEHL (July 1933c), p. 123, pl. 10, fig. 22. Holotype, C273-4, Univ. Mo., Thebes ss., Mo.; ——— GRAVES & ELLISON (1941), pp. 6-7, pl. 3, figs. 12-13. Hypotypes, 2929, 3131, Mo. Sch. Mines, Rolla, Maravillas fm., locs. G602 (fig.), G607, Tex.; ——— IMBT (1941), p. 148, Maquoketa sh., Kans.; ——— BRANSON (1944), p. 98. UO

——**dissimilaris** BRANSON & MEHL (July 1933c), pp. 123-124, pl. 10, fig. 29. Cotypes, C94-2 (fig.), C95-4, Univ. Mo., Thebes ss., Mo.; ——— GRAVES & ELLISON (1941), pp. 6-7, pl. 3, fig. 9. Hypotype, 2481, Mo. Sch. Mines, Rolla, Maravillas fm., loc. G614, Tex.; ——— BRANSON (1944), p. 98. UO

——**inflexus** STAUFFER (1935a), pp. 151, 160, pl. 11, figs. 9, 15-17, 19-22, 25-26, 34. Cotypes, B4374, B4380-B4382, B4384-B4387, B4390-B4391, B4399, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245; ——— BRANSON (1944), pp. 53, 67, pl. 8, figs. 6-7, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo. MO

——**insculptus** BRANSON & MEHL (July 1933c), p. 124, pl. 10, figs. 32-34. Cotypes, C129-4, C81-4 (fig. 32), Univ. Mo., Thebes ss., Mo., comp. with *Phragmodus dissimilaris;* ——— GRAVES & ELLISON (1941), pp. 6-7, pl. 3, fig. 1. Hypotype, 2157, Mo. Sch. Mines, Rolla, Maravillas fm., locs. G610, G611 (fig.), G614, Tex.; ——— IMBT (1941), p. 148; ——— BRANSON (1944), p. 98. UO

——**mirus** BRANSON & MEHL (July 1933c), p. 123, pl. 10, fig. 12. Holotype, C273-5, Univ. Mo., Thebes ss., Mo.; ——— BRANSON (1944), p. 98. UO

——**primus** BRANSON & MEHL (July 1933a), pp. 98-99, pl. 6, fig. 26. Cotypes, C26-1, Univ. Mo., Joachim fm., Mo., type species for genus; ——— BRANSON & MEHL (1943) (*primus?* p. 381), pp. 376, 381, pl. 63, fig. 8. Fig. spm., C527-4, Univ. Mo., McLish fm., Okla.; ——— BRANSON & MEHL (1944), p. 241; ——— BRANSON (1944), p. 69. MO

——**simplex** BRANSON & MEHL (July 1933c), pp. 122-123, pl. 10, figs. 30-31. Cotypes, C98-3, Univ. Mo., Thebes ss., Mo.; ——— BRANSON (1944), p. 98. UO

——**singularis** STAUFFER (1935a), pp. 151, 160, pl. 11, figs. 23-24, 35-36. Cotypes, B4388-B4389, B4400-B4401, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**undatus** BRANSON & MEHL (July 1933b), pp. 115-116, pl. 8, figs. 22-26. Cotypes, C105-4 (figs. 22-24), C103-3, Univ. Mo., Plattin ls., Mo.; ——— GRAVES & ELLISON (1941), pp. 5-7, pl. 2, figs. 2, 9-10, 26; pl. 3, figs. 7-8. Hypotypes, 1368-1369, 1371 (fig. 10), 2002, 2359, Mo. Sch. Mines, Rolla, Maravillas fm., loc. G611 (figs. 7-8); Wood's Hollow fm., locs. G501 (fig. 10), G504 (fig. 2), G506 (fig. 9); Fort Pena beds, loc. G412 (fig. 26), Tex.; ——— IMBT (1941), p. 148, Maquoketa sh., Kans.; ——— BRANSON & MEHL (1943), pp. 376, 386-387, pl. 64, figs. 4-5. Fig. spms., C540-3, Univ. Mo., lower Viola fm., Okla.; ——— BRANSON & MEHL (1944) (*undulatus*), p. 241, pl. 93, figs. 49-50; ——— BRANSON (1944), pp. 80, 82, pl. 11, figs. 39-41, 45-46, Plattin ls., Mo.; ——— BRANSON (1944), pp. 89-90, pl. 13, figs. 20-21, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. M-UO

——**varians** STAUFFER (1935a), pp. 151-152, 160, pl. 11, fig. 27. Holotype, B4392, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**sp.** HASS (Mar. 1947), p. 140, reworked in Glen Park ls., Mo. O

PINACOGNATHUS (*Pinacodus*) BRANSON & MEHL (Oct. 1934a), pp. 269-271. Type species, *Pinacodus profundus* BRANSON & MEHL (Oct. 1934a), comp. with *Solenodella;* ——— (*Pinacodus*) BRANSON & MEHL (1938a), p. 157; ——— (*Pinacodus*) BRANSON & MEHL (1938d), pp. 129, 136; ——— (*Pinacodus*) COOPER (1939), p. 398, comp. with *Oligodus;* ——— (*Pinacodus*) BRANSON & MEHL (1941d), p. 202; ——— (*Pinacodus*) BRANSON & MEHL (1944), p. 244; ——— BRANSON & MEHL (1944), *Pinacodus* is preoccupied; ——— ELLISON (Jan. 1946), pp. 95, 97, 100, 103, 109, blade type, confined to Kinderhook; ——— HASS (Mar. 1947) (*Pinacognathodus*), p. 137; ——— COOPER (July 1948a), p. 361, common to Jacobs Chapel, pre-Welden, Hannibal, and Bushberg fms.; ——— BRANSON & MEHL (1948) (*Pinocognathus*), pp. 527-528, *Pinacodus* (L. Agassiz M. S.), J. W. Davis, Tr. Roy. Dublin Soc., ser. 2, vol. 1, p. 476, 1883, Pisc. Elasm. preoccupied *Pinacodus* Branson & Mehl (1934), which is now *Pinacognathus* officially; ——— ? YOUNGQUIST & PATTERSON (1949) (*Pinocognathus*), p. 57; ——— THOMAS (1949), pp. 409-410, Prospect Hill ss., Iowa. LMi

In the following list, a dash (—) will represent the name *Pinacognathus,* unless *Pinacodus* is spelled out in parentheses ( ) before the author's name, in which latter case *Pinacodus* was used by said author.

——**anomius** (*Pinacodus*) COOPER (1939), p. 398, pl. 45, figs. 36, 41. Holotype, 38960 (fig. 41); paratype, 38959, Univ. Chi., pre-Welden sh., Okla. LMi

——**brachys** (*Pinacodus*) COOPER (1939), pp. 398-399, pl. 45, fig. 43. Holotype, 38961, Univ. Chi., pre-Welden sh., Okla. LMi

——? **deflecta** YOUNGQUIST & PATTERSON (1949) (*Pinocognathus*), p. 60, pl. 15, fig. 5. Holotype, 4112, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**profundus** (*Pinacodus*) BRANSON & MEHL (Oct. 1934a), pp. 269-270, pl. 22, fig. 1. Holotype, C380-1, Univ. Mo., Bushberg ss., Mo., type species for genus; ——— (*Pinacodus*) BRANSON & MEHL (Oct. 1934a) (*profundus?*), pl. 22, figs. 2-4. Fig. spms., C383-4, C382-4, C385-5, Univ. Mo., Bushberg ss., Mo.; ——— (*Pinacodus*) BRANSON (1938a), p. 182; ——— (*Pinacodus*) BRANSON & MEHL (1938d), pl. 33, fig. 31, holotype fig.; ——— (*Pinacodus*) COOPER (1939), pp. 399, 419, LMi

pl. 45, figs. 29, 35. Hypotypes, 38962-38963, Univ. Chi., pre-Welden sh., Okla.; ——— (*Pinacodus* and *Pinacognathus*) BRANSON & MEHL (1944) (also *profunda*), p. 244, pl. 94, fig. 3; ——— (*Pinacodus*) BRANSON (1944), pp. 181, 221, pl. 32, fig. 31; ——— THOMAS (1949) (*cf. profundus*), p. 411, pl. 3, fig. 17. Fig. spm., C811-3, Univ. Mo., Prospect Hill siltstone, loc. 2, SE Iowa.

——**subbrevis** (*Pinacodus*) (COOPER) (1939), pp. 399, 419, pl. 45, fig. 24. Hypotype, 38964, Univ. Chi., pre-Welden sh., Okla. (*Bryantodus*). LMi

——**synchus** (*Pinacodus*) COOPER (1939), p. 399, pl. 45, fig. 40. Holotype, 38965, Univ. Chi., pre-Welden sh., Okla. LMi

PLAGIODINA COOPER (1933a), p. 210. A new genus comprising species desc. under *Ligonodina, Prioniodus,* and *Euprioniodina,* having denticulated downward projections at rt. angles to plane of bar and cusp; ——— HUDDLE (1934), pp. 58-60. Cooper designates no type species. Huddle classes name as sr. syn. of *Ligonodina* (Intern. Rules Zool. Nomen. amend. to Art. 25, Sec. c, 3), and redefines *Ligonodina. Ligonodina pectinata,* the type species for *Ligonodina* has all of the characters of *Plagiodina,* and since the type and not the original desc. of the type determines the characters of the genus, a redescription places *Plagiodina* into synonymy.

PLECTODINA STAUFFER (1935a), p. 152. Type species, *P. dilata* STAUFFER (1935a); ——— STAUFFER (1935b), p. 613; ——— FURNISH (1938), p. 338, comp. with *Cordylodus;* ——— STAUFFER (1940), p. 429; ——— ELLISON (Jan. 1946), p. 109, blade type, classed as jr. syn. of *Ozarkodina.* MO, M-UD

——**aculeata** STAUFFER (1938), pp. 413, 437, pl. 51, figs. 13, 28, 33. Syntypes, B4917, B4923, B4918, Univ. Minn., Olentangy sh., locs. 112 (fig. 13), 118 (fig. 28), 125, Ohio; Widder beds, loc. 168 (fig. 33), Ont. M-UD

——**armata** STAUFFER (1938), pp. 413, 437, pl. 51, figs. 15, 24, 29. Syntypes, B4916, B4914, B4913, Univ. Minn., Plum Brook sh., locs. 107, 121 (fig. 15); Olentangy sh., locs. 111 (fig. 29), 118 (fig. 24), Ohio. M-UD

——**dilata** STAUFFER (1935a), pp. 152, 160, pl. 11, figs. 43, 47. Cotypes, B4408, B4412, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 613, pl. 73, fig. 51. Fig. spm., B4625, Univ. Minn., Decorah sh., Minn., Spechts Ferry memb., Iowa, locs. 6, 10, 26, 30, 47 (fig.), 70; ——— STAUFFER & THIEL (1941), pp. 238, 241, 245. MO

——**glenwoodensis** STAUFFER (1935a), pp. 152, 160, pl. 11, figs. 38-39. Holotype, B4403; paratype, B4404, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**stouti** STAUFFER (1938), pp. 413, 437, pl. 49, fig. 28. Holotype, B4908, Univ. Minn., Olentangy sh., loc. 187, Ohio. UD

——**tilbara** STAUFFER (1940), p. 429, pl. 59, figs. 50, 57-58, 64. Syntypes, B5613, B5619-B5620, B5626, Univ. Minn., clay above ls., admixture, Minn.; ——— STAUFFER & THIEL (1941), p. 229. O, MD

——**sp.** STAUFFER (1938), pp. 413, 437, pl. 51, figs. 21 a-b. Fig. spm., B4911, Univ. Minn., Olentangy sh., locs. 110-111, 114, 118, 187, Ohio; Arkona beds, loc. 162, Widder beds, locs. 167 (fig.), 181, Ont. M-UD

PLECTOSPATHODUS BRANSON & MEHL (June 1933c), p. 47. Type species, *P. flexuosus* BRANSON & MEHL (June 1933c); ——— HUDDLE (1934), p. 35; ——— ELLISON (Jan. 1946), pp. 95, 109, blade type. MS

——**flexuosus** BRANSON & MEHL (June 1933c), p. 47, pl. 3, figs. 31-32. Cotypes, C157-2, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, figs. 31-32. MS

POLYCAULODUS BRANSON & MEHL (July 1933a), p. 86. Type species, *P. inclinatus* BRANSON & MEHL (July 1933a); ——— BRANSON & MEHL (July 1933a, b), pp. 87, 102, 106, comp. with *Curtognathus;* ——— HUDDLE (1934), p. 34; ——— STAUFFER (1935b), p. 613; ——— LOOMIS (Oct. 1936), pp. 663-664, lateral teeth of modern gastropod *Haliotis* resemble this genus; ——— AMSDEN & MILLER (1942), p. 303; ——— BRANSON & MEHL (1943), pp. 381, 383, 386; ——— BRANSON & MEHL (1944), p. 239; ——— ELLISON (Jan. 1946), pp. 94, 109, fibrous type. MO

——**abortivus** BRANSON & MEHL (July 1933b), pp. 106-107, pl. 8, fig. 29. Holotype, C76-2, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 80, 82, pl. 11, fig. 52. MO

——**bidentatus** BRANSON & MEHL (July 1933b), pp. 106-107, pl. 8, figs. 1-3. Cotypes, C77-3, Univ. Mo., Plattin ls., Mo., comp. with *Polycaulodus peculiaris;* ——— AMSDEN & MILLER (1942) (? after Branson & Mehl), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1943), pp. 282-283, 376, 385, pl. 64, figs. 15, 29. Fig. spms., C540-2, C536-2, Univ. Mo., Bromide fm., lower (fig. 29), upper (fig. 15), Okla.; ——— BRANSON (1944), pp. 80, 82, pl. 11, figs. 4-6. MO

——**chatfieldensis** STAUFFER (1935b), pp. 613-614, pl. 71, fig. 44. Holotype, B4508, Univ. Minn., Decorah sh., Ion memb., loc. 62, Minn.; ——— STAUFFER & THIEL (1941), p. 238. MO

——**cornulatus** BRANSON & MEHL (July 1933b), p. 106, pl. 8, figs. 9, 12. Holotype, C73-5 (fig. 12); paratype, C76-1, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 80, 82, pl. 11, figs. 18, 21. MO

——**delicatus** BRANSON & MEHL (July 1933b), p. 107, pl. 8, fig. 8. Holotype, C76-4, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 80, 82, pl. 11, fig. 14. MO

——**gracilis** YOUNGQUIST & CULLISON (1946), p. 589, pl. 89, figs. 8-9. Syntypes, 3352-3353, 3354 (unfig.), Univ. Iowa, Dutchtown fm., Mo. MO

——**inclinatus** BRANSON & MEHL (July 1933a), p. 86, pl. 6, fig. 22. Holotype, C295-3, Univ. Mo., Joachim fm., Mo., type species for genus; ——— BRANSON & MEHL (July 1933a) (*inclinatus?*), p. 159, pl. 6, fig. 17. Fig. spm., C291-5, Univ. Mo., Joachim fm., Mo.; ——— BRANSON & MEHL (1944), p. 239, pl. 93, fig. 9; ——— BRANSON (1944) (*inclinatus?* p. 72), pp. 69, 72. MO

——**irregularis** STAUFFER (1935b), p. 614, pl. 75, fig. 18. Holotype, B4701, Univ. Minn., Decorah sh., Spechts Ferry memb., locs. 26, 94 (fig.), Minn. and Iowa; ——— LOOMIS MO

(Oct. 1936), p. 664, Stauffer's fig.; ——— STAUFFER & THIEL (1941), p. 241.

——**normalis** BRANSON & MEHL (July 1933a), p. 86, pl. 6, figs. 20-21. Cotypes, C276-5, Univ. Mo., Joachim fm., Mo.; ——— BRANSON & MEHL (July 1933b), p. 107, pl. 8, fig. 18. Fig. spm., C113-2, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), p. 72, Joachim fm., Mo.; ——— BRANSON (1944), pp. 80, 82, pl. 11, fig. 29, Plattin ls., Mo.; ——— YOUNGQUIST & CULLISON (1946), p. 589, comp. with *Polycaulodus sp.* of authors. MO

——**peculiaris** BRANSON & MEHL (July 1933b), p. 107, pl. 8, fig. 4. Holotype, C125-5, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 80, 82, pl. 11, fig. 7. MO

——**resupinatus** BRANSON & MEHL (July 1933a), pp. 86-87, pl. 6, fig. 18. Holotype, C294-1, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 72. MO

——**tridentatus** BRANSON & MEHL (July 1933b), p. 106, pl. 8, figs. 5-7, 10. Holotype, C74-1 (fig. 5); paratypes, C120-4, C71-5, C76-3, Univ. Mo., Plattin ls., Mo.; ——— BRANSON & MEHL (1943) (*tridentatus?* p. 385), pp. 376, 382, 385, pl. 64, figs. 14, 27-28. Fig. spms., C539-4, C534-5, Univ. Mo., Bromide fm., lower (figs. 27-28), upper (fig. 14), Okla.; ——— BRANSON (1944), pp. 80, 82, pl. 11, figs. 11-13, 25. MO

——**sp.** BRANSON & MEHL (July 1933b), p. 161, pl. 8, fig. 17. Fig. spm., C69-1, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), p. 80, pl. 11, fig. 28. MO

——**sp.** STAUFFER (1935b), p. 614, pl. 75, fig. 35. Fig. spm., B4716, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 37, Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**spp.** AMSDEN & MILLER (1942), pl. 41, figs. 11-13, 15-16. Fig. spms., 1633-1635, 1637-1638, Univ. Iowa, Bighorn ss., Wyo. MO

——**sp.** BRANSON & MEHL (1944), p. 239, pl. 93, fig. 4. Joachim fm., Mo. MO

——**sp.** YOUNGQUIST & CULLISON (1946), p. 589, pl. 89, fig. 13. Fig. spms., 3355, Univ. Iowa, Dutchtown fm., Mo., comp. with *Polycaulodus normalis.* MO

POLYGNATHELLUS ULRICH & BASSLER (1926), pp. 6, 44, 53. Type species, *P. typicalis* ULRICH & BASSLER (1926); ——— BASSLER (1925), p. 220 (*nomen nudum*); ——— HOLMES (1928), pp. 3, 16; ——— BRANSON & MEHL (June 1933c), pp. 49-50, comp. with *Polygnathoides;* ——— BRANSON & MEHL (June 1934a), pp. 224, 231; ——— HUDDLE (1934), pp. 24, 26, 28, 35-36, 89, 92-93, 112, probably derived from *Spathognathodus* and may have given rise to *Palmatolepis,* comp. with *Spathognathodus;* ——— CHADWICK (Feb. 1935a), pp. 313, 318; ——— COOPER (1935), p. 315; ——— BRANSON & MEHL (1944), p. 245; ——— ELLISON (Jan. 1946) (*Polygnathella* p. 109), pp. 94, 98, 104-105, 109, platform type. MS-LMi

——**carinatus** COOPER (1935), pp. 310, 315, pl. 27, fig. 17. Holotype, 38067, Univ. Chi., mid. Ark. novaculite, bed 14, Ark., comp. with *Polygnathellus parilis;* ——— COOPER (1939), p. 410, classed as sr. syn. of *Solenodella.* UD

——**colligatus** (ULRICH & BASSLER) (1926), p. 53, (*Prioniodus*); ——— (HOLMES) (1928), pp. 16, 20; ——— (CHADWICK) (Feb. 1935a), p. 311, confined to Genesee gr. UD

——**curvatus** ULRICH & BASSLER (1926), p. 54, pl. 1, fig. 4. Holotype, 11305, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 16; ——— CHADWICK (Feb. 1935a), p. 316. UD

——**emarginatus** BRANSON & MEHL (June 1933c), p. 49, pl. 3, fig. 38. Holotype, C154-2, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, fig. 38. MS

——**minutus** BRANSON & MEHL (June 1933c), p. 49, pl. 3, fig. 37. Holotype, C154-3, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, fig. 37. MS

——**nothus** BRANSON & MEHL (June 1934a), pp. 224-225, pl. 13, figs. 21-22. Holotype, C311-3, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON & MEHL (1944), p. 245, pl. 94, fig. 46; ——— BRANSON (1944), pp. 157, 163, pl. 28, figs. 43-44; ——— MILLER & YOUNGQUIST (1947), p. 515, comp. with *Polygnathus? rugicosta.* UD

——**parilis** COOPER (1935), pp. 310, 315, pl. 27, fig. 19. Holotype, 38069, Univ. Chi., upper Ark. novaculite, bed B, Ark. LMi

——**similis** HUDDLE (1934), pp. 16, 93, pl. 7, figs. 20-21. Holotype, 1901 (fig. 21); paratype, 1945 (fig. 20), Ind. Univ., upper New Albany sh., rare at locs. 1 (fig. 21), 2, 14 (fig. 20), Ind. LMi

——**typicalis** ULRICH & BASSLER (1926), pp. 44, 53, fig. 5, subfigs. 4-5; pl. 1, figs. 1-3. Cotypes, 11304, USNM, lower Rhinestreet sh., N. Y., type species for genus; ——— BASSLER (1925), p. 220 (*nomen nudum*); ——— HOLMES (1928), p. 16; ——— HUDDLE (1934), p. 93, comp. with *Polygnathellus similis;* ——— CHADWICK (Feb. 1935a), p. 316; ——— BRANSON & MEHL (1944), p. 245, pl. 94, figs. 52-54. UD

——**sp.** (HOLMES) (1928), p. 37, pl. 8, fig. 30, [*Polygnathus dubius* of Clarke (1887), pl. A-1, fig. 12]. UD

POLYGNATHIDAE ULRICH & BASSLER (1926), p. 43; ——— BASSLER (1925), p. 219 (*nomen nudum*); ——— HOLMES (1928), pp. 3, 17, 30; ——— CONDRA, SCHRAMM, & LUGN (1931), p. 207, black carbonaceous sh., 3350-3365 feet, Avery farm, Nebr.; ——— COOPER (June 1931), p. 150; ——— STAUFFER & PLUMMER (1932), p. 40; ——— STAUFFER (1932), p. 264; ——— HARLTON (1933), p. 14; ——— HARRIS & HOLLINGSWORTH (1933) (*Polygnathinae*), p. 193; ——— GUNNELL (1933), p. 269; ——— HUDDLE (1934), pp. 24, 26, 33, 35-36, 92, 112-113, incl. *Ambalodus* (sp. *Amabalodus* p. 35), *Amorphognathus, Ancyrodella, Cavusgnathus, Gondolella, Idiognathodus, Idiognathoides, Palmatolepis, Panderodella, Polygnathellus, Polygnathodella, Polygnathoides, Polygnathus, Streptognathodus,* and *Trucherognathus;* ——— COOPER (1935), p. 314; ——— ZEBERA (1936b), pp. 190, 192; ——— CRONEIS (1938), p. 977; ——— HIBBARD (1942), p. 271; ——— BRANSON & MEHL (1944), p. 244, pl. 94; ——— GLAESSNER (1945), p. 28; ——— COOPER (Dec. 1945a) (*polygnathids*), p. 1153, none found in layer below concretion zone in Linietta clay, Ky.; ——— ELLISON (Jan. 1946), p. 98, Mid. Sil. to Mid. Miss.; ——— THOMAS (1949), p. 416.

POLYGNATHODELLA HARLTON (1933), pp. 4-5, 15. Type species, *P. ouachitensis* HARLTON (1933); ——— HUDDLE (1934), p. 35; ——— BRANSON & MEHL (1941e), pp. 103, 105, *Idiognathoides* is a jr. syn.; ——— ELLISON (1941), pp. 126, 134, comp. with *Idiognathodus* and *Cavusgnathus;* ——— ELLISON & GRAVES (1941), pp. 2, 8-9; ——— BRANSON & MEHL (1944), p. 246; ——— ELLISON (Jan. 1946), pp. 94, 96, 108-109, confined to the Bendian; a transition occurs between this genus and *Cavusgnathus;* platform type; ——— COOPER (1947b), p. 269; ——— ? MCLAUGHLIN (1947), p. 1974, Glen Eyrie beds, Colo. LP

——**attenuata** (HARRIS & HOLLINGSWORTH) (1933) (ab)Z (1937), p. 177, Branson & Mehl state that *Idiognathodus* is a sr. syn.; ——— (BRANSON & MEHL) (1941e), pp. 104-105; ——— (ELLISON & GRAVES) (1941), pp. 3-4, 6, 8-10, pl. 3, figs. 11, 13-15. Hypotypes, 7150, 7153, 7151-7152, Mo. Sch. Mines, Rolla, Dimple fm., mid., locs. G901-G903, G905, G906 (fig. 11), G908, G917 (fig. 13), G918-G919, G922-G924, G926; upper transition zone, loc. G928; lower transition zone, locs. G910-G911, G912 (figs. 14-15), G913, G915, Tex., comp. with *Cavusgnathus sinuata* and *Polygnathodella convexa* and *ouachitensis.*

——**convexa** ELLISON & GRAVES (1941), pp. 3, 6, 8-10, pl. 3, figs. 10, 12, 16. Holotype, 7154 (fig. 10); paratypes, 7155-7156, Mo. Sch. Mines, Rolla, Dimple fm., mid., locs. G905-G906, G907 (fig. 10), G908 (fig. 12), G921-G923, G901-G904, G917, G918 (fig. 16); lower transition zone, locs. G912-G913, Tex., comp. with *Cavusgnathus sinuata* and *Polygnathodella ouachitensis.* LP

——**corrugata** (HARRIS & HOLLINGSWORTH) (1933) (ab)Z (1937), p. 177, Branson and Mehl state that *Idiognathodus* is a sr. syn.; ——— (BRANSON & MEHL) (1941e), p. 105; ——— (ELLISON & GRAVES) (1941), p. 10, classed as jr. syn. of *Polygnathodella ouachitensis.* LP

——**fossata** BRANSON & MEHL (1941e), pp. 103-104, pl. 19, figs. 27-28. Holotype, C60-2, Univ. Mo., Hartville fm., Wyo.; ——— BRANSON & MEHL (1944), p. 246, pl. 94, figs. 70-71. LP

——**ouachitensis** HARLTON (1933), p. 15, pl. 4, figs. 14a-c. Holotype, 85531, USNM, Johns Valley sh. (fig.) and mid. Wapanucka ls., Okla.; ——— BRANSON & MEHL (1941e) (*ouachitense*), p. 106; ——— ELLISON & GRAVES (1941), pp. 3-4, 6, 8-10, pl. 3, figs. 8-9. Hypotypes, 7157-7158, Mo. Sch. Mines, Rolla, Dimple fm., mid., loc. G926 (fig.); upper transition zone, loc. G928; lower transition zone, locs. G911-G912, Tex., comp. with *Cavusgnathus sinuata* into which it grades and *Polygnathodella attenuata* and *convexa; Idiognathodus corrugata* is a jr. syn.; ——— BRANSON & MEHL (1944), p. 246. LP

——**sinuata** (BRANSON & MEHL) (1941e), p. 105, (*Idiognathoides*); ——— (ELLISON &: GRAVES) (1941), p. 5, classed as syn. of *Cavusgnathus.*

Polygnathodus sp. FOWLER (1944), p. 256, ls. between 4642 and 4648 feet, Cleveland Hills bore, Yorkshire, Eng. P

POLYGNATHOIDES BRANSON & MEHL (June 1933c), p. 50. Type species, *P. siluricus* BRANSON & MEHL (June 1933c); ——— HUDDLE (1934), p. 35; ——— BRANSON & MEHL (1944), p. 245; ——— ELLISON (Jan. 1946), pp. 94, 109, platform type. MS

——**siluricus** BRANSON & MEHL (June 1933c), p. 50, pl. 3, figs. 39-42. Cotype, C157-4, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON & MEHL (1944), p. 245, pl. 94, figs. 48-49; ——— BRANSON (1944), pp. 97, 110, pl. 16, figs. 39-42. MS

POLYGNATHUS HINDE (1879), pp. 359, 361-363. Type species, *P. dubius* HINDE (1879) emend. by BRYANT (1921), ROUNDY (1926) to pl. 16, fig. 17, and BRANSON & MEHL (July 1933) to pl. 16, fig. 18; ——— HINDE (1879) (ab)N (1881), p. 107; ——— MASON (1881), p. 192; ——— S. A. MILLER (1883), p. 314, *polys* = many; *gnathos* = a jaw; ——— JAMES (1884), p. 148; ——— CLARKE (1885b), pp. 17, 40; ——— S. A. MILLER (1889), pp. 516, 520; ——— ZITTEL (1890), p. 60; ——— CLARKE (1893), p. 204; ——— GRABAU (1899), p. 153; ——— *cf. Polygnathus* GÜRICH (1900), p. 368, Upper Dev., Karczówka, Poland; ——— TAFF (1903), p. 4; ——— CLARKE & RUEDEMANN (1903), p. 86; ——— TAFF (1904), p. 28; ——— GRABAU & SHIMER (1910), p. 243; ——— PROSSER, KINDLE, & SWARTZ (1913), p. 122; ——— BASSLER (1915), pp. 1020, 1426, designates type species; ——— BRYANT (1921), pp. 19, 21-23, a few forms of *Polygnathus dubius* were found to be syns. of *Polygnathus pennatus,* and Bryant then proposes *pennatus* as the type; ——— THOMAS (1921), p. 131, Lime Creek sh., Ohio; ——— MACFARLANE (1923a), p. 257; ——— MACFARLANE (1923b), p. 33; ——— MORGAN (1924), p. 36, lower Sylvan sh., Okla.; ——— ZITTEL (1924), p. 288; ——— T. H. CLARK (1924), p. 68; ——— BASSLER (1925), p. 220; ——— ULRICH & BASSLER (1926), pp. 2, 6, 43-45, 48, 52-55, comp. with *Ancyrodella, Panderodella, Polygnathellus,* and *Gnathodus;* ——— ROUNDY (1926), pp. 9, 13, designates Hinde's pl. 16, fig. 17 as type species, which is later classed a syn. of *Polygnathus pennata* by Branson; ——— TAFF (1928), p. 26, lower Sylvan sh., Okla.; ——— HOLMES (1928), pp. 3, 17, 31; ——— SAVAGE (1930), pp. 17, 73; ——— GUNNELL (Mar. 1931a), p. 331, Lansing gr., Mo.; ——— GUNNELL (Apr. 1931a) (*Polygnathus*), p. 239; ——— COOPER (June 1931), p. 150; ——— COOPER (Sept. 1931), p. 242; ——— STAUFFER (1932), p. 264; ——— WETZEL (1933), p. 91; ——— HARLTON (1933), pp. 4, 15, comp. with *Polygnathodella;* ——— HARRIS & HOLLINGSWORTH (1933), p. 193; ——— MATERN (1933), pp. 17-18, 20-21, comp. with *Gnathodella;* ——— BRANSON & MEHL (June 1933 a, c), pp. 10, 46, 49-50, comp. with *Spathognathodus* and *Polygnathoides;* ——— BRANSON & MEHL (July 1933 c, d), pp. 127, 144, 146, Hinde's pl. 16, fig. 18 is the type species; ——— BAKER, DANE, & REESIDE (1933), p. 971, Cane Creek anticline, Moab, Utah, Penn. (lower half) 3250-3350 feet down; ——— BRANSON & MEHL (June 1934a), pp. 184, 227, 238, 242, 245, 249, comp. with *Notho-* MD-MMi

gnathella, Ancyrodella, and *Polylophodonta;* ——— SCHMIDT (1934), pp. 76, 83-84; ——— BRANSON & MEHL (Oct. 1934a), pp. 265, 293, 295, 298-299, comp. with *Siphonodella* and *Pseudopolygnathus;* ——— E. R. BRANSON (1934), pp. 308, 310; ——— HUDDLE (1934), pp. 13, 24, 26, 35-36, 89-90, 94-95, probably derived from *Spathognathodus,* may have given rise to higher genera of Polygnathidae; ——— MCKNIGHT (1935), p. 74, Sylamore ss., Ark.; ———? CHADWICK (Feb. 1935a), p. 313; ——— COOPER (1935), p. 314; ——— COOPER (1935a), p. 444; ——— STAUFFER (1935b), p. 615; ——— ZEBERA (1936a), p. 4; ——— ZEBERA (1936b), p. 192; ——— MATERN (1933) (ab)Z (1937), p. 178, E. B. BRANSON states that *Gnathodella* spms. seem to belong to this genus; ——— STAUFFER (1938), p. 430, comp. with *Icriodus cymbiformis?;* ——— KNECHTEL & HASS (1938), p. 519; ——— BRANSON & MEHL (1938d), pp. 129, 136, 145; ——— COOPER (1939), pp. 384, 393, 397, 399, 408-409, comp. with *Nodognathus;* ——— WETZEL (1940), p. 75, comp. Form V with pl. 8, fig. 7 of Holmes (1928); ——— STAUFFER (1940), p. 429; ——— BRANSON & BRANSON (Jan. 1941), p. 130, Darby black sh., Bull Lake Creek, Wyo.; ——— BRANSON & MEHL (1941c), p. 194; ——— ELLISON (1941), p. 127, Harris & Hollingsworth (pt.) is sr. syn. of *Streptognathodus;* ——— ELLISON & GRAVES (1941), p. 2; ——— SCOTT (1942), p. 295; ——— SCHUCHERT (1943), p. 106; ——— GROHSKOPF, CLARK, & ELLISON (1943), p. 16; ——— DUBOIS (1943), p. 158; ——— SCOTT (1942) (r)NRC (1943), p. 21; ——— BRANSON & MEHL (1944), pp. 244-245; ——— DRESSER & DENIS (1944), p. 393, Lévis sh., Can.; ——— COOPER (1945), p. 614; ——— ELLISON (Jan. 1946), pp. 94, 98, 101, 104, 109, platform type, *Macropolygnathus* is jr. syn.; ——— BOND (1947), p. 33; ——— YOUNGQUIST (1947), pp. 95-97, 109, 111; ——— HASS (Mar. 1947), pp. 132, 135, upper and basal Sunbury, Bedford, upper and lower Ohio, basal Orangeville, Cleveland, and Huron shs., Ohio; ——— MEHL & THOMAS (1947), p. 14; ——— YOUNGQUIST & PETERSON (1947), p. 243; ——— MILLER & YOUNGQUIST (1947), pp. 514-515; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 49; ——— COOPER (July 1948a), p. 362, large amount of spp. absent from Rockford ls.; ——— YOUNGQUIST & MILLER (1948), pp. 440, 449; ——— YOUNGQUIST & PATTERSON (1949), pp. 57, 59, 64; ——— THOMAS (1949), pp. 409, 417-418; ——— YOUNGQUIST & DOWNS (1949), p. 164.

——**abnormis** E. R. BRANSON (1934), pp. 312-314, pl. 25, fig. 22. Holotype, C207-5, Univ. Mo., Hannibal fm., Mo., comp. with *Polygnathus permarginata;* ——— BRANSON & MEHL (1938d), p. 132; ——— BRANSON (1944), p. 221. LMi

——? **acaulis** ULRICH & BASSLER (1926), p. 47, pl. 8, figs. 4-5. Cotypes, 11003, USNM, Hardin ss., Tenn.; ——— EDINGER (1926) (no ?), p. 287, fig. 2, top row, 4th from left fig., upper rt. cor. fig.; ——— HOLMES (1928), p. 17; ——— BASSLER (1932) (no. ?), p. 234, pl. 26, fig. 20. UD

——**adola** COOPER (1939), p. 399, pl. 39, figs. 33-36. Holotype, 38966 (figs. 33-34); paratype, 38967, Univ. Chi., pre-Welden sh., Okla. LMi

——**adunca** YOUNGQUIST & PATTERSON (1949), pp. 60-61, pl. 16, figs. 18-19. Holotype, 4113, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**alata** HUDDLE (1934), pp. 17, 100, pl. 8, figs. 19-20. Holotype, 1913 (1931 on pl.), Ind. Univ., New Albany sh., lower, locs. 26 (rare), 30 (fig.); mid., loc. 33 (rare), Ind. M?-UD

——**alternans** HADDING (1913) (*Polygnatus*), pp. 32, 87, pl. 1, fig. 7. Holotype, LO 2346 T, Lund Museum, Sweden, *Dicellograptus* and *Climacograptus putillus* zones, S Sweden; ——— HOLMES (1928), pp. 17, 20, classed as jr. syn. of *Prioniodus?.* MO

——**angulosus** STAUFFER (1940), p. 429, pl. 58, fig. 41. Holotype, B5563, Univ. Minn., clay above ls., admixture, Minn.; ——— STAUFFER & THIEL (1941), p. 229. MD & O

——**angusta** BRANSON & MEHL (June 1934a), p. 245, pl. 20, figs. 8, 14; pl. 21, fig. 14. Cotypes, C233-4 (pl. 20, fig. 14), C331-4, Univ. Mo., Grassy Creek sh., Mo.; ——— COOPER (1939), pp. 399, 419, pl. 40, figs. 13-14. Hypotype, 38968, Univ. Chi., pre-Welden sh., Okla.; ——— ? ELLISON & GRAVES (1941) (no ? on pl.), pp. 3-4, pl. 2, fig. 21. Hypotype, 4803, Mo. Sch. Mines, Rolla, Dimple fm., mid., loc. G920; lower transition zone, loc. G910 (fig.), Tex.; ——— BRANSON (1944), p. 163. UD-LMi

——**angustidiscus** YOUNGQUIST (1945), p. 365, pl. 54, fig. 2. Syntypes, 2951 (fig.), 2952, Univ. Iowa, Independence sh. ?, Iowa; ——— YOUNGQUIST & PETERSON (1947) (*angustidisca*), pp. 243, 251, comp. with *Polygnathus iowaensis.* UD

——**anida** COOPER (1939), p. 399, pl. 39, figs. 39-40. Holotype, 38969, Univ. Chi., pre-Welden sh., Okla.; ——— THOMAS (1949), p. 411, pl. 3, figs. 10, 12. Fig. spm., C804-3, Univ. Mo., English River siltstone, loc. 13, Iowa. LMi

——**anomala** COOPER (1939), p. 399, pl. 40, figs. 5-6. Holotype, 38971, Univ. Chi., pre-Welden sh., Okla. LMi

——**arcuata** MEHL & THOMAS (1947), pp. 14-15, pl. 1, fig. 38. Holotype, C659-1, Univ. Mo., Fern Glen fm., Mo. MMi

——**argos** T. H. CLARK (1924), pp. 59, 70, pl. 6, fig. 7. Holotype, 1007, Harvard Mus., Shumardia ls., Lévis fm., Quebec; ——— HOLMES (1928), p. 17, pl. 7, fig. 13, not a conodont, probably fringe of appendage of merostome or trilobite (ref. to Clark). LO

——**aspera** HUDDLE (1934), pp. 17, 104, pl. 8, figs. 45-46. Holotype, 1905, Ind. Univ., rare in lower New Albany sh., loc. 26, Ind. M?D

——**basilicus** STAUFFER (1938), pp. 413, 438, pl. 53, figs. 42, 43a-b. Syntypes, B4790, B4794, Univ. Minn., Olentangy sh., loc. 109, Ohio. UD

——**bassleri** HARRIS & HOLLINGSWORTH (1933), pp. 198-199, pl. 1, figs. 13a-e. Type, 1504, Okla. Univ., Wapanucka fm., common, Okla.; ——— HARRIS & HOLLINGSWORTH (1933) (ab)Z (1937), p. 178, Branson & Mehl class this as sr. syn. of *Streptognathodus.* LP

——**biclavula** YOUNGQUIST & PATTERSON (1949), pp. 61-62, pl. 15, figs. 23-24. Holotype, 4114, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**bilineatus** ROUNDY (1926), p. 13, pl. 3, figs. 10a-c. Holotype, 115101, USNM, Barnett sh., loc. 2609, Tex.; ——— HOLMES (1928), p. 17; ——— COOPER (1939) (*Gnathodus*), p. 388, classed as jr. syn. of *Gnathodus.* MMi

——**brevicornis** YOUNGQUIST & PETERSON (1947), pp. 249, 251, pl. 36, fig. 14. Holotype, 4092, Univ. Iowa, Sheffield fm., Iowa, comp. with *Polygnathus postbrevicornis.* UD

——**brevilamina** BRANSON & MEHL (June 1934a), p. 246, pl. 21, figs. 3-6. Cotypes, C333-1, C236-2 (fig. 6), Univ. Mo., Grassy Creek sh., Mo.; ——— ELLISON & GRAVES (1941), pp. 3-4, pl. 2, figs. 7, 22. Hypotypes, 4791-4792, Mo. Sch. Mines, Rolla, Dimple fm., mid., locs. G927 (fig. 7), G923 (fig. 22); lower, loc. G903, Tex.; ——— BRANSON (1944), p. 163; ——— YOUNGQUIST & PETERSON (1947), pp. 243, 249-251, pl. 36, figs. 7-9. Hypotypes, 4093-4095, Univ. Iowa, Sheffield fm., Iowa, comp. with *Polygnathus iowaensis* and *postbrevicornis.* UD

——**brevimarginata** E. R. BRANSON (1934), p. 308, pl. 25, fig. 3. Holotype, C210-4, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 132; ——— BRANSON (1944), p. 221. LMi

——**brevis** MILLER & YOUNGQUIST (1947), p. 514, pl. 74, fig. 9. Holotype, 5572, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**bryanti** HUDDLE (1934), pp. 16, 22, 97-98, pl. 8, figs. 9-10. Holotype, 2359, Ind. Univ., rare in lower New Albany sh., locs. 26 (fig.), 32, Ind., *Polygnathus tuberculatus* of Bryant (1921), pl. 12, figs. 7-9 is classed as a sr. syn. M?D

——**bullata** E. R. BRANSON (1934), p. 314, pl. 25, fig. 24. Holotype, C216-3, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 221. LMi

——**caelatus** BRYANT (1921), p. 27, pl. 13, figs. 1-13. Conodont bed, N. Y.; ——— HOLMES (1928), p. 17; ——— HUDDLE (1934) (*caelata*), pp. 17, 101-102, 104, pl. 8, figs. 29-32. Plesiotypes, 1797, 2354 (figs. 30-31), 1946, Ind. Univ., rare in lower New Albany sh., locs. 26, 27 (figs. 30-31), 28 (fig. 32), 30 (fig. 29); mid., loc. 33, Ind., comp. with *Polygnathus aspera;* ——— CHADWICK (Feb. 1935a), p. 311. M?-UD

——**carinata** MILLER & YOUNGQUIST (1947), p. 514, pl. 74, fig. 3. Holotype, 5573, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**carinifera** YOUNGQUIST & PETERSON (1947), p. 250, pl. 36, fig. 18. Holotype, 4096, Univ. Iowa, Sheffield fm., Iowa. UD

——? **claviger** ROUNDY (1926), pp. 14-15, pl. 4, figs. 1a-c, 2a-b. Holotype, 115066 (fig. 1); paratype, 115068, USNM, Barnett sh., locs. 2609 (fig. 1), 2613E (fig. 2), 2613D, G?, 2618, 2610C, Tex.; ——— HOLMES (1928), p. 17; ——— BRANSON & MEHL (1941e), pp. 99-100, classed as sr. syn. of *Bactrognathus.* MMi

——**comis** STAUFFER (1938), pp. 413, 438, pl. 49, figs. 2a-b, 5. Syntypes, B4771, B4776, B4779, Univ. Minn., Olentangy sh., loc. 187, Ohio. UD

——**communis** BRANSON & MEHL (Oct. 1934a), p. 293, pl. 24, figs. 1-4. Cotypes, C381-2, Univ. Mo., Bushberg ss., Mo.; ——— E. R. BRANSON (1934), p. 308, pl. 25, figs. 5-6. Fig. spms., C206-2, C215-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON (1938a), p. 182; ——— KNECHTEL & HASS (1938) (*aff. communis*), p. 519, USGS coll. 8432, basal sh. of Lodgepole ls., Mont.; ——— BRANSON & MEHL (1938d), pp. 132, 145, pl. 33, fig. 55; pl. 34, figs. 39-41. Fig. spms., C381-2, C355-2, Univ. Mo., Bushberg ss., (fig. 55); Chouteau ls., figs. 39-41, Mo.; ——— COOPER (1939), pp. 399, 420, pl. 39, figs. 1-2, 9-10, 23-24. Hypotypes, 38972-38974, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON & MEHL (1941e), p. 98; ——— HASS (1943), p. 308, ref. to Knechtel & Hass (1938), ref. now *communis;* ——— BRANSON & MEHL (1944), p. 245, pl. 94, figs. 29-31; ——— BRANSON (1944), pp. 181, 221, pl. 32, fig. 55, Bushberg ss. (fig.), Hannibal fm., Mo.; ——— BRANSON (1944), pp. 208e, 221, pl. 39, figs. 39-41, Chouteau ls., Mo.; ——— HASS (Mar. 1947), pp. 136-137, basal Orangeville, Sunbury, upper New Albany, Hannibal shs., Bushberg ss.; ——— MEHL & THOMAS (1947), pp. 7, 15, pl. 1, fig. 37. Fig. spm., C658-5, Univ. Mo., Fern Glen fm., Mo.; ——— YOUNGQUIST & PATTERSON (1949), p. 62, pl. 15, figs. 7-8. Fig. spm., 4115, Univ. Iowa, Prospect Hill ss., Iowa; ——— THOMAS (1949), p. 411, pl. 3, fig. 37. Fig. spm., C803-2, Univ. Mo., Prospect Hill siltstone, loc. 2 (fig.); English River ss., Iowa. L-MMi

——**concava** THOMAS (1949), pp. 411, 417, pl. 3, fig. 44. Holotype, C821-3, Univ. Mo., English River siltstone, loc. 2, SE Iowa. LMi

——**concentricus** ULRICH & BASSLER (1926), p. 47, pl. 8, figs. 6-7. Cotypes, 11002, USNM, Hardin ss., Tenn.; ——— EDINGER (1926), p. 287, fig. 2, 2nd row from top, 1st and 2nd figs. from left; ——— HOLMES (1928), pp. 17, 31-32, pl. 11, figs. 5-7. Plesiotypes, 11457, USNM, Chattanooga sh., Ala., comp. with *Polygnathus trilobatus* and *rhomboideus;* ——— BASSLER (1932), p. 234, pl. 26, fig. 19; ——— BRANSON & MEHL (June 1934a), p. 243, classed as sr. syn. of *Polylophodonta;* ——— HUDDLE (1934) (*concentrica*), pp. 17, 105-106, pl. 9, fig. 19. Plesiotype, 1943, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind.; ——— CAMPBELL (1946), pp. 894, 901, common to lower Blackiston fm., Ind. UD

——**confluens** ULRICH & BASSLER (1926), pp. 46-47, pl. 7, figs. 14-15. Cotypes, 10998, USNM, Hardin ss., Tenn., comp. with *Polygnathus concentricus;* ——— HOLMES (1928), p. 17. UD

——**convexus** (HINDE) (1900), p. 342, pl. 9, figs. 6-8. Fig. spms., Geol. Surv. Scot., Edinburgh, Upper Carbon. ls., Scot. (*Centrodus*); ——— (HOLMES) (1928), pp. 14, 17, classed as jr. syn. of *Lonchodus; Centrodus* being preoccupied; ——— (COOPER) (1939), p. 392. MMi

——**coronatus** HINDE (1879), p. 365, pl. 17, fig. 1. Holotype, A4249, British Mus., Genesee sh., erratic boulders N. shore Lake Erie, Ont.; ——— S. A. MILLER (1883), p. 314; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU & SHIMER (1910), p. 243, fig. 1535a; ——— STAUFFER (1915), pp. 184, 228; ——— BRYANT (1921), p. 21, classed as jr. syn. of *Centrodus;* ——— GRABAU (1921), p. 432, fig. 1335j; ——— MACFARLANE (1923a), fig. 7 r; ——— MACFARLANE (1923b), fig. 1 r; ——— NICOLAS (1925), p. 227; ——— HOLMES (1928), p. 14, classed as jr. syn. of *Lonchodus, Centrodus* being preocc.; ——— GOLDRING (1929), pp. 125-126, fig. 32 C-2; ——— MACFARLANE (1931), fig. 7 r; ——— CONODONT COM- UD

MITTEE (1932), fig. 7 r; ——— BRANSON & MEHL (July 1933d), classed as sr. syn. of *Ligonodina?*; ——— CALEY (1943), p. 61; ——— CALEY (1946), p. 47.

——**corrugata** E. R. BRANSON (1934), p. 315, pl. 25, fig. 25. Holotype, C216-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 26; ——— BRANSON (1944), pp. 181, 221, pl. 32, fig. 26; ——— YOUNGQUIST & PATTERSON (1949), p. 65, comp. with *Polygnathus multilirata;* ——— THOMAS (1949), p. 411, pl. 3, fig. 7. Fig. spm., C819-2, Univ. Mo., Prospect Hill siltstone, loc. 2, SE Iowa. LMi

——**crassulus** ULRICH & BASSLER (1926), p. 48, pl. 8, figs. 8-10. Holotype, 11001, USNM, Hardin ss., Tenn.; ——— EDINGER (1926), p. 287, fig. 2, 3rd row from top, 3rd, 4th, 5th figs. from left; ——— HOLMES (1928), p. 17. UD

——**crassus** HINDE (1879), p. 365, pl. 17, fig. 3. Holotype, British Mus., conodont bed, N. Y.; ——— S. A. MILLER (1883), p. 314, signifies thick; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), p. 155, fig. 38; ——— GRABAU (1899a), p. 326; ——— GRABAU & SHIMER (1910), p. 243, fig. 1535c; ——— BRYANT (1921), p. 27, comp. with *Polygnathus rotundilobus;* ——— GRABAU (1921), p. 432, fig. 1335, L; ——— HOLMES (1928), pp. 11, 17, classed as jr. syn. of *Gnathodus?*; ——— BRANSON & MEHL (July 1933d), p. 148, classed as sr. syn. of *Polygnathus linguiformis.* UD

——**crassus** COOPER (Sept. 1931), p. 242, pl. 28, fig. 35. Holotype, Cooper coll., USGS, Woodford fm., Okla.; ——— COOPER (1935), p. 310, pl. 27, fig. 36. Fig. spm., 38086, Univ. Chi., mid. Ark. novaculite, beds 8, 14-15, Ark. UD

——**cristatus** HINDE (1879), p. 366, pl. 17, fig. 11. Holotype, A4319, British Mus., conodont bed, N. Y.; ——— S. A. MILLER (1883), p. 314, signifies tufted; ——— HINDE (1879) (ab)R (1887), p. 322; ——— CLARKE (1887), pl. A 1, fig. 20, Naples sh., N. Y., four forms belonging to at least three diff. genera; ——— S. A. MILLER (1889), p. 520; ——— CLARKE (1893), p. 204; ——— GRABAU (1899), p. 156, fig. 41; ——— GRABAU (1899a), p. 326; ——— HINDE (1900), p. 342, comp. with *Polygnathus navicula;* ——— CLARKE & RUEDEMANN (1903), pp. 86, 840-841. Hypotype, $\frac{5160}{1}$, N. Y. State Mus., Clarke's (1887) spms.; ——— GRABAU & SHIMER (1910), p. 244, fig. 1536g; ——— BRYANT (1921), p. 24, Portage sh., N. Y.; *Polygnathus dubius* Hinde (1879), pl. 16, figs. 16, 18 and Clarke (1887), pl. A-1, fig. 1 are classed as sr. syns.; ——— ROUNDY (1926), p. 13; ——— HOLMES (1928), p. 17, pl. 7, figs. 6-9; Clarke's pl. A-1, fig. 20 is fig. 6; Hinde's (1879), pl. 17, fig. 11, pl. 16, figs. 18, 16 are figs. 7-9 resp.; ——— BRANSON & MEHL (July 1933d) (*cristata*), pp. 143, 147, pl. 11, fig. 10. Holotype, A4319 (fig.), British Mus.; topotypes, C260-2, Univ. Mo., on p. 143 this species is mentioned but *Prioniodus acicularis* is meant; Bryant's changing of Clarke's ref. is said to be incorrect, and pl. 16, fig. 18 of Hinde (1879) as changed by Bryant may be incorrect; Clarke's *cristata* is classed as a sr. syn. of *Ancyrodella nodosa;* ——— CHADWICK (Feb. 1935a), pp. 312, 317. UD

——**crucifera** E. R. BRANSON (1934), p. 311, pl. 25, fig. 12. Holotype, C211-1, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 132; ——— COOPER (1939), pp. 399-400, 420, pl. 39, figs. 15-16. Hypotype, 38976, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 221. LMi

——**cunulae** YOUNGQUIST & PATTERSON (1949), p. 62, pl. 15, figs. 11-13. Holotype, 4116, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**curta** COOPER (1939), p. 400, pl. 39, figs. 37-38, 49-50. Holotype, 38987 (figs. 49-50); paratype, 38986, Univ. Chi., pre-Welden sh., Okla. LMi

——? **curvatus** HINDE (1879), p. 366, pl. 17, fig. 7. Holotype, A4243, British Mus., Genesee sh., Ont.; ——— S. A. MILLER (1883) (no ?), p. 314; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889) (no ?), p. 520; ——— STAUFFER (1915), pp. 185, 228; ——— BRYANT (1921) (no ?), p. 27, Portage only; ——— NICOLAS (1925) (no ?), p. 227; ——— HOLMES (1928), pp. 11, 17, classed as jr. syn. of *Gnathodus?*; ——— BRANSON & MEHL (July 1933d), p. 152, classed as sr. syn. of *Palmatolepis?*. UD

——**curvatus** SMITH (1907), p. 245, pl. 5, fig. 11. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo grs., S. Uplands, Scot.; ——— HOLMES (1928), pp. 14, 17, classed as jr. syn. of *Lonchodus.* MO

——**cymachila** COOPER (1939), p. 400, pl. 39, figs. 17-20. Holotype, 38977 (figs. 17-18); paratype, 38978, Univ. Chi., pre-Welden sh., Okla. LMi

——**cymbiformis** YOUNGQUIST & PATTERSON (1949), pp. 62-63, pl. 17, figs. 14-15. Holotype, 4117, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**decorosus** STAUFFER (1938), pp. 413, 438, pl. 53, figs. 1, 5-6, 10-11, 15-16, 20, 30. Syntypes, B4955, B4959-B4960, B4983 (fig. 30); paratypes, B4964-B4965, B4969-B4970, B4974, Univ. Minn., Olentangy sh., locs. 110, 111 (figs. 1, 30), 114, 118, 125, 187 (figs. 5-6, 15-16, 20), 117 (fig. 10); Silica sh., loc. 148, Plum Brook sh., locs. 107-108, Ohio. Widder beds, locs. 159, 165-166, 168 (fig. 11); Arkona beds, locs. 151-152, 154-156, 158, 162, 172, 177; Hungry Hollow beds, loc. 176, Ont.; ——— YOUNGQUIST (1947) (*decorosa; Polygnatha* on pl.), p. 109, pl. 24, fig. 21. Hypotype, 4048, Univ. Iowa, unnamed sh. 1½ mi. NE of N Liberty, Iowa; ——— YOUNGQUIST & PETERSON (1947) (*decorosa*), p. 250, pl. 36, figs. 10-12. Hypotypes, 4097, 4098 (fig. 12), Univ. Iowa, Sheffield fm., Iowa; ——— MILLER & YOUNGQUIST (1947) (*decorosa*), pp. 514-515, pl. 74, figs. 6-7. Fig. spms., 5574, Univ. Iowa, Sweetland Creek sh., Iowa, comp. with *Polygnathus communis.* M-UD

——**delicatulus** ULRICH & BASSLER (1926), p. 45, pl. 7, figs. 9-10. Cotypes, 10994, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 17; ——— COOPER (1935), pp. 310, 314, pl. 27, fig. 37. Fig. spm., 38087, Univ. Chi., mid. Ark. novaculite, bed 14, Ark.; ——— UD-LMi

COOPER (1939) (*delicatula*), p. 400, pl. 40, figs. 37-38. Hypotype, 38979, Univ. Chi., pre-Welden sh., Okla.

——**distorta** BRANSON & MEHL (Oct. 1934a), p. 294, pl. 24, fig. 12. Cotypes, C381-4, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— BRANSON (1944), p. 221. LMi

——**dubius** HINDE (1879), pp. 362-365, pl. 16, figs. 6-18. Holotype, A4207 (fig. 18), or fig. 17 (no number), British Mus., restricted to fig. 18 by Branson & Mehl (July 1933d) and to fig. 17 by Bryant (1921) and Roundy (1926), Genesee sh., N. Y. (fig.), Kettle Pt., Ont., and Carboniferous at Bedford, Ohio, comp. with *Polygnathus duplicatus, crassus,* and *? serratus;* type species for genus; ——— S. A. MILLER (1883), p. 314, signifies doubtful; ——— CLARKE (1885a), pp. 18, 20; ——— CLARKE (1885b), pp. 17, 38, 40, 69; ——— HINDE (1879) (ab)R (1887), p. 322; ——— CLARKE (1887), p. 31, pl. A-1, figs. 1-8, 10, 12-16, 19. He places *dubius* on figs. 1-22, but generic and specific names on figs. 9, 11, 17-18, 20-22, so I have limited *dubius* to those not named; ——— S. A. MILLER (1889), p. 520; ——— ZITTEL (1890), p. 60, fig. 53, Hinde's pl. 16, fig. 10; ——— CLARKE (1893), pp. 205-206; ——— GRABAU (1899), pp. 153-154, figs. 34a-m, Hinde's figs. 6-18 copied resp.; ——— HINDE (1900), p. 341, pl. 9, fig. 1. Fig. spm., Geol. Surv. Scot., Edinburgh, Lower Carbon. ls., W. Scot. (fig.); Mid. ls. near Glasgow; Upper ls. at Stacklawhill, comp. with Newberry's (1875) pl. 57, figs. 1-2, 13, Hinde's (1879) pl. 16. fig. 8, *Ctenognathus verneuilli* Pander (1856), pl. 2A, fig. 16; and comp. Hinde's (1879) pl. 16, figs. 12-13 with *Lonchodus duplicatus* and *lineatus* resp.; ——— ZITTEL (1900), p. 255, fig. 408 D, Hinde's pl. 16, fig. 10; ——— GÜRICH (1900), p. 356, comp. genus *b* from Polish Mittelgebirges; ——— CLARKE & RUEDEMANN (1903) (*dubia*), pp. 86-88, 840-841, Clarke's spms., Hypotypes, $\frac{8181}{1}$ – $\frac{8181}{18}$ are pl. A-1, figs. 1-8, 10, 12-16, 19 resp.; ——— CLARKE & LUTHER (1904), p. 62; ——— CLARKE (1904), pp. 357-358, 360, Middlesex and Rhinestreet shs., N. Y.; ——— LUTHER (1906), p. 46; ——— SMITH (1907), p. 245, pl. 5, fig. 15. Fig. spm., Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo grs., S. Uplands, Scot.; ——— CLARKE & LUTHER (1908), p. 56; ——— GRABAU & SHIMER (1910), p. 243, figs. 1533c-i, 1534a-e, Hinde's (1879) pl. 16, figs. 6-17 resp.; ——— ZITTEL (1910), p. 247, fig. 439 d, Hinde's pl. 16, fig. 10; ——— LUTHER (1911), p. 20; ——— KINDLE (Feb. 1912), p. 134, Cleveland sh.; ——— PROSSER (1912) (*Poliganthus*), pp. 343, 836; ——— ZITTEL (1913), p. 140, fig. 223 D, Hinde's pl. 16, fig. 10; ——— STAUFFER (1915), pp. 184-185, 227-228, Huron sh., Ont.; ——— BASSLER (1915), p. 1020, type species for *Polygnathus;* ——— (pt.) BRYANT (1921), pp. 10, 16, 21, 23-24, Hinde's figs. 6, 8, and Clarke's (1887) fig. 6 are classed as sr. syns. of *Prioniodus radiatus;* Hinde's fig. 17 which is proposed for new type species and Clarke's (1887) figs. 2-3, 13 are classed as sr. syns. of *Polygnathus pennatus;* Hinde's figs. 16, 18 and Clarke's (1887) fig. 1 are classed as sr. syns. of *Polygnathus cristatus;* comp. with *Centrodus invalidus;* ——— GRABAU (1921), pp. 141, 432, fig. 919, upper left fig.; figs. 1335c-i, m, n, Hinde's pl. 16, figs. 6-12, 13, 17 resp.; ——— TRUSTEES BRITISH MUSEUM (1922), p. 60, fig. 56 left, right, Hinde's figs. 10 and 7 resp.; ——— ZITTEL (1924), p. 288, fig. 457 d, Hinde's fig. 10; ——— NICOLAS (1925), p. 227; ——— TROWBRIDGE & MORTIMORE (1925) (*cf. dubius*), p. 420, fig. 9, Hominy sand, Okla.; ——— ULRICH & BASSLER (1926), pp. 21, 43, Smith's (1907) name is sr. syn. of *Bryantodus;* ——— ROUNDY (1926), pp. 9, 13, 15-17, pl. 3, fig. 9. Hinde's pl. 16, fig. 17 (fig.) is designated type species. This makes *Polygnathus pennatus* a jr. syn. of *dubius* if fig. 17 is *pennatus,* according to Roundy. Hinde's figs. 10-11 are classed as jr. syns. of *Lonchodus simplex,* figs. 14 (13?) are jr. syns. of *Lonchodus? lineatus,* fig. 8 and Hinde's (1900) fig. 1 may be jr. syns. of *Ctenognathus,* last two comp. with *Ctenognathus sp. B;* ——— HOLMES (1928), pp. 6, 11, 17-18, pl. 8, figs. 2-9, 11-32. Hinde's figs. 6-8, 13, 10, 15, 14, 12, 9, 11 are figs. 2-9, 11-12 and Clarke's (1887) figs. 5, 2-4, 6, 10 upper left, mid., lower rt., 13 left, 1, 13 lower, upper rt., mid., 14-16, 11-12, 7-8 are figs. 13-32 resp. Hinde's figs. 6, 8 are classed as sr. syns. of *Bryantodus,* 7 of *Prioniodina,* 13-14 of *Hindeodella,* and figs. 9-12 are classed as jr. syns. of *Lonchodus* or are undet., 15 of *Gnathodus* or sr. syn. of *Polygnathus.* Clarke's figs. 2-4, 10 mid., 13 left fig., 1 are classed as sr. syns. of *Polygnathus,* 5 of *Lonchodina,* 6 and 13 mid. of *Bryantodus,* 7, 14-16 of *Hindeodella,* 12 of *Polygnathellus,* 8, 11 of *Euprioniodina,* and figs. 10 lower rt., 13 lower, upper rt. are classed as jr. syns. of *Lonchodus,* 10 upper left of *Prioniodus.* Smith's (1907) ref. classed as sr. syn. of *Hindeodella;* ——— GOLDRING (1929), pp. 125-126, fig. 32 C-4, Hinde's pl. 16, fig. 10; ——— SAVAGE (1930) (*cf. dubius*), pp. 17, 73, upper New Albany sh., Ky.; ——— EICHENBERG (1930), p. 181, comp. figs. 17-18 with Hinde's figs. 16-17; ——— SAVAGE (1931) (*cf. dubius*), p. 235; ——— WETZEL (1933), p. 87; ——— BRANSON & MEHL (July 1933d) (*dubia*), pp. 136-137, 140, 142-143, 145-147, 152-153, 166, pl. 11, fig. 5; pl. 12, fig. 3. Holotype, A4207, British Mus. (fig. 5), which is Hinde's pl. 16, fig. 18. Bryant's change of Clarke's (1887) *Polygnathus dubius* to *cristata* is said to be incorrect. Hinde's fig. 17 is a sr. syn. of *pennata,* fig. 18 is *dubia,* fig. 16 is unassigned, fig. 15 is a sr. syn. of *Spathognathodus sp.,* 13-14 of *Hindeodella subtilis?,* 12 jr. syn. of *Hindeodella acicularis,* fig. 11 undet., fig. 10 appears to be pl. 11, fig. 19 but nothing is mentioned about it, 9 is a sr. syn. of *Lonchodina perlonga* and *Hindeodella ?* (attached spm.), 8 of *Bryantodus immersus,* 7 of *Lonchodina subsymmetrica,* fig. 6 appears not to have been described; ——— HUDDLE (1934) (*dubia*), pp. 95-97, Branson & Mehl's pl. 11, fig. 5 needs a new name; ——— RUEDEMANN (Nov. 1934), p. 57; ——— CALEY (1943), pp. 61, 63; ——— BRANSON & MEHL (1944) (*dubia*), p. 245; ——— CALEY (1946), pp. 47, 49; ——— YOUNGQUIST (1947), pp. 102, 107, comp. Hinde's fig. 12 and Clarke's (1887) fig. 19 with *Hindeodella sp. B* and Hinde's fig. 11 with *Lonchodus? sp.* UD

——**duplicatus** HINDE (1879), p. 364, pl. 16, fig. 19. Holotype, British Mus., Genesee sh., Ont.; ——— S. A. MILLER (1883), p. 314; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— STAUFFER (1915), pp. 185, 228; ——— BRYANT (1921) (*? duplicatus*), p. 27, Portage only; ——— NICOLAS (1925), p. 227; ——— ULRICH & BASSLER (1926), p. 21, classed as sr. syn. of *Bryantodus;* ——— HOLMES (1928), pp. 6, 17. UD

——**dystacta** COOPER (1939), p. 400, pl. 39, figs. 41-42. Holotype, 38980, Univ. Chi., pre-Welden sh., Okla. LMi

——**ectypa** HUDDLE (1934), pp. 17, 103, pl. 8, fig. 38. Holotype, 1799, Ind. Univ., rare in lower New Albany sh., locs. 26 (fig.), 30, 32, Ind. M?D

——? **eriensis** HINDE (1879), p. 366, pl. 17, fig. 6. Holotype, A4244, British Mus., erratic boulder Genesee sh., Ont.; ——— S. A. MILLER (1883) (no ?), p. 314; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889) (no ?), p. 520; ——— BRYANT (1921) (*criensis*), p. 27, Portage only; ——— HOLMES (1928) (no ?, p. 17), pp. 11, 17, classed as sr. syn. of *Gnathodus?;* ——— BRANSON & MEHL (July 1933d), p. 151, classed as sr. syn. of *Palmatolepis?*. UD

——**exodus** COOPER (1939), p. 400, pl. 42, figs. 42, 44 (42-44 on pl.). Holotype, 38981, Univ. Chi., pre-Welden sh., Okla. LMi

——**flabella** BRANSON & MEHL (1938d), p. 147, pl. 34, fig. 48. Holotype, C48-3, Univ. Mo., Chouteau ls., Mo.; ——— COOPER (1939) (*flabellum*), pp. 400, 420, pl. 39, figs. 13-14. Hypotype, 38991, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), pp. 208e, 221, pl. 39, fig. 48; ——— YOUNGQUIST & PATTERSON (1949), p. 63, comp. with *Polygnathus hannibalensis*. LMi

——**foliatus** BRYANT (1921), p. 24, pl. 10, figs. 13-16, Conodont bed, N. Y.; ——— HOLMES (1928), p. 17; ——— HUDDLE (1934) (*foliata*), pp. 16, 98-99, pl. 8, figs. 14-17. Plesiotypes, 2361 (figs. 14, 15), 2360, Ind. Univ., common in lower New Albany sh., locs. 26-28, rare at locs. 30 (fig.), 33, Ind., comp, with *Polygnathus signata;* ——— CHADWICK (Feb. 1935a), p. 311; ——— BRANSON (1944) (*foliata*), pp. 156, 158, pl. 27, figs. 1-4, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. M?-UD

——**folium** ULRICH & BASSLER (1926), p. 46, pl. 7, fig. 5. Holotype, 11012, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 17. UD

——**germanus** ULRICH & BASSLER (1926), p. 46, pl. 7, figs. 11-12. Holotype, 10997, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 18; ——— COOPER (June 1931), pp. 150-151, pl. 20, fig. 15, lower Sunbury sh., Ohio. UD

——**gigantea** THOMAS (1949), pp. 411, 417, pl. 3, fig. 40. Holotype, C819-1, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

——**glaber** ULRICH & BASSLER (1926), p. 46, pl. 7, fig. 13. Holotype, 11004, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 18. UD

——**granulosa** BRANSON & MEHL (June 1934a), pp. 246-247, pl. 20, figs. 21, 23. Cotype, C323-3, Univ. Mo., Grassy Creek sh., Mo., comp. with *Polygnathus nodocostata;* ——— BRANSON (1944), pp. 163, 173, Louisiana ls., Mo.; ——— THOMAS (1949), pp. 408, 418, pl. 1, figs. 33-34. Fig. spms., C824-3, Univ. Mo., Maple Mill sh., loc. 13, SE Iowa. UD

——**gyratilineatus** HOLMES (1928), p. 31, pl. 11, figs. 1-2. Cotypes, 11454, USNM, Chattanooga sh., Ala., comp. with *Polygnathus pergyratus;* ——— BRANSON & MEHL (June 1934a) (*gyratilineata*), pp. 242, 244, classed as sr. syns. of *Polylophodonta* (Holmes' fig. 1 is type species for that genus) and *Polylophodonta linguiformis* in ref. to Holmes' fig. 2; ——— HUDDLE (1934) (*gyratilineata*) (*gyralilineata* on pl.), pp. 17, 106, pl. 9, fig. 20. Plesiotype, 1802, Ind. Univ., rare in mid. New Albany sh., locs. 18, 20 (fig.), Ind., Butts (1926), pl. 48, fig. 15 *Polygnathus pergyratus* is classed as sr. syn.; ——— BRANSON & MEHL (1941d) (*gyralineata*), p. 202, classed as sr. syn. of *Polylophodonta* ref. to Huddle; ——— CAMPBELL (1946) (*gyralineata*), p. 901, common to lower Blackiston fm., Ind. UD

——**hannibalensis** YOUNGQUIST & PATTERSON (1949), p. 63, pl. 17, figs. 16-17. Holotype, 4118, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**hercynicus** (ZEBERA) (1936a), p. 4 (*Prioniodus*); ——— (ZEBERA) (1936b), p. 192.

——**hulkus** STAUFFER (1940), p. 429, pl. 60, figs. 75-77. Holotype, B5708, Univ. Minn., clay above ls., admixture, Minn.; ——— STAUFFER & THIEL (1941), p. 229. O & MD

——**immersus** HINDE (1879), p. 364, pl. 16, fig. 21. Holotype, A4253, British Mus., Genesee sh., Ont.; ——— S. A. MILLER (1883), p. 314; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— STAUFFER (1915), pp. 184, 228; ——— BRYANT (1921), p. 19, classed as jr. syn. of *Prioniodus;* ——— NICOLAS (1925), p. 227; ——— ULRICH & BASSLER (1926), p. 21, classed as sr. syn. of *Bryantodus;* ——— HOLMES (1928), pp. 6, 18; ——— BRANSON & MEHL (July 1933d), p. 140, *Polygnathus dubius* Hinde (1879), pl. 16, fig. 8 is a sr. syn.; ——— CALEY (1943), p. 61; ——— CALEY (1946), p. 47. UD

——**inaequilateralis** YOUNGQUIST & PATTERSON (1949), p. 63, pl. 16, figs. 14-15. Holotype, 4119, Univ. Iowa, Prospect Hill ss., Iowa, *Polygnathus subserrata* (pt.) Cooper (1939), pl. 40, figs. 9-10 is classed as sr. syn. LMi

——**inopinata** YOUNGQUIST & PATTERSON (1949), p. 64, pl. 16, figs. 20-21. Holotype, 4120, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**inornata** E. R. BRANSON (1934), p. 309, pl. 25, figs. 8, 26. Cotypes, C199-3, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (Oct. 1934a), p. 293, pl. 24, figs. 5-7. Fig. spms., C381-1, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— KNECHTEL & HASS (1938), p. 519, basal sh. of Lodgepole ls., USGS coll. 8432, Mont.; ——— BRANSON & MEHL (1938d), pp. 132, 146, pl. 33, figs. 15, 51-52; pl. 34, fig. 37. Fig. spms., C199-3, C381-1, C357-1, Univ. Mo., Hannibal fm. (fig. 15), Bushberg ss. (figs. 51-52), Chouteau ls. (fig. 37), Mo.; ——— COOPER (1939) (*inornatus*, p. 400), pp. 400, 420, pl. 39, figs. 11-12. Hypotypes, 38982, Univ. Chi., pre-Welden sh., Okla., comp. with *Polygnathus curta;* ——— HASS (1943), p. 308, *Polygnathus 2 n. spp.* Knechtel & Hass (1938) is a syn.; ——— BRANSON (1944), pp. 181, 208e, 221, pl. 32, figs. 15, 51-52; pl. 39, fig. 37; ——— YOUNG- LMi

QUIST & PATTERSON (1949), p. 64, pl. 17, figs. 4-5, 9, 13. Fig. spms., 4121-4123, Univ. Iowa, Prospect Hill ss., Iowa, comp. with *Polygnathus lobata;* ——— THOMAS (1949) (*Polgnathus* on pl.), pp. 409, 411, pl. 3, fig. 36. Fig. spm., C811-1, Univ. Mo., Prospect Hill ss., loc. 1 (fig.) and English River siltstone, Iowa, most abundant *Polygnathus* in these formations.

——**iowaensis** YOUNGQUIST & PETERSON (1947), pp. 243, 250-251, pl. 36, fig. 17. Holotype, 4099, Univ. Iowa, Sheffield fm., Iowa; ——— MILLER & YOUNGQUIST (1947), p. 514, comp. with *Polygnathus carinata.* UD

——**irregularis** COOPER (1939), p. 400, pl. 39, figs. 57-58. Holotype, 38984, Univ. Chi., pre-Welden sh., Okla. LMi

——**itha** COOPER (1939), p. 401, pl. 39, figs. 55-56. Holotype, 38985, Univ. Chi., pre-Welden sh., Okla. LMi

——**juvensis** STAUFFER (1940), pp. 429-430, pl. 60, figs. 26-28, 34-35, 41. Syntypes, B5665-B5667, B5672-B5673, B5679, Univ. Minn., clay above ls., admixture, Minn.; ——— STAUFFER & THIEL (1941), p. 229. O, MD

——**lacinata** HUDDLE (1934), pp. 16, 26, 95, pl. 8, figs. 1-3. Holotype, 2271 (fig. 1); paratypes, 1908, 1907, Ind. Univ., common in upper New Albany sh., locs. 2, 8, rare at locs. 1 (figs. 1-2), 3 (fig. 3), 6, 14, Ind.; *Polygnathus?* pl. 12, fig. 7 may be this species or *Spathognathodus parvus*, possibly linking *Spathognathodus* with *Polygnathus;* ——— COOPER (1939), pp. 401, 420, pl. 39, figs. 25-26; pl. 40, figs. 3-4. Hypotypes, 38988-38989, Univ. Chi., pre-Welden sh., Okla. LMi

——**lanceolatus** SMITH (1907), p. 245, pl. 5, fig. 16. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S. Scot.; ——— HOLMES (1928), pp. 10, 18, classed as sr. syn. of *Euprioniodina?*. MO

——**lanceolata** E. R. BRANSON (1934), p. 313, pl. 25, fig. 21. Holotype, C199-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), pp. 132, 148, pl. 33, fig. 14; pl. 34, fig. 42. Fig. spms., C199-5, C48-1, Univ. Mo., Hannibal fm., Chouteau ls. (fig. 42), Mo.; ——— BRANSON (1944), pp. 181, 208e, 221, pl. 32, fig. 14; pl. 39, fig. 42; ——— YOUNGQUIST & PATTERSON (1949), pp. 64-65, pl. 16, fig. 16. Fig. spm., 4124, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**linguiformis** HINDE (1879), p. 367, pl. 17, fig. 15. Holotype, A4316, British Mus., conodont bed (fig.), N. Y., Genesee sh., Ont.; ——— S. A. MILLER (1883), p. 314; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), p. 157, fig. 44; ——— GRABAU (1899a), p. 326; ——— BRYANT (1921), p. 25, pl. 11, figs. 1-9; pl. 14, fig. 2. *Polygnathus simplex* is a jr. syn.; ——— HOLMES (1928), pp. 18-19, pl. 7, figs. 5, 22, Hinde's pl. 17, figs. 18, 15 resp.; ——— BRANSON & MEHL (July 1933d), pp. 148, 150, pl. 12, figs. 6-7. Holotype, A4316 (fig. 6); Hinde's *Polygnathus simplex*, A4312 (fig. 7); British Mus.; topotypes, C261-1 to 3, Univ. Mo., *Polygnathus crassus* is sr. syn.; ——— BRANSON & MEHL (June 1934a), p. 248, comp. with *Polygnathus semicostata;* ——— HUDDLE (1934) (*linguliformis* p. 16 and pl.), pp. 16, 95-96, pl. 8, figs. 4-5. Plesiotype, 1786, Ind. Univ., common in lower New Albany sh., loc. 26 (fig.), rare at locs. 27-28, 32-33, Ind.; ——— CHADWICK (Feb. 1935a), p. 311; ——— STAUFFER (1938) (*linguiliformis*), p. 438, comp. with *Polygnathus sanduskiensis;* ——— BRANSON (1944), p. 173, Louisiana ls., Mo.; ——— CAMPBELL (1946), p. 844, basal Blackiston fm., Ind., ident. by Huddle; ——— CLOUD & BARNES (1948) (*cf. linguiformis*), p. 317, Ives breccia, loc. 16T-2-32C, cent. Tex. M?-UD

——**lita** COOPER (1939), p. 401, pl. 39, figs. 21-22. Holotype, 38990, Univ. Chi., pre-Welden sh., Okla. LMi

——**lobata** BRANSON & MEHL (1938d), pp. 146-147, pl. 34, figs. 44-47. Holotype, C353-5 (fig. 47); plesiotypes, C348-4, C349-3, C349-4, Univ. Mo., Chouteau ls., Mo., comp. with *Polygnathus inornata;* ——— COOPER (1939), pp. 401, 420, pl. 39, figs. 29-30. Hypotype, 38983 (given as *Polygnathus inornata* p. 400 also), Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON & MEHL (1944), p. 245, pl. 94, fig. 36; ——— BRANSON (1944), pp. 208e, 221, pl. 39, figs. 44-47; ——— YOUNGQUIST & PATTERSON (1949), p. 64, comp. with *Polygnathus inornata;* ——— THOMAS (1949), pp. 411, 418, pl. 3, fig. 11. Fig. spm., C808-1, Univ. Mo., English River siltstone, loc. 12, SE Iowa, comp. with *Polygnathus orthoconstricta.* LMi

——**longipostica** BRANSON & MEHL (Oct. 1934a), pp. 293-294, pl. 24, figs. 8-11, 13. Cotypes, C380-5, Univ. Mo., Bushberg ss. (fig.), Phelps ss., Mo., comp. with *Polygnathus inornata;* ——— E. R. BRANSON (1934), p. 311, pl. 25, fig. 18. Fig. spm., C210-2, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON (1938a), p. 182; ——— BRANSON & MEHL (1938d), pp. 132, 146, pl. 33, fig. 53, cotype; ——— COOPER (1939), pp. 401, 420, pl. 39, figs. 31-32, 43-44. Hypotypes, 38991-38993, Univ. Chi., pre-Welden sh., Okla.; ——— HASS (1943) (*longpostica*), p. 308, *Polygnathus 5 n. spp.* Knechtel & Hass (1938) are sr. syns.; ——— BRANSON (1944), pp. 181, 221, pl. 32, fig. 53; ——— MILLER & YOUNGQUIST (1947), p. 514, comp. with *Polygnathus carinata;* ——— YOUNGQUIST & MILLER (1948), p. 448, pl. 68, fig. 12. Fig. spm., 5613, Univ. Iowa, Sweetland Creek sh., Iowa; ——— YOUNGQUIST & PATTERSON (1949), pp. 61, 63, 65-66, pl. 15, figs. 16-20. Fig. spms., 4125-4128, Univ. Iowa, Prospect Hill ss., Iowa, comp. with *Polygnathus biclavula, hannibalensis* of Cooper (1939), pl. 39, figs. 31-32, *sagittaria;* ——— THOMAS (1949), pp. 409, 411, 417, pl. 3, fig. 38. Fig. spm., C820-3, Univ. Mo., Prospect Hill siltstone, loc. 2 (fig.), and English River siltstone, Iowa, comp. with *Polygnathus gigantea.* UD-LMi

——**macra** COOPER (1939), p. 401, pl. 40, figs. 7-8, 15-16. Holotype, 38995 (figs. 15-16); paratype, 38994, Univ. Chi., pre-Welden sh., Okla. LMi

——**marginata** BRANSON & MEHL (Oct. 1934a), pp. 294-295, pl. 23, figs. 25-27. Cotypes, C390-4, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— BRANSON & MEHL (1938d), pl. 33, figs. 54, 56, cotype; ——— COOPER (1939), pp. 401, 420, pl. 41, figs. 15-16. Hypotype, 38996, LMi

Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), pp. 181, 221, pl. 32, figs. 54, 56, cotype.

——**mesacostalis** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), p. 57, pl. 15, fig. 16. Holotype, C56, Hibbard coll., Buff. Mus. Sci., N. Y., conodont bed, N. Y. UD

——? **millensis** THOMAS (1949), pp. 408, 417-418, pl. 1, fig. 32. Holotype, C826-2, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——**minus** SMITH (1907), p. 245, pl. 5, fig. 8. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S. Uplands, Scot.; ——— HOLMES (1928), pp. 14, 18, classed as jr. syn. of *Lonchodus*. MO

——**mosquensis** (HINDE) (1900), p. 342, pl. 9, figs. 2-4. Fig. spm., Geol. Surv. Scot., Edinburgh, frequent in Upper, Mid., and Lower Carboniferous ls., W. Scot. (*Gnathodus*); ——— (SMITH) (1907a), p. 239; ——— (HOLMES) (1928), pp. 11, 18, classes genus as *Gnathodus;* ——— (COOPER) (1939), p. 388. MMi

——**multilirata** YOUNGQUIST & PATTERSON (1949), pp. 65-66, pl. 15, figs. 21-22. Holotype, 4129, Univ. Iowa, Prospect Hill ss., Iowa, comp. with *Polygnathus radiotoplicata*. LMi

——**multinodosa** YOUNGQUIST & MILLER (1948), p. 448, pl. 68, fig. 10. Holotype, 5614, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**nasutus** HINDE (1879), p. 364, pl. 16, fig. 22. Holotype, A4254, British Mus., Genesee sh., N. Y.; ——— S. A. MILLER (1883), p. 314; ——— CLARKE (1885b), pp. 28, 69; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), p. 155, fig. 35; ——— BRYANT (1921), p. 19, classed as jr. syn. of *Prioniodus;* ——— HOLMES (1928), pp. 18, 23, classed as sr. syn. of *Synprioniodina;* ——— BRANSON & MEHL (July 1933d), p. 144, classed as sr. syn. of *Hindeodella*. UD

——**navicula** HINDE (1900), p. 342, pl. 9, fig. 5. Holotype, Geol. Surv. Scot., Edinburgh, Lower Carboniferous ls., W. Scot., comp. with *Polygnathus pennatus, cristatus,* and *tuberculatus;* ——— HOLMES (1928), p. 18, pl. 7, fig. 14. MMi

——**newalbanyensis** HUDDLE (1934), pp. 17, 22-23, 101, pl. 8, figs. 26-28. Holotype, 2269 (fig. 26); paratypes, 1911-1912, Ind. Univ., abundant in upper New Albany sh., locs. 1-2, 3 (fig.), 6, 8, 10, 14; common at 9; rare at 4-5, 12, Ind.; ——— KNECHTEL & HASS (1938), p. 519, probably jr. syn. of *Siphonodella quadruplicata;* ——— BRANSON & MEHL (1938d), p. 131, Huddle's fig. 26 is jr. syn. of *Siphonodella sexplicata;* fig. 27 and possibly fig. 28 are jr. syns. of *Siphonodella quadruplicata;* ——— COOPER (1939), p. 409, sr. syn. of *Siphonodella;* ——— BRANSON & MEHL (1941d), p. 202; ——— YOUNGQUIST & PATTERSON (1949), p. 70, Huddle's fig. 26 is jr. syn. of *Siphonodella sexplicata;* figs. 27-28 and Cooper (1939) pl. 41, figs. 21-22 *Siphonodella newalbanyensis* are jr. syns. of *Siphonodella quadruplicata*. LMi

——**nodocostata** BRANSON & MEHL (June 1934a), pp. 246-247, pl. 20, figs. 9-13; pl. 21, fig. 15. Cotypes, C332-2 (figs. 9-11), C333-3 (fig. 15), C235-3 (fig. 12), C331-3 (fig. 13), Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON & MEHL (June 1934a), p. 259, comp. with *Polygnathus sp.*, pl. 21, figs. 7, 19; ——— GROHSKOPF, CLARK, & ELLISON (1943), pp. 16-17, pl. 2, figs. 14, 16. Fig. spms., 7169, Mo. Sch. Mines, Rolla, Fortune ls., Mo.; ——— BRANSON (1944), pp. 155, 163, 173, Louisiana ls., Mo.; ——— CAMPBELL (1946), p. 845, lower Blackiston fm., Ind., ident. by Huddle; ——— BOND (1947), pp. 21, 33, pl. 2, fig. 22. Hypotype, 18413, Ohio Univ., lower Ohio sh., Ohio. M-UD

——**nodomarginata** E. R. BRANSON (1934), p. 310, pl. 25, fig. 10. Holotype, C213-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 132; ——— BRANSON (1944), p. 221. LMi

——**nodosa** THOMAS (1949), pp. 411, 418, pl. 3, fig. 43. Holotype, C806-2, Univ. Mo., English River siltstone, loc. 5, Iowa. LMi

——**nodulifera** E. R. BRANSON (1934), p. 311, pl. 25, fig. 17. Holotype, C200-2, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 132; ——— BRANSON (1944), p. 221. LMi

——**normalis** MILLER & YOUNGQUIST (1947), p. 515, pl. 74, figs. 4-5. Holotype, 5575 (fig. 4); paratype, 5576, Univ. Iowa, Sweetland Creek sh., Iowa; ——— YOUNGQUIST & MILLER (1948), pp. 448-449, pl. 68, fig. 11. Fig. spm., 5615, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**obtecta** BRANSON & MEHL (1938d), p. 147, pl. 34, fig. 49. Holotype, C48-4, Univ. Mo., Chouteau ls., Mo.; ——— BRANSON (1944), pp. 208e, 221, pl. 39, fig. 49. LMi

——**omala** COOPER (1939), p. 401, pl. 39, figs. 71-72. Holotype, 38997, Univ. Chi., pre-Welden sh., Okla. LMi

——**ordinatus** BRYANT (1921), p. 24, pl. 10, figs. 10-11. Conodont bed, N. Y.; ——— HOLMES (1928), p. 18; ——— CHADWICK (Feb. 1935a), p. 311. UD

——**ortha** COOPER (1939), p. 401, pl. 39, figs. 3-4. Holotype, 38998, Univ. Chi., pre-Welden sh., Okla. LMi

——**orthoconstricta** THOMAS (1949), pp. 411, 418, pl. 3, fig. 5. Holotype, C819-4, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

——**ousnodus** COOPER (1939), p. 402, pl. 40, figs. 11-12. Holotype, 38999, Univ. Chi., pre-Welden sh., Okla. LMi

——**oxys** COOPER (1939), p. 402, pl. 39, figs. 53-54. Holotype, 39000, Univ. Chi., pre-Welden sh., Okla. LMi

——**pachus** COOPER (1939), p. 402, pl. 40, figs. 39-41. Holotype, 38970, Univ. Chi., pre-Welden sh., Okla. LMi

——**palmatus** HINDE (1879), p. 367, pl. 17, figs. 16-17. Cotypes, A4314 (fig. 17), British Mus., Genesee sh., Ont. (fig.), N. Y., Ky.; ——— S. A. MILLER (1883), p. 314; ——— CLARKE (1885b) (*palmatres*, p. 69), pp. 28, 69; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), p. 157, fig. 45, Hinde's fig. 17 is left fig., fig. 16 is rt.; ——— STAUFFER (1915), pp. 184-185, 227-228, Huron sh., Ont.; ——— BRYANT (1921), p. 27; ——— NICOLAS (1925), p. 227; ——— HOLMES (1928), p. 18, pl. 7, figs. 15-16, Hinde's fig. 16 is fig. 15, fig. 17 is fig. 16; ——— BRANSON & MEHL (July 1933d) (*palmata*), p. 165, pl. 11, figs. 1, 11 (Hinde's figs. 17, 16 resp.), classed as jr. syns. of *Pal-* UD

matolepis punctata; ——— CALEY (1943), pp. 61, 63; ——— CALEY (1946), pp. 47, 49.

——**papillata** YOUNGQUIST & PETERSON (1947), p. 251, pl. 38, fig. 12. Holotype, 4100, Univ. Iowa, Sheffield fm., Iowa; ——— THOMAS (1949), p. 417, comp. with *Polygnathus concava.* UD

——**parviuscula** YOUNGQUIST (Mar. 1947), p. 109, pl. 25, figs. 8, 13, 16. Syntypes, 4049-4051, 4110 (unfig.), Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——**parvus** SMITH (1907), p. 245, pl. 5, fig. 6. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S. Uplands, Scot.; ——— HOLMES (1928), pp. 14, 18, classed as jr. syn. of *Lonchodus.* MO

——**pauperatus** SMITH (1907), p. 245, pl. 5, fig. 14. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S. Uplands, Scot.; ———HOLMES (1928), pp. 18, 21, classed as jr. syn. of *Prioniodus.* MO

——**pawhuskaensis** HARRIS & HOLLINGSWORTH (1933), pp. 199-200, pl. 1, figs. 12a-b. Type, 1054, Okla. Univ., Pawhuska fm., Okla.; ——— HARRIS & HOLLINGSWORTH (1933) (ab)Z (1937), p. 178, Branson & Mehl class species as sr. syn. of *Streptognathodus;* ——— ELLISON (1941) (*pawhuskensis*), p. 127, classed as jr. syn. of *Streptognathodus elegantulus.* MP

——**pennatuloidea** HOLMES (1928), pp. 32-33, pl. 11, fig. 14. Holotype, 11461, USNM, Chattanooga sh., Ala.; ——— BUTTS (1926) (*pinnatuloideus*), p. 160, pl. 48, fig. 12, after Holmes unpub.; ——— BRANSON (1944) (*penatuloides* p. 156, *pennatuloides* p. 158), pl. 27, fig. 8, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BOND (1947) (*pennatuloides* on pl.), pp. 21, 33-34, pl. 2, fig. 21. Hypotype, 18414, Ohio Univ., lower Ohio sh., Ohio. UD

——**pennatulus** ULRICH & BASSLER (1926), pp. 44-45, 47, pl. 7, fig. 8; pl. 9, figs. 24-25; fig. 5, subfig. 7. Holotype, 10996, USNM, Hardin ss., Tenn., comp. with *Polygnathus delicatulus* and *sublatus;* ——— HOLMES (1928), pp. 18, 32-33, pl. 11, fig. 15. Plesiotype, 11462, USNM, Chattanooga sh., Ala., comp. with *Polygnathus pennatuloidea;* ——— EICHENBERG (1930), p. 181, comp. figs. 25-26; ——— COOPER (June 1931), pp. 150-151, pl. 20, fig. 14, lower Sunbury sh., Ohio; ——— COOPER (Sept. 1931), p. 242, comp. with *Polygnathus crassus;* ——— BASSLER (1932), p. 234, pl. 26, fig. 15; ——— COOPER (1933b), p. 211, Ark. novaculite, Ark.; ——— HARLTON (Aug. 1934), p. 1032, mid. Ark. novaculite, Ark.; ——— COOPER (1935), pp. 309-310, pl. 27, fig. 38. Fig. spm., 38088, Univ. Chi., Arkansas novaculite, upper, beds A, B; mid., beds 7, 13, 15, Ark.; ——— BRANSON (1944) (*pennatula*), pp. 156, 158, pl. 27, fig. 7, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD-LMi?

——**pennatus** HINDE (1879), p. 366, pl. 17, fig. 8. Holotype, A4242, British Mus., Conodont bed, N. Y.; ——— S. A. MILLER (1883), pp. 314-315, signifies winged; ——— HINDE (1879) (ab)R (1887), p. 322; ——— CLARKE (1887), pl. A-1, fig. 9, Naples sh., N. Y.; ——— S. A. MILLER (1889), p. 520; ——— CLARKE (1893), p. 206; ——— GRABAU (1899), p. 156, fig. 39; ——— GRABAU (1899a), p. 326; ——— HINDE (1900), p. 342, comp. with *Polygnathus navicula;* ——— CLARKE & RUEDEMANN (1903), p. 88; ——— CLARKE & RUEDEMANN (1903) (*pennata*), pp. 88, 840-841. Hypotype, $\frac{8162}{1}$, N. Y. Mus., Albany, Clarke's (1887) fig.; ——— GRABAU & SHIMER (1910), p. 243, fig. 1536a; ——— BRYANT (1921), pp. 10, 23, pl. 10, figs. 1-9, basal Genesee to Rhinestreet sh., N. Y., *Polygnathus dubius* Hinde (1879) (pt.), pl. 16, fig. 17 is sr. syn., and Clarke (1887), figs. 2, 3, 13 classed as sr. syns.; ——— TROWBRIDGE & MORTIMORE (1925) (*cf. pennatus*), p. 420, fig. 9, Hominy ss., NE Okla.; ——— ULRICH & BASSLER (1926), pp. 43-45, fig. 5, subfig. 6, comp. with *Polygnathus rimulatus;* proposed by Bryant (1921) as type species for genus; ——— ROUNDY (1926), p. 13, designates pl. 16, fig. 17 of Hinde as type species, making *Polygnathus pennatus* a jr. syn. of *Polygnathus dubius;* ——— HOLMES (1928), pp. 17-18, pl. 7, figs. 10-12, Clarke's (1887) pl. A1, fig. 9 is fig. 12; Hinde's pl. 17, fig. 8 is fig. 10, and pl. 16, fig. 17 is fig. 11; ——— BRANSON & MEHL (July 1933d) (*pennata*), pp. 144-146, pl. 11, fig. 3. Holotype, A4242, British Mus.; topotype, C260-3, Univ. Mo., Hinde's pl. 16, fig. 17 *Polygnathus dubius* is a sr. syn. because of species split; ——— HUDDLE (1934) (*pennata*), pp. 16, 95-97, pl. 8, figs. 6-7. Plesiotype, 2353, Ind. Univ., common in lower New Albany sh., locs. 26 (fig.), 32, rare at 30; rare in mid. New Albany at 33, Ind.; type species for *Polygnathus,* Int. Rules Zool. Nomen. Art. 28; comp. with *Polygnathus lacinata;* Branson & Mehl's (July 1933d) *Polygnathus dubia* pl. 11, fig. 5 needs a new name; ——— CHADWICK (Feb. 1935a), p. 311; ——— GROHSKOPF, CLARK, & ELLISON (1943) (*pennata*), pp. 15-16, pl. 2, figs. 9, 10, 12. Fig. spms., 7168, Mo. Sch. Mines, Rolla, Fortune ls., Mo.; ——— BRANSON (1944) (*pennata*), pp. 155, 158, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— MILLER & YOUNGQUIST (1947), p. 515, *Polygnathus normalis* may be conspecific. M?-UD

——**peracutus** BRYANT (1921), p. 25, pl. 10, fig. 12. Conodont bed, N. Y.; ——— ULRICH & BASSLER (1926), p. 46, comp. with *Polygnathus glaber;* ——— HOLMES (1928), p. 18; ——— BRANSON & MEHL (July 1933d) (*peracuta?*), pp. 147, 149-150, pl. 11, fig. 4. Fig. spm., A4318 (Hinde's pl. 17, fig. 13), British Mus., *Polygnathus truncatus* is a sr. syn., comp. with *Polygnathus dubia* Hinde (1879), pl. 16, fig. 18; ——— HUDDLE (1934) (*peracuta*), pp. 16, 97, pl. 8, fig. 8. Plesiotype, 1909, Ind. Univ., common in lower New Albany sh., locs. 27-28, rare at 26 (fig.), 30, Ind.; ——— CHADWICK (Feb. 1935a), p. 311; ——— BRANSON (1944) (*? peracuta*), p. 158, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. M?-UD

——**percarinata** YOUNGQUIST (Mar. 1947), pp. 109-110, pl. 24, fig. 1. Holotype, 4052, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa; ——— MILLER & YOUNGQUIST (1947), p. 515, comp. with *Polygnathus webbi.* UD

——**pergyratus** HOLMES (1928), p. 31, pl. 11, fig. 3. Holotype, 11455, USNM, Chattanooga sh., Ala.; ——— BUTTS (1926), p. 160, pl. 48, fig. 15, after Holmes unpub.; ——— BRANSON & MEHL (June 1934a), p. 242, classed as jr. syn. of *Polylophodonta gyratilineata;* ——— HUDDLE (1934), p. 106, ref. to Butts. UD

——**permarginata** E. R. BRANSON (1934), p. 312, pl. 25, fig. 19. Holotype, C206-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 132; ——— COOPER (1939), pp. 402, 420, pl. 40, figs. 61-62. Hypotype, 39002, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 221; ——— YOUNGQUIST & PATTERSON (1949), pp. 61-62, comp. with *Polygnathus biclavula;* ——— THOMAS (1949), p. 411, pl. 3, fig. 39. Fig. spm., C816-3, Univ. Mo., Prospect Hill, and English River siltstones (fig.), loc. 12, Iowa. LMi

——**perplana** E. R. BRANSON (1934), p. 309, pl. 25, fig. 7. Holotype, C210-1, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 132; ——— COOPER (1939), pp. 402-403, 420, pl. 39, figs. 77-78. Hypotype, 39003, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 221; ——— YOUNGQUIST & PATTERSON (1949), pp. 65-66, pl. 17, figs. 11-12. Fig. spms., 4130-4131, Univ. Iowa, lower Prospect Hill ss., Iowa; ——— THOMAS (1949), pp. 408, 411, pl. 3, fig. 35. Fig. spm., C807-2, Univ. Mo., lower English River siltstone, loc. 5 (fig.), and Maple Mill sh., Iowa. UD-LMi

——**perplexa** ? THOMAS (1949), pp. 408, 418-419, pl. 2, fig. 23. Holotype, C827-3, Univ. Mo., Maple Mill sh., loc. 14, Iowa. UD

——**persulcata** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), pp. 57-58, pl. 15, fig. 17. Holotype, G-57, Hibbard coll., Buff. Mus. Sci., N. Y., conodont bed, N. Y. UD

——**plana** HUDDLE (1934), pp. 17, 103-104, pl. 8, figs. 39-43. Holotype, 1903 (figs. 41-42); paratype, 1904 (figs. 39-40); fig. spm., fig. 43, Ind. Univ., common in upper New Albany sh., loc. 10, Ind.; ——— BRANSON & MEHL (1938d), p. 131, classed as jr. syn. of *Siphonodella duplicata;* ——— BRANSON & MEHL (1941d), p. 202; ——— YOUNGQUIST & PATTERSON (1949), pp. 69-70, comp. with *Siphonodella ponderosa.* LMi

——**porcillus** STAUFFER (1940), p. 430, pl. 60, figs. 86-88. Holotype, B5716, Univ. Minn., clay above ls., admixture, Minn.; ——— STAUFFER & THIEL (1941), p. 229. O, MD

——**postbrevicornis** YOUNGQUIST & PETERSON (1947), p. 251, pl. 36, fig. 19. Holotype, 4101, Univ. Iowa, Sheffield fm., Iowa; ——— MILLER & YOUNGQUIST (1947), p. 514, comp. with *Polygnathus carinata.* UD

——**princeps** HINDE (1879), p. 365, pl. 16, fig. 23. Holotype, A4255, British Mus., conodont bed, N. Y.; ——— S. A. MILLER (1883), p. 315, signifies chief; ——— CLARKE (1885b), pp. 28, 33, 69, Hamilton and Genesee shs.; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), p. 155, fig. 36; ——— GRABAU (1889a), p. 326; ——— SMITH (1907), p. 245, pl. 5, figs. 9-10, 12-13. Fig. spms., Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo grs., S. Uplands, Scot.; ——— BRYANT (1921), p. 22, classed as jr. syn. of *Centrodus;* ——— GRABAU (1921), p. 141, fig. 919, lowermost fig.; ——— HOLMES (1928), pp. 15, 18, classed as jr. syn. of *Lonchodus;* ——— BRANSON & MEHL (July 1933d), p. 139, classed as sr. syn. of *Ligonodina?*, Smith's (1907) ref. is incorrect; ——— YOUNGQUIST (1947), p. 107, comp. with *Lonchodus? spp.* UD

——**punctatus** HINDE (1879), p. 367, pl. 17, fig. 14. Holotype, A4317, British Mus., Genesee sh., N. Y.; ——— S. A. MILLER (1883), p. 315; ——— CLARKE (1885b), pp. 28, 69; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), p. 157, fig. 43; ——— GRABAU & SHIMER (1910), p. 244, fig. 1536d; ——— BRYANT (1921), p. 25, Portage beds, N. Y.; ——— ULRICH & BASSLER (1926), p. 51, classed as sr. syn. of *Palmatolepis;* ——— HOLMES (1928), pp. 16, 18; ——— BRANSON & MEHL (July 1933d), p. 149, on pl. 11, fig. 4 *truncata* was meant in place of *punctata.* UD

——**radiatus** HINDE (1879), p. 364, pl. 16, fig. 20. Holotype, A4252, British Mus., Genesee sh., Ont.; ——— S. A. MILLER (1883), p. 315; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— BRYANT (1921), p. 16, classed as jr. syn. of *Prioniodus;* ——— NICOLAS (1925), p. 227; ——— ULRICH & BASSLER (1926), p. 21, classed as sr. syn. of *Bryantodus;* ——— ROUNDY (1926), p. 16, comp. with *Ctenognathus sp. B;* ——— HOLMES (1928), pp. 7, 18; ——— BRANSON & MEHL (1933d), p. 140. UD

——**radina** COOPER (1939), p. 403, pl. 39, figs. 5-6. Holotype, 39004, Univ. Chi., pre-Welden sh., Okla. LMi

——**radiotoplicata** YOUNGQUIST & PATTERSON (1949), p. 66, pl. 17, figs. 18-19. Holotype, 4132, Univ. Iowa, lower Prospect Hill ss., Iowa. LMi

——**retrorsa** YOUNGQUIST & PETERSON (1947), pp. 251-252, pl. 38, fig. 11. Holotype, 4102, Univ. Iowa, Sheffield fm., Iowa, comp. with *Polygnathus verrucosa.* UD

——**rhomboideus** ULRICH & BASSLER (1926), p. 46, pl. 7, fig. 6. Holotype, 11013, USNM, Hardin ss., Tenn., comp. with *Polygnathus germanus;* ——— HOLMES (1928), pp. 18, 32, pl. 11, figs. 11-12. Plesiotypes, 11456, USNM, Chattanooga sh., Ala.; ——— BRANSON & MEHL (June 1934a) (*rhomboidea* p. 243, *cf. rhomboidea* p. 245), pp. 243, 245, 247, pl. 21, figs. 8, 13. Fig. spms., C235-2 (fig.), C331-5, Univ. Mo., Grassy Creek sh., Mo., comp. with *Polygnathus nodocostata,* Holmes' ref. classed as jr. syn. of *Polylophodonta concentrica;* ——— HUDDLE (1934) (*rhomboidea?*), pp. 17, 99-100, 104, pl. 8, fig. 18. Fig. spm., 1942, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind., comp. with *Polygnathus similis;* ——— BRANSON (1944) (*rhomboidea*), p. 163; ——— CAMPBELL (1946) (*rhomboidea*), pp. 894, 901, lower Blackiston fm., Ind.; ——— THOMAS (1949) (*rhomboidea*), p. 418, comp. with *Polygnathus perplexa?.* UD

——**rimulatus** ULRICH & BASSLER (1926), p. 45, pl. 1, figs. 8-9. Cotypes, 11302, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 18; ——— HUDDLE (1934) (*rimulata*), pp. 17, 100, pl. 8, fig. 21. Plesiotype, 2362, Ind. Univ., common in lower New Albany sh., locs. 26, 30 (fig.), 32-33, M?-UD

Ind.; ——— CHADWICK (Feb. 1935a), p. 316.

——**rotundilobus** BRYANT (1921), pp. 25-27, pl. 12, figs. 1-6; text. fig. 7. Conodont bed, N. Y., *Polygnathus tuberculatus* Hinde (1879) (pt.), pl. 17, fig. 10 is classed as sr. syn.; ——— HOLMES (1928), p. 18; ——— STAUFFER & PLUMMER (1932), p. 18; ——— HUDDLE (1934) (*rotundiloba*), pp. 17, 32, 102-103, pl. 8, figs. 36-37. Plesiotypes, 2263, 2284, Ind. Univ., rare in lower New Albany sh., locs. 26, 30 (fig. 37), 32 (fig. 36), Ind., comp. with *Polygnathus ectypa;* attached orally to a fish plate, probably an Arthrodire; ——— CHADWICK (Feb. 1935a), p. 311; ——— BRANSON & MEHL (1941d) (*rotundiloba*), p. 202, classed as sr. syn. of *Ancyrodella;* ——— YOUNGQUIST (1947) (*rotundiloba*), p. 110, pl. 26, fig. 6. Hypotype, 4053, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa, comp. with *Ancyrodella buckeyensis.* Bryant's fig. 7, and Holmes' pl. 7, fig. 18 *Polygnathus tuberculatus* are excluded from this species, but Holmes' pl. 7, fig. 19 is included. M?-UD

——? **rugicosta** MILLER & YOUNGQUIST (1947), p. 515, pl. 74, fig. 15. Holotype, 5577, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——**rugosa** HUDDLE (1934), pp. 16, 98-99, pl. 8, figs. 12-13. Holotype, 1916, Ind. Univ., common in lower New Albany sh., locs. 30 (fig.), 32, Ind.; ——— COOPER (1945) (*cf. rugosa*), pp. 613-614, pl. 84, fig. 15. Fig. spm., Ill. Geol. Surv., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont.; ——— SLOSS & LAIRD (1945) (*cf. rugosa*), chart, DC unit, Mont. M?-UD

——**sagittaria** YOUNGQUIST & PATTERSON (1949), p. 66, pl. 15, figs. 9-10; pl. 16, fig. 13. Holotype, 4133; paratype, 4134, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**sanduskiensis** STAUFFER (1938), pp. 413, 438, pl. 53, figs. 27, 36-37. Syntypes, B4981, B4989-B4990, Univ. Minn., Arkona beds, locs. 151, 156, 161-162, 172-173, Widder beds, locs. 165 (fig. 27), 167, 169, Ont.; Plum Brook sh., locs. 105, 107, 108 (figs. 36-37), Olentangy sh., loc. 111, Ohio; ——— STAUFFER (1940), p. 430, pl. 60, figs. 80, 82, 89-90. Fig. spms., B5710, B5712, B5717-B5718, Univ. Minn., clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229; ———THOMAS (1949), p. 408, pl. 1, fig. 24. Fig. spm., C823-4, Univ. Mo., Maple Mill sh., loc. 13, Iowa. M-UD

——**scapha** HUDDLE (1934), pp. 17, 102, pl. 8, figs. 33-35; text fig. 3, subfigs. 2a-c. Holotype, 1910, Ind. Univ., rare in upper New Albany sh., locs. 2-3, 5, 8, 10 (fig.), 14, common at 6, Ind.; ——— COOPER (1939), pp. 403, 420, pl. 40, figs. 17-20, 28-29. Hypotypes, 39005-39007, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), p. 170, pl. 29, fig. 33, black sh., base Madison gr., loc. 2, Mont.; ——— THOMAS (1949), p. 411, pl. 3, fig. 22. Fig. spm., C808-3, Univ. Mo., English River siltstone, loc. 9, Iowa. LMi

——**scitulus** HINDE (1900), p. 343, pl. 9, figs. 9-11. Holotype, Geol. Surv. Scot., Edinburgh, Upper (fig.) and Mid. Carboniferous ls., W. Scot.; ——— ULRICH & BASSLER (1926), p. 52, classed as sr. syn. of *Panderodella;* ——— HOLMES (1928), pp. 16, 18. MMi

——**scobiniformis** E. R. BRANSON (1934), p. 314, pl. 25, fig. 23. Holotype, C200-1, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 16, holotype fig.; ——— COOPER (1939), pp. 403, 420, pl. 39, figs. 45-48. Hypotypes, 39008-39010, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), pp. 181, 221, pl. 32, fig. 16, holotype fig.; ——— YOUNGQUIST & PATTERSON (1949), pp. 66-67, pl. 17, figs. 6-8. Fig. spms., 4135-4136, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**semicostata** BRANSON & MEHL (June 1934a), pp. 247-248, pl. 21, figs. 1-2. Cotypes, C234-4, C331-2 (unfig.), Univ. Mo., Grassy Creek sh., Mo.; ——— COOPER (1939) (*semicostatus*, pp. 403-404), pp. 403-404, 420, pl. 39, figs. 27-28. Hypotype, 39011, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 163; ——— THOMAS (1949), pp. 407-408, 419, pl. 1, fig. 23. Fig. spm., C828-4, Univ. Mo., abundant in Maple Mill sh., loc. 13, Iowa, comp. with *Polygnathus sp. A.* UD-LMi

——? **serratus** HINDE (1879), p. 365, pl. 17, figs. 4-5. Cotypes, A4245, British Mus., Genesee sh., Ont.; ——— S. A. MILLER (1883) (no ?), p. 315; ——— HINDE (1879) (ab)R (1887), p. 322; ——— CLARKE (1887) (no ?), pl. A-1, fig. 21, Naples sh., N. Y.; ——— S. A. MILLER (1889) (no ?), p. 520; ——— CLARKE (1893) (no ?), p. 204; ——— CLARKE & RUEDEMANN (1903) (no ?) (*serrata*), pp. 88, 840-841, Clarke's hypotype, $\frac{8162}{1}$, N. Y. Mus., Albany; ——— STAUFFER (1915), pp. 184, 228; ——— BRYANT (1921), p. 27, Portage beds instead of Genesee; ——— NICOLAS (1925) (no ?), p. 227; ——— HOLMES (1928) (no ?), pp. 16, 18, classed as sr. syn. of *Panderodella;* ——— BRANSON & MEHL (July 1933d), pp. 151-152, sr. syn. of *Palmatolepis?;* ——— CALEY (1943), p. 61, Kettle Pt. beds, type loc.; ——— CALEY (1946), p. 47. UD

——**sheffieldensis** YOUNGQUIST & PETERSON (1947), pp. 251-252, pl. 36, fig. 15. Holotype, 4103, Univ. Iowa, Sheffield fm., Iowa. UD

——**signata** HUDDLE (1934), pp. 16, 98, pl. 8, fig. 11. Holotype, 1800, Ind. Univ., common in lower New Albany sh., locs. 26, 30 (fig.), Ind.; ——— GROHSKOPF, CLARK, & ELLISON (1943), p. 16, classed as jr. syn. of *Polygnathus nodocostata.* M?D

——**similis** HUDDLE (1934), pp. 17, 104, pl. 8, fig. 44. Holotype, 2285, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind. UD

——? **simplex** HINDE (1879), pp. 367-368, pl. 17, fig. 18. Holotype, A4312, British Mus., conodont bed, N. Y.; ——— S. A. MILLER (1883) (no ?), p. 315; ——— HINDE (1879) (ab)R (1887) (no ?), p. 322; ——— S. A. MILLER (1889) (no ?), p. 520; ——— GRABAU (1899), pp. 157-158, fig. 46; ——— GRABAU (1899a), p. 326; ——— HOLMES (1928) (no ?), pp. 18-19, classed as jr. syn. of *Polygnathus linguiformis;* ——— BRANSON & MEHL (July 1933d) (no ?), pp. 148, 150; ——— HUDDLE (1934) (no ?), p. 96; ? ——— WETZEL (1940), p. 76, comp. with Form VIII. UD

——**sineamlina** BRANSON & MEHL (June 1934a), p. 248, pl. 20, figs. 20, 22. Cotypes, C341-2, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944) (*sinelamina*), pp. 163, 173, UD

Louisiana ls., Mo.; ——— CAMPBELL (1946) (*sinelaminata*), p. 844, basal Blackiston fm., Ind., ident. by Huddle.

——**solidus** HINDE (1879), p. 365, pl. 17, fig. 2. Holotype, A4248, British Mus., conodont bed, N. Y.; ——— S. A. MILLER (1883), p. 315; ——— HINDE (1879) (ab)R (1887), p. 322; ——— CLARKE (1887), pl. A-1, fig. 11, Naples sh., N. Y.; ——— S. A. MILLER (1889), p. 520; ——— CLARKE (1893), p. 204; ——— GRABAU (1899), p. 155, fig. 37; ——— GRABAU (1899a), p. 326; ——— CLARKE & RUEDEMANN (1903) (*solida*), pp. 88, 840-841, Clarke's hypotype, $\frac{81,64}{1}$, N. Y. Mus., Albany; ——— GRABAU & SHIMER (1910), p. 243, fig. 1535b; ——— BRYANT (1921), p. 27, pl. 7, figs. 7-10, 12, conodont bed, N. Y.; ——— GRABAU (1921), p. 432, fig. 1335k; ——— MACFARLANE (1923a), fig. 7, subfig. 1; ——— MACFARLANE (1923b), fig. 1, subfig. 1; ——— ULRICH & BASSLER (1926), p. 52, classed as sr. syn. of *Panderodella;* ——— HOLMES (1928), pp. 16, 19; ——— MACFARLANE (1931), fig. 7, subfig. 1; ——— CONODONT COMMITTEE (1932), fig. 7, subfig. 1; ——— BRANSON & MEHL (July 1933d), p. 151, classed as sr. syn. of *Palmatolepis? eriensis.* UD

——**spatulata** YOUNGQUIST (Mar. 1947), p. 110, pl. 26, fig. 4. Holotype, 4054, Univ. Iowa, unnamed sh. 1½ mi. NE of N Liberty, Iowa. UD

——**spicata** E. R. BRANSON (1934), pp. 312-313, pl. 25, fig. 20. Holotype, C198-1, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 132; ——— COOPER (1939), pp. 404, 420, pl. 39, figs. 67-68. Hypotype, 39012, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 221. LMi

——**spinatus** HADDING (1913) (*Polygnatus*), pp. 32, 87, pl. 1, fig. 8. Holotype, LO 2347 T, Lund Mus., Sweden, from *Climacograptus putillus* and *Dicellograptus* zones, S. Sweden; ——— HOLMES (1928), pp. 14, 19, classed as sr. syn. of *Lonchodina?*. MO

——**spinulosa** YOUNGQUIST (Mar. 1947), pp. 110-111, pl. 24, fig. 9. Holotype, 4055, Univ. Iowa, unnamed sh. 1½ mi. NE of N Liberty, Iowa, comp. with *Polygnathus sp.* UD

——**strongi** STAUFFER (1938), pp. 413, 438-439, pl. 53, fig. 19. Holotype, B4973, Univ. Minn., Plum Brook sh., locs. 105, 107, 108 (fig.), Olentangy sh., loc. 125, Silica sh., loc. 148, Ohio; Arkona beds, locs. 152, 162, Ont.; ——— STAUFFER (1940), p. 430, pl. 60, figs. 81, 83-85. Fig. spms., B5711, B5713-B5715, Univ. Minn., clay above ls., admixture, Minn.; ——— STAUFFER & THIEL (1941), p. 229. M-UD

——**sublatus** ULRICH & BASSLER (1926), p. 47, pl. 8, fig. 2. Holotype, 11009, USNM, Hardin ss., Tenn.; ——— EDINGER (1926), p. 287, fig. 2, top row, 3rd fig. from left; ——— HOLMES (1928), p. 19; ——— BOND (1947), pp. 21, 34, pl. 2, fig. 23. Hypotype, 18415, Ohio Univ., lower Ohio sh., Ohio. UD

——**subserrata** BRANSON & MEHL (June 1934a), p. 248, pl. 20, figs. 17-19. Cotypes, C163-2 (fig. 18), C236-3 (figs. 17, 19), C332-5 (unfig.), Univ. Mo., Grassy Creek sh., Mo.; ——— COOPER (1939), pp. 404, 420, pl. 39, figs. 51-52, 65-66, 75-76; pl. 40, figs. 1-2, 9-10, 42-43. Hypotypes, 39013-39018, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 166; ——— YOUNGQUIST & PATTERSON (1949), p. 63, ref. to Cooper, pl. 40, figs. 9-10, classed as sr. syn. of *Polygnathus inaequilateralis;* ——— YOUNGQUIST & PATTERSON (1949) (*cf. subserrata*), p. 67, pl. 17, fig. 10. Fig. spm., 4137, Univ. Iowa, Prospect Hill ss., Iowa. UD-LMi

——**subtortilis** YOUNGQUIST & PATTERSON (1949), p. 67, pl. 17, fig. 3. Holotype, 4138, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**sulcata** HUDDLE (1934), pp. 17, 101, pl. 8, figs. 22-23. Holotype, 1944, Ind. Univ., rare in upper New Albany sh., loc. 9, Ind.; ——— HASS (Mar. 1947), p. 136, basal Sunbury sh., Ohio. LMi

——**surodus** COOPER (1939), p. 404, pl. 39, figs. 7-8. Holotype, 39019, Univ. Chi., pre-Welden sh., Okla. LMi

——**symmetrica** E. R. BRANSON (1934), p. 310, pl. 25, fig. 11. Holotype, C201-2, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), pp. 132, 146, pl. 33, fig. 11; pl. 34, fig. 33. Fig. spms., C201-2, C355-5, Univ. Mo., Chouteau ls., Mo.; ——— BRANSON & MEHL (1944), p. 245, pl. 94, fig. 35; ——— BRANSON (1944), pp. 181, 208e, 221, pl. 32, fig. 11; pl. 39, fig. 33; ——— YOUNGQUIST & PATTERSON (1949), p. 67, pl. 15, figs. 14-15. Fig. spm., 4139, Univ. Iowa, lower Prospect Hill ss., Iowa. LMi

——**symmetrica** COOPER (1939), p. 404, pl. 41, figs. 50-51. Holotype, 39020, Univ. Chi., pre-Welden sh., Okla. LMi

——**taffi** ROUNDY (1926), pp. 13-14, pl. 3, figs. 11a-b. Holotype, 115083, USNM, Barnett sh., loc. 7016, Tex.; ——— HOLMES (1928), p. 19. MMi

——**texanus** ROUNDY (1926), p. 14, pl. 3, figs. 13a-b. Holotype, 115103, USNM, Barnett sh., loc. 2618, Tex.; ——— HOLMES (1928), p. 19; ——— COOPER (1939), p. 388, classed as jr. syn. of *Gnathodus;* ——— MEHL & THOMAS (1947), p. 10. MMi

——**toxophora** COOPER (1939), p. 404, pl. 39, figs. 69-70. Holotype, 39021, Univ. Chi., pre-Welden sh., Okla. LMi

——**triangularis** BRANSON & MEHL (June 1934a), p. 247, pl. 21, figs. 16, 20. Cotypes, C82-3, C223-1, C321-5 (unfig.), Univ. Mo., Grassy Creek sh., Mo.; ———? ELLISON & GRAVES (1941), pp. 3-4, pl. 2, fig. 18. Hypotype, 4801, Mo. Sch. Mines, Rolla, lower transition zone, base Dimple fm., loc. G910, Tex.; ——— BRANSON (1944), pp. 166, 173, Louisiana ls., Mo.; ——— COOPER (1945) (*triangulatus*), pp. 613-614, pl. 84, fig. 17. Fig. spm., Ill. Geol. Surv., Glenn Creek-White Ridge memb., "Jefferson" fm., Mont.; ——— SLOSS & LAIRD (1945) (*triangulatus*), chart, DC unit, Mont.; ——— CAMPBELL (1946), p. 844, basal Blackiston fm., Ind., ident. by Huddle; ——— HASS (Mar. 1947) (*cf. triangularis*), p. 134, upper Ohio sh., Ohio; ——— YOUNGQUIST & PETERSON (1947), pp 251-252, comp. with *Polygnathus sheffieldensis;* ——— MILLER & YOUNGQUIST (1947), p. 515, comp. with *Polygnathus ? rugicosta;* ——— THOMAS (1949) (*trangularis*, p. 408), pp. 407-408, 411, pl. 2, fig. 30. Fig. spm., C808-2, Univ. Mo., English River siltstone; abundant in Maple Mill sh. (fig.), loc. 2, Iowa. UD-LMi

——**tridenticulata** COOPER (Sept. 1931), p. 242, pl. 28, fig. 34. Holotype, Cooper coll. USGS, Woodford fm., Okla. UD

——**trilobatus** HOLMES (1928), pp. 31-32, pl. 11, fig. 4. Holotype, 11456, USNM., Chattanooga sh., Ala., comp. with *Polygnathus concentricus;* ——— BUTTS (1926), p. 160, pl. 48, fig. 16, after Holmes unpub.; ——— BRANSON & MEHL (June 1934a), p. 243, classed as jr. syn. of *Polylophodonta concentrica.* UD

——**truncatus** HINDE (1879), pp. 366-367, pl. 17, figs. 12-13. Holotype, A4320 (restricted to fig. 12 later), British Mus., Genesee sh., Ont. (fig. 12), N. Y. (fig. 13); ——— S. A. MILLER (1883), p. 315; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), p. 156, fig. 42, left fig. is Hinde's fig. 13; rt. fig. is fig. 12; ——— GRABAU (1899a), p. 326; ——— GRABAU & SHIMER (1910), p. 243, figs. 1536 b-c, Hinde's figs. 13, 12 resp.; ——— STAUFFER (1915), pp. 185, 227-228, Huron sh., Ont.; ——— NICOLAS (1925), p. 227; ——— ULRICH & BASSLER (1926), p. 47, comp. with *Polygnathus? acaulis;* ——— HOLMES (1928), p. 19, pl. 7, figs. 20-21, Hinde's figs. 12-13 resp.; ——— BRANSON & MEHL (July 1933d) (*truncata*), pp. 145-146, 149-150, pl. 11, fig. 8. Hinde's pl. 17, fig. 12 designated holotype; and fig. 13 is a sr. syn. of *Polygnathus peracuta?;* ——— CALEY (1943), p. 63; ——— CALEY (1946), p. 49. UD

——**tuberculatus** HINDE (1879), p. 366, pl. 17, figs. 9-10. Holotype, A4241 (later restricted to fig. 9), British Mus., conodont bed, N. Y.; ——— S. A. MILLER (1883), p. 315; ——— HINDE (1879) (ab)R (1887), p. 322; ——— CLARKE (1887), pl. A-1, figs. 17-18, Naples sh., N. Y.; ——— S. A. MILLER (1889), p. 520; ——— CLARKE (1893), pp. 204-205; ——— GRABAU (1899), p. 156, fig. 40, Hinde's fig. 9 is left fig., fig. 10 is rt. fig.; ——— GRABAU (1899a), p. 326; ——— HINDE (1900), p. 342, comp. with *Polygnathus navicula;* ——— CLARKE & RUEDEMANN (1903) (*tuberculata*), pp. 89, 840-841. Hypotypes, $\frac{5165}{1}$ – $\frac{5165}{2}$, N. Y. Mus., Albany, Clarke's figs. 17-18 resp.; ——— GRABAU & SHIMER (1910), p. 244, figs. 1536 e-f, Hinde's figs. 10, 9 resp.; ——— BRYANT (1921), pp. 25-27, pl. 12, figs. 7-9. Conodont bed, N. Y., Hinde's fig. 10 is sr. syn. of *Polygnathus rotundilobus;* ——— ULRICH & BASSLER (1926) (*tuberculata*), p. 49, classed as sr. syn. of *Ancyrodella;* ——— HOLMES (1928), pp. 18-19, pl. 7, figs. 18-19, Hinde's figs. 9-10 resp.; ——— BRANSON & MEHL (July 1933d) (*tuberculata*), p. 148, pl. 11, figs. 2, 9. Holotype, fig. 2 same as Hinde's fig. 9, British Mus.; topotype, C260-1, Univ. Mo.; pl. 11, fig. 9 given as cotype, resembles Hinde's fig. 10; ——— HUDDLE (1934) (*tuberculata*), pp. 97-98, Bryant's figs. classed as sr. syn. of *Polygnathus bryanti;* ——— CHADWICK (Feb. 1935a), p. 311; ——— YOUNGQUIST (1947), p. 110, Hinde's fig. 10 classed as sr. syn. of *Polygnathus rotundiloba.* UD

——**undulosa** YOUNGQUIST & PATTERSON (1949), p. 67, pl. 17, figs. 1-2. Holotype, 4140, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**universus** STAUFFER (1915), p. 228 (*nomen nudum*); ——— NICOLAS (1925), p. 227.

——**varcus** STAUFFER (1940), p. 430, pl. 60, figs. 49, 53, 55. Syntypes, B5686, B5690, B5692, Univ. Minn., clay above Cedar Valley ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229. MD

——**varinodosa** BRANSON & MEHL (June 1934a), pp. 249, 258, pl. 20, fig. 15; pl. 21, figs. 9, 11-12, 18. Cotypes, C237-2, C332-3 (figs. 9, 11), C332-4, C235-4, Univ. Mo., Grassy Creek sh., Mo., comp. with *Polygnathus sp.* pl. 20, fig. 16; ——— BRANSON (1944), pp. 166, 173, Louisiana ls., Mo.; ——— CAMPBELL (1946), p. 846, lower Blackiston fm., Ind., ident. by Huddle; ——— YOUNGQUIST & PETERSON (1947), p. 252, pl. 38, fig. 10. Hypotype, 4104, Univ. Iowa, Sheffield fm., Iowa. UD

——**verrucosa** YOUNGQUIST & PETERSON (1947), p. 252, pl. 38, fig. 13. Holotype, 4105, Univ. Iowa, Sheffield fm., Iowa (fig.), Sylamore ss., Mo., Branson (1944), *Polygnathus sp.* pl. 26, fig. 45, and *Ancyrognathus n. sp.* pl. 26, fig. 40 are classed as sr. syns.; ——— THOMAS (1949), p. 417, comp. with *Polygnathus concava.* UD

——**wapanuckensis** HARLTON (1933), p. 15, pl. 4, figs. 13a-c. Cotype, 85530, USNM, Johns Valley sh., Okla.; ——— HARLTON (1933) (ab)Z (1937), p. 177, Branson & Mehl class ref. as sr. syn. of *Streptognathodus;* ——— ELLISON & GRAVES (1941), pp. 2, 4, pl. 2, figs. 13-17, class ref. as jr. syn. of *Gnathodus;* ——— COOPER (1947b), p. 267, Lee and Morrow grs.; ——— YOUNGQUIST & DOWNS (1949), p. 171, comp. with *Streptognathodus sp.* of authors. LP

——**webbi** STAUFFER (1938), pp. 413, 439, pl. 53, figs. 25-26, 28-29. Syntypes, B4980, B4982; paratype, B4979 (fig. 25), Univ. Minn., Arkona beds, loc. 178, Ont.; Plum Brook sh., locs. 107-108, Olentangy sh., locs. 109, 111 (fig. 25), 117 (fig. 26), 187 (figs. 28-29), Ohio; ——— YOUNGQUIST (1947), p. 110, comp. with *Polygnathus percarinata;* ——— MILLER & YOUNGQUIST (1947), p. 515, pl. 74, figs. 1-2. Fig. spms., 5578, Univ. Iowa, Sweetland Creek sh., Iowa. M-UD

——**wilsoni** U. P. JAMES (1884), p. 148, pl. 7, fig. C, Maysville fm., Ohio; ——— BASSLER (1915), pp. 1020, 1475; ——— HOLMES (1928), p. 19. UO

——**xylus** STAUFFER (1940), pp. 430-431, pl. 60, figs. 42, 50, 54, 65-67, 69, 72-74, 78-79. Syntypes, B5680, B5687, B5691, B5699-B5701, B5703, B5705-B5707, B5709, Univ. Minn., clay above ls., and upper Cedar Valley ls. (fig. 67), Minn.; ——— STAUFFER & THIEL (1941), p. 229. MD

——**xyncha** COOPER (1939), p. 404, pl. 39, figs. 73-74. Holotype, 39022, Univ. Chi., pre-Welden sh., Okla. LMi

——**sp. undet.** KINDLE (1912a), pp. 36, 67-68, pl. 2, fig. 5. Fig. spm., USNM, rare in Onondaga sh., Md.; ——— PROSSER, KINDLE, & SWARTZ (1913), pp. 58, 105, 122, pl. 7, fig. 6, Romney fm., Md. MD

——**sp.** TROWBRIDGE & MORTIMORE (1925), p. 420, fig. 9, Hominy ss., NE Okla. L?O

——**sp.** ULRICH & BASSLER (1926), pp. 43-44, 62, fig. 5, subfig. 15; pl. 9, figs. 23, 26-27, Hardin ss., Tenn. UD

——**sp. A** ROUNDY (1926), p. 14, pl. 3, figs. 12a-b. Fig. spm., 115060, USNM, lower Barnett sh., loc. 2609, Tex. MMi

——? (HOLMES) (1928), p. 37, pl. 8, fig. 7, Hinde's pl. 16, fig. 15 may be jr. syn. of *Gnathodus* (*Polygnathus dubius*). UD

——sp. (HOLMES) (1928), p. 37, pl. 8, figs. 14-16, 19, 21-22. Clarke's (1887) figs. 2-4, 10, 13 left fig., 1 resp.; (*Polygnathus dubius*). UD

——sp. undet. STAUFFER (1932), pp. 258, 264, pl. 40, figs. 36-39. Fig. spms., Univ. Minn., Decorah sh., Kans. MO

——fragments HARLTON (1933), pp. 14-15, pl. 4, figs. 8-12, Johns Valley sh., locs. 1, 4-5, 7-8, 11, W-17, H-48, L-22, S-108, Okla. LP

?—n. sp. A MATERN (1933), pp. 18, 20, fig. 16. Type, Preuss. Geol. Landest., Berlin, Lower Carboniferous, Lerbach, Harz, Germ. LMi

——sp. BRANSON & MEHL (June 1934a), pl. 20, fig. 16; pl. 21, figs. 7, 17, 19, 21. Fig. spms., C235-1, C236-5 (figs. 7, 19), C235-5, C233-3, Univ. Mo., Grassy Creek sh., Mo.; ——— MILLER & YOUNGQUIST (1947), p. 515, comp. fig. 21 with *Polygnathus sp.* of these authors. UD

——? HUDDLE (1934), p. 91, pl. 12, fig. 7. Fig. spm., 1883, Ind. Univ., upper New Albany sh., loc. 14, Ind., comp. with *Spathognathodus parvus*. LMi

——sp. HUDDLE (1934), p. 105, pl. 9, figs. 11-12. Fig. spm., 2250, Ind. Univ., lower New Albany sh., loc. 26, Ind. M?D

——sp. HUDDLE (1934), pp. 17, 105, pl. 9, figs. 13-14. Fig. spm., 1949, Ind. Univ., middle New Albany sh., loc. 20, Ind. UD

——spp. SCOTT (1934), p. 448.

——? sp. STAUFFER (1935b), p. 615, pl. 75, fig. 53. Fig. spm., B4733, Univ. Minn., basal Spechts Ferry memb., Decorah sh., loc. 40, Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——n. spp. KNECHTEL & HASS (1938), p. 519, USGS coll. 8432, basal sh. of Lodgepole ls., Mont.; ——— HASS (1943), p. 308, classed as jr. syns. of *Polygnathus inornata* and *longipostica* (sp. *longpostica*); ——— YOUNGQUIST & MILLER (1948), p. 448. LMi

——sp. HASS (1941), p. 76, pl. 13, fig. 2. Fig. spm., 7542, USGS, Bushberg-Hannibal horizon, Okla. LMi

——sp. ELLISON & GRAVES (1941), p. 3, pl. 2, fig. 24. Fig. spm., 4805, Mo. Sch. Mines, Rolla, mid. Dimple fm., loc. G901, Tex. LP

——n. sp. BRANSON (1944), p. 153, pl. 26, figs. 46-48, after Mehl and Quigley, from Claude Quigley's master thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——sp. BRANSON (1944), p. 153, pl. 26, fig. 45, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— YOUNGQUIST & PETERSON (1947), p. 252, classed as sr. syn. of *Polygnathus verrucosa*. UD

——n. sp. BRANSON (1944), p. 156, pl. 27, figs. 5, 9, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——? n. sp. BRANSON (1944), p. 156, pl. 27, fig. 6, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo. UD

——sp. STAUFFER (1944), p. 257, Olentangy sh., ls. mine, Barberton, Ohio. UD

——n. sp. CAMPBELL (1946), p. 844, basal Blackiston fm., Ind., ident. by Huddle. UD

——sp. unident. CAMPBELL (1946), p. 845, lower Blackiston fm., Ind. UD

——sp. BOND (1947), pp. 21, 34, pl. 2, fig. 20. Fig. spm., 18412, Ohio Univ., lower Ohio sh., Ohio. UD

——sp. YOUNGQUIST (1947), pp. 110-111, pl. 24, fig. 10. Fig. spm., 4056, Univ. Iowa, unnamed sh. 1½ mi. NE of N Liberty, Iowa, comp. with *Polygnathus spinulosa*. UD

——sp. YOUNGQUIST & PETERSON (1947), pp. 252-253, pl. 36, fig. 16. Fig. spm., 4106, Univ. Iowa, Sheffield fm., Iowa. UD

——sp. MILLER & YOUNGQUIST (1947), pp. 515-516, pl. 74, fig. 8. Fig. spm., 5579, Univ. Iowa, Sweetland Creek sh., Iowa, comp. with *Polygnathus sp.* Branson & Mehl (June 1934a), pl. 21, fig. 21. UD

——sp. YOUNGQUIST & MILLER (1948), p. 449, pl. 68, fig. 9. Fig. spm., 5616, Univ. Iowa, Sweetland Creek sh., Iowa. UD

——sp. A THOMAS (1949), pp. 408, 419, pl. 2, figs. 22, 25. Fig. spms., C827-4, Univ. Mo., Maple Mill sh., loc. 14, Iowa. UD

——sp. B THOMAS (1949), pp. 411, 419, pl. 3, fig. 33. Fig. spms., C818-3, Univ. Mo., English River siltstone, Prospect Hill ss. (fig.), loc. 14, Iowa. LMi

——sp. C THOMAS (1949), pp. 411, 419, pl. 3, fig. 34. Fig. spm., C813-3, Univ. Mo., English River siltstone, loc. 12, Iowa. LMi

——sp. LAYER *et al.* (1949), p. 594, D-3 zone, 700-875 ft. below top D-2 zone, Leduc field, Alta. UD

POLYLOPHODONTA BRANSON & MEHL (June 1934a), pp. 181, 184, 242, 245. Type species, *Polygnathus gyratilineatus* HOLMES (1928); ——— BRANSON & MEHL (Oct. 1934a), pp. 265, 267; ——— BRANSON & MEHL (1938a), p. 157; ——— BRANSON & MEHL (1938d), p. 129; ——— BRANSON (1938c), p. 179; ——— BRANSON & MEHL (1941d), p. 202; ——— BRANSON & MEHL (1944), p. 245; ——— ELLISON (Jan. 1946), pp. 94, 101, 104, 109, platform type; ——— CAMPBELL (1946), p. 852, Blackiston fm., Ind.; ——— HASS (Mar. 1947), pp. 132, 135, 137, Huron sh., lower Ohio sh., Ohio; ——— MILLER & YOUNGQUIST (1947), p. 502; ——— WELLER *et al.* (Feb. 1948), p. 103; ——— COOPER (July 1948a), p. 358; ——— THOMAS (1949), pp. 407, 419, abundant in Maple Mill sh., Iowa. UD

——acuta? THOMAS (1949), pp. 408, 419, pl. 1, fig. 31. Holotype, C825-2, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——concentrica (BRANSON & MEHL) (June 1934a), p. 243, pl. 20, fig. 2. Fig. spm., C320-2, Univ. Mo., Grassy Creek sh., Mo.; *Polygnathus trilobatus* and *rhomboidea* are jr. syns., (*Polygnathus*); ——— (BRANSON & MEHL) (1944), p. 245, pl. 94, fig. 47; ——— (BRANSON) (1944), p. 166; ——— (CAMPBELL) (1946), p. 903; ——— (THOMAS) (1949) (*concentricus*), p. 419, comp. with *Polylophodonta acuta?* UD

——confluens HASS (Mar. 1947) (*Polymorphodonta* p. 140), pp. 134-135, 140, Glen Park ls. at type loc., Mo., perhaps *Bryantodus* or *Euprioniodina* was meant.

——gyratilineata (BRANSON & MEHL) (June 1934a), pp. 242-244, pl. 20, fig. 3. Fig. spm., C161-5, Univ. Mo., Grassy Creek sh., Mo., UD

comp. with *Polylophodonta linguiformis. Polygnathus pergyratus* is a jr. syn., (*Polygnathus* not fig. 2); ——— (BRANSON & MEHL) (1944), p. 245; ——— (BRANSON) (1944), p. 166.

——**linguiformis** BRANSON & MEHL (June 1934a), p. 244, pl. 20, figs. 1, 6-7. Cotypes, C234-3 (figs. 1, 6), C320-5, Univ. Mo., Grassy Creek sh., Mo., *Polygnathus gyratilineatus* Holmes (1928), (not fig. 1) is sr. syn.; ——— BRANSON (1944) (*linguiformis?*, p. 173), pp. 166, 173, Louisiana ls., Mo. UD

——**rugosa** BRANSON & MEHL (June 1934a), p. 244, pl. 20, figs. 4-5. Holotype, C320-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 166; ——— THOMAS (1949), p. 419, comp. with *Polylophodonta acuta?*. UD

——**n. sp.** BRANSON (1944), p. 153, pl. 26, fig. 41, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——**sp.** LAYER *et al.* (1949), p. 594, D-3 zone 875 ft. below top D-2 zone, Leduc field, Alta. UD

POLYPLACOGNATHUS STAUFFER (1935b), p. 615. Type species, *P. ramosus* STAUFFER (1935b); ——— ELLISON (Jan. 1946), p. 109, jr. syn. of *Amorphognathus*. MO

——**expansus** STAUFFER (1935b), p. 615, pl. 75, figs. 27, 33. Holotype, B4709, Univ. Minn., Decorah sh., basal Spechts Ferry memb., loc. 40, Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**ramosus** STAUFFER (1935b), p. 615, pl. 75, figs. 23, 28-31, 37. Syntypes, B4711-B4713 (figs. 29-31); paratypes, B4706 (fig. 23), B4710 (figs. 28, 37), Univ. Minn., Decorah sh., locs. 4, 17 (figs. 28, 37), 24 (figs. 30-31), 40 (figs. 23, 29), Minn.; ——— STAUFFER & THIEL (1941), pp. 238, 241. MO

——**sp. a** STAUFFER (1935b), pp. 615-616, pl. 75, figs. 32, 36, 38, 43, 48-49, 62-63. Fig. spms., B4714 (figs. 32, 38), B4717 (fig. 36), B4723, B4728-B4729, B4741, Univ. Minn., Decorah sh., basal Spechts Ferry memb., Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**? sp. b** STAUFFER (1935b), p. 616, pl. 75, figs. 39, 42, 44, 47; pl. 72, figs. 8, 11, 12, 16. Fig. spms., B4720, B4727 (fig. 47), B4724 (fig. 44), B4523, B4526-B4527, B4531, Univ. Minn., Decorah sh., locs. 24 (figs. 39, 44, 47), 40 (figs. 42, 8, 11-12, 16), Minn.; ——— STAUFFER & THIEL (1941) (no ?), p. 241. MO

PRAVOGNATHUS STAUFFER (Jan. 1936), p. 79. Proposed for *Heterognathus*, which is preocc. by C. F. Girard, Acad. Nat. Sci. Phila., Proc., vol. 7, p. 198, 1854, Pisces; ——— ELLISON (Jan. 1946) (*Provognathus*), pp. 108-109, bar type. MO

——**brevis** (STAUFFER) (Jan. 1936), p. 79, (*Heterognathus*).

——**idoneus** (STAUFFER) (Jan. 1936), p. 79, *Heterognathus*).

——**simplex** (STAUFFER) (Jan. 1936), p. 79, (*Heterognathus*).

PRIONIODELLA ULRICH & BASSLER (1926), pp. 6, 15, 17-18, 57. Type species, *P. normalis* ULRICH & BASSLER (1926); ——— BASSLER (1925), p. 219, comp. with *Prioniodina*, (*nomen nudum*); ——— HOLMES (1928), pp. 3, 19, 26; ——— COOPER (Sept. 1931), pp. 233, 237; ——— STAUFFER & PLUMMER (1932), p. 39; ——— BRANSON & MEHL (July 1933a), p. 87, comp. with *Curtognathus;* ——— BRANSON & MEHL (June 1934a), p. 216; ——— HUDDLE (1934), pp. 24, 26, 35-36, 63, 65, 89, may have given rise to *Spathognathodus*, comp. with *Prioniodina* and *Bryantodus;* ——— CHADWICK (Feb. 1935a), p. 313; ——— COOPER (1935), p. 313; ——— STAUFFER (1940), p. 431; ——— SCOTT (1942), pp. 295, 297-299; ——— SCOTT (1942) (r)NRC (1943), p. 21; ——— ELLISON (Jan. 1946), pp. 95, 104, 109, *Lochriea* (pt.) is a jr. syn., bar type; ——— YOUNGQUIST & PATTERSON (1949), p. 60; ——— THOMAS (1949), p. 430. UD-MP

——**aciedentata** COOPER (Sept. 1931), p. 233, pl. 28, fig. 6. Holotype, USGS Cooper coll., Woodford fm., Okla.; ——— COOPER (1935), p. 310, pl. 27, fig. 11. Fig. spm., 38061, Univ. Chi., upper Ark. novaculite, bed A, Ark. UD-LMi

——**aequidens** ULRICH & BASSLER (1926), pp. 19, 26, pl. 4, figs. 6-7. Holotype, 11256, USNM, lower Rhinestreet sh., N. Y., comp. with *Bryantodus transitans;* ——— HOLMES (1928), p. 19; ——— CHADWICK (Feb. 1935a), p. 315. UD

——**arcuata** HOLMES (1928), p. 26, pl. 9, fig. 14. Holotype, 11441, USNM, Chattanooga sh., Ala. UD

——**brevispina** ULRICH & BASSLER (1926), p. 20, pl. 10, fig. 21. Holotype, 10993, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 19; ——— BASSLER (1932), p. 234, pl. 26, fig. 11; ——— HUDDLE (1934), p. 66, comp. with *Prioniodella ordinata*. UD

——**conferta** ULRICH & BASSLER (1926), p. 21, pl. 10, fig. 25. Holotype, 10989, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 19; ——— BASSLER (1932), p. 234, pl. 26, fig. 10. UD

——**cristula** HUDDLE (1934) (*Prioniodina* p. 15), pp. 15, 66, pl. 1, fig. 11. Holotype, 2257, Ind. Univ., rare in mid. New Albany sh., locs. 18 (fig.), 20, Ind. UD

——**cunea** HUDDLE (1934) (*Prioniodina* p. 15), pp. 15, 65-66, pl. 1, fig. 9. Holotype, 1926, Ind. Univ., rare in upper New Albany sh., locs. 2 (fig.), 3, 6, 8-9, Ind.; ——— COOPER & SLOSS (1943), p. 170, pl. 28, fig. 15, black sh. base of Madison gr., loc. 1, Alta. LMi

——**curvata** COOPER (Sept. 1931), p. 233, pl. 28, fig. 5. Holotype, Cooper coll. USGS, Woodford fm., Okla. UD

——**gracilis** ULRICH & BASSLER (1926), p. 20, pl. 10, figs. 22-23. Cotypes, 10992, USNM, Hardin ss., Tenn., comp. with *Prioniodella robusta;* ——— HOLMES (1928), p. 19; ——— BASSLER (1932), p. 234, pl. 26, fig. 12; ——— COOPER (1935) (*gracilus*), pp. 310, 313, pl. 27, fig. 10. Fig. spm., 38060, Univ. Chi., mid. Ark. novaculite, bed 14, Ark.; ——— WETZEL (1940), p. 75, comp. with Form VI. UD

——**inaequalis** ULRICH & BASSLER (1926), p. 19, pl. 4, figs. 2-3. Cotypes, 11255, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 19; ——— CHADWICK (Feb. 1935a), p. 315. UD

——**informata** ULRICH & BASSLER (1926), p. 20, pl. 10, figs. 19-20. Cotypes, 10991, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 19; ——— HUDDLE (1934), p. 66, comp. with *Prioniodella ordinata*. UD

——**insolita** STAUFFER (1938), pp. 413, 439, pl. 48, fig. 8. Holotype, B4748, Univ. Minn., Olentangy sh., loc. 187, Ohio. UD

——**inutilis** HOLMES (1928), p. 26, pl. 9, fig. 15. Holotype, 11442, USNM, Chattanooga sh., Ala. UD

——**invalidus** (ULRICH & BASSLER) (1926), p. 18, (*Centrodus*); ——— (HOLMES) (1928) (*invalida*), pp. 8, 19; ——— (CHADWICK) (Feb. 1935a) (*invalida*), p. 311. UD

——? **irregularis** BRANSON & MEHL (June 1934a), p. 216, pl. 16, fig. 2. Holotype, C370-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 166. UD

——**megastylus** COOPER (Sept. 1931), p. 233, pl. 28, fig. 7. Holotype, Cooper coll. USGS, Woodford fm., Okla. UD

——**mulata** STAUFFER (1940), p. 431, pl. 58, fig. 25. Holotype, B5547, Univ. Minn., clay above ls., admixture, Minn.; ——— STAUFFER & THIEL (1941), p. 229. O, MD

——**multidens** ULRICH & BASSLER (1926), p. 19, pl. 4, figs. 4-5. Holotype, 11257, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 19; ——— SAVAGE (1930) (*Prionidella cf. multidens*), pp. 17, 73, New Albany sh., Ky.; ——— CHADWICK (Feb. 1935a), p. 315. UD

——**normalis** ULRICH & BASSLER (1926), pp. 16-19, fig. 4, subfig. 10; pl. 4, figs. 1, 1′. Holotype, 11254, USNM, lower Rhinestreet sh., N. Y., type species for genus, comp. with *Prioniodella inaequalis* and *aequidens;* ——— BASSLER (1925), p. 219, (*nomen nudum*); ——— EDINGER (1926), p. 286, fig. 1, 4th fig. from bottom, mid. vertical row; ——— HOLMES (1928), p. 19; ——— HUDDLE (1934), p. 65; ——— CHADWICK (Feb. 1935a), p. 315; ——— GLAESSNER (1945), p. 28, fig. 4, subfig. 10. UD

——**ordinata** HUDDLE (1934) (*Prioniodina* p. 15), pp. 15, 66, pl. 1, fig. 10. Holotype, 1897, Ind. Univ., rare in mid. New Albany sh., locs. 18 (fig.), 19-20, Ind. UD

——**robusta** ULRICH & BASSLER (1926), p. 20, pl. 10, fig. 24. Holotype, 10990, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 19. UD

——**subaequalis** STAUFFER & PLUMMER (1932), pp. 25, 39, pl. 2, figs. 21, 23. Holotype, 19143 (fig. 23); paratype, 19144 (fig. 21), Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, B, Tex. MP

——**texana** STAUFFER & PLUMMER (1932), pp. 25, 39, pl. 2, figs. 15-16. Holotype, 19145, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, B, Tex. MP

——?**torta** BRANSON & MEHL (June 1934a), p. 216, pl. 16, fig. 1. Holotype, C370-2, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 166. UD

——**sp. A** STAUFFER & PLUMMER (1932), pp. 25, 39-40, pl. 2, figs. 4-5, 26. Fig. spms., 19146, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., locs. 181-T-9, A to B (fig.), Tex. MP

——? **sp. B** STAUFFER & PLUMMER (1932), pp. 25, 40, pl. 2, fig. 33. Fig. spm., 19147, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, B, Tex. MP

——**spp.** SCOTT (1934), pp. 448, 451-452, pl. 58, figs. 3c?, 5b, b′, 7b?, 8b; pl. 59, fig. 11c?.

——**spp.** SCOTT (1942), p. 299, pl. 37, figs. 1d-7d; pl. 38, figs. 2d-4d, 6d, 11d; pl. 40, figs. 4-5, 9-10; text fig. 1d, black sh. of Heath fm., Mont. UMi

——? **sp.** YOUNGQUIST (1945), p. 365, pl. 55, fig. 8. Fig. spm., 2953, Univ. Iowa, Independence sh.?, Iowa. UD

——? **sp.** THOMAS (1949), pp. 408, 430, pl. 2, fig. 17. Fig. spm., C825-5, Univ. Mo., Maple Mill sh., loc. 14, Iowa. UD

PRIONIODIDAE ULRICH & BASSLER (1926), pp. 2, 6-7, 15; ——— BASSLER (1925), p. 218, (*nomen nudum*); ——— HIBBARD (1927), p. 191; ——— HOLMES (1928), pp. 3, 19, 24; ——— COOPER (June 1931), p. 146; ——— COOPER (Sept. 1931), p. 232; ——— STAUFFER & PLUMMER (1932), pp. 19, 27; ——— STAUFFER (1932), p. 259; ——— HARLTON (1933), p. 12; ——— GUNNELL (1933), p. 265; ——— HUDDLE (1934), pp. 24, 34, 36, 112, includes *Euprioniodina, Hamulosodina, Hindeodella, Hindeodelloides, Ligonodina, Metaprioniodus, Pachysomia, Palmatodella, Prioniodus, Subprioniodus, Synprioniodina, Telumodina;* ——— COOPER (1935), p. 311; ——— ZEBERA (1936b), pp. 190, 192; ——— FURNISH (1938), p. 323; ——— CRONEIS (1938), pp. 977, 984; ——— COOPER (1939), p. 396; ——— HIBBARD (1942), p. 271; ——— BRANSON & MEHL (1944), p. 240, pl. 93; ——— GLAESSNER (1945), pp. 27-28; ——— ELLISON (Jan. 1946), p. 97; ——— THOMAS (1949), p. 419.

PRIONIODINA ULRICH & BASSLER (1926), pp. 6, 15, 17-18, 21, 26, 29, 36, 39, 41, 57. Type species, *P. subcurvata* ULRICH & BASSLER (1926), comp. with *Prioniodella, Bryantodus, Hindeodella,* and *Palmatodella;* ——— BASSLER (1925), p. 219, comp. with *Euprioniodina,* (*nomen nudum*); ——— HOLMES (1928), pp. 3, 8, 19, 27; ——— COOPER (Sept. 1931), p. 237; ——— GUNNELL (1931b), p. 249; ——— STAUFFER & PLUMMER (1932), p. 40; ——— STAUFFER (1932), p. 262; ——— MATERN (1933), pp. 14-15, 21; ——— BRANSON & MEHL (June 1933c), p. 47; ——— BRANSON & MEHL (July 1933a), p. 87, comp. with *Curtognathus;* ——— BRANSON & MEHL (June 1934a), pp. 210-211, 213-214, 216-217, comp. with *Lonchodina;* ——— BRANSON & MEHL (Oct. 1934a), p. 285, comp. with *Subbryantodus;* ——— E. R. BRANSON (1934), p. 331; ——— HUDDLE (1934), pp. 26, 35-36, 63, 65, 76; ——— STAUFFER (1935a), p. 143; ——— CHADWICK (Feb. 1935a), p. 313; ——— MATERN (1933) (ab)Z (1937), p. 178, E. B. Branson could not place spms. generically ref. to this genus; ——— STAUFFER (1940), p. 431; ——— ELLISON (1941), pp. 109, 111, 118, 138; ——— COOPER & SLOSS (1943), p. 174; ——— BRANSON & MEHL (1944), p. 244; ——— ELLISON (Jan. 1946), pp. 95-96, 104, 109, blade and bar types, the sequence from *Prioniodina* to *Gondolella* is perfect; ——— BOND (1947), p. 34; ——— HASS (Mar. 1947), p. 132, Cleveland, Huron, basal Sunbury and basal Orangeville shs., Ohio; ——— MEHL & THOMAS (1947), pp. 6, 15; ——— COOPER (1947b), p. 269. M?D-UP

——? **abnormis** BRANSON & MEHL (June 1934a), p. 215, pl. 14, fig. 21. Holotype, C229-4, Univ. UD

Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 166.

——**acicularis** HUDDLE (1934), pp. 15, 64, pl. 1, fig. 8. Holotype, 1934, Ind. Univ., rare in upper New Albany sh., locs. 9 (fig.), 11, Ind. LMi

——**acuta** E. R. BRANSON (1934), p. 331, pl. 28, fig. 19. Holotype, C213-1, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 221. LMi

——**arrecta** HUDDLE (1934), pp. 15, 65, pl. 4, fig. 14. Holotype, 2261, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind. UD

——**aversa** STAUFFER (1938), pp. 413, 439, pl. 52, fig. 3. Holotype, B4787, Univ. Minn., Olentangy sh., loc. 111, Ohio. UD

——? **camerata** (ELLISON) (1941), pp. 108-109, 111, 118-119, 121, pl. 20, figs. 48-49, 53. Holotype, C512-3 (G) (unfig.); hypotypes, C77-4, C555-5, C78-4, Univ. Mo., Labette sh. through Stanton ls., locs. 0017 (fig. 49), 0039, 0084, 0103, 0107 (figs. 48, 53), 0110-0111, 0116, 0140-0141, 0144, 0148-0149, 0155, 1273, 1283, 1359, 1362, 1371, Mo., comp. with *Prioniodina? obtusa*, and *Gondolella denuda* into which it grades. *Euprioniodina sp. B* Stauffer & Plummer (1932) is a sr. syn., (*Bryantodus*); ——— (BRANSON) (1944), p. 327. MP

——**compressa** BRANSON & MEHL (June 1934a), pp. 213-214, pl. 14, fig. 18. Holotype, C229-3, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 166. UD

——**congruens** COOPER & SLOSS (1943), pp. 170, 174, pl. 29, fig. 14, black sh., base Madison gr., loc. 3, Mont. LMi

——**cristula** HUDDLE (1934), p. 15, see *Prioniodella*.

——**cunea** HUDDLE (1934), p. 15, see *Prioniodella*.

——**curta** HUDDLE (1934), pp. 15, 64-65, pl. 4, fig. 13. Holotype, 2316, Ind. Univ., rare in lower New Albany sh., loc. 32, Ind. M?D

——**curvata** BRANSON & MEHL (June 1934a), p. 214, pl. 14, fig. 17. Holotype, C241-3, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 166. UD

——? **curvidens** E. R. BRANSON (1934), p. 331, pl. 28, fig. 20. Holotype, C204-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 13; ——— BRANSON (1944) (*Prionidina*), pp. 181, 221, pl. 52, fig. 13. LMi

——**geminus** (ULRICH & BASSLER) (1926), p. 18, (*Prioniodus*); ——— (HOLMES) (1928) (? *gemina*), pp. 19, 21, pl. 5, fig. 10, Hinde's fig. 25. MMi

——**irregularis** BRANSON & BRANSON (1947), p. 555, pl. 82, figs. 30-31. Holotype, C678-2 (fig. 31); paratypes, C678-3 (fig. 30), C683-2, Univ. Mo., Brassfield fm., locs. 1786 (fig. 30), 1923 (fig. 31), 1826, 1976, Ky. LS

——**macrodenta** STAUFFER (1932), pp. 258, 262, pl. 40, fig. 23. Holotype, Univ. Minn., Decorah sh., Kans. MO

——? **obtusa** ELLISON (1941), pp. 108-111, 119, pl. 20, figs. 12, 17. Holotype, C138-4 (fig.); paratype, C131-4 (fig.), Univ. Mo., Cherokee sh. through Deer Creek ls., locs. 389, 0001, 0039, 0043-0044, 0054, 0081 (fig. holotype), 0084, 0094, 0097, 0103, 0107 (fig. paratype), 0155, Mo.; ——— BRANSON (1944) (no ?), p. 327. M-UP

——**ordinata** HUDDLE (1934), p. 15, see *Prioniodella*.

——**peculiaris** BRANSON & MEHL (June 1934a), p. 214, pl. 14, fig. 16. Holotype, C368-3, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 166. UD

——**recedens** (ULRICH & BASSLER) (1926), p. 18, (*Prioniodus*); ——— (HOLMES) (1928), pp. 20, 22; ——— (CHADWICK) (Feb. 1935a), p. 311.

——**separans** HOLMES (1928), p. 27, pl. 9, figs. 16-17. Cotypes, 11443, USNM, Chattanooga sh., Ala.; ——— HUDDLE (1934), pp. 15, 64, pl. 1, fig. 7. Plesiotype, 1896, Ind. Univ., rare in upper New Albany sh., locs. 1-3, 5, 11 (fig.), 14, Ind.; ——— CAMPBELL (1946), p. 901; ——— BOND (1947), pp. 21, 34, pl. 1, fig. 27. Hypotype, 18392, Ohio Univ., lower Ohio sh., Ohio. UD-LMi

——**separata** ULRICH & BASSLER (1926), p. 18, pl. 4, figs. 17-18. Cotypes, 11253, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 20; ——— MATERN (1933), p. 15, comp. with *Prioniodina subcurvata* and *wildungensis;* ——— CHADWICK (Feb. 1935a), p. 315. UD

——**subcurvata** ULRICH & BASSLER (1926), pp. 16-18, 26, 36, 57, fig. 4, subfigs. 8-9; pl. 4, figs. 22-24. Cotypes, 11252, USNM, lower Rhinestreet sh., N. Y., type species for genus, comp. with *Prioniodina separata, Bryantodus curvatus*, and *Lonchodina geniculata;* ——— BASSLER (1925), p. 219, (*nomen nudum*); ——— EDINGER (1926), p. 286, fig. 1, mid. vertical row, 5th and 6th figs. from bottom; ——— HOLMES (1928), pp. 19-20; ——— MATERN (1933), pp. 14-15, fig. 4. Fig. spm., Geol. Inst. Marburg, Germ., Hirzenberg, alte Pinge, Germ., comp. with *Prioniodina separata* and *wildungensis;* ——— BRANSON & MEHL (June 1934a), p. 215; ——— HUDDLE (1934), p. 63; ——— CHADWICK (Feb. 1935a), p. 315; ——— BRANSON & MEHL (1944), p. 244, pl. 94, fig. 24; ——— GLAESSNER (1945), p. 28, fig. 4, subfigs. 8-9. M-UD

——**subrecta** HUDDLE (1934), pp. 15, 65, pl. 6, fig. 1. Holotype, 2328, Ind. Univ., rare in upper New Albany sh., locs. 2 (fig.), 13-14, Ind. LMi

——**symmetrica** BRANSON & MEHL (June 1934a), p. 215, pl. 14, fig. 20. Holotype, C368-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 166. UD

——**tortus** STAUFFER (1940), p. 431, pl. 58, figs. 16-17. Holotype, B5540, Univ. Minn., clay above ls., admixture, Minn.; ——— STAUFFER & THIEL (1941), p. 229. O, MD

——**undulata** HOLMES (1928), p. 27, pl. 9, fig. 18. Holotype, 11444, USNM, Chattanooga sh., Ala. UD

——**volborthii** (ULRICH & BASSLER) (1926), p. 18, (*Prioniodus*); ——— (HOLMES) (1928) (? *volborthii*), pp. 20, 22, pl. 5, fig. 11, Pander's pl. A to p. 20, fig. A.

——**wildungensis** MATERN (1933), p. 15, fig. 5. Holotype, XVI 8a, Senckenberg Mus., Frankfurt a.M., Germ., Nehdener schichten, to II, Kellerwald (fig.), Adorfer schichten, to I, Buchenau (unfig. in Geol. Inst. Rostock), Germ. UD

——**sp.** (HOLMES) (1928), p. 37, pl. 8, fig. 3, (Hinde's pl. 16, fig. 7 of *Polygnathus dubius*).

——? sp. GUNNELL (1931b), p. 249, pl. 29, fig. 27. Fig. spm., Univ. Mo., mid. Fort Scott fm., Mo.; ——— ELLISON (1941) (no ?), p. 138, Gunnell's spm. is an indet. fragment. MP

——sp. A STAUFFER & PLUMMER (1932), pp. 25, 40, pl. 2, figs. 12, 19, 24. Fig. spms., 19148 Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, B, Tex. MP

——sp. BRANSON & MEHL (June 1934a), p. 215, pl. 14, fig. 19. Fig. spm., C81-1, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 166; ——— MILLER & YOUNGQUIST (1947), p. 512, comp. with *Lonchodus parallelus*. UD

——sp. STAUFFER (1938), p. 413, Plum Brook sh., loc. 108; Olentangy sh., loc. 109, Ohio. M-UD

——n. sp. BRANSON (1944), p. 156, pl. 27, figs. 18-19, 22, 25-27, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——sp. YOUNGQUIST (1947), p. 111, pl. 26, fig. 7. Fig. spm., 4057, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa. UD

——? sp. indet. MEHL & THOMAS (1947), p. 15, pl. 1, fig. 14. Fig. spm., C658-4, Univ. Mo., Fern Glen fm., Mo. MMi

PRIONIODINIDAE ULRICH & BASSLER (1926), pp. 2, 6, 15; ——— BASSLER (1925), p. 219, (*nomen nudum*); ——— HIBBARD (1927), p. 201; ——— HOLMES (1928), pp. 3, 20, 25; ——— COOPER (Sept. 1931), p. 233; ——— STAUFFER & PLUMMER (1932), pp. 19, 29; ——— STAUFFER (1932), p. 262; ——— GUNNELL (1933), p. 267; ——— HUDDLE (1934), pp. 24, 35-36, 63, 112, includes *Angulodus, Bryantodus, Coleodus, Dichognathus, Diplododella, Falcodus, Hibbardella, Lonchodina, Neocoleodus, Oulodus, Ozarkodina, Plectospathodus, Prioniodella, Prioniodina, Spathognathodus, Trichonodella;* ——— COOPER (1935), p. 313; ——— ZEBERA (1936b), pp. 190, 192; ——— FURNISH (1938), p. 323; ——— HIBBARD (1942), p. 271; ——— BRANSON & MEHL (1944), p. 243, pl. 94; ——— GLAESSNER (1945), p. 28; ——— ELLISON (Jan. 1946), p. 97; ——— THOMAS (1949), p. 425.

PRIONIODUS PANDER (1856), pp. 29, 91. Type species, *P. elegans* PANDER (1856); ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1858), p. 339; ——— EICHWALD (1860), pp. 664-665; ——— HINDE (1879), pp. 356, 359; ——— YOUNG (1880) (*Prionodus*), coll. by John Smith, from Ayrshire coal field, W. Scot.; ——— HINDE (1879) (ab)N (1881), p. 107; ——— MASON (1881) (*Prionodus*), p. 192, Lower Carboniferous ls., Scot.; ——— S. A. MILLER (1883), p. 315, signifies saw-tooth; ——— JAMES (1884), p. 147; ——— CLARKE (1885b), p. 40; ——— ZITTEL & ROHON (1886), p. 132; ——— S. A. MILLER (1889), pp. 516, 520; ——— ZITTEL (1890), pp. 59-60; ——— CLARKE (1893), p. 204; ——— PERNER (1894), p. 3; ——— GRABAU (1899), p. 150; ——— GÜRICH (1900) (*cf. Prioniodus*), p. 368, Upper Dev., Karczówka, Poland; ——— TAFF (1903), p. 4, Sylvan fm., Okla.; ——— TAFF (1904), p. 28; ——— SMITH (1907), p. 247, comp. with *Subprioniodus;* ——— GRABAU & SHIMER (1910), p. 244; ——— ULRICH (Aug. 1912), p. 179; ——— SHIMER (1914), p. 146; ——— BASSLER (1915), pp. 1034, 1426; ——— BRYANT (1921), pp. 16, 19, 22; ——— PARKS & FRITZ (1923), p. 36; ——— MACFARLANE (1923a), p. 257; ——— MACFARLANE (1923b), p. 33; ——— MORGAN (1924), p. 36; ——— ZITTEL (1924), p. 288; ——— T. H. CLARK (1924), p. 69; ——— BASSLER (1925), p. 218; ——— ULRICH & BASSLER (1926), pp. 4, 6, 8-9, 12-13, 29, 39, 55, comp. with *Euprioniodina* and *Hindeodella;* ——— ROUNDY (1926), pp. 10-12, 17; ——— HIBBARD (1927), pp. 191, 193, 197; ——— TAFF (1928), p. 26; ——— HOLMES (1928), pp. 3, 20, 24; ——— HIBBARD (1928), p. 117; ——— SAVAGE (1930), pp. 17, 73; ——— STAUFFER (1930), p. 121; ——— EICHENBERG (1930), pp. 180-181; ——— GUNNELL (Mar. 1931a), p. 331, Lansing gr., Mo.; ——— GUNNELL (April 1931a), p. 239; ——— COOPER (June 1931), p. 146; ——— COOPER (Sept. 1931), pp. 232-233; ——— GUNNELL (1931b), p. 246; ——— STAUFFER & PLUMMER (1932), p. 27; ——— STAUFFER (1932), p. 259; ——— WETZEL (1933), p. 84; ——— COOPER (1933a), p. 210: ——— HARLTON (1933), pp. 4, 12; ——— MATERN (1933), pp. 13-14, 21; ——— BRANSON & MEHL (June 1933c), pp. 44-45; ——— BRANSON & MEHL (July 1933c, d), pp. 129-130, 134, 136; ——— GUNNELL (1933), p. 265; ——— BRANSON & MEHL (June 1934a), pp. 205, 208, comp. with *Euprioniodina;* ——— SCHMIDT (1934), p. 84; ——— BRANSON & MEHL (Oct. 1934a), p. 287; ——— E. R. BRANSON (1934), p. 329; ——— HUDDLE (1934), pp. 26, 34, 36-37, 59; ——— MCKNIGHT (1935), p. 74, Sylamore ss., Ark.; ——— STAUFFER (1935a), pp. 143, 152-153, Pander's desc. trans.; ——— ZEBERA (1935), pp. 89-90, Gotlandien, Barrandien fm., zone e alpha, Litohlavy, Bohemia; ——— COOPER (1935), pp. 311, 313; ——— STAUFFER (1935b), p. 616; ——— BAILEY (1935), p. 490; ——— ÖPIK (1936), p. 107, nomenclature must be revised; ——— BOUCEK (1936b), p. 129; ——— ZEBERA (1936a), pp. 4, 6-7, 9-10; ——— ZEBERA (1936b), pp. 189, 192; ——— LOOMIS (Oct. 1936), p. 664; ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood sh., S. D.; ——— MATERN (1933) (ab)Z (1937), p. 178, E. B. Branson could not place generically the spms. ref. to this genus by Matern; ——— FURNISH (1938), p. 323; ——— BRANSON & MEHL (1938d), pp. 142-143; ——— CRONEIS (1938), p. 984; ——— COOPER (1939), pp. 383, 404; ——— C. C. BRANSON (Aug. 1939), pp. 1207, 1216, Tensleep fm., Wyo.; ——— STAUFFER (1940), p. 431; ——— HASS (1941), pp. 72, 78; ——— BRANSON & MEHL (1941a), pp. 169, 173, Caney sh., Okla.; ——— BRANSON & MEHL (1941b), pp. 180, 186; ——— BRANSON & MEHL (1941c), p. 194; ——— BRANSON & MEHL (1941e), p. 105; ——— ELLISON (1941), pp. 109, 111, 113, 138; ——— ELLISON & GRAVES (1941), p. 2; ——— SCOTT (1942), pp. 293, 295-300; ——— CAMP, TAYLOR, & WELLES (1942), p. 600; ——— SCHUCHERT (1943), p. 106; ——— DUBOIS (1943), p. 156; ——— SCOTT (1942) (r)NRC (1943), p. 21; ——— DRESSER & DENIS (1944), p. 393, Lévis sh., Can.; ——— BRANSON & LO-LPm

MEHL (1944), p. 241; ——— YOUNGQUIST (1945), p. 366; ——— ELLISON (Jan. 1946), pp. 95, 104, 109-110, bar type, starts in upper Beekmantown in Europe and Black River in America, parts of *Lewistownella*, *Ligonodinoides*, and *Lochriea* are classed as jr. syns., *Subprioniodus* is a probable jr. syn.; ——— YOUNGQUIST & CULLISON (1946), p. 590; ——— BOND (1947), p. 34; ——— COOPER (1947a), pp. 84, 92; ——— HASS (Mar. 1947), pp. 132, 135, Sunbury, Bedford, Ohio, Cleveland, Huron, basal Orangeville shs., Ohio; ——— MEHL & THOMAS (1947), p. 15; ——— COOPER (1947b), p. 269; ——— YOUNGQUIST & MILLER (1948b), p. 440; ——— YOUNGQUIST & DOWNS (1949), pp. 161-162, 169; ——— THOMAS (1949), pp. 407, 424, Maple Mill sh., Iowa, comp. with *Pelekysgnathus;* ——— STURGEON & YOUNGQUIST (1949), pp. 380, 382, 385.

——**abbreviatus** HINDE (1879), pp. 359-360, pl. 15, fig. 15. Holotype, A4184, British Mus., conodont bed, N. Y.; ——— S. A. MILLER (1883), p. 315; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), pp. 150-151, fig. 33 B; ——— GRABAU (1899a), p. 326; ——— GRABAU & SHIMER (1910), p. 244, fig. 1537a; ——— BRYANT (1921), pp. 14-15, pl. 1, figs. 3-5; pl. 3, fig. 7, Genundewah ls., N. Y.; ——— HOLMES (1928), p. 20, pl. 3, fig. 8; ——— BRANSON & MEHL (July 1933d), pp. 135-136, pl. 11, fig. 26, Holotype fig.; ——— CHADWICK (Feb. 1935a), p. 311. UD

——**abnormis** HIBBARD (1927), p. 197, fig. 1 c. Holotype, 279, Hibbard coll., Buffalo Mus. Sci., N. Y., lower Rhinestreet sh., N. Y.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 54, sr. syn. of *Ligonodina*. UD

——**acicularis** HINDE (1879), p. 360, pl. 15, figs. 18-19. Cotypes, A4178 (fig. 19), A4173 (fig. 18), 4199 (Hinde's fig. 12, *Polygnathus dubius*), British Mus., Genesee sh., Ont. (fig.), N. Y.; ——— S. A. MILLER (1883), p. 315; ——— CLARKE (1885b), pp. 28, 69; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), pp. 151-152, fig. 33 E; ——— STAUFFER (1915), pp. 185, 227-228; ——— NICOLAS (1925), p. 232; ——— ULRICH & BASSLER (1926), p. 29, classed as sr. syn. of *Euprioniodina;* ——— HOLMES (1928), pp. 10, 20; ——— BRANSON & MEHL (July 1933d), p. 143, sr. syn. of *Hindeodella*. UD

——**aculeatus** STAUFFER (1930), p. 126, pl. 10, fig. 12. Holotype, 5442, Univ. Minn., lower Decorah sh., Minn.; ——— HARRIS (1931), pp. 40, 63, 72, 94-95, pl. 11, fig. 3, Tulip Creek fm., Okla.; ——— STAUFFER (1932), pp. 258-259, pl. 40, fig. 2. Fig. spm., Univ. Minn., Decorah sh., Kans.; ——— HARRIS (1932), p. 59, pl. 1, fig. 8; ——— STAUFFER (1935b), p. 616, pl. 73, figs. 46, 52, 54. Fig. spms., B4620, B4626, B4628, Univ. Minn., Decorah sh., locs. 47, 57 (fig. 46), 62, 67 (figs. 52, 54), 86, 91, 95, Minn.; ——— DECKER (Apr. 1941), pp. 655, 664; ——— STAUFFER & THIEL (1941), pp. 238, 241. MO

——**affinis** STAUFFER (1938), pp. 413, 439, pl. 49, fig. 22. Holotype, B5087, Univ. Minn., Olentangy sh., loc. 111, Ohio. UO

——**alabamensis** HOLMES (1928), p. 24, pl. 9, figs. 1-2. Cotypes, 11431, USNM, Chattanooga sh., Ala.; ——— WETZEL (1933), pp. 84-86, comp. with pl. 6, figs. 23-29; ——— COOPER (1935), pp. 310-311, pl. 27, fig. 1. Fig. spm., 38051, Univ. Chi., mid. Ark. novaculite, bed 15, Ark. UD

——**alatoides** HOLMES (1928), p. 24, pl. 9, fig. 3. Holotype, 11432, USNM, Chattanooga sh., Ala.; ——— EICHENBERG (1930), p. 181, comp. with fig. 11; ——— COOPER (June 1931), pp. 146, 151, pl. 20, fig. 3, lower Woodford fm., Okla.; ——— COOPER (Sept. 1931), p. 232, comp. with *Prioniodus alatoideus;* ——— BRANSON & MEHL (July 1933d), p. 135, jr. syn. of *Prioniodus armatus;* ——— HUDDLE (1934), p. 38, comp. with *Prioniodus macrocornatus;* ——— COOPER (1935), p. 310, pl. 27, fig. 2. Fig. spm., 38052, Univ. Chi., Ark. novaculite, mid., beds 8, 15; upper, bed A, Ark.; ——— COOPER & SLOSS (1943), p. 171, pl. 29, fig. 26, black sh. base Madison gr., Mont.; ——— CAMPBELL (1946), pp. 844-845, 901, 903, Blackiston fm., Ind., ident. by Huddle; ——— BOND (1947), pp. 21, 34-35, pl. 1, figs. 5, 7. Hypotypes, 18369, 18371, Ohio Univ., lower Ohio sh., Ohio, comp. with *Prioniodus alatoideus*. UD-LMi

——**alatoideus** COOPER (Sept. 1931), p. 232, pl. 28, fig. 1, Woodford fm., Okla.; ——— HUDDLE (1934) (*altoideus* on pl.), pp. 14, 37-38, pl. 1, figs. 4-5. Plesiotypes, 1924-1925, Ind. Univ., abundant in upper New Albany sh., loc. 3; common at locs. 1 (fig. 4), 2, 6, 14 (fig. 5); rare at 8, 10; rare in mid. New Albany, loc. 20, Ind., comp. with *Prioniodus alatus* and *alatoides;* ——— COOPER (1935), p. 310, pl. 27, fig. 3. Fig. spm., 38053, Univ. Chi., Ark. novaculite, mid., bed 14; upper, bed A, Ark.; ——— COOPER (1939), pp. 404, 420, pl. 45, fig. 62; pl. 46, fig. 19. Hypotypes, 39023-39024, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), p. 171, pl. 29, figs. 6-7, 11, black sh. base Madison gr., Mont.; ——— BOND (1947), pp. 21, 34-35, pl. 1, figs. 4, 6. Hypotypes, 18368, 18370, Ohio Univ., lower Ohio sh., Ohio. UD-LMi

——? **alatus** HINDE (1879), p. 361, pl. 16, fig. 5. Holotype, A4177; paratypes (unfig.), A4266, A4167, British Mus., conodont bed, N. Y.; ——— S. A. MILLER (1883) (no ?), p. 315, signifies winged; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889) (no ?), p. 520; ——— GRABAU (1899), p. 153, fig. 33 I; ——— GRABAU & SHIMER (1910) (no ?, p. 244), p. 244, fig. 1533b; ——— BRYANT (1921) (no ?), pp. 15-16, 19, pl. 3, fig. 10; pl. 4, figs. 1-7, Genundewah ls., N. Y.; ——— GRABAU (1921), pp. 141, 432, figs. 919 left mid. fig., 1335b; ——— ULRICH & BASSLER (1926) (no ?), p. 11, pl. 1, figs. 25-26. Plesiotypes, 11242, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928) (no ?), pp. 20, 24, pl. 3, fig. 40, comp. with *Prioniodus alatoides;* ——— MATERN (1933) (no ?), pp. 13-14, comp. with *Prioniodus dillensis* and *n. sp. A.;* ——— BRANSON & MEHL (July 1933d) (no ?), p. 134, pl. 11, fig. 13, holotype fig.; ——— BRANSON & MEHL (June 1934a) (no ?) (*altus*), p. 206, comp. with *Prioniodus confluens;* ——— HUDDLE (1934) (no ?), pp. 14, 21, 37-38, pl. 1, figs. 1-3. Plesiotypes, 1921-1923, Ind. Univ., common M?D-LMi

in upper New Albany sh., loc. 1, rare at locs. 2-3, 6 (fig. 2), 8, 10 (fig. 3), 14; rare in lower New Albany at locs. 26, 32 (fig.), 33, Ind., comp. with *Prioniodus alatoideus;* ——— CHADWICK (Feb. 1935a) (no ?), pp. 312, 317; ——— CRONEIS (1938) (no ?), p. 977; ——— COOPER (1939) (no ?), pp. 404, 420, pl. 45, fig. 55; pl. 46, figs. 6, 8. Hypotypes, 39025-39027, Univ. Chi., pre-Welden sh., Okla.; ——— HASS (1943) (no ?) (*cf. alatus*), p. 308, *Prioniodus n. sp.* Knechtel & Hass (1938) is a jr. syn.; ——— BRANSON (1944) (no ?), pp. 156, 158, pl. 27, figs. 43, 46-47, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— BOND (1947) (no ?), pp. 21, 35, pl. 1, fig. 9. Hypotype, 18373, Ohio Univ., lower Ohio sh., Ohio; ——— YOUNGQUIST (1947) (no ?), p. 111, pl. 26, fig. 11. Hypotype, 4058, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa; ——— HASS (Mar. 1947) (no ?), p. 134; ——— MILLER & YOUNGQUIST (1947) (no ?), p. 516, comp. with *Prioniodus bellatulus;* ——— YOUNGQUIST, HIBBARD, & REIMANN (1948) (no ?), p. 58, pl. 14, figs. 15-16. Fig. spms., 664, 301, Hibbard coll., Buff. Mus. Sci., lower Attica sh., N. Y., Branson (1944), figs. 42, 45-46 only, ref. to this species; ——— YOUNGQUIST & MILLER (1948) (no ?), p. 449, pl. 67, figs. 1-2. Fig. spms., 5617-5618, Univ. Iowa, Sweetland Creek sh., Iowa (fig.), and Snyder Creek sh., Sylamore ss., Mo; ——— YOUNGQUIST & DOWNS (1949) (no ?), p. 169, comp. with *Prioniodus cacti;* ——— ? THOMAS (1949) (no ?), p. 411, pl. 4, fig. 35. Fig. spm., C814-1, Univ. Mo., Prospect Hill siltstone, loc. 12, Iowa.

——**alatus** HADDING (1913), pp. 32, 87, pl. 1, figs. 9-10. Fig. types, LO 2348 T, LO 2349 T, Paleont. Inst. Lund Mus., Sweden, *Dicellograptus* and *Climacograptus putillus* zones, S. Sweden; ——— ULRICH & BASSLER (1926), p. 29, classed as sr. syn. of *Euprioniodina;* ——— HOLMES (1928), pp. 10, 20. MO

——? **alpheus** STAUFFER (1938), pp. 413, 439-440, pl. 49, fig. 11. Holotype, B4785, Univ. Minn., Olentangy sh., loc. 111, Ohio. UD

——? **alternans** (HOLMES) (1928), pp. 17, 20, pl. 3, fig. 3, (*Polygnathus*).

——**altodus** HARLTON (1933), p. 12, pl. 4, fig. 2. Holotype, 85518, USNM, Johns Valley sh., S. Okla. LP

——? **amanaensis** (YOUNGQUIST) (1946), p. 394, (*Prioniodus ? peculiaris* was preocc.).

——**angulatus** HINDE (1879), p. 360, pl. 15, fig. 17. Holotype, A4180, British Mus., Genesee sh., N. Y. (fig.), Cleveland sh., Ohio; ——— S. A. MILLER (1883), p. 315; ——— CLARKE (1885b), pp. 28, 69; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), p. 151, fig. 33 D; ——— HINDE (1900), p. 343, pl. 10, figs. 18-19. Fig. spms., Geol. Surv. Scot., Edinburgh, Carboniferous ls., Lower (fig. 18), Upper (fig. 19), W. Scot.; ——— GRABAU & SHIMER (1910), p. 244, fig. 1537 h; ——— KINDLE (Feb. 1912), p. 134, Cleveland sh.; ——— PROSSER (1912) (*Prionides*), pp. 343, 836; ——— BRYANT (1921), p. 17, Hinde may have collected from Portage beds, comp. with *Prioniodus clavatus;* ——— MACFARLANE (1923a), fig. 7 n; ——— MACFARLANE (1923b), fig. 1 n; ——— ULRICH & BASSLER (1926), p. 37, sr. syn. and type species of *Hibbardella;* ——— HOLMES (1928), pp. 11, 20; ——— MACFARLANE (1931), fig. 7 n; ——— CONODONT COMMITTEE (1932), fig. 7 n; ——— BRANSON & MEHL (July 1933d), p. 141; ——— YOUNGQUIST (1947), p. 100; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 53. UD

——**aphanes** (THOMAS) (1949), p. 411, pl. 4, figs. 20, 34. Fig. spms., C817-1, Univ. Mo., English River siltstone, loc. 11 (fig. 20), Prospect Hill siltstone (fig. 34), Iowa, (? *Euprioniodina*). LMi

——**apicalis** STAUFFER (1932), pp. 258-259, pl. 40, fig. 3. Holotype, Univ. Minn., Decorah sh., Kans. MO

——**arcuatus** COOPER (Sept. 1931), p. 232, pl. 28, fig. 3. Holotype, Cooper coll., USGS, Woodford fm., Okla. UD

——**armatus** HINDE (1879), pp. 360-361, pl. 15, figs. 20-21. Cotypes, A4173, British Mus., Genesee sh., N. Y. (fig.) and Ont.; ——— S. A. MILLER (1883), p. 315; ——— CLARKE (1885b), pp. 28, 69; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GIRTY (1898), pp. 384, 386, 393, pl. on p. 395, fig. 4. Fig. spm., 114636, USNM, basal Genesee black sh., Indian Fields, Ky.; ——— GRABAU (1899), p. 152, fig. 33 F; ——— GRABAU & SHIMER (1910), p. 244, fig. 1537 f, g; ——— STAUFFER (1915), p. 108, Marcellus fm., Can.; ——— BRYANT (1921), pp. 18-19, probably occurs in Portage rather than Genesee as claimed by Hinde, comp. with *Prioniodus erraticus;* ——— GRABAU (1921), pp. 141, 432, figs. 919 mid. rt. fig., 1335 o, p; ——— T. H. CLARK (1924), p. 70, comp. with *Prioniodus tigris;* ——— NICOLAS (1925), p. 232; ——— ULRICH & BASSLER (1926), p. 12; ——— HOLMES (1928), p. 20, pl. 3, figs. 9-10; ——— GOLDRING (1929), pp. 125-126, fig. 32 C-3; ——— SAVAGE (1931), p. 235; ——— WETZEL (1933), p. 86, comp. with pl. 6, figs. 25-29; ——— BRANSON & MEHL (July 1933d), pp. 134-135, pl. 11, figs. 14, 20, *Prioniodus alatoides* and *macrocornatus* are jr. syns.; ——— CHADWICK (Feb. 1935a), p. 315. UD

——**barbatus** BRANSON & MEHL (Oct. 1934a), pp. 288-289, pl. 23, figs. 19-20. Cotypes, C393-2, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 181; ——— BRANSON & MEHL (1938d), p. 144, pl. 33, fig. 38; pl. 34, figs. 28, 32. Fig. spms., C393-2, C348-1, C350-5, Univ. Mo., Bushberg ss. (fig. 38), Chouteau ls., Mo.; ——— COOPER (1939), pp. 405, 420, pl. 46, figs. 17-18. Hypotypes, 39028-39029, Univ. Chi., pre-Welden sh., Okla.; ——— ELLISON & GRAVES (1941), pp. 3-4, pl. 1, figs. 25, 27. Hypotypes, 4783-4784, Mo. Sch. Mines, Rolla, transition zone top Dimple fm., loc. G928 (fig. 27), mid. Dimple fm., loc. G923 (fig. 25), basal transition zone, loc. G910, Tex.; ——— BRANSON (1944), pp. 181, 221, pl. 32, fig. 38, Bushberg ss., Mo.; ——— BRANSON (1944), pp. 208e, 221, pl. 39, figs. 28, 32, Chouteau ls., Mo.; ——— THOMAS (1949), p. 411, pl. 4, fig. 26. Fig. spm., C816-2, Univ. Mo., English River (fig.) and Prospect Hill siltstones, loc. 12, Iowa. LMi-LP

——**barrandei** PERNER (1894), p. 3, pl. 1, figs. 1-2, D_5 u Zdic, Czech.; ——— BRYANT (1921), p. 10; ——— ZEBERA (1935), p. 90, comp. with *Prioniodus perneri;* ——— BOUCEK (1936a), p. 295, Graptolithenschiefern der "Kolonie Lapworth"; ——— BOUCEK (1936b), p. 129; ——— ZEBERA (1936a), pp. 1, 9-10. UO

——**basilicus** YOUNGQUIST (1945), p. 365, pl. 56, figs. 13-14. Syntypes, 2954 (fig.), 2955 (five unfig. spms.), Univ. Iowa, Independence sh.?, Iowa. UD

——**bellatulus** MILLER & YOUNGQUIST (1947), p. 516, pl. 72, fig. 11. Holotype, 5580, Univ. Iowa, Sweetland Creek sh., Iowa; ——— YOUNGQUIST & MILLER (1948), p. 449, comp. with *Prioniodus alatus.* UD

——**bellulus** YOUNGQUIST (1945), p. 365, pl. 55, fig. 4. Holotype, 2956, Univ. Iowa, Independence sh.?, Iowa; ——— YOUNGQUIST & PETERSON (1947), pp. 243, 253, pl. 36, figs. 1-3. Hypotypes, 4107-4109, Univ. Iowa, Sheffield fm., Iowa. UD

——**bicurvatus** BRANSON & MEHL (June 1933c), p. 44, pl. 3, figs. 9-12. Cotypes, C156-3 (fig.), C156-4, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, figs. 9-12. MS

——**bidentatus** GUNNELL (1931b), pp. 247-248, pl. 29, fig. 6. Holotype, Gunnell coll., Univ. Mo., mid. sh. Ft. Scott fm., Mo.; ——— BRANSON & MEHL (1941e) (*bidentata*), p. 106, sr. syn. of *Metalonchodina;* ——— ELLISON (1941), p. 116; ——— BRANSON & MEHL (1944) (*bidentata*), p. 243. MP

——? **bifidus** STAUFFER (1938), pp. 413, 440, pl. 51, fig. 8. Holotype, B4842, Univ. Minn., Olentangy sh., loc. 111, Ohio. UD

——**bownockeri** STAUFFER (1938), pp. 413, 440, pl. 49, fig. 27. Holotype, B5091, Univ. Minn., Olentangy sh., locs. 110 or 116 (fig.), Ohio; Arkona beds, loc. 156, Ont.; ——— YOUNGQUIST (1945), p. 365, comp. with *Prioniodus basilicus.* M-UD

——**buchenbergensis** MATERN (1933), p. 13, fig. 7. Holotype, Preuss. Geol. Landest., Germ., Wetzschiefer bei Osterode, Harz, Germ. LMi

——**bulbosus** ELLISON (1941), pp. 108-111, 114, pl. 20, figs. 4-7. Holotype, C554-2 (figs. 5-7); paratype, C142-1 (fig. 4), Univ. Mo., Cherokee through Heebner sh., locs. 716, 0001, 0043 (fig. 4), 0084, 0094, 0103, 0107 (figs. 5-7), 0116, 0132, 0140, 0144, 0148-0149, 0155, 0158, 1274, 1362, 1367, Mo. and Kans., comp. with *Prioniodus conjunctus;* ——— BRANSON (1944), p. 327. M-UP

——**cacti** GUNNELL (1933), pp. 263, 265, 267, pl. 31, figs. 4-5. Fig. type, Gunnell coll. 5, Univ. Mo., Cherokee sh., Mo., comp. with *Prioniodus dactylodus* and *?galesburgensis;* ——— ELLISON (1941), p. 113, jr. syn. of *Prioniodus conjunctus;* ——— YOUNGQUIST & DOWNS (1949), pp. 161, 169, pl. 30, figs. 16-17. Fig. spms., 14043-14044, Univ. Iowa, sh. ¾ mi. NW of Knoxville, Iowa, comp. with *Prioniodus alatus. Prioniodus sp.* Gunnell (1933), pl. 32, fig. 32 and *Prioniodus conjunctus* Ellison (1941) (pt.), pl. 20, figs. 1-3, 16 are jr. syns.; ——— STURGEON & YOUNGQUIST (1949) (*aff. cacti*), pp. 381, 385, pl. 74, fig. 12. Fig. spm., 19653, Ohio Univ., Allegheny fm., Hamden ls., Ohio. MP

——**calcaratus** STAUFFER (1930), pp. 126-127, pl. 10, fig. 13. Holotype, 5444, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER (1932), pp. 258-259, pl. 40, fig. 4. Fig. spm., Univ. Minn., Decorah sh., Kans.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**carinatus** PANDER (1856), pp. 5-6, 30, Tab. A to p. 20, fig. 8; pl. 2, fig. 25, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL & ROHON (1886), p. 131, comp. with *Staurocephalus rubrovittatus* Ehlers (1868), a scolecodont; ——— ZITTEL (1890), p. 59, fig. 52b; ——— HOLMES (1928) (*? carinatus*), p. 20, pl. 3, fig. 2, Pander's fig. LO

——**cassilaris** BRANSON & MEHL (1941b), p. 186, pl. 6, figs. 11-12, 15-17. Holotype, C575-3 (figs. 11-12); paratypes, C578-3 (fig. 15), C575-2, Univ. Mo., Keokuk ls., Mo.; ——— BRANSON (1944), p. 240. MMi

——**choneutus** COOPER (1939), p. 405, pl. 46, figs. 1-2. Holotype, 39030; paratype, 39031, Univ. Chi., pre-Welden sh., Okla. LMi

——**clarki** GUNNELL (1931b), p. 247, pl. 29, fig. 8. Holotype, Gunnell coll., Univ. Mo., mid. sh. of Fort Scott fm., Mo.; ——— STAUFFER & PLUMMER (1932), pp. 25, 27, pl. 3, figs. 27-28. Fig. spm., 19108, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, A, Tex.; ——— GUNNELL (1933), p. 265; ——— ELLISON (1941), p. 116, sr. syn. of *Lonchodina.* MP

——**clavatus** HINDE (1879), p. 360, pl. 15, fig. 16. Holotype, A4186, British Mus., conodont bed, N. Y.; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), p. 151, fig. 33 C; ——— GRABAU (1899a), p. 326; ——— GRABAU & SHIMER (1910), p. 244, fig. 1537b; ——— BRYANT (1921), pp. 16-17, pl. 6, figs. 3, 6, rare in conodont bed, N. Y., comp. with *Prioniodus angulatus;* ——— HOLMES (1928), pp. 13, 20, sr. syn. of *Lonchodina;* ——— BRANSON & MEHL (July 1933d), p. 137; ——— YOUNGQUIST (1947), p. 106. UD

——**coalescens** BRANSON & MEHL (June 1934a), p. 208, perhaps *confluens* was meant, comp. with *Prioniodus mutabilis,* (*nomen nudum*).

——**colligatus** BRYANT (1921), p. 17, pl. 3, figs. 1-2, 4; pl. 5, figs. 6, 10; pl. 6, fig. 8; pl. 7, figs. 2, 6, common in conodont bed, N. Y.; ——— ULRICH & BASSLER (1926), p. 53, sr. syn. of *Polygnathellus;* ——— HOLMES (1928), pp. 16, 20; ——— SAVAGE (1930) (*cf. colligatus*), pp. 17, 73, basal New Albany sh., Ky.; ——— YOUNGQUIST (1947), p. 99, comp. with *Ctenognathus falsiformis.* UD

——**complex** HINDE (1900), p. 344, pl. 10, fig. 24. Holotype, Geol. Surv. Scot., Edinburgh, Upper Carboniferous ls., W. Scot.; ——— HOLMES (1928), p. 20, pl. 3, fig. 32. MMi

——**compressus** MEHL & THOMAS (1947), pp. 15-16, pl. 1, fig. 24. Holotype, C658-3, Univ. Mo., Fern Glen fm., Mo. MMi

——**concavus** ULRICH & BASSLER (1926), p. 10, pl. 9, fig. 11. Holotype, 11036, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 20; ——— COOPER (1939), pp. 405, 420, pl. 46, fig. 12. Hypotype, 39032, Univ. Chi., pre-Welden sh., Okla. UD-LMi

——? **conflexus** ELLISON (1941), pp. 110-111, 114, pl. 20, fig. 25. Holotype, C128-1, Univ. UP-LPm

Mo., Deer Creek ls. through Hughes Creek sh., locs. 0028 (fig.), 0043, Kans., *Euprioniodina ? sp.* Gunnell (1933), pl. 33, fig. 24 is a sr. syn.; ——— BRANSON (1944), p. 327; ——— COOPER (1947b), pp. 267, 269.

——confluens BRANSON & MEHL (June 1934a), p. 206, pl. 15, figs. 6-7. Cotypes, C365-5, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON & MEHL (Oct. 1934a), p. 289, comp. with *Prioniodus barbatus;* ——— ELLISON (1941), p. 114, comp. with *Prioniodus conjunctus;* ——— BRANSON (1944), p. 166; ——— YOUNGQUIST & MILLER (1948), p. 449, comp. with *Prioniodus alatus.* UD

——conjunctus GUNNELL (1931b), p. 247, pl. 29, fig. 7. Holotype, Gunnell coll., Univ. Mo., mid. sh. of Fort Scott fm., Mo.; ——— ELLISON (1941), pp. 108-111, 113-114, pl. 20, figs. 1-3, 16. Holotype, C485-2; hypotypes, C554-1 (figs. 1-3), C562-1 to 2, C490-1 to 2 (G), C509-5 (G), C136-1 (fig. 16), Univ. Mo., Cherokee through Heebner sh., locs. 389, 672, 680, 682, 716, 0001, 0081, 0084, 0094, 0103, 0107, 0110-0111, 0116, 0117 or 0017 (fig. 16), 0118, 0123, 0132, 0140, 0144, 0148-0149, 0155, 0158, 0161, 0175-0176, 1038, 1266, 1273, 1283-1284, 1346-51, 1362 (figs. 1-3), 1367, Mo., comp. with *Prioniodus bulbosus* and *confluens. Prioniodus cacti* and *Prioniodus sp.* Gunnell (1933), pl. 32, fig. 32 are jr. syns.; ——— BRANSON (1944), p. 327; ——— YOUNGQUIST & DOWNS (1949), p. 169, Ellison's and Branson's refs. (in pt.) may be jr. syns. of *Prioniodus cacti.* M-UP

——corniger E. R. BRANSON (1934), p. 329, pl. 28, fig. 2. Holotype, C211-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d) (p. 143 *corniger?*), pp. 133, 143, pl. 33, fig. 21; pl. 34, fig. 19. Fig. spms., C211-5, C353-4, Univ. Mo., Hannibal fm. (fig. 21), Chouteau ls. (fig. 19), Mo.; ——— BRANSON & MEHL (1944), p. 241, pl. 93, fig. 54; ——— BRANSON (1944) (*corniger?*, p. 208e), pp. 181, 208e, 221, pl. 32, fig. 21; pl. 39, fig. 19; ——— MEHL & THOMAS (1947), pp. 7, 16, pl. 1, fig. 23. Fig. spm., C659-5, Univ. Mo., Fern Glen fm., Mo.; ——— THOMAS (1949), p. 411, pl. 4, fig. 27. Fig. spm., C805-3, Univ. Mo., English River and Prospect Hill (fig.) siltstones, loc. 2, Iowa. L-MMi

——cornutus STAUFFER (1930), p. 127, pl. 10, fig. 15. Holotype, 5445, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——cornutus STAUFFER & PLUMMER (1932), pp. 25, 27, pl. 3, fig. 23. Holotype, 19109, Bur. Econ. Geol. Mus., Tex., Graford fm., loc 214-T-25, Tex.; ——— ELLISON (1941), p. 116, jr. hom. of Stauffer (1930) and jr. syn. of *Lonchodina clarki.* MP

——? crebratus STAUFFER (1932), pp. 259-260, pl. 40, fig. 5. Holotype, Univ. Minn., Decorah sh., Kans. MO

——cristatus BRYANT (1921), p. 20, pl. 3, fig. 9; pl. 6, fig. 7, conodont bed, N. Y.; ——— ULRICH & BASSLER (1926), p. 21, sr. syn. of *Bryantodus;* ——— HOLMES (1928), pp. 6, 20. UD

——cristulus STAUFFER (1930), p. 128, pl. 10, fig. 19. Holotype, 5447, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER (1932), pp. 259-260, pl. 40, fig. 6. Fig. spm., Univ. Minn., Decorah sh., Kans.; ——— STAUFFER (1935b), p. 616, pl. 73, figs. 48-49, 57-58. Fig. spms., B4622-B4623, B4631-B4632, Univ. Minn., Decorah sh., Minn., Spechts Ferry memb., Iowa, locs. 5-7, 10, 15-16, 19, 24, 27, 37, 40, 47, 52, 67, 70-71, 78-79, 86, 88, 91-92, 94 (fig.), 95; ——— LOOMIS (Oct. 1936), p. 664; ——— STAUFFER & THIEL (1941) (*cristalus* p. 238), pp. 238, 241. MO

——cultellatus STAUFFER (1930), p. 126, pl. 10, fig. 11. Holotype, 5441, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER (1932), pp. 259-260, pl. 40, figs. 8-9. Fig. spms., Univ. Minn., Decorah sh., Kans.; ——— STAUFFER & THIEL (1941), p. 241. MO

——cultratus ULRICH & BASSLER (1926), p. 9, pl. 9, fig. 7. Holotype, 11038, USNM, Hardin ss., Tenn.; ——— BUTTS (1926) (*cultrata*), p. 160, pl. 48, fig. 11, after Holmes (1928) unpub.; ——— HOLMES (1928), pp. 20, 24, pl. 9, fig. 4. Plesiotype, 11433, USNM, Chattanooga sh. (fig.), Ala., Hardin ss., Tenn.; ——— COOPER (June 1931) (*culturatus*), pp. 146, 151, pl. 20, fig. 2, lower Woodford fm., Okla.; ——— COOPER (1935) (*culturatus*), p. 310, pl. 27, fig. 4. Fig. spm., 38054, Univ. Chi., mid. Ark. novaculite, beds 8?, 13, Ark.; ——— COOPER (1939) (*culturatus*), pp. 405, 420, pl. 45, fig. 64. Hypotype, 39033 (39035 on pl.), Univ. Chi., pre-Welden sh., Okla.; ——— BOND (1947), pp. 21, 35, pl. 1, fig. 8. Hypotype, 18372, Ohio Univ., lower Ohio sh., Ohio. UD-LMi

——curtus HIBBARD (1927), pp. 196-197, fig. 3 g. Holotype, 214, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——curvatus SMITH (1907), p. 249, pl. 8, fig. 40. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo grs., Scot.; ——— ULRICH & BASSLER (1926), p. 29, sr. syn. of *Euprioniodina;* ——— HOLMES (1928), pp. 10, 20. MO

——curvatus COOPER (1935), pp. 310-313, pl. 27, fig. 5. Holotype, 38055, Univ. Chi., upper Ark. novaculite, bed A, Ark. LMi

——curvidens ULRICH & BASSLER (1926), pp. 11-12, pl. 1, figs. 16-17. Cotypes, 11243, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 20; ——— CHADWICK (Feb. 1935a), p. 315. UD

——dactylodus GUNNELL (1933), pp. 263, 265, 267, pl. 31, fig. 1. Holotype, Gunnell coll. 4, Univ. Mo., Cherokee sh., Mo., Comp. with *Prioniodus cacti;* ——— BRANSON & MEHL (1941e), p. 106, jr. syn. of *Metalonchodina bidentata;* ——— ELLISON (1941), p. 116. MP

——? deflectus BRANSON & MEHL (June 1933c), p. 45, pl. 3, figs. 14-15. Cotypes, C155-2, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, figs. 14-15. MS

——? dentatus STAUFFER (1932), pp. 259-260, pl. 40, fig. 10. Holotype, Univ. Minn., Decorah sh., Kans. MO

——desideratus PARKS (1928), p. 43, Utica fm., Collingwood memb., Ottawa, Can. Parks lists Ami's name after this species, but I have been unable to locate the original article. UO

——dilatus BRYANT (1921), p. 20, pl. 7, figs. 3-4, 11, rare in conodont bed, N. Y.; ——— HOLMES (1928) (*dilata*), p. 20; ——— CHADWICK (Feb. 1935a), p. 311. UD

——**dillensis** MATERN (1933), pp. 13-14, fig. 8. Holotype, XVI 2a, Senckenberg Mus., Frankfurt a. M., Germ., Nehdener Schichten to II, Oberscheld, Germ., comp. with *Prioniodus n. sp. A* Matern (1933). UD

——**discedens** HADDING (1913), pp. 32, 87, pl. 1, fig. 11. Holotype, Paleo. Inst. Lund. Mus., Sweden (specimen lost), *Climacograptus putillus* and *Dicellograptus* zones, loc. E 15, S Sweden; ——— ULRICH & BASSLER (1926), p. 29, sr. syn. of *Euprioniodina;* ——— HOLMES (1928), pp. 10, 20. MO

——**disparilis** ULRICH & BASSLER (1926), p. 10, pl. 9, fig. 12. Holotype, 11030, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 21; ——— BASSLER (1932), p. 234, pl. 26, fig. 3; ——— MATERN (1933), pp. 13-14, comp. with *Prioniodus dillensis* and *n. sp. A.* UD

——**dorceus** T. H. CLARK (1924), pp. 59, 68-69, pl. 6, fig. 3. Holotype, 1003, Harvard Mus. Comp. Anat., Levis fm., Shumardia ls., Quebec; ——— HOLMES (1928) (*dorcens*), p. 21, pl. 3, fig. 33, spiny terminal fragment of a trilobite. LO

——**dychei** JAMES (1884), p. 148, pl. 7, figs. A, C, Maysville gr., Ohio, probably an annelid jaw; ——— BASSLER (1915), pp. 1034, 1475; ——— HOLMES (1928), p. 21. UO

——**elegans** PANDER (1856) (*elegans ?* fig. C), pp. 5-7, 29-30, pl. 2, figs. 22-23, Tab. A to p. 20, fig. C, Glaukonitsand, Baltic Provinces, Russ., comp. with *Prioniodus volborthii.* Type species for genus; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HINDE (1879), p. 358, pl. 15, fig. 10. Fig. spm., A4327, British Mus., Cincinnati gr., Ont.; ——— NICHOLSON (1879), p. 121, figs. 493 C-D, Pander's figs. 22a and C resp.; ——— S. A. MILLER (1883), p. 315; ——— ZITTEL & ROHON (1886) (*elegans?* p. 132), pp. 119, 132-133, fig. C, Pander's fig. C; ——— NICHOLSON & LYDEKKER (1889), p. 921, figs. 847 C-D, Pander's figs. 22a, C resp.; ——— S. A. MILLER (1889), p. 520; ——— ZITTEL (1890) (*elegans?* p. 58), pp. 58-59, figs. 50 C (not 50b or E), 52 a, Pander's figs. C and 22a resp.; ——— GÜRICH (1900), p. 356, comp. with Genus *a;* ——— ZITTEL (1900), p. 255, fig. 408 C, Pander's fig. 22a; ——— STEINMANN (1903), p. 331, fig. 586 B, Pander's fig. 22a; ——— GRABAU & SHIMER (1910), p. 244, fig. 1538 d, Hinde's fig.; ——— ZITTEL (1910), p. 247, fig. 439 c, Pander's fig. 22a; ——— ZITTEL (1913), p. 140, fig. 223 C, Pander's fig. 22a; ——— BASSLER (1915), pp. 1034, 1475; ——— PARKS & FRITZ (1923), pp. 36-37, pl. 6, fig. 24, Hinde's fig.; ——— W. WETZEL (1923), p. 62, comp. with Geschiebefeuerstein forms (Cret.) of N France to Poland; ——— ZITTEL (1924), p. 288, fig. 457 c, Pander's fig. 22a; ——— T. H. CLARK (1924), p. 70, comp. with *Prioniodus tigris;* ——— ULRICH & BASSLER (1926), p. 8, fig. 3, subfig. 1, Pander's figs. 22a-b resp. from left to rt.; ——— ROUNDY (1926), p. 10, pl. 4, figs. 3a-4, Pander's figs.; ——— HOLMES (1928), pp. 20-21, pl. 3, figs. 4-7. Pander's figs. 22a-23 (figs. 4-6), Hinde's fig. (fig. 7) resp.; ——— MOODIE (1929), p. 21, fig. 10, subfig. 1, Pander's figs. 22a-b, from left to rt. resp.; ——— WETZEL (1933), pp. 84-85, comp. with pl. 6, figs. 21-24; ——— BRANSON & MEHL (July 1933c-d), pp. 129, 153, Hinde's ref. is sr. syn. of *Cordylodus;* ——— HUDDLE (1934) (*eleganus*), p. 37; ——— ÖPIK (1936), pp. 105, 107, fig. 57, Glaukonitsand, Narwa, Estonia; ——— BRANSON & MEHL (1944), p. 241, pl. 93, fig. 53, fig. topotype; ——— GLAESSNER (1945), p. 27, fig. 3, subfig. 1, Pander's figs. 22a-b resp. from left to rt. LO

——**englyphus** COOPER (1939), p. 405, pl. 46, fig. 13. Holotype, 39035, Univ. Chi., pre-Welden sh., Okla. LMi

——**equalis** SMITH (1907), p. 249, pl. 8, figs. 38-39. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo grs., S Uplands, Scot.; ——— HOLMES (1928), p. 21, pl. 3, figs. 23-24; ——— MATERN (1933), p. 14, comp. with *? Prioniodus sp.* MO

——**erraticus** HINDE (1879), p. 359, pl. 15, fig. 14. Holotype, A4187, British Mus., conodont bed, N. Y. (fig.), Cleveland sh., Ohio; ——— S. A. MILLER (1883), p. 315; ——— CLARKE (1885a), p. 20; ——— CLARKE (1885b), pp. 38, 40, 69; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), p. 150, fig. 33 A; ——— GRABAU (1899a), p. 326; ——— CLARKE & LUTHER (1904), p. 62, Rhinestreet sh., N. Y.; ——— CLARKE (1904), pp. 357-358, 360, Middlesex black sh., N. Y.; ——— LUTHER (1906), p. 46; ——— CLARKE & LUTHER (1908), p. 56; ——— GRABAU & SHIMER (1910), p. 244, fig. 1537 c; ——— LUTHER (1911), p. 20; ——— KINDLE (Feb. 1912), p. 134, Cleveland sh.; ——— PROSSER (1912) (*Prionides*), pp. 343, 836; ——— BRYANT (1921), pp. 17, 19, pl. 2, fig. 10; pl. 7, fig. 1, conodont bed, N. Y., comp. with *Prioniodus armatus;* ——— HOLMES (1928), pp. 13, 21, sr. syn. of *Lonchodina;* ——— BRANSON & MEHL (July 1933d), p. 136; ——— RUEDEMANN (Nov. 1934), p. 57. UD

——**excavatus** BRANSON & MEHL (June 1933c), p. 45, pl. 3, figs. 7-8. Cotypes, C155-3, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, figs. 7-8. MS

——**expolitus** HIBBARD (1927), pp. 197, 201, fig. 1 d. Holotype, 281, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y., comp. with *Ligonodina nitida;* ——— COOPER (1933a) (*expolitis*), p. 210, reverse side of *Ligonodina pectinata;* ——— ZEBERA (1936a), p. 6, fig. 4 rt. UD

——**flaccidus** HIBBARD (1927), p. 195, fig. 2 g. Holotype, 225 A, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——? **flexuosus** BRANSON & MEHL (July 1933c), p. 130, pl. 10, fig. 16. Cotypes, C126-4, Univ. Mo., Maquoketa sh., Mo.; ——— GRAVES & ELLISON (1941), pp. 4, 7, pl. 1, fig. 27. Hypotype, 1364, Mo. Sch. Mines, Rolla, upper Marathon fm., loc. G231, Tex.; ——— BRANSON (1944), p. 98. L-UO

——**furcatus** HINDE (1879), p. 358, pl. 15, fig. 13. Holotype, A4329, British Mus., Cincinnati gr., Ont.; ——— S. A. MILLER (1883), p. 315, means forked; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— AMI (1900), p. 151; ——— BASSLER (1915), pp. 1034, 1475; ——— TRUSTEES BRITISH MUS. (1922), p. 60, fig. 56 center; ——— PARKS & FRITZ (1923), p. 37, pl. 6, fig. 25; ——— UO

ULRICH & BASSLER (1926), p. 29, classed as sr. syn. of *Euprioniodina;* ——— HOLMES (1928), pp. 10, 21; ——— BRANSON & MEHL (July 1933d), p. 155, sr. syn. of *Dichognathus.*

——? **galesburgensis** GUNNELL (1933), pp. 263, 267, pl. 31, fig. 12. Holotype, Gunnell coll. 6, Univ. Mo., Galesburg sh., Mo.; ——— ELLISON (1941), p. 115, jr. syn. of *Ligonodina typa.* UP

——**geminus** HINDE (1900), p. 344, pl. 10, fig. 25. Holotype, Geol. Surv. Scot., Edinburgh, Upper Carboniferous ls., W Scot.; ——— ULRICH & BASSLER (1926), p. 18, sr. syn. of *Prioniodina;* ——— HOLMES (1928), pp. 19, 21. MMi

——**grandis** HIBBARD (1927), p. 191, fig. 1 h. Holotype, 226, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——**hamatus** BRYANT (1921), p. 15, pl. 2, figs. 5-6, 8, 11; text fig. 5, conodont bed, N. Y.; ——— HOLMES (1928), p. 21; ——— CHADWICK (Feb. 1935a), p. 311. UD

——**healdi** ROUNDY (1926), p. 10, pl. 4, figs. 5a-b. Holotype, 115073, USNM, Barnett sh., locs. 2613E, 2688 (fig.), Tex.; ——— HOLMES (1928), p. 21. MMi

——**hercynicus** EICHENBERG (1930), p. 181, pl. opp. p. 178, figs. 1-30. I designate fig. 10 on p. 179 as the holotype, and place this into synonymy (jr. syn.) under *Prioniodus undosus.* Wetzschiefer, lower Culm, Sösetalsperre, Harz Mts., Germ., comp. figs. 1-3 with various spp. of *Prioniodus* of Pander, 4-9 with *Lonchodus* of Pander and *Hindeodella* of Ulrich & Bassler, 10 with *Prioniodus undosus,* 11 with *Prioniodus peracutus,* 12-15 with *Bryantodus,* 17-18 with *Polygnathus dubius* Hinde (1879), figs. 16-17; 23, 27-28 with *Ancyrodella nodosa,* 25-26 with *Polygnathus pennatulus,* 9 with *Hindeodella subtilis,* 11 with *Prioniodus alatoides;* ——— SCHMIDT (1934), p. 84; ——— ZEBERA (1936a) (*Polygnathus*), p. 4; ——— ZEBERA (1936b) (*Polygnathus*), p. 192; ——— BRANSON & MEHL (1941c) (*hercyincus*), pp. 193-194, Eichenberg's figs. 16, 19-22 should be *Scaliognathus,* 24, 26 are close to *Gnathodus,* others should be referred to *Polygnathus, Prioniodus,* and *Hindeodella.* LMi

——**idoneus** STAUFFER (1938), pp. 413, 440, pl. 49, fig. 19. Holotype, B5093, Univ. Minn., Olentangy sh., loc. 111, Ohio. UD

——**immersus** (BRYANT) (1921), p. 19, pl. 6, fig. 2, conodont bed, N. Y., (*Polygnathus*); ——— (HOLMES) (1928), pp. 6, 21, classed as sr. syn. of *Bryantodus;* ——— (BRANSON & MEHL) (July 1933d), p. 140, uncertain as to genus. UD

——**imperator** T. H. CLARK (1924), p. 68, comp. with *Prioniodus theron.*

——**inequalis** ULRICH & BASSLER (1926), p. 10, pl. 9, fig. 6. Holotype, 11034, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 21. UD

——**inflatus** SMITH (1907), p. 249, pl. 8, fig. 36. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo grs., S Uplands, Scot.; ——— HOLMES (1928), p. 21, pl. 3, fig. 25. MO

——**inutilis** ULRICH & BASSLER (1926), p. 11, pl. 1, fig. 23. Holotype, 11241, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 21; ——— CHADWICK (Feb. 1935a), p. 315. UD

——**irregularis** HIBBARD (1927), p. 196, fig. 1 b. Holotype, 8, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——**kansasensis** STAUFFER (1932), pp. 259, 261, pl. 40, fig. 11. Holotype, Univ. Minn., Decorah sh., Kans. MO

——**lanceolatus** ULRICH & BASSLER (1926), p. 29, perhaps *Polygnathus* was meant, sr. syn. of *Euprioniodina.*

——**lelaps** T. H. CLARK (1924), pp. 59, 69-70, pl. 6, fig. 4. Holotype, 1004, Harvard Mus. Comp. Anat., Levis fm., Shumardia ls., Quebec, comp. with *Prioniodus pamphagus;* ——— HOLMES (1928), p. 21, pl. 3, fig. 27, Clark's fig. is same as *Prioniodus pamphagus* and is an annelid jaw; ——— WETZEL (1940), p. 74, comp. with Form II. LO

——**lexingtonensis** GUNNELL (1931b), pp. 246-247, pl. 29, fig. 4. Holotype, Gunnell coll., Univ. Mo., mid. sh. Fort Scott fm., Mo., comp. with *Prioniodus tridentatus* and *missouriensis;* ——— GUNNELL (1933), p. 265; ——— ELLISON (1941), p. 115, sr. syn. of *Ligonodina.* MP

——**leyrus** COOPER (1939), p. 405, pl. 45, fig. 54. Holotype, 39036, Univ. Chi., pre-Welden sh., Okla. LMi

——**liratus** STAUFFER (1935a), pp. 153, 160, pl. 10, fig. 8. Holotype, B4323, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 616, pl. 72, fig. 38. Fig. spm., B4553, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 94, Minn.; ——— STAUFFER & THIEL (1941), pp. 241, 245. MO

——**longidentatus** STAUFFER (1938), pp. 413, 441, pl. 49, fig. 16. Holotype, B5090, Univ. Minn., Olentangy sh., locs. 110, 120 (fig.), Ohio, comp. with *Prioniodus sp.* Stauffer (1938). UD

——**macconochii** SMITH (1907), pp. 249-250, pl. 8, figs. 41-42. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo grs., S Uplands, Scot.; ——— HOLMES (1928), p. 21, pl. 3, figs. 28-29; ——— MATERN (1933), p. 14, comp. with *?Prioniodus sp.* Matern (1933). MO

——**macrocornatus** COOPER (Sept. 1931), p. 232, pl. 28, fig. 2. Holotype, Cooper coll., USGS, Woodford fm., Okla.; ——— BRANSON & MEHL (July 1933d), p. 135, jr. syn. of *Prioniodus armatus;* ——— HUDDLE (1934), pp. 14, 38, pl. 1, fig. 6. Plesiotype, 1920, Ind. Univ., rare in mid. New Albany sh., loc. 20, Ind., comp. with *Prioniodus alatoides.* UD

——**macrodentatus** BRYANT (1921), p. 18, pl. 8, fig. 10, conodont bed, N. Y.; ——— ULRICH & BASSLER (1926), p. 21, sr. syn. of *Bryantodus;* ——— HOLMES (1928), pp. 7, 21. UD

——? **macrodentatus** STAUFFER (1930) (*Prioniodina?* on pl.), p. 128, pl. 10, fig. 18. Holotype, 5446, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**magnus** COOPER (1939), p. 405, pl. 47, fig. 64. Holotype, 39034, Univ. Chi., pre-Welden sh., Okla. LMi

——? **masculus** YOUNGQUIST (1945), p. 366, pl. 54, fig. 14. Syntypes 2957 (fig.), 2958 (four unfig.), Univ. Iowa, Independence sh.?, Iowa. UD

——**melampus** T. H. CLARK (1924), pp. 59, 68, pl. 6, fig. 2. Holotype, 1002, Harvard Mus. Comp. Anat., Levis fm., Shumardia ls., LO

Quebec; ——— HOLMES (1928), p. 21, pl. 3, fig. 36, Clark's fig. is a spiny terminal fragment of a trilobite.

——**minutus** BRANSON & MEHL (June 1933c), p. 44, pl. 3, fig. 13. Holotype, C156-2, Univ. Mo., Bainbridge fm., Mo.; ——— BRANSON (1944), pp. 97, 110, pl. 16, fig. 13. MS

——**missouriensis** GUNNELL (1931b), pp. 246-247, pl. 29, fig. 9. Holotype, Gunnell coll., Univ. Mo., mid. sh. Fort Scott fm., Mo., comp. with *Prioniodus tridentatus* and *lexingtonensis;* ——— STAUFFER & PLUMMER (1932) (*missouriensis?*), pp. 25, 27, Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, B, Tex.; ——— GUNNELL (1933), p. 265; ——— ELLISON (1941), p. 118, jr. syn. of *Hibbardella subacoda;* ——— YOUNGQUIST & HEEZEN (1948), p. 768. MP

——**molestus** BRANSON & MEHL (June 1934a), p. 207, pl. 15, fig. 8. Holotype, C238-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 166; ——— THOMAS (1949), p. 408, pl. 1, fig. 28. Fig. spm., C803-3, Univ. Mo., Maple Mill sh., loc. 9, Iowa. UD

——**mundus** HIBBARD (1927), p. 193, figs. 1 e-f. Cotypes, 35, 282, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y., comp. with *Prioniodus pinguis;* ——— HIBBARD (1928), p. 117, fig. 6; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 55, sr. syn. of *Ligonodina.* UD

——**muricatus** BRYANT (1921), p. 18, pl. 5, fig. 7, conodont bed, N. Y.; ——— HOLMES (1928), pp. 7, 21, sr. syn. of *Bryantodus.* UD

——**mutabilis** BRANSON & MEHL (June 1934a), pp. 207-208, pl. 15, figs. 1-2. Cotypes, C366-2, Univ. Mo., Grassy Creek sh., Mo.; ——— COOPER (1939), pp. 405, 420, pl. 45, fig. 52. Hypotype, 39037, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 166. UD-LMi

——**nasutus** (BRYANT) (1921), p. 19, may be Portage, (*Polygnathus*); ——— (HOLMES) (1928), pp. 21, 23, classed as sr. syn. of *Synprioniodina.* UD

——**nothus** BRANSON & MEHL (1938d), pp. 142-143, pl. 34, fig. 30. Holotype, C33-3, Univ. Mo., Chouteau ls., Mo.; ——— BRANSON (1944), pp. 208e, 221, pl. 39, fig. 30. LMi

——? **oblatus** GRABAU (1899a), p. 326, (*nomen nudum*).

——? **obliquus** STAUFFER (1930), p. 123, pl. 10, figs. 3-4. Cotypes, 5433-5434, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER (1932), p. 259, Decorah sh., Kans.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**obsoletus** HIBBARD (1927), p. 199, fig. 2 d. Holotype, 270, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——**obtusidens** COOPER (1935), p. 313, pl. 27, fig. 6. Holotype, 38056, Univ. Chi., mid. Ark. novaculite, bed 13, Ark.; ——— COOPER (1935), p. 310. UD

——**obtusus** BRYANT (1921), p. 20, pl. 3, fig. 6; pl. 6, fig. 1, rare in conodont bed, N. Y.; ——— ULRICH & BASSLER (1926), p. 21, sr. syn. of *Bryantodus;* ——— HOLMES (1928), pp. 7, 21. UD

——**obtusus** COOPER (Sept. 1931), pp. 232-233, pl. 28, fig. 4. Holotype, Cooper coll., USGS, Woodford fm., Okla. UD

——**obtusus** BRANSON & MEHL (June 1934a), p. 205, pl. 15, figs. 4-5. Cotypes, C365-4, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON & MEHL (June 1934a), p. 208, comp. with *Prioniodus tortus;* ——— BRANSON & MEHL (Oct. 1934a), p. 288, comp. with *Prioniodus recurvus;* ——— BRANSON (1944), p. 166; ——— THOMAS (1949), p. 408, pl. 1, figs. 1, 7. Fig. spms., C826-1, C832-1, Univ. Mo., Maple Mill sh., loc. 9, Iowa. UD

——**oligus** COOPER (1939), pp. 405, 420, pl. 46, figs. 9-11, 63, 71; pl. 47, figs. 20-21. Holotype, 39041 (fig. 63); paratypes, 39038-39040, 39042 (unfig.), 39043-39044 (figs. 20-21), Univ. Chi., pre-Welden sh., Okla., *Prioniodus sp. B.* Roundy (1926) is a sr. syn. LMi

——**orthus** COOPER (1939), p. 405, pl. 45, fig. 53. Holotype, 39047, Univ. Chi., pre-Welden sh., Okla. LMi

——**pamphagus** T. H. CLARK (1924), pp. 59, 70, pl. 6, fig. 6. Holotype, 1006, Harvard Mus. Comp. Anat., Levis fm., loc. C, Quebec; ——— HOLMES (1928), p. 21, pl. 3, fig. 31, Clark's fig. same as *Prioniodus lelaps* and is an annelid jaw; ——— RUEDEMANN (Nov. 1934), p. 11. LO

——**panderi** HINDE (1879), p. 361, pl. 16, fig. 4. Holotype, British Mus., cannot be found, conodont bed, N. Y. (fig.), Genesee sh., Ont.; ——— S. A. MILLER (1883), p. 315; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889), p. 520; ——— GRABAU (1899), p. 152, fig. 33 H; ——— GRABAU (1899a), p. 326; ——— GRABAU & SHIMER (1910), p. 244, fig. 1533a; ——— STAUFFER (1915), pp. 184, 227-228; ——— GRABAU (1921), p. 432, fig. 1335 a; ——— NICOLAS (1925), p. 232; ——— ULRICH & BASSLER (1926), p. 13, sr. syn. of *Ligonodina;* ——— HOLMES (1928) (*Prionodus*), pp. 12, 21; ——— GOLDRING (1929), pp. 125-126, fig. 32 C-2; ——— CALEY (1943) (*Prioniodes*, p. 63), pp. 61, 63; ——— CALEY (1946) (*ponderi*, p. 47), pp. 47, 49, from type Kettle Pt. beds. UD

——**parvidentatus** ULRICH & BASSLER (1926), pp. 9-10, pl. 9, fig. 1. Holotype, 11033, USNM, Hardin ss., Tenn., comp. with *Prioniodus reversus;* ——— HOLMES (1928), p. 21; ——— BASSLER (1932), p. 234, pl. 26, fig. 2. UD

——**parvulus** BRYANT (1921), pp. 20-21, pl. 9, 8 figs., upper Genundewah ls., N. Y.; ——— ULRICH & BASSLER (1926), p. 21, sr. syn. of *Bryantodus;* ——— HOLMES (1928), pp. 7, 21. UD

——**parvus** COOPER (1935), p. 313, pl. 27, fig. 7. Holotype, 38057, Univ. Chi., mid. Ark. novaculite, bed 13, Ark.; ——— COOPER (1935), p. 310. UD

——**patulus** HIBBARD (1927), p. 193, fig. 2 f. Holotype, 321, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——**pauperatus** (HOLMES) (1928), pp. 18, 21, pl. 3, fig. 34, (*Polygnathus*).

——**peculiaris** BRANSON & MEHL (Oct. 1934a), pp. 287-288, pl. 23, fig. 15. Holotype, C394-2, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 181; ——— BRANSON & MEHL (1938d), p. 143, pl. 34, fig. 31. Fig. spm., C32-2, Univ. Mo., Chouteau ls., Mo.; ——— COOPER (1939), pp. 406, 420, pl. 45, fig. 63. Hypotype, 39045, Univ. Chi., pre-Welden sh., Okla.; ——— ELLISON (1941), p. 114, comp. with *Prioniodus bulbosus;* LMi

——— BRANSON (1944), pp. 208e, 222, pl. 39, fig. 31.

——? **peculiaris** YOUNGQUIST (1945), p. 366, pl. 55, fig. 11. Holotype, 2959, Univ. Iowa, Independence sh.?, Iowa; ——— YOUNGQUIST (1946), p. 394, jr. hom. of Branson & Mehl (Oct. 1934a), now changed to *Prioniodus? amanaensis.* UD

——**peracutus** HINDE (1900), pp. 343-344, pl. 10, figs. 21-23. Cotypes, Geol. Surv. Scot., Edinburgh, Carboniferous ls., Lower (fig.), Middle, and Upper, W Scot.; ——— ROUNDY (1926), pp. 10-11, pl. 4, figs. 6-8. Fig. spms., 115173-115174 (figs. 8, 7) (fig. 6 is Hinde's fig. 22 designated type), USNM, Barnett sh., locs. 2613G (fig. 7), 2609 (fig. 8), Tex., comp. with *Prioniodus spicatus* and *Prioniodus sp. B* Roundy (1926); ——— HOLMES (1928), p. 21, pl. 3, figs. 37-39, Hinde's figs. 21-23 resp.; ——— EICHENBERG (1930), pp. 180-181, comp. with fig. 11; ——— COOPER (1939), pp. 406, 420, pl. 46, fig. 7. Hypotype, 39046, Univ. Chi., pre-Welden sh., Okla. L-MMi

——**permagnus** HIBBARD (1927), p. 196, fig. 1 g. Holotype, 274, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——**perneri** ZEBERA (1935), pp. 89-90, 96, pl. 2, fig. 11. Holotype, l'Inst. d. géol. et paléo. Univ. Charles, Prague, Barrandien fm., zone e alpha, Litohlavy, Bohemia; ——— ZEBERA (1936a), pp. 9-10, pl. 2, fig. 11. Fig. spm., Karlovy Univ., Prague, from *Monograptus lobifer* and *leptotheca* beds, Litohlavy, Bohemia; ——— BOUCEK (1936a), p. 295, from *Monograptus turriculatus* zone, Litohlavy-Mühle, Bohemia; ——— CAMP, TAYLOR, & WELLES (1942), p. 600. MS

——**pinguis** HIBBARD (1927), p. 193, fig. 2 c. Holotype, 278, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y.; ——— HUDDLE (1934), p. 61, sr. syn. of *Ligonodina;* ——— YOUNGQUIST (1945) (*aff. pinguis*), p. 366, pl. 54, fig. 9. Fig. spm., 2960, Univ. Iowa, Independence sh.?, Iowa. UD

——? **politus** HINDE (1879), p. 358, pl. 15, figs. 11-12. Holotype, A4330 (fig. 11 only), British Mus., Cincinnati gr., Ont.; ——— S. A. MILLER (1883) (no ?), p. 315, signifies polished; ——— HINDE (1879) (ab)R (1887), p. 322; ——— S. A. MILLER (1889) (no ?), p. 520; ——— AMI (1900) (*Pronodus* p. 171), pp. 151, 171; ——— BASSLER (1915), pp. 1034, 1475; ——— PARKS & FRITZ (1923), p. 37, pl. 6, figs. 26-27, Hinde's figs. 12, 11 resp.; ——— ULRICH & BASSLER (1926) (no ?), p. 21, classed as sr. syn. of *Bryantodus;* ——— HOLMES (1928) (no ?), pp. 7, 22; ——— BRANSON & MEHL (July 1933d), p. 155, sr. syn. of *Ozarkodina.* UO

——**porcatus** HINDE (1900), p. 344, pl. 10, fig. 26. Holotype, Geol. Surv. Scot., Edinburgh, Upper Carboniferous ls., W Scot.; ——— HOLMES (1928), p. 22, pl. 3, fig. 26. MMi

——**powellensis** STAUFFER (1938), pp. 413, 441, pl. 50, fig. 29. Holotype, B4829, Univ. Minn., Olentangy sh., locs. 117 (fig.), 125, 136, Ohio. UD

——**pravus** BRYANT (1921), p. 18, pl. 8, fig. 5, rare in conodont bed, N. Y.; ——— ULRICH & BASSLER (1926) (*parvus*), p. 21, sr. syn. of *Bryantodus;* ——— HOLMES (1928), pp. 7, 22. UD

——**proclinatus** ULRICH & BASSLER (1926), pp. 10-11, pl. 1, fig. 22. Holotype, 11240, USNM, lower Rhinestreet sh., N. Y., comp. with *Prioniodus inutilis;* ——— HOLMES (1928), p. 22; ——— CHADWICK (Feb. 1935a), p. 315. UD

——**proclinis** ULRICH & BASSLER (1926), pp. 9-10, pl. 9, figs. 8-10. Holotype and paratypes, 11031, USNM, Hardin ss., Tenn.; comp. with *Prioniodus concavus;* ——— HOLMES (1928), p. 22. UD

——**pronus** HASS (Mar. 1947), p. 134, Cleveland, upper Ohio, upper New Albany shs., (*nomen nudum*). UD-LMi

——**radiatus** (BRYANT) (1921), pp. 16, 19, pl. 4, figs. 10-12; pl. 5, figs. 1-5, 8; pl. 6, fig. 5; pl. 8, figs. 1-2, 4, 6, 8; pl. 14, fig. 1, conodont bed, N. Y., *Polygnathus dubius* Hinde (1879) (pt.), pl. 16, figs. 6, 8 and Clarke (1886) (pt.), pl. A-1, fig. 6 classed as sr. and jr. syns. resp., (*Polygnathus*); ——— (HOLMES) (1928), pp. 7, 22, classed as sr. syn. of *Bryantodus;* ——— (SAVAGE) (1930), pp. 17, 73, basal New Albany sh., Ky.; ——— (SAVAGE) (1931) (*cf. radiatus*), p. 235; ——— (BRANSON & MEHL) (July 1933d), pp. 140-141, sr. syn. of *Bryantodus,* probably none of Bryant's types are conspecific with Hinde's, and may partly belong to *Bryantodus immersus;* ——— (MILLER & YOUNGQUIST) (1947), pp. 506-507, Bryant's pl. 5, fig. 2 comp. with *Bryantodus brachyodontus* and pl. 4, fig. 10 with *Bryantodus latimarginatus.* UD

——**radicans** HINDE (1879), pp. 356-357, pl. 15, figs. 1-6. Cotypes, A4219 (fig. 3), A4220 (fig. 1), A4232, A4233 (unfig.), British Mus., Chazy ls., Quebec; ——— S. A. MILLER (1883), p. 315, signifies rooting; ——— S. A. MILLER (1889), p. 520; ——— REICHENBACH (1909), p. 110, fig. 133, Hinde's fig. 2; ——— GRABAU & SHIMER (1910), p. 244, figs. 1538 a-c, Hinde's figs. 1-3 resp.; ——— BASSLER (1915), pp. 1035, 1449; ——— GRABAU (1921), p. 141, fig. 919 upper rt. fig., Hinde's fig. 2; ——— NICOLAS (1925), p. 232; ——— ULRICH & BASSLER (1926), p. 29, classed as sr. syn. of *Euprioniodina;* ——— HOLMES (1928), pp. 10, 22; ——— BRANSON & MEHL (July 1933d), p. 156, sr. syn. of *Erismodus;* ——— DRESSER & DENIS (1944), p. 259. MO

——**recedens** BRYANT (1921), pp. 13-16, pl. 1, figs. 1-2, 6-14; pl. 2, figs. 1-4, 7, 9; text fig. 3, conodont bed, N. Y., comp. with *Prioniodus abbreviatus* and *alatus;* ——— ULRICH & BASSLER (1926), pp. 13, 18, pt. is sr. syn. of *Ligonodina* and pt. is sr. syn. of *Prioniodina;* ——— HOLMES (1928), pp. 20, 22. UD

——**recurvus** BRANSON & MEHL (Oct. 1934a), p. 288, pl. 23, figs. 16-17. Cotypes, C394-3, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON & MEHL (1938d), pl. 33, fig. 39, cotype; ——— BRANSON (1938a), p. 181; ——— BRANSON & MEHL (1941), p. 175; ——— BRANSON (1944), pp. 181, 222, pl. 32, fig. 39, cotype. LMi

——**remus** STAUFFER (1940), p. 431, pl. 59, figs. 29, 37, 51, 53, 66. Syntypes, B5594, B5602, B5614, B5616, B5628, Univ. Minn., clay above ls. (fig.), admixture, and upper Cedar Valley ls., Minn.; ——— STAUFFER & THIEL (1941), p. 229; ——— YOUNGQUIST & M-U?D

MILLER (1948) (*cf. remus*), p. 449, pl. 67, fig. 3. Fig. spm., 5619, Univ. Iowa, Sweetland Creek sh., Iowa.

——**retusus** BRYANT (1921), p. 17, pl. 4, figs. 8-9; pl. 5, figs. 9, 11; pl. 8, fig. 3, conodont bed, N. Y.; ——— ULRICH & BASSLER (1926), p. 21, sr. syn. of *Bryantodus;* ——— HOLMES (1928), pp. 7, 22. UD

——**reversus** ULRICH & BASSLER (1926), p. 10, pl. 9, fig. 4. Holotype, 11037, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 22; ——— COOPER (June 1931), pp. 146, 151, pl. 20, fig. 1, lower Woodford fm., Okla.; ——— HARLTON (Aug. 1934), p. 1032, mid. Ark. novaculite, Ark. UD

——**scitulus** BRANSON & MEHL (1941a), pp. 173-174, pl. 5, figs. 5-6. Syntypes, C545-4, Univ. Mo., lower Caney sh., Okla.; ——— COOPER (1947a), pp. 84, 92, pl. 20, figs. 1-3. Hypotypes, Ill. Geol. Surv., Kinkaid fm., Ill. UMi

——**semiseparatus** BRANSON & MEHL (June 1934a), pp. 206-207, pl. 15, figs. 9-10. Cotypes, C365-3, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), pp. 156, 158, 166, 173, pl. 27, figs. 44-45, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss. (fig.), Louisiana ls., Mo.; ——— MILLER & YOUNGQUIST (1947), p. 516, comp. with *Prioniodus bellatulus.* UD

——**shaletonensis** HIBBARD (1927), pp. 195-196, fig. 2 e. Holotype, 272, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. UD

——**siculatus** STAUFFER (1932), pp. 259, 261, pl. 40, figs. 7, 12-13. Cotypes, Univ. Minn., Decorah sh., Kans. MO

——**smithi** STAUFFER (1938), pp. 413, 441, pl. 50, figs. 26a-b. Holotype, B4743, Univ. Minn., Olentangy sh., loc. 187, Ohio. UD

——**spatulatus** BRYANT (1921), p. 18, pl. 8, fig. 9, rare in conodont bed, N. Y.; ——— ULRICH & BASSLER (1926), p. 21, sr. syn. of *Bryantodus;* ——— HOLMES (1928), pp. 7, 22. UD

——**speciosus** STAUFFER (1932), pp. 259, 261, pl. 40, figs. 14-15. Cotypes, Univ. Minn., Decorah sh., Kans. MO

——**spicatulus** ULRICH & BASSLER (1926), p. 9, pl. 9, figs. 2-3. Cotypes, 11035, USNM, Hardin ss., Tenn.; ——— HOLMES (1928), p. 22; ——— BASSLER (1932), p. 234, pl. 26, fig. 1; ——— COOPER (1935), p. 312, comp. with *Prioniodus curvatus.* UD

——**spicatus** HINDE (1879), p. 361, pl. 16, figs. 1-3. Cotypes, A4172 (fig. 3), A4176 (fig. 2), British Mus., Genesee sh., N. Y. (fig.) and Ont.; ——— S. A. MILLER (1883), p. 315, signifies spiked; ——— CLARKE (1885a), p. 20; ——— CLARKE (1885b), pp. 28, 33, 38, 41, Naples sh.; ——— HINDE (1879) (ab)R (1887), p. 322; ——— CLARKE (1887), pl. A 1, fig. 22, Naples sh., N. Y.; ——— S. A. MILLER (1889), p. 520; ——— CLARKE (1893), p. 204; ——— GRABAU (1899), p. 152, fig. 33 G left, upper, lower, Hinde's figs. 1-3 resp.; ——— HINDE (1900), p. 343, pl. 10, fig. 20. Fig. spm., Geol. Surv. Scot., Edinburgh, Lower Carboniferous ls., W Scot., comp. with *Prioniodus peracutus;* ——— CLARKE & RUEDEMANN (1903), pp. 840-841; ——— CLARKE & LUTHER (1904), p. 62; ——— CLARKE (1904), pp. 357-358, 360, Middlesex black sh., N. Y.; ——— LUTHER (1906), p. 46; ——— CLARKE & LUTHER (1908), p. 56; ——— LUTHER (1911), p. 20; ——— STAUFFER (1915), pp. 185, 227-228, coll. by Hinde from Huron sh., Ont., same beds at Kettle Pt.; ——— BRYANT (1921), p. 19, pl. 6, fig. 4, Portage of N. Y. and Ont. but not Genesee; ——— W. WETZEL (1923), p. 62, comp. with Geschiebefeuerstein (Cret.) forms extending from N France to Poland; ——— NICOLAS (1925), p. 232; ——— ULRICH & BASSLER (1926), p. 9, comp. with *Prioniodus spicatulus;* ——— ROUNDY (1926), p. 10; ——— HIBBARD (1927), p. 195, figs. 2a-b. Plesiotypes, 280, 322, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 22, pl. 3, figs. 11-15. Hinde's (1879) figs. 1-3 are figs. 11, 13, 12, Hinde's (1900) fig. 20 is fig. 14, Clarke's (1887) fig. 22 is fig. 15 resp.; ——— WETZEL (1933), pp. 83, 86, comp. with pl. 6, fig. 30; ——— BRANSON & MEHL (July 1933d), p. 138, sr. syn. of *Ligonodina;* ——— RUEDEMANN (Nov. 1934), p. 57; ——— CHADWICK (Feb. 1935a), p. 315; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 54, Hibbard's ref. a sr. syn. of *Ligonodina abnormis.* UD

——**subacodus** GUNNELL (1931b), pp. 246-247, pl. 29, fig. 5. Holotype, Gunnell coll., Univ. Mo., mid. sh. Fort Scott fm., Mo., comp. with *Prioniodus conjunctus;* ——— STAUFFER & PLUMMER (1932) (*subacodus?*), pp. 25, 28, Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, B, Tex.; ——— GUNNELL (1933), p. 265; ——— ELLISON (1941), p. 118, sr. syn. of *Hibbardella;* ——— YOUNGQUIST & HEEZEN (1948), p. 768. MP

——**subcompactus** SMITH (1907), p. 249, pl. 8, fig. 37. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo grs., S Uplands, Scot.; ——— HOLMES (1928), p. 22, pl. 3, fig. 35. MO

——**sublimis** HIBBARD (1927), pp. 191, 197, fig. 1 a. Holotype, 275, Hibbard coll., Buff. Mus. Sci., N. Y., lower Rhinestreet sh., N. Y. comp. with *Prioniodus expolitus;* ——— COOPER (1933a), p. 210, comp. with reverse of *Ligonodina falciformis.* UD

——**subtilis** HARLTON (Aug. 1934), p. 1032, mid. Ark. novaculite, Ark., perhaps *sublimis* was meant, (*nomen nudum*).

——**sulcatus** PANDER (1856), pp. 5-6, 29, pl. 2, fig. 24, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL & ROHON (1886), p. 131, comp. with *Staurocephalus rubrovittatus* Ehlers (1868) a scolecodont; ——— HOLMES (1928), p. 22, pl. 3, fig. 1 left, rt., Pander's figs. 24 a-b resp. LO

——**taritus** STAUFFER (1940), p. 431, pl. 59, fig. 30. Holotype, B5595, Univ. Minn., clay above ls., admixture, Minn.; ——— STAUFFER & THIEL (1941), p. 229. O, MD

——**theron** T. H. CLARK (1924), pp. 59, 67-68, pl. 6, fig. 1. Holotype, 1001, Harvard Mus. Comp. Anat., Levis fm., Shumardia ls., Quebec; ——— HOLMES (1928), p. 22, pl. 4, fig. 44, Clark's fig. probably fringe appendage of merostome or trilobite. LO

——**tigris** T. H. CLARK (1924), pp. 59, 69-70, pl. 6, fig. 5. Holotype, 1005, Harvard Mus. Comp. Anat., Levis fm., Shumardia ls., Quebec; ——— HOLMES (1928), p. 22, pl. 3, fig. 30, Clark's fig. probably fringe appendage of merostome or trilobite. LO

——**tortus** BRANSON & MEHL (June 1934a), p. 208, pl. 15, fig. 3. Holotype, C366-3, Univ. Mo., Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 166. UD

——**tridentatus** GUNNELL (1931b), pp. 246-247, pl. 29, fig. 3. Holotype, Gunnell coll., Univ. Mo., mid. sh. Fort Scott fm., Mo., comp. with *Prioniodus clarki;* ——— STAUFFER & PLUMMER (1932), pp. 25, 28, pl. 3, figs. 24-26. Fig. spms., 19110, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., locs. 181-T-9, A (fig. 26), 181-T-9, B (fig. 25), Graford fm. (fig. 24), and loc. 214-T-25, Tex.; ——— GUNNELL (1933), p. 265; ——— ELLISON (1941), p. 115, sr. syn. of *Ligonodina lexingtonensis.* MP

——**tulensis** PANDER (1856), p. 30, pl. 2A, figs. 1, 18-20, Carboniferous ls., Tula, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1860), p. 664; ——— HINDE (1879), p. 361, comp. with *Prioniodus panderi;* ——— ZITTEL & ROHON (1886), p. 131, comp. with *Staurocephalus rubrovittatus* Ehlers (1868) a scolecodont; ——— HINDE (1900), p. 343, pl. 9, figs. 15-17. Fig. spms., Geol. Surv. Scot., Edinburgh, Carboniferous ls., Upper (figs. 15, 17), Lower (fig. 16), W Scot.; ——— BRYANT (1921), p. 14, fig. 4 left, rt., Pander's figs. 19-20 resp., comp. with *Prioniodus recedens;* ——— HOLMES (1928), p. 22, pl. 3, figs. 16-22, Pander's figs. 20, 18, 1, 19, and Hinde's (1900) figs. 16, 17, 15 resp.; ——— EICHENBERG (1930), p. 180, comp. figs. 1-3 with Pander's spms. ?MMi

——**undosus** ULRICH & BASSLER (1926), p. 12, pl. 1, figs. 18-20. Cotypes, 11244, USNM, lower Rhinestreet sh., N. Y.; ——— HOLMES (1928), p. 22; ——— EICHENBERG (1930), p. 180, comp. with fig. 10. I designate fig. 10 as the type for *Prioniodus hercynicus* and restrict this name to that specimen. I place **this as a jr. syn. (subjective) of** *Prioniodus undosus;* ——— CHADWICK (Feb. 1935a), p. 315; ——— MILLER & YOUNGQUIST (1947), p. 516, comp. with *Prioniodus bellatulus;* ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 58, pl. 14, fig. 10. Fig. spm., 290, Hibbard coll., Buff. Mus. Sci., N. Y., lower Attica sh., N. Y. UD

——**varians** BRANSON & MEHL (1941a), pp. 174-175, pl. 5, figs. 7-8. Holotype, C546-3 (fig. 8); paratype, C546-5 (fig. 7), Univ. Mo., lower Caney sh., Okla.; ——— COOPER (1947a), p. 84. UMi

——**vastus** MATERN (1933), p. 14, fig. 6. Holotype, Preuss. Geol. Landest., Berlin, Germ., Lower Carboniferous, Lerbach, Oberharz, Germ. LMi

——**volborthii** PANDER (1856), pp. 30, 33, Tab. A opp. p. 20, fig. A, Glaukonitsand, Baltic Provinces, Russ., comp. with *Ctenognathus obliquus;* ——— PANDER (1856) (ab)N (1858), p. 112; ——— HINDE (1879), p. 357, comp. with *Prioniodus radicans;* ——— ZITTEL & ROHON (1886), pp. 132-133, fig. E, Pander's fig. A; ——— ZITTEL (1890), p. 58, fig. 50 E, Pander's fig. A; ——— ULRICH & BASSLER (1926), p. 18, sr. syn. of *Prioniodina;* ——— HOLMES (1928), pp. 20, 22. LO

——**sp.** PANDER (1856), Tab. A opp. p. 20, fig. B, Glaukonitsand, Baltic Provinces, Russ. LO

——**sp.** SHIMER (1914), p. 146, fig. 56, Genesee sh., N. Y. UD

——**sp.** ROUNDY (1926), pp. 11-12; 60 spms. with affinities to *Prioniodus, Drepanodus, Lonchodus,* USNM, Barnett sh., Tex. MMi

——**sp. A** ROUNDY (1926), p. 11, pl. 4, fig. 9. Fig. spm., 115061, USNM, Barnett sh., loc. 2609, Tex.; ——— EICHENBERG (1930), p. 180, comp. with fig. 2. MMi

——**sp. B** ROUNDY (1926), p. 11, pl. 4, fig. 10. Fig. spm., 115059, USNM, lower Barnett sh., loc. 2609 (fig.), upper, loc. 2688, Tex., comp. with *Prioniodus peracutus;* ——— COOPER (1939), p. 405, sr. syn. of *Prioniodus oligus.* MMi

——**sp. C** ROUNDY (1926), p. 11, pl. 4, fig. 11. Fig. spm., 115062, USNM, lower Barnett sh., loc. 2609, Tex. MMi

——**sp. D** ROUNDY (1926), p. 11, pl. 4, figs. 12-13b. Fig. spms., 115183, 115067, USNM, Barnett sh., lower, locs. 2609 (figs. 13a-b), 2613 E (fig. 12), G-H, 7011a, 7687, Tex. MMi

——**sp.** (HOLMES) (1928), p. 37, pl. 8, fig. 18, Clarke's (1887) pl. A-1, fig. 10, upper left, *Polygnathus dubius,* Naples sh., N. Y. UD

——**sp.** SAVAGE (1931), p. 246, pl. 32, fig. 29, New Albany sh., Ky. ?UD

——**sp. A** STAUFFER & PLUMMER (1932), pp. 25, 28, pl. 2, fig. 10. Fig. spm., 19111, Bur. Econ. Geol. Mus., Tex., Mineral Wells fm., East Mt. sh. memb., loc. 181-T-9, B, Tex. MP

——**sp. undet.** STAUFFER (1932), pp. 259, 261, pl. 40, figs. 16-17. Fig. spms., Univ. Minn., Decorah sh., Kans. MO

——**sp.** ROMER (1933), p. 23, fig. 15 rt., after Pander.

——**n. sp. A** MATERN (1933), p. 14, fig. 9. Holotype, Preuss. Geol. Landest., Berlin, Germ., Stufe?, near Osterode, Harz, Germ., comp. with *Prioniodus dillensis.* UD

?——**sp.** MATERN (1933), p. 14, fig. 3, Stufe?, near Osterode, Harz, Germ. UD

——**sp.** GUNNELL (1933), pp. 264, 267, pl. 32, fig. 32. Fig. spm., Gunnell coll., Univ. Mo., Quivira sh., Mo.; ——— ELLISON (1941), p. 113, jr. syn. of *Prioniodus conjunctus;* ——— YOUNGQUIST & DOWNS (1949), p. 169, jr. syn. of *Prioniodus cacti.* UP

——**spp.** SCOTT (1934), pp. 448, 451-454, pl. 58, figs. 1 rt., 3b, 7a, 8a, a', 9a; pl. 59, figs. 11a, 12a, 13b, 14a, 18c, c'.

——**sp.** STAUFFER (1935a), p. 163, pl. 10, fig. 21, upper Glenwood beds, Minn., probably *Bryantodina* was meant. MO

——**sp.** STAUFFER (1935b), p. 617, pl. 75, fig. 59. Fig. spm., B4739, Univ. Minn., Decorah sh., loc. 89, Minn. MO

——? **sp.** FURNISH, BARRACY, & MILLER (1936), p. 1334, pl. 2, fig. 20. Fig. spm., 1215, Univ. Iowa, lower Whitewood sh., S. D. MO

——**sp.** STAUFFER (1938), pp. 413, 441, pl. 49, figs. 31-32. Fig. spms., B4920-B4921, Univ. Minn., Olentangy sh., locs. 120, 187 (fig.), Plum Brook sh., loc. 122, Ohio, comp. with *Prioniodus longidentatus.* M-UD

——**n. spp.** KNECHTEL & HASS (1938), p. 519, USGS coll. 8432, basal sh. of Lodgepole ls., Mont.; ——— HASS (1943), p. 308, now termed *Prioniodus sp. fragments* and *Prioniodus cf. alatus.* LMi

——**sp.** BRANSON & MEHL (1938d), p. 143, pl. 34, fig. 20. Fig. spm., C32-3, Univ. Mo., Chouteau ls., Mo.; ——— BRANSON (1944), pp. 208e, 222, pl. 39, fig. 20. LMi

——**sp.** COOPER (1939), pl. 46, fig. 51. Fig. spm., 39869, Univ. Chi., pre-Welden sh., Okla. LMi

——**sp.** STAUFFER (1940), pp. 431-432, pl. 59, fig. 42. Fig. spm., B5607, Univ. Minn., clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 238. O, MD

——**sp.** HASS (1941), p. 78, pl. 13, fig. 6. Fig. spm., 7547, USGS, Bushberg-Hannibal horizon, Okla. LMi

——**sp.** HASS (1941), p. 79, pl. 14, figs. 4-5; pl. 16, fig. 3. Fig. spms., 7560, USGS, Bushberg-Hannibal horizon, Okla. LMi

——**sp. indet.** BRANSON & MEHL (1941b), p. 186, pl. 6, figs. 8-9. Fig. spms., C576-3, Univ. Mo., Keokuk ls., Mo.; ——— BRANSON (1944), p. 240. MMi

——**spp.** SCOTT (1942), pp. 299-300, pl. 37, figs. 1b-2b, 4b-6b; pl. 38, figs. 1b-4b, 7b-8b, 11b-12b; pl. 39, fig. 9; pl. 40, figs. 3, 12, 21; text fig. 1b, black sh. of Heath fm., Mont. UMi

——**sp. fragments** (HASS) (1943), p. 308, ref. to *Prioniodus n. spp.* Knechtel & Hass (1938), now changed to above.

——**sp.** STAUFFER (1944), p. 255, Sunbury sh., ls. mine, Barberton, Ohio. LMi

——**sp.** YOUNGQUIST (1945), p. 366, pl. 54, fig. 4. Fig. spm., 2961, Univ. Iowa, Independence sh.?, Iowa. UD

——**? sp.** YOUNGQUIST (1945), pp. 366-367, pl. 55, fig. 5. Fig. spm., 2962, Univ. Iowa, Independence sh.?, Iowa. UD

——**? sp.** YOUNGQUIST & CULLISON (1946), pp. 589-590, pl. 90, fig. 1. Fig. spm., 3356, Univ. Iowa, Dutchtown fm., Mo. MO

——**sp.** MEHL & THOMAS (1947), p. 16, pl. 1, fig. 29. Fig. spm., C658-2, Univ. Mo., Fern Glen fm., Mo. MMi

——**sp.** LAYER *et al.* (1949), p. 594, D-3 zone 875 ft. below top of D-2 zone, Alta., Can. UD

PRIONOGNATHUS PANDER (1856), pp. 34, 91. Type species, *P. brandtii* PANDER (1856); ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL (1890), p. 60; ——— ROHON (1893), pp. 10, 15; ——— BASSLER (1925), p. 219; ——— ULRICH & BASSLER (1926), pp. 6, 15, 17, 43; ——— HOLMES (1928), pp. 3, 22; ——— BRANSON & MEHL (June 1933b), pp. 36-37, Pander's desc. quoted; ——— HUDDLE (1934) (*Prioniognathus*), p. 35, not a conodont; ——— ZEBERA (1936b), p. 189; ——— ELLISON (Jan. 1946) (*Prioniognathus*), p. 109, Ord. and Sil., has very doubtful relationships. MO-US

——**brandtii** PANDER (1856), p. 34, pl. 4, fig. 19, Oesel Island, Rootsiküllе, Estonia. Type species for *Prionognathus;* ——— PANDER (1856) (ab)N (1858), p. 112; ——— SCHMIDT (1858) (*Prionacanthus,* p. 168), pp. 168, 181, given as Lower Sil. Grünsand, Lello bei Rootsiküll; ——— ROHON (1893), pp. 10, 97, from Kalkplatten, Wesiko, Oesel Island; ——— ULRICH & BASSLER (1926), pp. 16-17, 43, fig. 4, subfigs. 18-19, probably not a conodont, Pander's pl. 4, fig. 19 left is fig. 18, and fig. 19 rt. is fig. 19; ——— EDINGER (1926), p. 286, fig. 1 (pt.), 2nd fig. from bottom in rt. vertical row, and 3rd fig. from bottom. Same as subfigs. 19 and 18 resp. of fig. 4 of Ulrich & Bassler (1926); ——— HOLMES (1928), p. 22, pl. 6, figs. 34-35, Pander's pl. 4, fig. 19 rt. is fig. 34, and fig. 19 left is fig. 35; ——— GLAESSNER (1945), p. 28, fig. 4, subfigs. 18-19, after Ulrich & Bassler (1926), fig. 4, subfigs. 18-19. US

——**ordovicica** BRANSON & MEHL (June 1933b), p. 37, pl. 1, figs. 13-14. Holotype, C183-5, Univ. Mo., Harding ss., Colo.; ——— JOHNSON (1945), p. 22. MO

PSEUDOPOLYGNATHUS BRANSON & MEHL (Oct. 1934a), pp. 265, 295, 297-299. Type species, *P. prima* BRANSON & MEHL (Oct. 1934a); ——— E. R. BRANSON (1934), pp. 310, 315; ——— BRANSON & MEHL (1938a), p. 157; ——— KNECHTEL & HASS (1938), p. 519; ——— BRANSON & MEHL (1938d), pp. 129, 136; ——— BRANSON (1938c), p. 179; ——— COOPER (1939), pp. 397, 406, comp. with *Nodognathus;* ——— BRANSON & MEHL (1941d), p. 202; ——— HASS (1943), p. 307, limited to Lower Miss., loc. 8432, Mont.; ——— BRANSON & MEHL (1944), p. 244; ——— ELLISON (Jan. 1946), pp. 94, 101, 103, 109, limited to Kinderhook, platform type, *Nodognathus* is probably an immature form of *Pseudopolygnathus;* ——— HASS (Mar. 1947), pp. 132, 137, basal Sunbury and Orangeville shs., Ohio; ——— MEHL & THOMAS (1947), pp. 6-7, 16; ——— COOPER (July 1948a), p. 361, common to Jacobs Chapel, pre-Welden, Hannibal, and Bushberg fms.; ——— YOUNGQUIST & PATTERSON (1949), pp. 57, 68; ——— THOMAS (1949), pp. 409, 418-419, 428. L-MMi

——**apetodus** COOPER (1939), p. 406, pl. 40, figs. 63-67. Holotype, 39049 (figs. 65-67); paratypes, 39048, Univ. Chi., pre-Welden sh., Okla. LMi

——**asymmetrica** E. R. BRANSON (1934), p. 320, pl. 26, fig. 12. Holotype, C199-1, Univ. Mo., Hannibal fm., Mo.; ——— KNECHTEL & HASS (1938) (*cf. asymmetrica*), p. 519, basal sh., Lodgepole ls., USGS coll., 8432, Mont.; ——— BRANSON & MEHL (1938d), p. 133; ——— COOPER (1939), pp. 406-407, 420, pl. 40, figs. 23-24, 59-60; pl. 41, figs. 13-14. Hypotypes, 39050-39051 (figs. 23-24, 59-60), 39052 (figs. 13-14), Univ. Chi., pre-Welden sh., Okla.; ——— HASS (1943) (*cf. asymmetrica*), p. 308, ref. to Knechtel & Hass (1938) classed as a jr. syn. of *Pseudopolygnathus prima;* ——— BRANSON (1944), p. 222, Hannibal fm., Mo.; ——— YOUNGQUIST & PATTERSON (1949), p. 68, ref. to E. R. Branson (1934), comp. with *Pseudopolygnathus aurita;* ——— THOMAS (1949) (*cf. asymmetrica*), p. 412, pl. 3, fig. 42. Fig. spm., C811-4, Univ. Mo., Prospect Hill siltstone, loc. 1, SE Iowa. LMi

——**attenuata** MEHL & THOMAS (1947), p. 17, pl. 1, fig. 9. Holotype, C658-1, Univ. Mo., Fern Glen fm., Mo. MMi

——**aurita** YOUNGQUIST & PATTERSON (1949), pp. 67-68, pl. 16, figs. 5-6. Holotype, 4142, Univ. Iowa, comp. with *Pseudopolygnathus carinata,* Prospect Hill siltstone, Iowa. LMi

——**brevimarginata** E. R. BRANSON (1934), p. 322, pl. 26, fig. 3. Holotype, C209-3, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 222; ——— THOMAS (1949), p. 412, pl. 3, fig. 25. Fig. spm., C814-5, Univ. Mo., Prospect Hill siltstone, loc. 2 (fig.) and English River siltstone, Iowa. LMi

——**carinata** YOUNGQUIST & PATTERSON (1949), p. 68, pl. 16, fig. 4. Holotype, 4142, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**constrictiterminata** THOMAS (1949), pp. 412, 428, pl. 4, fig. 16. Holotype, C807-4, Univ. Mo., English River siltstone, loc. 12, Iowa. LMi

——**corrugata** E. R. BRANSON (1934), p. 317, pl. 26, fig. 23. Holotype, C209-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 22. Holotype, fig.; ——— BRANSON (1944), pp. 181, 222, pl. 32, fig. 22, Hannibal fm., Mo. LMi

——**costata** E. R. BRANSON (1934), pp. 317-318, pl. 26, fig. 21. Holotype, C198-3, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 18. Holotype fig.; ——— BRANSON (1944), pp. 181, 222, pl. 32, fig. 18, after E. R. Branson (1934). LMi

——**crenulata** E. R. BRANSON (1934), p. 321, pl. 26, figs. 4-5, 7-8. Cotypes, C198-2 (figs. 4-5), C198-5 (figs. 7-8), Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— COOPER (1939), pp. 407, 420, pl. 40, figs. 25-27. Hypotype, 39053, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 222, Hannibal fm., Mo.; ——— THOMAS (1949) (*cf. crenulata*), p. 412, pl. 4, fig. 18. Fig. spm., C810-3, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

——**cyclotelum** COOPER (1939), p. 407, pl. 39, figs. 61-62. Holotype, 39054, Univ. Chi., pre-Welden sh., Okla. LMi

——**dentilineata** E. R. BRANSON (1934), p. 317, pl. 26, fig. 22. Holotype, C219-2, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 222, Hannibal fm., Mo. LMi

——**distorta** E. R. BRANSON (1934), pp. 318-319, pl. 26, figs. 16-17. Holotype, C200-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— COOPER (1939), pp. 407-408, 420, pl. 40, figs. 49-50. Hypotype, 39055, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 222, Hannibal fm., Mo.; ——— YOUNGQUIST & PATTERSON (1949), p. 68, ref. to Cooper (1939), comp. with *Pseudopolygnathus aurita*. LMi

——**exotyla** COOPER (1939), p. 408, pl. 42, figs. 23-24. Holotype, 39056, Univ. Chi., pre-Welden sh., Okla. LMi

——**foliacea** E. R. BRANSON (1934), p. 316, pl. 26, figs. 27-28. Holotype, C218-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, figs. 23-24. Holotype fig.; ——— BRANSON (1944), pp. 181, 222, pl. 32, figs. 23-24, after E. R. Branson (1934). LMi

——**fusiformis** BRANSON & MEHL (Oct. 1934a), pp. 298-299, pl. 23, figs. 1-3. Cotypes, C382-1, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— BRANSON & MEHL (1938d), pl. 33, figs. 44-45. Fig. spms., two cotypes; ——— COOPER (1939), pp. 408, 420, pl. 39, figs. 63-64; pl. 43, figs. 53-54. Hypotypes, 39057 (figs. 63-64), 39058 (figs. 53-54), Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), pp. 181, 222, pl. 32, figs. 44-45, after Branson & Mehl (Oct. 1934a). LMi

——**inequicostata** E. R. BRANSON (1934), p. 321, pl. 26, fig. 6. Holotype, C200-3, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 222, Hannibal fm., Mo. LMi

——**irregularis** E. R. BRANSON (1934), p. 316, pl. 26, figs. 25-26. Holotype, C201-1, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— COOPER (1939), pp. 408, 420, pl. 40, figs. 21-22, 35-36. Hypotypes, 39059-39060, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 222, Hannibal fm., Mo.; ——— YOUNGQUIST & PATTERSON (1949), pp. 68-69, pl. 16, figs. 1-3. Fig. spm., 4143, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**lobata** E. R. BRANSON (1934), p. 322, pl. 26, figs. 1-2. Holotype, C199-2, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— COOPER (1939), pp. 408, 420, pl. 40, figs. 54-55. Hypotype, 39061, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 222, Hannibal fm., Mo. LMi

——**multistriata** MEHL & THOMAS (1947), pp. 16-17, pl. 1, fig. 36. Holotype, C657-5, Univ. Mo., Fern Glen fm., Mo. MMi

——**prima** BRANSON & MEHL (Oct. 1934a), p. 298, pl. 24, figs. 24-25. Cotypes, C380-3, Univ. Mo., Bushberg ss., Mo., type species for *Pseudopolygnathus;* ——— BRANSON (1938a), p. 182; ——— BRANSON & MEHL (1938d), pl. 33, figs. 47-48. Fig. spms., two cotypes; ——— ? COOPER (1939), pp. 408, 420, pl. 40, figs. 30-31. Hypotype, 39062, Univ. Chi., pre-Welden sh., Okla.; ——— HASS (1943), p. 308, *Pseudopolygnathus cf. asymmetrica* and *Pseudopolygnathus n. spp.* both of Knechtel & Hass (1938) are classed as jr. syns.; ——— BRANSON & MEHL (1944), p. 244, pl. 94, figs. 11-12; ——— BRANSON (1944), pp. 181, 222, pl. 32, figs. 47-48, after Branson & Mehl (Oct. 1934a); ——— HASS (Mar. 1947), pp. 136-137, basal Orangeville sh., basal Sunbury sh., Ohio; ——— THOMAS (1949), p. 412, pl. 4, fig. 17. Fig. spm., C817-5, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

——**projecta** E. R. BRANSON (1934), p. 320, pl. 26, figs. 10-11. Holotype, C199-4, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— COOPER (1939), pp. 408, 420, pl. 40, figs. 51-53. Hypotype, 39063, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 222, Hannibal fm., Mo. LMi

——**rustica** MEHL & THOMAS (1947), p. 17, pl. 1, fig. 8. Holotype, C657-4, Univ. Mo., Fern Glen fm., Mo. MMi

——**scabrosa** E. R. BRANSON (1934), pp. 320-321, pl. 26, fig. 9. Holotype, C206-4, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 222, Hannibal fm., Mo. LMi

——**stina** COOPER (1939), p. 408, pl. 39, figs. 59-60. Holotype, 39064, Univ. Chi., pre-Welden sh., Okla. LMi

——**striata** MEHL & THOMAS (1947), p. 17, pl. 1, fig. 10. Holotype, C657-3, Univ. Mo., Fern Glen fm., Mo. MMi

——**subrugosa** E. R. BRANSON (1934), p. 318, pl. 26, fig. 18. Holotype, C201-3, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 222, Hannibal fm., Mo. LMi

——**sulcifera** E. R. BRANSON (1934), p. 319, pl. 26, fig. 15. Holotype, C198-4, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 222, Hannibal fm., Mo. LMi

——**tenuis** E. R. BRANSON (1934), p. 319, pl. 26, figs. 13-14. Holotype, C206-3, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 222, Hannibal fm., Mo. LMi

——**unispinosa** E. R. BRANSON (1934), p. 316, pl. 26, fig. 24. Holotype, C209-4, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 222. LMi

——**varicostata** E. R. BRANSON (1934), p. 318, pl. 26, figs. 19-20. Holotype, C207-1, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133, pl. 33, figs. 25, 46. Holotype fig., Hannibal fm., Mo.; ——— COOPER (1939), pp. 408-409, 420, pl. 40, figs. 44-45. Hypotype, 39065, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), pp. 181, 222, pl. 32, figs. 25, 46, Hannibal fm., Mo. LMi

——**n. spp.** KNECHTEL & HASS (1938), p. 519; 13 n. spp. from basal sh., Lodgepole ls., Mont., USGS coll., 8432; ——— HASS (1943), p. 308, classed as jr. syn. of *Pseudopolygnathus prima*. LMi

PTEROCONUS FOX (1900), p. 149, new genus proposed by G. J. Hinde for *Nereitopsis* Green (1899), not a conodont. Green figured four forms and based his name *Nereitopsis* on these figs. Hinde did not believe *Nereitopsis* to be a valid name on the grounds that the name did not properly fit the fossil and he therefore proposed the name *Pteroconus*. According to the rules of nomenclature the old name *Nereitopsis* is valid. However, Hinde has limited the name *Pteroconus* to only one of the four figs. of Green (pl. F, fig. 1) which differs from the others and in this sense the name *Pteroconus* Fox (1900) may be valid.

PTEROCONUS BRANSON & MEHL (July 1933b), p. 99. Type species, *P. gracilis* BRANSON & MEHL (July 1933b); ——— BRANSON & MEHL (July 1933a, b), pp. 90, 102, 111, comp. with *Microcoelodus;* ——— HUDDLE (1934), p. 34; ——— STAUFFER (1935b), p. 617; ——— LOOMIS (Oct. 1936), p. 664. Pl. 75, fig. 15 of Stauffer (1935b) is reproduced, this is *Pteroconus robustus;* ——— FURNISH, BARRAGY, & MILLER (1936), p. 1334, Whitewood sh., S. D.; ——— COOPER (1939), p. 409; ——— AMSDEN & MILLER (1942) (*Pteroconus?*, p. 306), pp. 303, 305-306, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1943), pp. 375, 380, 386; ——— BRANSON & MEHL (1944), p. 241, pl. 93, fig. 69; ——— ELLISON (Jan. 1946), pp. 95, 109, Black River through Upper Ord., bar type, may be fibrous. M-UO

——? **abbreviatus** BRANSON & MEHL (1943), p. 387, pl. 64, figs. 2-3. Syntypes, C541-3, Univ. Mo., lower Viola fm., Okla. MO

——? **bicyrus** COOPER (1939), p. 409, pl. 46, fig. 68. Holotype, 39066, Univ. Chi., pre-Welden sh., Okla. LMi

——**compressus** BRANSON & MEHL (July 1933b), pp. 111-112, pl. 8, fig. 31. Holotype, C71-4, Univ. Mo., Plattin ls., Mo.; ——— BRANSON & MEHL (July 1933b), p. 163, pl. 9, fig. 20. Fig. spm., C70-3, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 57, 80, 82, pl. 11, fig. 17, Plattin ls., Mo.; ——— BRANSON (1944) (*cf. compressus*), p. 80, pl. 11, fig. 44, Plattin ls., Mo. MO

——**gracilis** BRANSON & MEHL (July 1933b), p. 111, pl. 8, figs. 28, 30, 32, 35. Cotypes, C69-3 (figs. 28, 35), C107-1 (fig. 30), C115-5 (fig. 32), Univ. Mo., Plattin ls., Mo.; ——— BRANSON & MEHL (July 1933a), p. 99. Type species for *Pteroconus;* ——— STAUFFER (1935b), p. 617, pl. 75, fig. 1. Fig. spm., B4684, Univ. Minn., Spechts Ferry memb., loc. 70, Minn.; ——— STAUFFER & THIEL (1941), p. 241; ——— AMSDEN & MILLER (1942), p. 303, pl. 41, fig. 18. Fig. spm., 1640, Univ. Iowa, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1944), p. 241, pl. 93, fig. 69; ——— BRANSON (1944), pp. 80, 82, pl. 11, figs. 51, 53, 58, 64, Plattin ls., Mo. MO

——**mirus** FOX (1900), pp. 147, 149-151, pl. 7, figs. 1-4, not a conodont; ——— WHIDBORNE (1900), p. 239, considered a cephalopod; ——— BLAKE (1900), pp. 239-240, Blake classes as a jr. syn. of *Nereitopsis cornubicus, in toto.*

——? **neossus** COOPER (1939), p. 409, pl. 46, fig. 61. Holotype, 39067, Univ. Chi., pre-Welden sh., Okla. LMi

——**reversus** BRANSON & MEHL (July 1933a), p. 99, pl. 7, fig. 1. Holotype, C288-3, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 71-72, pl. 10, fig. 4, Joachim fm., Mo.; ——— YOUNGQUIST & CULLISON (1946), p. 590, comp. with *Pteroconus sp.* Youngquist & Cullison (1946). MO

——**robustus** (STAUFFER) (1935b), p. 617, pl. 75, figs. 15-17, 20, 21. Fig. spms., B4698-B4700 (figs. 15-17), B4703 (fig. 20), B4704 (fig. 21), Univ. Minn., *Euprioniodina robusta* Stauffer (1930) is now changed to *Pteroconus*, Decorah sh., locs. 24 (fig. 17), 94 (figs. 16, 20-21), 52 (fig. 15), 5, 8-9, 62, Minn.; ——— (LOOMIS) (Oct. 1936) (*Pteroconus* only), p. 664. Stauffer's (1935b) pl. 75, fig. 15 is reproduced; ——— (FURNISH, BARRAGY, & MILLER) (1936) (*aff. P. robustus* on pl.), p. 1334, pl. 2, fig. 11. Fig. spm., 1205, Univ. Iowa, lower Whitewood sh., S. D.; ——— (STAUFFER & THIEL) (1941), pp. 238, 241. MO

——**tortus** BRANSON & MEHL (July 1933b), p. 112, pl. 8, fig. 33. Cotypes, C119-5, Univ. Mo., Plattin ls., Mo.; ——— BRANSON & MEHL (1943), p. 387, comp. with *Pteroconus? abbreviatus;* ——— BRANSON (1944), pp. 80, 82, pl. 11, fig. 59, Plattin ls., Mo. MO

——**sp.** FURNISH, BARRAGY, & MILLER (1936), p. 1334, pl. 2, fig. 6. Fig. spm., 1201, Univ. Iowa, lower Whitewood sh., S. D. MO

——? **sp.** FURNISH, BARRAGY, & MILLER (1936), p. 1334, pl. 2, fig. 9. Fig. spm., 1204, Univ. Iowa, lower Whitewood sh., S. D. MO

——? **sp.** AMSDEN & MILLER (1942), p. 303, fig. 2 C. Fig. spm., 1620, Univ. Iowa, Bighorn ss., Wyo. MO

——? **sp.** BRANSON & MEHL (1943), pp. 380-381, pl. 63, fig. 2. Fig. spm., C529-4, Univ. Mo., McLish fm., Okla. MO

——**n. sp.** BRANSON (1944), pp. 81, 89, pl. 12, figs. 1-6, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——**sp.** YOUNGQUIST & CULLISON (1946), p. 590, pl. 90, fig. 5. Fig. spm., 3357, Univ. Iowa, Dutchtown fm., Mo., comp. with *Pteroconus reversus*. MO

SCALIOGNATHUS BRANSON & MEHL (1941e), pp. 98, 101-102. Type species, *S. anchoralis* BRANSON & MEHL (1941e); ——— BRANSON & MEHL (1941a), p. 168; ——— BRANSON & MEHL (1941c), pp. 193-194, Eichenberg's (1930) figs. 16, 19-22 are classed as sr. syns.; ——— BRANSON & MEHL (1944), p. 245; ——— ELLISON (Jan. 1946), pp. 94, 109, upper half of Kinderhook through lower Osage, platform type; ——— COOPER (July 1948a), p. 361, indicative of a break in conodont faunas above Rockford ls. LMi

——**anchoralis** BRANSON & MEHL (1941e), pp. 101-102, pl. 19, figs. 29-32. Holotype, C22-5 (figs. 31-32); fig. spms., C573-3 (figs. 29-30), Univ. Mo. Type species for *Scaliognathus*, Pierson ls., Mo.; ——— BRANSON & MEHL (1941c), pp. 193-194, pl. 7, figs. 21-24. Fig. spms., Univ. Mo., figs. 21, 24, from Harz. Mts., Germany; figs. 22-23 from Mo.; ——— BRANSON & MEHL (1944), p. 245, pl. 94, figs. 37-38. LMi

SCOLOPODELLA STAUFFER & PLUMMER (1932), p. 26. Type species, *S. costata* STAUFFER & PLUMMER (1932); ——— HUDDLE (1934), p. 34; ——— ELLISON (Jan. 1946), p. 109, Mid. Penn., has very doubtful relationships. MP

——**costata** STAUFFER & PLUMMER (1932), pp. 25-26, pl. 3, figs. 29-31. Holotype, 19107, Bur. Econ. Geol. Mus., Austin, Tex., Brownwood sh. memb., Graford fm., loc. 248-T-6, Tex. MP

SCOLOPODUS PANDER (1856), pp. 25, 91. Type species, *S. sublaevis* PANDER (1856); ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1858), p. 339; ——— EICHWALD (1860), p. 664; ——— BOCK (1869), p. 108 and map; ——— ZITTEL (1890), p. 59; ——— ROHON (1894), p. 9; ——— ZITTEL (1924) (*Scolophodus*), p. 288; ——— BASSLER (1925), p. 218; ——— ULRICH & BASSLER (1926), pp. 6-7; ——— HOLMES (1928), pp. 2, 22; ——— GUNNELL (1931b), p. 248; ——— STAUFFER & PLUMMER (1932), p. 26; ——— WETZEL (1933), p. 81; ——— HARLTON (1933), pp. 4, 12; ——— HARRIS & HOLLINGSWORTH (1933) (ab)Z (1937), p. 178, Branson & Mehl state that the spms. referred to *Scolopodus* by Harris & Hollingsworth belong to a group of fishes; ——— BRANSON & MEHL (June (1933d), p. 62, Pander's desc.; ——— BRANSON & MEHL (July 1933 a, c), pp. 79, 124; ——— HUDDLE (1934), p. 34; ——— ZEBERA (1936b), p. 189; ——— FURNISH (1938), pp. 320-321, 323-324, 331-332; ——— GRAVES & ELLISON (1941), pp. 3, 5; ——— CAMP, TAYLOR, & WELLES (1942), p. 618, ref. to Harlton (1933), Selachi, *incertae sedis;* ——— BRANSON & MEHL (1944), p. 240; ——— ELLISON (Jan. 1946), pp. 94, 109, upper half of Beekmantown, simple cone. L-UO

——**aequilateralis** PANDER (1856), p. 26, pl. 2, fig. 5, Tab. A to p. 20, fig. 5c, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858) (*inaequilateralis*), p. 112; ——— ZITTEL & ROHON (1886) (*Scolophodus*), p. 131. Pander's pl. 2, fig. 5 is comp. with Ehlers (1868) *Diopatra neapolitana;* ——— HOLMES (1928), p. 22, pl. 2, fig. 6. Middle fig. is Pander's pl. 2, fig. 5a; left fig. is 5b; rt. fig. is 5c. LO

——**cornutiformis** BRANSON & MEHL (June 1933d), p. 62, pl. 4, fig. 23. Cotypes, C303-3, Univ. Mo., Jefferson City fm., Mo.; ——— BRANSON & TARR (1935), p. 337, fig. 350, upper rt. cor., same as pl. 4, fig. 23 of Branson & Mehl (June 1933); ——— BRANSON (1944), p. 55. LO

——**costatus** PANDER (1856), p. 26, pl. 2, fig. 7; Tab. A to p. 20, fig. 5e, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL & ROHON (1886) (*Scolophodus* p. 131), pp. 116, 131. Pander's pl. 2, fig. 7a is comp. with *Drepanodus sp.* Zittel & Rohon (1886), pl. 1, fig. 1 H. Pander's pl. 2, fig. 7 is comp. with *Onuphius tubicula* Ehlers (1868); ——— HOLMES (1928), p. 22, pl. 2, fig. 7. Pander's pl. 2, fig. 7a is left mid. fig.; 7b is left fig.; 7c is rt. fig.; 7d is rt. mid. fig. LO

——**ellipticus** GUNNELL (1931b), p. 248, pl. 29, fig. 10. Holotype, Gunnell coll., Univ. Mo., mid. sh., Ft. Scott fm., Mo.; ——— STAUFFER & PLUMMER (1932), pp. 25-26, East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, A, Tex.; ——— HARRIS & HOLLINGSWORTH (1933), p. 195, comp. with *Scolopodus sigmoidalis.* MP

——**inconstans** BRANSON & MEHL (June 1933d), pp. 63-64, pl. 4, fig. 1. Holotype, C302-1, Univ. Mo., Jefferson City fm., Mo.; ——— BRANSON (1944), p. 55. LO

——**oklahomensis** HARLTON (1933), p. 12, pl. 3, fig. 6. Cotype, 85517, USNM, Johns Valley sh., Okla.; ——— HARLTON (1933) (ab)Z (1937), p. 177, classed as a selachian by Branson & Mehl; ——— CAMP, TAYLOR, & WELLES (1942), p. 618, ref. to Harlton (1933), Selachi, *incertae sedis.* LP

——**pseudoquadratus** BRANSON & MEHL (June 1933d), p. 63, pl. 4, fig. 19. Holotype, C301-1, Univ. Mo., Jefferson City fm., Mo.; ——— GRAVES & ELLISON (1941), pp. 4, 7, pl. 1, fig. 14. Hypotype, 1345, Mo. Sch. Min., Rolla, Maravillas fm., loc. G610, Tex., Marathon fm., lower memb., loc. G223 (fig.), Tex.; ——— BRANSON (1944), p. 55. L-UO

——**quadraplicatus** BRANSON & MEHL (June 1933d), pp. 62-63, pl. 4, figs. 14-15. Cotypes, C303-2, Univ. Mo., comp. with *Scolopodus cornutiformis,* Jefferson City fm., Mo.; ——— BRANSON & TARR (1935), p. 337, fig. 350, upper center, same as pl. 4, fig. 15 of Branson & Mehl (June 1933); ——— FURNISH (1938), pp. 320-322, 327, 332, pl. 41, figs. 1-12; fig. 1 J. Hypotypes, 1320-1330, Univ. Iowa, comp. with *Distacodus? gracilis,* figs. 1-2 are Oneota fm., Iowa, 3-12 are Shakopee fm., Wisconsin (5-7, 10-12) and Minn. (3-4, 8-9); ——— STAUFFER & THIEL (1941) (*quadriplicatus*), p. 246; ——— GRAVES & ELLISON (1941) (*quadriplicatus* p. 4), pp. 4, 6-7, pl. 1, fig. 10; pl. 3, figs. 2, 5. Hypotypes, 1343 (fig. 10); 2231 (fig. 2), 2232 (fig. 5), loc. G610, Marathon fm., upper memb., loc. G230 (fig. 10), Tex.; ——— BRANSON & MEHL (1944) (*quadruplicatus*), p. 240, pl. 93, figs. 38-39; ——— BRANSON (1944), pp. 45, 55, pl. 6, figs. 31-37, after Mehl and Ryan, from William Ryan's master's thesis (1940), Univ. Mo. LO

——**quadratus** PANDER (1856), p. 26, pl. 2, fig. 6; Tab. A to p. 20, fig. 5d, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL & ROHON (1886), p. 131, comp. with *Marphysa sanguinea* Ehlers (1868), Pander's pl. 2, fig. 6 is alluded to but not printed and was probably a printer's error; ——— HOLMES (1928), p. 22, pl. 2, fig. 8, Pander's pl. 2, fig. 6a is mid. fig.; 6b is left fig.; 6c is rt. upper fig.; 6d is rt. lower fig.; ——— BRANSON & MEHL (June 1933d), p. 63, comp. with *Scolopodus quadraplicatus.* LO

——**semicostatus** PANDER (1856), p. 26, pl. 2, fig. 4, Tab. A to p. 20, fig. 5b, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— HOLMES (1928), p. 22, pl. 2, fig. 9, Pander's pl. 2, fig. 4a is the left fig.; 4b is the rt. fig.; ——— BRANSON & MEHL (1944), p. 240, pl. 93, fig. 27. Topotype fig. LO

——**shakopeensis** FURNISH (1938), pp. 320-321, 332, 334, pl. 41, fig. 13. Syntypes, 1331 (fig. 13), 1332-1333, Univ. Iowa, Shakopee fm., Wis. (fig.), and Minn.; ——— STAUFFER & THIEL (1941), p. 246. LO

——**sigmoidalis** HARRIS & HOLLINGSWORTH (1933), pp. 194-195, pl. 1, figs. 4a-b, 5. Type, 1500, Okla. Univ., Wapanucka fm., Cromwell memb., Okla.; ——— HARRIS & HOLLINGSWORTH (1933) (ab)Z (1937), p. 179, Branson & Mehl state this is not a conodont. LP

——**striatum** HARLTON (1933), p. 12, pl. 3, fig. 1. Holotype, 85516, USNM, Johns Valley sh., Okla.; ——— HARLTON (1933) (ab)Z (1937), p. 177, Branson & Mehl state this is a selachian; ——— CAMP, TAYLOR, & WELLES (1942), p. 618, Selachi, *incertae sedis,* with ref. to Harlton (1933). LP

——**striatus** PANDER (1856), p. 26, pl. 2, fig. 8, Tab. A to p. 20, fig. 5f, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— ZITTEL & ROHON (1886) (*Scolophodus*), p. 131, Pander's pl. 2, fig. 8 is comp. with *Eunice aphroditois* Ehlers (1868); ——— HOLMES (1928), p. 23, pl. 2, fig. 10, Pander's pl. 2, fig. 8a is left mid. fig.; 8b is left fig.; 8c is rt. fig.; 8d is rt. mid. fig. LO

——**sublaevis** PANDER (1856), pp. 25-26, pl. 2, fig. 3, Tab. A to p. 20, fig. 5a, Glaukonitsand, Baltic Provinces, Russ.; ——— PANDER (1856) (ab)N (1858), p. 112; ——— EICHWALD (1860), p. 664; ——— ZITTEL (1890) (*Paltodus bicostatus*), p. 59, fig. 51b, same as pl. 2, fig. 3a of Pander; ——— ZITTEL (1900) (*Paltodus truncatus*), p. 255, fig. 408b, same as fig. 51b of Zittel (1890); ——— ZITTEL (1910) (*Paltodus truncatus*), p. 247, fig. 439b, same as fig. 51b of Zittel (1890); ——— ZITTEL (1913) (*Paltodus truncatus*), p. 140, fig. 223b, same as fig. 51b of Zittel (1890); ——— ZITTEL (1924) (*Paltodus truncatus*), p. 288, fig. 247b, same as fig. 51b of Zittel (1890); ——— ULRICH & BASSLER (1926), p. 7, fig. 2, subfig. 7, Pander's pl. 2, fig. 3a is rt. fig.; 3b is mid. fig.; pl. A to p. 20, fig. 5a is left fig.; ——— HOLMES (1928), pp. 22-23, pl. 2, fig. 11, Pander's pl. 2, fig. 3a is rt. fig.; 3b is left fig.; ——— FURNISH (1938), pp. 331-332; ——— BRANSON & MEHL (1944), p. 240; ——— GLAESSNER (1945), p. 26, fig. 2, subfig. 7, after Ulrich & Bassler (1926). LO

——**sulcatus** FURNISH (1938), pp. 320, 322, 334, pl. 41, figs. 14-15; fig. 1 I, same as pl. 41, figs. 14-15. Syntypes, 1334-1335 (figs. 14-15), Univ. Iowa, Oneota beds, Minn.; ——— STAUFFER & THIEL (1941), p. 246. LO

——**sp.** ROMER (1933), p. 23, fig. 15 left, after Pander.

——**? sp.** C. C. BRANSON (1937), pp. 653, 660, ref. to Gunnell's use of the name, Sacajawea fm., Wyo. M-UMi

——**n. sp.** BRANSON (1944), pp. 45, 52, pl. 6, figs. 27-30, 38-49, pl. 7, figs. 15-16, 25-26, from William Ryan's master's thesis (1940), Univ. Mo., Jefferson City fm., Mo. LO

SCYPHIODUS STAUFFER (1935b), p. 617. Type species, *S. primus* STAUFFER (1935b); ——— BRANSON & MEHL (1938a), p. 159, comp. with *Icriodus;* ——— ELLISON (Jan. 1946), p. 109, very doubtful genus, Mid. Ord.; ——— BRANSON & BRANSON (1947), p. 551, comp. with *Icriodina.* MO

——**primus** STAUFFER (1935b), pp. 617-618, pl. 75, figs. 34, 40-41, 45-46, 50-52, 57-58. Syntypes, B4715, B4721-B4722, B4725-B4726, B4730-B4732, B4737-B4738 resp., Univ. Minn., Spechts Ferry memb., locs. 40 (figs. 34, 40, 46, 50-52), 37 (figs. 41, 45, 57-58), 94, Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

SIPHONODELLA (*Siphonognathus*) BRANSON & MEHL (Oct. 1934a), pp. 265, 295. Type species, *Siphonognathus duplicata* BRANSON & MEHL (Oct. 1934a); ——— (*Siphonognathus*) E. R. BRANSON (1934), p. 315; ——— (*Siphonognathus*) BRANSON & MEHL (1938a), p. 157; ——— (*Siphonognathus*) KNECHTEL & HASS (1938), p. 519; ——— (*Siphonognathus*) BRANSON & MEHL (1938d), pp. 129, 131, 148; ——— (*Siphonognathus*) BRANSON (1938c), p. 179; ——— (*Siphonognathus*) COOPER (1939), pp. 383, 409; ——— (*Siphonognathus*) BRANSON & MEHL (1941d), p. 202; ——— (*Siphonognathus*) COOPER & SLOSS (1943), p. 174; ——— (*Siphonognathus*) HASS (1943), p. 307, loc. 8432, Mont.; ——— BRANSON & MEHL (1944), p. 245 (*nomen nudum*); ——— (*Siphonognathus*) BRANSON & MEHL (1944), p. 245; ——— ELLISON (Jan. 1946), pp. 94, 101, 103, 110, Kinderhook through lower Osage, platform type (*nomen nudum*); ——— (*Siphonognathus*) ELLISON (Jan. 1946), p. 110; ——— (*Siphonognathus*) CAMPBELL (1946), pp. 852-853, from Jacobs Chapel, Henryville, Falling Run, and Sanderson fms., Ind., partly on this genus the Lower Miss. boundary is placed at base of Sanderson fm.; ——— HASS (Mar. 1947), pp. 132, 137, upper and basal Sunbury and basal Orangeville shs., Ohio (*nomen nudum*); ——— MEHL & THOMAS (1947), pp. 6, 8 (*nomen nudum*); ——— (*Siphonognathus* and *Siphonodella*) COOPER (July 1948a), pp. 359, 361-362; ——— BRANSON & MEHL (1948), p. 528, *Siphonognathus* is a homonym changed to *Siphonodella.* J. Richardson, P. Zool. Soc. London, vol. 25, p. 237 (1858), Pisc. Teleost, was first use of *Siphonognathus;* ——— CLOUD & BARNES (1948), p. 317, red siliceous ls., 2 in. layer, 27 in. above Ives breccia, loc. 16T-2-32C, central Tex.; ——— (*Siphonognathus* p. 70) YOUNGQUIST & PATTERSON LMi

(1949), pp. 57, 70; ——— THOMAS (1949), p. 410.

In the following list, a dash (—) will represent the name *Siphonodella*, unless *Siphonognathus* is spelled out in parentheses ( ) before the author's name, in which latter case *Siphonognathus* was used by said author.

——**crenulata** (*Siphonognathus*) COOPER (1939), p. 409, pl. 41, figs. 1-2. Holotype, 39068, Univ. Chi., pre-Welden sh., Okla.; ——— (*Siphonognathus*) SCOTT (1942), p. 297, ref. to pl. 41, fig. 2 of Cooper (1939), comp. with fig. 6 on same pl. as a pair. LMi

——**duplicata** (*Siphonognathus*) BRANSON & MEHL (Oct. 1934a), pp. 295-297, pl. 24, figs. 16-17. Cotypes, C381-3, Univ. Mo., comp. with *Siphonodella quadruplicata*, Bushberg ss., Mo.; ——— (*Siphonognathus*) E. R. BRANSON (1934), p. 315, pl. 25, figs. 1, 13-16. Fig. spms., C214-6, C200-4, C214-1, C206-1, Univ. Mo., Hannibal fm., Mo.; ——— (*Siphonognathus*) BRANSON (1938a), p. 182; ——— (*Siphonognathus*) KNECHTEL & HASS (1938), p. 519, basal sh., Lodgepole ls., USGS coll. 8432, Mont.; ——— (*Siphonognathus*) BRANSON & MEHL (1938d), pp. 131, 133, 136, 148, pl. 34, figs. 34-35; pl. 33, fig. 17. Fig. spms., C48-2, C349-2 (figs. 34-35), C206-1 (fig. 17), Univ. Mo., Chouteau ls., (figs. 34-35), Hannibal fm., (fig. 17), Mo. [*Polygnathus plana* Huddle (1934), pl. 8, figs. 39-43 is classed as a jr. syn.]; ——— (*Siphonognathus*) HASS (1941), p. 80; ——— (*Siphonognathus*) HASS (1943), p. 308; ——— (*Siphonognathus* and *Siphonodella*) BRANSON & MEHL (1944), p. 245; ——— (*Siphonognathus*) BRANSON (1944), pp. 181, 222, pl. 32, fig. 17, Bushberg ss., (fig.) and Hannibal fms., Mo.; ——— (*Siphonognathus*) BRANSON (1944), pp. 208e, 222, pl. 39, figs. 34-35, Chouteau ls., Mo.; ——— HASS & LINDBERG (1946), p. 503, figs. 1-4. Fig. spm., USGS, Carboniferous, no. 7512; ——— HASS (Mar. 1947), p. 137, upper Sunbury sh., Bushberg ss., Hannibal sh. and upper New Albany sh.; ——— (*Siphonognathus* and *Siphonodella*) YOUNGQUIST & PATTERSON (1949), pp. 69, 71, pl. 16, figs. 7-10. Hypotypes, 4144-4145 (figs. 7-8), 4146 (figs. 9-10), 4147-4148 (unfig.), Prospect Hill ss., Iowa, *Polygnathus plana* Huddle (1934), and *Siphonodella quadruplicata* (pt.) Cooper (1939), pl. 41, figs. 44-45 are classed as jr. syns.; ——— THOMAS (1949), pp. 409-410, 412, 414, pl. 3, figs. 8-9. Fig. spms., Univ. Mo., C809-5 (fig. 8), loc. 11, English River siltstone; C819-3 (fig. 9), loc. 2, Prospect Hill siltstone (abundant), Iowa. LMi

——**isolopha** (*Siphonognathus*) COOPER (1939), p. 409, pl. 41, figs. 5-6, 19-20. Holotype, 39069; paratype, 39070 (figs. 19-20), Univ. Chi., pre-Welden sh., Okla.; ——— (*Siphonognathus*) SCOTT (1942), p. 297, ref. to pl. 41, fig. 6 of Cooper (1939) (*Siphonognathus crenulate*), comp. with fig. 47 of same pl. as a pair; ——— (pt.) YOUNGQUIST & PATTERSON (1949), p. 70, ref. to Copper (1939), pl. 41, figs. 5-6, but not figs. 19-20, classed as jr. syn. of *Siphonodella quadruplicata*. LMi

——**isosticha** (*Siphonognathus*) COOPER (1939), p. 409, pl. 41, figs. 9-10. Holotype, 38975, Univ. Chi., pre-Welden sh., Okla. LMi

——**lobata** (*Siphonognathus*) BRANSON & MEHL (Oct. 1934a), p. 297, pl. 24, figs. 14-15. Cotypes, C380-2, Univ. Mo., Bushberg ss., Mo.; ——— (*Siphonognathus*) BRANSON (1938a), p. 182; ——— (*Siphonognathus*) BRANSON & MEHL (1938d), p. 130, pl. 33, figs. 49-50. Cotypes fig.; ——— (*Siphonognathus*) COOPER (1939) (*lobatus*, p. 409), pp. 409, 420, pl. 41, figs. 36-37, 46-47. Hypotypes, 39071, 39072, Univ. Chi., comp. with *Siphonodella perlobata*, pre-Welden sh., Okla.; ——— (*Siphonognathus*) SCOTT (1942), p. 297, ref. to Cooper (1939), pl. 41, fig. 47, comp. with fig. 20 (*Siphonodella isolopha*) of same pl. as a pair; ——— BRANSON & MEHL (1944), p. 245, pl. 94, fig. 55; ——— BRANSON (1944), pp. 181, 222, pl. 32, figs. 49-50, Bushberg ss., Mo. LMi

——**newalbanyensis** (*Siphonognathus*) (COOPER) (1939), pp. 409, 420, pl. 41, figs. 21-22. Hypotype, 39073, Univ. Chi., pre-Welden sh., Okla. (*Polygnathus*); ——— (*Siphonognathus*) (SCOTT) (1942), p. 297, ref. to Cooper (1939), pl. 41, fig. 22, comp. with fig. 29 (*Siphonodella perlobata*) of same pl. as a pair; ——— (*Siphonognathus*) (CAMPBELL) (1946), p. 853, classed as jr. syn. of *Siphonodella quadruplicata* (spelled *quarduplicata*) and *Siphonodella sexplicata*. LMi

——**perlobata** (*Siphonognathus*) COOPER (1939), p. 409, pl. 41, figs. 28-29. Holotype, 39074, Univ. Chi., pre-Welden sh., Okla.; ——— (*Siphonognathus*) SCOTT (1942), p. 297, ref. to Cooper (1939), pl. 41, fig. 29, comp. with fig. 22 (*Siphonodella newalbanyensis*) of same pl. as a pair. LMi

——**plana** (HASS) (Mar. 1947), pp. 136-137, basal Orangeville sh., questionably from basal-Sunbury sh., and from upper New Albany sh., Ohio (perhaps *Polygnathus*). LMi

——**ponderosa** YOUNGQUIST & PATTERSON (1949), pp. 69-70, pl. 16, fig. 17. Holotype, 4149; paratype, 4150 (unfig.), Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**quadruplicata** (*Siphonognathus*) BRANSON & MEHL (Oct. 1934a), pp. 295-297, pl. 24, figs. 18-21. Cotypes, C382-2, Univ. Mo., comp. with *Siphonodella sexplicata* and *Siphonodella duplicata*, Bushberg ss., Mo.; ——— (*Siphonognathus*) E. R. BRANSON (1934), p. 315; ——— (*Siphonognathus*) BRANSON (1938a), p. 182; ——— (*Siphonognathus*) KNECHTEL & HASS (1938), p. 519, *Polygnathus newalbanyensis* is classed as a syn., USGS coll. 8432, basal sh., Lodgepole ls., Mont.; ——— (*Siphonognathus*) BRANSON & MEHL (1938d), p. 131, pl. 33, figs. 57-58. Cotypes fig., Univ. Mo., *Polygnathus newalbanyensis* Huddle (1934), pl. 8, fig. 27 and possibly fig. 28 are classed as syns., Bushberg ss., Mo.; ——— (*Siphonognathus*) COOPER (1939), pp. 409, 420, pl. 41, figs. 44-45. Hypotype, 39075, Univ. Chi., pre-Welden sh., Okla.; ——— (*Siphonognathus*) HASS (1941), p. 80; ——— (*Siphonognathus*) HASS (1943), p. 308; ——— BRANSON & MEHL (1944), p. 245, pl. 94, figs. 44-45; ——— (*Siphonognathus*) BRANSON (1944), pp. 181, 222, pl. 32, figs. 57-58, Bushberg ss., Mo.; ——— (*Siphonognathus*) CAMPBELL (1946) (*quarduplicata*), p. 853, *Siphonodella newalbany-* LMi

ensis is a syn.; ——— HASS (Mar. 1947), p. 137, upper Sunbury sh., Ohio; ——— YOUNGQUIST & PATTERSON (1949), pp. 70-71, pl. 16, fig. 11. Hypotypes, 4151 (fig. 11), 4152-4153 (unfig.), Univ. Iowa, Prospect Hill ss., Iowa, *Siphonodella newalbanyensis* Cooper (1939) (pt.), pl. 41, figs. 21-22; *Siphonodella isolopha* Cooper (1939) (pt.), pl. 41, figs. 5-6 (not figs. 19- 20) and *Siphonodella quadruplicata* Cooper (1939) (pt.) (not pl. 41, figs. 44-45) are classed as jr. syns.; ——— (*Siphonognathus*) YOUNGQUIST & PATTERSON (1949), p. 69, ref. to Cooper (1939) (pt.), pl. 41, figs. 44-45, classed as jr. syn. of *Siphonodella duplicata;* ——— THOMAS (1949), pp. 409-410, 412, 414, pl. 3, figs. 2-3, 6. Fig. spms., C809-1 (fig. 2), C805-1 (fig. 3), C814-3 (fig. 6), Univ. Mo., Prospect Hill ss., loc. 2 (fig. 2), English River ss., locs. 11 (fig. 6), 12 (fig. 3), Iowa.

——**sexplicata** (*Siphonognathus*) BRANSON & MEHL (Oct. 1934a), pp. 265, 295-296, pl. 24, figs. 22-23. Cotypes, C381-5, Univ. Mo., comp. with *Siphonodella quadruplicata*, Bushberg ss., Mo.; ——— (*Siphonognathus*) BRANSON (1938a), p. 182; ——— (*Siphonognathus*) BRANSON & MEHL (1938d), pp. 129-131, 136, pl. 33, fig. 59. Fig. spm., C15-2, Univ. Mo., Bushberg ss., Mo., *Polygnathus newalbanyensis* Huddle (1934), pl. 8, fig. 26 (not fig. 27 and prob. not fig. 28) is classed as a jr. syn.; ——— (*Siphonognathus*) COOPER (1939), pp. 410, 420, pl. 41, figs. 3-4, 7-8, 38-39. Hypotypes, 39076-39078, Univ. Chi., pre-Welden sh., Okla.; ——— (*Siphonognathus*) HASS (1941), pp. 80-81, probably should be found in younger beds than *Siphonodella quadruplicata* or *duplicata;* ——— (*Siphonognathus*) COOPER & SLOSS (1943) (*cf. sexplicata*, p. 171 and pl.), pp. 171, 174, pl. 29, fig. 30, black sh., base Madison gr., loc. 2, Mont.; ——— (*Siphonognathus*) HASS (1943), p. 308, *Siphonodella n. sp.* Knechtel & Hass (1938) is classed as a jr. syn.; ——— (*Siphonognathus*) BRANSON (1944), pp. 181, 222, pl. 32, fig. 59, Bushberg ss., Mo.; ——— CAMPBELL (1946), p. 853; ——— (*Siphonognathus* and *Siphonodella*) YOUNGQUIST & PATTERSON (1949), pp. 70-71, pl. 16, fig. 12. Hypotypes, 4154 (fig. 12), 4155-4156, Univ. Iowa, Prospect Hill ss., Iowa, *Polygnathus newalbanyensis* (pt.) Huddle (1934), pl. 8, fig. 26 and *Siphonodella n. sp.* Knechtel & Hass (1938), p. 519 are classed as jr. syns.; ——— THOMAS (1949), pp. 409-410, 412, pl. 3, fig. 1. Fig. spm., C819-5, Univ. Mo., English River and Prospect Hill (fig. 1) siltstones, loc. 1, Iowa. LMi

——**n. sp.** (*Siphonognathus*) KNECHTEL & HASS (1938), p. 519, USGS 8432, basal sh., Lodgepole ls., Mont.; ——— (*Siphonognathus*) HASS (1943), p. 308, classed as jr. syn. of *Siphonodella sexplicata;* ——— (*Siphonognathus*) YOUNGQUIST & PATTERSON (1949), p. 70, classed as jr. syn. of *Siphonodella sexplicata.* LMi

——**sp.** (*Siphonognathus*) HASS (1941), p. 76, pl. 13, fig. 1. Fig. spm., 7541, USGS, Bushberg-Hannibal horizon, Okla. LMi

——**sp.** (*Siphonognathus*) HASS (1941), p. 76, pl. 16, fig. 5. Fig. spm., 7553, USGS, Bushberg-Hannibal horizon, Okla. LMi

——**sp.** (*Siphonognathus*) HASS (1941), pp. 76-77, pl. 12, figs. 1-5. Fig. spms., 7536-7540, USGS, Bushberg-Hannibal horizon, Okla. LMi

SOLENODELLA (*Solenognathus*) BRANSON & MEHL (Oct. 1934a), pp. 270-271. Type species, *Solenognathus lacerata* BRANSON & MEHL (Oct. 1934a); ——— (*Solenognathus*) E. R. BRANSON (1934), p. 331; ——— (*Solenognathus*) BRANSON & MEHL (1938a), p. 157; ——— (*Solenognathus*) BRANSON & MEHL (1938d), pp. 129, 131, 140; ——— (*Solenognathus*) BRANSON (1938c), p. 179; ——— (*Solenognathus*) COOPER (1939), p. 410; ——— (*Solenognathus*) HASS (1941), p. 77; ——— (*Solenognathus*) BRANSON & MEHL (1941d), p. 202; ——— (*Solenognathus*) SCOTT (1942), p. 297; ——— (*Solenognathus*) HASS (1943), p. 307, loc. 8432, Mont.; ——— BRANSON & MEHL (1944), p. 244, (*nomen nudum*); ——— (*Solenognathus*) BRANSON & MEHL (1944), p. 244; ——— ELLISON (Jan. 1946), pp. 94, 96, 101, 103, 108, 110, (*nomen nudum*), Kinderhook through lower Osage, platform type, *Solenognathus* is preoccupied, *Elictognathus* is a jr. syn. of *Solenodella*, the transition from *Ozarkodina* to *Solenodella* is known; ——— (*Solenognathus*) CAMPBELL (1946), p. 852, upper New Albany sh.; ——— HASS (Mar. 1947), pp. 132, 137, (*nomen nudum*), present in Sunbury sh., Ohio; ——— MEHL & THOMAS (1947), p. 6, (*nomen nudum*); ——— (*Solenognathus*) COOPER (July 1948a), pp. 359, 362, upper New Albany sh., Ind.; Pierson ls., Mo.; Sycamore fm., Okla.; ——— COOPER (July 1948a), pp. 361-362, (*nomen nudum*), absent from Rockford fauna, common to Jacobs Chapel, pre-Welden, Hannibal, and Bushberg fms.; ——— BRANSON & MEHL (1948), p. 527, *Solenognathus* is a homonym, now officially changed to *Solenodella*. First use of name was W. Swainson (1839), L. Agassiz Nomenc. Zool.-Index pp. 343-344, (1846), Pisc. Teleost; ——— CLOUD & BARNES (1948), p. 316, Ives breccia, 8-14 in. layer, central Tex.; ——— YOUNGQUIST & PATTERSON (1949), p. 60; ——— THOMAS (1949), pp. 409, 428. LMi

A dash (—) will represent the name *Solenodella*, unless *Solenognathus* precedes the author's name, in which case the generic name used was *Solenognathus*.

——**amphelicta** (*Solenognathus*) COOPER (1939), p. 410, pl. 44, figs. 10-12. Holotype, 39079, Univ. Chi., pre-Welden sh., Okla. LMi

——**anida** (*Solenognathus*) COOPER (1939), p. 410, pl. 44, figs. 46-48. Holotype, 39080, Univ. Chi., pre-Welden sh., Okla.; ——— (*Solenognathus*) COOPER & SLOSS (1943) (*cf. anida*), p. 171, pl. 29, fig. 20, black sh., base Madison gr., Mont. LMi

——**anomala** (*Solenognathus*) COOPER (1939), p. 410, pl. 44, figs. 15-17. Holotype, 39082, Univ. Chi., pre-Welden sh., Okla. LMi

——**anomalodus** (*Solenognathus*) COOPER (1939), p. 410, pl. 44, figs. 27-29. Holotype, 39081, Univ. Chi., pre-Welden sh., Okla. LMi

——**araia** (*Solenognathus*) COOPER (1939), p. 410, pl. 44, figs. 31-32. Holotype, 39083, Univ. Chi., pre-Welden sh., Okla. LMi

——**bialata** (*Solenognathus*) BRANSON & MEHL (Oct. 1934a), p. 273, pl. 22, fig. 11. Holotype, C394-5, Univ. Mo., Bushberg ss., Mo.; LMi

——— (*Solenognathus*) BRANSON (1938a), p. 182; ——— (*Solenognathus*) BRANSON & MEHL (1938d), pl. 33, fig. 30. Holotype fig.; ——— (*Solenognathus*) COOPER (1939), p. 387, ref. to Branson & Mehl (Oct. 1934a), p. 273, classed as a syn. of *Elictognathus;* ——— BRANSON & MEHL (1944), p. 244, pl. 94, fig. 6; ——— (*Solenognathus*) BRANSON (1944), pp. 181, 222, pl. 32, fig. 30, Bushberg ss., Mo.; ——— THOMAS (1949), p. 429, comp. with *Solenodella lateranodosa;* ——— THOMAS (1949) (*cf. bialata*), p. 412, pl. 3, fig. 26. Fig. spm., C813-4, Univ. Mo., English River siltstone, loc. 12, Iowa.

——**bidentata** (*Solenognathus*) COOPER (1939), p. 410, pl. 45, figs. 9-10. Holotype, 39084, Univ. Chi., pre-Welden sh., Okla. LMi

——**camura** (*Solenognathus*) (COOPER) (1939), pp. 410, 420, pl. 44, figs. 58-60. Hypotype, 39085, Univ. Chi., pre-Welden sh., Okla., (*Bryantodus*). LMi

——**carinata** (*Solenognathus*) (COOPER) (1939), pp. 410, 420, pl. 43, figs. 55-57. Hypotype, 39086, Univ. Chi., pre-Welden sh., Okla., (*Polygnathellus*). LMi

——**costata** (*Solenognathus*) E. R. BRANSON (1934), p. 332, pl. 27, fig. 7. Holotype, C219-1, Univ. Mo., Hannibal fm., Mo.; ——— (*Solenognathus*) BRANSON & MEHL (1938d), p. 133, pl. 33, fig. 12. Holotype fig.; ——— (*Solenognathus*) COOPER (1939), pp. 410-411, 420, pl. 44, figs. 33-35. Hypotype, 39882, Univ. Chi., pre-Welden sh., Okla.; ——— (*Solenognathus*) BRANSON (1944), pp. 181, 222, pl. 32, fig. 12, Hannibal fm., Mo. LMi

——**curta** (*Solenognathus*) COOPER (1939), p. 411, pl. 45, figs. 5-6. Holotype, 39093, Univ. Chi., pre-Welden sh., Okla. LMi

——**dicha** (*Solenognathus*) COOPER (1939), p. 411, pl. 44, figs. 70-72. Holotype, 39087, Univ. Chi., pre-Welden sh., Okla. LMi

——**dicrocheila** (*Solenognathus*) E. R. BRANSON (1934), p. 333, pl. 27, fig. 9. Cotype, C202-2, Univ. Mo., Hannibal fm., Mo.; ——— (*Solenognathus*) BRANSON & MEHL (1938d), p. 133; ——— (*Solenognathus*) COOPER (1939), p. 411, 420, pl. 45, figs. 7-8. Hypotype, 39088, Univ. Chi., pre-Welden sh., Okla.; ——— (*Solenognathus*) BRANSON (1944), p. 222, Hannibal fm., Mo. LMi

——**eura** (*Solenognathus*) COOPER (1939), p. 411, pl. 44, figs. 7-9. Holotype, 39089, Univ. Chi., pre-Welden sh., Okla. LMi

——**eurynota** (*Solenognathus*) COOPER (1939), p. 411, pl. 44, figs. 55-57. Holotype, 39090, Univ. Chi., pre-Welden sh., Okla. LMi

——**fulcrata** (*Solenognathus*) BRANSON & MEHL (Oct. 1934a), pp. 272-273, pl. 22, figs. 8-10. Cotypes, C382-5, Univ. Mo., Bushberg ss., Mo.; ——— (*Solenognathus*) BRANSON (1938a), p. 182; ——— (*Solenognathus*) BRANSON & MEHL (1938d), pl. 33, fig. 29. Fig. spm., C383-2, Univ. Mo., Bushberg ss., Mo.; ——— (*Solenognathus*) COOPER (1939) (*fulcra* p. 411 and *fulcrum* p. 420), pp. 411, 420, pl. 44, figs. 61-63. Hypotype, 39091, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON & MEHL (1944), p. 244, pl. 94, fig. 5; ——— (*Solenognathus*) BRANSON (1944), pp. 181, 222, pl. 32, fig. 29, Bushberg, ss., Mo. LMi

——**isomeces** (*Solenognathus*) COOPER (1939), p. 411, pl. 44, figs. 4-6. Holotype, 39092, Univ. Chi., pre-Welden sh., Okla. LMi

——**lacerata** (*Solenognathus*) BRANSON & MEHL (Oct. 1934a), pp. 270-272, pl. 22, figs. 5-6. Cotypes, C383-1, Univ. Mo. Type species for *Solenodella*, comp. with *Solenodella tabulata* Branson & Mehl (Oct. 1934a), Bushberg ss., Mo.; ——— (*Solenognathus*) BRANSON (1938a), p. 182; ——— (*Solenognathus*) BRANSON & MEHL (1938d), p. 131, pl. 33, fig. 27. Fig. spm., C383-1, Univ. Mo., Bushberg ss., Mo., *Bryantodus camurus* is a jr. syn.; ——— (*Solenognathus*) COOPER (1939), pp. 411, 420, pl. 44, fig. 30. Hypotype, 39094, Univ. Chi., pre-Welden sh., Okla.; ——— (*Solenodella* and *Solenognathus*) BRANSON & MEHL (1944), p. 244, pl. 94, fig. 4; ——— (*Solenognathus*) BRANSON (1944), pp. 181, 222, pl. 32, fig. 27, Bushberg ss., Mo.; ——— HASS (Mar. 1947), p. 137, upper Sunbury sh., Bushberg ss., Hannibal sh., and upper New Albany sh. LMi

——**lateranodosa** THOMAS (1949), pp. 412, 428-429, pl. 3, fig. 19. Holotype, C813-1, Univ. Mo., English River siltstone, loc. 12, Iowa. LMi

——**macra** (*Solenognathus*) COOPER (1939), pp. 411-412, pl. 44, figs. 13-14. Holotype, 39095, Univ. Chi., pre-Welden sh., Okla. LMi

——**micra** (*Solenognathus*) COOPER (1939), p. 412, pl. 44, figs. 40-41. Holotype, 39096, Univ. Chi., pre-Welden sh., Okla. LMi

——**oliga** (*Solenognathus*) COOPER (1939), p. 412, pl. 44, figs. 21-23, 52-54. Holotype, 39097 (figs. 21-23); paratype, 39098, Univ. Chi., pre-Welden sh., Okla. LMi

——**pecta** (*Solenognathus*) COOPER (1939), p. 412, pl. 44, figs. 1-3. Holotype, 39099, Univ. Chi., pre-Welden sh., Okla. LMi

——**peculiaris** (*Solenognathus*) E. R. BRANSON (1934), pp. 331-332, pl. 28, fig. 13. Holotype, C210-5, Univ. Mo., Hannibal fm., Mo.; ——— (*Solenognathus*) BRANSON & MEHL (1938d), p. 133; ——— (*Solenognathus*) BRANSON (1944), p. 222, Hannibal fm., Mo. LMi

——**plecta** (*Solenognathus*) COOPER (1939), p. 412, pl. 43, figs. 47-52, 58-60. Holotype, 39100 (figs. 47-49); paratypes, 39801-39802, Univ. Chi., pre-Welden sh., Okla. LMi

——**syntyla** (*Solenognathus*) COOPER (1939), p. 412, pl. 44, figs. 38-39. Holotype, 39803 (39083 on pl.), Univ. Chi., pre-Welden sh., Okla. LMi

——**tabulata** (*Solenognathus*) BRANSON & MEHL (Oct. 1934a), pp. 271-272, pl. 22, fig. 7. Cotypes, C395-2, Univ. Mo., Bushberg ss., Mo.; ——— (*Solenognathus*) BRANSON (1938a), p. 182; ——— (*Solenognathus*) BRANSON & MEHL (1938d), pl. 33, fig. 28. Cotype fig., Univ. Mo., Bushberg ss., Mo.; ——— (*Solenognathus*) COOPER (1939), pp. 412, 420, pl. 44, figs. 64-66. Hypotype, 39804, Univ. Chi., pre-Welden sh., Okla.; ——— (*Solenognathus*) BRANSON (1944), pp. 181, 222, pl. 32, fig. 28, Bushberg ss., Mo. LMi

——**tenera** (*Solenognathus*) E. R. BRANSON (1934), pp. 332-333, pl. 27, fig. 8. Holotype, C217-5, Univ. Mo., Hannibal fm., Mo.; ——— (*Solenognathus*) BRANSON & MEHL (1938d), pp. 133, 140, pl. 34, fig. 14. Fig. spm., C351-3, Univ. Mo., Chouteau ls., Mo.; ——— (*Sole-* LMi

nognathus) COOPER (1939), pp. 412, 420, pl. 44, figs. 36-37. Hypotype, 39805, Univ. Chi., pre-Welden sh., Okla.; ——— (*Solenognathus*) BRANSON (1944), pp. 208e, 222, pl. 39, fig. 14, Chouteau ls., Mo.; ——— THOMAS (1949), pp. 409, 412, pl. 3, figs. 18, 20. Fig. spms., C812-2, Univ. Mo., English River siltstone, loc. 14 (fig.) and Prospect Hill siltstone, Iowa.

——**trinodus** (*Solenognathus*) COOPER (1939), p. 412, pl. 44, figs. 67-69. Holotype, 39806, Univ. Chi., pre-Welden sh., Okla. LMi

——**tyla** (*Solenognathus*) COOPER (1939), p. 412, pl. 44, figs. 24-26, 42-43. Holotype, 39807 (figs. 24-26); paratype, 39010, Univ. Chi., pre-Welden sh., Okla. LMi

——**typica** (*Solenognathus*) COOPER (1939), p. 412, pl. 44, figs. 18-20, 44-45, 49-51. Holotype, 39808 (figs. 18-20); paratypes, 39809-39810, Univ. Chi., pre-Welden sh., Okla.; ——— (*Solenognathus*) COOPER & SLOSS (1943), p. 171, pl. 28, fig. 13, black sh., base Madison gr., loc. 2, Mont. LMi

——**n. spp.** (*Solenognathus*) KNECHTEL & HASS (1938), p. 519, USGS coll. 8432, two n. spp. from basal sh., Lodgepole ls., Mont.; ——— HASS (1943), p. 308, classed as *Solenodella sp. fragments.* LMi

——**sp.** (*Solenognathus*) HASS (1941), pp. 75, 77-78, pl. 13, figs. 3-4, 7. Fig. spms., 7543-7544 (figs. 3-4), 7545 (fig. 7), USGS, Bushberg-Hannibal horizon, Okla. LMi

——**sp. fragments** (*Solenognathus*) (HASS) (1943), p. 308, *Solenodella 2 n. spp.* Knechtel & Hass (1938) are sr. syns. LMi

SPATHOGNATHODUS (*Spathodus*) BRANSON & MEHL (June 1933c), pp. 41, 46, 52. Type species, *Spathodus primus* BRANSON & MEHL (June 1933c); ——— (*Spathodus*) BRANSON & MEHL (Mar. 31, 1932b), p. 287 (*nomen nudum*); ——— (*Spathodus*) BRANSON & MEHL (July 1933d), pp. 152-153; ——— (*Spathodus*) BRANSON & MEHL (June 1934a), pp. 184, 216, 225, 227, comp. with *Icriodus* and *Nothognathella;* ——— (*Spathodus*) BRANSON & MEHL (Oct. 1934a), pp. 269, 271, 274, 298, comp. with *Pinacognathus, Solenodella,* and *Pseudopolygnathus;* ——— (*Spathodus*) E. R. BRANSON (1934), p. 303; ——— (*Spathodus*) HUDDLE (1934), pp. 13, 24, 26-28, 35-36, 89, 112, may have come from *Bryantodus* or *Prioniodella,* and prob. gave rise to *Polygnathellus, Polygnathus,* and *Gondolella,* comp. with *Prioniodella, Panderodella, Polygnathellus,* and *Polygnathus,* classed as a prob. jr. syn. of *Gnathodus;* ——— (*Spathodus*) COOPER (1935), p. 315; ——— (*Spathodus*) BRANSON & MEHL (1938a), p. 159, comp. with *Icriodus;* ——— (*Spathodus*) BRANSON & MEHL (1938d), pp. 132, 136-137; ——— (*Spathodus*) COOPER (1939), pp. 383, 397, 413, comp. with *Nodognathus;* ——— BRANSON & MEHL (1941a), p. 172, Caney sh., Okla., (*nomen nudum*); ——— (*Spathodus*) BRANSON & MEHL (1941b), p. 180; ——— BRANSON & MEHL (1941b), p. 187 (*nomen nudum*); ——— BRANSON & MEHL (1941e), p. 98, *Spathodus* is a homonym preoccupied by *Spathodus* Boulenger (1900) given to an African fish genus. Its new name is now *Spathognathodus;* ——— (*Spathodus*) ELLISON (1941), pp. 109, 120, 127, gave rise to *Streptognathodus* and *Idiognathodus;* ——— ELLISON & GRAVES (1941), p. 2; ——— (*Spathodus*) SCOTT (1942), p. 295; ——— SCOTT (1942), pp. 293, 295-299; ——— COOPER & SLOSS (1943), pp. 171, 174; ——— (*Spathodus* and *Spathognathodus*) BRANSON & MEHL (1944), p. 244; ——— YOUNGQUIST (1945), pp. 363, 365, comp. with *Mehlina;* ——— COOPER (1945), p. 614; ——— ELLISON (Jan. 1946), pp. 95-96, 104, 109-110, Niagara through Wolfcamp, blade type, all gradational forms are known from *Spathognathodus* to *Gnathodus. Lochriea* (pt.) and prob. *Mehlina* and *Pandorina* are classed as jr. syns.; ——— (*Spathodus*) CAMPBELL (1946), p. 852, upper New Albany sh.; ——— (*Spathodus* and *Spathognathodus*) BOND (1947), p. 35; ——— YOUNGQUIST (1947), p. 112; ——— HASS (Mar. 1947), pp. 132, 135-136, 140, upper and basal Sunbury, Bedford, upper and lower Ohio, Cleveland, and Huron shs., Ohio; ——— MEHL & THOMAS (1947), p. 6; ——— (*Spathodus*) COOPER (1947b), p. 269; ——— (*Spathodus*) MCLAUGHLIN (1947), p. 1947, Glen Eyrie beds, Colo.; ——— (*Spathodus*) COOPER (July 1948a), p. 359, upper New Albany sh.; ——— WILSON (1948), p. 55, comp. with *Ottawella* Wilson (1948); ——— YOUNGQUIST & PATTERSON (1949), pp. 57, 60; ——— YOUNGQUIST & DOWNS (1949), pp. 161-162, 170; ——— THOMAS (1949), pp. 409, 429; ——— STURGEON & YOUNGQUIST (1949), pp. 380, 382. LS-LPm

In the following list, a dash (—) will represent the name *Spathognathodus* unless the name *Spathodus* in parentheses ( ) precedes the author's name, in which latter case the name represented is *Spathodus.*

——**abbreviatus** (*Spathodus*) BRANSON & MEHL (1938d), pp. 137-138, pl. 34, figs. 4-5. Holotype, C30-1 (fig. 4); fig. spm., C252-3, Univ. Mo., Chouteau ls., Mo.; ——— (*Spathodus* p. 208e and pl.) BRANSON (1944), pp. 208e, 222, pl. 39, figs. 4-5, Chouteau ls., Mo. LMi

——**abnormis** (*Spathodus*) BRANSON & MEHL (Oct. 1934a), pp. 277-278, pl. 22, fig. 20. Cotypes, C384-3, Univ. Mo., comp. with *Spathognathodus mediocris,* Bushberg ss., Mo.; ——— (*Spathodus*) E. R. BRANSON (1934), p. 308, pl. 28, fig. 22. Fig. spm., C202-4, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON (1938a), p. 182; ——— (*Spathodus*) BRANSON & MEHL (1938d), pp. 132, 138, pl. 34, fig. 11; pl. 33, figs. 3, 40. Fig. spms., C353-3 (fig. 11), C202-4 (fig. 3), C384-5 (fig. 40), Univ. Mo., Chouteau ls. (fig. 11), Hannibal fm. (fig. 3), Bushberg ss. (fig. 40), Mo.; ——— (*Spathodus*) COOPER (1939), p. 398, ref. to Branson & Mehl (1938), pl. 34, fig. 11, classed as syn. of *Ozarkodina;* ——— (*Spathodus*) COOPER (1939), pp. 413, 420, pl. 45, figs. 39, 42. Hypotypes, 39811-39812, Univ. Chi., pre-Welden sh., Okla.; ——— (*Spathodus* p. 181 and pl.) BRANSON (1944), pp. 181, 222, pl. 32, figs. 3, 40, Bushberg ss. (fig.), and Hannibal fm., Mo.; ——— (*Spathodus* p. 208e and pl.) BRANSON (1944), pp. 208e, 222, pl. 39, fig. 11, Chouteau ls., Mo.; ——— THOMAS (1949), p. 429, comp. with *Spathognathodus flexus* Thomas (1949). LMi

——**abruptus** (*Spathodus*) BRANSON & MEHL (1938d), p. 138, pl. 34, figs. 15-16. Holotype, C30-5 (fig. 15); paratype, C354-3 (fig. 16), Univ. Mo., Chouteau ls., Mo.; ——— LMi

(*Spathodus* p. 208e and pl.) BRANSON (1944), pp. 208e, 222, pl. 39, figs. 15-16, Chouteau ls., Mo.; ——— BRANSON (1944), p. 223.

——**aciedentatus** (*Spathodus*) E. R. BRANSON (1934), p. 306, pl. 27, figs. 21, 23. Cotypes, C219-3, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 132; ——— (*Spathodus*) COOPER (1939), pp. 413, 420, pl. 45, figs. 26, 28, 44. Hypotypes, 39813-39815, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), pp. 171, 174, pl. 28, fig. 2, black sh., base Madison gr., loc. 1, Alta.; ——— BRANSON (1944), p. 223, Hannibal fm., Mo.; ——— HASS (Mar. 1947), p. 136, Bedford, basal Sunbury, basal Orangeville, and upper New Albany shs., Bushberg ss., and Hannibal sh.; ——— (*Spathodus*) YOUNGQUIST & PATTERSON (1949), p. 71; ——— YOUNGQUIST & PATTERSON (1949), p. 71, pl. 15, fig. 3. Fig. spm., 4157, Univ. Iowa, Prospect Hill ss., Iowa; ——— THOMAS (1949), p. 412, pl. 4, fig. 7. Fig. spm., C808-5, Univ. Mo., English River siltstone, loc. 12, Iowa. LMi

——**aculeatus** (*Spathodus*) BRANSON & MEHL (June 1934a), pp. 186-187, pl. 17, figs. 11, 14. Cotypes, C83-2, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON & MEHL (Oct. 1934a), p. 274, comp. with *Spathognathodus sulciferus;* ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo.; ——— (*Spathodus*) HASS (Mar. 1947), pp. 134-135, 140, Cleveland, upper Ohio, and Grassy Creek shs. A Grassy Creek conodont found in the Glen Park ls. at the type loc. UD

——**acutus** (*Spathodus*) BRANSON & MEHL (June 1934a), pp. 187-188, pl. 17, fig. 15. Holotype, C363-3, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo. UD

——**altus** (*Spathodus*) BRANSON & MEHL (Oct. 1934a), p. 275, pl. 22, fig. 15. Cotypes, C383-5, Univ. Mo., Bushberg ss., Mo.; ——— (*Spathodus*) BRANSON (1938a), p. 182; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 137, comp. with *Spathognathodus regularis;* ——— COOPER & SLOSS (1943), pp. 171, 174, pl. 28, fig. 8, black sh., base Madison gr., loc. 1, Alta.; ——— BRANSON (1944), p. 223, Bushberg ss., Mo. LMi

——**amplus** (*Spathodus*) BRANSON & MEHL (June 1934a), p. 190, pl. 17, fig. 9. Holotype, C222-2, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo.; ——— BRANSON (1944), p. 173, Louisiana ls., Mo.; ——— COOPER (1945) (*cf. amplus*) (*ampla* p. 613), pp. 613-614, pl. 84, fig. 16. Fig. spm., Ill. Geol. Surv., black sh., "Jefferson" fm., Mont.; ——— SLOSS & LAIRD (1945) (*sp. cf. S. ampla*), on chart, DC unit, Mont. UD

——**angustus** COOPER & SLOSS (1943), pp. 171, 174, pl. 28, fig. 20, black sh., base Madison gr., loc. 1, Alta. LMi

——**arcuatus** (*Spathodus*) BRANSON & MEHL (June 1934a), pp. 187, 191, pl. 17, fig. 16. Holotype, C222-1, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON & MEHL (June 1934a) (*cf. arcuatus*), p. 191, pl. 17, fig. 12. Fig. spm., C90-3, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON (1944) (*cf. arcuatus*), p. 166, Grassy Creek sh., Mo. UD

——**chouteauensis** (*Spathodus*) COOPER (1939), p. 413, pl. 45, fig. 20. Holotype, 39883, Univ. Chi., *Spathognathodus elongatus* Branson & Mehl (1938d) (pt.), pl. 34, fig. 9 (not fig. 6) is a sr. syn. LMi

——**coaptus** (*Spathodus*) BRANSON & MEHL (Oct. 1934a), pp. 275-276, pl. 22, fig. 16. Cotypes, C384-2, Univ. Mo., Bushberg ss., Mo.; ——— (*Spathodus*) BRANSON (1938a), p. 182; ——— BRANSON (1944), p. 223, Bushberg ss., Mo. LMi

——**commutatus** BRANSON & MEHL (1941e), p. 98, pl. 19, figs. 1-4. Syntypes, C552-2, Univ. Mo., Pitkin ls., Okla.; ——— BRANSON & MEHL (1941a), p. 172, pl. 5, figs. 19-22, footnote 6. Fig. spms., C542-2 (fig. 19), C541-5, Univ. Mo.; lower Caney sh., Okla.; ——— ELLISON & GRAVES (1941), pp. 3-4, pl. 2, figs. 4, 6. Hypotypes, 4789-4790 (figs. 4, 6), Mo. Sch. Min., Rolla, mid. Dimple fm., locs. G906 (fig. 6), G901 (fig. 4), Tex. UMi-LP

——**costatus** (*Spathodus*) E. R. BRANSON (1934), pp. 303-304, pl. 27, fig. 13. Holotype, C208-2, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON & MEHL (1938d), pp. 132, 136, pl. 33, fig. 1. Holotype fig.; ——— BRANSON (1944), pp. 181, 223, pl. 32, fig. 1, Hannibal fm., Mo.; ——— THOMAS (1949), pp. 409, 412, pl. 4, fig. 10. Fig. spm., C804-2, Univ. Mo., English River siltstone, loc. 9 (fig.), and Prospect Hill siltstone, Iowa. LMi

——**crassidentatus** (*Spathodus*) BRANSON & MEHL (Oct. 1934a), p. 276, pl. 22, figs. 17-18. Cotypes, C385-1, Univ. Mo., Bushberg ss., Mo.; ——— (*Spathodus*) E. R. BRANSON (1934), p. 303, pl. 27, fig. 12. Fig. spm., C217-2, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON (1938a), p. 182; ——— (*Spathodus*) BRANSON & MEHL (1938d), pp. 132, 137, pl. 33, fig. 5. Fig. spm., C217-2, Univ. Mo., comp. with *Spathognathodus regularis*, Hannibal fm., Mo., *Spathognathodus parvus* is a jr. syn.; ——— (*Spathodus*) COOPER (1939), pp. 413, 420, pl. 45, fig. 19. Hypotype, 39816, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), pp. 171, 175, pl. 28, fig. 1, black sh., base Madison gr., Mont.; ——— (*Spathodus*, p. 181 and pl.) BRANSON (1944), pp. 181, 223, pl. 32, fig. 5, Bushberg ss., Mo.; ——— (*Spathodus*) YOUNGQUIST & PATTERSON (1949), p. 71; ——— YOUNGQUIST & PATTERSON (1949), pp. 71-72, pl. 15, fig. 2. Fig. spm., 4158, Univ. Iowa, Prospect Hill ss., Iowa; ——— THOMAS (1949), pp. 408, 412, 429, pl. 2, figs. 16, 24; pl. 4, fig. 6. Fig. spms., C825-4 (fig. 16), C824-5 (fig. 24), C818-1 (fig. 6), Univ. Mo., comp. with *Spathognathodus quintidentatus*, Prospect Hill siltstone; Maple Mill sh., loc. 13 (figs. 16, 24); English River siltstone, loc. 13 (fig. 6), Iowa. UD-LMi

——**curvatus** (*Spathodus*) BRANSON & MEHL (1938d), pp. 138-139, pl. 34, figs. 12-13. Cotypes, C351-1, Univ. Mo., Chouteau ls., Mo.; ——— (*Spathodus*, p. 208e and pl.) BRANSON (1944), pp. 208e, 223, pl. 39, figs. 12-13, Chouteau ls., Mo. LMi

——**cyclus** (*Spathodus*) COOPER (1939), p. 413, pl. 45, fig. 32. Holotype, 39817, Univ. Chi., pre-Welden sh., Okla. LMi

——**cyrius** (*Spathodus*) COOPER (1939), p. 413, pl. 45, fig. 25. Holotype, 39823, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), pp. 171, 175, pl. 28, fig. 6, black sh., base Madison gr., loc. 1, Alta. LMi

——**deflexus** BRANSON & MEHL (1941b), p. 187, pl. 6, fig. 6. Holotype, C578-1, Univ. Mo., Keokuk ls., Mo.; ——— (*Spathodus*) BRANSON (1944), p. 240, Keokuk ls., Mo. MMi

——**delicatulus** (*Spathodus*) E. R. BRANSON (1934), p. 304, pl. 27, fig. 14. Holotype, C213-4, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 132; ——— (*Spathodus*) COOPER (1939), pp. 413, 420, pl. 41, figs. 17-18. Hypotype, 39818, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 223, Hannibal fm., Mo.; ——— THOMAS (1949), p. 412, pl. 4, fig. 13. Fig. spm., C806-4, Univ. Mo., English River siltstone, loc. 8, Iowa. LMi

——**denticulatus** (*Spathodus*) E. R. BRANSON (1934), p. 305, pl. 27, fig. 17. Holotype, C216-1, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 132; ——— BRANSON (1944), p. 223, Hannibal fm., Mo. LMi

——? **derodus** (*Spathodus*) COOPER (1939), p. 413, pl. 45, fig. 27. Holotype, 39820, Univ. Chi., pre-Welden sh., Okla. LMi

——**disparilis** (*Spathodus*) BRANSON & MEHL (June 1934a), pp. 189-190, pl. 17, fig. 18. Holotype, C80-4, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON & MEHL (June 1934a), p. 192, comp. with *Spathognathodus ? ornatus;* ——— ELLISON & GRAVES (1941) (*disparillis*), p. 3, pl. 2, fig. 2. Hypotype, 4788, Mo. Sch. Min., Rolla, mid. Dimple fm., loc. G921, Tex.; ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo.; ——— HASS (Mar. 1947), p. 140, Grassy Creek conodont found in the Glen Park ls., at the type loc. UD-LP

——**duplidens** (*Spathodus*) HUDDLE (1934), pp. 16, 91-92, pl. 12, figs. 1-4. Holotype, 1876 (figs. 1-2); paratypes, 1877 (figs. 3-4), Ind. Univ., upper New Albany sh., abundant at loc. 11, common at 10 (fig.), and rare at 1, 3, 6, 9, 12-13, Ind. LMi

——**elongatus** (*Spathodus*) BRANSON & MEHL (1938d), p. 139, pl. 34, figs. 6, 9. Holotype, C351-5 (fig. 6); paratype, C348-2 (fig. 9), Univ. Mo., Chouteau ls., Mo.; ——— (*Spathodus*) COOPER (1939), pp. 413, 420, ref. to Branson & Mehl (1938) (pt.), pl. 34, fig. 9 (not fig. 6) is classed as a sr. syn. of *Spathognathodus chouteauensis;* ——— (*Spathodus*, p. 208e and pl.) BRANSON (1944), pp. 208e, 223, pl. 39, figs. 6, 9, Chouteau ls., Mo. LMi

——**exochus** (*Spathodus*) COOPER (1939), p. 413, pl. 45, fig. 30. Holotype, 39821, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), pp. 171, 175, pl. 28, fig. 16, black sh., base Madison gr., loc. 1, Alta. LMi

——**fissilis** (*Spathodus*) BRANSON & MEHL (June 1934a), p. 185, pl. 17, fig. 10. Holotype, C246-5, Univ. Mo., comp. with *Spathognathodus inornatus*, Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo. UD

——**flexus** THOMAS (1949), pp. 408, 429, pl. 2, fig. 20. Holotype, C834-5, Univ. Mo., Maple Mill sh., loc. 14, Iowa. UD

——**gratiosus** (YOUNGQUIST) (1947), pp. 111-112, pl. 26, fig. 1. Hypotype, 4059, Univ. Iowa, unnamed sh. 1½ mi. NE of N. Liberty, Iowa, (*Pandorina*). UD

——**inornatus** (*Spathodus*) BRANSON & MEHL (June 1934a), p. 185, pl. 17, fig. 23. Holotype, C221-3, Univ. Mo., comp. with *Spathognathodus fissilis*, Grassy Creek sh., Mo.; COOPER & SLOSS (1943), pp. 171, 175, pl. 28, fig. 9, black sh., base Madison gr., loc. 1, Alta.; ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo.; ——— HASS (Mar. 1947), pp. 134-135, 140, Cleveland, upper Ohio, Grassy Creek, and Bedford shs.; ——— THOMAS (1949), pp. 407-408, 412, pl. 2, fig. 26; pl. 4, figs. 4-5. Fig. spms., C807-3 (fig. 26), C806-1 (fig. 4), C807-3 (fig. 5), Univ. Mo., Maple Mill sh. (fig. 26), loc. 14; English River siltstone (figs. 4-5), loc. 8, Iowa. UD-LMi

——**irregularis** (*Spathodus*) E. R. BRANSON (1934), p. 307, pl. 27, fig. 25. Holotype, C212-1, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 132; ——— BRANSON (1944), p. 223; ——— THOMAS (1949), p. 412, pl. 2, fig. 32. Fig. spm., C804-5, Univ. Mo., English River siltstone, loc. 12, Iowa. LMi

——**isus** (*Spathodus*) COOPER (1939), p. 413, pl. 45, fig. 33. Holotype, 39822, Univ. Chi., pre-Welden sh., Okla. LMi

——**jugosus** (*Spathodus*) BRANSON & MEHL (June 1934a), pp. 187, 189-191, pl. 17, figs. 19, 22. Cotypes, C221-2, Univ. Mo., comp. with *Spathognathodus strigosus* and *Spathognathodus stabilis*, Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo. UD

——**linguiferus** (*Spathodus*) E. R. BRANSON (1934), pp. 306-307, pl. 27, fig. 24. Holotype, C214-4, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 132, pl. 33, fig. 4. Holotype fig.; ——— (*Spathodus*) COOPER (1939), p. 398, classed as sr. syn. of *Nodognathus;* ——— (*Spathodus* p. 181 and pl.) BRANSON (1944), pp. 181, 223, pl. 32, fig. 4, Bushberg ss. (fig.), and Hannibal fm., Mo. LMi

——**lobatus** (*Spathodus*) E. R. BRANSON (1934), p. 303, pl. 27, fig. 10. Holotype, C211-3, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 132; ——— BRANSON (1944), p. 223, Hannibal fm., Mo. LMi

——**macer** (*Spathodus*) BRANSON & MEHL (Oct. 1934a), p. 276, pl. 22, fig. 19. Holotype, C384-1, Univ. Mo., Bushberg ss., Mo.; ——— (*Spathodus*) BRANSON (1938a), p. 182; ——— BRANSON (1944), p. 223, Bushberg ss., Mo. LMi

——**macrodus** (*Spathodus*) COOPER (1939), pp. 415-416, pl. 45, fig. 23. Holotype, 39825, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), pp. 171, 175, pl. 28, fig. 7; pl. 29, fig. 17, black sh., base Madison gr., loc. 3, Mont., and loc. 1, Alta. LMi

——**mediocris** (*Spathodus*) BRANSON & MEHL (Oct. 1934a), pp. 277-278, pl. 22, fig. 21. Holotype, C384-5, Univ. Mo., Bushberg ss., Mo.; ——— (*Spathodus*) BRANSON (1938a), p. 182; ——— COOPER & SLOSS (1943), pp. LMi

171, 175, pl. 28, fig. 5, black sh., base Madison gr., loc. 1, Alta.; ——— BRANSON (1944), p. 223, Bushberg ss., Mo.

——**micrus** (*Spathodus*) COOPER (1939), p. 416, pl. 45, fig. 34. Holotype, 39826, Univ. Chi., pre-Welden sh., Okla. LMi

——**minutus** (*Spathodus*) ELLISON (1941), pp. 108-111, 120, pl. 20, figs. 50-52. Holotype, C556-2; paratype, C566-1, Univ. Mo., locs. 389, 1027, 682, 1102, 0130, 1352 (holotype), 0149, 0116, 0140, 1359, 0162, 1346-51 (paratype), Cherokee through Big Blue, Mo. and Kans.; ——— ELLISON & GRAVES (1941) (*minutis*), pp. 3-4, pl. 2, figs. 1, 3, 5. Hypotypes, 4786 (figs. 1, 5); 4787 (fig. 3), Mo. Sch. Min., Rolla, mid. Dimple fm., locs. G907 (fig. 3), G903 (figs. 1, 5), Tex.; ——— (*Spathodus*) BRANSON (1944), p. 327; ——— (*Spathodus*) MCLAUGHLIN (1947), p. 1974, Glen Eyrie beds, Colo.; ——— YOUNGQUIST & DOWNS (1949), pp. 161, 169-170, pl. 30, fig. 4. Fig. spm., 14045, Univ. Iowa, sh. ¾ mi. NW Knoxville, Iowa; ——— STURGEON & YOUNGQUIST (1949), pp. 381-382, 385, pl. 74, figs. 9-11; pl. 75, fig. 19. Fig. spms., 19654 (fig. 9), 19655 (fig. 10), 19656 (fig. 11), 19657 (fig. 19), Ohio Univ., Allegheny fm., Ohio. LP-LPm

——**nodosus** (*Spathodus*) BRANSON & MEHL (June 1934a), p. 188, pl. 17, fig. 13. Holotype, C363-4, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo. UD

——? **ornatus** (*Spathodus*) BRANSON & MEHL (June 1934a), pp. 191-192, pl. 13, fig. 12. Holotype, C372-1, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON (1944), pp. 157, 166, pl. 28, fig. 26, Grassy Creek sh., Mo. UD

——**orthus** (*Spathodus*) COOPER (1939), p. 416, pl. 47, fig. 32. Holotype, 39827, Univ. Chi., pre-Welden sh., Okla. LMi

——**parvifossatus** (*Spathodus*) BRANSON & MEHL (Oct. 1934a), pp. 274-275, pl. 22, fig. 14. Holotype, C385-3, Univ. Mo., Bushberg ss., Mo.; ——— (*Spathodus*) BRANSON (1938a), p. 182; ——— (*Spathodus*) COOPER (1939), pp. 416, 420, pl. 45, fig. 31. Hypotype, 39828, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 223, Bushberg ss., Mo. LMi

——**parvus** (*Spathodus*) HUDDLE (1934), pp. 16, 26, 90-91, pl. 7, fig. 16. Holotype, 1882, Ind. Univ., *Polygnathus?* on pl. 12, fig. 7 may possibly be *Polygnathus lacinata* and is similar to *Spathognathodus parvus*, indicating a close relationship, upper New Albany sh., common at locs. 1-2, 3 (fig.), 6; rare at 8-11, Ind.; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 132, classed as jr. syn, of *Spathognathodus crassidentatus;* ——— (*Spathodus*) COOPER (1939), p. 413; ——— (*Spathodus*) COOPER & SLOSS (1943), p. 175; ——— (*Spathodus*) YOUNGQUIST & PATTERSON (1949), p. 71; ——— THOMAS (1949), p. 429, comp. with *Spathognathodus quintidentatus.* UD

——**peculiaris** (*Spathodus*) E. R. BRANSON (1934), pp. 304-305, pl. 27, fig. 16. Holotype, C218-4, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 132; ——— BRANSON (1944), p. 223, Hannibal fm., Mo. LMi

——**praelongus** COOPER & SLOSS (1943), pp. 171, 175, pl. 28, fig. 14, black sh., base Madison gr., loc. 1, Alta. LMi

——**primus** (*Spathodus*) BRANSON & MEHL (June 1933c), p. 46, pl. 3, figs. 25-30. Cotypes, C151-5 (figs. 25, 29), C152-1 (figs. 26, 28), C158-5 (figs. 27, 30), Univ. Mo., Bainbridge fm., Mo.; ——— (*Spathodus*) HUDDLE (1934), p. 89; ——— (*Spathodus*) BRANSON & MEHL (1941e), p. 98. Type species for *Spathognathodus;* ——— (*Spathodus* and *Spathognathodus*) BRANSON & MEHL (1944), p. 244; ——— (*Spathodus*) BRANSON (1944), pp. 97, 110, pl. 16, figs. 25, 30, Bainbridge ls., Mo.; ——— BRANSON & BRANSON (1947), p. 550, pl. 81, fig. 2; pl. 82, figs. 29, 36-37. Fig. spms., C673-5 (fig. 2), loc. 1786; C678-1 (figs. 29, 37), loc. 1799; C673-4; C673-5 (fig. 36), loc. 1826, Univ. Mo., Brassfield fm., locs. 1828, 1840, Ky. L-MS

——**pulcher** (*Spathodus*) BRANSON & MEHL (1938d), pp. 139-140, pl. 34, figs. 7-8. Holotype, C49-5 (fig. 7); paratype, C353-1 (fig. 8), Univ. Mo., Chouteau ls., Mo.; ——— (*Spathodus* and *Spathognathodus*) BRANSON & MEHL (1941b), p. 188; ——— (*Spathodus*, p. 208e and pl.) BRANSON (1944), pp. 208e, 223, pl. 39, figs. 7-8, Chouteau ls., Mo. LMi

——**quintidentatus** THOMAS (1949), pp. 412, 429, pl. 4, figs. 8-9. Paratypes, C820-2, Univ. Mo., Prospect Hill siltstone, loc. 2, Iowa. LMi

——**rectus** (*Spathodus*) BRANSON & MEHL (June 1934a), p. 186, pl. 17, fig. 24. Holotype, C220-5, Univ. Mo., Grassy Creek sh., Mo.; ——— COOPER & SLOSS (1943), p. 175, comp. with *Spathognathodus praelongus;* ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo. UD

——**rectus** (*Spathodus*) (HUDDLE) (1934), pp. 16, 90, 92, pl. 12, fig. 10. Plesiotype, 1881, Ind. Univ., comp. with *Spathognathodus parvus* and *Spathognathodus subrectus*, abundant in upper New Albany sh., at locs. 11 (fig.), 14; rare at 1, 3, 7, 13, Ind. (*Panderodella recta*); ——— (*Spathodus*) (CAMPBELL) (1946), p. 901. LMi

——**regularis** (*Spathodus*) BRANSON & MEHL (Oct. 1938d), pp. 137, 139, pl. 34, figs. 1-3, 10. Holotype, C349-5 (fig. 1); fig. spms., C351-2 (fig. 3), C30-2 (fig. 2), C353-2 (fig. 10), Univ. Mo., comp. with *Spathognathodus pulcher*, Chouteau ls., Mo.; ——— (*Spathodus*) COOPER (1939), pp. 415, 420, pl. 45, fig. 38. Hypotype, 39824, Univ. Chi., only figs. 1, 3, instead of fig. 2 of Branson & Mehl (1938d) seem to belong to this sp., pre-Welden sh., Okla.; ——— BRANSON & MEHL (1941b), p. 187, pl. 6, fig. 7. Fig. spm., C577-4, Univ. Mo., Keokuk ls., Mo.; ——— BRANSON & MEHL (1944), p. 244, pl. 94, fig. 1; ——— (*Spathodus*, p. 208e and pl.) BRANSON (1944), pp. 208e, 223, pl. 39, figs. 1-3, 10, Chouteau ls., Mo.; ——— BRANSON (1944), p. 240, Keokuk ls., Mo. LMi

——**robustus** (*Spathodus*) BRANSON & MEHL (June 1934a), p. 189, pl. 17, fig. 21. Holotype, C221-1, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo. UD

——**serratus** (*Spathodus*) E. R. BRANSON (1934), p. 305, pl. 27, fig. 18. Holotype, C213-3, Univ. Mo., Hannibal fm., Mo.; ——— (*Spa-* LMi

thodus) BRANSON & MEHL (1938d), p. 132; ——— BRANSON (1944), p. 223, Hannibal fm., Mo.

——**spinulicostatus** (*Spathodus*) E. R. BRANSON (1934), pp. 305-306, pl. 27, fig. 19. Holotype, C214-5, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 132, pl. 33, fig. 2. Fig. spm., the holotype; ——— (*Spathodus* p. 181) BRANSON (1944), pp. 181, 223, pl. 32, fig. 2, Hannibal fm., Mo. LMi

——**stabilis** (*Spathodus*) BRANSON & MEHL (June 1934a), pp. 188-189, 191, pl. 17, fig. 20. Holotype, C221-4, Univ. Mo., comp. with *Spathognathodus jugosus*, Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo. UD

——**strigilis** (*Spathodus*) HUDDLE (1934), pp. 16, 21, 89-91, text fig. 3, subfigs. 1a-1b; pl. 7, fig. 15; pl. 12, fig. 11. Holotype, 1875 (figs. 1a-1b); paratypes, 1878 (fig. 15), 2324 (fig. 11), Ind. Univ. comp. with *Spathognathodus parvus* and *Spathognathodus duplidens*, upper New Albany sh., common at loc. 11; rare at 1 (fig. 15), 2-6, 8-9, 10 (figs. 1a-b); rare in lower New Albany at 26 (fig. 11), 32-33, Ind.; ——— (*Spathodus*) COOPER (1939), pp. 416, 420, pl. 45, fig. 37. Hypotype 39829, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), pp. 171, 175, pl. 28, figs. 3-4, 10-12, black sh., base Madison gr., loc. 1, Alta. M?D-LMi

——**strigosus** (*Spathodus*) BRANSON & MEHL (June 1934a), p. 187, pl. 17, fig. 17. Cotypes, C221-5, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Spathodus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo.; ——— THOMAS (1949), pp. 408, 412, pl. 2, figs. 19, 21; pl. 4, fig. 15. Fig. spms., C828-3 (fig. 19), C825-4 (fig. 21), C817-3 (fig. 15), Univ. Mo., Maple Mill sh., loc. 13 (fig. 19), loc. 14 (fig. 21), Prospect Hill siltstone, loc. 11 (fig. 15), Iowa. UD-LMi

——**subrectus** (*Spathodus*) (HUDDLE) (1934), pp. 16, 91-92, pl. 7, fig. 17. Plesiotype, 1879, loc. 20, Ind. Univ., comp. with *Spathognathodus rectus*, abundant in upper New Albany sh., at locs. 11, 14; common at 13; rare at 9; and rare in mid. New Albany sh., at loc. 20, Ind., (*Panderodella*); ——— (*Spathodus*) (COOPER) (1935), pp. 310, 315, pl. 27, fig. 45. Fig. spm., 38095, Univ. Chi., mid. Ark. novaculite, bed 13, Ark.; ——— (*Spathodus*) (CAMPBELL) (1946), p. 901; ——— (BOND) (1947), pp. 21, 35, pl. 2, fig. 19. Hypotype, 18410, Ohio Univ., Ohio sh., Ohio. UD-LMi

——**sulciferus** (*Spathodus*) BRANSON & MEHL (Oct. 1934a), p. 274, pl. 22, figs. 12-13. Cotypes, C385-2, Univ. Mo., Bushberg ss., Mo.; ——— (*Spathodus*) E. R. BRANSON (1934), p. 304, pl. 27, figs. 15, 20, 22. Fig. spms., C217-3, C212-3, C207-4, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON (1938a), p. 182; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 132, pl. 33, fig. 33. Fig. spm., C385-2, Univ. Mo., Bushberg ss., Mo.; ——— (*Spathodus*) COOPER (1939), pp. 416, 420, pl. 45, figs. 17-18. Hypotype, 39830-39831, Univ. Chi., pre-Welden sh., Okla.; ——— HASS (1943), p. 308, *Spathognathodus 5 n. spp.* of Knechtel & Hass (1938) are classed as jr. syns.; ——— BRANSON & MEHL (1944), p. 244, pl. 94, fig. 2; ——— (*Spathodus* p. 181 and pl.) BRANSON (1944), pp. 181, 223, pl. 32, fig. 33, Bushberg ss. (fig.), and Hannibal fm., Mo.; ——— YOUNGQUIST & PATTERSON (1949), p. 72, pl. 15, fig. 1. Fig. spm., 4195, Univ. Iowa, Prospect Hill ss., Iowa. LMi

——**texanus** (*Spathodus*) (COOPER) (1939), pp. 416, 421, pl. 42, figs. 63-64. Hypotype, 39819, Univ. Chi., pre-Welden sh., Okla., (*Gnathodus*). LMi

——**tridentatus** (*Spathodus*) E. R. BRANSON (1934), pp. 307-308, pl. 27, fig. 26. Holotype, C208-3, Univ. Mo., Hannibal fm., Mo.; ——— (*Spathodus*) BRANSON & MEHL (1938d), p. 132; ——— BRANSON (1944), p. 223, Hannibal fm., Mo.; ——— THOMAS (1949), p. 412, pl. 4, fig. 11. Fig. spm., C815-3, Univ. Mo., English River siltstone, loc. 5, Iowa. LMi

——**varinodosus** (*Spathodus*) BRANSON & MEHL (Oct. 1934a), p. 278, pl. 22, fig. 22. Holotype, C384-4, Univ. Mo., Bushberg ss., Mo.; ——— (*Spathodus*) BRANSON (1938a), p. 182; ——— (*Spathodus*) BRANSON & MEHL (1938d), pl. 33, fig. 41. Holotype fig.; ——— (*Spathodus* p. 181 and pl.) BRANSON (1944), pp. 181, 223, pl. 32, fig. 41, Bushberg ss., Mo. LMi

——**sp.** (*Spathodus*) (BRANSON & MEHL) (July 1933d), p. 152, pl. 11, fig. 12. Holotype, A4330, Brit. Mus. [*Polygnathus dubius* Hinde (1879) (pt.), p. 363, pl. 16, fig. 15 and *Gnathodus dubius* Holmes (1928), p. 37, pl. 8, fig. 7 are sr. syns. of above]. UD

——**n. spp.** (*Spathodus*) KNECHTEL & HASS (1938), p. 519, five n. spp. from basal sh., Lodgepole ls., USGS coll. 8432, Mont.; ——— (*Spathodus*) HASS (1943), p. 308, classed as jr. syn. of *Spathognathodus sulciferus;* ——— (*Spathodus*) YOUNGQUIST & PATTERSON (1949), p. 72. LMi

——**sp. indet.** BRANSON & MEHL (1941b), p. 188, pl. 6, figs. 4-5. Fig. spms., C576-5, Univ. Mo., comp. with *Spathognathodus pulcher*, Keokuk ls., Mo.; ——— BRANSON (1944), p. 240. MMi

——**spp.** SCOTT (1942), p. 299, pl. 37, figs. 1c-7c; pl. 38, figs. 2c-4c, 6c-7c, 11c-12c; text fig. lc.; pl. 40, figs. 13, 15, 19. Fig. spms., Univ. Ill., black sh., Heath fm., Mont. UMi

——**n. sp.** BRANSON (1944), p. 156, pl. 27, figs. 20-21, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——**sp. A** THOMAS (1949), pp. 412, 429-430, pl. 2, fig. 33. Fig. spm., C821-2, Univ. Mo., English River siltstone, loc. 4, Iowa. LMi

——**sp. B** THOMAS (1949), pp. 412, 430, pl. 2, fig. 31. Fig. spm., C821-1, Univ. Mo., English River siltstone, loc. 4, Iowa. LMi

STAUROGNATHUS BRANSON & MEHL (1941e), p. 102. Type species, *S. cruciformis* BRANSON & MEHL (1941e); ——— BRANSON & MEHL (1941a), p. 168, (*nomen nudum*); ——— BRANSON & MEHL (1944), p. 244; ——— ELLISON (Jan. 1946), pp. 94, 110, platform type, upper half of Kinderhook; ——— COOPER (July 1948a), p. 362, Pierson, Mo., and Sycamore, Okla. MMi

——**cruciformis** BRANSON & MEHL (1941e), pp. 102-103, pl. 19, figs. 35-36. Holotype, C418-2, Univ. Mo., Sycamore fm. (Mays), Okla.; ——— BRANSON & MEHL (1944), p. 244, pl. 94, fig. 19. MMi

STEPHANODELLA MATERN (1933), pp. 17-18, 21. Type species, *S. ulrichi* MATERN (1933). UD

——**ulrichi** MATERN (1933), pp. 17-18, fig. 15. Holotype, Preuss. Geol. Landest. (Landesmus.) Berlin, Germ., Manticoceras-Stufe, from Weiterhausen (Bl. Buchenau), Germ. UD

STEPHANODUS BRANSON (1944), p. 67, (*nomen nudum*). MO

——**n. sp.** BRANSON (1944), p. 53, pl. 8, figs. 24-25, 30-34, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo. MO

STEREOCONUS BRANSON & MEHL (June 1933b), pp. 27-28. Type species, *S. gracilis* BRANSON & MEHL (June 1933b), comp. with *Chirognathus;* ——— BRANSON & MEHL (July 1933a), p. 79; ——— HUDDLE (1934), pp. 26, 34; ——— STAUFFER (1935a) (*Stereocornus*), pp. 135, 153; ——— AMSDEN & MILLER (1942), p. 303, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1943), p. 375; ——— BRANSON & MEHL (1944), p. 237; ——— ELLISON (Jan. 1946), pp. 94, 96, 110, fibrous type, upper half of Lower Ord. through Black River. L-MO

——**gracilis** BRANSON & MEHL (June 1933b), p. 27, pl. 1, figs. 30-31. Cotypes, C172-4, Univ. Mo., Harding ss., Colo.; ——— STAUFFER (1935a) (*Stereocornus*), pp. 153, 160, pl. 12, figs. 25, 32. Fig. spms., B4441 (fig. 25), B4448 (fig. 32), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941) (*Stereocornus*), p. 245; ——— AMSDEN & MILLER (1942) (? after Branson & Mehl on pl.), p. 303, pl. 41, fig. 22. Fig. spm., 1644, Univ. Iowa, Bighorn ss., Wyo.; ——— BRANSON & MEHL (1944), p. 237, pl. 93, figs. 16, 21; ——— JOHNSON (1945), p. 22, Harding ss., Colo. MO

——**plenus** BRANSON & MEHL (June 1933b), pp. 27-28, pl. 1, figs. 19-21. Cotypes, C173-1, Univ. Mo., Harding ss., Colo.; ——— BRANSON & MEHL (July 1933a) (*cf. plenus*), pp. 79-80, pl. 6, fig. 6. Fig. spm., C288-2, Univ. Mo., Joachim fm., Mo.; ——— BRANSON & MEHL (July 1933a), p. 80, comp. with *Stereoconus cf. plenus* Branson & Mehl (July 1933a); ——— AMSDEN & MILLER (1942) (? after Branson & Mehl), p. 303, pl. 41, fig. 9. Fig. spm., 1631, Univ. Iowa, Bighorn ss., Wyo.; ——— BRANSON (1944) (*cf. plenus*), p. 72, Joachim fm., Mo.; ——— JOHNSON (1945), p. 22, Harding ss., Colo. MO

——**robustus** BRANSON & MEHL (June 1933b), p. 27, pl. 1, figs. 28-29. Cotypes, C172-2, Univ. Mo., Harding ss., Colo.; ——— BRANSON & TARR (1941), p. 342, fig. 347, lower rt. cor., same as pl. 1, fig. 28 Branson & Mehl (June 1933b); ——— GRAVES & ELLISON (1941), pp. 4, 7, pl. 1, fig. 29. Hypotype, 1365 (fig. 29), Mo. Sch. Min., Rolla, upper Marathon fm., loc. G209, Tex.; ——— AMSDEN & MILLER (1942), p. 303, pl. 41, fig. 8. Fig. spm., 1630, Univ. Iowa, Bighorn ss., Wyo.; ——— JOHNSON (1945), p. 22, Harding ss., Colo. L-MO

——**spp.** AMSDEN & MILLER (1942), pl. 41, figs. 7, 10. Fig. spms., 1629 (fig. 7), 1632 (fig. 10), Univ. Iowa, Bighorn ss., Wyo. MO

STREPTOGNATHODUS STAUFFER & PLUMMER (1932), p. 47. Type species, *S. excelsus* STAUFFER & PLUMMER (1932); ——— GUNNELL (1933), pp. 276, 280; ——— HUDDLE (1934), p. 35; ——— BAILEY (1935), pp. 487, 490, 493, rare at D5, G10, T2, V6, Y1, Y6-Y7, Y9, Y12, Y16, DD1; common at Y9, Y12-Y13; abundant at Y2, rare in lower Henrietta and Cherokee above Bevier coal and common in Cherokee through Bevier coal; ——— GUNNELL (1933) (ab)Z (1937), p. 176, Branson & Mehl state that 22 of Gunnell's spp. may be divided between five and six spp.; ——— BRANSON & MEHL (Mar. 15, 1939b), p. 167; ——— C. C. BRANSON (Aug. 1939), pp. 1207, 1216, Tensleep fm., Wyo.; ——— BRANSON & MEHL (1941b) (*Streptognathus*), pp. 180, 182; ——— ELLISON (1941), pp. 109, 127, 134, derived from *Spathognathodus*, comp. with *Idiognathodus, Polygnathus, Gnathodus,* and *Cavusgnathus. Polygnathus* (pt.) of Harris & Hollingsworth (1933) is classed as a sr. syn.; ——— ELLISON & GRAVES (1941), pp. 2, 11-12; ——— SCOTT (1942), p. 294; ——— DUBOIS (1943), pp. 156-157; ——— SCOTT (1942) (r)NRC (1943), p. 21; ——— BRANSON & MEHL (1944), p. 246; ——— ELLISON (Jan. 1946), pp. 94, 96, 98, 110, a transition occurs between this genus and *Idiognathodus*, platform type, Penn. through Wolfcamp; ——— MCLAUGHLIN (1947), pp. 1947, 1974, Glen Eyrie beds, Colo.; ——— CLOUD & BARNES (1948), p. 318, Marble Falls ls., Tex.; ——— YOUNGQUIST & PATTERSON (1949), p. 58; ——— YOUNGQUIST & DOWNS (1949), pp. 161-162, 164-165; ——— STURGEON & YOUNGQUIST (1949), pp. 380, 382, 384. LP-LPm

——**acuminatus** GUNNELL (1933), pp. 264, 285, pl. 33, fig. 33. Holotype, Gunnell coll., 79, Univ. Mo., comp. with *Streptognathodus wabaunsensis*, Americus ls.?, near Bellevue, Kans.; ——— ELLISON (1941), p. 131, syn. of *Streptognathodus wabaunsensis*. UP

——**bassleri** (HARRIS & HOLLINGSWORTH) (1933) (ab)Z (1937), p. 178, (*Polygnathus*).

——**cancellosus** (ELLISON) (1941), pp. 108-109, 111, 127, 130-133, pl. 22, figs. 23, 26. Holotype, C491-2 (G); hypotypes, C559-4 (fig. 23), C257-4 (fig. 26), C494-2 (G), C496-3 (G), C500-5 (G), C504-2 (G), C507-2 (G), Univ. Mo., borderline sp. with *Idiognathodus*, comp. with *Streptognathodus excelsus, oppletus, simulator, Idiognathodus delicatus,* and *magnificus*, Cherokee sh. through Stanton ls., locs. 1354UM (fig. 23), 0155E (fig. 26), 0111, 0110, 0158, 0084, 0039, 0001, 1367, 1354, 0103, 0144, 0148, 1362, 0146, 1268-72, 1281-82, 1352, 0108, 0142, 1267, 1280, 0017, 0149, 0116, 0140, 1359, Mo., *Idiognathodus regulatus, binodosus, biliratus, symmetricus,* and *simplex*, of Gunnell (1933) are syns., (*Idiognathodus*); ——— (ELLISON & GRAVES) (1941), pp. 3-4, pl. 3, fig. 18. Hypotype, 4813, Mo. Sch. Min., Rolla, Dimple fm., mid., loc. G902; lower transition zone at base of formation, loc. G909 (fig.), Tex.; ——— (BRANSON) (1944), pp. 309, 327, pl. 46, figs. 23, 26, Penn., Mo.; ——— (MCLAUGHLIN) (1947), pp. 1973-1974, Glen Eyrie beds, Colo.; ——— (STURGEON & YOUNGQUIST) (1949), p. 384. M-UP

——**chanutensis** GUNNELL (1933), pp. 264, 282-283, pl. 32, figs. 66-68. Fig. spms., Gunnell coll., 70-71, Univ. Mo., Quivira sh., Mo.; ——— ELLISON (1941), p. 130, a jr. syn. of *Streptognathodus excelsus*. UP

——**clarki** GUNNELL (1933), pp. 264, 283, pl. 33, fig. 3. Holotype, Gunnell coll., 74, Univ. Mo., comp. with *Streptognathodus strigil-* UP

latus, Quivira sh., Mo.; ——— ELLISON (1941), p. 130, jr. syn. of *Streptognathodus excelsus*.

——**clavatulus** GUNNELL (1933), pp. 263, 280, pl. 31, fig. 9. Holotype, Gunnell coll., 58, Univ. Mo., basal Galesburg sh., Mo.; ——— ELLISON (1941), p. 130, jr. syn. of *Streptognathodus excelsus*. UP

——**concentricus** (COOPER) (1947b), p. 269.

——**corrugatus** GUNNELL (1933), pp. 264, 281, pl. 32, fig. 13. Holotype, Gunnell coll., 64, Univ. Mo., comp. with *Streptognathodus spatulatus*, Cherryvale sh., Mo.; ——— ELLISON (1941), p.. 129, jr. syn. of *Streptognathodus gracilis*. UP

——**curvatus** GUNNELL (1933), pp. 264, 283-284, pl. 33, fig. 1. Holotype, Gunnell coll., 72, Univ. Mo., comp. with *Streptognathodus elongatus*, Quivira sh., Mo.; ——— ELLISON (1941), p. 129, jr. syn. of *Streptognathodus gracilis*. UP

——**delicatulus** YOUNGQUIST & HEEZEN (1948), p. 772, pl. 118, figs. 8-10. Holotype, 4170, Univ. Iowa, comp. with *Streptognathodus symmetricus*, black sh. ¾ mi. NW Knoxville, Iowa; ——— YOUNGQUIST & DOWNS (1949), p. 162. MP

——**eccentricus** ELLISON (1941), pp. 109-111, 127, 132-133, pl. 22, fig. 24. Holotype, C560-1 (fig.), Univ. Mo., borderline sp. with *Idiognathodus*, comp. with *Streptognathodus simulator*, Hushpuckney sh. through Heebner sh., locs. 0084, 0039, 0001, 1367, 1354, 0017, 1359, 0054, 0094, 0081, 1459 (fig.), Mo.; ——— BRANSON (1944), pp. 309, 327, pl. 46, fig. 24, Penn., Mo. UP

——**elegantulus** STAUFFER & PLUMMER (1932), pp. 25, 47-48, pl. 4, figs. 6-7, 22, 27. Holotype, 19166 (figs. 6-7); paratypes, 19167 (figs. 22, 27), Bur. Econ. Geol. Mus., Tex., Brownwood sh. memb., Graford fm., locs. 248-T-6 (fig.), 214-T-25, and East Mt. sh. memb., Mineral Wells fm., locs. 181-T-9, A, B, Tex.; ——— GUNNELL (1933), p. 282, comp. with *Streptognathodus minutus*; ——— ELLISON (1941), pp. 108-111, 127-129, pl. 22, figs. 1-6, 10. Hypotypes, C265-1 (figs. 1, 4), C559-5 (figs. 2, 5), C265-5 (figs. 3, 6), C264-3 (fig. 10), C559-4, Univ. Mo., comp. with *Streptognathodus excelsus, gracilis, sulcatus, elongatus*, and *oppletus*, Cherokee through Big Blue, locs. 675, 1038, 0002, 0084, 0039, 0001, 1149, 0128, 1368, 0153, 1354 (figs. 2, 5), 349, 0107, 0103, 0085, 0144, 0148, 1362, 0143, 0101, 0146, 1352, 0108, 0115, 0142, 0151, 0141, 348, 0149, 0116, 0155, 0140, 1359, 0127, 0066, 0092, 0062, 0067, 0015, 0011, 0013 (fig. 10), 0095, 0014, 0096, 0043 (figs. 1, 3-4, 6), 0044, 0112, 0006, 0007, 0081, 0094, 0097, 0054, Mo. and Kans., *Polygnathus pawhuskensis* is a jr. syn.; ——— BRANSON & MEHL (1944), p. 246; ——— BRANSON (1944), pp. 309, 327, pl. 46, fig. 1-6, 10, Penn., Mo.; ——— COOPER (1947b), p. 269; ——— YOUNGQUIST & DOWNS (1949), p. 164. MP-LPm

——**elongatus** GUNNELL (1933), pp. 264, 283-284, 286, pl. 33, fig. 30. Holotype, Gunnell coll., 75, Univ. Mo., comp. with *Streptognathodus simplex*, Americus ls.?, near Bellevue, Kans.; ——— ELLISON (1941), pp. 110-111, 130-131, pl. 22, fig. 9. Holotype, C519-1 (G); hypotypes, C264-4 (fig. 9), C521-1 (G), Univ. Mo., comp. with *Streptognathodus elegantulus*, Auburn sh. into Big Blue series, locs. 0066, 0092, 0028E (fig. 9), Kans., *Streptognathodus simplex* is a jr. syn.; ——— BRANSON (1944), pp. 309, 327, pl. 46, fig. 9, Penn., Mo.; ——— COOPER (1947b), p. 267. UP-LPm

——**excelsus** STAUFFER & PLUMMER (1932), pp. 25, 47-48, pl. 4, figs. 2, 5. Holotype, 19168, Bur. Econ. Geol. Mus., Tex. Type species for *Streptognathodus*, Brownwood sh. memb., Graford fm. (figs. 2, 5), loc. 248-T-6; and East Mt. sh. memb., Mineral Wells fm., loc. 181-T-9, A, Tex.; ——— GUNNELL (1933), p. 280, comp. with *Streptognathodus clavatulus*; ——— ELLISON (1941), pp. 108-111, 128-130, 132, pl. 22, figs. 15, 17, 20. Hypotypes, C560-2 (fig. 15), C559-3 (fig. 17), C263-4 (fig. 20) (fig. 16 on pl.), C505-4 (G), C506-4 (G), C513-5 (G), C514-1 (G), C515-1 (G), and C491-1 (G), Univ. Mo., comp. with *Streptognathodus elegantulus, gracilis, cancellosus, sulcatus*, and *eccentricus*, Cherokee through Auburn sh., locs. 0111, 0158, 0084, 0001 (fig. 20), 0128, 1368, 0132, 1284, 1367, 0153, 0106, 0119, 0130, 1354 (fig. 17), 349, 0107, 0103, 0085, 0144, 0148, 1273, 1283, 1362 (fig. 15), 0101, 1275-9, 0146, 1352, 0108, 0141, 348, 1267, 1280, 0017, 0149, 0116, 0155, 0140, 1359, 0138, 0127, 1371, 0054, 0043, 0092, Mo., *Streptognathodus increbescens, multinodosus, clavatulus, subdivisus, minutus, chanutensis*, and *clarki* are syns.; ——— BRANSON & MEHL (1944), p. 246, pl. 94, figs. 73-74; ——— BRANSON (1944), pp. 309, 327, pl. 46, figs. 15, 17, 20, Penn., Mo. M-UP

——**farmeri** GUNNELL (1933), pp. 264, 285, pl. 33, fig. 34. Holotype, Gunnell coll., 79, Univ. Mo., comp. with *Streptognathodus flangulatus*, Americus ls.?, near Bellevue, Kans.; ——— ELLISON (1941), p. 131, jr. syn. of *Streptognathodus wabaunsensis*. UP

——**flangulatus** GUNNELL (1933), pp. 264, 285, pl. 33, fig. 35. Holotype, Gunnell coll., 80, Univ. Mo., comp. with *Streptognathodus farmeri*, Americus ls.?, near Bellevue, Kans.; ——— ELLISON (1941), p. 131, jr. syn. of *Streptognathodus wabaunsensis*. UP

——**gracilis** STAUFFER & PLUMMER (1932), pp. 25, 48-49, pl. 4, figs. 12, 23. Holotype, 19169 (fig. 12); paratype, 19170 (fig. 23), Bur. Econ. Geol. Mus., Tex., Graford fm. (fig. 12), loc. 214-T-25; Brownwood sh. memb., Graford fm. (fig. 23), loc. 248-T-6; and Mineral Wells fm., East Mt. sh. memb., locs. 181-T-9, A, B, Tex.; ——— GUNNELL (1933), p. 280, comp. with *Streptognathodus holmesi*; ——— ELLISON (1941), pp. 109-111, 128-131, pl. 22, figs. 7, 11. Hypotypes, C560-5 (figs. 7, 11), C504-1 (G), C505-5 (G), C506-1 (G), C507-1 (G), C514-4 (G), Univ. Mo., comp. with *Streptognathodus elegantulus, excelsus, wabaunsensis, simulator*, and *sulcatus*, Bourbon through Big Blue, locs. 1362UM (figs. 7, 11), 0084, 0001, 0132, 1274, 1284, 1367, 0153, 1354, 349, 0085, 0144, 1273, 1283, 1362, 0143, 0101, 1275-9, 0146, 1352, 0115, 0142, 0151, 348, 0149, 0116, 0155, 0140, 1359, 1371, 0092, 0043, 0112, 0081, 0097, 0054, Kans., *Streptognathodus holmesi, sulciferus* (spelled *sulciferous*), *corrugatus, rugosus*, and *curvatus* are syns.; ——— ELLISON & GRAVES (1941), pp. 3-4, lower transition zone, base Dimple fm., loc. G912, Tex.; ——— BRANSON & MEHL (1944), p. 246, pl. 94, fig. 72; ——— LP-LPm

BRANSON (1944), pp. 309, 327, pl. 46, figs. 7, 11, Penn., Mo.

——**hastula** YOUNGQUIST & DOWNS (1949), pp. 162, 170, pl. 30, figs. 13-15. Holotype, 14046, Univ. Iowa, sh. ¾ mi. NW Knoxville, Iowa. MP

——**holmesi** GUNNELL (1933), pp. 264, 280, pl. 32, figs. 1-2. Type, Gunnell coll., 59, Univ. Mo., comp. with *Streptognathodus sulcatus*, Cherryvale sh., Mo.; ——— ELLISON (1941), p. 129, jr. syn. of *Streptognathodus gracilis*. UP

——**increbescens** STAUFFER & PLUMMER (1932), pp. 25, 49, pl. 4, figs. 9, 15-16. Paratype, 19172 (fig. 15); cotypes, 19171 (figs. 9, 16), Bur. Econ. Geol. Mus., Tex., Brownwood sh. memb., Graford fm., locs. 248-T-6 (fig.), 214-T-25, Tex.; ——— ELLISON (1941), p. 130, jr. syn. of *Streptognathodus excelsus*. MP

——**irregularis** ELLISON & GRAVES (1941), pp. 3, 11, pl. 3, figs. 17, 21, 24. Holotype, 7159 (fig. 17); paratypes, 7160 (fig. 24), 7161 (fig. 21), Mo. Sch. Min., Rolla, Dimple fm., mid., locs. G923, G906 (fig. 24), G901 (fig. 17), G919, G918, G916; lower transition zone, base fm., locs. G913, G912, G910 (fig. 21), Tex. LP

——**minutus** GUNNELL (1933), pp. 264, 282, pl. 32, fig. 65. Holotype, Gunnell coll., 69, Univ. Mo., Quivira sh., Mo.; ——— ELLISON (1941), p. 130, jr. syn. of *Streptognathodus excelsus*. UP

——**mucronatus** YOUNGQUIST & DOWNS (1949), pp. 162, 166, 170, pl. 31, figs. 6-7. Holotype, 14031, Univ. Iowa, comp. with *Idiognathodus bellatulus*, sh. ¾ mi. NW Knoxville, Iowa. MP

——**multinodosus** GUNNELL (1933), pp. 264, 280-281, pl. 32, fig. 11. Holotype, Gunnell coll., 61, Univ. Mo., comp. with *Streptognathodus sulciferus*, Cherryvale sh., Mo.; ——— ELLISON (1941), pp. 127, 130, borderline sp. with *Idiognathodus*, jr. syn. of *Streptognathodus excelsus*. UP

——? **nodosus** ELLISON & GRAVES (1941), pp. 3-4, 11-12, pl. 2, fig. 19. Holotype, 7163, Mo. Sch. Min., Rolla, mid. Dimple fm., loc. G907, Tex. LP

——**oppletus** ELLISON (1941), pp. 108-111, 132, pl. 22, figs. 13-14, 16. Holotype, C515-3 (G) (fig. 13); paratypes, C264-2 (fig. 14), C234-1 (fig. 16), Univ. Mo., comp. with *Idiognathodus ? sp.* Ellison (1941), Cherokee sh. through Stanton ls., locs. 1283 (fig. 13), 0155E (fig. 14), 0108E (fig. 16), 1102, 0084, 0039, 0001, 1367, 1354, 1275-9, 0017, 0155, 0138, Mo., *Idiognathodus multinodosus* Gunnell (1933) is a syn. because the specific name is preoccupied and the generic name should have been *Streptognathodus;* ——— BRANSON (1944), pp. 309, 327, pl. 45, figs. 13-14, 16, Penn., Mo.; ——— COOPER (1947b), p. 269. M-UP

——**ornatus** YOUNGQUIST & DOWNS (1949) (*Idiognathodus* p. 161), pp. 161, 170, pl. 30, figs. 28-29. Holotype, 14047, Univ. Iowa, sh. ¾ mi. NW Knoxville, Iowa. MP

——**ouachitensis** (COOPER) (1947b), p. 267, Lower Penn., Lee, Morrow (perhaps *Polygnathodella*).

——**pawhuskaensis** (HARRIS & HOLLINGSWORTH) (1933) (ab)Z (1937), p. 178, (*Polygnathus*).

——**rugosus** GUNNELL (1933), pp. 264, 282, 283, pl. 32, fig. 18. Holotype, Gunnell coll., 68, Univ. Mo., comp. with *Streptognathodus chanutensis*, and *curvatus*, Cherryvale sh., Mo.; ——— ELLISON (1941), p. 129, jr. syn. of *Streptognathodus gracilis*. UP

——**ruidus** GUNNELL (1933), pp. 264, 281-282, pl. 32, fig. 17. Holotype, Gunnell coll., 67, Univ. Mo., comp. with *Streptognathodus subdivisus*, Cherryvale sh., Mo.; ——— ELLISON (1941), p. 130, jr. syn. of *Streptognathodus sulcatus*. UP

——**simplex** GUNNELL (1933), pp. 264, 285-286, pl. 33, fig. 40. Holotype, Gunnell coll., 81, Univ. Mo., Americus ls.?, near Bellevue, Kans.; ——— ELLISON (1941), p. 130, jr. syn. of *Streptognathodus elongatus*. UP

——**simulator** ELLISON (1941), pp. 109-111, 127, 129, 133, pl. 22, figs. 25, 27-30. Holotype, C257-5 (fig. 25); paratypes, C257-2 (fig. 27), C257-3 (fig. 28), C256-5 (fig. 29), C255-5 (fig. 30), Univ. Mo., borderline sp. with *Idiognathodus*, comp. with *Streptognathodus gracilis*, and *eccentricus*, Eudora sh. through Big Blue series, locs. 0097E (fig. 25), 0081E (figs. 27-30), 0084, 0039, 0001, 0007, 0094, Kans.; ——— BRANSON (1944), pp. 309, 327, pl. 46, figs. 25, 27-30, Penn., Mo. UP-LPm

——**spatulatus** GUNNELL (1933), pp. 264, 281, pl. 32, fig. 14. Holotype, Gunnell coll., 65, Univ. Mo., Cherryvale sh., Mo. UP

——**strigillatus** GUNNELL (1933), pp. 264, 283, pl. 33, fig. 2. Holotype, Gunnell coll., 73, Univ. Mo., comp. with *Streptognathodus clarki*, Quivira sh., Mo. UP

——**subdivisus** GUNNELL (1933), pp. 264, 281-282, pl. 32, fig. 16. Holotype, Gunnell coll., 66, Univ. Mo., comp. with *Streptognathodus ruidus*, and *rugosus*, Cherryvale sh., Mo.; ——— ELLISON (1941), p. 130, jr. syn. of *Streptognathodus excelsus*. UP

——**sulcatus** GUNNELL (1933), pp. 264, 280, pl. 32, fig. 10. Holotype, Gunnell coll., 60, Univ. Mo., comp. with *Streptognathodus multinodosus*, Cherryvale sh., Mo.; ——— ELLISON (1941), pp. 109-111, 130, pl. 22, figs. 8, 12. Holotype, C505-3 (G); hypotypes, C560-4 (fig. 8), C224-4 (fig. 12), C506-5 (G), Univ. Mo., comp. with *Streptognathodus elegantulus, gracilis*, and *excelsus*, Hushpuckney sh. through Quindaro sh., locs. 0132, 1275-79, 0017, 0149, 0116, 0155, 0140, 1359, 1354 (fig. 8), 0107 (fig. 12), Mo., *Streptognathodus ruidus* is a jr. syn.; ——— SCOTT (1942), p. 295; ——— BRANSON (1944), pp. 309, 327, pl. 46, figs. 8, 12, Penn., Mo.; ——— COOPER (1947b), p. 269. UP

——**sulciferus** GUNNELL (1933), pp. 264, 281, pl. 32, fig. 12. Holotype, Gunnell coll., 62, Univ. Mo., comp. with *Streptognathodus corrugatus*, Cherryvale sh., Mo.; ——— ELLISON (1941) (*sulciferous*), p. 129, jr. syn. of *Streptognathodus gracilis*. UP

——**symmetricus** YOUNGQUIST & HEEZEN (1948), p. 772, pl. 118, figs. 15-16. Holotype, 4171, Univ. Iowa, black sh. ¾ mi. NW Knoxville, Iowa; ——— YOUNGQUIST & DOWNS (1949), p. 162, sh. ¾ mi. NW Knoxville, Iowa. MP

——**tenuis** YOUNGQUIST & DOWNS (1949), p. 162, pl. 30, figs. 26-27. Holotype, Univ. Iowa, sh. ¾ mi. NW Knoxville, Iowa. MP

——**wabaunsensis** GUNNELL (1933), pp. 264, 284-285, pl. 33, fig. 32. Holotype, Gunnell coll., 77, Univ. Mo., comp. with *Streptognathodus walteri*, Americus ls.?, near Bellevue, Kans.; UP-LPm

——— ELLISON (1941), pp. 109-111, 129, 131, 133, pl. 22, figs. 18-19, 21-22. Holotype, C519-3 (G); hypotypes, C263-2 (fig.), C263-5 (fig.), C263-3 (fig. 21), C560-3 (fig. 22), C519-2 (G), C519-4 to 5 (G), G520-1 (G), Univ. Mo., comp. with *Streptognathodus gracilis*, and *simulator*, Stark sh. through Big Blue, locs. 0001 (fig. 21), 0108, 0006, 0028 (figs. 18, 19), 1354 (fig. 22), Kans., *Streptognathodus walteri, acuminatus, farmeri*, and *flangulatus* are syns.; ——— BRANSON (1944), pp. 309, 327, pl. 46, figs. 18-19, 21-22, Penn., Mo.

——**walteri** GUNNELL (1933), pp. 264, 284-285, pl. 33, fig. 31. Holotype, Gunnell coll., 76, Univ. Mo., comp. with *Streptognathodus walteri*, Americus ls.?, near Bellevue, Kan.; ——— ELLISON (1941), p. 131, sr. syn. of *Streptognathodus wabaunsensis*. UP

——**wapanuckensis** (HARLTON) (1933) (ab)Z (1937), p. 177, (*Polygnathus*).

——? **sp.** ELLISON & GRAVES (1941), pl. 3, fig. 19. Fig. spm., 4814, Mo. Sch. Min., Rolla, Dimple fm., loc. G912, Tex. LP

——**sp.** BRANSON (1944), p. 305, pl. 44, fig. 40, after Bailey (1934), Penn., Mo.; ——— YOUNGQUIST & DOWNS (1949), p. 171, comp. with *Streptognathodus sp.* Youngquist & Downs (1949). MP

——**n. sp.** COOPER (1947b), p. 267, Atokan. LP

——**sp.** EDWARDS & STUBBLEFIELD (1948), p. 219, Mid. Coal Measures, loc. 15, Nottinghamshire and Derbyshire, Eng. P

——**sp.** YOUNGQUIST & DOWNS (1949), pp. 162, 170-171, pl. 31, figs. 8-10. Fig. spms., 14049 (fig. 8), 14050 (figs. 9-10), Univ. Iowa, comp. with *Streptognathodus hastula, Gnathodus wapanuckensis* Ellison & Graves (1941) (pt.), pl. 2, fig. 14, *Polygnathus wapanuckensis* Harlton (1933), pl. 4, figs. 13a-c, and *Streptognathodus sp.* Branson (1944), pl. 44, fig. 40, sh. ¾ mi. NW Knoxville, Iowa. MP

——**sp.** STURGEON & MERRILL (1949), p. 10, Dorr Run sh. memb., Allegheny fm., Ohio. MP

——**fragments** STURGEON & YOUNGQUIST (1949), pp. 381-382, Hamden ls., and Washingtonville sh. memb., Allegheny fm., Ohio. MP

SUBBRYANTODUS BRANSON & MEHL (Oct. 1934a), p. 285. Type species, S. *arcuatus* BRANSON & MEHL (Oct. 1934a); ——— E. R. BRANSON (1934), p. 327; ——— BRANSON & MEHL (1938d), p. 141; ——— COOPER (1939), pp. 385, 390, 417; ——— HASS (1941), p. 77; ——— SCOTT (1942), pp. 295, 300; ——— COOPER & SLOSS (1943), p. 175; ——— BRANSON & MEHL (1944), p. 244; ——— ELLISON (Jan. 1946), pp. 95, 97, 109-110, *Lewistownella* (pt.) is a jr. syn., blade type, confined to Kinderhook; ——— BOND (1947), p. 36; ——— HASS (Mar. 1947), p. 132, from upper and basal Sunbury, upper and lower Ohio, basal Orangeville, Cleveland, and Huron shs., Ohio; ——— MEHL & THOMAS (1947), p. 17; ——— COOPER (July 1948a), p. 361, common to Jacobs Chapel, pre-Welden, Hannibal, and Bushberg fms.; ——— THOMAS (1949), p. 430. UD-UMi

——**angulatus** (COOPER) (1939), pp. 416, 421, pl. 45, figs. 11-12, 15-16. Hypotypes, 39833-39834, Univ. Chi., pre-Welden sh., Okla., *Subbryantodus cornatus* is classed as a jr. syn., (*Bryantodus*). LMi

——**araius** COOPER (1939), p. 416, pl. 43, figs. 39-40. Holotype, 39835, Univ. Chi., pre-Welden sh., Okla. LMi

——**arcuatus** BRANSON & MEHL (Oct. 1934a), pp. 285-286, pl. 23, figs. 10-11. Cotypes, C385-5, Univ. Mo., type species for *Subbryantodus*, comp. with *Subbryantodus flexus*, Bushberg ss., Mo.; ——— BRANSON (1938a), p. 181; ——— COOPER (1939), p. 390, classed as jr. syn. of *Ligonodina*; ——— COOPER (1939), p. 416, pl. 45, figs. 13-14, 21-22. Hypotypes, 39837-39838, Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON & MEHL (1944), p. 244, pl. 94, fig. 9; ——— BRANSON (1944), p. 223. LMi

——**aulus** COOPER (1939), pp. 416-417, pl. 43, figs. 22-23. Holotype, 39839, Univ. Chi., pre-Welden sh., Okla. LMi

——**brevidens** (COOPER) (1939), pp. 417, 421, pl. 43, figs. 10-11. Hypotype, 39840, Univ. Chi., pre-Welden sh., Okla. (*Bryantodus*). LMi

——**camaratus** COOPER (1939), p. 417, pl. 43, figs. 41-42. Holotype, 39836, Univ. Chi., pre-Welden sh., Okla. LMi

——**cornutus** E. R. BRANSON (1934), p. 328, pl. 28, fig. 16. Holotype, C219-5, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— COOPER (1939), p. 416, classed as jr. syn. of *Subbryantodus angulatus*; ——— BRANSON (1944), p. 223. LMi

——**ethys** COOPER (1939), p. 417, pl. 43, fig. 15. Holotype, 39841, Univ. Chi., pre-Welden sh., Okla. LMi

——**flexus** BRANSON & MEHL (Oct. 1934a), pp. 286-287, pl. 23, fig. 12. Holotype, C386-1, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 181; ——— BRANSON (1944), p. 223. LMi

——**grandis** COOPER & SLOSS (1943), pp. 171, 175, pl. 29, fig. 19, black sh. base Madison gr., loc. 1, Alta. LMi

——**humilis** E. R. BRANSON (1934), p. 328, pl. 25, fig. 4. Holotype, C215-4, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 223. LMi

——**macer** MEHL & THOMAS (1947), pp. 17-18, pl. 1, fig. 5. Holotype, C657-2, Univ. Mo., Fern Glen fm., Mo. MMi

——**minutus** THOMAS (1949), pp. 412, 430, pl. 3, fig. 28. Holotype, C821-4, Univ. Mo., English River siltstone, loc. 2, Iowa. LMi

——**orthus** COOPER (1939), p. 417, pl. 43, fig. 12. Holotype, 39842, Univ. Chi., pre-Welden sh., Okla. LMi

——**paucinodus** E. R. BRANSON (1934), p. 327, pl. 28, fig. 15. Holotype, C203-1, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 223. LMi

——**pulcher** E. R. BRANSON (1934), p. 327, pl. 28, fig. 7. Holotype, C207-2, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— COOPER (1939), pp. 417, 421, pl. 47, fig. 65. Hypotype, 39843 (39043 on pl.), Univ. Chi., pre-Welden sh., Okla.; ——— BRANSON (1944), p. 223. LMi

——**radians** BRANSON & MEHL (1938d), p. 141, pl. 34, figs. 22-23. Holotype, C31-5 (fig. 22); paratype, C31-1 (fig. 23), Univ. Mo., Chouteau ls., Mo.; ——— BRANSON (1944), pp. 208e, 223, pl. 39, figs. 22-23, Chouteau ls., Mo.; ——— BOND (1947), pp. 21, 36, pl. UD-LMi

2, fig. 13. Hypotype, 18403, Ohio Univ., comp. with *Subbryantodus sp.* Bond (1947), lower Ohio sh., Ohio.

——**radinus** COOPER (1939), p. 417, pl. 43, fig. 13. Holotype, 39844, Univ. Chi., pre-Welden sh., Okla. LMi

——? **scitulus** (COOPER) (1939), pp. 417, 421, pl. 43, figs. 35-36. Hypotype, 39845, Univ. Chi., pre-Welden sh., Okla., (*Bryantodus*). LMi

——? **stenus** COOPER (1939), p. 417, pl. 43, figs. 37-38. Holotype, 39846, Univ. Chi., pre-Welden sh., Okla. LMi

——**subangulatus** (HASS) (Mar. 1947), p. 134, Huron and lower Ohio sh., Ohio, and Chattanooga sh. (Perhaps *Bryantodus* is the sr. syn.) UD

——**tenuis** E. R. BRANSON (1934), p. 327, pl. 28, fig. 5. Holotype, C202-1, Univ. Mo., Hannibal fm., Mo.; ——— BRANSON & MEHL (1938d), p. 133; ——— BRANSON (1944), p. 223. LMi

——**sp.** E. R. BRANSON (1934), pl. 25, fig. 9. Fig. spm., C215-1, Univ. Mo., Hannibal fm., Mo. LMi

——**sp.** E. R. BRANSON (1934), pl. 28, fig. 24. Fig. spm., C205-1, Univ. Mo., Hannibal fm., Mo. LMi

——? **sp.** E. R. BRANSON (1934), pl. 28, fig. 26. Fig. spm., C214-2, Univ. Mo., Hannibal fm., Mo. LMi

——**sp.** COOPER (1939), pl. 47, fig. 82. Fig. spm., 39881, Univ. Chi., pre-Welden sh., Okla. LMi

——**sp.** HASS (1941), p. 77, pl. 14, fig. 3. Fig. spm., 7550, USGS, Bushberg-Hannibal horizon, Okla. LMi

——**spp.** SCOTT (1942), p. 300, pl. 39, figs. 10, 11a-13a, pl. 40, fig. 17, black shs., Heath fm., Mont. UMi

——**sp.** BOND (1947), pp. 21, 36, pl. 2, fig. 18. Fig. spm., 18408, Ohio Univ., comp. with *Subbryantodus radians*, lower Ohio sh., Ohio. UD

SUBCORDYLODUS STAUFFER (1935a), p. 153. Type species, *S. elongatus* STAUFFER (1935a); ——— STAUFFER (1935b), p. 618; ——— LOOMIS (Oct. 1936), pp. 663-664, the lateral teeth of the modern gastropods *Buccinum*, *Nassa*, and *Fulgur* resemble this genus, Stauffer's pl. 73, fig. 23 is reproduced, which is *Subcordylodus rectilineatus;* ——— ? LOOMIS (Oct. 1936), p. 664, Stauffer's (1935b) pl. 73, fig. 22 is reproduced, which is *Subcordylodus? inaequalis;* ——— FURNISH (1938), p. 338, comp. with *Cordylodus;* ——— STAUFFER (1940), pp. 426, 432; ——— ELLISON (Jan. 1946), p. 110, classed as jr. syn. of *Cordylodus*, bar type. MO

——**delicatus** (BRANSON) (1944), pp. 89-90, pl. 13, figs. 17-18, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——**elongatus** STAUFFER (1935a), pp. 153-154, 160, pl. 11, fig. 33. Holotype, B4398, Univ. Minn., Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——? **inaequalis** STAUFFER (1935b), p. 618, pl. 73, figs. 2-3, 17, 22, 26. Syntypes, B4576 (fig. 2), B4577 (fig. 3), B4600 (fig. 26); paratype, B4591 (fig. 17), B4596 (fig. 22), Univ. Minn., Decorah sh., locs. 48 (figs. 2, 22, 26), 94 (figs. 3, 17), and 16, 40, 49, 57, 70-71, Minn.; ——— LOOMIS (Oct. 1936), p. 664, named *Subcordylodus?*, but it is Stauffer's (1935b) pl. 73, fig. 22 that is reproduced; ——— STAUFFER & THIEL (1941), pp. 238, 241. MO

——**paratus** STAUFFER (1935a), pp. 154, 160, pl. 10, fig. 48. Holotype, B4363, Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

——**rectilineatus** STAUFFER (1935a), pp. 154, 160, pl. 11, figs. 30, 32. Cotypes, B4395 (fig. 30), B4397 (fig. 32), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER (1935b), p. 618, pl. 73, figs. 7, 23, 28-29, 33, 39. Fig. spms., B4581 (fig. 7), B4597 (fig. 23), B4602 (fig. 28), B4603 (fig. 29), B4607 (fig. 33), B4613 (fig. 39), Univ. Minn., Decorah sh., locs. 67 (fig. 7), 94 (figs. 23, 29, 33, 39), 52 (fig. 28), 37, 48, 57, 79, 89, 92, Minn.; ——— LOOMIS (Oct. 1936), p. 664, named *Subcordylodus* but Stauffer's (1935b) pl. 73, fig. 23 is reproduced; ——— STAUFFER & THIEL (1941) (*restilineatus* p. 241), pp. 238, 241, 245. MO

——**sinuatus** STAUFFER (1935a), pp. 154, 160, pl. 11, figs. 28, 37, 42, 45. Cotypes, B4393 (fig. 28), B4402 (fig. 37), B4407 (fig. 42), B4410 (fig. 45), Univ. Minn., Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245; ——— BRANSON (1944), pp. 53, 67, pl. 8, figs. 1-2, after Mehl and McLaughlin, from Kenneth McLaughlin's master's thesis (1941), Univ. Mo., Dutchtown fm., Mo. MO

——**sp.** STAUFFER (1935b), p. 618, pl. 73, fig. 21. Fig. spm., B4595, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 94, Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**sp.** STAUFFER (1940), p. 432, pl. 59, fig. 72. Fig. spm., B5634, Univ. Minn., clay above ls., admixture, Minn. O, MD

——**n. sp.** BRANSON (1944), pp. 89-90, pl. 13, fig. 19, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

SUBPRIONIODUS SMITH (1907), p. 247. Type species, *S. paucidentatus* SMITH (1907); ——— BASSLER (1925), p. 218; ——— ULRICH & BASSLER (1926), pp. 6, 8; ——— HOLMES (1928), pp. 3, 23, genus retained provisionally for Ord. species of *Prioniodus;* ——— GUNNELL (Mar. 1931a), p. 331, Lansing gr., Mo.; ——— GUNNELL (Apr. 1931a), p. 239; ——— STAUFFER (1932), p. 261; ——— GUNNELL (1933), p. 267; ——— HUDDLE (1934), pp. 26, 34; ——— STAUFFER (1935b), p. 618; ——— ELLISON (Jan. 1946), p. 110, classed as jr. syn. of *Prioniodus*, bar type. MO

——**acutus** SMITH (1907), pp. 247-248, 250, pl. 6, fig. 24; pl. 7, fig. 33; pl. 9, fig. 45. Types, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, figs. 3-5, Smith's (1907) figs. 45, 33, 24 resp. are reproduced. MO

——**calcarus** SMITH (1907), p. 250, pl. 9, fig. 46. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 2, Smith's fig. is reproduced. MO

——**crassus** SMITH (1907), p. 250, pl. 9, fig. 48. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 6, Smith's fig. is reproduced. MO

——**cringcrampensis** SMITH (1907), p. 248, pl. 7, fig. 35. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 8, Smith's fig. is reproduced. MO

——**distans** SMITH (1907), p. 250, pl. 9, fig. 44. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 7, Smith's fig. is reproduced. MO

——**equalis** SMITH (1907), p. 248, pl. 7, fig. 31. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 9, Smith's fig. is reproduced. MO

——**falcatus** SMITH (1907), p. 250, pl. 9, fig. 51. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 10, Smith's fig. is reproduced. MO

——**fardingensis** SMITH (1907), p. 250, pl. 9, fig. 47. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 12, Smith's fig. reproduced. MO

——**furcatus** SMITH (1907), p. 247, pl. 6, fig. 22. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 11, Smith's fig. is reproduced. MO

——**gibbosus** SMITH (1907), p. 247, pl. 7, fig. 27. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 13, Smith's fig. is reproduced. MO

——**hamatus** STAUFFER (1932), pp. 259, 261, pl. 40, fig. 18. Holotype, Univ. Minn., Decorah sh., Kans.; ——— STAUFFER (1935b), p. 618, pl. 73, fig. 55. Fig. spm., B4629, Univ. Minn., Decorah sh., Minn.; ——— STAUFFER & THIEL (1941), p. 238. MO

——**huntlawensis** SMITH (1907), p. 248, pl. 7, figs. 34a-b. Holotype, Geol. Surv. Scot., Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, figs. 14-15, Smith's (1907) figs. 34a (fig. 14), 34b (fig. 15). MO

——**incurvatus** STAUFFER (1932), pp. 259, 261-262, pl. 40, figs. 19-20. Type, Univ. Minn., Decorah sh., Kans. MO

——**lanceolatus** SMITH (1907), p. 247, pl. 7, fig. 29. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 16, Smith's fig. is reproduced; ——— WETZEL (1932), p. 87, comp. with pl. 6, fig. 32. MO

——**latus** STAUFFER (1930), pp. 124, 126, pl. 10, fig. 9. Holotype, 5439, Univ. Minn., lower Decorah sh., Minn.; ——— STAUFFER & THIEL (1941), p. 241. MO

——**obliquo-lanceolatus** SMITH (1907), p. 248, pl. 7, fig. 30. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 17, Smith's fig. is reproduced. MO

——**parvus** SMITH (1907), p. 247, pl. 7, figs. 26, 28. Type, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, figs. 18-19, Smith's (1907) figs. 26 (fig. 18) and 28 (fig. 19) are reproduced. MO

——**paucidentatus** SMITH (1907), p. 247, pl. 6, fig. 21. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— ULRICH & BASSLER (1926), p. 8, fig. 3, subfig. 2, Smith's (1907) fig. 21 left (left fig.), 21 rt. (rt. fig.) are reproduced; ——— HOLMES (1928), p. 23, pl. 4, figs. 20-21, Smith's (1907) fig. 21 left (fig. 21), 21 rt. (fig. 20) are reproduced; ——— MOODIE (1929), p. 21, fig. 10, subfig. 2, same as Smith's (1907) fig. 21 left (left fig.), 21 rt. (rt. fig.); ——— WETZEL (1933), p. 86, comp. with pl. 6, fig. 30; ——— GUNNELL (1933), p. 267, comp. with *Subprioniodus sp.* Gunnell (1933), pl. 33, fig. 19, and pl. 33, fig. 27; ——— GLAESSNER (1945) (*pauoidentatus*), p. 27, fig. 3, subfig. 2, after Ulrich & Bassler (1926). MO

——**peracutus** SMITH (1907), p. 248, pl. 7, fig. 32. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 22, Smith's fig. is reproduced. MO

——**remotidentatus** STAUFFER (1932), pp. 259, 262, pl. 40, fig. 21. Holotype, Univ. Minn., Decorah sh., Kans. MO

——**subserratus** SMITH (1907), p. 250, pl. 9, fig. 43. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— HOLMES (1928), p. 23, pl. 4, fig. 1, Smith's fig. is reproduced. MO

——**sp.** GUNNELL (1933), pp. 264, 267, pl. 32, fig. 33. Type, Gunnell coll., Univ. Mo., Quivira sh., Mo.; ——— ELLISON (1941) (*Subprioniodina*), p. 138, indet. fragments. UP

——**sp.** GUNNELL (1933), pp. 264, 267, pl. 33, fig. 19. Type, Gunnell coll., Univ. Mo., Americus ls.?, near Bellevue, Kans.; ——— ELLISON (1941) (*Subprioniodina*), p. 138, indet. fragments. UP

——**sp.** GUNNELL (1933), pp. 264, 267, pl. 33, fig. 27. Type, Gunnell coll., Univ. Mo., Americus ls.?, near Bellevue, Kans.; ——— ELLISON (1941) (*Subprioniodina*), p. 138, indet. fragments. UP

——? **sp.** STAUFFER (1938), p. 413, Olentangy sh., locs. 111, 125; Plum Brook sh., loc. 121, Ohio. MD

SYNPRIONIODINA ULRICH & BASSLER (1926), pp. 6, 15, 17, 38, 42. Type species, *S. alternata* ULRICH & BASSLER (1926); ——— BASSLER (1925), p. 219 (*nomen nudum*), comp. with *Palmatodella;* ——— HOLMES (1928), pp. 3, 23, 30; ——— COOPER (June 1931), p. 149; ——— WETZEL (1933), p. 85; ——— GUNNELL (1933), p. 269; ——— BRANSON & MEHL (June 1934a) (*Subprioniodina*, p. 144), pp. 144, 195; ——— SCHMIDT (1934), p. 80; ——— BRANSON & MEHL (Oct. 1934a), p. 292; ——— HUDDLE (1934) (*Symprioniodina*, p. 51), pp. 26, 34, 36, 51, 53-54, 59, comp. with *Euprioniodina, Palmatodella,* and *Ligonodina;* ——— CHADWICK (Feb. 1935a), p. 318, begins in the Naples gr.; ——— SCHMIDT (1934) (r)P (1935), p. 80; ——— DEMANET (1938), p. 162; ——— DEMANET (1939), p. 219; ——— COOPER (1939), p. 417; ——— STAUFFER (1940), p. 432; ——— BRANSON & MEHL (1941b), p. 187; ——— ELLISON (1941), pp. 109, 111, 119; ——— DEMANET (1941), p. 177; ——— ELLISON & GRAVES (1941), pp. 2, 12; ——— CAMP, TAYLOR, & WELLES (1942), p. 630, Rhenanidi?, ref. to Demanet (1938); ——— DUBOIS (1943), p. 156; ——— ELLISON (Jan. 1946), pp. 95, 104, 108, 110, *Elsonella* is classed as a jr. syn., blade type, Upper Dev. through Wolfcamp; ——— CAMPBELL (1946), p. 852, upper New Albany sh.; ——— BOND (1947), pp. 28, 36; ——— MD-LPm

COOPER (1947b), p. 269; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 59; ——— COOPER (July 1948a), p. 359; ——— YOUNGQUIST & MILLER (1948), pp. 440, 450; ——— CAMP, WELLES, & GREEN (1949), p. 265.

——**aclis** HUDDLE (1934) (*acilis* p. 15), pp. 15, 55, pl. 11, fig. 7. Holotype, 1933, Ind. Univ., rare in upper New Albany sh., locs. 1 (fig. 7), 3, 10, Ind.; ——— COOPER (1939), pp. 417, 421, pl. 47, fig. 22. Hypotype, 39847, Univ. Chi., pre-Welden sh., Okla. LMi

——**alternata** ULRICH & BASSLER (1926), pp. 16-17, 42, fig. 4, subfig. 22. Holotype, 11308, USNM. Type species for *Synprioniodina*, Chattanooga sh., Ala.; ——— BASSLER (1925), p. 219 (*nomen nudum*); ——— EDINGER (1926), p. 286, fig. 1 (pt.), lower rt. cor., same as fig. 4, subfig. 22, Ulrich & Bassler (1926); ——— BUTTS (1926), p. 160, pl. 48, fig. 4, after Grace Holmes (1928) (unpub.), Chattanooga sh., Ala.; ——— HOLMES (1928), pp. 23, 30, pl. 10, figs. 11-12. Holotype and plesiotype, 11308, USNM, Chattanooga sh., Ala.; ——— COOPER (June 1931), pp. 149-151, pl. 20, fig. 13, lower Sunbury sh., Ohio; ——— BASSLER (1932), p. 234, pl. 26, fig. 23, Hardin ss., Tenn.; ——— WETZEL (1933), pp. 84-85, comp. with pl. 6, figs. 23-24; ——— COOPER (1933b), p. 211, Ark. novaculite, Ark.; ——— HUDDLE (1934), pp. 54-55, comp. with *Synprioniodina decurrens;* ——— COOPER (1935), pp. 309-310, pl. 27, fig. 35. Fig. spm., 38085, Univ. Chi., Ark. novaculite, upper div., beds 7-8, 13-15; mid. div., bed A, Ark.; ——— COOPER (1939), pp. 417-418, 421, pl. 47, figs. 18-19. Hypotypes, 39848-39849, Univ. Chi., pre-Welden sh., Okla., *Hindeodella curvata?* is classed as a jr. syn.; ——— ELLISON & GRAVES (1941), pp. 3-4, pl. 1, fig. 8. Hypotype, 4770, Mo. Sch. Min., Rolla, Dimple fm., mid., locs. G908 (fig. 8), G922, lower transition zone at base, loc. G910, Tex.; ——— GLAESSNER (1945), p. 28, fig. 4, subfig. 22, after Ulrich & Bassler (1926); ——— BOND (1947), p. 28, comp. with *Euprioniodina prona;* ——— YOUNGQUIST & MILLER (1948), p. 450, comp. with *Synprioniodina sp.* Youngquist & Miller (1948). UD-LP

——? **compressa** ELLISON & GRAVES (1941), pp. 3-4, 12, pl. 1, fig. 11. Holotype, 7162, Mo. Sch. Min., Rolla, mid. Dimple fm., loc. G903, Tex. LP

——**cyclus** COOPER (1939), pp. 418, 421, pl. 47, fig. 16. Holotype, 39850, Univ. Chi., pre-Welden sh., Okla. LMi

——**decurrens** HUDDLE (1934), pp. 15, 55, pl. 11, fig. 11. Holotype, 1927, Ind. Univ., rare in upper New Albany sh., loc. 8; mid. New Albany sh., locs. 19, 23 (fig. 11), Ind. UD-LMi

——? **delicatula** BRANSON & MEHL (Oct. 1934a), p. 292, pl. 23, figs. 23-24. Cotypes, C393-3, Univ. Mo., Bushberg ss., Mo.; ——— BRANSON (1938a), p. 182; ——— HASS (1943), p. 308, *Synprioniodina n. sp.* Knechtel & Hass (1938) is classed as jr. syn.; ——— BRANSON (1944), p. 224, Bushberg ss., Mo. LMi

——**forsenta** STAUFFER (1940), pp. 432-434, pl. 59, figs. 31-33, 38-41. Syntypes, B5596 (fig. 31), B5603-B5606 (figs. 38-41); paratypes, B5597 (fig. 32), B5598 (fig. 33), Univ. Minn., clay above the Cedar Valley ls., Minn.; ——— STAUFFER & THIEL (1941) (*Synprioniodus*), p. 229. O, MD

——**gracilis** STAUFFER (1938), pp. 413, 441-442, pl. 49, figs. 12-13. Syntypes, B5094-B5095 (figs. 12-13), Univ. Minn., Olentangy sh., locs. 109, 114, 118 (fig. 13), 125, 187 (fig. 12), Ohio. UD

——**hanoverensa** YOUNGQUIST, HIBBARD, & REIMANN (Jan. 1948), pp. 58-59, pl. 15, fig. 7. Holotype, B-3, Hibbard coll., Buff. Mus. Sci., N. Y., Hanover sh., N. Y. UD

——**leptus** COOPER (1939), p. 421, pl. 46, fig. 20. Holotype, 39851, Univ. Chi., pre-Welden sh., Okla. LMi

——**microdenta** ELLISON (1941), pp. 108-111, 119, pl. 20, figs. 43-46. Holotype, C556-1 (figs. 45-46); paratypes, C81-5 (fig. 43), C79-3 (fig. 44), C490-3 (G), Univ. Mo., Cherokee sh. through Deer Creek ls., locs. 1362 (figs. 45-46), 0017 (figs. 43-44), 1266, 1346-51, 682, 716, 0158, 1102, 1354, 0107, 0103, 0144, 0148, 1273, 1283, 1362, 0149, 0116, 0155, 0140, 1359, 0043, Mo.; ——— ELLISON & GRAVES (1941), pp. 3-4, pl. 1, fig. 10. Hypotype, 4772, Mo. Sch. Min., Rolla, mid. Dimple fm., loc. G919, Tex.; ——— BRANSON (1944), p. 327, Penn., Mo. L-UP

——**nasuta** (HOLMES) (1928), pp. 18, 21, 23, pl. 7, fig. 30, (*Prioniodus* = *Polygnathus*); ——— (BRANSON & MEHL) (July 1933d) (*Subprioniodina*), p. 144, jr. syn. of *Hindeodella;* ——— (CHADWICK) (Feb. 1935a), p. 316, diagnostic sp. confined to Naples gr.; ——— (COOPER) (1935a), p. 444, correctly redefined by Holmes (1928) and is not *Hindeodella nasuta* as ident. later by Branson & Mehl.

——**newalbanyensis** HUDDLE (1934), pp. 15, 54, pl. 6, fig. 18. Holotype, 2322, Ind. Univ., rare in upper New Albany sh., locs. 1-3, 6, 14, Ind. LMi

——**plana** HOLMES (1928), p. 30, pl. 10, fig. 13. Holotype, 11451, USNM, Chattanooga sh., Ala.; ——— BUTTS (1926), p. 160, pl. 48, fig. 10, (*nomen nudum*); ——— WETZEL (1933), p. 87, comp. with pl. 6, fig. 31; ——— HUDDLE (1934), pp. 15, 54, pl. 6, fig. 12; pl. 11, fig. 10. Plesiotypes, 1929 (fig. 12), 1928 (fig. 10), Ind. Univ., rare in upper New Albany sh., locs. 1-2, 3 (fig. 12), 10 (fig. 10), 14, Ind.; ——— COOPER (1939), p. 421, pl. 46, fig. 21. Hypotype, 39852, Univ. Chi., pre-Welden sh., Okla.; ——— COOPER & SLOSS (1943), p. 171, pl. 29, fig. 22, black sh., base Madison gr., loc. 1, Alta.; ——— CAMPBELL (1946), p. 901, common to upper New Albany sh., Ind. UD-LMi

——cf. **simplex** (DEMANET) (1938), pp. 162, 170, pl. 14, figs. 8-11. Fig. spms., Musée Royal d'Histoire Naturelle de Belgique, Lower Namurien, Nm la (fig. 10), V3c sup. (figs. 8-9, 11) Belgium, (*Lonchodus*); ——— (DEMANET) (1939), pp. 218-219, figs. A, B. Fig. spms., 60230 (fig. B), 60463 (fig. A), Geol. Surv. Great Brit., a conodont *in situ* on the internal border of first branchial arch of a Crossopterygian ganoid fish, *Coelacanthus lepturus* Agassiz. Dr. C. J. Stubblefield and Mr. W. H. C. Ramsbottom do not accept this as an unquestioned conodont as shown in figs. A and A1 (personal communication, Feb. 3, 1949). UMi-P

——**simplex** (SCOTT) (1942), p. 293; ——— (CAMP, WELLES, & GREEN) (1949), pp. 265, 332, 337.

——**tropa** STAUFFER (1940), p. 434, pl. 59, fig. 60. Holotype, B5622, Univ. Minn., clay above ls. (admixture), and upper Cedar Valley ls., Minn.; ——— STAUFFER & THIEL (1941) (*Synprioniodus*), p. 229. MD

——**sp.** GUNNELL (1933), pp. 263, 269, pl. 31, fig. 6. Fig. spm., Gunnell coll., Univ. Mo., Cherokee sh., Mo.; ——— ELLISON (1941), p. 119, classed as sr. syn. of *Synprioniodina microdenta*. MP

——**sp.** STAUFFER (1938), pp. 413, 442, pl. 49, fig. 25. Fig. spm., B4912, Univ. Minn., Olentangy sh., locs. 117, 125; Plum Brook sh., loc. 121 (fig. 25), Ohio. M-UD

——**n. sp.** KNECHTEL & HASS (1938), p. 519, USGS coll. 8432, basal sh., Lodgepole ls., Mont.; ——— HASS (1943), p. 308, classed as a jr. syn. of *Synprioniodina? delicatula*. LMi

——**sp. indet.** BRANSON & MEHL (1941b), p. 187, pl. 6, fig. 1. Fig. spm., C576-4, Univ. Mo., Keokuk ls., Mo.; ——— BRANSON (1944), p. 240. MMi

——**sp.** STAUFFER (1944), p. 257, Olentangy sh., ls. mine, Barberton, Ohio. UD

——**sp.** BOND (1947), pp. 21, 36, pl. 1, fig. 13. Fig. spm., 18376, Ohio Univ., lower Ohio sh., Ohio. UD

——**sp.** YOUNGQUIST & MILLER (1948), pp. 449-450, pl. 68, fig. 6. Fig. spm., 5620, Univ. Iowa, Sweetland Creek sh., Iowa. UD

TAPHROGNATHUS BRANSON & MEHL (1941b), pp. 181-182. Type species, *T. varians* BRANSON & MEHL (1941b); ——— BRANSON & MEHL (1944), p. 246; ——— ELLISON (Jan. 1946), pp. 94, 110, platform type, Osage through lower Meramac; ——— COOPER (1947a), pp. 84, 92. M-UMi

——**varians** BRANSON & MEHL (1941b), pp. 182-183, pl. 6, figs. 27-41. Holotype, C578-5 (fig. 28); fig. spms., C574-4 (figs. 27, 35-38), C577-2 (fig. 29), C579-1 (fig. 30), C579-2 (fig. 32), C575-4 (figs. 31, 33, 39-41), C578-2, Univ. Mo., Keokuk ls., Mo.; ——— BRANSON & MEHL (1944), p. 246, pl. 94, figs. 66-68; ——— BRANSON (1944), p. 240, Keokuk ls., Mo.; ——— COOPER (1947a), p. 92, pl. 20, figs. 14-16. Hypotypes, Ill. Geol. Surv., Kinkaid fm., bed 1, Ill. M-UMi

TELUMODINA COOPER (Sept. 1931), pp. 230, 241. Type species, *T. typicalis* COOPER (Sept. 1931); ——— HUDDLE (1934), pp. 26, 34, 57; ——— COOPER (1939), p. 421; ——— DUBOIS (1943), p. 156; ——— ELLISON (Jan. 1946), p. 110, classed as jr. syn. of *Euprioniodina*, bar type; ——— HASS (Mar. 1947), p. 132, upper and basal Sunbury, upper Ohio, basal Orangeville, and Cleveland shs. of Ohio. UD-LMi

——**apalus** COOPER (1939), p. 421, pl. 47, fig. 37. Holotype, 39853, Univ. Chi., pre-Welden sh., Okla.; ——— MEHL & THOMAS (1947), p. 19, jr. syn. of *Trichonodella*. LMi

——**deckeri** COOPER (Sept. 1931), pp. 241-242, pl. 28, fig. 32. Holotype, Cooper coll., USGS, Woodford fm., Okla. UD

——**gracilis** COOPER (Sept. 1931), p. 242, pl. 28, fig. 33. Holotype, Cooper coll., USGS, Woodford fm., Okla.; ——— COOPER (1939), p. 421, pl. 47, fig. 29. Hypotype, 39854, Univ. Chi., pre-Welden sh., Okla. UD-LMi

——**typicalis** COOPER (Sept. 1931), p. 241, pl. 28, fig. 31. Holotype, Cooper coll., USGS, comp. with *Telumodina deckeri*, Woodford fm., Okla. UD

TORTONIODUS STAUFFER (1935a), pp. 154-155, Type species, *T. politus* STAUFFER (1935a); ——— ELLISON (Jan. 1946) (*Tortonoides*), p. 110, classed as probable jr. syn. of *Bryantodina* and *Ozarkodina*. MO

——**politus** STAUFFER (1935a) (*venustus* fig. 38), p. 155, pl. 10, figs. 38, 42. Holotype, B4353 (fig. 38); paratype, B4357 (fig. 42), Univ. Minn., upper Glenwood beds, Minn.; ——— STAUFFER & THIEL (1941), p. 245. MO

TRICHONODELLA (*Trichognathus*) BRANSON & MEHL (June 1933b), p. 36. Type species, *Trichognathus prima* BRANSON & MEHL (June 1933b); ——— (*Trichognathus*) BRANSON & MEHL (June 1933c), p. 50; ——— (*Trichognathus*) BRANSON & MEHL (July 1933a, b, c), pp. 100, 118, 131; ——— (*Trichognathus*) BRANSON & MEHL (June 1934a), pp. 202, 204, comp. with *Lonchodus* and *Diplododella*; ——— (*Trichognathus*) BRANSON & MEHL (Oct. 1934a), p. 290; ——— (*Trichognathus*) E. R. BRANSON (1934), p. 329; ——— (*Trichognathus*) HUDDLE (1934), p. 35; ——— (*Trichognathus*) STAUFFER (1935a), p. 155; ——— (*Trichognathus*) STAUFFER (1935b), p. 619; ——— (*Trichognathus*) BAILEY (1935), pp. 487, 490, 493, rare at B10, E5, G10, J1, K1, K5, L1, T2, T12, Y1, Y4, and Y6-Y7; common at G4, J6, Y2; abundant at G1, Y9, Y12-Y13, Y16, DD1, lower Henrietta (rare), and Cherokee (common), Mo.; ——— (*Trichognathus*) FURNISH, BARRAGY, & MILLER (1936), pp. 1334-1335, Whitewood sh., S. D.; ——— (*Trichognathus*) FURNISH (1938), p. 323; ——— (*Trichognathus*) BRANSON & MEHL (1938d), p. 142; ——— (*Trichognathus*) COOPER (1939), pp. 396-397, 421, comp. with *Neocordylodus*; ——— (*Trichognathus*) STAUFFER (1940), p. 434; ——— (*Trichognathus*) BRANSON & MEHL (1941a), p. 176; ——— (*Trichognathus*) BRANSON & MEHL (1941b), p. 185; ——— (*Trichognathus*) ELLISON & GRAVES (1941), p. 2; ——— (*Trichognathus*) BRANSON & MEHL (1943), p. 381; ——— (*Trichognathus*) BRANSON & MEHL (1944), pp. 241, 243; ——— (*Trichognathus*) ELLISON (Jan. 1946), pp. 95, 104, 108-110, *Idioprioniodus* and *Neocordylodus* (pt.) are jr. syns., bar type, Chazy through Wolfcamp; ——— (*Trichognathus*) HASS (Mar. 1947), p. 132, upper and basal Sunbury, upper and lower Ohio, basal Orangeville, Cleveland, and Huron shs., Ohio; ——— (*Trichognathus*) MEHL & THOMAS (1947), p. 18; ——— BRANSON & BRANSON (1947), p. 552 (*nomen nudum*); ——— (*Trichognathus*) BRANSON & BRANSON (1947), p. 552; ——— BRANSON & MEHL (1948), pp. 527-528, *Trichognathus* is a homonym changed to *Trichonodella*. A. Berthod, Latreille's Fam. Thierr., p. 327, (1827), Col. Carab. is first use of *Trichognathus*; ——— THOMAS (1949), p. 425. MO-LPm

In the following list a dash (—) will represent *Trichonodella*, unless the name *Trichognathus* (in parentheses) precedes the author's name, in which case the generic name used by that author was spelled *Trichognathus*.

——**cf. apla** (*Trichognathus*) (MEHL & THOMAS) (1947), p. 19, pl. 1, fig. 28. Fig. spm., MMi

C656-4, Univ. Mo., Fern Glen fm., Mo., (*Telumodina apalus*).

——barbarus (*Trichognathus*) STAUFFER (1935a), pp. 155, 160, pl. 12, fig. 11. Holotype, B4427, Univ. Minn., upper Glenwood beds, Minn.; ——— (*Trichognathus*) FURNISH, BARRAGY, & MILLER (1936) (*cf. barbarus* on pl.), p. 1334, pl. 1, fig. 1. Fig. spm., 1175, Univ. Iowa, lower Whitewood fm., S. D.; ——— (*Trichognathus*) STAUFFER & THIEL (1941), p. 245. MO

——blanda (*Trichognathus*) STAUFFER (1940), p. 434, pl. 59, figs. 61, 70. Syntypes, B5623 (fig. 61), B5632 (fig. 70), Univ. Minn., clay above ls. (admixture), Minn.; ——— (*Trichognathus*) STAUFFER & THIEL (1941), p. 229. O, MD

——brassfieldensis BRANSON & BRANSON (1947), pp. 551-552, pl. 81, figs. 12-17; pl. 82, figs. 39, 47, 49. Holotype, C683-3 (fig. 47); paratypes, C672-1 (fig. 16), C672-2 (fig. 12), C672-3 (fig. 17), C672-2 (figs. 13-15), C683-2 (fig. 39), C683-3 (fig. 49), C678-5, C683-2, C679-2 (not fig.), Univ. Mo., upper Brassfield fm., locs. 1784, 1826 (figs. 16-17), 1840 (fig. 12), 1970 (figs. 39, 47, 49), Ky. LS

——brevialata (*Trichognathus*) BRANSON & MEHL (Oct. 1934a), p. 291, pl. 23, fig. 29. Holotype, C390-3, Univ. Mo., Bushberg ss., Mo.; ——— (*Trichognathus*) BRANSON (1938a), p. 181; ——— (*Trichognathus*) COOPER (1939) (*breviatata*), p. 421, pl. 46, fig. 48. Hypotype, 39855, Univ. Chi., pre-Welden sh., Okla.; ——— (*Trichognathus*) BRANSON (1944), p. 224, Bushberg ss., Mo. LMi

——carinata BRANSON & BRANSON (1947), pp. 551-552, pl. 82, figs. 26-27, 32-34. Holotype, C677-4 (figs. 27, 34); paratypes, C677-1 (figs. 26, 32-33), Univ. Mo., comp. with *Trichonodella brassfieldensis*, Brassfield fm., locs. 1826 (figs. 26-27, 32-34), 1787 (Plum Creek memb.), Ky. LS

——curvidens (*Trichognathus*) E. R. BRANSON (1934), p. 329, pl. 28, fig. 4. Holotype, C211-4, Univ. Mo., Hannibal fm., Mo.; ——— (*Trichognathus*) BRANSON & MEHL (1938d), p. 133; ——— (*Trichognatus*) COOPER (1939), p. 421, pl. 46, fig. 22. Hypotype, 39856, Univ. Chi., pre-Welden sh., Okla.; ——— (*Trichognathus*) BRANSON (1944), p. 224, Hannibal fm., Mo. LMi

——deformis (*Trichognathus*) STAUFFER (1935a), pp. 155-156, 160, pl. 12, fig. 3. Holotype, B4419, Univ. Minn., upper Glenwood beds, Minn.; ——— (*Trichognathus*) STAUFFER (1935b), p. 619, pl. 71, fig. 46. Fig. spm., B4510, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 96, Minn.; ——— (*Trichognathus*) STAUFFER & THIEL (1941), pp. 241, 245. MO

——delicata (*Trichognathus*) (BRANSON & MEHL) (1944) (*Trichognathus sp.*, p. 241), p. 241, pl. 93, figs. 62-63, Kimmswick ls., Mo., (Previous syn. not given). MO

——delicata (*Trichognathus*) MEHL & THOMAS (1947), p. 18, pl. 1, fig. 30. Holotype, C657-1, Univ. Mo., Fern Glen fm., Mo. MMi

——devonicus (*Trichognathus*) STAUFFER (1938), (*Tricognathus*), p. 442, pl. 51, fig. 1. Holotype, B4835, Univ. Minn., Plum Brook sh., loc. 104, Ohio; ——— STAUFFER (1938) (*Tricognathus*), p. 413. MD

——dubia (*Trichognathus*) MEHL & THOMAS (1947), p. 18, pl. 1, fig. 17. Holotype, C656-3, Univ. Mo., Fern Glen fm., Mo. MMi

——? edentata BRANSON & BRANSON (1947), p. 552, pl. 81, fig. 28; pl. 82, figs. 40, 44, 48. Holotype, C684-1 (fig. 48); paratypes, C684-1 (fig. 44), C674-1 (figs. 28, 40), Univ. Mo., Brassfield fm., locs. 1923 (figs. 28, 40), 1970 (figs. 44, 48), Ky. LS

——erecta (*Trichognathus*) BRANSON & MEHL (July 1933b), p. 118, pl. 10, fig. 5. Holotype, C72-3, Univ. Mo., Plattin ls., Mo.; ——— (*Trichognathus*) BRANSON (1944), p. 82, Plattin ls., Mo.; ——— (*Trichognathus*) BRANSON (1944) (*cf. erecta*), pp. 89-90, pl. 13, figs. 16, 22, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——excavata (*Trichognathus*) BRANSON & MEHL (June 1933c), p. 51, pl. 3, figs. 35-36. Cotypes, C159-1, Univ. Mo., Bainbridge fm., Mo.; ——— (*Trichognathus*) BRANSON (1944), pp. 97, 110, pl. 16, figs. 35-36, Bainbridge ls., Mo. MS

——gyroides (*Trichognathus*) STAUFFER (1935b), p. 619, pl. 71, figs. 28, 43. Holotype, B4492 (fig. 28); paratype, B4507 (fig. 43), Univ. Minn., Decorah sh., Spechts Ferry memb., locs. 70 (fig. 28), 67 or 69 (fig. 43), 94, Minn., and Iowa; ——— (*Trichognathus*) STAUFFER & THIEL (1941), p. 241. MO

——hoffmani (*Trichognathus*) STAUFFER (1938), (*Tricognathus*), pp. 413, 442, pl. 51, fig. 6. Holotype, B4840, Univ. Minn., Arkona sh., loc. 174, Ont. MD

——illustris (*Trichognathus*) STAUFFER (1935a), pp. 156, 160, pl. 12, fig. 4. Holotype, B4420, Univ. Minn., upper Glenwood beds, Minn.; ——— (*Trichognathus*) STAUFFER (1935b), p. 619, pl. 71, fig. 37. Fig. spm., B4501, Univ. Minn., Decorah sh., locs. 57 (fig. 37), 56, 67, 87, 89, Minn.; ——— (*Trichognathus*) ? STAUFFER & THIEL (1941) (no ?, p. 245), pp. 238, 241, 245. MO

——inopinatus (*Trichognathus*) STAUFFER (1935a), pp. 156, 160, pl. 12, figs. 5-6. Cotypes, B4421-4422 (figs. 5-6), Univ. Minn., upper Glenwood beds, Minn.; ——— (*Trichognathus*) STAUFFER & THIEL (1941), p. 245. MO

——laminata (*Trichognathus*) BRANSON & MEHL (June 1934a), p. 203, pl. 16, fig. 26. Holotype, C242-4, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Trichognathus*) BRANSON (1944), pp. 153, 158, pl. 26, fig. 15, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo.; ——— (*Trichognathus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo. UD

——macroda (*Trichognathus*) (MEHL & THOMAS) (1947), p. 18, pl. 1, fig. 32. Fig. spm., C656-5, Univ. Mo., Fern Glen fm., Mo. [*Neocordylodus macrodus* Cooper (1939) (pt.), pl. 46, fig. 62, not pl. 47, fig. 12]. MMi

——micra (*Trichognathus*) COOPER (1939), p. 422, pl. 46, fig. 47. Holotype, 39857, Univ. Chi., pre-Welden sh., Okla. LMi

——minnesotensis (*Trichognathus*) STAUFFER (1935b), p. 619, pl. 71, figs. 45, 50. Syntypes, B4509 (fig. 45), B4514 (fig. 50), Univ. Minn., Decorah sh., locs. 16 (fig. 45), 15 (fig. 50), 5, Minn.; ——— (*Trichognathus*) STAUFFER & THIEL (1941), pp. 238, 241. MO

——obtusa (*Trichognathus*) BRANSON & MEHL (1943), p. 385, pl. 64, fig. 13. Holotype, C538-2, Univ. Mo., upper Bromide fm., Okla. MO

——oxys (*Trichognathus*) COOPER (1939), p. 422, pl. 46, fig. 46. Holotype, 39858, Univ. Chi., pre-Welden sh., Okla.; ——— (*Trichognathus*) STAUFFER (1940) (*cf. oxys*), p. 434, pl. 59, fig. 59. Fig. spm., B5621, Univ. Minn., upper Cedar Valley ls., Minn. UD-LMi

——prima (*Trichognathus*) BRANSON & MEHL (June 1933b), p. 36, pl. 1, fig. 32. Holotype, C183-1, Univ. Mo., type species for *Trichonodella*, Harding ss., Colo.; ——— (*Trichognathus*) FURNISH, BARRAGY, & MILLER (1936) (*primus*, p. 1334 and *cf. primus* on pl.), p. 1334, pl. 1, fig. 2. Fig. spm., 1176, Univ. Iowa, lower Whitewood fm., S. D.; ——— (*Trichognathus*) JOHNSON (1945), p. 22, Harding ss., Colo. MO

——pumila (*Trichognathus*) BRANSON & MEHL (July 1933a), p. 100, pl. 6, fig. 5. Holotype, C294-2, Univ. Mo., Joachim fm., Mo.; ——— (*Trichognathus*) BRANSON & MEHL (July 1933b), p. 118, comp. with *Trichonodella erecta* Branson & Mehl (July 1933b); ——— (*Trichognathus*) BRANSON (1944), p. 72, Joachim fm., Mo. MO

——recurva (*Trichognathus*) BRANSON & MEHL (July 1933b), p. 119, pl. 10, fig. 6. Cotypes, C114-1, Univ. Mo., Plattin ls., Mo.; ——— (*Trichognathus*) STAUFFER (1935a) (*recurvus*), pp. 156, 160, pl. 12, figs. 1-2. Fig. spms., B4417-B4418 (figs. 1-2), Univ. Minn., upper Glenwood beds, Minn.; ——— (*Trichognathus*) STAUFFER (1935b) (*recurvus*), pp. 619-620, pl. 71, figs. 20, 27, 39, 41, 47; pl. 72, figs. 48, 56; pl. 75, fig. 22. Fig. spms., B4484 (fig. 20), B4491 (fig. 27), B4503 (fig. 39), B4505 (fig. 41, same spm. as fig. 39), B4511 (fig. 47), B4563 (fig. 48), B4571 (fig. 56), B4705 (fig. 22), Univ. Minn., Decorah sh., locs. 16 (fig. 20), 15 (fig. 27), 40 (figs. 39, 41, 22), 52 (fig. 47), 57 (fig. 48), 94 (fig. 56), 3, 5, 8, 10-11, 16-17, 24, 27, 42, 48, 55, 62, 70-71, 76, 78, 86, 89, 91, Iowa and Minn.; ——— (*Trichognathus*) FURNISH, BARRAGY, & MILLER (1936) (*recurvus*), p. 1334, Whitewood sh., S. D.; ——— (*Trichognathus*) STAUFFER & THIEL (1941) (*recurvus*), pp. 238, 241, 245; ——— (*Trichognathus*) BRANSON (1944), p. 82, Plattin ls., Mo. MO

——robusta (*Trichognathus*) BRANSON & MEHL (June 1934a), p. 203, pl. 15, fig. 31. Holotype, C79-5, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Trichognathus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo.; ——— THOMAS (1949), p. 408, pl. 1, fig. 29. Fig. spm., C812-1, Univ. Mo., Maple Mill sh., loc. 13, Iowa. UD

——separata (*Trichognathus*) BRANSON & MEHL (Oct. 1934a), pp. 290-291, pl. 23, fig. 30. Holotype, C388-4, Univ. Mo., Bushberg ss., Mo.; ——— (*Trichognathus*) BRANSON (1938a), p. 181; ——— (*Trichognathus*) BRANSON & MEHL (1938d), pl. 33, fig. 42. Holotype fig.; ——— (*Trichognathus*) COOPER (1939), pp. 421-422, pl. 46, figs. 45, 49. Hypotypes, 39859-39860, Univ. Chi., pre-Welden sh., Okla.; ——— (*Trichognathus*) BRANSON & MEHL (1944), p. 243, pl. 93, fig. 72; ——— (*Trichognathus*) BRANSON (1944), pp. 181, 224, pl. 32, fig. 42, Bushberg ss., Mo. LMi

——subacoda (*Trichognathus*) (ELLISON & GRAVES) (1941), pp. 3-4, pl. 1, fig. 19. Hypotype, 4778, Mo. Sch. Min., Rolla, Dimple fm., mid., locs. G926, G923, G905 (fig. 19); lower transition zone at base, locs. G913, G912, G910, Tex.; (perhaps *Prioniodus* is the old syn.). LP

——symmetrica (*Trichognathus*) BRANSON & MEHL (June 1933c), p. 50, pl. 3, figs. 33-34. Cotypes, C157-1, Univ. Mo., Bainbridge fm., Mo.; ——— (*Trichognathus*) BRANSON & MEHL (1944), p. 241; ——— (*Trichognathus*) BRANSON (1944), pp. 97, 110, pl. 16, figs. 33-34. MS

——symmetricus (*Trichognathus*) STAUFFER (1935b), p. 620, pl. 75, figs. 25-26. Holotype, B4708, Univ. Minn., Decorah sh., locs. 67 (fig.), 89, Minn.; ——— (*Trichognathus*) STAUFFER & THIEL (1941), p. 238. MO

——tenuis (*Trichognathus*) BRANSON & MEHL (July 1933c), p. 131, pl. 10, fig. 18. Cotypes, C126-3 (fig. 18), C129-2, Univ. Mo., Maquoketa sh., Mo.; ——— (*Trichognathus*) GRAVES & ELLISON (1941) (*tenius* on pl.), pp. 6-7, pl. 3, fig. 28. Hypotype, 3615, Mo. Sch. Min., Rolla, Maravillas fm., loc. G605, Tex.; ——— (*Trichognathus*) BRANSON (1944), p. 98, Maquoketa sh., Mo. UO

——toma (*Trichognathus*) COOPER (1939), p. 422, pl. 46, fig. 50. Holotype, 39861, Univ. Chi., pre-Welden sh., Okla. LMi

——tumida (*Trichognathus*) BRANSON & MEHL (June 1934a), p. 202, pl. 16, fig. 28. Holotype, C227-2, Univ. Mo., Grassy Creek sh., Mo.; ——— (*Trichognathus*) BRANSON (1944), p. 166, Grassy Creek sh., Mo; ——— (*Trichognathus*) BRANSON (1944), p. 173, Louisiana ls., Mo. UD

——sp. (*Trichognathus*) BRANSON & MEHL (June 1934a), pl. 16, fig. 27. Fig. spm., C90-2, Univ. Mo., Grassy Creek sh., Mo. UD

——sp. (*Trichognathus*) BRANSON & MEHL (Oct. 1934a), p. 291, pl. 23, fig. 28. Fig. spm., C390-1, Univ. Mo., Bushberg ss., Mo. LMi

——sp. (*Trichognathus*) E. R. BRANSON (1934), pl. 28, fig. 3. Fig. spm., C212-4, Univ. Mo., Hannibal fm., Mo. LMi

——? sp. (*Trichognathus*) FURNISH, BARRAGY, & MILLER (1936), p. 1334, pl. 2, figs. 3-4. Fig. spms., 1198-1199 (figs. 3-4), Univ. Iowa, lower Whitewood sh., S. D. MO

——fragments (*Trichognathus*) KNECHTEL & HASS (1938), p. 519, basal sh., Lodgepole ls., USGS coll. 8432, Mont.; ——— (*Trichognathus*) HASS (1943), p. 308. LMi

——sp. (*Trichognathus*) BRANSON & MEHL (1938d), p. 142, pl. 34, fig. 38. Fig. spm., C354-4, Univ. Mo., Chouteau ls., Mo.; ——— (*Trichognathus*) BRANSON (1944), pp. 208e, 224, pl. 39, fig. 38. LMi

——sp. (*Trichognathus*) COOPER (1939), pl. 47, fig. 28. Fig. spm., 39879, Univ. Chi., pre-Welden sh., Okla. LMi

——sp. (*Trichognathus*) STAUFFER (1940), p. 434, pl. 59, fig. 67. Fig. spm., B5629, Univ. Minn., clay above ls., admixture, Minn. O, MD

——sp. (*Trichognathus*) HASS (1941), p. 77, pl. 13, fig. 5. Fig. spm., 7546, USGS, Bushberg-Hannibal horizon, Okla. LMi

——sp. indet. (*Trichognathus*) BRANSON & MEHL (1941b), p. 185, pl. 6, fig. 13. Fig. spm., C578-4, Univ. Mo., Keokuk ls., Mo.; ——— (*Trichognathus*) BRANSON (1944), p. 240. MMi

——sp. (*Trichognathus*) IMBT (1941), p. 148, Maquoketa sh., Stafford Co., Kans. UO

——? sp. (*Trichognathus*) BRANSON & MEHL (1943), p. 381, pl. 63, fig. 4. Fig. spm., C528-3, Univ. Mo., McLish fm., Okla. MO

——sp. (*Trichognathus*) BRANSON & MEHL (1944), p. 241, pl. 93, figs. 62-63, named *T. delicata* on pl.

——n. sp. (*Trichognathus*) BRANSON (1944), pp. 89-90, pl. 13, figs. 23-28, after Mehl and Strothmann, from Freddie Strothmann's master's thesis (1940), Univ. Mo., Kimmswick ls., Mo. MO

——n. sp. (*Trichognathus*) BRANSON (1944), p. 153, pl. 26, fig. 17, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——sp. (*Trichognathus*) BRANSON (1944), p. 153, pl. 26, fig. 16, after Mehl and Quigley, from Claude Quigley's master's thesis (1941), Univ. Mo., Sylamore ss., Mo. UD

——sp. (*Trichognathus*) MEHL & THOMAS (1947), p. 19, pl. 1, fig. 18. Fig. spm., C656-2, Univ. Mo., Fern Glen fm., Mo. MMi

——sp. ? THOMAS (1949), pp. 412, 425, pl. 4, fig. 32. Fig. spm., C813-2, Univ. Mo., English River siltstone, loc. 12, Iowa. LMi

TRUCHEROGNATHIDAE n. fam. BRANSON & MEHL (1944), p. 237, pl. 93.

TRUCHEROGNATHUS BRANSON & MEHL (July 1933a), p. 84. Type species, *T. distorta* BRANSON & MEHL (July 1933a); ——— BRANSON & MEHL (July 1933a, b), pp. 86-87, 104, comp. with *Curtognathus;* ——— HUDDLE (1934), p. 35; ——— BRANSON & MEHL (1943), pp. 381-382, 386; ——— BRANSON & MEHL (1944), p. 239; ——— ELLISON (Jan. 1946), pp. 94, 110, fibrous type, Chazy through Black River. MO

——disparilis BRANSON & MEHL (July 1933a), p. 85, pl. 5, figs. 3, 8. Cotypes, C280-4, Univ. Mo., Joachim fm., Mo.; ——— ? BRANSON & MEHL (July 1933a), p. 157, pl. 5, fig. 2. Fig. spm., C285-3, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 71-72, pl. 10, figs. 2-3, 11, Joachim fm., Mo.; ——— ? BRANSON (1944), p. 72, Joachim fm., Mo. MO

——distorta BRANSON & MEHL (July 1933a), p. 84, pl. 5, fig. 1. Holotype, C283-5, Univ. Mo., Joachim fm., Mo., type species for *Trucherognathus;* ——— BRANSON & MEHL (1943), pp. 376, 385, pl. 64, figs. 30, 33. Fig. spms., C533-4, C534-3, Univ. Mo., lower Bromide fm., Okla.; ——— BRANSON & MEHL (1944), p. 239, pl. 93, figs. 2-3; ——— BRANSON (1944), pp. 71-72, pl. 10, fig. 1, Joachim fm., Mo. MO

——equidentata BRANSON & MEHL (July 1933a), pp. 84-85, pl. 5, fig. 4. Holotype, C282-2, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 71-72, pl. 10, fig. 7, Joachim fm., Mo. MO

——expansa BRANSON & MEHL (July 1933a), p. 85, pl. 5, fig. 5. Holotype, C290-1, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), pp. 71-72, pl. 10, fig. 8, Joachim fm., Mo. MO

——irregularis BRANSON & MEHL (July 1933b), pp. 104-105, pl. 8, fig. 15. Holotype, C69-2, Univ. Mo., Plattin ls., Mo.; ——— BRANSON & MEHL (1943), pp. 376, 384-385, pl. 64, figs. 31-32. Fig. spms., C534-1, Univ. Mo., lower Bromide fm., Okla.; ——— BRANSON (1944), pp. 80, 82, pl. 11, fig. 24, Plattin ls., Mo. MO

——parallela BRANSON & MEHL (July 1933b), p. 105, pl. 8, fig. 14. Holotype, C73-4, Univ. Mo., Plattin ls., Mo.; ——— BRANSON (1944), pp. 80, 82, pl. 11, fig. 23, Plattin ls., Mo. MO

——sinuosa BRANSON & MEHL (July 1933a), p. 84, pl. 6, fig. 10. Holotype, C279-2, Univ. Mo., Joachim fm., Mo.; ——— GRAVES & ELLISON (1941), pp. 5, 7, pl. 2, fig. 3. Hypotype, 1372, Mo. Sch. Min., Rolla, Wood's Hollow fm., loc. G502, Tex.; ——— BRANSON (1944), p. 72, Joachim fm., Mo. MO

——? spuria BRANSON & MEHL (July 1933a), pp. 85-86, pl. 6, fig. 2. Holotype, C282-1, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 72, Joachim fm., Mo. MO

——sp. BRANSON & MEHL (July 1933a), p. 157, pl. 5, fig. 7. Fig. spm., C296-5, Univ. Mo., Joachim fm., Mo.; ——— BRANSON (1944), p. 71, pl. 10, fig.10, Joachim fm., Mo. MO

ULRICHODINA FURNISH (1938), pp. 321, 334-336. Type species, *U. prima* FURNISH (1938); ——— BRANSON & MEHL (1944), p. 240; ——— ELLISON (Jan. 1946), pp. 94, 110, simple cone, upper half of Beekmantown. L-MO

——abnormalis (FURNISH) (1938), pp. 322, 335. (Perhaps *Acontiodus* is old syn.); ——— (BRANSON) (1944), p. 45, pl. 6, figs. 4-8, after Mehl and Ryan, from William Ryan's master's thesis (1940), Univ. Mo., Jefferson City fm., Mo. LO

——? deflexus FURNISH (1938), pp. 320, 332, 335-336, pl. 41, figs. 23-24; fig. 1c same as figs 23-24. Holotype, 1340, Univ. Iowa, comp. with *Ulrichodina prima* and *Scolopodus shakopeensis*, rare in Shakopee dol., Minn.; ——— STAUFFER & THIEL (1941), p. 246. LO

——prima FURNISH (1938), pp. 320, 335, pl. 41, figs. 21-22; fig. 1a same as figs. 21-22. Syntypes, 1336-1337 (figs. 21-22), Univ. Iowa, comp. with *Ulrichodina wisconsinensis* and *Ulrichodina? deflexus*, common in Shakopee dol., Wis.; ——— BRANSON & MEHL (1944), p. 240. LO

——wisconsinensis FURNISH (1938), pp. 320, 335, pl. 41, figs. 19-20; fig. 1b same as figs 19-20. Syntypes, 1338-1339 (figs. 19-20), Univ. Iowa, common in Shakopee dol., Wis. LO

——sp. GRAVES & ELLISON (1941), pp. 5, 7, pl. 2, fig. 11. Fig. spm., 1489, Mo. Sch. Min., Rolla, Fort Pena beds, locs. G408 (fig. 11), G406, Tex. MO

——sp. BRANSON & MEHL (1944), p. 240, pl. 93, figs. 36-37, Jefferson City fm., Mo. LO

——n. sp. BRANSON (1944), p. 45, pl. 6, figs. 1-3, 9-24, from William Ryan's master's thesis (1940), Univ. Mo., Jefferson City fm., Mo. LO

VALENTIA SMITH (1907), p. 251. Type species, *V. morrochensis* SMITH (1907); ——— BASSLER (1925), p. 219; ——— ULRICH & BASSLER (1926), pp. 6, 15, 17, 43; ——— HOLMES (1928), pp. 3, 8, 23; ——— HUDDLE (1934), p. 35, not recognized as to family relationship; ——— ELLISON (Jan. 1946), p. 110, classed as jr. syn. of *Lonchodus*, bar type, Ord. MO

——morrochensis SMITH (1907), p. 251, pl. 9, fig. 50. Holotype, Geol. Surv. Scot., Edinburgh, Arenig-Llandeilo gr., S Uplands, Scot.; ——— ULRICH & BASSLER (1926), pp. 16-17, 43, fig. 4, subfig. 17, Smith's fig. reproduced; ——— EDINGER (1926), p. 286, fig. 1 MO

(pt.) second from bottom in first (left) vertical row, same as Ulrich & Bassler's fig.; ——— HOLMES (1928), p. 23, pl. 6, fig. 24, Smith's fig. reproduced; ——— WETZEL (1933), p. 88, comp. with pl. 6, fig. 34; ——— GLAESSNER (1945) (*morchensis*), p. 28, fig. 4, subfig. 17, after Ulrich & Bassler's fig.

The following list of fig. or mentioned conodonts comprises a heterogeneous assemblage of unnamed spms., assemblages, indet. fragments, fossils of unknown affinities, egg cases, dermal plates, prob. shark remains, and conodont-like material. Everything is listed chronologically, with subsequent ref. listed under the main headings chronologically also.

PANDER (1856), pp. 5, 7, pl. 3, fig. 2, Glaukonitsand, Baltic Provinces, Russ. LO

PANDER (1856), p. 5, pl. 3, fig. 3, Glaukonitsand, Baltic Provinces, Russ. LO

PANDER (1856), pl. 3, fig. 4a, Glaukonitsand, Baltic Provinces, Russ. LO

PANDER (1856), p. 7, pl. 3, fig. 4b (fig. 46 on pl.), Glaukonitsand, Baltic Provinces, Russ.; ——— ZITTEL & ROHON (1886), p. 118, ref. to fig. 4b of Pander (1856). LO

PANDER (1856), pl. 3, fig. 5, Glaukonitsand, Baltic Provinces, Russ.; ——— ZITTEL & ROHON (1886), p. 123, comp. with pl. 1, fig. 4 of Zittel & Rohon (1886). LO

PANDER (1856), pp. 5, 8, pl. 3, fig. 11, Glaukonitsand, Baltic Provinces, Russ. LO

PANDER (1856), pp. 5, 8, pl. 3, fig. 12, Glaukonitsand, Baltic Provinces, Russ. LO

PANDER (1856), pp. 5, 8, pl. 3. fig. 13, Glaukonitsand, Baltic Provinces, Russ. LO

NEWBERRY (1875b), pl. 57, fig. 1, Cleveland sh., Ohio; ——— HINDE (1900), p. 341, comp. (pt.) with *Polygnathus dubius*, Hinde (1900). UD

NEWBERRY (1875b), pl. 57, fig. 2, Cleveland sh., Ohio; ——— HINDE (1900), p. 341, comp. with *Polygnathus dubius* Hinde (1900). UD

NEWBERRY (1875b), pl. 57, fig. 3, Cleveland sh., Ohio. UD

NEWBERRY (1875b), pl. 57, fig. 4, Cleveland sh., Ohio; ——— HINDE (1900), p. 341, comp. with *Centrodus lineatus* Hinde (1900). UD

NEWBERRY (1875b), pl. 57, fig. 6, Cleveland sh., Ohio. UD

NEWBERRY (1875b), pl. 57, fig. 8, Cleveland sh., Ohio; ——— HINDE (1900), p. 341, comp. with *Centrodus lineatus* Hinde (1900); ——— ROUNDY (1926), p. 15, classed as sr. syn. of *Lonchodus? lineatus*. UD

NEWBERRY (1875b), pl. 57, fig. 9, Cleveland sh., Ohio; ——— MACFARLANE (1923a), fig. 7g; ——— MACFARLANE (1923b), fig. 1g; ——— MCFARLANE (1931), fig. 7g; ——— CONODONT COMMITTEE (1932), fig. 7g. UD

NEWBERRY (1875b), pl. 57, fig. 10, Cleveland sh., Ohio. UD

NEWBERRY (1875b), pl. 57, fig. 11, Cleveland sh., Ohio. UD

NEWBERRY (1875b), pl. 57, fig. 12, Cleveland sh., Ohio; ——— NICHOLSON (1879), p. 121, fig. 493E; ——— NICHOLSON & LYDEKKER (1889), p. 921, fig. 847E. UD

NEWBERRY (1875b), pl. 57, fig. 13, Cleveland sh., Ohio; ——— HINDE (1900), p. 341, comp. with *Polygnathus dubius* Hinde (1900). UD

NEWBERRY (1875b), pl. 57, fig. 14, Cleveland sh., Ohio. UD

NEWBERRY (1875b), pl. 57, fig. 15, Cleveland sh., Ohio. UD

NEWBERRY (1875b), pl. 57, fig. 16, Cleveland sh., Ohio. UD

NEWBERRY (1875b), pl. 57, fig. 17, Cleveland sh., Ohio. UD

NEWBERRY (1875b), pl. 57, fig. 18, Cleveland sh., Ohio. UD

NEWBERRY (1875b), pl. 57, fig. 19, Cleveland sh., Ohio. UD

NEWBERRY (1875b), pl. 57, fig. 20, Cleveland sh., Ohio. UD

DAWSON (1885), pp. 153, 156, 161, 163, fig. 13, Pleistocene Chicago boulder clay, may be a conodont fragment. Pleist.

DAWSON (1885), pp. 153, 156, 161, 163, fig. 14, Pleistocene Chicago boulder clay, may be a conodont. Pleist.

ZITTEL & ROHON (1886), p. 121, pl. 1, fig. 2.

ZITTEL & ROHON (1886), pp. 122-123, pl. 1, fig. 4, comp. with *Lonchodus duplicatus* Pander (1856), pl. 2A, fig. 8 and pl. 3, fig. 5, and *Cordylodus angulatus* Pander (1856), pl. 3, figs. 10a-b.

ROHON (1894), pl. I, fig. 2. Repository—Museen der Kaiserlichen Akademie der Wissenschaften und des Berg-Instituts zu St. Petersburg, Glaukonitsande, Hartnack, Oc. 3, Syst. II, St. Petersburg Government, Russ. LO

ROHON (1894), pl. I, fig. 9. Repository—Museen der Kaiserlichen Akademie der Wissenschaften und des Berg-Instituts zu St. Petersburg, Glaukonitsande, Hartnack Oc. 3, Syst. II, St. Petersburg Government, Russ. LO

ROHON (1894), pl. I, fig. 10. Repository—Museen der Kaiserlichen Akademie der Wissenschaften und des Berg-Instituts zu St. Petersburg, reported from the Glaukonitsande, Hartnack Oc. 3, Syst. II, St. Petersburg Government, Russ., but the form belongs much higher in the section. LO?

Genus a GÜRICH (1900), p. 356, comp. with *Prioniodus elegens*, of Zittel III, p. 59, Kieselschiefer, Mittelgebirges, Poland. UD

Genus b GÜRICH (1900), p. 356, comp. with *Polygnathus dubius*, of Zittel III, p. 60, Kieselschiefer, Mittelgebirges, Poland. UD

GÜRICH (1906), p. 451, fig. 7 opposite p. 449, Kiesgrube near Alt-Jauer, Silesia, Germ. UO

GÜRICH (1906), p. 451, fig. 8 opposite p. 449, Kiesgrube near Alt-Jauer, Silesia, Germ. UO

Conodont 1 PIETZSCH (1909), pp. 66-67, fig. 1, Alaunschiefer from Eichberges bei Weissig, Germ. LS

Conodont 2 PIETZSCH (1909), pp. 66-67, fig. 2, Alaunschiefer from Eichberges bei Weissig, Germ. LS

Dermal pls. BRYANT (1921), pp. 11-12, pl. 14, figs. 3-7; pls. 15-16, all figs., conodont bed, N. Y. UD

MACFARLANE (1923a), fig. 7c, perhaps an idealized drawing of pl. 57, fig. 3 of Newberry (1875b) or Hinde (1879), pl. 15, fig. 15; ——— MACFARLANE (1923b), fig. 1c; ——— MACFARLANE (1931), fig. 7c; ——— CONODONT COMMITTEE (1932), fig. 7c.

MACFARLANE (1923a), fig. 7d, perhaps an idealized drawing of pl. 17, fig. 17 of Hinde (1879); ——— MACFARLANE (1923b), fig. 1d;

——— MACFARLANE (1931), fig. 7d; ——— CONODONT COMMITTEE (1932), fig. 7d.

MACFARLANE (1923a), fig. 7e, perhaps an idealized drawing of pl. 57, fig. 10 of Newberry (1875b); ——— MACFARLANE (1923b), fig. 1e; ——— MACFARLANE (1931), fig. 7e; CONODONT COMMITTEE (1932), fig. 7e.

MACFARLANE (1923a), fig. 7k, supposedly a conodont copied after Newberry and Hinde; ——— MACFARLANE (1923b), fig. 1k; ——— MACFARLANE (1931), fig. 7k; ——— CONODONT COMMITTEE (1932), fig. 7k.

MACFARLANE (1923a), fig. 7o, perhaps pl. 57, fig. 1 of Newberry (1875b) was copied; ——— MACFARLANE (1923b), fig. 1o; ——— MACFARLANE (1931), fig. 7o; ——— CONODONT COMMITTEE (1932), fig. 7o.

Conodont spms., HIBBARD (1928), p. 119, fig. 1, Rhinestreet sh. (five spms.), N. Y.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 51, ref. to pl. 1, fig. 1 of Hibbard (1928), classed (in pt.) as a syn. of *Bryantodus obtusicuspus*. UD

KIRK (1929), p. 495, fig. 1, Harding ss., Colo. MO

KIRK (1929), p. 494, fig. 2, Harding ss., Colo. MO

KIRK (1929), p. 494, fig. 3, Harding ss., Colo. MO

KIRK (1929), p. 494, fig. 4, Harding ss., Colo. MO

KIRK (1929), p. 494, fig. 5, Harding ss., Colo. MO

KIRK (1929), p. 495, fig. 6, Harding ss., Colo. MO

KIRK (1929), p. 494, fig. 7, Harding ss., Colo. MO

KIRK (1929), p. 495, fig. 8, Harding ss., Colo. MO

KIRK (1929), p. 495, fig. 9, Harding ss., Colo. MO

KIRK (1929), p. 494, fig. 10, Harding ss., Colo. MO

KIRK (1929), p. 494, fig. 11, Harding ss., Colo. MO

KIRK (1929), p. 494, fig. 12, Harding ss., Colo. MO

KIRK (1929), p. 494, fig. 13, Harding ss., Colo. MO

KIRK (1929), p. 494, fig. 14, Harding ss., Colo. MO

EICHENBERG (1930), pp. 179-181, figs. 1-9; 11-30 (not fig. 10). See the following genera and species for Eichenberg (1930). *Ancyrodella nodosa, Bryantodus, Bryantodus crassidens, Bryantodus curvatus, Hindeodella, Hindeodella decurrens, Hindeodella longidens, Hindeodella recta, Hindeodella subtilis, Lonchodus, Lonchodus duplicatus, Lonchodus lineatus, Lonchodus simplex, Polygnathus dubius, Polygnathus pennatulus, Prioniodus, Prioniodus alatoides, Prioniodus hercynicus, Prioniodus peracutus, Prioniodus tulensis, Prioniodus undosus*, and *Prioniodus sp. A.*; ——— SCHMIDT (1934), p. 83, figs. 4, 12, 29, Eichenberg's figs. 4, 12, 29 are reproduced; ——— BRANSON & MEHL (1941c), p. 194, Eichenberg's figs. 16, 19-22 are classed as sr. syns. of *Scaliognathus*, figs. 24-25 are classed as jr. syns. of *Gnathodus*.

Mikroconodont WETZEL (1932), pp. 135, 137, fig. 2 rt., Geschiebefeuerstein, Präp. 722, Baltic Provinces. Cret.

Mikroconodont WETZEL (1932), p. 137, pl. 2, fig. 19, Geschiebefeuerstein, Präp. D53, Baltic Provinces. Cret.

WETZEL (1933), p. 81, pl. 6, fig. 18, prob. not a conodont, comp. with *Paltodus truncatus*, Geschiebefeuerstein, Präp. 466. Cret.

WETZEL (1933), pl. 6, fig. 20, prob. not a conodont. Cret.

Kammzahn a WETZEL (1933), pp. 84-85, pl. 6, fig. 21, prob. not a conodont, comp. with *Prioniodus elegans*, Senonfeuerstein, Stevns Klint, Präp. 353, Denmark. Cret.

Kammzahn a WETZEL (1933), pp. 84-85, pl. 6, fig. 22, prob. not a conodont, comp. with *Prioniodus elegans*, Geschiebefeuerstein, Präp. 387. Cret.

WETZEL (1933), pp. 84-85, pl. 6, fig. 23, prob. not a conodont, comp. with *Prioniodus elegans, Prioniodus alabamensis*, and *Synprioniodina alternata*, Geschiebefeuerstein, Präp. 170. Cret.

WETZEL (1933), pp. 84-85, pl. 6, fig. 24, prob. not a conodont, comp. with *Prioniodus elegans, Prioniodus alabamensis*, and *Synprioniodina alternata*, Flint (Geschiebe), Präp. 450, Sweden. Cret.

Kammzahn b WETZEL (1933), p. 86, pl. 6, figs. 25-29, prob. not a conodont, comp. with *Prioniodus armatus* and *Prioniodus alabamensis*, Geschiebefeuerstein, Präp. 392a (fig. 25), 410 (fig. 26), D53 (fig. 27), 392b (fig. 28), 460 (fig. 29). Cret.

Kammzahn c WETZEL (1933), p. 86, pl. 6, fig. 30, prob. not a conodont, comp. with *Prioniodus spicatus* and *Subprioniodus paucidentatus*, Geschiebefeuerstein, Präp. 436. Cret.

Kammzahn d WETZEL (1933), p. 87, pl. 6, fig. 31, prob. not a conodont, comp. with *Bryantodus sp.* Holmes (1928), pl. 6, fig. 17 and *Synprioniodina plana*, Geschiebefeuerstein, Präp. 582. Cret.

Kammzahn e WETZEL (1933), p. 87, pl. 6, fig. 32, prob. not a conodont, comp. with *Subprioniodus lanceolatus*, Geschiebefeuerstein, Präp. 474. Cret.

Borstenreihe a WETZEL (1933), p. 88, pl. 6, fig. 33, prob. not a conodont, comp. with *Lonchodus simplex*, Senonfeuerstein, Präp. D29. Cret.

Borstenreihe b WETZEL (1933), p. 88, pl. 6, fig. 34, prob. not a conodont, comp. with *Valentia morrochensis*, Feuerstein of Mucronaten-Senons, Präp. 347, Denmark. Cret.

Einzelborste a WETZEL (1933), p. 89, prob. not a conodont, comp. with *Paltodus rotundatus*, Geschiebefeuerstein, Präp. 474. Cret.

Einzelborste b WETZEL (1933), p. 89, prob. not a conodont, comp. with *Drepanodus arcuatus* and *Paltodus truncatus*, Salzsäurerückstand der Mucronaten-Kreide, Präp. 508, Denmark. Cret.

Cusps HARLTON (1933), p. 11, pl. 4, figs. 3-4, Johns Valley sh., Okla. LP

SCHMIDT (1934), pp. 77, 79, fig. 1, gr. assemblage. Repository—Geologisches Institut, Göttingen Univ., Germ., from *Eumorphoceras bisulcatum* zone, Arnsberger grauwacke of unternamurian kieselschiefer, Westfalens, Germ. UMi

SCHMIDT (1934), pp. 77, 79, fig. 2, gr. assemblage. Repository—Göttingen Univ., from *Cravenoceras edalense* zone, Arnsberger grauwacke, Westfalens, Germ. UMi

SCHMIDT (1934), pp. 77, 79-80, fig. 3, gr. assemblage. Repository—Göttingen Univ., from *Eumorphoceras bisulcatum* zone, Arnsberger grauwacke, Westfalens, Germ. UMi

SCHMIDT (1934), pp. 77, 79-80, fig. 4, gr. assemblage. Repository—Göttingen Univ., from *Eumorphoceras bisulcatum* zone, Arnsberger grauwacke, Westfalens, Germ. UMi

SCHMIDT (1934), pp. 77, 79-81, fig. 5, (exclusive of the upper two platform types), pl. 6, fig. 1 restricted as above. Repository—Göttingen Univ., from *Eumorphoceras bisulcatum* zone, Arnsberger grauwacke, Westfalens, Germ., see *Gnathodus integer*. UMi

SCHMIDT (1934), pp. 78-80, fig. 6, gr. assemblage. Repository — Göttingen Univ., from *Eumorphoceras pseudobilingue* zone, Arnsberger grauwacke, Westfalens, Germ. UMi

SCHMIDT (1934), pp. 79-80, fig. 7, gr. assemblage. Repository — Göttingen Univ., from *Eumorphoceras bisulcatum* zone, Arnsberger grauwacke, Westfalens, Germ. UMi

SCHMIDT (1934), p. 79, pl. 6, fig. 2, gr. assemblage. Repository— Göttingen Univ., from *Eumorphoceras bisulcatum* zone, Arnsberger grauwacke, Westfalens, Germ. UMi

SCHMIDT (1934), p. 79, pl. 6, fig. 3, gr. assemblage. Repository — Göttingen Univ., from *Eumorphoceras bisulcatum* zone, Arnsberger grauwacke, Westfalens, Germ. UMi

SCHMIDT (1934), p. 81, pl. 6, fig. 4, restoration of an assemblage. UMi

SCHMIDT (1934), pp. 82-83, fig. 8, body of a fish, perhaps belonging with a conodont assemblage. Repository — Göttingen Univ., from *Eumorphoceras bisulcatum* zone, Arnsberger grauwacke, Westfalens, Germ. UMi

Undet. genus and sp. E. R. BRANSON (1934), pl. 28, fig. 8. Fig. spm., C204-4, Univ. Mo., Hannibal fm., Mo. LMi

Undet. genus and sp. E. R. BRANSON (1934), pl. 28, fig. 9. Fig. spm., C202-3, Univ. Mo., Hannibal fm., Mo. LMi

Undet. genus and sp. E. R. BRANSON (1934), pl. 28, fig. 21. Fig. spm., C204-1, Univ. Mo., Hannibal fm., Mo. LMi

Dermal pls. HUDDLE (1934), p. 130, pl. 9, figs. 26-27. Fig. spms., 1936, Ind. Univ., frequently found associated with conodonts, appear to be identical with Bassler's (1932) pl. 26, figs. 28-29; upper New Albany sh., loc. 14, Ind. LMi

Assemblage one SCOTT (1934), pp. 450-451, pl. 58, fig. 1, see *Hindeodella* and *Prioniodus spp.* of Scott (1934).

Assemblage two SCOTT (1934), p. 451, pl. 58, fig. 2, see *Hindeodella spp.* Scott (1934).

Assemblage three SCOTT (1934), p. 451, pl. 58, fig. 3, see *Hindeodella, Prioniodus,* and *Prioniodella* of Scott (1934).

Assemblage four SCOTT (1934), p. 451, pl. 58, fig. 4, see *Hindeodella spp.* Scott (1934).

Assemblage five SCOTT (1934), p. 451, pl. 58, fig. 5, see *Hindeodella spp.* and *Prioniodella spp.* of Scott (1934).

Assemblage six SCOTT (1934), p. 451, pl. 58, fig. 6, see *Hindeodella spp.* Scott (1934).

Assemblage seven SCOTT (1934), p. 451, pl. 58, fig. 7, see *Hindeodella, Prioniodus,* and *Prioniodella spp.* Scott (1934).

Assemblage eight SCOTT (1934), p. 451, pl. 58, fig. 8, see *Prioniodus, Prioniodella,* and *Hindeodella spp.* Scott (1934).

Assemblage nine SCOTT (1934), p. 452, pl. 58, fig. 9, see *Prioniodus, Hindeodella,* and *Prioniodella spp.* Scott (1934).

Assemblage ten SCOTT (1934), p. 452, pl. 59, fig. 10, see *Bryantodus* and *Hindeodella spp.* Scott (1934).

Assemglage eleven SCOTT (1934), p. 452, pl. 59, fig. 11, see *Prioniodus, Hindeodella,* and *Prioniodella spp.* Scott (1934).

Assemblage twelve SCOTT (1934), p. 452, pl. 59, fig. 12, see *Prioniodus* and *Hindeodella spp.* Scott (1934).

Assemblage thirteen SCOTT (1934), p. 452, pl. 59, fig. 13, see *Bryantodus, Hindeodella,* and *Prioniodus spp.* Scott (1934).

Assemblage fourteen SCOTT (1934), p. 452, pl. 59, fig. 14, see *Prioniodus* and *Hindeodella spp.* Scott (1934).

Assemblage fifteen SCOTT (1934), pp. 452-453, pl. 59, fig. 15, see *Bryantodus, Hindeodella,* and *Prioniodella spp.* Scott (1934).

Assemblage sixteen SCOTT (1934), p. 453, pl. 59, fig. 16, see *Hindeodella spp.* Scott (1934).

Assemblage seventeen SCOTT (1934), p. 453, pl. 59, fig. 17, see *Bryantodus spp.* Scott (1934).

Assemblage eighteen SCOTT (1934), p. 453, pl. 59, fig. 18, see *Hindeodella, Bryantodus,* and *Prioniodus spp.* Scott (1934).

Pls. or skeletal fragments STAUFFER (1935a), pp. 157, 160, pl. 12, figs. 37-48. Fig. spms., B4453-B4464, Univ. Minn., found at all locs. with teeth, Glenwood beds, Minn. MO

Egg cases? STAUFFER (1935b), p. 620, pl. 75, figs. 54-56. Fig. spms., B4734-B4736, Univ. Minn., Decorah sh., Spechts Ferry memb., loc. 40, Minn. MO

Conodonts indet. BAILEY (1935), p. 487, rare at F1, L1, K1, K5, U5, Y2, Y7, Y12; common at Y1, Y13, Y16; abundant at G1, Mo. MP

Genus undet. COOPER (1939), pl. 47, fig. 62. Fig. spm., 39880, Univ. Chi., pre-Welden sh., Okla. LMi

Egg cases? STAUFFER (1940), pp. 434-435, pl. 59, figs. 74-78. Fig. spms., B5636-B5640, Univ. Minn., clay above ls., Minn.; ——— STAUFFER & THIEL (1941), p. 241. O, MD

Form I WETZEL (1940), p. 74, pl. 2, fig. 1, comp. with *Panderodella recta* Holmes (1928), pl. 10, fig. 14, *Panderodella subrecta* pl. 10, fig. 15, *Eunicites varians* Grinnell, *Oenonites curvidens* Hinde (1882), pl. 11, figs. 31-32, *Oenonites parvulus* Hinde (1882), pl. 11, fig. 30, Trenton ls., Ont. MO

Form II WETZEL (1940), p. 74, pl. 2, fig. 2, prob. a scolecodont, comp. with *Oenites rostratus, Prioniodus lelaps* Clark (1924), and half of the Kieferpaar of O. Wetzel (1932-33), pl. 6, fig. 17, Trenton ls., Ont. MO

Form III WETZEL (1940), p. 74, pl. 2, fig. 3, comp. with *Nereis incerta, Arabellites hamatus,* and *Belodus gracilis,* Trenton ls., Ont. MO

Form IV WETZEL (1940), p. 75, pl. 2, figs. 4a-4d, prob. a scolecodont, Trenton ls., Ont. MO

Form V WETZEL (1940), p. 75, pl. 2, fig. 5, prob. a scolecodont, comp. with *Eunicites serrula* and *Gnathodus* or *Polygnathus* of Holmes (1928), pl. 8, fig. 7, Trenton ls., Ont. MO

Form VI WETZEL (1940), p. 75, pl. 2, fig. 6, prob. a scolecodont, comp. with *Lonchodus* Holmes (1928), pl. 8, fig. 6, and *Prioniodella gracilis,* Trenton ls., Ont. MO

Form VII WETZEL (1940), pp. 75-76, pl. 2, figs. 7a-b, comp. with Kieferpaar of Wetzel (1932-33), pl. 6, fig. 17 and *Bryantodus coalescens,* Trenton ls., Ont. MO

Form VIII WETZEL (1940), p. 76, pl. 2, fig. 8, prob. a scolecodont, comp. with *Staurocephalus rubrovittatus, Stauronereis cerasina,* and *?Polygnathus ? simplex* Hinde (1879) and *?Ancyrodella malleus,* Trenton ls., Ont. MO

Form IX WETZEL (1940), pp. 76-77, pl. 2, fig. 9, prob. a scolecodont, Trenton ls., Ont. MO

Form X WETZEL (1940), p. 77, pl. 2, fig. 10, comp. with *Paltodus obtusus, Paltodus compressus,* and *Belodus compressus,* Trenton ls., Ont. — MO

Form XI WETZEL (1940), p. 77, pl. 2, fig. 11, comp. with *Oistodus curvatus* and *Paltodus arcuatus,* Trenton ls., Ont. — MO

ELLISON (1941), p. 138, pl. 20, fig. 28. Fig. spm., C129-5, Univ. Mo., loc. 0081 E, Heebner sh., Kans. — UP

Indet. fragments ELLISON (1941), p. 138, the following are indet. fragments that could belong to at least five different genera. *Lonchodus simplex* Gunnell (1931b), pl. 29, figs. 13-14; Gunnell (1933), pl. 31, fig. 2. *Lonchodus confluens* Gunnell (1931b), pl. 29, fig. 17. *Lonchodina sp.* Gunnell (1931b), pl. 29, figs. 15-16, 18; Gunnell (1933), pl. 31, fig. 3, pl. 32, figs. 40-42. *Prioniodina sp.* Gunnell (1931b), pl. 29, fig. 27. *Lonchodus sp.* Gunnell (1933), pl. 32, fig. 38. *Subprioniodus sp.* Gunnell (1933), pl. 32, fig. 33; pl. 33, figs. 19, 27. *Euprioniodina sp.* Gunnell (1933), pl. 33, fig. 24.

Indet. fragments GRAVES & ELLISON (1941), p. 7, pl. 1, fig. 20; pl. 2, figs. 4, 21. Fig. spms., 1357 (fig. 20), 1373 (fig. 4), 1809 (fig. 21), Mo. Sch. Min., Rolla, Wood's Hollow fm., loc. G506 (fig. 4), Fort Pena beds, loc. G412 (fig. 21), upper Marathon fm., locs. G230, G209 (fig. 20), Tex. — L-MO

Tarlike substance SCOTT (1942), pl. 38, fig. 9. Repository—Univ. Ill., found associated with conodonts, Heath fm., Mont. — UMi

Genus sp. unnamed SCOTT (1942), pl. 40, fig. 16. Repository—Univ. Ill., Heath fm., Mont. — UMi

HIBBARD (1942), p. 273, upper left fig. — UD

HIBBARD (1942), p. 273, mid. upper fig.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 55, same as *Ligonodina munda,* pl. 14, fig. 9 of above authors. — UD

HIBBARD (1942), p. 273, upper rt. fig. — UD

HIBBARD (1942), p. 273, left mid. fig., second from top. — UD

HIBBARD (1942), p. 273, mid. fig. — UD

HIBBARD (1942), p. 273, rt. mid. fig., second from top; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 56, same as *Lonchodina ungula* pl. 14, fig. 3 of above authors. — UD

HIBBARD (1942), p. 273, left mid. fig., second from bottom. — UD

HIBBARD (1942), p. 273, rt. mid. fig., second from bottom, the left spm.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 54, same as *Ligonodina abnormis* pl. 14, fig. 12 of above authors. — UD

HIBBARD (1942), p. 273, rt. mid. fig., second from bottom, rt. spm.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 55, same as *Lonchodina pectinella* pl. 14, fig. 14 of above authors. — UD

HIBBARD (1942), p. 273, lower left fig.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 51, same as *Bryantodus multidens* pl. 15, fig. 15 of above authors. — UD

HIBBARD (1942), p. 273, lower rt. fig.; ——— YOUNGQUIST, HIBBARD, & REIMANN (1948), p. 54, same as *Ligonodina mucronata* pl. 14, fig. 6 of above authors. — UD

Assemblages DUBOIS (1943), pp. 156-158, pl. 25, figs. 1-21. Repository, ? Univ. Ill., figs. 15-16, 19 have some *Distacodus, Lonchodina,* and *Hindeodella* forms, black sh. below La-Salle ls., Ill. — MP

4 undesc. genera JOHNSON (1945), p. 91, Paradox fm., Colo. — LP

Dermal pls. BOND (1947), pp. 21, 36, pl. 2, figs. 24, 30. Fig. spms., 18421, Ohio Univ., lower Ohio sh., Ohio. — UD

New genus A BRANSON & BRANSON (1947), p. 555, pl. 81, figs. 34-35. Fig. spm., C677-3, Univ. Mo., Brassfield fm., loc. 1826, Ky. — LS

New genus B BRANSON & BRANSON (1947), p. 555, pl. 82, figs. 25, 50. Fig. spm., C677-5, Univ. Mo., Brassfield fm., loc. 1826, Ky. — LS

Platform conodonts EDWARDS & STUBBLEFIELD (1948), p. 219, Mid. Coal Measures, locs. 25, 29, 38a, 53, 61, Nottinghamshire and Derbyshire, Eng. — P

Spm. A THOMAS (1949), pl. 2, fig. 29. Fig. spm., C828-2, Univ. Mo., complete spm. that cannot be refererd to a known genus, Maple Mill sh., loc. 14, Iowa. — UD

INVALID GENERIC NAMES

Acodina—synonym for *Acontiodus.*
Arcugnathus—synonym for *Hindeodella.*
Astacoderma—crustacean assemblage with perhaps two fragmentary conodonts.
Barbarodina—synonym for *Cordylodus.*
Bransonella—selachian remains.
Cardiodus—preocc., now *Cardiodella.*
Centrodus—preocc., now *Lonchodus.*
Centrognathus—preocc., now *Centrognathodus.*
Cervicornoides—synonym for *Hindeodella.*
Dermatolithis—indeterminable fragments of a probable conodont.
Dinodus—synonym for *Falcodus.*
Dryphenotus—synonym for *Gnathodus.*
Elictognathus—synonym for *Solenodella.*
Euprioniodella—not a valid name because it was merely mentioned.
Fortscottella—denticles from elasmobranch spines.
Gnathodella—synonym for *Polygnathus.*
Gyrognathus—synonym for *Oulodus.*
Hamulosodina—synonym for *Hindeodella.*
Heterognathus—preocc., now *Pravognathus.*
Hindeodelloides—synonym for *Hindeodella.*
Holmesella—denticles from elasmobranch spines.
Icthyodus—probably denticles from elasmobranch spines.
Idiognathoides—synonym for *Polygnathodella.*
Idioprioniodus—synonym for *Ligonodina.*
Lewistownella—assemblage name, not applicable to individual specimens.
Ligonodinoides—synonym for *Ozarkodina* and *Prioniodus.*
Lochriea—assemblage name, not applicable to individual specimens.
Loxognathus—synonym for *Dichognathus.*
Machairodia—preocc., now *Distacodus.*
Machairodus—preocc., now *Distacodus.*
Macropolygnathus—synonym for *Polygnathus.*
Mehlina—synonym for *Spathognathodus.*
Metaprioniodus—synonym for *Hindeodella.*
Multidentodus—selachian remains.
Neocordylodus—synonym for *Ligonodina, Lonchodina,* and *Trichonodella.*
Nodognathus—synonym for *Pseudopolygnathus.*
Nowatella—not a valid name because it was merely mentioned.
Oligodus—synonym for *Pinacognathus.*
Ottawella—scolecodont.
Ottawina—scolecodont.
Panderodella—fragment of *Palmatolepis.*
Pandorina—synonym for *Spathognathodus.*
Pinacodus—preocc., now *Pinacognathus.*

Plagiodina—invalid name, has no type, and is a synonym for *Ligonodina*.
Plectodina—synonym for *Cyrtoniodus*.
Polyplacognathus—synonym for *Amorphognathus*.
Scolopodella—probably a selachian.
Siphonognathus—preocc., now *Siphonodella*.
Solenognathus—preocc., now *Solenodella*.
Spathodus—preocc., now *Spathognathodus*.
Stephanodus—no type proposed or description given.
Subcordylodus—synonym for *Cordylodus*.
Subprioniodus—synonym for *Prioniodus*.
Telumodina—synonym for *Euprioniodina*.
Tortoniodus—synonym for *Bryantodina*.
Trichognathus—preocc., now *Trichonodella*.
Valentia—synonym for *Lonchodus*.

TYPE SPECIES OF CONODONT GENERA

1—*Acanthodus uncinatus* Furnish, 1938.
2—*Acodina lanceolata* Stauffer, 1940.
3—*Acodus erectus* Pander, 1856.
4—*Acontiodus latus* Pander, 1856.
5—*Ambalodus triangularis* Branson & Mehl, July 1933c.
6—*Amorphognathus ordovicica* Branson & Mehl, July 1933c.
7—*Ancyrodella nodosa* Ulrich & Bassler, 1926.
8—*Ancyrognathus symmetrica* Branson & Mehl, June 1934a.
9—*Ancyroides princeps* Miller & Youngquist, 1947.
10—*Angulodus demissus* Huddle, 1934.
11—*Apatognathus varians* Branson & Mehl, June 1934a.
12—*Archeognathus primus* Cullison, 1938.
13—*Arcugnathus tenuis* Cooper & Sloss, 1943.
14—*Astacoderma* Harley, 1861.
15—*Bactrognathus hamata* Branson & Mehl, 1941e.
16—*Barbarodina typicala* Stauffer, 1935b.
17—*Belodus gracilis* Pander, 1856.
18—*Bransonella tridentata* Harlton, 1933.
19—*Bryantodina typicalis* Stauffer, 1935a.
20—*Bryantodus typicus* Ulrich & Bassler, 1926.
21—*Cardiodella* Branson & Mehl, 1944. See *Cardiodus*.
22—*Cardiodus tumidus* Branson & Mehl, July 1933a.
23—*Cavusgnathus alta* Harris & Hollingsworth, 1933.
24—*Centrodus simplex* Pander, 1856.
25—*Centrognathus sinuosa* Branson & Mehl, June 1934a.
26—*Centrognathodus* Branson & Mehl, 1948. See *Centrognathus*.
27—*Cervicornoides alternatus* Stauffer, 1938.
28—*Chirognathus duodactyla* Branson & Mehl, June 1933b.
29—*Clavohamulus densus* Furnish, 1938.
30—*Coleodus simplex* Branson & Mehl, June 1933b.
31—*Cordylodus angulatus* Pander, 1856.
32—*Cornuramia monodonta* Smith, 1907.
33—*Ctenognathus murchisoni* Pander, 1856.
34—*Curtognathus typa* Branson & Mehl, July 1933a.
35—*Cyrtoniodus complicatus* Stauffer, 1935a.
36—*Dermatolithis punctulatus* Ehrenberg, 1854.
37—*Dichognathus prima* Branson & Mehl, June 1933b.
38—*Dinodus leptus* Cooper, 1939.
39—*Diplododella bilateralis* Ulrich & Bassler, 1926.
40—*Distacodus* Hinde, 1879. See *Machairodus*.
41—*Distomodus kentuckyensis* Branson & Branson, 1947.
42—*Doliognathus lata* Branson & Mehl, 1941e.
43—*Drepanodus arcuatus* Pander, 1856.
44—*Dryphenotus punctatus* Cooper, 1939.
45—*Elictognathus* Cooper, 1939. *Solenognathus bialata* Branson & Mehl, October 1934a.
46—*Elsonella prima* Youngquist, 1945.
47—*Erismodus typus* Branson & Mehl, June 1933b.
48—*Euprioniodella* Jones, 1937.
49—*Euprioniodina deflecta* Ulrich & Bassler, 1926.
50—*Falcodus angulus* Huddle, 1934.
51—*Fortscottella gigantea* Gunnell, 1931b.
52—*Gnathodella angulata* Matern, 1933.
53—*Gnathodus mosquensis* Pander, 1856.
54—*Gondolella elegantula* Stauffer & Plummer, 1932.
55—*Gyrognathus primus* Stauffer, 1935a.
56—*Hamulosodina bidens* Cooper, September 1931.
57—*Heterognathus idoneus* Stauffer, 1935b.
58—*Hibbardella* Ulrich & Bassler, 1926. *Prioniodus angulatus* Hinde, 1879.
59—*Hindeodella subtilis* Ulrich & Bassler, 1926.
60—*Hindeodelloides bicristatus* Huddle, 1934.
61—*Holmesella quadrata* Gunnell, 1931b.
62—*Icriodina irregularis* Branson & Branson, 1947.
63—*Icriodus expansus* Branson & Mehl, 1938a.
64—*Icthyodus gunneli* Harris & Hollingsworth, 1933.
65—*Idiognathodus claviformis* Gunnell, 1931b.
66—*Idiognathoides sinuata* Harris & Hollingsworth, 1933.
67—*Idioprioniodus typus* Gunnell, 1933.
68—*Lepodus minutus* Branson & Mehl, June 1933b.
69—*Leptochirognathus quadrata* Branson & Mehl, 1943.
70—*Lewistownella agnewi* Scott, 1942.
71—*Ligonodina pectinata* Ulrich & Bassler, 1926.
72—*Ligonodinoides ohioensis* Stauffer, 1938.
73—*Lochriea montanaensis* Scott, 1942.
74—*Lonchodina typicalis* Ulrich & Bassler, 1926.
75—*Lonchodus* Pander, 1856. See *Centrodus*.
76—*Loxodus bransoni* Furnish, 1938.
77—*Loxognathus flabellata* Graves & Ellison, 1941.
78—*Machairodia* Smith, 1907. See *Distacodus* (the valid name).
79—*Machairodus incurvus* Pander, 1856. Type for *Distacodus*.
80—*Macropolygnathus itha* Cooper, 1939.
81—*Mehlina irregularis* Youngquist, 1945.
82—*Metalonchodina* Branson & Mehl, 1941e. *Prioniodus bidentata* Gunnell, 1931b.
83—*Metaprioniodus biangulatus* Huddle, 1934.
84—*Microcoelodus typus* Branson & Mehl, July 1933a.
85—*Multidentodus johnsvalleyensis* Harlton, 1933.
86—*Multioistodus subdentatus* Cullison, 1938.
87—*Neocoleodus spicatus* Branson & Mehl, June 1933b.
88—*Neocordylodus orthus* Cooper, 1939.
89—*Nodognathus spicata* Cooper, 1939.
90—*Nothognathella typicalis* Branson & Mehl, June 1934a.
91—*Nowatella* Jones, 1937.
92—*Oistodus lanceolatus* Pander, 1856.
93—*Oligodus curtus* Cooper, 1939.
94—*Ottawella sinclairi* Wilson, 1948.
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ERRATA

p.112, delicatus, should be L-UP

p.190, cancellosus, should be L-UP