HENRY NETTELROTH

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THE NETTELROTH COLLECTION OF INVERTEBRATE FOSSILS

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(WITH 3 PLATES)

One of the most important accessions in the division of stratigraphic paleontology during the year 1907 was the collection of the late Henry Nettelroth, acquired jointly by the Smithsonian Institution and the U. S. National Museum from his sons, H. H. Nettelroth and Dr. Alexander Nettelroth, of Louisville, Kentucky. The registration and installation of these specimens was recently completed, and it seemed in order, as well as very desirable on account of Mr. Nettelroth's work in science and of the valuable nature of his collection, to publish an article upon the subject. The collection is composed entirely of invertebrate fossils, mainly from the Silurian and Devonian strata of Indiana and Kentucky, although many other American as well as foreign localities are represented. The total number of specimens is rather small compared with the number of species represented, the collection comprising about 8,000 specimens, registered under nearly 1,000 entries; but all of the material is the best that could be had. Mr. Nettelroth prided himself upon the fact that his cabinet contained only choice specimens, representing years of careful selection. Imperfect material was retained only when it showed something of scientific interest. In exchanging, Mr. Nettelroth also insisted upon a few good specimens rather than numerous poor representatives of a species. Likewise he paid particular attention to a class of fossils, the mollusca, which is seldom well represented in the cabinets of even the best collectors. The result of this continual selection was that in the course of years his collection was unequaled along certain lines, and it was only fitting that the specimens should be used for study and illustration in the

monograph of "Kentucky Fossil Shells" prepared by Mr. Nettelroth and issued by the State as a memoir of the Geological Survey of Kentucky. Practically all of the specimens figured by Mr. Nettelroth in this work were from his own cabinet and are now preserved in the U. S. National Museum collections. A list of these type specimens is given beginning on page 135.

I am under obligations to Mr. Nettelroth's sons for many courtesies extended to me during my work upon the collection. Dr. Alexander Nettelroth has kindly furnished me with biographical notes from which the following sketch was prepared.

Henry Nettelroth was born in the Kingdom of Hanover, on June 6, 1835. His family from a remote period were land-owners, inhabiting that portion of German territory, with estates located about the village of Nettelrode. Henry Nettelroth attended the German universities and was graduated as a civil engineer just before the war between Prussia and Hanover; he was an engineer officer in the Hanoverian army, but came to America shortly after the battle of Langensalza. Here he took up the practice of civil engineering. His first employment as topographical engineer on the Elizabethtown and Paducah Railroad, then building, taking him to Kentucky, determined his subsequent location in Louisville. In that city he continued the pursuit of civil engineering, both active and consultant, until incapacitated by ill health a few years before his death.

He became an American citizen, having immediately on his arrival in this country renounced allegiance to any European government. In 1867 he was married, in Louisville, Kentucky, to Emma Vassmer, also of Hanover. Mr. Nettelroth died on September 2, 1887, his widow and two sons surviving.

He had been interested in paleontology while still in his native country, and it was but natural that the collection and study of fossils should be continued in connection with a profession which offered such good opportunities. In his spare time, therefore, during more than fifteen years, he enthusiastically collected geological specimens, wisely limiting his cabinets principally to those fossils found in the immediate vicinity of Louisville and the Falls of the Ohio, but including, however, related specimens from other sections of the country. His zeal in this pursuit stimulated the local interest in paleontology, and there appeared a number of collectors, several of whom became known later as capable and discriminating paleontologists. As a result of the enthusiasm of this coterie, a number of excellent collections were brought together and some rich beds and fossil-bearing strata were discovered which are now known universally to geologists.

Mr. Nettelroth's contribution to geological literature consists of a quarto volume of 245 pages and 36 plates, entitled "Kentucky Fossil Shells: A Monograph of the Fossil Shells of the Silurian and Devonian Rocks of Kentucky." This work, which was issued by the Kentucky Geological Survey in 1889, two years after the death of its author, is strictly biological in its scope. Over two hundred species of mollusca from the strata mentioned in the title were described and illustrated, in addition to a few Ordovician brachiopoda, sponges, and bryozoa. A short sketch of geology and paleontology, written for the general reader, introduces the purely descriptive part, but no particular reference is made to the geology of the Ohio Falls region. Forty-three new species were instituted by Mr. Nettelroth, the remainder being for the most part redescriptions and illustrations of forms described by others in various scattered publications.

The care with which the paleontologist of today assigns definite localities and horizons to his species was not always observed in the past, and it is therefore a satisfaction to note Mr. Nettelroth's procedure in this matter. Although geographic names for the several Devonian formations at the Falls were not employed at the time of his studies, still his citations are careful enough to accurately locate most of the species. Thus the registration of a species as from the hydraulic limestone is equivalent to placing it in the Silver Creek formation as we now know it, and likewise the "rotten hornestone in the upper strata of Devonian age" or the "cherty layers on top of the hydraulic limestone" clearly indicate the present Sellersburg formation.

His variety of ways of citing formation and locality is most interesting and entertaining. Thus the formation and locality of *Meristella unisulcata* (page 100, op. cit.) is described as follows:

"Found in the upper strata of the Corniferous group surrounding the Falls of the Ohio, in Kentucky and Indiana, where fractions of this species are pretty abundant in some localities, but fine and well-preserved specimens of the whole shell, as well as of single valves, which are found, are exceedingly rare. My cabinet contains some exquisite examples of this species. The fossils of the Corniferous strata from the neighborhood of the Falls are, on the Indiana side of the river, generally more numerous, and in the average better preserved than those found in Kentucky. The little town, Charlestown, in Clarke County, Indiana, two or three miles off the river, is about the center of one of the richest fields of the Devonian formation, which has furnished a great many cabinets with very choice specimens. A day's rambling in the washes of the fields around Charlestown, after several days' hard rain, is a real treat to any

geologist, and never fails to fill his basket with fine shells, beautiful corals, and sometimes, but not very often, with rare crinoids."

These little descriptions sometimes contain matter of a more scientific nature than the one just quoted, in witness of which is the following (*Spirifer gregaria,* page 120):

"This species is found abundantly in the Corniferous limestone at and around the Falls of the Ohio, in Kentucky and Indiana. It appears here silicified, in well-preserved specimens of the whole shell, as well as of the separated single valves. Specimens still inclosed in the limestone are of the same material. From observations made by me at the Falls of the Ohio, and which, undoubtedly, were also made by other geologists, who visited and examined that world-renowned storehouse of Devonian fossils, but of which I never found any notice in print, I am forced to the conclusion that the silicification of the shells and corals is produced by their exposure to water and weather, and that this process requires only a comparatively short time. Whenever, at low stages of the water, the bed of the Falls becomes dry, we find it entirely covered by fossil shells and corals, partly exposed above the solid rock and partly inclosed in the same. All the exposed fossils which have been acted upon by water and weather for some length of time are silicified, as far as they are above the matrix, while the inclosed parts are still limestone, or, if a change in their material has already commenced, the silicification has not sufficiently advanced to resist the dissolving power of muriatic acid, which has not the least influence upon the exposed parts. In the same condition are the fossils found in the fields near the Falls in Kentucky and Indiana. Those which are entirely weathered out, and the parts of others freed from the matrix, are silicious, while the inclosed parts have retained their original material."

This explanation of the silicification of fossils has been held by few geologists, but in the opinion of the present writer Mr. Nettelroth's general idea is correct and can be verified from many other observations.

The most valuable part of the Nettelroth collection was derived from the Silurian, Devonian, and Lower Carboniferous strata outcropping in the vicinity of Louisville. The quarries and other exposures along Bear Grass Creek have long been known to paleontologists for the many fine Silurian and Devonian fossils yielded by them, while the outcrops at the Falls of the Ohio are recognized the world over as a storehouse of Devonian fossils. The accompanying photographs are of some of the best-known fossil localities in the vicinity of Louisville. Of most interest, probably, is the celebrated Falls locality shown in figure 1, plate X. Here, at times of low water, great stretches of Devonian limestone are exposed with a new lot of fossils showing every year. The choicest specimens on

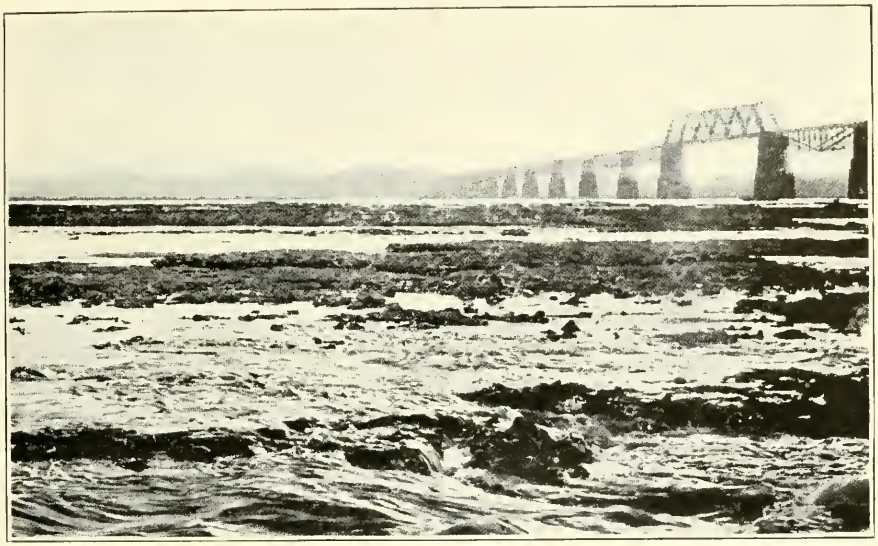

FIG. 1.—THE FALLS OF THE OHIO AT LOW WATER

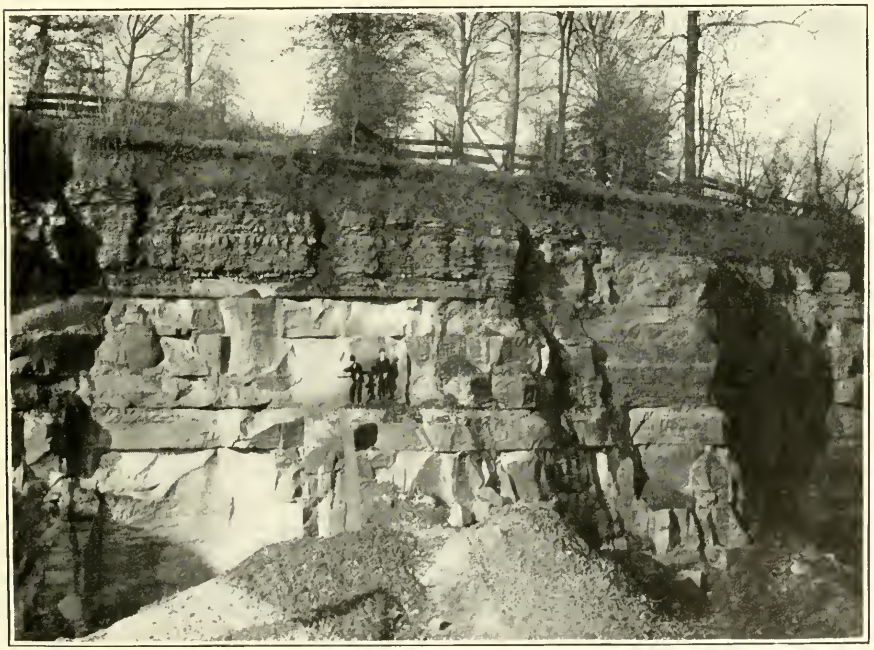

FIG. 2.—ONE OF THE BEAR GRASS QUARRIES

The uppermost strata are of Devonian age, while the lower rocks are compact argillaceous Niagara limestone

the Falls naturally fell to the first collector on the scene, and there was therefore much rivalry among the paleontologists of the Falls cities. The peculiar conditions of weathering on the Falls left all of the exposed fossils silicious, so that portions still embedded in the limestone had to be carefully chiselled out. This silicification extended a short distance into the limestone, and it was due to this fact that the more delicate forms, when attached to the rocks, could be etched out with acid. In figure 2, plate X, both the Devonian and Silurian limestones are shown in the face of one of the old Bear Grass Creek quarries. Fresh exposures of these limestones show relatively few fossils, but the weathered débris and strippings of the quarry are often crowded with specimens. Other well-known Niagara localities along Bear Grass Creek are represented in figures 1 and 2, plate XI. The Devonian black shale, or New Albany shale, as it is locally known, although usually unfossiliferous, has yielded a few fossils from strata above the river banks at New Albany, Indiana. The youngest Paleozoic rocks in the immediate vicinity of Louisville are of early Mississippian age. They include a representative of the Rockford limestone, which locally separates the black shale from the overlying shales and sandstones of the Knobstone group. The latter forms the upper part of the hills and is well shown at Button Mold Knob, several miles south of the city.

The Silurian and Devonian strata of the Louisville region are probably best known to the scientific world, and the accompanying views are introduced to illustrate some of the localities for fossils.

The strata at the Falls of the Ohio have often been mentioned in the literature since 1827, when they were first described by Lapham. The age and correlation, particularly of the Devonian strata, have often been in question, although now there seems to be general agreement upon the subject.

In 1860 Major Sidney S. Lyon divided the beds of the Falls, according to their fossils, as follows:

	Feet
Black slate	50 to 100
Encrinital limestone	8
Hydraulic limestone	20
Spirifer cultrijugatus bed	3
Nucleocrinus bed	2
Spirifer gregaria and Turbo beds	10
Coral beds	10
Catenipora escharoides beds	40

The Catenipora (Halysites) beds have always been recognized as Silurian, being filled with fossils characteristic of that age. Recently

Mr. Foerste applied the name Louisville limestone to this particular division of the Silurian. The fauna is a large one and is well known through the works of Hall, Lyon, Nettelroth, and others.

The succeeding beds of Major Lyon's classification have offered more difficulty in exact correlation. The scarce and undiagnostic fossil evidence afforded by the Devonian black shale has made it difficult of exact correlation. Following the determination by Hall, and the recent, more detailed studies of Kindle, it is now generally correlated with the Genesee and Portage shales of the New York section. The Devonian limestones, on the other hand, furnish an abundance of fossils; but here the difficulty first arose from a lack of care in the exact location of the fossils in the section. It is only in recent years that the horizons of the various species have been accurately determined, and even now the geologic position of some of the rare forms is in question.

In the vicinity of Louisville the Devonian limestones are now divided into three beds: (1) gray to blue crystalline limestone about 20 feet thick, overlying the Niagaran strata and comprising the four beds in Major Lyon's section between his Catenipora bed and the hydraulic limestone; (2) a fine-grained silicious limestone or cement rock (the hydraulic limestone of Lyon), and (3) a thin bed of purer encrinal limestone which is overlaid by the Devonian black shale. These limestones were originally considered together as of Upper Helderberg age by Hall, but later the lowest division was correlated with the Corniferous (Onondaga) of New York, and the upper two members were referred to the Hamilton.

In 1899 Kindle applied the local name of Jeffersonville limestone to the lowest division and proposed Sellersburg beds for the cement rock and overlying purer strata. The following year Siebenthal introduced the new name Silver Creek hydraulic limestone for the cement rock and restricted the name Sellersburg to the overlying beds.

Mr. Nettelroth and other local collectors used no special geographical names in locating the horizons of their fossils, but the various beds in the section were very well known. Mr. Victor Lyon has kindly furnished me with a list of the local names applied to these beds at that time, and these, in the form of a section with the more recent correlations, are given below.

FIG. 3.—LOUISVILLE LIMESTONE ALONG BEAR GRASS CREEK, IN CHEROKEE PARK, JUST ABOVE BIG ROCK
Niagaran crinoids are most abundant in the strata just above the water level

FIG. 4.—NIAGARAN STRATA ALONG BEAR GRASS CREEK, SHOWING BIG ROCK

SECTION OF STRATA, LOUISVILLE, KENTUCKY, AND VICINITY

Sandstone and shale	Knobstone sandstone and shale
Ferruginous limestone and shale	Knobstone shale (New Providence)
Goniatite limestone	Rockford
Devonian black slate or shale	Genesee and Portage
Encrinital bed	Hamilton (Sellersburg)
Corals, shells, and fish bed	
Upper cherty bed Middle Lower } Hydraulic limestone	Hamilton (Silver Creek)
Spirifer acuminatus bed	Onondaga (Jeffersonville)
Bryozoan bed	
Nucleocrinus bed	
Stropheodonta bed	
Turbo bed	
White—Upper Black—Middle Brown—Lower } Coral beds	
Halysites bed	Silurian (Louisville)

The following generalized section of the Paleozoic rocks in the vicinity of Louisville, Kentucky, is introduced to show the stratigraphy of the region as now understood, and also to indicate the faunas chiefly represented in the Nettelroth collection. Indeed, the faunas of the rocks concerned are so well represented that this entire portion of the collection was assigned to the general stratigraphic series

of the department. The fossils from foreign and other American localities are too few in numbers of species to represent faunas in the great detail desired for the Museum stratigraphic series, so these particular species were referred to the biologic collection.

Geologic Section, Vicinity of Louisville, Kentucky

Mississippian.
Knobstone group.

	Feet
Knob (Riverside) sandstone:	
More or less pure, soft sandstones and sandy shales, holding the following fauna	75–100
Lingulodiscina newberryi Hall.	
Chonetes illinoisensis Worthen.	
Chonetes logani Norwood and Pratten.	
Chonetes planumbonum Meek and Worthen.	
Productella pyxidata Hall.	
Productus gracilis Winchell.	
Productus newberryi Hall.	
Spirifer keokuk Hall.	
Spirifer mortonanus Miller.	
Reticularia tenuispinata (Herrick).	
Spiriferina subelliptica (McChesney).	
Syringothyris texta Hall.	
Platyceras herzeri Winchell.	
Platyceras lodiense Meek.	
Conularia micronema Meek.	
Conularia newberryi Winchell.	
Goniatites greenei Miller.	
Goniatites indianensis Miller.	
Proetus missouriensis Shumard.	
Upper Knobstone shales:	
Soft light gray to green shales with impure fine-grained sandstone at the top. No fauna has been recorded from this division, but in all probability most of the species registered under the New Providence shale below will be found here also	200
Lower Knobstone (New Providence) shale:	
Blue to green, soft clay shales, with occasional thin ferruginous limestone bands holding numerous fossils	50–100
These limestone beds are often made up of crinoidal remains; at other times their surfaces are covered with fenestelloid bryozoa. The most common species are:	
Palæacis cavernosa Miller.	
Zaphrentis centralis Edwards and Haime.	
Zaphrentis cliffordana Edwards and Haime.	
Zaphrentis declinis Miller.	
Cyathaxonia cynodon Edwards and Haime.	
Trochophyllum verneuilli Edwards and Haime.	

Rhombopora angustata Ulrich.
Rhombopora elegantula Ulrich.
Rhombopora incrassata Ulrich.
Streblotrypa major Ulrich.
Fenestella compressa Ulrich.
Fenestella regalis Ulrich.
Fenestella triserialis Ulrich.
Thamniscus divaricans Ulrich.
Thamniscus sculptilis Ulrich.
Ptilopora cylindracea Ulrich.
Cystodictya americana Ulrich.
Cystodictya pustulosa Ulrich.
Cystodictya lineata Ulrich.
Meekopora ? aperta Ulrich.
Athyris lamellosa L'Eveille.
Spirifer mortonana Miller.
Spirifer suborbicularis Hall.
Syringothyris texta Hall.
Rhipidomella oweni Hall and Clarke.
Productella arcuata Hall.
Chonetes logani Norwood and Pratten.
Chonetes illinoisensis Worthen.
Goniatites browneusis Miller.

Feet

Rockford (Goniatite) limestone (Kinderhook)..... 1–3
Calcareous shale and fine-grained, ferruginous limestone with conchoidal fracture; brown when weathered, but mottled green upon fresh exposure. In places an abundant fauna is preserved, of which the cephalopods *Brancoceras ixion* Hall and *Munsteroceras oweni* Hall are best known. Other species are *Palæacis cuorme* Meek and Worthen, *Amplexus rockfordensis* Miller and Gurley, *Spirifer marionensis* Shumard, *Spiriferina solidirostris* White, *Euomphalus lens* Hall, *Prodromites gorbyi* Miller, *Soleniscus rockfordensis* Miller, *Trematodiscus trisulcata* Meek and Worthen, and *Orodus multicarinatus* Meek and Worthen.

Devonian black shale (New Albany shale)..... 100
Black fissile, often bituminous shale with few fossils. *Leiorhynchus quadricostatum* Hall, *Chonetes lepidus* Hall, *Styliola fissurella* Hall, *Lunulicardium fragile* Hall, *Schizobolus concentricus* (Vanuxem), *Lingula spatulata* Vanuxem, and *Barroisella subspatulata* Meek and Worthen have been noted. The lowest layer of the shale is almost invariably made up of an iron band 2 inches thick; in some places this band is conglomerate, the pebbles being most abundant in the hollows of the underlying limestone.

Devonian limestone:
Sellersburg formation (Hamilton)..... 8
White to gray crystalline crinoidal limestone with the basal layer frequently arenaceous and containing small phosphatic

concretions. The following is a partial list of the fauna of this limestone:

Megistocrinus rugosus Lyon and Casseday.
Megistocrinus depressus Hall.
Ancyrocrinus bulbosus Hall.
Gennæocrinus kentuckiensis Shumard.
Dolatocrinus greenei Miller and Gurley.
Dolatocrinus bulbosus Miller and Gurley.
Favosites placenta Rominger.
Alveolites goldfussi Billings.
Heliophyllum juvene (Rominger).
Heliophyllum corniculum (Lesueur).
Heliophyllum halli Edwards and Haime.
Cystiphyllum americanum Edwards and Haime.
Diphyphyllum archiaci Billings.
Acervularia davidsoni Edwards and Haime.
Dendropora ornata Rominger.
Athyris fultonensis (Swallow).
Spirifer hobbsi Nettelroth.
Spirifer audaculus Conrad.
Spirifer granulosus Conrad.
Strophcodonta perplana Conrad.
Rhipidomella vanuxemi Hall.
Camarotocchia sappho Hall.
Pholidostrophia iowaensis Owen.
Productella spinulicosta Hall.
Platyceras dumosum Conrad.

	Feet
Silver Creek hydraulic limestone (cement rock).....	20

Massive fine-grained limestone with hydraulic properties, breaking with subchoncoidal fracture and varying in color from buff on weathered surface to bluish drab when freshly exposed. *Chonetes yandellana* Hall is the most abundant and characteristic fossil. *Spirifer granulosus* Conrad, *S. fornacula* Hall, *S. varicosus* Hall, *Atrypa reticularis* (Linnæus), *Tropidoleptus carinatus* Conrad, *Strophcodonta concava* Hall, *S. perplana* Conrad, and *Aviculopecten princeps* Conrad are more or less abundant.

Jeffersonville limestone (Onondaga).....	22–30

Bluish gray to white crystalline limestone, often crowded with fossils. The upper member of this formation is marked by its many fine specimens of *Spirifer acuminatus* Owen. This Spirifer bed is underlaid by extremely fossiliferous limestone which, when weathered, yields in its cherty débris an abundance of exquisitely preserved silicified specimens of bryozoa and ostracods. *Nucleocrinus verneuili* and its several varieties, or closely related species, are characteristic of the next lower bed, while species of *Strophcodonta* are abundant in the next. The large gastropod *Turbo shumardi* or the abundant brachiopod *Spirifer gregarius* are the diagnostic fossils

of the underlying bed, while the many lower Devonian corals described from the Falls of the Ohio come from the lowest division of the Jeffersonville limestone. A few of these corals have been listed below with a partial fauna from the other beds. The bryozoan bed contains a fauna so distinct and prolific that special lists of the bryozoa and ostracods are given. The Devonan rocks forming the Falls of the Ohio are illustrated on the accompanying plate. The following are the more common fossils:

Favosites limitaris Rominger.
Favosites canadensis Billings.
Favosites emmonsi Rominger.
Favosites hemisphericus Troost.
Favosites tuberosus Rominger.
Alveolites mordax Davis.
Cladopora roemeri (Billings).
Eridophyllum arundinaceum Davis.
Blothrophyllum decorticatum Billings.
Acrophyllum oncidaense Billings.
Zaphrentis gigantea Lesueur.
Syringopora hisingeri Billings.
Romingeria umbellifera (Billings).
Hadrophyllum orbignyi Edwards and Haime.
Nucleorinus verneuili (Troost).
Spirifer acuminata Conrad.
Spirifer arctisegmentum Hall.
Spirifer duodenarius (Hall).
Spirifer gregarius Clapp.
Spirifer raricosta Hall.
Cyrtina crassa Hall.
Athyris fultonensis Swallow.
Leptæna rhomboidalis Wilckins.
Atrypa reticularis Linnæus.
Meristella nasuta (Conrad).
Pentagonia unisulcata (Conrad).
Pentamerella arata (Conrad).
Chonetes acutiradiatus (Hall).
Strophcodonta demissa Conrad.
Strophcodonta perplana Conrad.
Strophcodonta concava Hall.
Turbo shumardi Verneuil.
Euomphalus decewi Billings.
Glyptodesma erectum Conrad.
Aviculopecten princeps Conrad.
Paracyclas elliptica Hall.
Platyceras dumosum Conrad.

Fauna of the Bryozoan Beds

Ostracoda

Leperditia ? subrotunda Ulrich.
Isochilina rectangularis Ulrich.
Aparchites inornatum Ulrich.
Beyrichia lyoni Ulrich.
Beyrichia kolmodini Jones.
Ctenobolbina spinulosa Ulrich.
Ctenobolbina armata Ulrich.
Ctenobolbina cavimarginata Ulrich.
Ctenobolbina insolens Ulrich.
Ctenobolbina papillosa Ulrich.
Ctenobolbina informis Ulrich.
Ctenobolbina antespinosa Ulrich.
Kirkbya subquadrata Ulrich.
Kirkbya parallela Ulrich.
Kirkbya semimuralis Ulrich.
Kirkbya cymbula Ulrich.
Kirkbya germana Ulrich.
Bollia ungula Jones.
Bollia obesa Ulrich.
Hallicella retifera Ulrich.
Octonaria stigmata Ulrich.
Octonaria stigmata var. *loculosa* Ulrich.
Octonaria ovata Ulrich.
Octonaria clavigera Ulrich.
Bythocypris devonica Ulrich.
Bythocypris punctulata Ulrich.
Bythocypris indianensis Ulrich.
Pachydomella tumida Ulrich.
Barychilina punctostriata Ulrich.
Barychilina punctostriata var. *curta* Ulrich.
Barychilina pulchella Ulrich.

Bryozoa

Botryllopora socialis Nicholson.
Buskopora bistriata Hall.
Buskopora dentata Ulrich.
Buskopora pyriformis Hall.
Chætetes ? ponderosus Hall.
Chætetes? tenuis Hall.
Clonopora semireducta Hall.
Coscinium cribriforme Prout.
Cystopora geniculata Hall.
Cystodictya gilberti Meek.
Cystodictya ovatipora Hall.
Cystodictya vermicula Hall.

Dekayia devonica Ulrich.
Discotrypa ? devonica Ulrich.
Eridopora ? clivulata Hall.
Eridopora denticulata Hall.
Fenestella æqualis Hall.
Fenestella cultrata Hall.
Fenestella curvijunctura Hall.
Fenestella depressa Hall.
Fenestella perplexa Hall.
Fenestella prouana Miller.
Fenestella pulchella Ulrich.
Fenestella serrata Hall.
Fenestella singularitas Hall.
Fenestella stellata Hall.
Fenestella tenella Hall.
Fenestella variapora Hall.
Fenestella verrucosa Hall.
Fenestrapora infraporosa (Ulrich).
Fistulipora alternata (Hall).
Fistulipora conulata (Hall).
Fistulipora geometrica (Hall).
Fistulipora granifera (Hall).
Fistulipora normalis Ulrich.
Fistulipora ovata (Hall).
Fistulipora subcava (Hall).
Fistulipora substellata (Hall).
Glossotrypa paliformis (Hall).
Hederella adnata (Davis).
Hederella canadensis (Nicholson).
Hederella cirrhosa Hall.
Helicopora ulrichi Claypole.
Hemitrypa cribrosa Hall.
Hernodia humifusa Hall.
Intrapora putcolata Hall.
Lichenotrypa longispina (Hall).
Lioclema intercellatum (Hall).
Orthopora regularis (Hall).
Orthopora rhombifera (Hall).
Phractopora cristata Hall.
Phyllopora aspera Ulrich.
Polypora aculeata (Hall).
Polypora blandida Ulrich.
Polypora celsipora minor (Hall).
Polypora intermedia Prout.
Polypora lævistriata (Hall).
Polypora levinodata (Hall).
Polypora quadrangularis (Hall).
Polypora shumardi Prout.
Polypora striatopora (Hall).
Polypora submutans (Hall).
Polypora transversa Ulrich.

Prismopora sparsipora (Hall).
Prismopora triquetra Hall.
Ptiloporella ? bifurca (Ulrich).
Reteporidra adnata (Hall).
Rhombopora lincinoides Ulrich.
Rhombopora lincinoides-humilis Ulrich.
Scalaripora scalariformis Hall.
Scalaripora subconcava Hall.
Selenopora circincta (Hall).
Selenopora complexa (Hall).
Semicoscinium biimbricatum (Hall).
Semicoscinium biserrulatum (Hall).
Semicoscinium interruptum Hall.
Semicoscinium latijuncturum (Hall).
Semicoscinium lunulatum (Hall).
Semicoscinium permarginatum Hall.
Semicoscinium planodorsatum Ulrich.
Semicoscinium rhomboideum Prout.
Semicoscinium semirotundum (Hall).
Semicoscinium tortum (Hall).
Semicoscinium tuberculatum Prout.
Strotopora perminuta Ulrich.
Thamniscus nanus Hall.
Trematella annulata (Hall).
Trematella arborea (Hall).
Unitrypa acaulis (Hall).
Unitrypa anonyma (Hall).
Unitrypa fastigata (Hall).
Unitrypa tegulata (Hall).

Feet

Silurian.
Niagaran limestone:
Louisville formation ..... 38+

Argillaceous, cherty limestone, with the upper 8 feet crowded with fossil corals. Bluish, compact limestone below with few fossils. Pentameroid brachiopods are the prevailing forms in the lower bed.

The molluscan part of the Louisville formation fauna is listed on a succeeding page. The fossil corals have been described or illustrated by Hall, Rominger, Greene, and Davis, particularly. The list is large and no doubt many synonyms exist. The following forms are either very common or characteristic of the upper coral bed:

Alveolites niagarensis Rominger.
Amplexus shumardi (Edwards and Haime).
Anisophyllum trifurcatum Hall.
Calceola tennesseensis Roemer.
Cladopora complanata Davis.
Cladopora equisetalis Davis.
Cladopora reticulata Hall.
Cœnites verticillata (Winchell and Marcy).

Cystiphyllum granilineatum Hall.
Cystiphyllum niagarense Hall.
Dictyostroma undulata Nicholson.
Eridophyllum dividuum Davis.
Eridophyllum rugosum Edwards and Haime.
Favosites cristatus Edwards and Haime.
Favosites discus Davis.
Favosites favosus Goldfuss.
Favosites niagarensis Hall.
Favosites spongilla Rominger.
Favosites venustus (Hall).
Halysites catenulata (Linnæus).
Halysites nexus Davis.
Heliolites interstinctus (Linnæus).
Heliolites megastoma McCoy.
Heliolites subtubulatum McCoy.
Heliophyllum dentilineatum Hall.
Heliophyllum gemmiferum Hall.
Lyellia americana Edwards and Haime.
Lyellia glabra (Owen).
Lyellia parvituba Rominger.
Omphyma verrucosa Rafinesque and Clifford.
Plasmopora elegans Hall.
Plasmopora follis Edwards and Haime.
Rhizophyllum attenuatum Lyon.
Romingeria vannula Davis.
Streptelasma spongiaxis Rominger.
Striatopora huronensis Rominger.
Strombodes pentagonus Goldfuss.
Strombodes mammillaris (Owen).
Strombodes striatus D'Orbigny.
Thecia major Rominger.
Thecia minor Rominger.

Nettelroth Types of Ordovician Fossils

In the following lists the number cited is that of the U. S. National Museum Catalogue. The type terms are those regularly used by the department, holotype and cotypes being primary types, and plesiotypes referring to secondary types:

51342. **CYPRICARDITES HALLI Nettelroth.** Cotypes.
Richmond (Ordovician), Oldham County, Kentucky.
Kentucky Fossil Shells, 1889, p. 206, pl. XXXIV, figs. 1-6.
= *Cyrtodonta halli.*

51187. **ZYGOSPIRA KENTUCKIENSIS James.** Plesiotypes.
Richmond (Ordovician), Taylors Station, Oldham County, Kentucky.
Kentucky Fossil Shells, 1889, p. 138, pl. XXXIV, figs. 21-25.

51377. **PTILODICTYA HILLI (James).** Plesiotypes.
Lorraine (Ordovician), Danville, Kentucky.
Kentucky Fossil Shells, 1889, p. 30, pl. XXXV, figs. 1, 2, 4, 5.
= *Escharopora hilli.*

51375. **RHYNCHONELLA INCREBESCENS Hall.** Plesiotype.
Trenton (Ordovician), Frankfort, Kentucky.
Kentucky Fossil Shells, 1889, p. 83, pl. XXXIV, figs. 26-29.
= *Rhynchotrema inæquivalve.*

51186. **ORTHIS LINNEYI James.** Plesiotypes.
Trenton (Ordovician), Danville, Kentucky.
Kentucky Fossil Shells, 1889, p. 41, pl. XXXIV, figs. 7-13.
= *Orthorhynchula linneyi.*

51189. **ORTHIS BOREALIS Billings.** Plesiotypes.
Trenton (Ordovician), Frankfort, Kentucky.
Kentucky Fossil Shells, 1889, p. 36, pl. XXXIV, figs. 14-20.
= *Hebertella borealis.*

Silurian Types

Unless otherwise noted, all the species listed under this heading are from the Louisville limestone division of the Niagaran at Louisville, Kentucky.

Brachiopoda

51336. **ANASTROPHIA INTERNASCENS Hall.** Plesiotypes.
Kentucky Fossil Shells, 1889, p. 47, pl. XXXII, figs. 17-20.

51331. **ATRYPA CALVINI Nettelroth.** Holotype.
Kentucky Fossil Shells, 1889, p. 89, pl. XXXII, figs. 64-66.
= *Atrypa rugosa.*

51314. **ATRYPA RETICULARIS NIAGARENSIS Nettelroth.** Cotypes.
Kentucky Fossil Shells, 1889, p. 92, pl. XXXII, figs. 5-8, 44-47.

51340. **CAMARELLA CONGESTA (Hall).** Plesiotype.
Kentucky Fossil Shells, 1889, p. 48.

51326. **CYRTIA EXPORRECTA (Wahlenberg).** Plesiotype.
Kentucky Fossil Shells, 1889, p. 93, pl. XXVII, fig. 20.

51327. **CYRTIA EXPORRECTA ARRECTA Hall and Whitfield.** Plesiotypes.
Kentucky Fossil Shells, 1889, p. 94, pl. XXVII, fig. 21; pl. XXXIV, fig. 35.
= *Cyrtia myrtia.*

51322. **LEPTOCOELIA HEMISPHERICA (Hall).** Plesiotypes.
Kentucky Fossil Shells, 1889, p. 152, pl. XXXII, figs. 21-23, 36-39.
= *Anoplotheca hemispherica.*

51315. **MERISTINA MARIA (Hall).** Plesiotypes.
Kentucky Fossil Shells, 1889, p. 101, pl. XXIX, figs. 7-10.

51332. **MERISTINA NITIDA Hall.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 102, pl. XXXIII, figs. 10, 11.
= *Whitfieldella nitida.*

51324. **NUCLEOSPIRA ELEGANS Hall.** Plesiotypes.
Kentucky Fossil Shells, 1889, p. 104.

51367. **NUCLEOSPIRA PISIFORMIS Hall.** Plesiotypes.
Kentucky Fossil Shells, 1889, p. 104, pl. XXXIII, figs. 7-9.

51348. **ORTHIS BIFORATA (Schlotheim).** Plesiotype.
Kentucky Fossil Shells, 1889, p. 35, pl. XXIX, figs. 18-22.
= *Platystrophia biforata,* var.

51345. **ORTHIS ELEGANTULA Dalman.** Plesiotypes.
Kentucky Fossil Shells, 1889, p. 37, pl. XXXII, figs. 52-57.
= *Dalmanella elegantula.*

51349. **ORTHIS FLABELLUM Sowerby (Hall).** Plesiotype.
Kentucky Fossil Shells, 1889, p. 38, pl. XXXIV, fig. 30.
= *Orthis flabellites.*

51346. **ORTHIS HYBRIDA Sowerby.** Plesiotype.
Kentucky Fossil Shells, 18889, p. 39, pl. XXXII, figs. 32-35.
= *Rhipidomella hybrida.*

51347. **ORTHIS NISIS Hall and Whitfield.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 42, pl. XXVII, fig. 4.

51353. **PENTAMERUS COMPLANATUS Nettelroth.** Cotypes.
Kentucky Fossil Shells, 1889, p. 53.
= *Conchidium tenuicosta.*

51339. **PENTAMERUS GLOBULOSUS Nettelroth.** Cotypes.
Kentucky Fossil Shells, 1889, p. 54.
= *Gypidula globulosus.*

51352. **PENTAMERUS KNAPPI Hall.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 55.
= *Conchidium knappi.*

51312. **PENTAMERUS KNIGHTI Sowerby.** Plesiotypes.
Kentucky Fossil Shells, 1889, p. 57, pl. 29, figs. 1, 2, 17.

51354. **PENTAMERUS KNOTTI Nettelroth.** Holotype.
Kentucky Fossil Shells, 1889, p. 56, pl. XXXII, figs. 9-12.
= *Gypidula knotti.*

51328. **PENTAMERUS NUCLEUS Hall and Whitfield.** Plesiotypes.
Kentucky Fossil Shells, 1889, p. 59, pl. XXXIII, figs. 31-33.
= *Gypidula nucleus.*

51310. **PENTAMERUS OBLONGUS Sowerby.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 60, pl. XXXIII, figs. 15-17.

51311. **PENTAMERUS OBLONGUS CYLINDRICUS Hall and Whitfield.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 61, pl. XXX, figs. 2-4.

51355. **PENTAMERUS PERGIBBOSUS Hall and Whitfield.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 62, pl. XXIX, figs. 23, 24.

51337. **PENTAMERUS UNIPLICATUS Nettelroth.** Holotype.
Kentucky Fossil Shells, 1889, p. 63, pl. XXXIII, figs. 25, 26.
= *Gypidula uniplicata.*

51323. **PENTAMERUS VENTRICOSUS Hall.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 64, pl. XXXIII, figs. 12-14.
= *Clorinda ventricosus.*

51366. **RHYNCHONELLA ACINUS Hall.** Plesiotypes.
Kentucky Fossil Shells, 1889, p. 73, pl. XXVI, figs. 6, 13, 14; pl. XXXII, figs. 13-16.
= *Camarotœchia acinus.*

51338. **RHYNCHONELLA BELLAFORMA Nettelroth.** Holotype.
Kentucky Fossil Shells, 1889, p. 73.

51330. **RHYNCHONELLA INDIANENSIS Hall.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 76, pl. XXXIII, figs. 18-20.
= *Camarotœchia indianensis.*

51325. **RHYNCHONELLA PISA Hall and Whitfield.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 78, pl. XXXII, figs. 24-27.

51320. **RHYNCHONELLA RUGÆCOSTA Nettelroth.** Holotype.
Kentucky Fossil Shells, 1889, p. 78, pl. XXXII, figs. 48-51.

51350. **RHYNCHONELLA SAFFORDI Hall.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 79, pl. XXXIII, figs. 4-6.
= *Wilsonia saffordi.*

51316. **RHYNCHONELLA SAFFORDI DEPRESSA Nettelroth.** Holotype.
Kentucky Fossil Shells, 1889, p. 80, pl. XXXIII, figs. 1-3.
= *Wilsonia saffordi depressa.*

51356. **RHYNCHONELLA STRICKLANDI Sowerby.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 81, pl. XXIX, figs. 3-6.
= *Uncinulus stricklandi.*

51333. **SPIRIFER CRISPUS SIMPLEX Hall.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 111, pl. XVII, figs. 36, 37.

51334. **SPIRIFER DUBIUS Nettelroth.** Holotype.
Kentucky Fossil Shells, 1889, p. 115, pl. XXXIII, figs. 23, 24.

51317. **SPIRIFER FOGGI Nettelroth.** Holotype.
Kentucky Fossil Shells, 1889, p. 117, pl. XXXII, figs. 28-31.

51218. **SPIRIFER RADIATA Sowerby.** Plesiotype.
Kentucky Fossil Shells, 1889, p. 130, pl. XXIX, figs. 13-16.

51318. **SPIRIFER ROSTELLUM** Hall and Whitfield. Plesiotypes.
Kentucky Fossil Shells, 1889, p. 129, pl. XXVII, figs. 17-19; pl. XXIX, fig. 25.

51313. **STREPTORHYNCHUS SUBPLANUS** (Conrad). Plesiotype.
Kentucky Fossil Shells, 1889, p. 141, pl. XXIX, figs. 11, 12.
= *Schuchertella subplanus.*

51329. **STREPTORHYNCHUS TENUIS** Hall. Plesiotype.
Kentucky Fossil Shells, 1889, p. 142.
= *Schuchertella tenuis.*

51319. **STRICKLANDINIA LOUISVILLENSIS** Nettelroth. Holotype.
Kentucky Fossil Shells, 1889, p. 65, pl. XXXIV, figs. 31-34.

51309. **STROPHODONTA PROFUNDA** (Hall). Plesiotypes.
Kentucky Fossil Shells, 1889, p. 148, pl. XVII, figs. 20, 21; pl. XXIX, fig. 26.

51335. **STROPHODONTA STRIATA** Hall. Plesiotypes.
Kentucky Fossil Shells, 1889, p. 149.
= *Strophonella striata.*

51321. **TREMATOSPIRA HELENA** Nettelroth. Holotype.
Kentucky Fossil Shells, 1889, p. 137, pl. XXXII, figs. 40-43.
= *Rhynchospira helena.*

Gastropoda

51362. **CYCLONEMA RUGAELINEATA** Hall and Whitfield. Plesiotype.
Kentucky Fossil Shells, 1889, p. 187.

51342. **PLATYCERAS UNGUIFORME** Hall. Plesiotypes.
Kentucky Fossil Shells, 1889, p. 168.

53232. **PLATYOSTOMA NIAGARENSE** Hall. Plesiotype.
Kentucky Fossil Shells, 1889, p. 185, pl. XXXIII, fig. 30.

51341. **PLEUROTOMARIA CASII** Meek and Worthen. Plesiotype.
Kentucky Fossil Shells, 1889, p. 171, pl. XXVI, fig. 11.

Cephalopoda

51378. **LITUITES MARSHI** Hall. Plesiotype.
Kentucky Fossil Shells, 1889, p. 195, pl. XXX, fig. 1.

Devonian Types

In this list, the faunas of the four Devonian formations, Jeffersonville, Silver Creek, Sellersburg limestone, and New Albany shale, are not given separately because of the occurrence of a number of species in two or more of the divisions. Moreover, the exact horizon of a few of the types is uncertain, so that this would have prevented the preparation of exact faunal lists.

BRACHIOPODA

51235. **AMBOCOELIA UMBONATA (Conrad).** Plesiotype.
Sellersburg (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 86, pl. XVII, figs. 25, 26.

51182. **ATHYRIS VITTATA Hall.** Plesiotypes.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 87, pl. XVI, figs. 25-32.
= *Athyris fultonensis.*

51214. **ATRYPA ASPERA Schlotheim.** Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 88, pl. XIV, figs. 1-11.

51179. **ATRYPA ELLIPSOIDEA Nettelroth.** Cotypes.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 90.
= *Atrypa reticularis ellipsoidea.*

51229. **ATRYPA RETICULARIS Linnæus.** Plesiotypes.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 91, pl. XIV, figs. 12-22.

51228. **CENTRONELLA GLANSFAGEA (Hall).** Plesiotype.
Sellersburg (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 153, pl. XXXI, figs. 14-17.

51222. **CHONETES ACUTIRADIATUS (Hall).** Plesiotype.
Sellersburg (Devonian), Indiana side, Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 66, pl. XVIII, figs. 18-20.

51223. **CHONETES SUBQUADRATUS Nettelroth.** Holotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 67.

51364. **CHONETES YANDELLIANA Hall.** Plesiotype.
Silver Creek (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 68, pl. XVII, figs. 16-19.

51296. **CRANIA BORDENI Hall and Whitfield.** Plesiotypes.
Sellersburg (Devonian), Watson's Station, Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 32, pl. II, fig. 14.
= *Crania sheldoni.*

51178. **CYRTINA CRASSA Hall.** Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 95, pl. XIII, figs. 21-24.

51176. **CYRTINA HAMILTONIAE (Hall).** Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 96, pl. XIII, figs. 4-12.
= *Cyrtina hamiltonensis.*

51177. **CYRTINA HAMILTONIAE RECTA** Hall. Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 97, pl. XIII, figs. 13-16.
= *Cyrtina hamiltonensis recta.*

51212. **DISCINA DORIA** Hall. Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 32.
= *Orbiculoidea doria.*

51215. **DISCINA GRANDIS** (Vanuxem). Plesiotype.
Sellersburg (Devonian), Watson's Station, Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 33, pl. III, fig. 3.
= *Roemerella grandis.*

51231. **LEIORHYNCHUS QUADRICOSTATUM** (Vanuxem). Plesio-
51232. types.
New Albany shale (Devonian), Lexington, Indiana, and Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 71.

51218. **LINGULA TRIANGULATA** Nettelroth. Holotype.
Silver Creek (Devonian), Kentucky side, Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 34, pl. XXVI, fig. 1.
= *Glossina triangulata.*

51308. **MERISTELLA NASUTA** (Conrad). Plesiotypes.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 98, pl. XV, figs. 2-8.

51207. **MERISTELLA UNISULCATA** Conrad. Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 99, pl. XV, figs. 9-16.
= *Pentagonia unisulcata.*

51368. **NUCLEOSPIRA CONCINNA** (Hall). Plesiotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 103, pl. XXXII, figs. 1-4.

51184. **ORTHIS GOODWINI** Nettelroth. Holotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 39, pl. XVII, figs. 30-32.
= *Rhipidomella goodwini.*

51185. **ORTHIS LIVIA** Billings. Plesiotypes.
Sellersburg (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 40, pl. XVI, figs. 23, 24.
= *Rhipidomella livia.*

51188. **ORTHIS PROPINQUA** Hall. Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 43, pl. XVI, figs. 1-3, 7-11.
= *Schizophoria propinqua.*

51183. **ORTHIS VANUXEMI** Hall. Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 45, pl. XVI, figs. 4-6, 12-14.
= *Rhipidomella vanuxemi.*

51361. **PENTAMERELLA ARATA (Conrad).** Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 49, pl. XIII, figs. 17-20.

51238. **PENTAMERELLA PAPILIONENSIS (Hall).** Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 50.

51216. **PENTAMERELLA THUSNELDA** Nettelroth. Holotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 51, pl. XXXI, figs. 26-28.

51236. **PRODUCTELLA SEMIGLOBOSA** Nettelroth. Holotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 70, pl. XXVI, fig. 7.

51237. **PRODUCTELLA SUBACULEATA CATARACTA** Hall and Whitfield. Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 69, pl. XVII, figs. 5-9.
= *Productella spinulicosta.*

51210. **RHYNCHONELLA CAROLINA** Hall. Plesiotypes.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 75, pl. XIII, figs. 1-3, 34, 35.
= *Camarotœchia carolina* and *Cyclorhina nobilis.*
As pointed out by Kindle, figures 1-3 are of *Cyclorhina nobilis*, while figures 34 and 35 refer to *Camarotœchia carolina.*

51365. **RHYNCHONELLA GAINESI** Nettelroth. Cotypes.
Jeffersonville (Devonian), Jefferson County, Kentucky.
Kentucky Fossil Shells, 1889, p. 76, pl. XXXI, figs. 6-9.

51224. **RHYNCHONELLA LOUISVILLENSIS** Nettelroth. Holotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 77, pl. XXXI, figs. 1-4.

51225. **RHYNCHONELLA TENUISTRIATA** Nettelroth. Holotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 82, pl. XVIII, figs. 27-29.

51209. **RHYNCHONELLA TETHYS Billings.** Plesiotypes.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 83, pl. XIII, figs. 25-33; pl. XXXI, figs. 22-25.
= *Camarotœchia tethys.*

51196. **SPIRIFER ACUMINATUS (Conrad).** Plesiotypes.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 105, pl. VIII, figs. 1-8.

51194. **SPIRIFER ARCTISEGMENTUM Hall.** Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 108, pl. XII, figs. 14, 15.

51193. **SPIRIFER ATWATERANA Miller.** Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 107, pl. IX, figs. 1-5.
= *Spirifer iowaensis.*

51194. **SPIRIFER BYRNESI Nettelroth.** Cotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 109, pl. X, figs. 1-5, 31-34, 36-39.

51211. **SPIRIFER CONRADANA Miller.** Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 110, pl. VII, figs. 11-13.
= *Reticularia fimbriata.*

51197. **SPIRIFER DAVISI Nettelroth.** Holotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 112, pl. XII, figs. 1-4.

51190. **SPIRIFER DIVARICATUS Hall.** Plesiotypes.
51191. Jeffersonville (Devonian), Lebanon, Kentucky, and Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 113, pl. XI, figs. 6-11; pl. XII, figs. 5-11.

51220. **SPIRIFER DUODENARIUS (Hall).** Plesiotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 114, pl. XII, figs. 12, 13, 16.

51203. **SPIRIFER EURUTEINES Owen.** Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 115, pl. VI, figs. 1-8, 11, 17, 21, 22.
= *Spirifer fornacula.*

51204. **SPIRIFER EURUTEINES FORNACULA Hall.** Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 117, pl. VI, figs. 9, 10, 18-20.
= *Spirifer fornacula.*

51198. **SPIRIFER GREGARIA Clapp.** Plesiotypes.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 119, pl. VIII, figs. 9-13; pl. X, figs. 6-10.

51192. **SPIRIFER GRIERI Hall.** Plesiotypes.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 120, pl. IX, figs. 8-14.

51195. **SPIRIFER HOBBSI Nettelroth.** Cotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 121, pl. X, figs. 21, 22, 26-30, 35, 40.

51206. **SPIRIFER KNAPPIANA Nettelroth.** Holotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 122, pl. VII, fig. 14.
= *Reticularia knappiana.*

51200. **SPIRIFER MACCONATHII Nettelroth.** Holotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 123, pl. XI, figs. 1-5.

51205. **SPIRIFER MEDIALIS Hall.** Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 125, pl. XXVI, figs. 2-5.
= *Spirifer audaculus.*

51201. **SPIRIFER OWENI Hall.** Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 126, pl. VII, figs. 1-10.
= *Spirifer granulosus.*

51226. **SPIRIFER SCULPTILIS Hall.** Plesiotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 132, pl. XXXI, fig. 13.
= *Delthyris sculptilis.*

51219. **SPIRIFER SEGMENTUM Hall.** Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 132, pl. XIII, figs. 36-38.

51202. **SPIRIFER VARICOSUS Hall.** Plesiotypes.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 134, pl. X, figs. 11-20, 23-25.

51233. **STREPTORHYNCHUS ARCTOSTRIATA (Hall).** Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 140, pl. XXXI, figs. 31-33.
= *Schuchertella chemungensis arctistriata.*

51230. **STROPHODONTA DEMISSA (Conrad).** Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 143, pl. XVIII, figs. 10, 16.

51180. **STROPHODONTA HEMISPHERICA** Hall. Plesiotypes.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 144, pl. XVIII, figs. 4-6, 7-9.

51221. **STROPHODONTA INEQUISTRIATA** (Conrad). Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 145, pl. XVII, figs. 10, 11.

51240. **STROPHODONTA NACREA** Hall. Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 146.
= *Pholidostrophia iowaensis.*

51208. **STROPHODONTA PERPLANA** (Conrad). Plesiotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 147, pl. XVIII, fig. 17.

51239. **STROPHODONTA PLICATA** Hall. Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 149.

51223. **STROPHOMENA RHOMBOIDALIS** (Wilckens). Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 150, pl. XVIII, figs. 1-3.
= *Leptæna rhombaidalis.*

51217. **TEREBRATULA HARMONIA** Hall. Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 154, pl. XVII, figs. 1-4.
= *Eunella harmonia.*

51227. **TEREBRATULA JUCUNDA** Hall. Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 154.

51241. **TEREBRATULA LINCKLAENI** Hall. Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 155, pl. XVII, figs. 22-24.
= *Eunella linckl*æ*ni.*

51369. **TEREBRATULA ROEMINGERI** Hall. Plesiotypes.
Jeffersonville (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 155, pl. XVI, figs. 20-22.
= *Cranæna romingeri.*

51234. **TREMATOSPIRA HIRSUTA** Hall. Plesiotype.
Jeffersonville (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 136, pl. XVI, figs. 15-19.
= *Parazyga hirsuta.*

51181. **TROPIDOLEPTUS CARINATUS** Conrad. Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 46, pl. XVII, figs. 14, 15.

PELECYPODA

51299. **ACTINOPTERIA BOYDI Conrad.** Plesiotype.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 229, pl. III, fig. 2.

51303. **AVICULOPECTEN CRASSICOSTATUS Hall and Whitfield.** Plesiotype.
Silver Creek (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 223.

51302. **AVICULOPECTEN FASCICULATUS Hall.** Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 224, pl. III, fig. 4.

51290. **AVICULOPECTEN PECTENIFORMIS Conrad.** Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 225, pl. III, fig. 1.

51289. **AVICULOPECTEN PRINCEPS Conrad.** Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 225.

51359. **CLINOPISTHA ANTIQUA Meek.** Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 200, pl. IV, figs. 9-11.

51358. **CLINOPISTHA STRIATA Nettelroth.** Cotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 200, pl. IV, figs. 1, 2.

51360. **CLINOPISTHA SUBNASUTA Hall.** Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 199, pl. IV, figs. 6-8, 12.

51373. **CONOCARDIUM CUNEUS (Conrad).** Plesiotypes
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 203, pl. V, figs. 10-19.

51297. **CYPRICARDINIA CATARACTA Conrad.** Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 204, pl. IV, fig. 3.

51305. **CYPRICARDINIA CYLINDRICA Hall and Whitfield.** Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 205, pl. IV, figs. 13, 14.

51306. **CYPRICARDINIA INFLATA SUBEQUIVALVIS Hall and Whitfield.** Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 206.

51284. **GLYPTODESMA CANCELLATA Nettelroth.** Holotype.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 227, pl. V, fig. 1.

51283. **GLYPTODESMA OCCIDENTALE** Hall. Plesiotype.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 228, pl. III, fig. 5.

51288. **GONIOPHORA TRUNCATA** Hall. Plesiotypes.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 214, pl. IV, figs. 21-23.

51287. **GRAMMYSIA GIBBOSA** Hall and Whitfield. Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 208, pl. IV, figs. 16-20.

51285. **LIMOPTERA CANCELLATA** Hall. Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 198, pl. III, figs. 6-8; pl. IV, fig. 24.

51291. **MODIOMORPHA AFFINIS** Hall. Plesiotypes.
Sellersburg (Devonian), Watson Station, Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 216.

51293. **MODIOMORPHA ALTA** Conrad. Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 217, pl. XXVI, fig. 10.

51292. **MODIOMORPHA CHARLESTOWNENSIS** Nettelroth. Holotype.
Kentucky Fossil Shells, 1889, p. 218, pl. V, figs. 7-9.

51295. **MODIOMORPHA CONCENTRICA** (Conrad). Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 219, pl. II, figs. 9-12, 14.

51294. **MODIOMORPHA MYTILOIDES** Conrad. Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 220.

51300. **NUCULA HERZERI** Nettelroth. Cotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 221.

51374. **NUCULA NEDA** Hall and Whitfield. Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 222, pl. V, figs. 5, 6.

51301. **NUCULA NIOTICA** Hall and Whitfield. Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 222, pl. V, figs. 2-4.

51279. **PARACYCLAS ELLIPTICA** Hall. Plesiotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 209, pl. II, figs. 1-3.

51282. **PARACYCLAS ELONGATA** Nettelroth. Holotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 210, pl. II, fig. 8.

51281. **PARACYCLAS LIRATA (Conrad).** Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 211, pl. II, figs. 4-7.

51280. **PARACYCLAS OCTERLONII Nettelroth.** Holotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 212, pl. XXXI, fig. 18.

51305. **PARACYCLAS OHIOENSIS (Meek).** Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 213, pl. V, fig. 20.

51286. **PTYCHODESMA KNAPPIANA Hall.** Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 201, pl. II, figs. 13, 15, 18.

51298. **YOLDIA ? VALVULUS Hall and Whitfield.** Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 223, pl. IV, figs. 4, 5.

PTEROPODA

53161. **TENTACULITES SCALARIFORMIS Hall.** Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 156, pl. XXXI, fig. 12.

GASTROPODA

51262. **BELLEROPHON LEDA Hall.** Plesiotype.
Sellersburg (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 158, pl. XVII, figs. 12, 13.

51261. **BUCANIA DEVONICA Hall.** Plesiotype.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 160, pl. XXII, figs. 3, 4.

51263. **CALLONEMA BELLATULA Hall.** Plesiotype.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 175, pl. XX, fig. 7.

51255. **CALLONEMA CLARKI Nettelroth.** Cotypes.
Jeffersonville (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 175, pl. XXIV, figs. 2-5.

51254. **CALLONEMA IMITATOR Hall and Whitfield.** Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 176, pl. XX, figs. 12, 13.

51376. **CYCLONEMA MULTILIRA Hall.** Plesiotype.
Jeffersonville (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 188, pl. XXII, fig. 5.

51258. **EUOMPHALUS DECEWI Billings.** Plesiotype.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 181, pl. XXI, figs. 1, 2.

51259. **EUOMPHALUS SAMPSONI** Nettelroth. Holotype.
Sellersburg (Devonian), Watson's Station, Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 182, pl. XXI, figs. 3, 4.

51276. **LOXONEMA HAMILTONIAE** Hall. Plesiotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 177, pl. XXXI, fig. 29.

51265. **LOXONEMA HYDRAULICUM** Hall. Plesiotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 178, pl. XX, figs. 8, 9.

51264. **LOXONEMA LAEVIUSCULUS** Hall. Cotypes.
Sellersburg (Devonian), Falls of the Ohio.
Hall, Nat. His. New York, Pal., v, Py. II, 1879, p. 131, pl. XXVIII, figs. 10, 11.—Nettelroth, Kentucky Fossil Shells, 1889, p. 178, pl. XXII, figs. 8, 9.

51256. **MACROCHEILUS CARINATUS** Nettelroth. Cotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 180, pl. XX, figs. 20-23.

51242. **MURCHISONIA DESIDERATA** Hall. Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 169, pl. XXVI, fig. 8.

51372. **PLATYCERAS BUCCULENTUM** Hall. Plesiotype.
Sellersburg (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 160, pl. XXV, fig. 3.

51270. **PLATYCERAS COMPRESSUM** Nettelroth. Holotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 162, pl. XXV, figs. 8, 9.

51371. **PLATYCERAS CONICUM** Hall. Plesiotypes.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 161, pl. XXV, figs. 2, 11.

51268. **PLATYCERAS DUMOSUM** Conrad. Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 162, pl. XXIII, figs. 1-6, 12.

51269. **PLATYCERAS DUMOSUM RARISPINUM** Hall. Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 163, pl. XXIII, figs. 7, 8.

51275. **PLATYCERAS ECHINATUM** Hall. Plesiotype.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 164, pl. XXXI, fig. 21.

51272. **PLATYCERAS ERECTUM** Hall. Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 165.

51274. **PLATYCERAS MILLERI** Nettelroth. Cotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 165, pl. xxv, fig. 1.

51267. **PLATYCERAS MULTISPINOSUM** Meek. Plesiotype.
Jeffersonville (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 166, pl. xxv, fig. 4.

51273. **PLATYCERAS RICTUM** Hall. Plesiotypes.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 166.

51370. **PLATYCERAS SYMMETRICUM** Hall. Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 167, pl. xxiii, fig. 10.

51266. **PLATYCERAS THETIS** Hall. Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 168.

51271. **PLATYCERAS VENTRICOSUM** Conrad. Plesiotype.
Jeffersonville (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 168, pl. xxv, fig. 10.

51245. **PLATYOSTOMA LINEATA** Conrad. Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 183, pl. xix, figs. 5-8; pl. xxi, figs. 7, 8.

51248. **PLATYOSTOMA LINEATA CALLOSA** Hall. Plesiotypes.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 184, pl. xxi, fig. 14; pl. xxii, figs. 10, 11; pl. xxv, figs. 5, 6, 9.

51246. **PLATYOSTOMA TURBINATA** Hall. Plesiotype.
Sellersburg (Devonian), Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 184, pl. xxi, figs. 7, 8.

51249. **PLEUROTOMARIA ARABELLA** Nettelroth. Holotype.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 171, pl. xxvi, fig. 12.

51250. **PLEUROTOMARIA LUCINA** Hall. Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 172.

51251. **PLEUROTOMARIA PROCTERI** Nettelroth. Cotypes.
51252. Jeffersonville (Devonian), Clark County, Indiana, and Louisville, Kentucky.
Kentucky Fossil Shells, 1889, p. 173, pl. xxi, figs. 9, 10, 13.

51253. **PLEUROTOMARIA SULCOMARGINATA** Conrad. Plesiotypes.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 174, pl. xxi, figs. 11, 12.

51244. **STROPHOSTYLUS VARIANS** Hall. Plesiotype.
Sellersburg (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 186, pl. XXII, figs. 6, 7.

51260. **TROCHONEMA YANDELLANA** Hall and Whitfield. Plesiotype.
Jeffersonville (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 190.

51257. **TURBO SHUMARDI** Verneuil. Plesiotypes.
Jeffersonville (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 191, pl. XIX, fig. 4; pl. XXII, figs. 1, 2.

Cephalopoda

51243. **NAUTILUS MAXIMUS** Conrad. Plesiotype.
Silver Creek (Devonian), Falls of the Ohio.
Kentucky Fossil Shells, 1889, p. 196, pl. XXIV, fig. 1.

51277. **GOMPHOCERAS OVIFORME** Hall. Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 193, pl. XXI, figs. 17, 18.

51278. **GOMPHOCERAS TURBINIFORMIS** Meek and Worthen. Plesiotypes.
Sellersburg (Devonian), Clark County, Indiana.
Kentucky Fossil Shells, 1889, p. 194, pl. XXI, figs. 15, 16.

Types of Fossil Corals

The following species of fossil corals, illustrated by Davis in his Kentucky Fossil Corals, form a part of the Nettelroth collection:

52754. **ALVEOLITES LOUISVILLENSIS** Davis. Cotype.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. XLVI, fig. 6.

52774. **CALCEOLA PROTEUS** Davis. Cotypes.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. CXXXI, figs. 2, 3, 13.

52639. **CALCEOLA SANDALINA** Lamarck. Plesiotype.
Devonian, Eifel, Germany.
Kentucky Fossil Corals, 1885, pl. CXXXI, fig. 18.

52642. **CLADOPORA EQUISETALIS** Davis. Holotype.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. XLVIII, fig. 7.

52641. **CLADOPORA LAQUEATA** Rominger. Plesiotypes.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. XLVIII, figs. 8, 9.

52640. **CLADOPORA RETICULATA Hall.** Plesiotype.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. XLVII, fig. 2.

51643. **CLADOPORA STRIATA Davis.** Holotype.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. XLVIII, fig. 8.

52776. **ERIDOPHYLLUM DIVIDUUM Davis.** Cotype.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. CIX, fig. 5.

52855. **FAVOSITES AMPLISSIMUS Davis.** Cotype.
Jeffersonville (Devonian), near Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. XVII, fig. 1.

52654. **FAVOSITES FAVOSUS Goldfuss.** Plesiotype.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. VIII, fig. 1.

52658. **FAVOSITES FORBESI Edwards and Haime.** Plesiotype.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. VIII, fig. 5.

52645. **FAVOSITES SPONGILLA Rominger.** Plesiotype.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. VIII, fig. 7.

52660. **PLASMOPORA FOLLIS Edwards and Haime.** Plesiotype.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. I, fig. 10.

52775. **PTYCHOPHYLLUM STOKESI Edwards and Haime.** Plesiotypes.
Niagara (Silurian). Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. XV, fig. 6.

52743. **ROMINGERIA VANNULA Davis.** Cotype.
Niagara (Silurian), Louisville, Kentucky.
Kentucky Fossil Corals, 1885, pl. LXXII, fig. 1.

52638. **THECIA VETUSTA (Hall).** Plesiotypes.
Richmond (Ordovician), Oldham County, Kentucky.
Kentucky Fossil Corals, 1885, pl. XXXIV, figs. 9, 10.
= *Protarea vetusta.*