M. de Koninck
from Richard Griffith

A SYNOPSIS

OF THE

CHARACTERS

OF THE

CARBONIFEROUS LIMESTONE FOSSILS

OF IRELAND.

DUBLIN:
PRINTED AT THE UNIVERSITY PRESS,
BY M. H. GILL.
1844.

NOTICE.

The descriptions contained in the following Synopsis have been prepared under my direction by Mr. Frederick M'Coy, F.G.S., Dublin.

In addition to the Fossils previously known, the Synopsis contains upwards of four hundred and fifty new species, which have been named and described by Mr. M'Coy, the whole of which are contained in my Cabinet, and have been collected by myself and friends from the Carboniferous Limestone System of Ireland.

RICHARD GRIFFITH.

Fitzwilliam-place, Dublin,
August 28*th*, 1844.

others; it most closely resembles the *C. inornata*, M'Coy, but is more gibbous, and has more nearly equal ends. Length about one-third of a line.

Cythere scutulum. (*M'Coy*. (Pl. XXIII. fig. 21).

Sp. Ch.—Orbicular, compressed, smooth; sides flat; ventral margin about one-third the length of the shell; the ends equal, projecting below the ventral margin.

This species approaches the *C. orbicularis*, M'Coy, in shape, but is well distinguished by the form of its ventral margin, and the perfect flatness of its sides, the sides of *C. orbicularis*, M'Coy, being very gibbous or obtusely conical. Length one line.

Cythere spinigera. *M'Coy*. (Pl. XXIII. fig. 23).

Sp. Ch.—Shell somewhat reniform, sides slightly concave; one spiniform tubercle close to the end on each valve; a slight abdominal sinus.

This species has both ends alike, and the sides a little concave; there is a very small abdominal sinus, while the back is much and regularly curved; the portion of the valve which overlaps is much thickened; in this species the two tubercles are entirely beyond this portion, while in *C. cornuta*, they are nearly in the centre. Length from one line to a line and a quarter; diameter two-thirds the depth; depth two-thirds the length.

Cythere trituberculata. *M'Coy*. (Pl. XXIII. fig. 24).

Sp. Ch.—Oblong, length rather more than twice the depth, convex; both ends equal, rounded; dorsal and ventral margins nearly parallel, each valve with three small, round, nearly equidistant tubercles, one of which is much closer to the ventral margin than the other two.

This species, in addition to its lengthened, regular form, is easily distinguished from its congeners by the *three* tubercles on each valve. Length half a line.

ANNELIDA.

The *Annelida*, or red-blooded worms, are the least highly organized group of the *Annulosa*, or articulated animals; the forms found in the carb. limestone belong to Cuvier's order *Tubicola*, or those sedentary species having the gills attached to the head, and inhabiting a tube, sometimes shelly, as in *Serpula*, sometimes nearly membranous, or formed of agglutinated grains of sand, as in *Terebella* or *Sabella*.

Serpula. *Linn.*

Gen. Ch.—Tubular, gradually widening towards the aperture; irregularly attached; aperture round; edge simple.

Serpula (?) compressa. *Sow.*

Serpula compressa. *Sow.* Min. Con.

Sp. Ch.—Tube thick, perlaceous (?) rapidly tapering, flexuous; section elliptical.

The examples I have seen of this species seem more allied to *Serpulites* than to *Serpula*; the pearly or glistening appearance of the surface more nearly resembling the former than the latter genus. Diameter four lines.

Serpula hexicarinata. *M'Coy.* (Pl. XXIII. fig. 28).

Sp. Ch.—Elongate, slightly flexuous, hexagonal; sides nearly equal, smooth, flat; a narrow, rounded, prominent keel on each of the angles.

This species is easily distinguished from any of the other Palæozoic *Serpulæ*, by the hexagonal form of the tube, and the six narrow, rounded keels on the angles. Length usually about two inches, width half a line.

Serpula parallela. *M'Coy.* (Pl. XXIII. fig. 30).

Serpula socialis. *Gold. Portk.* Geol. Rep.

Sp. Ch.—Tubes very slender, cylindrical, smooth, grouped parallel to each other in bundles; tubes one-fourth of a line in diameter.

This curious species differs from all the *Serpulæ* with which I am acquainted, in being perfectly smooth, and without the irregular flexuosity in any part of the tubes, which we commonly see in the other species of the genus; the tubes are parallel to each other, forming masses three or four inches long, and one inch in thickness. When preserved in shale they are usually yellowish and semi-transparent, probably owing to their mode of conservation; in limestone they are white and opaque. It is exceedingly constant in its characters; as it is certainly not identical with the *Serpula socialis*, Gold., of the cretaceous period, it seems best to give it a distinctive name.

Serpula scalaris. *M'Coy.* (Pl. XXIII. fig. 29).

Sp. Ch.—Cylindrical, very slowly tapering, tortuous; shell thick; surface with large imbricating, transverse rings.

This species is rendered remarkable by the large, regular, transverse rings on the surface of the tube, which is very tortuous. Diameter two lines.

Spirorbis. *Lam.*

Gen. Ch.—Discoid, spirally coiled, whorls round; attached by the under side.

Spirorbis caperatus. *M'Coy.* (Pl. XXIII. fig. 26).

Sp. Ch.—Discoid, whorls hardly two, very rapidly enlarging, round, strongly wrinkled concentrically.

I have only seen one specimen of this pretty little shell attached to a species of *Fenestella;* the strongly wrinkled surface will distinguish the species.

Spirorbis globosus. *M'Coy.* (Pl. IV. fig. 10).

Sp. Ch.—Subglobose, slightly compressed, smooth; volutions concealed by the last whorl; back broad, rounded; umbilicus very small.

This very gibbous species differs from the *S. omphalodes*, Gold., in the small size of the umbilicus, and the completely concealed volutions; it most nearly resembles the *S. valvata* of the Muschelkalk. Diameter one line, thickness half a line.

Spirorbis intermedius. *M'Coy.* (Pl. IV. fig. 9).

Sp. Ch.—Discoid, flattened; sinistral; whorls two and a half, round, nearly equal in thickness throughout; a few distant, irregular, ring-like thickenings.

This species is intermediate between the *S. ammonia* and the *S. omphalodes*, having the compressed form, very gradually increasing whorls, and obscurely annulated surface of the former, with a smaller number of whorls, besides which, it differs from both in being sinistral. Diameter one line, thickness one-fourth of a line.

Spirorbis minutus. *Portk.*

Spirorbis minutus. *Portk.* Geol. Rep.

I have not seen good specimens of this shell; those on the specimens of *Dithyrocaris Colei* which I have examined, being very indistinct; it seems, however, a very good species. I have not seen it except in this situation. There are only about two turns in the spire: diameter about one-fifth of a line.

Spirorbis omphalodes. *Gold.* ?

Serpula omphalodes. *Gold.* Pet. ?

On certain shale-plants are found abundance of a little shell referred by Captain Portlock to the above species. The Irish specimens are perfectly flat on the attached side, smooth, and having two and a half or three turns in the spire; the mouth semicircular. Goldfuss's characters do not exactly agree with those, I have therefore marked the reference with a doubt.

Spiroglyphus. *Lam.*

Gen. Ch.—Discoid; spirally coiled; parasitic; forming a deep groove for itself in the surface of shells.

Spiroglyphus marginatus. *M'Coy.* (Pl. XXIII. fig. 27).

Sp. Ch.—Discoid; volutions hardly two; upper side rounded; attached side flat; externally bordered by a broad, flat keel; surface smooth. Parasitic on various shells in one or two localities.

Serpulites carbonarius. *M'Coy.* (Pl. XXIII. fig. 32).

Sp. Ch.—Tube small, narrow, shelly; terminating posteriorly by two lengthened, cylindrical tubes, the prolongation of the lateral, thickened ridges.

This remarkable species is intermediate in the texture of its tube, between the *S. longissimus*, Sow., and *S. membranaceus*, M'Coy, being more delicate than the former, but much more testaceous than the latter; it is, however, greatly inferior to either of them in size, the most usual diameter of the compressed tube being one or one and a half lines, and the largest specimen which has, as yet, fallen under my observation was barely two lines in width; the forked, posterior termination is a new and important character, which, however, I believe to belong to the whole genus, rather than to characterize the present species. It is formed of two long testaceous tubes, bordered on the inside of their base by a membranous prolongation of the principal tube.

My friend, Dr. Scouler, has recently shewn me specimens of this species, collected by himself, from the Scotch carboniferous shale.

Serpulites membranaceus. *M'Coy.* (Pl. XXIII. fig. 31).

Sp. Ch.—Tube elongate, curved, membranaceous; abdominal and dorsal (?) margins thickened.

The extraordinary genus *Serpulites*, hitherto thought so characteristic of the Silurian rocks, as to distinguish the slates of that period from those of the carboniferous system, has recently occurred in some abundance in the shales of the carboniferous period; the species, however, appear to be distinct from those in the Silurian rocks. The present species is of great size, probably exceeding that of the *S. longissimus;* its substance, however, instead of being decidedly shelly as in that fossil, is excessively thin and membranous, so that the smallest fragments of the two species could be easily discriminated. A very interesting fact is shewn by our figure, namely, that two opposite points of the circumference of the tube were really thickened, forming two opposite, longitudinal ridges (or tubes ?) and that this appearance is not due to pressure. General width of the compressed tube seven lines.

Sabella antiqua. *M'Coy.* (Pl. IV. fig. 11).

Sp. Ch.—Tube composed of very fine grains, cylindrical for about one inch and a half, gradually tapering at one end; diameter of tube about one line.

This curious fossil occurs in considerable numbers in the shales of several districts in Ireland. When the specimens are well preserved, they shew the finely granular, arenaceous tube, with, in many instances, its smooth, glossy, membranous lining; the specimens are usually more or less curved, particularly towards the smaller end. They are usually about two or two and a half inches long.

ECHINODERMATA.

The *Echinodermata* are the most highly organized of the *Nematoneura*, and form an exceedingly well-defined group.

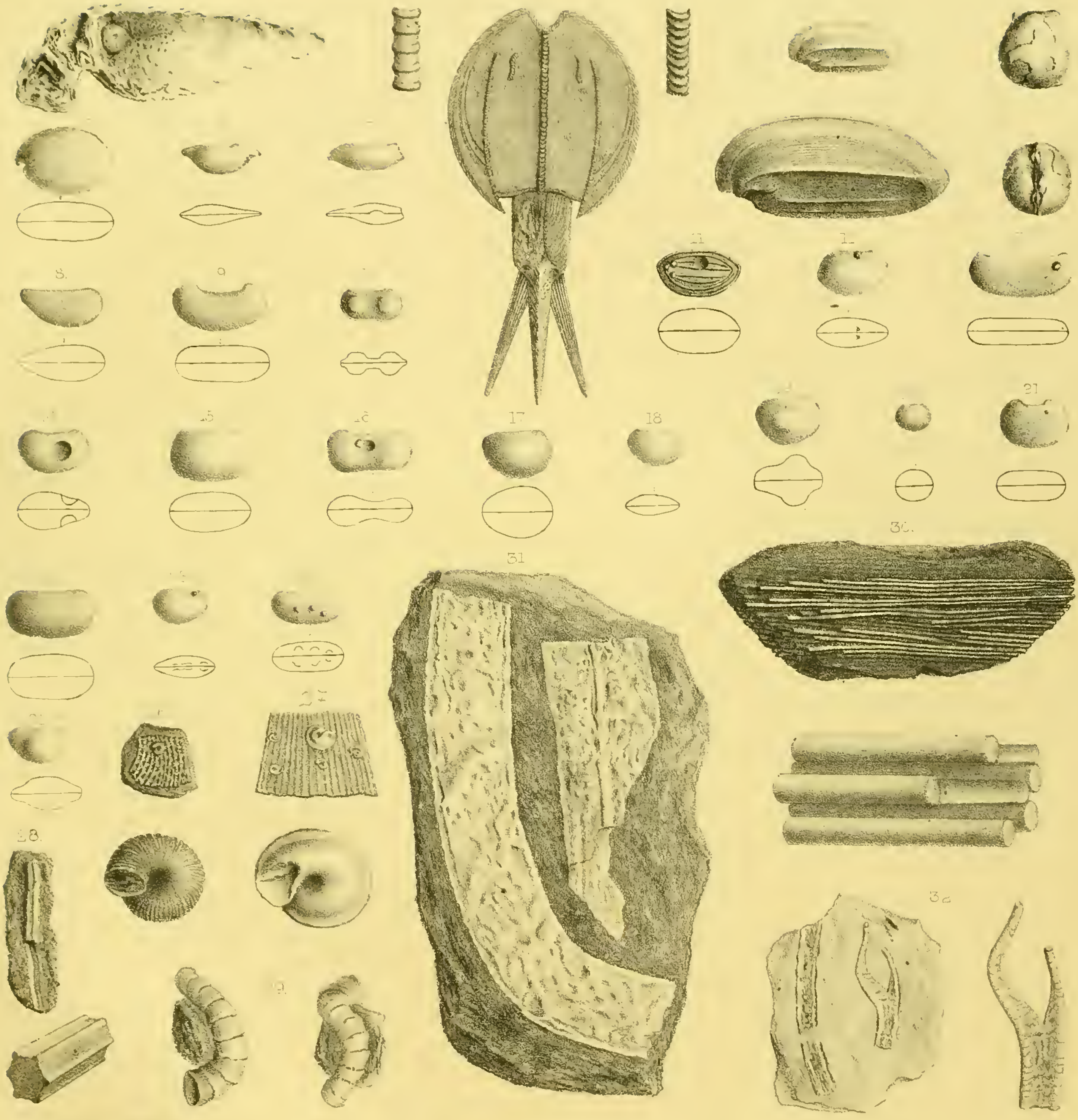
Some of them, as the *Sipunculidæ*, resemble worms in their external appearance, being cylindrical, soft, and without feet; their internal structure, however, is perfectly that of the *Echinodermata*. Next come the *Holothuriæ*, which, though still without a calcareous covering, approach very nearly in structure to the *Echinæ:* they are for the most part oval and smooth, with five rows of ambulacra, or rows of tubular suckers or feet (sometimes scattered over the body) the head is surrounded with beautifully pinnate, leaf-like gills. The *Echini* differ from those in having the entire body enclosed in a hard, calcareous, spheroidal case, having five narrow ambulacra, each composed of two rows of small, pentagonal plates, each plate perforated for the passage of two sets of tubular, foot-like suckers; between the ambulacra are five broader spaces, each composed of two rows of large, pentagonal, imperforate plates, closely set with sharp spines, which both serve as a defence and assist in locomotion; the mouth is furnished with a complex and powerful dental apparatus, which does not occur in any of the other Echinoderms. The respiration is principally effected by the admission of water to the interior, where it is made to pass in currents over the lining membrane of the shell and the surface of the intestines, by means of the cilia with which they are covered. Following them, we have the *Asteriadæ* or star fishes, in which the general form is depressed and divided into five or more rays, the under side of each of which is hollowed into an ambulacral groove, analogous to the ambulacra of the *Echinidæ*, and pierced for the passage of similar foot-like suckers; the tip of each ray exhibits a small red point, which is considered by Ehrenberg to be a true eye. The external integument is coriaceous and covered with hard, calcareous granules, plates, or spines; the mouth is central and without teeth. By means of the genus *Comatula* we pass at once from the *Asteriadæ* to the *Crinoidea*, which form the lowest group of the *Echinodermata*.

Palæchinus. *Scouler.* MSS.

Gen. Ch.—Spheroidal; ambulacra composed of two rows of pentagonal plates, each perforated by two rows of pores; anambulacra composed of two rows of pentagonal, and three or more rows of hexagonal plates; plates covered with spiniform tubercles, destitute of central ligament; anus dorsal, central; ovarian plates as in *Echinus;* mouth ventral, central.

The above name was provisionally given by Dr. Scouler to a specimen in the Collection of the Royal Dublin Society, and to another in the Collection of the Rev. Mr. Fox; they were exhibited at a meeting of the Geological Society of Dublin under those names; at that time the specimens were obscured by adhering matrix, and considered unique; a satisfactory examination was, therefore, impossible, and in consequence no characters could be given to separate them from the other recent or fossil genera; the accession of additional

CARBONIFEROUS LIMESTONE



1	Astacus Phillipsi	9	Cythere [illegible]	17	Cythere [illegible]	25	Cythere gibberula
2	Dithyrocaris Scouleri	10	[illegible]	18	[illegible]	26	Spirorbis caperatus
3	[illegible]	11	[illegible]	19	[illegible]	27	Spiroglyphus marginatus
4	Entomoconchus Scouleri	12	cornuta	20	pusilla	28	Serpula hexicarinata
5	Daphnia primaeva	13	elongata	21	scutulum	29	scalaris
6	Bairdia curtus	14	excavata	22	oblonga	30	parallela
7	gracilis	15	Hibberti	23	spinigera	31	Serpulites membranaceus
8	Cythere amygdalina	16	impressa	24	trituberculata	32	carbonarius