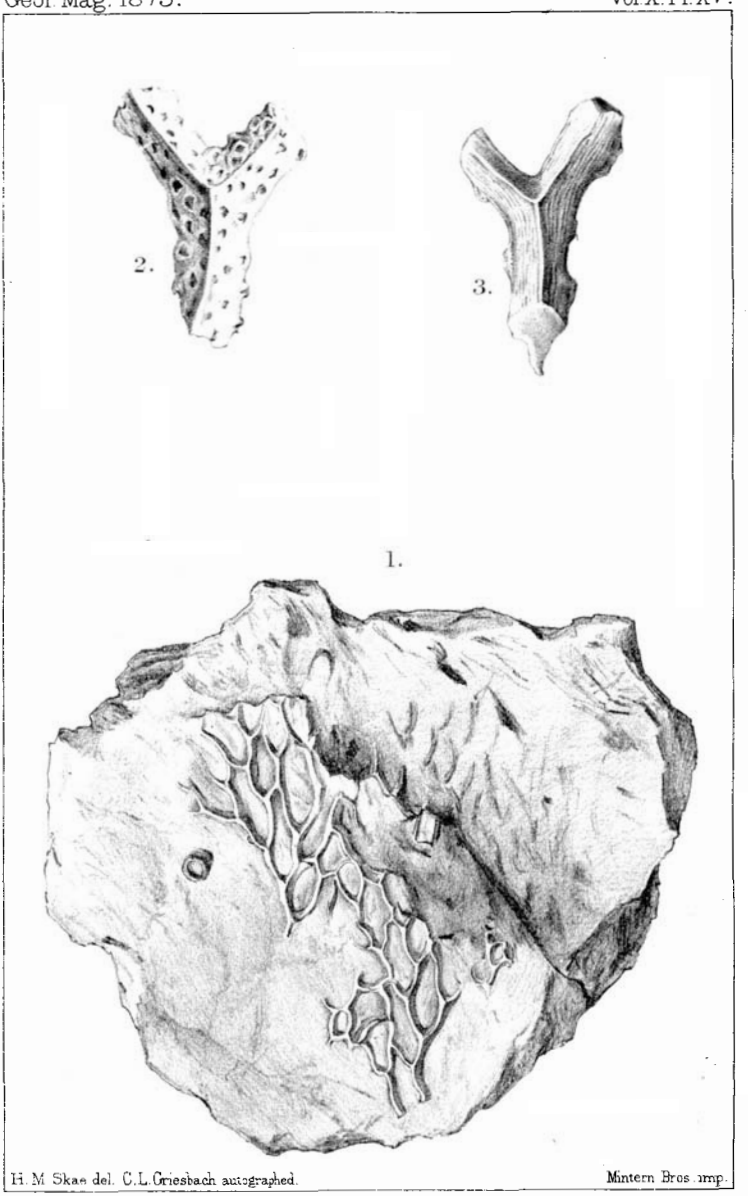

Carinella cellulifera, R. Etheridge, Jr.
Carboniferous beds, Carluke.

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ORIGINAL ARTICLES.

I.—Description of *Carinella*, a New Genus of Carboniferous Polyzoa.

By R. Etheridge, Jun., F.G.S.

(PLATE XV.)

AMONGST a small collection of fossils lately forwarded to the writer for identification, by Dr. Rankin, of Carluke, from the Carboniferous beds of that neighbourhood, are some remains of Polyzoa, peculiar from the combination of characters presented by them, such as have hitherto been considered characteristic of separate genera. In *Fenestella*, Miller, as restricted by King,[1] each interstice or stem of the frond is provided on one side only with two or more rows of cell-apertures, separated by a median keel. In *Polypora*,[2] McCoy, on the contrary, the interstices or dissepiments are not carinated, and the former are always provided with numerous rows of cell-apertures, generally arranged more or less in quincunx, the dissepiments as in *Fenestella*, being non-celluliferous. In the specimens under consideration a combination of some of the above characters takes place, forming a connecting link between the two genera *Fenestella* and *Polypora*. An examination of the accompanying drawings will at once show that the fossils there represented cannot be referred to either of the above, but they certainly appear to be the type of a new genus, which it is proposed to call *Carinella*. Only one species is at present known, which might with advantage be termed *C. cellulifera*.

Carinella cellulifera, gen. et sp. nov.—Polyzoarium composed of angular irregularly disposed anastomosing branches, strongly carinated on both the obverse and reverse faces, but celluliferous only on the former, apparently arising from a common root. No regular distinction into interstices and dissepiments, but the branches bifurcate and re-unite to form hexagonal, pentagonal, and polygonal interspaces or fenestrules, often of most irregular form. On each side the keel on the celluliferous or obverse face are three, sometimes four alternating rows of cell-apertures. The prominent keel follows each bifurcation of the angular ramifications, which are all celluliferous, no separation into interstices and dissepiments being apparent. The cell-apertures have prominent margins. The reverse is longitudinally striate, and the keel does not appear to be quite as strong as on the obverse face.

Carinella agrees with *Polypora* in constantly having more than

[1] Permian Fossils, p. 35.

[2] Synopsis, Carb. Foss., Ireland, p. 206.

two rows of cell-apertures on the celluliferous face, but it differs in possessing a median keel. It agrees with *Fenestella* in the possession of the latter, but differs from both it and *Polypora* in the total absence of non-celluliferous dissepiments or cross-bars, and in having the reverse keeled in a similar manner to the obverse or celluliferous face.

Localities.—Braidwood, Carluke: in the *Fenestella* bed of the 1st Calmy Limestone (Lower Limestone Group). Gair Quarry, near Carluke; in shale over the Gair Limestone (Upper Limestone Group). It has also been obtained from other localities in Lanarkshire by the collectors of the Geological Survey. These will be given in the forthcoming Explanation to Sheet 23, Scotland.

EXPLANATION OF PLATE XV.

FIG. 1. *Carinella cellulifera*, twice the natural size.
„ 2. Celluliferous face of the same, six times the natural size.
„ 3. Reverse of the same, showing keel and striæ, six times the natural size.

For these very excellent drawings I am indebted to my friend, Mr. H. Skae.

II.—On Analysis of White Chalk from the County of Tyrone, with Note on the Occurrence of Zinc therein, and in the overlying Basalt.[1]

By Edward T. Hardman, F.R.G.S.I.; of the Geological Survey of Ireland; Associate of the Royal College of Science, Dublin.

I WAS led to make this analysis with the view of determining if possible whether the extreme hardness of the Irish Chalk were due to either a chemical, a mechanical, or a calorific alteration, from the influence of the overlying basalt. If it were owing to chemical change, we should expect to find a large per-centage of silicates and a diminution in the amount of lime; if to the influence of heat, carbonic acid would be driven off, silica would be in excess, and the presence of the insoluble bases, such as the peroxide of iron, oxide of manganese, and alumina, would become more apparent; while if a mechanical cause or pressure were the reason, no change would take place in the relative amount of the constituents. I believe the result seems to show that the induration of the Chalk must be set down chiefly to the last agency,—if to anything apart from the original formation of the rock,—and that the power of alteration exerted over it by the heat of the molten basalt has been small indeed. At the same time a certain addition has been made to it by means of water holding chemical bodies in solution.

The following is the result of the analysis. The specimens used were obtained from an old quarry in the townland of Legmurn, about a mile and a half north-east of Stewartstown. The Chalk is so indurated as to be in reality a hard splintery limestone.

$CaCO_3$	97·320	ZnO	traces. { Very perceptible even in small quantities of the Chalk.
$MgCO_3$	0·890	BaO	a trace.
SiO_2	0·537	SrO	a trace.
Al_2O_3...	0·273	K_2O }	Amount not estimated.
Fe_2O_3	0·095	Na_2O }	
FeO	a trace.		

[1] Read before the Royal Geological Society of Ireland, June 11, 1873.