

found amongst existing forms. The shape of the shell somewhat resembles that of certain living genera, as *Creseis*, Rang., and *Cuvieria*, Rang. For further information respecting *Conularia* I would refer those who take an interest in the subject to an article by Dr. G. Sandberger in Leonhard and Bronn's Jahrbuch, 1847.

IV.—ON SOME UNDESCRIBED SPECIES OF *LaMELLIBRANCHIATA* FROM THE CARBONIFEROUS SERIES OF SCOTLAND.

By R. ETHERIDGE, JUN., F.G.S.

THE *Lamellibranchiata* of the Scotch Carboniferous beds appear to agree on the whole tolerably well with those of the series as developed further south, notwithstanding we here and there meet with well-marked varieties, and occasionally new species. These are not so numerous as might have been expected when we take into consideration the very different physical conditions which must have existed during the deposition of the series in the two areas.

In the present communication three forms will be noticed which appear to be specifically distinct from any yet recorded from British Carboniferous rocks. The first of these is an exceedingly well-marked species of *Conocardium*, Bron. (*Pleurorhynchus*, Phil.), for which I propose the name of *Conocardium decussatum*, from the characteristic ornamentation of the shell. It is a small species, of a regular horse-hoof form, with an exceedingly strong ridge separating the anterior and posterior sides, amounting almost to a keel. In general form it resembles *C. trigonale*, Phil., and some depressed varieties of *C. Hibernicum*, Sow., but may be at once distinguished from both these by the shell-ornamentation. The full description is as follows:

1.—*Conocardium decussatum*, sp. nov.—Shell obliquely horse-hoof shaped, very convex; anterior end produced, somewhat cylindrical, gaping, tapering towards the hinge-line; posterior end truncated, slightly flattened, produced abruptly into an elongated siphonal tube arising from the hinge-line, bounded by a very strong ridge or keel, passing from the beaks to the antero-ventral extremity; beaks nearly central, prominent, contiguous; hinge-line as long as the shell, terminating posteriorly in the siphonal tube; surface characteristically ornamented; the posterior end has from seven to eight concentric ribs, which bifurcate about half-way between the beaks and the shell-margin, and are crenulated along their whole course; posterior end minutely and regularly decussated, the interspaces assuming the form of elongated rhombs; the crossings of the radiating and horizontal striæ give rise to small nodes; margin crenulated.

The truncated end of *Conocardium* is usually considered as *anterior*, but I have followed the example of Woodward (Manual of Mollusca, 2nd ed., p. 455) and Baily (Journ. Roy. Geol. Soc., Ireland, vol. iii. pt. i. (n.s.) p. 24), by making the truncated end *posterior*. The siphonal tube, although broken off, shows a decided tendency to curve upwards.

Locality.—Found by Mr. J. Bennie in the shales of the Orchard Cement Stone (Upper Limestone series), at William-wood, about three miles south of Glasgow.

2.—For an opportunity of noticing the following species of *Pteronites*, McCoy, I am indebted to Mr. J. Young, of Glasgow, who first called my attention to it. It approaches in many of its characters *P. persulcatus*, McCoy, but is smaller and differs considerably in the ribbing of the shell. I propose for it the specific name *P. regularis*. In *P. persulcatus* the ribs are coarse, rugged, flexuous, irregular, slightly interrupted ridges, larger and smaller. The ribs in the new species show no alternation in size, are equal, sharp, regular, and much finer and more numerous in proportion to the size of the shell; neither do they show any tendency to become rugged and broken up, as in McCoy's species, but pass direct from one end of the shell to the other. In *P. persulcatus* the ribs on the posterior wing are larger, and separated by broader interspaces than those on the body of the shell, but in our new form, *P. regularis*, there is no apparent difference, all the ribs possessing the same flexuous even aspect. Its characters are as follows:

Pteronites regularis, sp. nov.—Shell transversely-trigonal, depressed; anterior end small, pointed; posterior end thin, delicate, apparently subtruncate; hinge-line well defined, about equal to the width of the shell; beaks sharp, nearly terminal, slightly prominent; ventral margin without any visible sinus; shell thin; surface with numerous regular, sharp, flexuous, equal, persistent ribs, which pass in a close unbroken manner from one side of the shell to the other.

Localities.—Arden Quarry, near Thornliebank, Renfrewshire; Linn Spout Quarry, Dalry, Ayrshire; at both localities in shale under the Thornliebank and Arden Limestones (Upper Limestone series) associated with *Estheria punctatella*, Jones.

3.—The generic affinities of the next species do not appear to be as clear and decided as those above described, and the creation of a new genus for its reception, on the strength of the only single specimen with which I am acquainted, would be rather hazardous, especially as some of the characters are not sufficiently well marked. I have provisionally referred it to Schlotheim's *Myacites*. The absence of an erect dorsal margin at once excludes it from *Sanguinolites*, McCoy, and *Edmondia*, de Koninck. In neither of these shells is the tapering of the posterior side so marked as in the present species; even in the presence of an erect dorsal margin it would not be prudent to refer it to the latter genus without some indication of the hinge mechanism. In form, the shell at present under consideration approaches nearest to *Myacites*, possessing the exact outline of many Secondary species of that genus. The presence of *Myacites* in palæozoic rocks is a debated point, but as it is sanctioned by Prof. Morris in his '*Catalogue*,' it must be retained until a better genus is proposed for the shells at present included in it. Prof. King considered *Myacites* equivalent to his *Allorisma* (Perm. Foss., p. 196), and proposed the substitution of the one term for the other, the only reason assigned for this change being that the name *Myacites*

implies that the shells are fossil *Myas* (l.c. p. 196, note). However this may be, it is evident that a genus is required for the reception of numerous Carboniferous shells which neither fall into *Sanguinolites* on the one hand, or *Edmondia* on the other. Such are those usually referred to *Myacites*, and so far as the character of the present species can be made out, it appears to be one of them. If *Myacites* and *Allorisma* are synonymous, it can only be in the case of the latter genus, as afterwards restricted by Prof. King (l.c., p. 196), because, as at first constituted (*Annals and Mag. Nat. Hist.*, 1845, vol. xiv. p. 316), *Allorisma* combined two shells of totally different characters (*Perm. Foss.*, p. 162). I propose the name *M. tenuilineata* for this form, which was kindly lent me for description by Mr. D. J. Brown, of Edinburgh (by whom it was found). Although not in the best state of preservation, its specific characters appear to be these:

Myacites? (*Allorisma*) *tenuilineata*, sp. nov.—Transversely elongate, produced posteriorly, inequilateral; anterior side short, rounded; posterior side narrowed, acuminate, somewhat produced; ventral margin convex; dorsal margin gradually descending to a blunt termination; beaks large, depressed, apparently somewhat incurved; shell convex, most so a short distance below the beaks, whence the sides slope rapidly to the ventral margin; surface with numerous close, thin, concentric lines, which here and there show traces of granulation.

Locality.—Lower Limestone series of Midlothian, at Cousland, near Edinburgh. The surface of the shell is much worn, but with a good lens traces of the granulation can be detected. This would still further tend to ally it with *Myacites*.

V.—ON A NEW METHOD OF WRITING CRYSTALLOGRAPHIC FORMULÆ.¹

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CRYSTALLOGRAPHIC, like all other formulæ, are simply short-hand methods of describing that which could otherwise only be rendered intelligible by the expenditure of many words, and, in type, by considerable waste of space. Anything, therefore, which tends to simplify and contract formulæ, without diminishing the amount of information which they convey, must necessarily be advantageous. The different systems of notation used at the present time by eminent crystallographers render the comprehension of their formulæ somewhat difficult to the student; and it would doubtless be productive of much satisfaction if a universal system of crystallographic notation could be adopted.

The method which I am about to describe will, I think, be found to fulfil all ordinary requirements, and might, if adopted, save time and space, and likewise diminish some of the difficulty experienced by the student. The symbols which I propose to use present, so far as I can see, no obstacle to the accurate rendering of any formula,

¹ The system of notation adopted by Prof. Dana is certainly as brief as the one now proposed, but does not appear to me to be so explicit.