

ON A NEW FORM OF CARBONIFEROUS NAUTILOID (*AMPHOREOPSIS  
PAUCICAMERATA*) FROM THE ISLE OF MAN.

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PLATE VIII.

THE Cephalopod forming the subject of the present communication belongs to the collection of Mr. R. Law, F.G.S., to whom I am indebted for the loan of the specimen; it was brought under my notice by Mr. G. W. Lamplugh, of the Geological Survey, and Mr. E. T. Newton, to whom also my thanks are due.

In his work on "The Geology of the Isle of Man" (Mem. Geol. Survey, United Kingdom), published in 1903, Mr. Lamplugh recognises the following succession of beds (here given in descending order) in the Carboniferous Basin of the south of the island (p. 189):—

5. Volcanic Series of Scarlet.
4. Posidonomya Beds.
3. Poolvash or Pale Limestones.
2. Castletown or Lower Dark Limestones.
1. Basement Conglomerate.

The Nautiloid described in the present paper was obtained from the Poolvash Limestone, at Poolvash, on the southern coast of the island.

The fossil is ovoid, having its greatest thickness a little nearer the anterior than the posterior end; it is about 100 mm. long, tapers slowly anteriorly, and rather more rapidly posteriorly; its transverse section is subcircular, the ventro-dorsal and transverse diameters at its thickest part being 47.5 and 48 mm. respectively, so that the fossil is very slightly depressed. It is very gently curved, the outer or ventral surface being a little more convex than the dorsal, and the posterior end of the fossil turned a little towards the less convex or dorsal surface. By far the greater part of the specimen is occupied by the body-chamber, which is filled partly with limestone and partly with calcite; it is 83 mm. long. The septate part is very short, being only about 17 mm. in length. The test is wanting on the dorsal area and on the greater part of the sides of the body-chamber; although a large portion of that which is present on the ventral surface is much eroded, the parts that are well preserved show that the test was almost perfectly smooth. The lateral and dorsal portions of the anterior end of the body-chamber are wanting, but a small piece of the peristome preserved on the dorsal surface shows that the aperture was simple (*a*, Figs. 1 and 2). On the anterior part of the internal cast of the body-chamber there is a fairly deep depression (*d*, Figs. 1, 2, and 4),

about 10 mm. wide and rather more than 1 mm. deep, which seems to have been continuous around the body-chamber, but owing partly to the imperfection of the dorsal surface of this part of the body-chamber, and partly to the presence of test there, its direction on the dorsal area cannot be traced; it crosses the cast almost horizontally on the lateral area, its centre being about 31 mm. from the edge of the aperture; it then rises in a broad obtuse V-shaped curve on the dorsal surface, its centre in the middle of this surface, where it is a little shallower than elsewhere, being 26 mm. below the edge of the aperture. This depression was due to a corresponding thickening of the internal surface of the shell. The septate part is very short, only about 17 mm. long or about one-fifth of the length of the body-chamber; the test is present only on one lateral area and the adjoining portion of the dorsal surface, and is continued over the posterior septal surface; apparently there are only two camerae; the septa are oblique, nearly horizontal in the siphuncular region and strongly arched upwards in the ventral region, so that the suture-lines are nearly straight on the sides, form a broad, very shallow, backwardly-directed curve on the dorsal surface, and a broad, forwardly-convex curve on the ventral area. The internal cast of the last chamber is well-preserved, and shows that its depth at the flattened dorsal surface of the fossil is 4 mm. The dorsal portion of the internal cast of the penultimate chamber is broken, and shows (beneath the ridge marked *s'* in the figures) a portion of the posterior surface of the internal cast of the last chamber; one side and a piece of the adjoining dorsal area of the posterior surface of the internal cast of the penultimate chamber are covered by the test continuous with that on the sides, the rest of the posterior surface is devoid of test; the test is so fractured that it now only partly covers the siphuncle, but it appears originally to have completely covered this structure; it is slightly thicker here than on the body-chamber, but seems, like the rest of the test, to be quite smooth. The siphuncle (*si* in Figs. 2 and 3) seems to be moniliform; it is subcentral, being situated on the shorter (ventro-dorsal) diameter, a little nearer the dorsal than the ventral surface. Parallel to, and at a distance of 7 mm. from, the edge of the penultimate septum, the test on the lateral area and the adjacent dorsal surface is traversed by a feeble depression bounded anteriorly by a well-defined, slightly-elevated shoulder (*r*); the depression is continued as a very shallow groove (*g*) over the posterior surface of the internal cast of the penultimate chamber to a small fragment of the test on the opposite lateral area (see Fig. 2), which also exhibits a feeble depression bounded anteriorly by a slightly-elevated shoulder (*r* in Fig. 2). The appearance of the posterior part of the specimen shows that, like some other Nautiloids,<sup>1</sup> this species was in the habit of discarding its earlier chambers and covering the posterior septal surface with shelly matter; the slight shoulder, just mentioned, indicating the position of the edge of the septum immediately behind which the earlier chambers were

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<sup>1</sup> E.g. *Orthoceras truncatum*, Barrande, from the Silurian of Bohemia and England.

detached, the corresponding groove on the posterior surface of the internal cast being most probably due to the thickening produced where the septum meets, and is, as it were, fused to the shell-wall. On the lower part of the dorsal surface of the internal cast of the body-chamber, at about 6 mm. from the last septum and a little to the left of the median line, a curved line (*sm* in Figs. 1 and 2) originates; this passes upwards and a little to the right, until it is 12 mm. from the septum, when, continuing its upward course, it bends slightly to the left until it is 32 mm. from the septum, when it curves at first outwards and then backwards, until it is about 16 mm. from the last septum; then it appears to divide; one part continues on towards the last septum, for a short distance, and then disappears, the other turns almost horizontally, and soon passes beneath a portion of the test. This curved line, just described, thus forms part of the boundary of an ellipse, of which the major and minor axes are 32 and 20 mm. respectively, the major axis being directed forwards and inclined towards the median line of the dorsal surface. In a corresponding position on the right side of this surface there appear to be indications of a similar elliptical area,<sup>1</sup> meeting the one on the left at a place a little to the right of the median line, but the fossil is here so much weathered that the course of the boundary of the area cannot be satisfactorily followed. These areas are believed to be the muscle-scars, and the short horizontal branch proceeding from the one on the left appears to be the anterior boundary of a part of the annulus.

I have not been able to find any record of a similar Nautiloid from the Carboniferous rocks. It cannot possibly be referred to any of the described species of Nautiloidea recorded on pp. 261 and 262 of Mr. G. W. Lamplugh's work on "The Geology of the Isle of Man" (Mem. Geol. Surv.), published in 1903. In the list of Carboniferous fossils (named by Count Keyserling) from the Isle of Man, given by the Rev. J. G. Cumming on pp. 354-359 of his work on "The Isle of Man," published in 1848, besides a number of Nautiloidea which had already been described, the following new species are mentioned:—*Cyrtoceras Poolvashi*, from the Poolvash Limestone; *C. tessellatum*, from the Posidonomya Beds; *Orthoceras catetes*, from the Posidonomya Beds; and *O. prolongatum*, from the Poolvash Limestone and Posidonomya Beds. No descriptions of these fossils are given. The only species which seems likely to have been the one here described is *Cyrtoceras Poolvashi*. Possibly the examples of these new species were in the Cumming Collection, which is still preserved in the Museum of King William's College at Castletown, Isle of Man, but Mr. Lamplugh states (*op. cit.*, p. 251) that, when he saw the collection, it had fallen into disorder, so that the majority of the specimens were then either without labels or with labels insufficient for their identification, and, further, it was suspected that the labels had in some cases been shifted from their original specimens. Under the circumstances, therefore, it appears to be now impossible to identify these species, and the names must remain *nomina nuda*.

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<sup>1</sup> Indicated by the dotted line in Fig. 1.





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