

ARTICLE X.—*Notice of a new Cephalopod from the Niagara rocks of Indiana.* By R. P. WHITFIELD.

Family NAUTILIDÆ.

Genus LITUITES, *Montfort.*

**Lituites Bickmoreanus**, n. sp.

PLATE 21, FIG. 1-3.

Shell large and robust, composed of but few volutions, probably not more than three; but which increase very rapidly in size, are loosely coiled at first, but afterwards come in contact, but are not to any extent embracing; are obscurely subquadrate in a transverse section, flattened on the dorsum and very strongly ribbed on the sides and across the ventral surface, with heavy, rounded, oblique, transverse ribs or undulations. The ribs are separated by broad concave interspaces, and are arched strongly forward in crossing the shell from the dorsal to the inner margins, are united across the ventral surface in a rounded arch, but are obscure or nearly obsolete on the back. The outer section of the shell in the adult stage of growth is deflected in a nearly straight line to a distance nearly equal to the diameter of the outer coiled portion. On the straight part, near the aperture, the undulations of the surface are subdued and finally become obsolete, the shell being marked only by smaller undulations of growth parallel to the margin of the aperture. The aperture in the adult shell is not contracted laterally, but is characterized by a broad deep sinus on the back, nearly equal in width to the flattening of the dorsum, and extending to a distance more than equal to one-half the width of the volution at the same place. On the ventro-lateral angles there occurs other deep rounded sinuses, forming a broad lobe-like extension on the sides of the shell and a ventral lip of considerable extent, the true form and dimensions of which cannot be determined from the specimen.

The surface of the shell is covered by fine, almost microscopic lines which run lengthwise of the coils, and also by finer transverse lines of which three occupy the space of one of the longitudinal lines, giving a very fine and beautiful surface structure.

The septa are moderately concave, and their edges are seen arching backwards on the dorsum where they are truncated by  
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the flattening of the back. They are arranged at distances from each other rather less than that between the transverse undulations of the sides, so that ten of them occupy a distance equal to eight of the undulations. The siphon is rather small for the size of the shell and occupies a position nearly central.

This may justly be considered one of the most remarkable of the American fossil cephalopods. Its very robust character would lead one to doubt its generic identity with the true *Lituites*, and especially so when the strong undulations of the surface are taken into consideration. The small number of volutions is also a peculiar feature. The inner ones of the specimen figured have been to a great extent filled with crystals of lime-carbonate, but are greatly compressed vertically. But there cannot have been more than two or two and a half volutions, and the outer one on the deflected portion has attained a dorso-ventral diameter of over two and a quarter inches. A second imperfect specimen shows the inner volutions very laxly coiled, and not coming in contact with each other until the outer volution is reached. The inner one is imperfect, but calculating from the rate of increase in size of the inner portion, there cannot have been more than two and a half volutions in all. The general features of the specimens would lead one to consider it a *Trochoceras*, but the form of the aperture is that of a *Lituite*, and on lifting a specimen from the matrix it is found to be coiled exactly on the same plane. It bears considerable general resemblance in form to *Trochoceras Desplainense*, McChesney, except in size; but in that one the undulations pass across and are strongest on the dorsum which is not flattened, and the coiling of that shell on one side, so as to produce a raised spire, at once marks it as a true *Trochoceras*.

This species might be considered as a representative of *L. giganteus*, Sowerby, (Sil. Syst. pl. 11, fig. 4.) the undulations of the surface are, however, very much stronger and almost twice as distant, and the flattening on the back of the shell much wider.

*Formation and Locality.*—The specimens were obtained from dolomite limestone of the Niagara group at Wabash City, Indiana, some years ago by Mr. Fred. Braun, of Cincinnati, Ohio; from whom they were purchased, with other fossils, by the Trustees of the Museum, and are now in the Museum collection.

[Oct. 10th,

## EXPLANATION OF PLATES.

### PLATE XIX.

#### PROSCORPIUS OSBORNI.

These figures are from photographs of the specimen, natural size and enlarged.

### PLATE XX.

*Fig. 1.* View of the specimen, enlarged four diameters. In this figure the line across the base of the head was made too distinct, and the eye tubercle too long behind, in tracing the figure. The line separating the fingers of the palpus extends too far down, and the spot representing the stigma-like mark on the fifth ventral segment is too distinct.

*Fig. 2 a.* The mandible further enlarged; *b* and *c* show it as seen in different lights.

*Fig. 3.* Outline sketch of the specimen, two diameters; 1, mandible; 2, palpus; 3, first walking limb; 4, 5 and 6, parts of the other limbs; *a*, the spot which may represent a spiracle; *b*, the additional ventral plate; *c*, one of the depressions in the integument which looks like a perforation.

*Fig. 4.* Outline representing Mr. S. H. Scudder's idea of the first walking limb.

### PLATE XXI.

#### LITUITES BICKMOREANUS.

*Fig. 1.* Shows the form of the undulations on the dorsal surface.

*Fig. 2.* Lateral view of the specimen, showing the form of the aperture.

*Fig. 3.* Shows one of the septa.

### PLATE XXII.

#### HOMALONOTUS MAJOR.

View of the specimen on which the species is founded.

