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OCCURRENCE OF THE NAUTILOID GENUS *FOORDICERAS* IN THE PENNSYLVANIAN PERIOD OF NORTH AMERICA

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ABSTRACT

A specimen identified as *Foordiceras* sp. nov. is described. This is the first reported occurrence of the genus *Foordiceras* in North America and extends the stratigraphic range of the genus into the Pennsylvanian Period.

INTRODUCTION

Previously species of the genus *Foordiceras* were known only from the Permian of Europe, Asia and the East Indies (Kummel, 1953, 1964). The present paper reports the first species of the genus known from North America and extends the stratigraphic range of the genus into the Pennsylvanian Period.

LOCATION AND STRATIGRAPHY

The specimen was collected at the type section of the Shumway Cyclothem (Mattoon Formation, Upper Pennsylvanian) located 2 miles east of Shumway, Effingham County, Illinois (SE1/4 SE1/4 SW1/4, sec. 26, T9N, R5E, Effingham Quadrangle). Kosanke *et al.* (1960) described the stratigraphic section at this locality. The specimen was collected from the lower bed of the Shumway limestone. Eleven species of coiled nautiloids have been reported from the unit (Tucker, 1979).

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SYSTEMATIC PALEONTOLOGY
Family KONINCKIOCERATIDAE Hyatt and Zittel, 1900
Genus FOORDICERAS Hyatt, 1893

Diagnosis. Kummel (1964) adequately diagnoses *Foordiceras* as involute nautilicones with moderately broad, deep umbilicus; trapezoidal whorl section with broad venter, convex lateral areas that slope dorsally, ventral shoulders rounded, umbilical shoulders more broadly rounded, umbilical wall broad and steep, flanks with transversely elongated nodes on ventral shoulders that disappear by the middle of the lateral area; sutures slightly sinuous, position of the siphuncle unknown.

Remarks. Kummel (1953) restricted *Foordiceras* to include species whose conchs are trapezoidal in whorl section and whose flanks slope down from venter regularly to the unbilical suture showing only a slight curve without forming a distinct umbilical wall or shoulder. He (Kummel, 1953) thus excluded the large number of North American Permian nautiloids that Miller and Youngquist (1949) had previously included in the genus. Those species all have depressed subquadratic whorl sections and well developed umbilical shoulders that result in distinct lateral areas and umbilical walls. The species described below has a relatively distinct umbilical shoulder but only on the test. If the cross section of the internal mold is compared to the cross section of *Foordiceras goliathum* (Waagen) which is also based on an internal mold the similarity is striking. The tapering ribs which die out before the umbilical shoulder is reached confirms the identification of the Shumway specimen as a species of *Foordiceras*.

Material. This species is represented by one poorly preserved specimen (PE 28369) which has been deposited in the collection of the Field Museum of Natural History, Chicago (Fig. 1).

Diagnosis. A species of *Foordiceras* that is slightly depressed (W/H = 1.4); distinct umbilical shoulders on the exterior of the shell but rounded umbilical shoulders on the internal mold; convex lateral areas between transversely elongate tapering ribs.

Description. The large moderately evolute shell is estimated to have reached 170 mm in total diameter with the umbilicus making up about one-third of the total. At its adoral end the specimen is estimated to have been 90 mm wide and 64 mm high. The cross section of the test and the internal mold is different due to thickening of the test. The test is subtrapezoidal in cross section having slightly convex ventral and lateral areas, rounded ventrolateral shoulders, distinct angular umbilical shoulders and flat umbilical walls that meet the sides at an angle of about 135 degrees. The shell is widest slightly dorsad of the ventrolateral shoulders. At its adoral end the venter is estimated to be 76 mm wide, the lateral area is 30 mm wide and the umbilical wall is 34 mm wide. The dorsum was not preserved intact but is estimated to have been about 28 mm wide. The cross section of the internal mold is much less angular than that of the test. The venter is broadly arched and rounds into the convex sides which cannot be distinguished from the umbilical walls on the internal mold. The test is very thick. At the adoral end of the septum it is 7 mm thick at the umbilical shoulder, 6 mm thick at the ventrolateral shoulder, 2 mm thick along the umbilical wall and 4 mm thick along the sides. The specimen appears to be a portion of a body chamber, at least it is not septate. The test is ornamented by transversely elongated ribs that are widest at their ventrolateral ends then taper towards the dorsal end. They disappear before reaching the umbilical

shoulder of the shell. The two adoral ribs are 35 mm apart as measured from the crest of one rib to the crest of the next. The adapical portion of the specimen is badly weathered and the ribs are nearly destroyed. The ventrolateral ends of the two best preserved ribs do not appear to have been elevated into distinct nodes. Camerae, sutures, siphuncle and the inner whorls were not preserved.

Comparison. Although the shell is less depressed than any of the Eurasian congeners and appears to represent an undescribed species, too little is known of its morphology to allow unequivocal identification of the species. Consequently it would be unwise to base a new nominal species on this one specimen. Among North American Paleozoic nautiloids only *Temnocheilus* sp. (Miller and Youngquist, 1949, Pl. 59, figs. 1, 2) is remotely similar to *Foordiceras* sp. It too has an internal mold with a rounded cross section. However, *Temnocheilus* sp. lacks lateral ribs and has well developed spine-like ventrolateral nodes suggesting that Miller and Youngquist (1949) were correct in placing it in *Temnocheilus* rather than *Foordiceras*.

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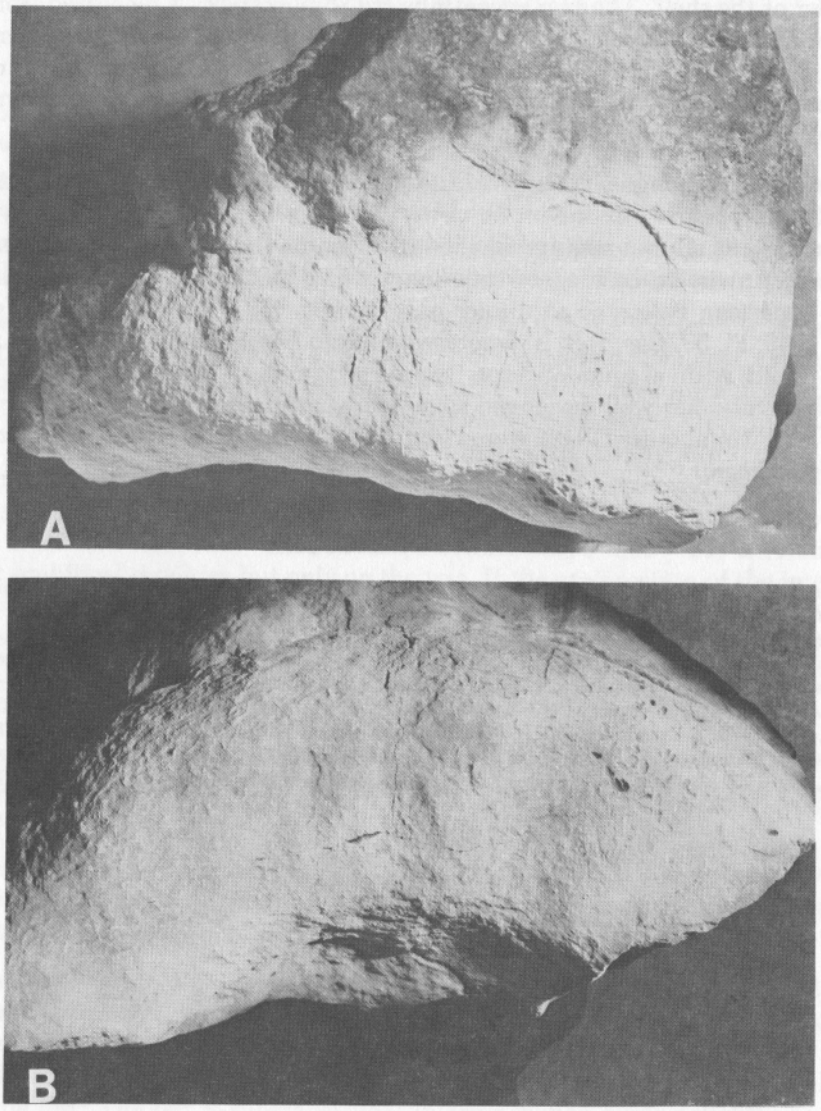

Fig. 1. *Foordiceras* sp. nov. (PE 28369), ventral (A) and lateral (B) aspects of the specimen.