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Iowa Pennsylvanian Goniaticites

By A. K. MILLER

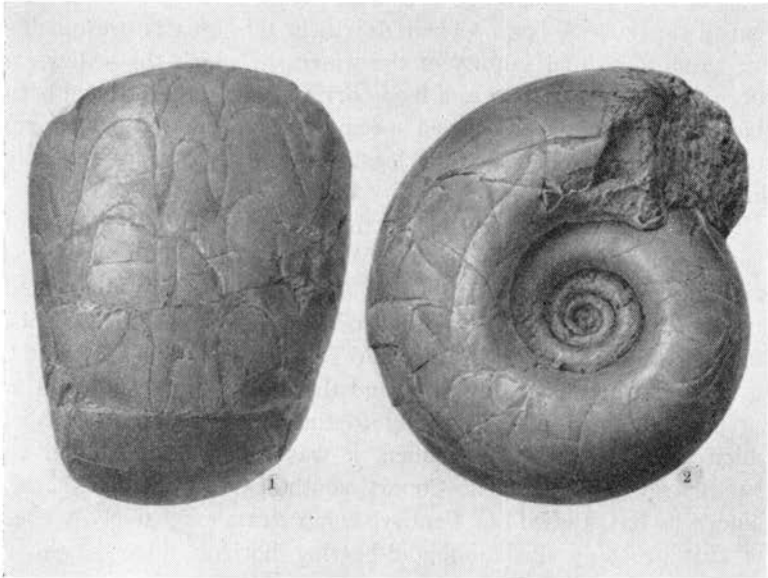
In view of the exceptional stratigraphic value of Late Carboniferous ammonoids, it seems worth while to bring together the available information in regard to the known occurrences of these fossils in our State. However, they are rare indeed here, in comparison with the regions to the south, in spite of the fact that marine beds of Pennsylvanian age are widespread in the southern and central portions of Iowa. Their dearth in this area is presumably due to an abnormal salinity of the waters in which the sediments accumulated, rather than to a land barrier. Altogether I have been able to locate only half-a-dozen specimens from our Pennsylvanian strata. These came from four localities, and they represent only three species.

The first one to be recorded in the literature is the holotype of *Paralegoceras iowense* (Meek and Worthen). This individual was originally described and named in 1860 but was not illustrated until six years later (Meek and Worthen, 1866, pp. 392-393, pls. 30, figs. 3a-3c). In 1940 Miller and Furnish (pp. 524-526, pl. 62, fig. 3) published a restudy of it, and there is of course no need to duplicate their work. According to the literature and the label which accompanies this specimen, it was found near Alpine, an abandoned town in Wapello County, south of Ottumwa. Dr. L. M. Cline, who has studied our Pennsylvanian strata extensively, writes me that probably the ammonoid-bearing horizon there is either the Seahorne or the Munterville limestone. However, he also states that it could be older. "If the specimen came from near the drainage level, it could be pre-Munterville, but if it is considerably above drainage, it could be in the Munterville-Seahorne-Wiley interval." It may, of course, have come from a mine, for a good many shafts were dug in this area. It should be mentioned that conspecific forms (and one congeneric species) occur in beds that are slightly older than the Munterville in the southern Mid-Continent region (the Atoka sandstone of Arkansas and Oklahoma and the Smithwick shale of north-central Texas). Furthermore, the genus is not known to be represented elsewhere in this country, though species that appear to belong in it have been described from Peru, Slovakia, and Morocco.

In a brief abstract, published in 1921, Thomas stated: "A fine specimen of the goniaticite, *Gastrioceras excelsum* Meek, was recently collected by Mr. Ben H. Wilson, a member of the [Iowa]

Academy [of Science]. The specimen came from the Appanoose formation at Mystic, Iowa, and is said to have been taken from a shale just below a coal seam at a depth of fifty to sixty feet. The type of this species and one or two other examples came from the Pennsylvanian of Kansas; others are recorded from Arkansas; the specimen here reported is the first from Iowa."

This specimen (State Univ. Iowa, 3298) is conspecific with one (Pl. 1, figs. 1, 2) which I mentioned incidentally in 1932 (p. 436)



Explanation of Plate I

Figs. 1, 2— The holotype of *Eoasianites wilsoni*, n. sp., from immediately above the Mystic coal near Centerville, Iowa, X $\frac{1}{2}$. (S. U. I., 624.) Photographs retouched by Mr. Howard Webster of Iowa City, Iowa.

and which was collected in 1896 by T. J. Fitzpatrick at the North Hill Coal Mine, near Centerville, Iowa. Also, Professor Ben H. Wilson, now of Joliet Junior College, kindly loaned me two additional specimens which came from the same locality as the one described by Thomas, that is, from the Ludwig Mine located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 17, T. 69 N., R. 18 W., Walnut Township, Appanoose County; where, he states, such goniatites were "rather common."

All four of these specimens are strikingly similar, and clearly they are conspecific with each other but not with the types of

Eoasianites [*Gastrioceras*] *excelsus* (Meek) or any other species; and they are therefore without a valid specific name. Accordingly, I here propose the name *Eoasianites wilsoni* for them, and designate as the holotype of the new species the specimen represented by the accompanying illustrations. It is a well preserved internal mold, which is, however, slightly distorted. Its maximum diameter measures about 127 mm., and the maximum height and width of the preserved portion of its conch are some 40 mm. and 90 mm., respectively. The diameter of its umbilicus is equal to a little less than half that of the conch. The surface of the internal mold bears faint traces of the increments of growth, and these indicate that the conch bore a broad shallow broadly rounded hyponomic sinus. Also, the paratypes (internal molds that are very similar to the holotype) bear rather faint sinuous transverse constrictions which appear to be essentially parallel to the growth-lines and to occur at irregular intervals—the most distinct one is on the adoral portion of the penultimate volution of the State University of Iowa paratype (which is somewhat smaller than the holotype). One of the other paratypes shows that the phragmacone attained a diameter of at least 140 mm. and a corresponding width of conch of approximately 107 mm. The nature of the sutures is elucidated by text figure 1. Although this form is similar to *E. excelsus* (as figured

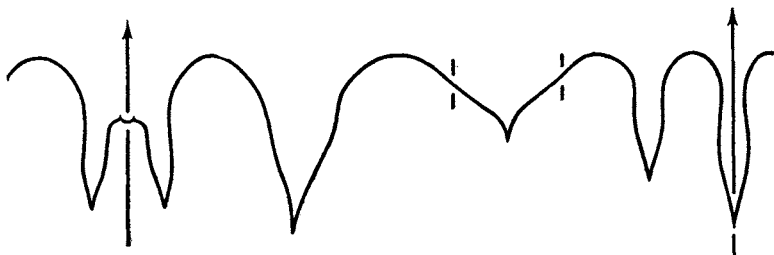


Figure 1 — Diagrammatic representation of an adoral suture of the holotype of *Eoasianites wilsoni*, n. sp., X $\frac{3}{8}$

by Smith, 1903, pls. 28, 29) it has a narrower conch and a smaller umbilicus. Professor Wilson has recently written me that his specimens were collected by miners, who state that they were “found associated with the coal and shales above the Appanoose vein,” that is, the Mystic coal, which is the only commercial seam in the area. The holotype almost certainly came from the same horizon.

The only other ammonoid known from the Pennsylvanian of Iowa is the holotype of *Wiedeyoceras sanctijohannis* (Wiedey). It was illustrated, described, and named in 1929, and Wiedey's report

is readily available. His specimen is stated to have been found by Orestes St. John "at Bussey's Coal Bank in Greene County." According to Cline, its age is lower Cherokee for all of the Pennsylvanian strata of Greene County are older than the Munterville limestone, which is near the middle of our Cherokee. When Wiedey described this form, he referred it to *Eumorphoceras* Girty but was careful to state that it "seemingly" could not "be assigned to any genus without some reserve." Three years later (Miller, 1932, pp. 79-83) it was made the type of a then new genus, *Wiedeyoceras*. Small specimens from the Pennsylvanian of New Mexico and Texas that have been regarded as congeneric are now known to be immature representatives of *Gonioloceras goniolobum* (Meek).

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