AN UPPER JURASSIC SEPIOID FROM CUBA

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ABSTRACT—In evidence that true sepioids existed in the Upper Jurassic, a new genus is described from the Jagua formation of western Cuba.

Many modern students of cephalopods essentially follow d'Orbigny (1840, p. XXXVII) and use characters not ascertainable in fossils to group the Recent dibranchiate decapods into Oegopsida and Myopsida. Such a grouping seems to cut across any system based on the shell, which is after all a rather fundamental structure. From 1916 to 1922 Naef elaborated a classification applicable to both Recent and fossil forms (see Naef 1922, pp. 30–35, 296–300, or 1923, pp. 808–811), and which is therefore used here. Thiele (1934, pp. 952–983) uses an arrangement oriented for Recent forms, but not fundamentally incompatible with Naef's subdivision of the decapods into the three suborders Belemnoidea, Teuthoidea, and Sepioidea.

In Naef's view (1922, pp. 94–100) the sepioid stock was derived from some such belemnite as the Tithonian Diplobelus, the definitive separation supposedly having occurred at the very end of the Mesozoic, although in his diagram on p. 303 he projects the sepioid line back to the end of the Lias. On plausible morphological grounds within the Sepioidea he offers Belemnosella as an example of the basic type from which the rest of the suborder could have developed, and on the basis of the fossil record suggests that the wider differentiation into families began in the Paleocene.

In any case, no undoubted sepioids older than basal Eocene appear to have been found. Aside from such forms as Campylosepia, which may not even be cephalopods, the so-called sepioids heretofore reported from the Mesozoic have turned out to be teuthoids, as shown in particular by their lack of the characteristic phragmoconal deposit (for the Cretaceous Actinosepia the evidence is negative, Whiteaves (1898) making no mention of such a structure). Perhaps Plagioteuthis should be noticed, since it is reported from the Oxfordian near Moscow, Russia, and since Naef (1922, p. 93) remarks that it "has a certain resemblance" to Belemnos, although he groups it among "spurious sepioids from older formations."

Study of the original figures (Roemer 1890, p. 361) seems to justify the exclusion of Plagioteuthis from the Sepioidea.

The form described below from the Viñales region of Pinar del Río in western Cuba indicates that true sepioids existed as long ago as the older Upper Jurassic; following Imlay's summary (1942, pp. 1421–1423, 1435–1439), the age of this fossil is considered to be Argovian Oxfordian. Although in the absence of the apical end of the shell one can not be completely certain, the indications are that it may belong in the family Sepiidae, of which the oldest genera have been believed to be Belosepia (including Stenosepia) and Pseudosepia from the Eocene.

This Cuban form appears to be specifically and generically new; it is named in commemoration of P. L. Voltz of Strasbourg, who in 1830 indicated the relationship between the belemnites and the sepioids, and in recognition of the personal and scientific generosity of the late Robert H. Palmer of Habana.

Genus **Voltzia** Schevill, n. gen.

Genotype: **Voltzia palmeri** Schevill, n. sp.

Shell superficially resembling that of *Trachyteuthis*, but with the growth lines of the inner shell layers in the central field more prominent and chevron-shaped. Ventrally a convex axial deposit smaller than but resembling the phragmocone of *Sepia*. Rostrum and other apical structures unknown, lacking in available material. Soft parts unknown.

**Voltzia palmeri** Schevill, n. sp.

Plate 23, figures 1–3

Shell elongate, with conspicuous growth lines showing in the inner shell layers of the central field. Dorsal surface tuberculate,
more finely toward edges. Lateral expansions (outer cone) narrow anteriorly, widest in posterior half (cf. Trachyteuthis); it should be noted that no sign of this structure appears on the right side of the holotype; only about the anterior two thirds of the paratype are preserved. Phragmoconal deposit on ventral side of rachis, like that of Sepia but relatively smaller (perhaps because of the state of preservation); detailed structure not apparent in this material because of bituminous replacement, as is frequent in other fossils from this locality. Apical end lacking. Estimated total length of shell (holotype) about 7 \( \frac{1}{2} \) inches; the paratype is about 5/4 as large. Holotype, M.C.Z. 5027; paratype M.C.Z. 5028.

Oxfordian Upper Jurassic (Argovian); Jagua formation.

Jagua Vieja, near Viñales, Pinar del Río, Cuba.

Comparison with other forms.—From all other sepioinds the new form may be distinguished by the great width across the outer cone.

From Belosepia and Sepia it differs primarily in the smallness of the phragmoconal vestige, and in proportions. As may be seen in the transverse sections, taken about midpoint, in figures 3–5 of Plate 23, Voltzia is much more depressed than Belosepia, and even more than Sepia, although this may be partly a feature of preservation. The section of Belosepia given in our figure 4 is based on Edwards’ restoration (1849, pl. 1, figs. 4, 5) of the unusual Dixon specimen from Sheppey, No. 39915 in the British Museum (N.H.). I am indebted to Dr. L. Bairstow of that Museum for informing me by letter that in this specimen “at least for the most part the phragmocone is represented only by a matrix-infilling of the alveolus, preserving the septal sutures but not the septa themselves. . . . We have no specimen in which the inner structure of the phragmocone is displayed as in Edwards, 1849, pl. 1, fig. 6.”

From more nearly contemporary teuthoids which it superficially resembles, Voltzia differs essentially in having the modified phragmocone characteristic of the sepioinds. Examination of a series of Solnhofen-Eichstädt teuthoids in the Museum of Comparative Zoology bore out the statements of Quenstedt (1849, p. 494) and A. Wagner (1860, p. 756), failing to reveal any such structure on the smooth ventral side of Trachyteuthis or Leptoteuthis, any more than in Plesioteuthis or Münsterella (see p. 118) or, of course, in Acanthoteuthis. The absence of this phragmoconal structure in these specimens is not explainable by faulty preservation, since many of them retain indications of soft parts, such as arms and viscerae. Although, as indicated above, there is no close relationship between Voltzia and Trachyteuthis, a comparison of their proportions may be helpful. In T. hastiformis (Rüppell) the greatest width across the pen and across the cone (“fins”) is 25% and 35%, respectively, of the total length of the shell; in T. latipinnis (Owen) the figures are 30% and 45%. The corresponding measurements of V. palmeri are about 37% and 45%. It appears that the new form is appreciably less slender. In addition, the known material of Voltzia is much smaller than these teuthoids.

**REFERENCES**


D’Orbigny, Alcide, 1840, in de Ferrussac et d’Or-

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