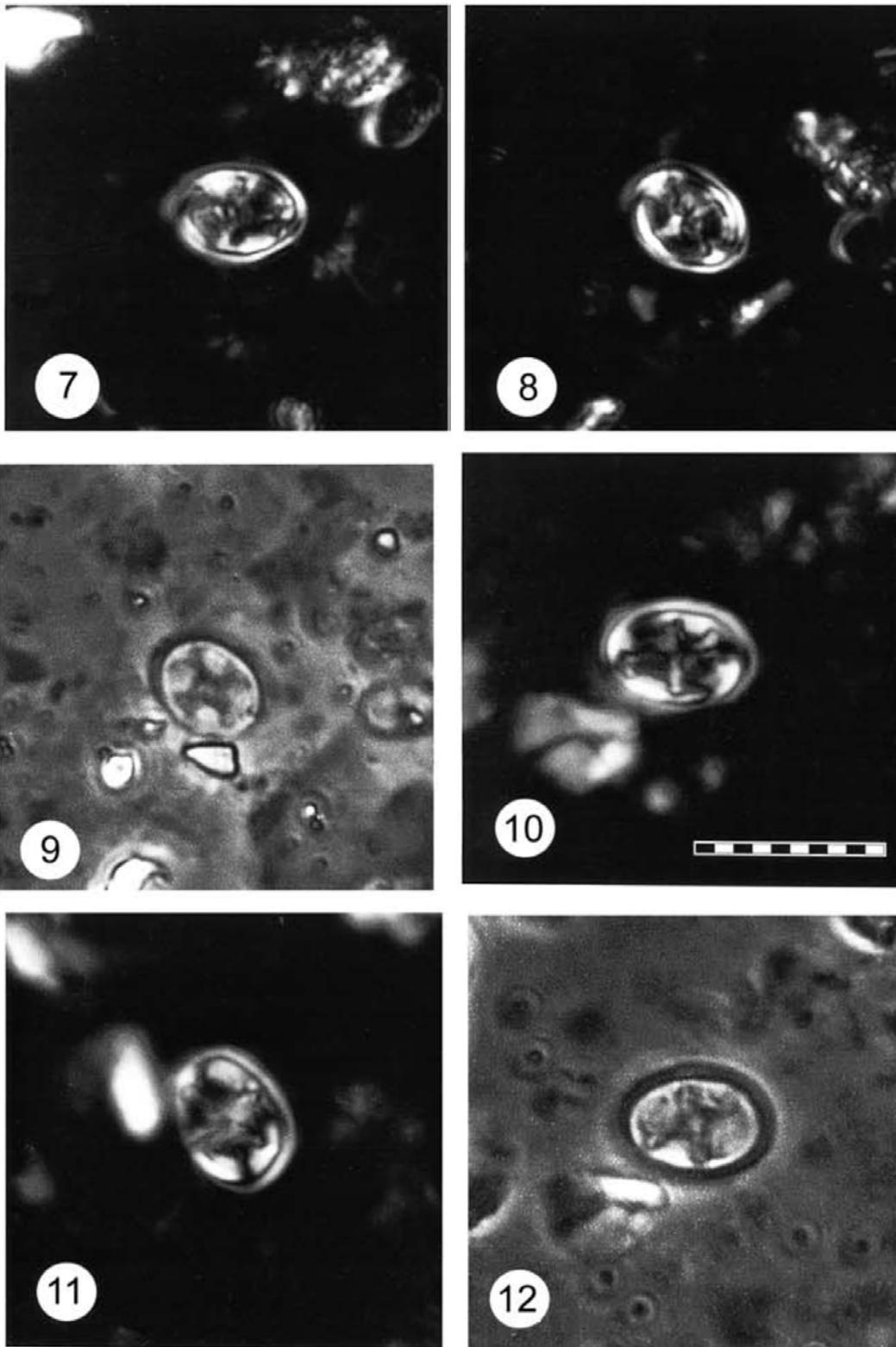


94. *Eiffellithus praestigium* Watkins & Bergen (2003)



Pl. 1, figs 7-12

*Eiffellithus eximius* (Stover) Perch-Nielsen. – HILL 1976, pl. 6, fig. 24-29.

*Eiffellithus* sp. 1 PERCH-NIELSEN 1985, p. 367, fig. 35, 5-6.

*Eiffellithus eximius* (Stover) Perch-Nielsen. – HILL and BRALOWER 1987, pl. 1, fig. 4a-c.

**Etymology:** (L.) *praestigium* illusion, trick, deception.

**Diagnosis:** Medium eiffellithid with stem base of four struts forming an asymmetrical cross lying close to, but not aligned with, principal axes of the base, with each strut composed of two sets of elements with clavate to blunt distal tips divided by a central suture.

**Description:** This species has a broadly to narrowly elliptical rim which is smooth to slightly serrate in outline. The outer rim is thin ( $<1\mu\text{m}$ ) and composed of 40 to 60 steeply inclined elements. The inner rim is composed of blocky elements that are approximately  $1\text{-}2\mu\text{m}$  wide. The rims exhibit a first order white birefringence. A small (approximately  $3$  by  $4\mu\text{m}$ ) elliptical hole characterizes the middle of the central area. The central hole is spanned by an asymmetrical, diagonal cross that might have supported a small hollow stem, although no central structure has been observed. The four arms of the cross lie obliquely to the major and minor axes of the ellipse, so that the axes of the cross and the axes of the ellipse are displaced by more than about  $10^\circ$  but less than about  $20^\circ$ . Each arm is composed of two sets of elements divided by a prominent central suture. The tips of the arms are distinctly clavate.

**Measurements:** Length =  $5.3\text{-}7.3\mu\text{m}$  ( $\mu=6.3$ , s.d.= $0.5$ ,  $n=30$ ) Width =  $3.5\text{-}5.6\mu\text{m}$  ( $\mu=4.6$ , s.d.= $0.5$ ,  $n=30$ ) Eccentricity =  $1.18\text{-}1.53$  ( $\mu=1.4$ , s.d.= $0.1$ ,  $n=30$ )

**Remarks:** This species is an intermediate form between *E. monechiae* and *E. vonsalisiae*. The most characteristic feature of this relatively small eiffellithid is the “trick” that it exhibits under cross polarized light. The two sets of elements in each arm do not exhibit simultaneous extinction under crossed polarizers, but alternately go extinct as the orientation of the crossed polarizers changes. In one orientation, the birefringent alternate sets of elements make the cross appear to be sub-parallel to the principal axes of the ellipse (text-fig 10). In the other orientation, the other four sets of elements are birefringent, making the cross appear to be nearly diagonal to the principal axes (text-fig. 10). The arms closest to the minor axes of the ellipse exhibit this phenomenon most strongly, which appear nearly aligned with the ellipse minor axis in one orientation and strongly divergent from it in another.

**Occurrence:** upper Albian from Oklahoma and Blake Nose (ODP Leg 171B).

**Type section:** Hole 1052E from Blake Nose (ODP Leg 171B)

**Type Level:** 1052E-58R-5, 24-28cm (681.44 mbsf); lower upper Albian.

**Holotype:** Plate 1, figures 10-12

Watkins, D.K. & Bergen, J.A., 2003. Late Albian adaptive radiation in the calcareous nannofossil genus *Eiffellithus*. *Micropaleontology*, **49(3)**: 231-252.