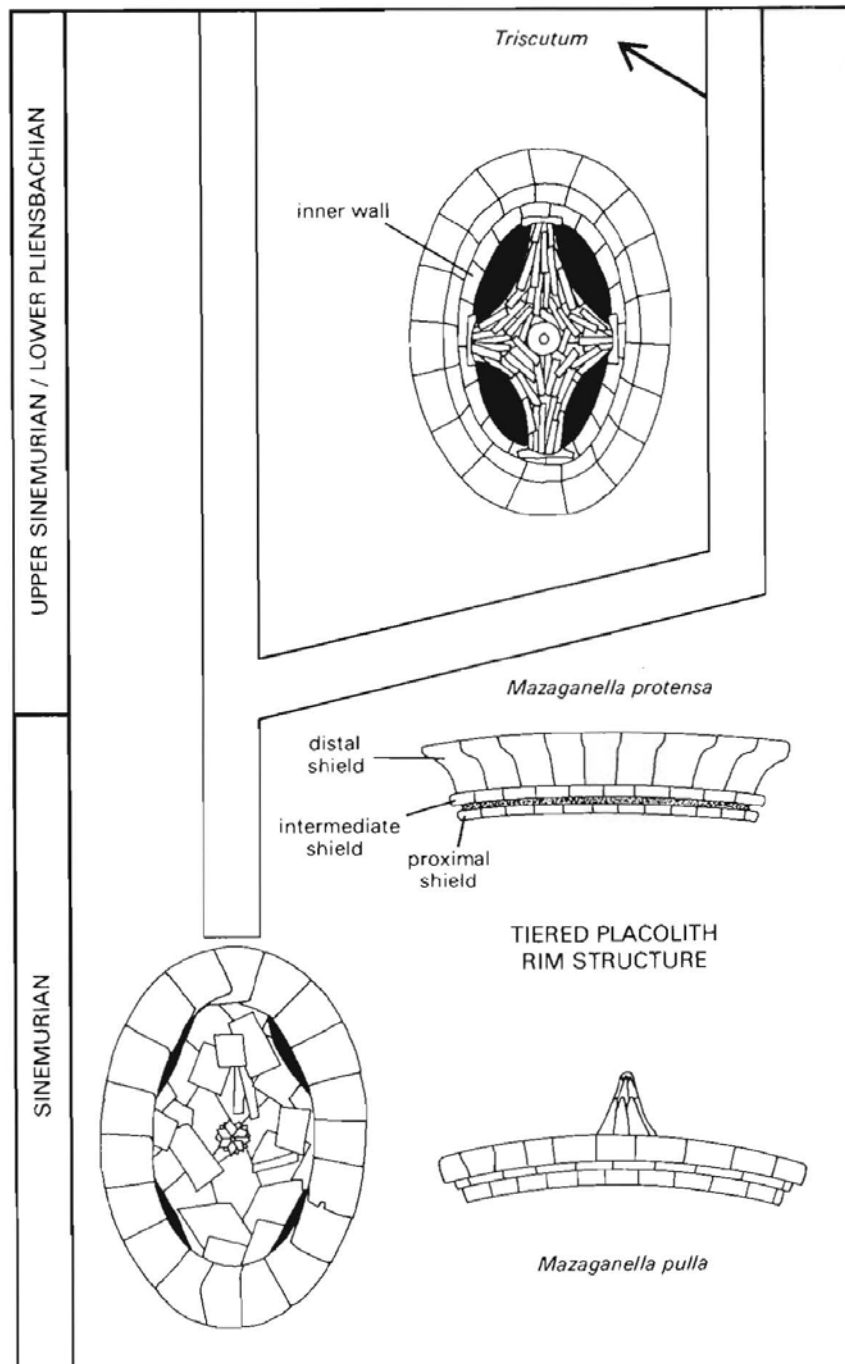
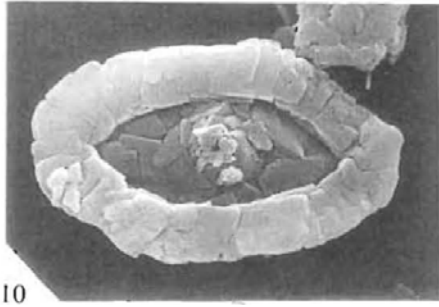


148. *Mazaganella pulla* Bown (1987)

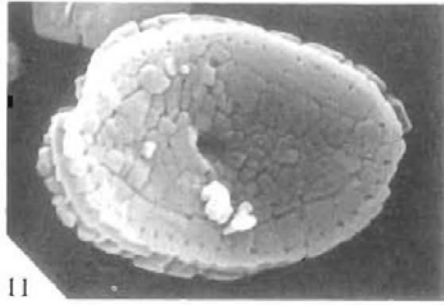


TEXT-FIG. 8. Morphology and evolutionary relationships within the tiered placolith rim structure group (Family Mazaganellaceae).

Text-fig. 8



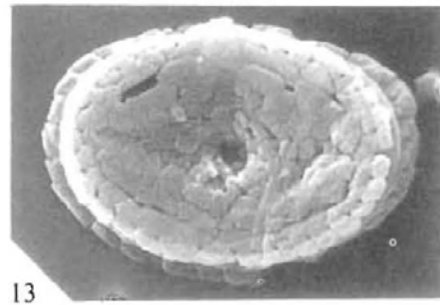
10



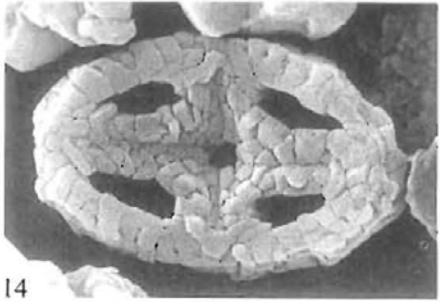
11



12



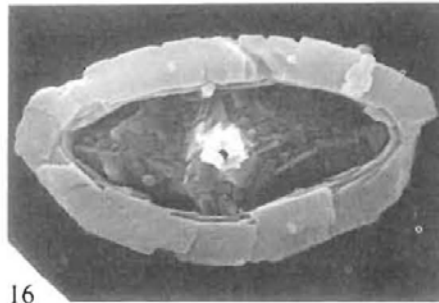
13



14



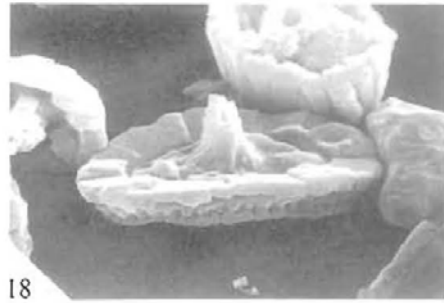
15



16

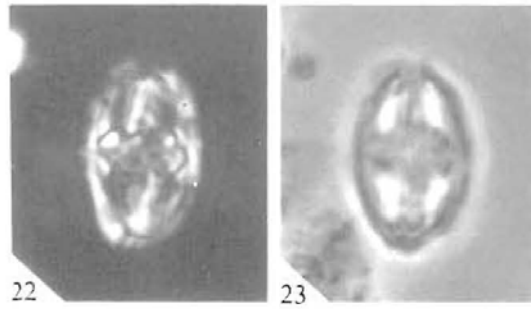


17



18

Pl. 8, figs 10-18



Pl. 14, figs. 22-23

**Diagnosis.** A species of *Mazaganella* possessing three adpressed shields and a central area filled with a composite plate which may show the variable development of four vacant quadrants, thus delineating a broad cross structure aligned along the principal axes of the ellipse. A short, central, hollow spine is usually present.

**Description.** A large, narrowly elliptical coccolith usually arched about the minor axis of the ellipse. The three shields are adpressed, narrow, and horizontally arranged. The distal shield is made up of fifteen to twenty-five flat, rectangular elements joined along radial elements which may display some kinking; no imbrication has been observed. The intermediate shield is only slightly smaller than the distal shield and is the thinnest of the three shields. It is constructed from a similar number of elements showing little or no imbrication at their outer edges: no further details have been observed. The proximal shield is the same size as the intermediate one and composed of thirty-five to forty-five non-imbricating elements joined along distinctly kinking sutures. These sutures are initially radial but bend in a clockwise direction about halfway along their length; a small hole is often present between the elements at the 'knee' of the suture bend. The central area of the proximal shield is filled by an arched, composite plate formed from granular elements, with a central depression surrounding a hole, marking the position of the distal spine. Variably developed vacant quadrants may be present, thus delineating a broad cross aligned along the principal axes. In specimens with complete central plates, the areas which make up the vacant quadrants are usually formed from larger, granular crystals and the position of the crossbars may be marked by a median groove. In distal view the central plate is made up of larger rhombohedral elements and is usually set at a slightly lower level than the surface of the distal shield (text-fig. 8). An inner wall lining to the central area may be present, probably representing the inner edge of the lower shields. The central spine is hollow and tapers to a point. Occasionally the lower two shields may become fused, probably due to preservational effects, giving the appearance of two shields.

**LM description.** This large coccolith is very dark in the LM, p-c, and c-p, and is rather ragged in appearance with a broad central cross.

**Dimensions.** L: 5.1-7.6 (7.0)  $\mu\text{m}$ , W: 3.6 -4.5 (4.4)  $\mu\text{m}$ , RH: 0.8-1.2 (0.8)  $\mu\text{m}$ .

**Remarks.** The discovery of this species has led to a review of the early evolution of coccoliths. *M. pulla* is found in the lowermost Lower Jurassic samples of DSDP Site 547, well below the first appearance of *Biscutum novum* and thus represents the first placolith-like coccolith structure to appear. The absence of *M. pulla* in north-west Europe must be due to a restricted distribution.

*M. pulla* is distinguished from *M. protensa* by its adpressed shields and its central plate or poorly delineated cross.

**Derivation of name.** From Latin *pullus*, dark coloured, and referring to its appearance in the LM.

**Holotype.** UC L-2193-31 (Pl. 8, fig. 10).

**Isotypes.** UCL-2189-32, UCL-2189-33, UCL-2190-10, CL-2193-28, UCL-2049-36, UCL-2046-10.

**Type locality.** DSDP Site 547-23-2, 25-27 cm, north-west Morocco continental edge.

**Type level.** Sinemurian. NB. All dating of DSDP Site 547 is based upon calcareous nannofossils, ostracodes, and Foraminifera.

**Range.** Sinemurian to Pliensbachian (23-2 to 14-2).

Bown, P.R., 1987. Taxonomy, evolution, and biostratigraphy of late Triassic-early Jurassic calcareous nannofossils. *Special Papers in Palaeontology*, **38**: 1-118.