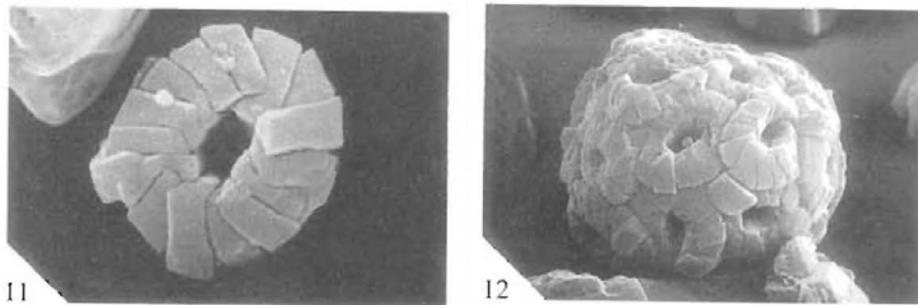
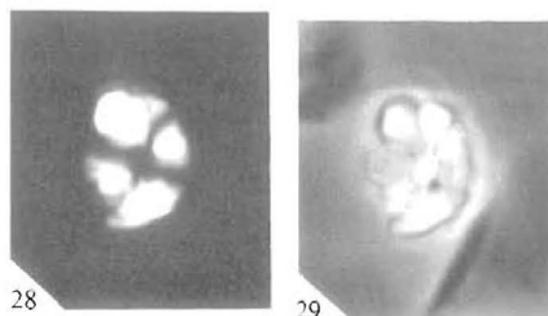


TEXT-FIG. 16. A, *Lotharingius primigenius*, B, *L. imprimus*, and C, *L. sigillatus*.

Text-fig. 16



Pl. 9, figs. 11-12



Pl. 14, figs. 28-29

Diagnosis. A broadly elliptical placolith coccolith with a unicyclic distal shield displaying kinked and inclined sutures typical of the Watznaueriaceae but lacking any inner cycle; the central area is small and no central structures have been observed. The coccosphere is spherical and includes around twenty-five coccoliths.

Description. The distal shield is formed from fourteen to eighteen elements joined along counter-clockwise inclined sutures with a distinct V-shaped kink towards their inner edge. The elements are blocky in side view and appear to be non-imbricating. The intergrowth of these elements along kinked and inclined sutures causes pinching out towards their inner edges and a number of the elements may be entirely isolated from the edge of the central area. The central area is a small pore, bounded by the vertical inner edges of the distal elements. The proximal shield has been observed in side view only but appears to be similarly constructed. Separation between the two shields is not great but interlocking of the coccoliths on the coccosphere is observed.

Dimensions. L: 3.3-3.8 (3.4) μm , W: 2.7-3.0 (2.9) μm , Central area L: 0.8-1.6 (0.9) μm , W: 0.4-0.9 (0.4) μm ; Coccosphere diameter: 8.1 μm .

Remarks. *L. primigenius* possesses a simple Watznaueriaceae structure with a distal cycle displaying the kinked and inclined sutures typical of the family but lacking the distal inner cycle. While this is a diagnostic generic character it is considered unnecessary to place this form in a new genus or to emend *Lotharingius* due to its apparent transitional nature. The lack of an inner cycle reveals the structure of the distal shield usually hidden by the inner cycle and it is seen to exhibit the potential for the structural fragmentation displayed in more typical members of *Lotharingius*. It is similar in both shape and size to the earliest *Lotharingius* to appear, *L. hauffi*, and may have been the ancestral form. It is conceded that these coccoliths may represent *L. hauffi* coccoliths which have undergone a freak diagenetic process which has left the coccoliths and coccospheres intact but removed all trace of the distal inner cycle. However, many specimens have been photographed all revealing identical structures and none displaying any relic inner cycle, such as a sunken ledge or dissolution pores (cf.

Calolithus). In addition, in the same samples another species of *L. imprimus* has been recognized which displays a structural development intermediate between *L. primigenius* and typical *Lotharingius*.

Derivation of name. From Latin *primigenius*, first of its kind.

Holotype. UCL-2190-15 (Pl. 9, fig. 11).

Isotype. UCL-2190-2 1.

Type locality. DSDP Site 547-10-4, 75-77 cm, north-west Moroccan continental edge.

Type level. Lower Toarcian.

Occurrence. DSDP Site 547, Upper Pliensbachian to Lower Toarcian (11-4 to 10-1).

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