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Pl. 1, figs 1-6
Derivation of name: after Dr Jeremy Young, nannofossil specialist at The Natural History Museum, London.

**Holotype**: UCL-3889-9 (pl. 1 fig. 1).

**Type locality**: Hambühren-WA2 Borehole, northern Germany.

**Type level**: Sample 389 m, Posidonienschiefer, Early Toarcian (NJ6).

**Isotype**: UCL-3833-22 (pl. 1 fig. 3).

**Dimensions (in µm)**: length 2.0-3.0 (2.6); width 1.5-1.8; rim height 0.7-1.0 (0.8); total height 2.5-3.6 (3.6). Holotype dimensions in brackets.

**Diagnosis**: Cavate holococcolith formed from rhombohedral crystallites. Proximal, distal, and marginal surfaces appear to be imperforate; the distal surface supports a broad, hollow spine of variable size. Broken specimens appear to show internal buttresses forming an orthogonal cross.

**Description (scanning electron microscope)**: Small (2-3 µm in length) elliptical holococcolith with cavate structure, formed by perforate distal, proximal and marginal surfaces. A distinct rim is apparent on most specimens with very regular arrangement of the constituent crystallites in 5 or 6 rows parallel to the coccolith base. The distal surface gives rise to a broad, hollow, tapering spine. Broken specimens reveal the presence of internal buttresses crossing the internal cavity, in the form of an orthogonal cross. The individual crystallites are rhombohedral and approximately 110 µm in length.
**Description (light microscope):** The small size and rarity of this form has prevented successful same-specimen observation, however, holococcoliths have been observed in the light microscope and using gross morphological features these have been linked to SEM observations.

In crossed-polars the plan view shows a very bright, narrow rim and orthogonal cross bars. The side view reveals the cavate structure, internal buttresses, and spine; the structure is picked out by the thin, bright crystallographically continuous components.

**Remarks:** This holococcolith is comparable to species of *Anfractus* described by MEDD (1979) from the Late Jurassic. It differs from these by having larger component crystallites and an imperforate distal surface. *Anfractus youngii* is the oldest holococcolith yet recorded and suggests that holococcoliths were formed throughout the stratigraphic range of coccolithophores but have a sporadic fossil record limited by their low preservation potential.

**Occurrence:** Hambühren Borehole -Late Pliensbachian to Aalenian.

Bown, P.R., 1993. New holococcoliths from the Toarcian – Aalenian (Jurassic) of northern Germany. *Sonderdruck aus Senckenbergiana lethaea, 73 (2):* 407-419.