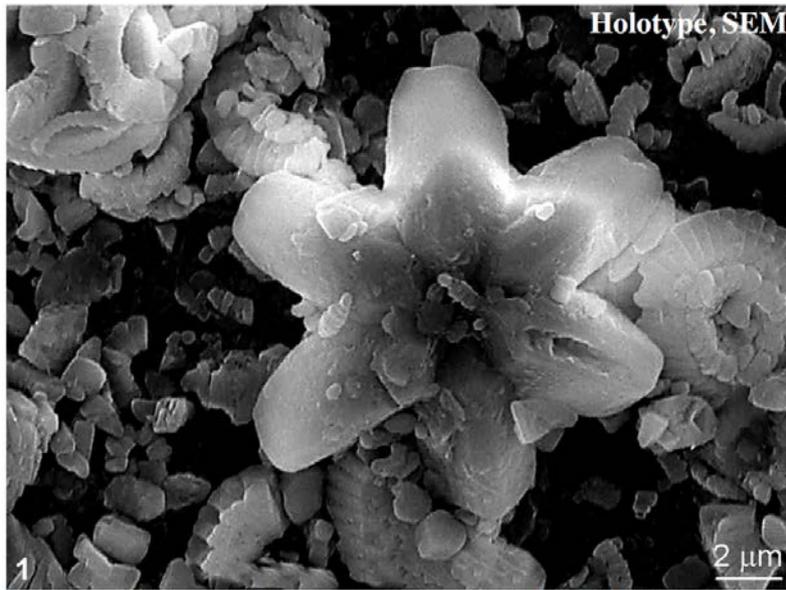
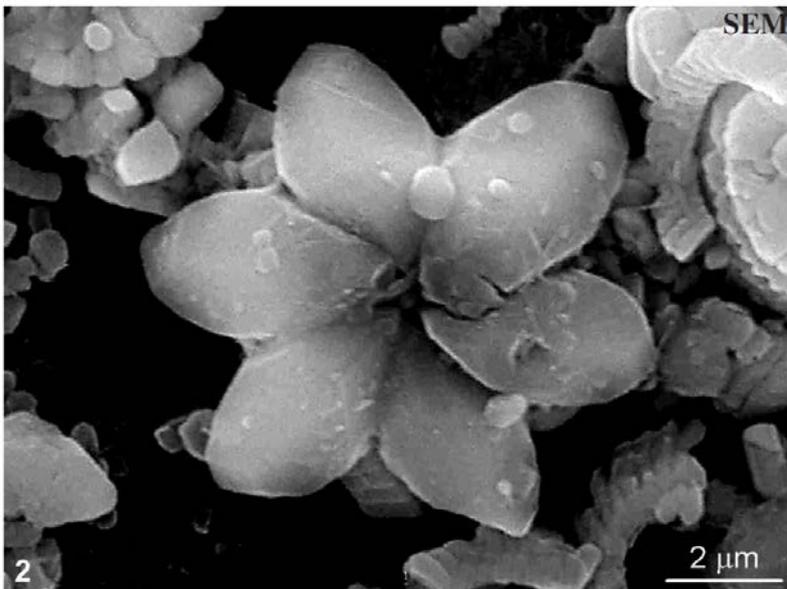


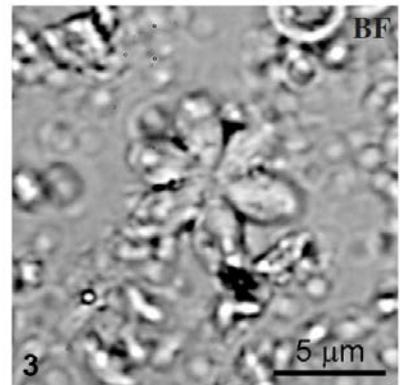
34. *Discoaster backmanii* Agnini et al. (2008)



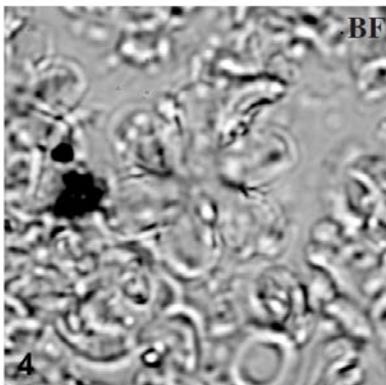
*Discoaster backmanii* Sample ODP 208-1262A-15H-5W, 64-65cm



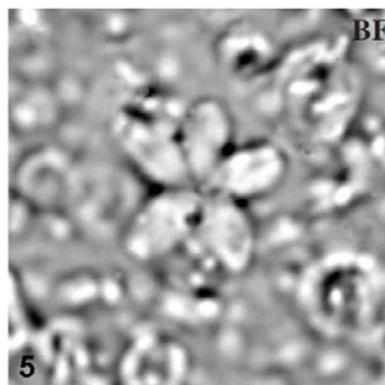
*D. backmanii* Sample ODP 208-1262A-15H-5W, 64-65cm



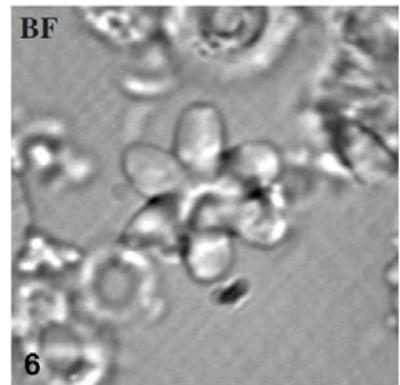
*D. backmanii* Sample ODP 208-1262B-17H-2W, 135-136cm



*D. backmanii* Sample ODP 208-1262B-17H-2W, 135-136cm



*D. backmanii* Sample ODP 208-1262B-17H-2W-135-136cm



*D. backmanii* Sample ODP 208-1262B-17H-2W-135-136cm

1979 *Discoaster* sp. 1 Okada & Thierstein: pl. 5, fig. 6; pl. 15, fig. 11.

1985 *Discoaster* sp. 1 Monechi: pl. 10, fig. 2.

**Derivatio nominis:** In honour of Jan Backman, full Professor at the Department of Geology & Geochemistry, University of Stockholm (Sweden), geoscientist, calcareous nannofossil palaeontologist, and true friend.

**Diagnosis:** 5-7 rays, star-shaped, flat *Discoaster* with a poorly-developed central-area, lacking any prominent ornamentation. Although euhedral crystal faces of secondary calcite could have partially obscured the morphologic features of *D. backmanii*, its simple morphology is most likely original, rather than the result of massive overgrowth.

**Description:** We adopt here the description of Okada & Thierstein (1979, p.523), who observed this discoasterid in Atlantic Deep Sea Drilling Project (DSDP) Site 384 sediments and referred to it as *Discoaster* sp. 1. It is a "medium sized *Discoaster* with 5 to 7 thick rays whose inner parts are joined together. The outer half of each ray is tapered and terminates in cut off straight edges. The generally straight rays are symmetrically arranged". The rays are linear, and have a free length of 2/3 of the total ray length. No knob is evident in the central-area, but deep sutures are present on both sides of the discoasterid. The sutures are symmetrically arranged and broadly curved counter-clockwise on one side, whereas they appear to be straight on the other side.

**Differentiation:** *Discoaster backmanii* differs from *D. okadai* Bukry, 1981, which has longer and more slender rays with pointed tips, and a very small central-area. *D. backmanii* differs from *D. nobilis* Martini, 1961 and *D. falcatus* Bramlette & Sullivan, 1961, which have more serrated outlines, a greater number of rays and more developed central-areas with a boss or a knob. A discoasterid form similar to *D. backmanii* has been described from Lower Eocene sediments by Brönniman & Stradner (1960), who referred to it as *D. geometricus*. Although *D. backmanii* and *D. geometricus* are very similar, *D. geometricus* has a more serrated outline and squat rays. The different morphologies and stratigraphic ranges suggest considering the two taxa as distinct species.

**Holotype:** Pl. 1, fig. 1.

**Size:** Longest dimension = 7-15µm (holotype = 14.3µm).

**Paratype:** Pl. 1, fig. 3; Sample ODP 208-1262B-17H-2W, 135-136cm.

**Type locality:** Walvis Ridge, SE Atlantic Ocean, ODP Leg 208, Site 1262.

**Type level:** Zone CP6, Thanetian (Upper Palaeocene); Sample ODP 208-1262A-15H-5W, 64-65cm.

**Range:** CP6-CP7, Thanetian (Upper Palaeocene).

**Remarks:** The species was first recorded and described as *Discoaster* sp. 1 by Okada & Thierstein (1979) from the NW Atlantic Ocean (DSDP Leg 43, Site 384), and by Monechi (1985) from the NW Pacific Ocean (DSDP Leg 86, Site 577). *D. backmanii* is the earliest representative of star-shaped forms among the *Discoaster* genus that originate in the Palaeocene. A phylogenetic relationship between *D. backmanii* and *D. okadai* is suggested by the presence of forms with intermediate morphological features just before the first occurrence (FO) of the new species.

**Occurrence:** *Discoaster backmanii* occurs consistently, with high frequencies, in the interval between the FO of *Discoaster mohleri* Bukry & Percival, 1971 and the FO of *D. multiradiatus* Bramlette & Riedel, 1954, that is, in CP6-CP7 (Palaeocene) of Okada & Bukry (1980). It has been observed in the SE (Walvis Ridge) and NW (Sohm Abyssal Plain) Atlantic Ocean, and in the NW Pacific Ocean (Shatsky Rise). At Site 1262, located on Walvis Ridge, the species is common to abundant in the upper part of CP6 and shows an abrupt decrease in abundance just below the FOs of *D. okadai* and the *D. delicatus* group. Very rare and scattered specimens of *D. backmanii* have also been observed in the lower part of the Lower Eocene (CP8-9a).

Agnini, C., Fornaciari, E. & Raffi, I., 2008. Three new species of calcareous nannofossil from Late Palaeocene and Early Eocene assemblages (Ocean Drilling Program Site 1262, Walvis Ridge, SE Atlantic Ocean). *Journal of Nannoplankton Research*, **30(1)**: 51-56.