

CONSIDERATIONS CONCERNING
Eu-discoaster tamalis | KAMPTNER, 1967 | THEODORIDIS, 1983

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Kamptner (1967) describes the species *Discoaster tamalis*, a tetraradiated asterolith is the following way:

"Der Kalkkörper besteht aus vier zu einem orthogonalen Kreuz angeordneten Armen. Diese sind durchwegs von gleicher Beschaffenheit. Vom Zentrum des Kreuzes an gerechnet, sind sie je 4,5 μ lang. An ihrer Basis sind sie 1,2 μ breit und ebenso hoch, verjüngen sich nach der Peripherie und endigen mit einer $\frac{1}{2}$ μ breiten gerundeten Spitze. Von der Seite gesehen, erscheint das Profil des Kalkkörpers nach Art eines schmelzen Sichelmondes gekrümmt, wobei die Oberseite sich über die durch die Armspitzen gedachte Basislinie auf 2,7 μ erhebt. Die Oberseite des Kalkkörpers entbehrt jeglicher Skulpturen; vor allem sind in der Basalregion der Arme keinerlei Grenzlinien zwischen diesen wahrzunehmen".

Hay (1970) concluded that he was dealing with a subspecies of *Discoaster brouweri* Tan, and denominated it *D. brouweri tamalis* Kamptner. Theodoridis (1984) considers it as a "morphological variety" of the same species* — *D. brouweri* — although in many works other authors have considered it to be a separate entity (Perch Nielsen, 1977; Dermitzakis and Theodoridis, 1978; Haq and Berggren, 1978; Moshkovitz and Ehrlich, 1980 and Driever, 1981).

Backman and Shackleton (1983) and Backman and Pestiaux (1983), studying different DSDP sites in the Pacific and Mid Pliocene of the Atlantic, observed covariation between the species *D. tamalis* and *Discoaster asymmetricus*. These authors suggested the possibility that the model might be found at global level and that a certain taxonomic relationship could exist between the two species.

At site 397 of the NW Atlantic it is possible to find representatives of *Eu-discoaster tamalis** as from core 31 while from core 22 onwards a clear remission in its recording is seen (<0.01%). According to Hamilton — (1979), the first event would be situated on the boundary between the Gilbert and Gauss magnetic epochs, while second occurs towards the beginning of the

* See appendix

Matuyama epoch. As may be seen in figure 1, the quantitative model of the distribution of *E. tamalis* is similar to that of *E. asymmetricus*, in contrast to that of *E. brouweri*.

The fact that forms with peculiar characteristics (tetra-radiated, with tetragonal symmetry, and lacking surface ornamentation) appear over a particular period of time (end of Lower Pliocene and Upper Pliocene) in a regular fashion**, suggest to us that they should be considered as separate entities, although it should be taken into account that their status as a "biological species" might not be absolutely correct. In other words, it would not be possible to rule out the notion that one were dealing with an ecophenotype resulting from environmental variations.

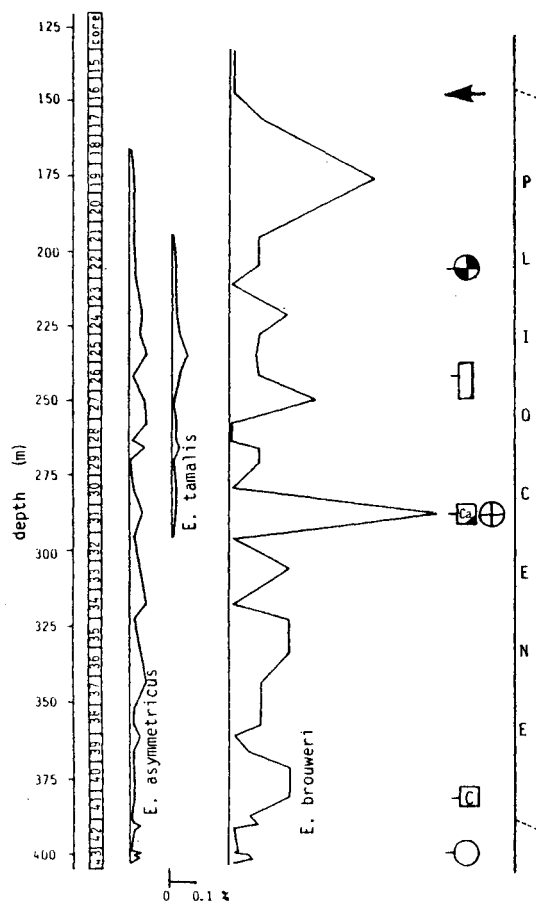


FIGURE 1.
Quantitative distribution of three species of asteroliths in site 397, during the Pliocene.

- Reduction in the regular record of *E. quinquenarius*
- ◻ Earliest record of *Ceratolithus*
- ◻ Latest record of *C. acutus*
- ⊕ Earliest record of *E. tamalis*
- ◻ Increase in the proportion of *P. lacunosa*
- Reduction in the proportion of *E. tamalis*
- ▶ Reduction in the proportion of asteroliths

**FLORES (in prep.) found tetra-radiated forms in low proportion in the Upper Tortonian and Messinian from different DSDP sites (397, 135 and 410).

In view of all of the above, and following the systematic model proposed by Theodoridis (1984), the denomination *Eu-discoaster tamalis*, as Theodoridis himself proposed in 1983, seems feasible.

APPENDIX

Theodoridis (1984) considers *Discoaster tamalis* Kamptner, synonymous to *Eu-discoaster brouweri* subsp. *brouweri*, although previously, in his paper of 1983 cites:

Eu-discoaster tamalis (Kamptner) n. comb.

Basionym: *Discoaster tamalis* Kamptner, 1967: Ann. Naturhist. Mus. Wien, vol. 71, p. 166, text-fig. 29.

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