

**A CONTRIBUTION TO THE PALEONTOLOGY OF ECHINOIDS: THE GENUS
ECHINOCYAMUS van PHELs. FROM THE SEDIMENTS OF YUGOSLAVIA AND
GREECE (MIDDLE EOCENE TO RECENT)**

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The authors of this paper have undertaken a study of the genus *Echinocyamus* v.PH. of the Middle Eocene to the present, coming from the sediments of Yugoslavia and Greece.

The genus *Echinocyamus* occurred in Yugoslavia in the Middle Eocene and the Middle Miocene (Badenian), whereas its occurrence in Greece, as it is known up to day, is in the Middle Eocene, Pliocene, Pleistocene to recent (no mention in Miocene sediments). The purpose is: the detailed record of its morphology, the presentation of the structure of its systems and its evolutionary course in relation to the ecological conditions during the above mentioned time-span in both areas.

After a detailed study of a great number of individuals of the genus *Echinocyamus* (Fibulariidae, Clypeastroida) the following species have been determined:

1. From Yugoslavia:

- *E. affinis* (DESM.), *E. combonensis* COTT.,
E. pomeli COTT. and *E. vausseri* COTT. (Sutivan, island Brač and Dalmatia) in the sediments of Middle Eocene.
- *E. pusillus* (MÜLL.) and *E. pseudopusillus* COTT. (Serbia) in the Middle Miocene (Badenian) sediments.

2. From Greece:

- *E. affinis* (DESM.) (Rhiza, unit of Klokova) in the limestone of upper Lutetian - Early Priabonian.
- *E. pusillus* (MÜLL.) in the Pliocene (Ag. Marina Aegina, Palekastro, Agistri); in the Plio-Pleistocene (Neapolis - Peloponnisos); in the Pleistocene (Agistri, Pyrgoussa, Armathia, Karpathos, Crete, Korinthos, Ireon, Rio-Antirrio).
- *E. pseudopusillus* COTT. in the Pleistocene (Korinthos, Ireon, Pyrgoussa).
- *E. circularis* CAP. in the Pleistocene (Korinthos, Agistri).

3. The species of the genus *Echinocyamus* have been studied of morphological, evolutionary and paleoecological point of view.

- No essential modifications from Eocene to the present have been observed in the species of *Echinocyamus*, only some of them, due, probably, to the paleoecological conditions.

The measurements of the Eocene species (1-8 mm) show that the oldest species of *Echinocyamus*, known in both areas studied, are smaller than those of the Neogene (2-10 mm) or Pleistocene (2-13 mm) and the recent ones (2-20 mm).

The species of *Echinocyamus* found in the Eocene limestone of the island Brač (Yugoslavia), without any other accompanied fauna could be explained as «ecological niche», only, favorable for these small Echinoids, in Eocene (Yugoslavia).

In Greece, such in Eocene sediments, as in Pliocene and Pleistocene ones the species of *Echinocyamus* are present with a rich accompanied fauna. This fact shows the differentiation of the life conditions among the other basins (Tethys Greece, and Paratethys Yugoslavia, Poland etc.).

- An hypothetical lineage of *E. circularis*, *E. pseudopusillus*, *E. linearis* and *E. affinis* has been given.
- *Echinocyamus* can not be used as a good index for the paleobathymetry, but for the paleotemperature.

STRATIGRAPHIC AND PALEOECOLOGICAL OBSERVATIONS ON THE POST-ALPINE SEDIMENTS AT THE FILIATRA AREA (MESSINIA, PELOPONNESUS) AND THEIR NEOTECTONIC INTERPRETATION

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Three sampling sections in the post-alpine sediments of the Filiatra area (W. Messinia) along the Filiatrino remma were made, in which the following fossils were collected: 116 genera and species were determined belonging to: Radiolaria, Anthozoa (1), Bryozoa (19), Ostracoda, Bivalvia (6), Gastropoda (6), Brachiopoda, Scaphopoda (1), Annelida (2), Porifera, Echinoidea, Foraminifera (72) and Algae.

The study of the fossils leads to the following conclusions:

1. The presence of *Giobrotalia truncatulinoides* d'ORB and *Hyalinea balthica* (SCHR) is an evidence for the pleistocene age of the post-alpine sediments.

2. The gradual change of the deposition depth, from the lower to the upper members of the sedimentary sequence, is indicated by the presence of representative types such as the species *Hyalinea balthica* (relatively deeper water, 90 m) in the lower members and the species of *Lithophyllum racemus* (shallow water, 10-60 m) in the upper members.

3. The morpho-functional analysis of some fossils (Bryozoa, Echinoidea, Porifera, benthic Foraminifera etc) in combination with the sediment's character, indicate a quiet low sedimentation rate environment in shallow sea and temperate climate.