

-9. - CALCAREOUS NANNOPLANKTON ASSEMBLAGES OF PLEISTOCENE-RECENT SEDIMENTS OF THE MEDITERRANEAN SEA.

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The distribution and relative frequencies of Recent and Pleistocene calcareous nannoplankton of seven cores from different regions of the Mediterranean have been studied.

The examined cores belong to the *Emiliana huxleyi* zone (NN 21), *Gephyrocapsa oceanica* zone (NN 20) and probably to the upper-most part of the *Pseudoemiliana lacunosa* zone (NN 19). The boundary between the zones NN 19 and NN 20 is not always clear caused by reworking within the Pleistocene sediments.

The results of the western Mediterranean are only based on core 1 Mo 67 (41° 52'N 5° 54'E, water depth 2460 m, length 620 cm).

From the Ionian Sea four cores have been examined: 17M-17K (36° 27'N 20° 39,2'E, water depth 2680 m, length 927 cm), 22M-34 (35° 39,5'N 20° 22,7'E, water depth 3050 m, length 415 cm), 22M-50 (35° 14,4'N 21° 45,4'E, water depth 3295 m, length 870 cm) and core 3 Mo 67 (34° 25,5'N 24° 25,5'E, water depth 1950 m, length 450 cm).

From the eastern Mediterranean Sea two cores have been investigated: CHAIN 61-45 (33° 14,7'N 27° 51,9'E, water depth 2904 m, length 430 cm) and CHAIN 61-67 (34° 10'N 33° 36'E, water depth 1896 m, length 510 cm).

The calcareous nannoplankton is a useful indicator for climatic changes during the Quaternary (McINTYRE & BE 1967, McINTYRE, BE & ROCHE 1970).

The differences in water temperature between cold and warm periods have been only of a few degrees since the nannoplankton assemblages show no significant variations during the Pleistocene till now.

The investigations of the cores from the Mediterranean have shown that the variations of the nannoplankton assemblages in the Pleistocene sediments are less caused by different temperatures than by changing influence of Atlantic water masses connected with the fluctuations of the sea-level.

Remarkable is the occurrence of *Coccolithus pelagicus* (WALLICH) and the distribution pattern of *Oolithotus fragilis* (LOHMANN). The layers distinguished by the sudden and short-time occurrence of *Coccolithus pelagicus* -a species of cold water- are not interpreted as deposits of cold periods, but they represent the increasing influence of Atlantic water masses. *Coccolithus pelagicus* is known from the sediments deposited in the sphere of influence of the cold Canarian current at the west coast of Portugal and North Africa. With rising sea-level it invaded together with subtropical species into the Mediterranean Sea, where it existed only for a short time due to the high water temperature.

This assumption is confirmed by the appearance of subtropical species within the same assemblage, by the possibility to correlate the peaks of *Coccolithus pelagicus* with the maxima of the warm water Foraminifera in core 1 Mo 67 and the distinct amount of autochthonous species in these layers, as well as by the occurrence of *Coccolithus pelagicus* directly below the sapropelitic layers in the Ionian Sea. These layers are deposited during oceanographic stagnations caused by the change of temperature and salinity (OLAUSON 1961).

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The distribution pattern of *Oolithotus fragilis* shows that the salinity seems to be the more restricting factor for the occurrence of this species than the temperature.

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Many of the observations by Dr. C. Müller on the frequency of certain nannoplankton species, such as *Helicopontosphaera kamptneri* and *Oolithotus fragilis*, can be confirmed by the results of the DSDP Leg 13 drillings in the Eastern Mediterranean. It is correct that sapropelitic sediments are comparatively poor in nannoplankton, as compared to pelagic calcareous ooze. Also in the Parathethys not only temperature, but also the salinity was of obvious influence on the species distribution of calcareous nannoplankton.