Deposits of probable Upper Cretaceous Age off-shore from Andöya, Northern Norway

By

Svein Manum

Samples of sediments obtained (in 1951) off-shore from Andöya in the Vesterålen archipelago by Mr. T. Soot-Ryen, then director of Tromsö Museum, are probably of low Upper Cretaceous Age according to their content of microplankton and microspores. The discovery of these sediments is significant because deposits so high up in the Mesozoic are not known to occur within at least 1,000 km of Andöya. Within a small graben on Andöya itself, however, deposits ranging from the lowermost Upper Jurassic to the Middle Neocomian are preserved.

The samples were collected during a zoological survey in July 1951 when Mr. Soot-Ryen was dragging a large triangular dredge off-shore from Andöya. He followed a northwest course from the harbour of Andenes, and the sampling was carried out along the eastern slope of the submarine valley which cuts into the continental shelf there, and along the steep part of the shelf itself north of the submarine valley. Dragging started at a depth of 1,290 m; the sampler was lifted and emptied after some time from a depth of 1,000 m, dropped again, and finally lifted from a depth of 830 m. On both occasions when the dredge was raised and especially the second time, many pieces of an indurated, light greyish mudstone, ranging up to 20 cm in size, were found embedded in tough greyish clay. The collector considered it highly probable that the pieces were scraped off projecting rocks on the sea-bottom, apparently at depths of about 1,000 m. The samples were obtained approximately between 69°38′N and 69°25′N and 15°40′E. The distance from Andöya was between 21.5 and 10.8 nautical miles.

From the appearance of the samples, Mr. Soot-Ryen believed them to be younger than the Upper Jurassic to middle Neocomian deposits known from the graben at Andöya. Unfortunately, the contained shell-fragments were recrystallized and too small for identification and dating. However, a preliminary microscopical examination of a few of the samples has revealed assemblages of microplankton and

microspores, which, on detailed investigation, should prove useful in more precise age determinations.

The following are some of the types of microplankton provisionally determined from these sediments:

Deflandrea. This is a conspicuous constituent. Three or four species have been recognized, two of which appear to be related to the *D. granulifera-D. verrucosa*-component of the microplankton assemblage described by Manum and Cookson (Skr. Vid.-Akad. Oslo, I. Mat.-Naturv. Kl., No. 17, 1964) from the Upper Cretaceous of the Canadian Arctic Archipelago.

Hexagonifera cf. *vermiculata* Cookson and Eisenack, 1961; *H.* cf. *suspecta* Manum and Cookson, 1964

Odontochitina sp.

Hystrichosphaeridium cf. *stellatum* Maier, 1959

Canningia sp.

Chlamydophorella cf. *nyei* Cookson and Eisenack, 1958

Diconodinium cf. *arcticum* Manum and Cookson, 1964

Palaeoperidinium cf. *cretaceum* Pocock, 1962

Palambages sp.

This microplankton assemblage recalls to some extent the one described from deposits on Graham Island believed to be of low Upper Cretaceous Age (Manum and Cookson op. cit.).

The microspores seen so far support the low Upper Cretaceous age suggested by the microplankton content.

Residual cipolino: End-product of calcareous rocks in regional metamorphism. A comment

By

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In a recent paper (Norsk geol. tidsskr. 45: 303–313, 1965), R. D. Schuiling dealt with the problem of some carbonate rocks, which are particularly common in high-grade metamorphic terranes, and which are named variously plagioclase-granulite, diopside-granulite, calc-silicate granulite, and silicated carbonate rocks.