SHORT COMMUNICATIONS

PRELIMINARY REPORT ON THE DISTRIBUTION OF THE LOWER OLIGOCENE IN THE NETHERLANDS[1]

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ABSTRACT

Verbeek, J. W. 1979 Preliminary report on the distribution of the Lower Oligocene in The Netherlands – Geol. Mijnbouw 58: 375-376.

Evidence is given for a much wider distribution of Early Oligocene sediments in The Netherlands than hitherto known.

INTRODUCTION

Very few data are available providing palaeontological evidence for the presence of Early Oligocene sediments in The Netherlands. Deposits of this age have been reported from the southeastern part of the country (PANNEKOEK, 1956) and the province of Zeeland (VAN RUMMELEN, 1965, 1970).

In calcareous nannoplankton biostratigraphy the zones NP 21 and NP 22 of the Standard Tertiary and Quaternary Calcareous Nannoplankton Zonation (MARTINI, 1971) are generally correlated with Early Oligocene rocks. The NP 21 is defined by the interval from the last occurrence of *Discoaster saipanensis* Bramlette and Riedel to the extinction of *Cyclococcolithus formosus* Kamptner, and the NP 22 by the latter event to the disappearance of *Reticulofenstra umbilica* (Levin). In the North Sea Basin the NP 21 is known from the Sands of Grimmertingen, the oldest part of the Tongrian type (MARTINI & MOORKENS, 1969). The NP 22 is recognized in the Clay of Henis (Moorkens, pers. comm.), the youngest part of the type Tongrian. From the work of BAUMANN & ROTH (1969) and ROTH ET AL. (1971) it can be concluded that the NP 22 is also represented in the lowest part of the Rupel Formation.

Fig. 1
The distribution of the boreholes (1 = America; 2 = Overflakkee 1; 3 = Oostelijk Flevoland 1; 4 = Doornspijk I).

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According to CAVALIER (1975) the boundaries of the NP 21 (and thus the lower limit of the NP 22) are diachronous due to climatical circumstances. These conclusions are based on a comparison of tropical and northern regions. Because the sediments of the Tongrian type have been deposited in the same basin as the rocks in the subsoil of The Netherlands, the problem of diachronism of the zonal boundaries is ignored in the present study.

THE DISTRIBUTION OF THE NP 21 AND NP 22 IN THE NETHERLANDS

In four borehole sections from the central and southern part of The Netherlands (Fig. 1) Oligocene sediments have been studied for their calcareous nannofossil content. In all the borehole sections the NP 22 is present and in most of them the NP 21 also. The drilled holes are:

(1) The borehole 52D18 made by the Rijksopsporing van Delfstoffen (ROD, 1910) near the hamlet America on the Peel horst, where between 457 and 479 m below the surface the NP 22 is present in a sediment consisting of a fine-grained brown-grey sand, overlying a Palaeogene marl. The NP 21 is absent.

(2) The Chevron drilled well Overflakkee I, in which the NP 22 can be recognized at a depth of 380 to 431 m, and the NP 21 from 431 to 452 m, overlying strata without calcareous nannofossils between 452 and 584 m, and sedimentary rocks from 584 to 602 m containing a flora probably indicative of the NP 20. Data from greater depth are not present. The NP 21 and NP 22 are represented in a fine-grained sand and the lower part in a greenish-grey clay.

(3) The NP 22 in the NAM well Oostelijk Flevoland I is present with its upper limit at 1060 m and its lower limit at 1080 m, whereas the NP 21 reaches to a depth of 1092 m. Both zones were recognized in a sandy clay, which have been deposited on Middle Eocene sediments.

(4) In the NAM well Doornspijk I the deposits from a depth of 815 to 890 m contain a flora, which may be assigned to the NP 22, and the rocks from 890 to 953 m contain the flora of the NP 21. The NP 22 and the upper part of the NP 21 are found in a clay and the lower part of the NP 21 in sands with intercalations of clay, which cover sediments of a Middle Eocene age.

CONCLUSIONS

The results lead to the conclusion that, at least in the southern and central part of The Netherlands, sediments are present, which may be considered to be as old as the deposits in the Tongrian type area, although (except in the borehole America) the deposits seem to be lithologically more related to those of the Rupel Formation, than to those of the Tongeren Formation. From other parts of the country data are lacking. It is, however, at present apparent that Early Oligocene deposits have a wider distribution than hitherto known and that a transgression took place at the end of the Eocene or beginning of the Oligocene.

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