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Age determinations of Neogene sediments from the English Channel and Western Approaches

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ABSTRACT—Original published evidence indicated an age range of early Lower Miocene to early Middle Miocene for *Globigerina* silt samples from the English Channel and the Western Approaches. Suggested younger ages for these samples are refuted on the basis of planktonic foraminifera and calcareous nannoplankton.

INTRODUCTION

Martini (1974) reported calcareous nannoplankton from dredged samples of the *Globigerina* silts of the Western Approaches with an age range of Lower to Middle Miocene (zones NN2, NN4 and NN5). Jenkins (1977) examined the planktonic foraminifera from the cored samples of the Sea Lab Trial Borehole from the English Channel and placed their age in the Lower Miocene (*G. trilobus* Zone), while four *Sarsia* dredged samples had an age range of Lower Miocene (*G. trilobus* Zone) to the Middle Miocene (*G. mayeri mayeri* Zone). Hamilton & Hojjatzadeh (in Lord, 1982) provided revised ages for some of these samples which we believe are wrong.

FOSSIL EVIDENCE

The Sea Lab Trial Borehole yielded a sequence of 13 cored samples of late Lower Miocene planktonic foraminifera with no diagnostic Middle Miocene species and no evidence of reworking. Hamilton & Hojjatzadeh (1982) examined the nannofossils of three samples from the borehole and concluded that the ages were Middle Miocene (NN6-NN7).

Most discoasters figured by Hamilton & Hojjatzadeh (*ibid*, pl. 6.3, figs. 13 to 19) cannot be identified as to their species because they are heavily overgrown and have lost all details. The identification of *Discoaster exilis* (pl. 6.3, fig. 11) is correct, but *D. exilis* of pl. 6.5, fig. 3, should be called *D. variabilis*. *Discoaster kugleri* has not previously been seen in the *Globigerina* silt material, and it is very unlikely that this species does occur in the North Sea basin or in the English Channel, although their fig. 7, of pl. 6.5, shows some similarity to *D. kugleri*. The presence of *D. exilis* does not necessarily indicate zone NN6, as its first occurrence is at or near the base of zone NN5.

Also, Hamilton & Hojjatzadeh (1982) figured *Helicosphaera ampliaperta* (pl. 6.5, fig. 16 to 17) from Wimpey Sealab CSB 2781. This sample has then to be placed in zone NN4 as discussed below.

The *Sarsia* dredged sample 1011, first described in Curry *et al.* (1962) yielded specimens of *Praeorbulina glomerosa curva* which has a very restricted range in the Middle Miocene (Jenkins, 1977), and Martini (1974) on basis of calcareous nannoplankton has also determined a similar age for part of the *Globigerina* silts in the lower Middle Miocene (NN5). However, Hamilton & Hojjatzadeh (1982) placed the sample in the younger zone NN6, obviously neglecting *Sphenolithus heteromorphus* which they figured (pl. 6.5, fig. 28) from Sarsia sample 1011. Since 1962 a few new and important species have been described, and a re-examination of the original material yielded several *Sphenolithus heteromorphus*, which does not cross the NN5/NN6 boundary, and also rather frequent *Coccolithus abisectus*, which has its last occurrence in the lowest part of zone NN6, but is not present in younger sediments. Thus the assemblage of *Sarsia* sample 1011 clearly belongs in nannoplankton zone NN5 (*Sphenolithus heteromorphus* zone), because *Helicosphaera ampliaperta* which marks with its last occurrence the top of zone NN4 was not found in this particular sample.

CONCLUSION

Planktonic foraminifera as well as calcareous nannoplankton examined, indicate for the present that the samples described above from the *Globigerina* silts have an age from the late Lower Miocene to early Middle Miocene and certainly not a younger age as suggested by Hamilton & Hojjatzadeh (1982).

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