

POLLEN DATA ON THE PLIO-PLEISTOCENE BOUNDARY: THE DIAGRAM OF MONTE RINALDO (LAMONE VALLEY, RAVENNA, NORTHERN ITALY)

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A sequence in the marine clays of Monte Rinaldo, Brisighella - Ravenna, was studied palynologically, in order to obtain some floristic-vegetational data on the Plio-Pleistocene boundary in northern Italy. The sequence covers a period of about 400 ka (from about 2.2 Ma, *Globorotalia inflata* zone, to about 20 ka after the first occurrence of *Globigerina cariacensis*, at 1.8 Ma (SAMI M., Tesi di Laurea Univ. di Bologna, 1990-1991).

The palynological investigation was carried out on 59 samples. The pollen content was sufficient (1000-6500 pollen grains/g) and the pollen preservation was quite satisfactory. More than 400 pollen grains for each sample were counted on average. Both pollen percentage and pollen concentration diagrams were drawn up. The pollen flora was quite rich: about 120 taxa were recorded: 34 of them belong to woody and 91 to herbaceous plants.

The pollen diagram has six main pollen zones (from MR1 to MR6), but here, in brief, we split it into two parts. The older Pliocene part (MR1-MR4 pollen zones), lasting about 400,000 years, shows a pollen flora still rich with some isolated tropical/subtropical tertiary taxa such as *Symplocos*, Anacardiaceae cf. *Rhus*, Cyrillaceae-Clethraceae, Bambuseae, *Embolanthera*, Sapindaceae, that disappear by the end of the Pliocene. In the MR3 zone the diagram records a noteworthy increase of Taxodiaceae, chiefly *Taxodium* type, that could be correlated with the Tiberian phase (LONA F. & BERTOLDI R., Mem.Acc.Naz.Lincei, Cl.Sc.ff.mm.nn.,ser.8, 9(1): 1-47, 1972), which some authors still regard as a marker for the conclusion of the Pliocene (BERTOLDI R., St.Trent.Sc.Nat., Acta Biologica, 66: 9-15, 1990). The younger, Pleistocene part of the diagram (MR5-MR6 pollen zones) only covers about 20,000 years. Here the subtropical taxa drop and the greatest structural vegetational change occurs. In this upper part of the diagram two important events for the Plio-Pleistocene biostratigraphy take place:

a) in the MR5 zone, immediately after the first occurrence of *Globigerina cariacensis* a climatic change with more arid and cool conditions bring a light but significant steppe phase;

b) at the top of the diagram (MR6 zone) the Taxodiaceae curve again rises up to significant values (up to 20%). This again questions the chronostratigraphic value of the Tiberian phase (BERTOLANI MARCHETTI D., Boll.Acc.Gioenia Sc.Nat., 19 (328):189-195,1986).

The results of pollen analysis agree with Planctonic Foraminifera record. The pollen diagram of the marine clays of Monte Rinaldo seems to provide a valuable contribution to the reconstruction of the vegetation landscape and of the biological changes that occurred during the late Pliocene and early Pleistocene in northern Italy.