

Calcareous nannoplankton in the chalk grounds from a Romanesque Madonna of the *Sedes Sapientiae* type

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The oldest preserved polychrome carving of a Madonna of the *Sedes Sapientiae* type from a private Czech collection was dated using the ^{14}C radiocarbon method to 990–1180 AD. Linden (*Tilia* sp.) was identified as the wood used for the Madonna. The oldest Romanesque polychromy layer represents a siliceous ground with a white chalk prevailing in its upper part. The chalk contains calcareous nannoplankton dominated by *Watznaueria barnesiae*. The co-occurrence of *Eiffellithus turriseiffelii* and *E. monechiae* indicates a late Albian-Cenomanian age.

We used three criteria to identify the origin of the Madonna: (1) the painting technique indicated that the origin of the Madonna was Western Europe; (2) the biogeographic distribution of *Tilia*; and (3) the distribution of exposed late Albian-Cenomanian chalk-like sediments in Europe. A synthesis of these data indicates that the origin of the Romanesque material was in the Jura Mountains or the Paris Basin with their chalk deposition, or possibly the Haute-Alpes and southern Pyrenees (marls to limestone deposits).

A later added Gothic ground differs considerably from the ground of the original painting – it contains more chalk. In the calcareous nannoplankton assemblages, *Arkhangelskiella* spp. dominated and was represented by *A. cymbiformis*, *A. maastrichtiensis*, and *A. confusa*. These species indicate a Campanian-Maastrichtian age for the chalk material. The origin of the material is probably from a northwestern European chalk ‘province’ because this material was widely used in Gothic painting. The well-preserved nannoplankton that we found are significant in their difference from broken specimens that were described by Švábenická (1994) from Czech Gothic panel paintings (14th and 15th centuries). This probably indicates the use of a different technology.

References

- Švábenická, L. 1994. Coccoliths in the chalk material of high Gothic paintings (14th and 15th centuries, Bohemia). *Věstník Českého geologického ústavu*, **69**(3): 47–51.