

POST-DEPOSITIONAL FORMATION OF MACRO-PORES AND SECONDARY FILLING IN NEOLITHIC POTTERY

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Archaeometric studies of pottery recovered from archaeological excavations in the Neolithic site of Sammardenchia (Udine, Italy) have shown a great number of macropores in all the shards, in form of cavities, 0.2 to 1.5 mm in size, with sharp boundaries and quite regular shapes. The results of chemical analysis of the pastes put into evidence the presence of exceptional quantity of phosphorous, in some cases around 9% P_2O_5 , and pretty high iron contents (about 7-9% Fe_2O_3).

Firstly, it was hypothesised that the voids were of primary origin, pursued by the ancient potter in order to obtain very light objects. This macroporosity could have been obtained by introducing seeds or crushed straw, which completely burnt during the ceramic firing. But this hypothesis is to be rejected because both the shape of the cavities and the absence of reaction borders do not support it. Also the idea of carbonate inclusions decomposed during firing cannot be valid, due to the low calcium content of the ceramic paste (less than 1.5% CaO) and its deduced firing temperature (650-700°C), below that of carbonate decomposition.

So, it is necessary to think to a secondary origin of these voids, due to the corrosion of the original grains during burial. Carbonate grains or crushed bones could be hypothesised, introduced in order to improve the thermal stress resistance. The use of crushed bones is supported by the phosphorous data, but it is scarcely compatible with the low calcium content in the paste and the regular shape of the cavities. The original presence of carbonate grains is compatible with the low firing temperature of the ceramic objects, the sharp boundaries and the regular shape of the cavities. If it assumed that calcite was completely decomposed during burial in an acid environment. The soil acidity is demonstrated by the recovery of only rare and corroded remains of bones. Of course, it has to be assumed that calcium from calcite and bones was completely removed by soil solutions.