ARCHAEOMETRIC INVESTIGATION ON THE TEMPER OF COARSE POTTERY SHARDS FROM ROMAN-TIMES SETTLEMENT AREAS IN STYRIA AND BURGENLAND, AUSTRIA

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Coarse pottery shards (41 fragments) from the first and second centuries that were found in five Roman sites in Styria and Burgenland (Gleisdorf, Hörbing, Retznei, Saazkogel and Sankt Martin/Raab) were subjected to mineralogical and chemical investigations to test the hypothesis that even coarse ceramics in the Roman period were produced in special centres and then traded like fine ware with people in other locations. Apart from minor variations, the mineralogical and chemical compositions of the investigated ceramic fragments are highly uniform. In addition, it is interesting to note that quartz was used exclusively as a temper material, whereby the grain size and shape varies, depending on the ceramic type. Thus, quartz in ceramic fragments from the dolia is extremely coarse-grained, and often poorly sorted; however, quartz is very finely graded in the cup shards and the grain sizes are well sorted, while the particle sizes and sorting of quartz in the tripod bowls are intermediate between the other two groups. To obtain more information about the production site of the ceramics, quartz temper and quartz samples taken from the nearby rivers as reference samples were subjected to cathode luminescence (CL) analyses. This method is often used in sedimentary geology to determine the origin rocks of the sediments and was adapted for use as an additional method in archaeological provenience analysis (PICOUET et al., 1999). The colour of CL of quartz is observed; blue, red and purple are common colours. Blue is typically indicative of quartz from pegmatite rocks, red is often detected in volcanic rocks and purple to brownish (the most common colour) is found whenever the rock has undergone a regional metamorphosis event (GÖTZE et al., 2001). The result of the CL analysis illustrates that, other than the ceramics from Hörbing, all the other samples displayed purple to brownish coloured CL. The Hörbing samples – both quartz samples from the river and quartz temper in the shards – initially displayed a strong blue CL, hinting at a pegmatite origin for quartz. This evidence combined with the geological information about the region around the sites support the hypothesis that at least the Hörbing shards were produced locally. This is also supported by the fact that at least three pottery kilns have been excavated in the area of the possible vicus of Deutschlandsberg-Hörbing. Combined with the other analytical results and the available archaeological information, the first conclusions regarding the provenience of the analysed shards could be made. The evaluation results show that at least three different production sites for Roman coarse pottery ware existed during the first and second centuries in the regions of Styria and Burgenland: one in Hörbing, one for Retznei, maybe in Flavia Solva, and one for the others, possibly in Gleisdorf.

GÖTZE, J., PLÖTZE, M., HABERMANN, D. (2001): Mineralogy and Petrology, 71, 225-250.
PICOUET, P., MAGGETTI, M., PIONNIER, D., SCHVOERER, M. (1999): Journal of Archaeological Science 26, 943-949.