

New Perspectives in Mineralogical and Chemical Studies on Archaeological Smithing Slags.

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Slags are very common artefacts found during archaeological excavations. They are the wastes produced during metallurgical activities. By far, the most common activity is the production of iron objects by smithing.

The identification of “plano-convex hearth bottom slags” as the typical waste of smithing has been demonstrated during the 1990's. More detailed chemical, mineralogical and morphological investigations and studies of large collections of slags allows to understand the process of formation and the different inputs of materials in the hearth. It is now possible to use a classification related to the different steps of the work (bloom-smithing, bar-smithing, welding, recycling, etc.). Combined with quantitative (number of individual pieces) and metrological (weight and size measurements) examinations, this approach allows to compare sites from different periods, geographic locations and economical importance.

The next step in the research will be to link the waste (type and size) and the amount of metal worked. This can be done by studying the technical aspects of the practice of traditional smiths. The smiths of the Dogon, in the Bandiagara area (Mali), are still able to work in their traditional way with the typical ancient iron produced in the solid state (direct method of reduction in a bloomery furnace). They offer the opportunity to study in details this craft and to build up a reference collection of typical wastes. In 2005 and 2006, first field observations (process record) have been done in Kobo and Fiko. The preliminary analytical results are presented.