RESEARCH PROJECT

PRE-COLUMBIAN COPPER IN NORTHWESTERN ARGENTINA

Provenance and distribution

The Argentinean Northwest was an independent area of pre-Columbian metallurgical innovation and development in the Andes, mainly focused on copper and arsenic and tin bronze. Copper minerals were also used for other purposes, such as pigments for rock art, personal adornments mainly as beads and also as part of offerings in funerary and long-distance traffic rituals. Little is still known, however, about the copper ore sources.

This project is mainly focused on performing geochemical analysis of ores and metal artefacts from the Puna of Jujuy, a region rich in copper and tin deposits, possibly exploited during pre-Columbian times and exported to other areas of the Argentinean Northwest. In the first place, we aim to identify the origin of the copper used by the inhabitants of the Jujuy highlands. We wonder whether they used local ores, as it has been proposed, or instead, imported the minerals from other rich metalliferous mineral districts in the Argentinean Northwest, e.g. Capillitas, Catamarca or Famatina, La Rioja, or from other regions, e.g. North of Chile. We will also consider changes through time, before and after Inca conquest, differences between the local production and consumer sites, and a range of intermediate possibilities, where local and non-local ores could have been used for different purposes. Secondly, we wonder whether the Jujuy highlands and its inhabitants were involved in satisfying the demand for minerals and metals in other areas of the Argentinean Northwest.
The sample includes copper ores, raw minerals, metallic prills/lumps and finished artefacts made of copper minerals like beads or metallic copper and bronze: chisels, knifes, discs, bracelets, pins. All of them were recovered in archaeological sites from the Northwest of Argentina:

- residential sites: superficial findings and in stratigraphy in domestic units and garbage disposal areas, and in funerary contexts.
- mountain-pass shrines
- mining sites

The methodology used is the following:

- Sampling: due to conservation and legal limitations for transporting archaeological goods, metal objects were sampled in Argentina using High-Speed-Steel (HSS) drill bits of 1.0 or 1.5mm diameter attached to a portable Dremel tool. Approximately 30 to 60mg of metal swarf were obtained by drilling two or three wholes in each artefact.
- General characterization of the samples in their elemental composition and identification of mineral species: p-XRF, XRD, RAMAN spectroscopy, FTIR.
- Provenances studies: SC-ICP-MS trace element analysis and MC-ICP-MS Lead isotope analysis.

The originality of this proposal lies on the application for the first time of the analytical methodology developed for ore provenance studies, which has not been employed before for studying ore samples and metal objects recovered in archaeological sites from Argentinean Northwest. The results will be communicated to the indigenous local communities and incorporated in the in-situ museum contents.

Project Information

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