Geological sources and use of rotary millstones from the Roman iron-making site of Les Martys (Montagne Noire, France)

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Abstract: Roman rotary millstones are commonly reported in ancient mines and iron-making centres around the Mediterranean basin. The millstones from the iron-making site of Les Martys have been found in slag heaps dated at the first century B.C. They are mainly of two types: Pompeian-style mills made of tephritic leucite-phonolite imported from Orvieto (Vulsini, central Italy), and cylindrical handmills made of basalt imported from Agde (southern France). The Pompeian-style mills were presumably used for the crushing of slag residues in order to re-use them as a flux in the reduction of iron.

Key-words: archaeometry, millstone, Roman iron metallurgy, slag, southern Gaul, leucite phonolite.

Introduction

Roman rotary millstones are commonly reported in ancient mines and iron-making centres, principally in the Iberian peninsula and southern Gaul. However, the technological aspect (crushing of Pb, Cu and Au ores) was envisaged, but rarely the trading aspect. Recently, Rösch et al. (1997) have demonstrated that electron microprobe-analysis and X-ray diffraction methods could provide answers to archaeological problems. Our investigation is in keeping with the general pattern of the archaeometrical methods. So, the purpose of this paper is to present results of petrographical, geochemical and energy-dispersive spectrometry studies in order to determine the geological source and the use of Roman millstones taken from the iron-making site of Les Martys.

The iron-making site of Les Martys (Domergue, 1993) is located in the granite-gneiss axial zone of the Montagne Noire, southern part of the Massif Central, France (Fig. 1). Two types of rotary millstones have been found in slag heaps dated to the first century B.C.: Pompeian-style.

Fig. 1. Location of the Roman iron-making site of Les Martys and of some volcanic provinces.