

The import of millstones to Roman Mallorca

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Introduction

Roman millstones in the Mediterranean region were frequently manufactured of carefully selected lavas, and traded over long distances (Williams-Thorpe 1988). Geochemical provenancing of millstones can thus give valuable information about the trade contacts of particular sites. In 1988 small samples were obtained on Mallorca for analysis of 3 Roman millstones of fresh lava and ignimbrite. Since volcanic rocks are limited on Mallorca to small Triassic and Miocene outcrops, it is likely that these millstones or their raw material were imported. This paper intends to describe styles of millstones seen on the island and to use geochemical analysis to determine the geological sources of the 3 samples.

Roman millstones on Mallorca

Two styles of Roman-period millstones were seen on Mallorca: rotary querns and a fragment of a Pompeian mill.

Rotary querns

Two pieces of rotary querns dating to the 2nd-1st c. B.C. were found during excavation of Son Ferrandell (fig.1) in north-west Mallorca (Waldren 1987).¹ Both were part of *catilli* (upper stones) and might be parts of the same millstone; they have raised rims at the outer edge, slightly sloping upper surfaces forming a shallow hopper, and measure c.33 cm. in diameter. Their size is comparable with the most popular size found in the Roman west Mediterranean (c.34 cm.; Williams-Thorpe 1988, 257 and 260), and their style is similar to Runnel's hopper querns (though the Mallorca examples lack rynds and have horizontally-set handles) that are found in Greece sometimes associated with early Roman pottery (Runnels 1990). These fragments are of mafic vesicular lava (see below), but such rotary querns were also manufactured of limestone which outcrops extensively on the island (Casasnovas 1975). A pair (diameter c.35 cm.) is to be seen in the Museu de Mallorca in Palma de Mallorca, and a *catillus* of coarse conglomeritic limestone (diameter c.40 cm.), with a side handle slot still containing some lead from the handle fitting, is in the Alcudia Archaeological Museum. A further lava example in the Bryant Institute, Alcudia, was not seen, but drawings show it to be of the same style. No secure dates are available for the limestone mills, but that in the Alcudia museum is presumed to come from Pollentia where a Roman town was established in the 1st c. A.D.

Pompeian-style mill

A piece of a Pompeian-style mill (an hourglass-shaped rotary mill, generally driven by a donkey; see Moritz 1958, Williams-Thorpe 1988, fig.1a) was found at Roman Pollentia (excavations on the southwest side of the modern town of Alcudia; fig.1). It was recovered from a pile of material removed from a machine-dug trench some 5 m. deep. It probably post-dates the Roman refoundation of the town in the 1st c. A.D. It is part of a *catillus*, with some of the handle-lug still attached. It is of reddish ignimbrite with cavities preferentially aligned, some with a lining of greenish mineralization. No other Pompeian mills from Mallorca were seen, but note the Pompeian mill from the shipwreck at Sec off Palma Bay (fig.1), dated to c.375 B.C. (Arribas *et al.* 1987; Williams-Thorpe and Thorpe 1990).

Other types

No Olynthian type hopper-rubbers were seen on the island. Those rectangular stones, operated by reciprocal motion, with a hopper slit down the middle of the upper stone (Moritz 1958; Williams-Thorpe

1 They were sampled by kind permission of Dr. W. H. Waldren at the Deya Archaeological Museum and Research Centre.