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ARCHAEOLOGICAL NOTES

Rotary querns in Greece

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Introduction

This paper is a contribution to the study of lithic artifacts from the Roman period. The history of stone tools in the Roman world has been largely ignored — unfortunately, as stone tools had a significant place in ancient technology. The analysis of lithic artifacts from excavations and surface assemblages has the potential to reveal important data on production, trade networks, craft specialization, and technical innovation. For example, flaked stone tools of flint or obsidian which were parts of fire-making kits, threshing sledges, or other agricultural implements, may help to identify agricultural sites in regional surveys (Runnels 1982, 1983).

Milling tools are as common on urban sites as rural ones. Large Pompeian-style donkey mills were used in large numbers in urban bakeries. Rotary handmills (querns) were used in many homes and in some industries, e.g. for grinding pigments in potteries, and watermills were commonplace in both town and country after the 2nd c. A.D. (Wikander 1984). Even so, little is known of the origin or development of most types of Roman rotary mill. The question of the origin and spread of rotary milling technology is an important one. This innovation permitted the use of animal power and of water and wind-power for operating milling machines. It was the extensive use of rotary motion for watermills that established the basis for the technical developments necessary for the industrial revolution.

The question of the origin of the rotary quern was first posed 50 years ago (Curwen 1937, 1941). In 1958 Moritz in his influential study of early rotary mills cast doubt upon the prevalent notion that the rotary quern was present in prehistoric contexts in Greece where it was thought to have been invented and diffused to the rest of the Mediterranean world. Moritz concluded that the rotary quern was invented in the western Mediterranean, probably Spain (Moritz 1958, 103-21). Evidence for the rotary quern in Greece was inconclusive, as Moritz noted, because there were so few published examples of dated querns from secure stratigraphic contexts. This state of affairs has scarcely changed since Moritz wrote, since archaeologists have been slow to recognize the responsibility to retrieve and publish all stone tools from excavations in the classical world.

Rotary querns from Roman Greece

The present paper offers two conclusions. First, it is argued that the rotary quern was introduced to Greece early in the Roman period, after the 1st c. B.C. Second, it is possible to recognize different types of rotary quern; two Roman types are distinguished from querns of the 10th c. A.D. and later. It is also shown that the different types are manufactured from different and distinctive raw materials that can be traced to their geological sources.

The rotary quern has two discoidal stones separated by a vertical spindle (fig.1.1-2). Each stone of the pair has one grinding surface. The upper stone has a central perforation to permit the spindle to pass through it, while the lower stone sometimes has a socket in the center to hold the bottom of the spindle. The upper stone may also have a hopper let into the upper surface to hold grain, and a cutting in the hopper or the outer rim of the stone for a handle. The grinding surfaces are sometimes dressed with furrows in a spiral pattern. The rotary quern is the only type of handmill in Greece to have employed rotary motion.

The known specimens of Greek rotary querns, 7 in all, were catalogued in 1977-78 (Runnels 1981, 127-30). All 7 were found in excavations of the Athenian Agora, Isthmia, and Corinth. They date to the 3rd-6th c. A.D. and are classified into 2 types — hopper querns and flat querns. One has a large upper stone with a deep hopper let into the upper surface (fig.1.1). The other consists of two flat disks with cuttings