The Mdina Catillus

Antony de Bono

Was this the mill that ground the grain for St. Paul's bread?

A Roman-type corn grinder was recently found in the cellars of the Cathedral Museum at Mdina. Recent excavations have revealed that the site was once part of a Roman and pre-Roman establishment. Although out of any archaeological context it is unmistakably part of a 'Roman' mill and may well have been in use at the time of the Apostle's sojourn in Malta. As far as we know it is the only intact catillus to have been found in Malta. (fig.1)

The Roman Corn Grinder

The classical Roman corn-grinder, the mola asinaria or donkey mill was generally made of lava. (fig.4) It consisted of a rotatory upper stone called the 'catillus' which was in the form of an hour-glass, or two hollow cones joined at their apices. The upper cone served as a hopper for the grain, while the lower cone was the grinding surface as it rotated on the surface of the lower, fixed, stone called the 'meta' which, also made of lava, was in the form of a solid, or more accurately a slightly bell-shaped, cone. This was fixed into a plinth or base usually constructed of mortared rubble and about 60cms high; its upper surface being plastered to a smooth finish and generally with a wooden lip round its perimeter to collect the flour or rather the meal. (Mau 1899, Moritz 1956).

The grain was fed into the upper cone either directly or via a small hopper, and the catillus was rotated either by a donkey, horse or possibly, in the smaller models, by slaves. The full sized models had a wooden superstructure that allowed the animal turning the mill to be harnessed to a protruding beam; the smaller man-mills had poles or beams inserted into sockets at the side of the catillus and kept in place by wooden pins. (fig.3) The fully developed models probably had an iron rod mechanism passing through the top beam to ensure that the catillus remained centred on the meta as it was rotated. An iron band often circled the narrowest part of the catillus joining the beam together as they entered their sockets, and presumably contributing to the solidity of the superstructure.

The classic or definitive model was highly uniform in shape and materials. Dozens of examples survive at Pompei and Ostia in large commercial bakeries, others are found throughout Italy and a few examples further afield. Only one whole catillus has survived in Britain. They are also depicted in a number of funerary sculptures as memorials to eminent Roman miller-bakers. It is largely from these that we can deduce the method of use and details of the wooden superstructure. They had a mechanism whereby the catillus was in effect suspended from the beam above the catillus at a variable distance above the meta and this also served to keep the catillus centred. This metal rod either rested in a hole on top of the meta or on a cup-shaped disc, which rested on the meta. Alternatively a perforated disc acts as a rynd and not only centres the catillus on the meta but controls the flow of grain.

One of the important distinctive features of the fully developed catillus was that it was symmetrical and therefore reversible: the possible amount of grinding wear was therefore doubled. The date of the development of this type of mill or indeed where it was invented is unknown. Cato mentions it, as a matter of course and without further qualification, in about 160BC and there is further literary evidence as early as 185BC though it could have been in use well before that date. It continued in use for several centuries, alongside other types of mills.

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At first sight the Mdina catillus is part of a typical Roman corn grinder of the *mola asinaria* type. However, it has a number of unusual features which may indicate that it was a very early model. It clearly has had a great deal of use and is much worn, but otherwise is complete. It is intermediate in size between the large animal-turned mills, and the smaller ones used in large households; smaller households would patronise the commercial bakeries and mills or use hand querns. The size which does not fit into the later categories probably also indicates that it was an early model in the development of the classic standard mola. The catillus (fig.1) is 36cm. high, the maximum diameter of the upper (hopper) rim is 50cm. and that of the lower (grinder) rim is 54cm. On each side there is a massive buttress which protrudes from the cylindrical catillus and supports the large sockets to take the turning beams. These sockets are 10cm. high by 12cm. wide, and 9cm. deep. Holes for a wooden retaining pin pierce the side walls of the socket. These holes show that at some stage, probably late, a metal pin was used to retain the beam. The hopper cone is relatively unworn. The lower (grinding) cone is very worn and must have been used for far longer than usual. The slope of the lower cone and its degree of wear, as well as its larger diameter, indicate that a significant amount has been unevenly worn away. The insertion of the lugs is way below the narrowest part of the waist

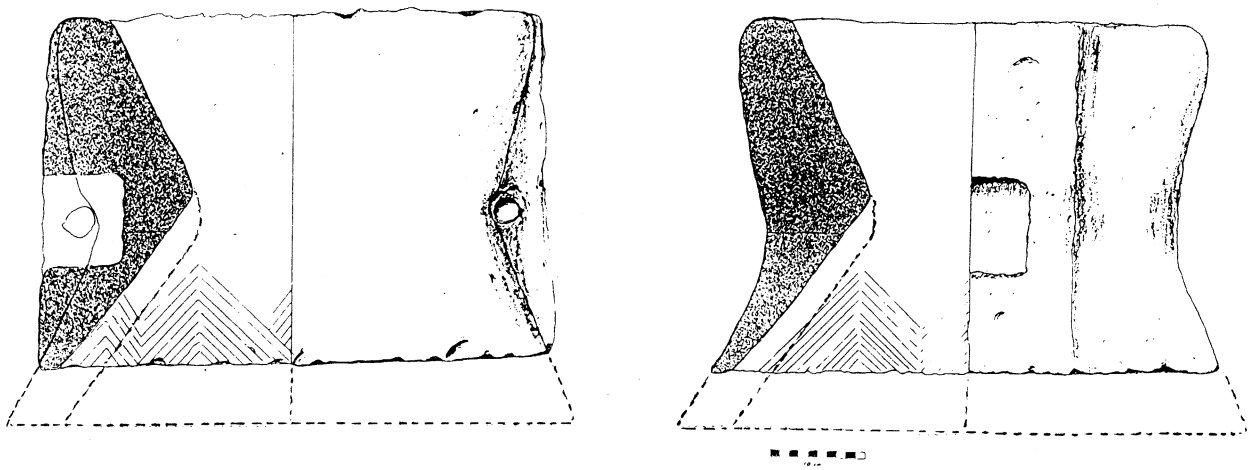

Figure 1: The Mdina catillus; broken line denotes extent of probable erosion due to wear.

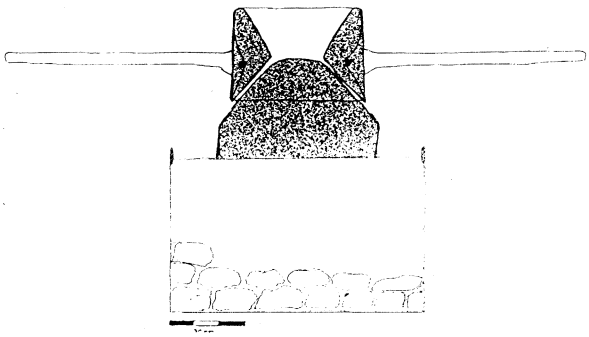

Figure 2: Mdina catillus as it may have been used (without superstructure).

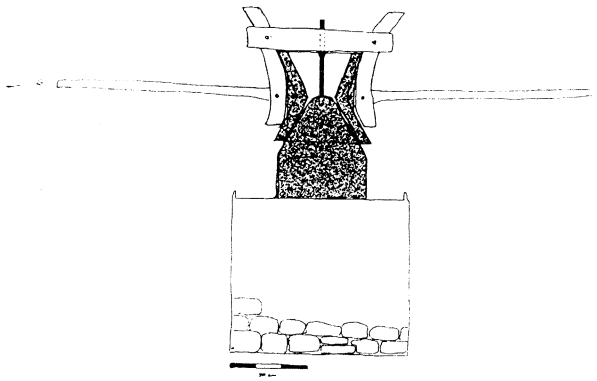

Figure 3: Small reversible mola, turned by two slaves.

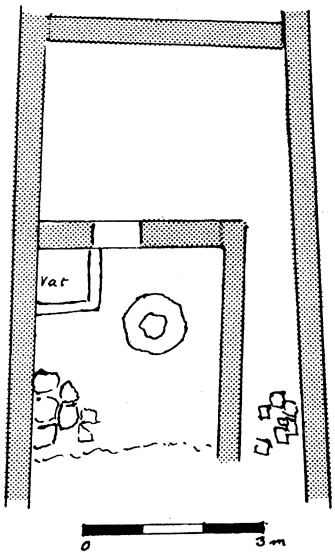

Figure 5: Plan of cellar of Casa Brogan 1st quarter 1st.cent. AD (Kendrick 1987) Showing plinth for small mola.

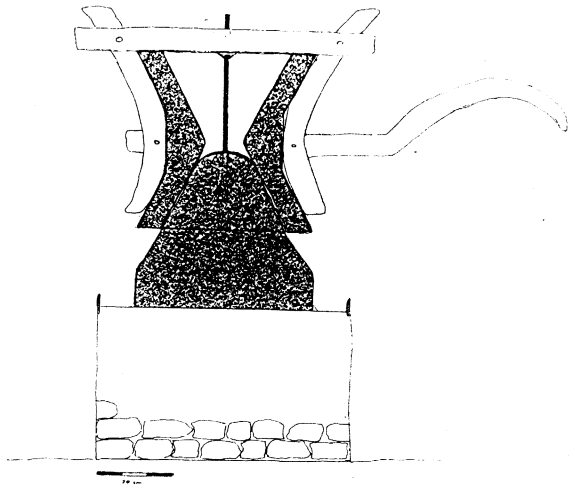

Figure 4: Large, horse- or donkey-driven mola.

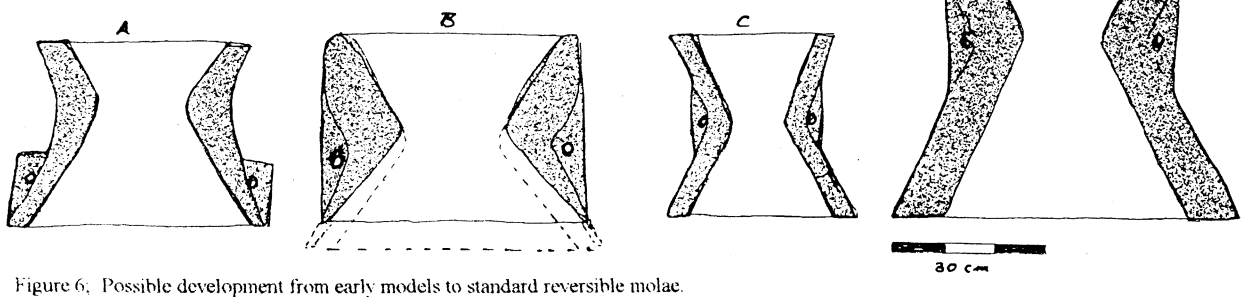

Figure 6: Possible development from early models to standard reversible molae. A Morgantina, B Mdina, C and D small and large mola asinaria.

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of the catillus, which now measures 22cm. though was obviously narrower to start with. There are no marks indicating the iron band often found about the outside of the later models. There is an incised chevron pattern on the grinding surface of the catillus; as this 'working' is unknown in these mills and because of the degree of wear this must have been a very late feature, though of course stones were reworked on a regular basis.

One of the interesting features is that it is asymmetrical and clearly has never been reversed. The lower cone of the catillus is very much worn, the upper hopper scarcely at all. The outside diameter of the lower cone is still greater than the top cone in spite of the wear. If indeed the beam sockets had been mid-way down the sides of the catillus as is usual, then the diameter of the lower cone would have been greater still. Early models tend to be relatively more rugged or crudely made and the buttresses of the beam sockets are generally more massive. This can be seen in a catillus found on Delos (Deonna 1938) and one at the museum of Aquelia (Sebesta 1977). The asymmetry between the upper and lower cones almost certainly predates the symmetrical classic reversible model. The smaller rotatory mills found at Morgantina in Sicily (White 1963) show this asymmetry. Some of them probably date from 3rd century BC. Though the Morgantina mills have distinctive socket lugs that stick out like ears, it is not difficult to believe that the Mdina catillus has at least a developmental affinity with them. Interestingly the catillus at the Museum of London is also asymmetrical and as it could not have been imported until after the Roman occupation one wonders whether it could have been an older type that had previously been used in Gaul or elsewhere.

The wear on the lower cone of the catillus is very uneven and 'lop-sided' possibly indicating that the mechanism for centering the catillus on the meta as it rotated may have been missing. (fig.2) Another feature, which I am sure must have been added at a later date, possibly much later, is that the grinding surface of the lower cone of the catillus is 'worked', that is it is incised with a chevron pattern to enhance the grinding properties of the stone. As far as I am aware this is entirely unknown in Roman corn grinders, though of course the technique of 'working' mill-stones had been known for centuries and used on the Olynthian rubber-hopper mills, which predate them.

A mill of this size was probably used in a large household. In Rome, according to Pliny, commercial mills and bakeries were only established at the time of the war with Perseus (171-168 BC). A typical set-up for a large house would be similar to that at the 'Casa Brogan' in Sabratha excavated by Kenyon and Ward-Perkins (Kendrick 1986), who described in a cellar dated to the first quarter of the first century AD 'an enigmatic circular pedestal 60cm. high and 1m in diameter. It is built of rough mortared stone etc.'. (fig. 5) This was undoubtedly the base or plinth for small mola but the excavators seem to have missed its significance.

The Mdina catillus is clearly an early model and probably dates from the early part of the second century BC before the full development of the definitive model of the *mola asinaria*, and was probably brought over from Sicily by the Romans. Indeed it is not inconceivable that it in fact pre-dated the Roman occupation of Malta in 218 BC. Some of the Morgantina mills, which share a number of features, such as their asymmetry, date from pre-Imperial times, (and there is the yet enigmatic meta found by Whitaker at Motya, Whitaker 1921, which was rather arbitrarily dismissed by Moritz), which could have indicated a rather earlier development of this type of rotary mill than is generally thought. The Mdina catillus might therefore represent an important 'missing link' in the later development of the standard Roman *mola asinaria* which was reversible and more refined. (fig.6) Petrological studies are being undertaken to establish the provenance of the lava of which the catillus is made, the most likely source being Etna.

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