

Summary

This article deals with the excavation in the former Roman city Forum Hadriani at Voorburg of a large runner stone (77 cm) in 2007-2008 by the AAC (Amsterdam Archaeological Centre) at the University of Amsterdam and a smaller bed stone (43 cm) found in 2005 by the research and consulting firm BAAC (Building History - Archaeology - Architecture History - Cultural History).

The runner stone shown in fig. 1 and 2 was found at the bottom of a well used in the second half of the second century AD and is made of bluestone and carved in Mayen (Germany). Fig. 3 shows the dimensions and locations of forces at the runnerstone. In fig. 5 two holes at the top can be seen in the runner stone for connecting the driving beams.

Because of the steep angle of the grinding zone, the turning speed of this runner stone should have been low. Due to the wear at one place (difference in thickness around the runner stone) it is likely that it was driven from the top in an asymmetrical way. It is most likely that the mill was driven by a donkey and due to the pattern of the millstone dress, we can conclude that the turning direction (from top view) was counter clockwise as is drawn in fig. 4. It is not likely that it was driven by water because the wide area is flat low land. The reason for the use of two driving beams can be explained as follows. First of all the dressing pattern proves that the direction of rotation of the running stone was counter clockwise as seen from the top. Secondly, the location of the two holes at the top of the running stone in relation to the location of minimal thickness of the running stone at **A** - due to the wear as a result of the two vertical forces at locations **C** and **D** (fig. 3). If only one driving beam across the two holes was used the minimum thickness should have been 90 degrees shifted.

From the literature we learn that the runner stones were initially dressed in Mayen. Several times a year the runner and the bed stones should have been redressed. It is quite possible that four people lifted the runner stone construction and put it upside down for sharpening both stones.

It is also quite possible that this runner stone belonged to one of the first grain mills in the western part of The Netherlands.

The large bed stone is missing and further investigation of the thesis of Tom Buijtendorp has to be made if the millstone found by Reuvens (1833) is this missing bed stone.

Fig. 6 and 7 show the much smaller bed stone also found at the bottom of a well and dated 190-200 AC. Very interesting is the small metal shaft surrounded by a wooden plug for centering the runner stone. This shaft together with the wooden plug was located in the center hole when the bed stone was found.

Around 500 BC querns were invented by the Celts and distributed around Europe. Querns are not distributed by the Romans above the Alps to the rest of Europe!

The small runner stone possibly found by Reuvens (1833) or Holwerda (1910-1915) as mentioned earlier is missing. The way of driving the runner stone is difficult to reconstruct because it is missing. The drawing in fig. 8 shows the dimensions and fig. 9 illustrates the way this smaller grain mill was possibly driven.

Succeeding research on this subject as well as an English version of this article can be found in 2011 or later at www.molinoloog.nl/downloads

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