Early Corn Milling in Norfolk

BY

THOMAS WAKE.

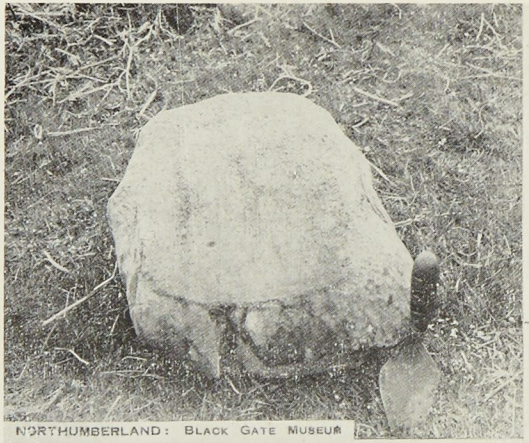
The discovery in the Middle East about 6000 or 7000 years ago that the seeds of certain wild grasses could be cultivated for food has been one of the main contributory factors to the development of civilisation: man could assist nature and plan his food economy. This economic revolution was slow in spreading westwards and it was not till about 2500 B.C. that it was introduced into this country. The people who brought it were still dependent on stone, bone and wood for their implements and they cultivated their small plots of wheat (the short-eared variety and Emmer*) with a stone hoe or antler pick. The corn they thus grew was ground by a bun-shaped stone rubber pushed round on a flat slab. Later this was changed in favour of the saddle-stone behind which the operator knelt and pushed a flat rubber backwards and forwards. This latter method continued in use until the first century B.C. when the rotary quern appeared. Where this application of mechanics to the preparation of food was first invented is not known. The Romans certainly adopted it for their slave and donkey mills and it is probable that through them this mechanical device spread to the west.

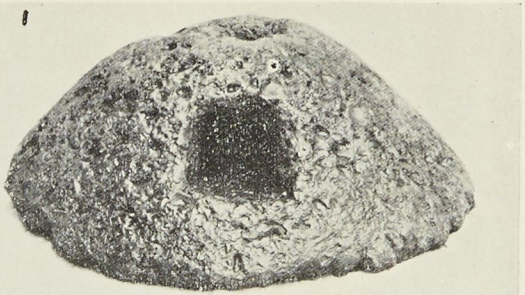
Little can as yet be said of the progressive development of the rotary quern in this country. Bennett and Elton in *The History of Corn Milling*, 4 vols. 1898 onwards, were the pioneers of its study, though many archaeological transactions mention them. Dr. E. C. Curwen revived interest in the subject in June 1937 with an article in *Antiquity*, vol. xi. In this, and in a later article, vol. xv., 1941, he attempted a classification of querns in southern England. Our Norfolk querns, as represented in the Norwich museums, show variations from the types he illustrates and the present account may help the further study of the subject.

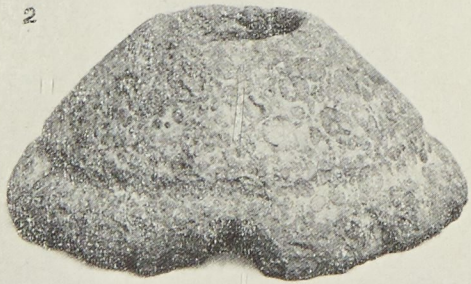
Out of a score examples in the Norwich museums there are only two complete pairs of upper and nether stones. Several are made of puddingstone, one of millstone grit, and several of Niedermendig lava. The puddingstone is found in Hertfordshire and the surrounding district and takes its name from

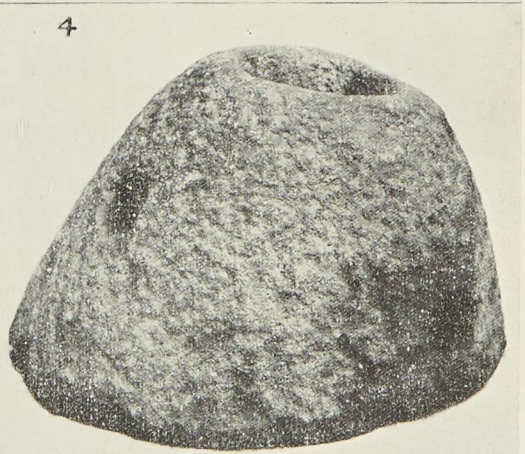
* Grahame Clarke, *Prehistoric England*, p. 21.

Rotary and "Pot" Querns.







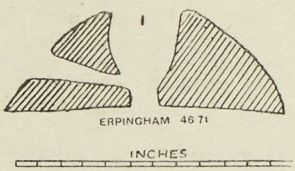


Saddle and Rotary Querns.

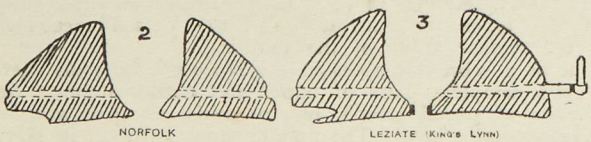
the resemblance to currant or raisin pudding. There are two varieties: one a dark grey and the other a reddish brown. The stone consists of pebbles cemented together by a natural process. Erratics of this stone are found in Norfolk, but it seems likely that the querns were imported into this area probably by means of the Icknield Way. The Niedermendig lava series must have been imported from the continent.

One characteristic of the early querns is the bee-hive shape of the upper stones. The lower half is rounded at the bottom and cut flat at the top or grinding surface. This rounded base would fit into a hole probably lined with clay and allow the meal which dropped over the sides to be easily collected. The centre of the grinding face is pierced with a small hole to take the spindle which held the upper part in position and round which it rotated. The grinding surface of the upper stone is slightly concave to allow the grain to pass on to the flat lower stone to be increasingly crushed as it spread to the outer edge where it was caught by the full pressure of the upper stone before it fell over the side as meal. The grain was fed into a hopper or circular hole at the top and it worked its way down through a smaller opening or rynd hole which held the spindle. The feed to the grinding surface appears to have presented a difficulty as there is little room for the grains to pass the spindle. In some cases the hole was specially widened at one side to facilitate this. The upper stone was turned by a handle. At first this was inserted into a hole cut in the stone horizontally and later it was fixed in an iron hoop with projecting socket.

One example, No. 1, has a rectangular shaped hole passing horizontally right through the side of the upper stone into the



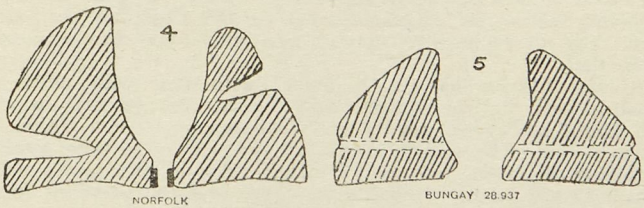
base of the hopper. A wooden handle was inserted in this and another piece pegged into it to make an upright grip. Two examples, Nos. 2 and 3, carry the development still further. They have been used so much that the faces have been worn right through to the horizontal socket for the



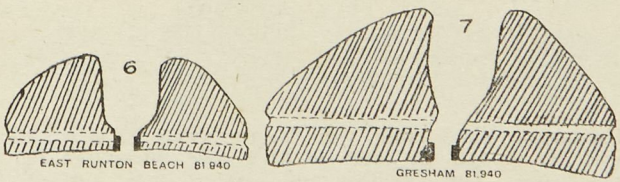
handle. Their usefulness continued, however, by cutting a half-inch groove about $1\frac{1}{4}$ inches above the base and then

attaching an iron hoop to which the vertical handle could be fitted. Small depressions at intervals round the groove suggest the use of pegs to keep the hoop from slipping. Example No. 3 has, in addition, the remains of an iron sleeve or rynd to take the spindle, which, in this case, was also of iron. Only the upper stone remains, but when found at Leziate, near King's Lynn, about 1892, it was complete with nether stone and iron hoop which had a horizontal projection about four or five inches long with a socket to take the vertical wooden handle.*

The sandstone grit quern, No. 4, is curious in having two holes cut in the sides, but not diametrically opposite. Indeed, the quern is entirely asymmetrical. It is taller than the others and one side of the cone is convex and the other nearly vertical. The grinding face, unlike the puddingstone type, is hollowed slightly between the centre and the outer edge. The iron sleeve to take the spindle remains, but in the absence of the lower stone it is impossible to say whether it had originally a wooden spindle. There is evidence of an iron hoop having been fixed at a later date, close to the grinding edge, to take vertical handles for rotating it. As the stone was at first cut so asymmetrical, it may have been necessary to remedy its defects.



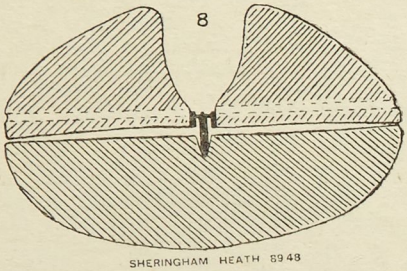
An example from Bungay Common, No. 5, appears to have been made when the use of an iron hoop for the handle had superseded the holed type. The groove to take the hoop is about $1\frac{3}{4}$ inches above the base. To overcome the difficulty of feed, the rynd hole has been widened at one side. Another quern from the neighbourhood of Gresham, No. 7, has the



hopper slightly to one side. A complete quern, No. 8, comprising the upper and nether stones, came from Sheringham Heath, where it was found with others. Its overall height is

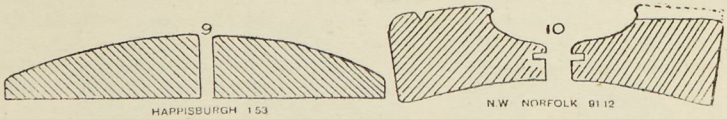
* *Proceedings, Society of Antiquaries*, vol. xiv., p. 183.

11 inches and it is 13 inches in diameter. Half an inch above the grinding face are the remains of the iron hoop. This



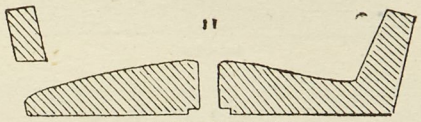
shows bosses of corroded iron suggesting that it had two handles. The rynd sleeve is 1 inch in diameter by 1 inch long, which appears to have been the normal size. The bottom stone has a tapering hole 1 inch deep by 1 inch in diameter at the top. One nether stone in the collection has an iron hoop round this too, just below the grinding face, and it looks as though it had stood on three wooden legs. The development as outlined above would suggest a date beginning about the commencement of the Christian era and continuing throughout Roman times until the Anglo-Saxon occupation.

Roman querns, as usually found associated with military remains, were flat in section, with the handle attached to an iron hoop, and were usually of Niedermendig lava. Norwich possesses only the nether stones of two. One is very small, $9\frac{1}{4}$ inches diameter, and is $1\frac{5}{8}$ inches thick at the centre and $\frac{3}{4}$ inch at the sides. It has a flat base and the grinding face is convex with radial grooves cut in opposite directions. It was presented by Sir Alan Manby of East Rudham and probably came from that area. The other stone, No. 9, is of gritty conglomerate and was found in the cliffs at Happisburgh. It is $15\frac{1}{2}$ inches in diameter, $2\frac{3}{4}$ inches thick at the middle and $1\frac{1}{8}$ inches at the sides. The spindle hole of both examples passes right through the stone.



Pot querns, which might with more accuracy be called basin-querns, are thought by some to have been introduced by the Anglo-Saxons. One complete and parts of three such querns in the museums are made from Niedermendig lava, and this would lend support to that view. The close association of the Anglo-Saxons with the Germany of the period might have led them to import these examples. In the "pot-quern," the upper stone rotates within vertical sides projecting from and in one piece with the lower stone. The grinding faces are convex

and concave like the Roman type, and the grinding surface is cut with similar radial grooves. In one side of the wall is an opening for the meal to fall through at one position only, instead of all round as in the native and Roman types. The spindle passes right through the lower stone and at the base of this the stone has been cut to take a cross piece which would enable the pressure of the upper stone to be regulated to grind either coarse or fine. The hopper of one museum



SWANTON MORLEY 1278

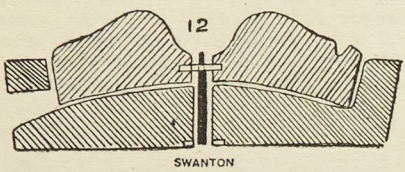
example is dish-shaped, and there is a slot cut out of the top to take a flat horizontal wooden handle similar to the holed native type. The complete quern is of lava, but the top of the upper stone has been moulded an ogee shape with a plaster composition covered over with bitumen. This treatment appears to be later.

Watermills eventually superseded the handmills. It is stated that the first watermill was erected in Kent about the year 762.* These early watermills were little more than versions of the handmill adapted to water power. They were constructed by building a hut across a narrow stream or projecting over the edge of a wider one. In this the grindstones were placed, the top stone of which was driven by a spindle projecting through the lower stone to the bed of the stream. The top of the spindle was forked to grip the crosspiece of the rynd. At the bottom end of the spindle were vanes, which were carried round by the flow of the water. No examples have been recorded from Norfolk, but a few descriptions are to be found in the Transactions of the Hawick Archaeological Society, The Kilkenny Archaeological Society, and others, and a diagram appears in Mitchell's *The Past in the Present*. Domesday mentions 537 such mills in Norfolk (100 more than for Lincolnshire, the next highest figure).† A distribution map published by Miss Hodgen shows the main clusters, particularly along the upper reaches of the main rivers. It is significant that no mills are shown in the lower reaches of the Yare and Bure. That the handmill still continued in use for long after may be surmised from the fact that the Domesday mills could only grind for an average of 50 households a mill. Considering that the mills were small and that the vertical drive could give little speed to the grindstones, many households must have had to rely on their handmill, at any rate to supplement their wants if not to provide for them entirely. This appears a paradox when we read of the strenuous attempts

* Bennett and Elton, *op. cit.*

† Miss M. Hodgen, Domesday Watermills, *Antiquity*, vol. xiii., 1939.

to compel the peasants to have their corn ground at the lord's mill. Confiscation of querns was often resorted to and the parlour at St. Alban's Abbey is said to have been paved with them.



SWANTON

The application of the gear principle, probably in the twelfth century, though known to the Greeks and Romans, wrought another revolutionary mechanical change. Horizontal water-wheels could be used and greater power attained. The same change made possible the use of windmills and the development of milling as it is familiar to us to-day.