

## GRINDING IN ANCIENT AND MODERN PALESTINE.

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1. *The shape of the hand-mill.*—The hand-mill is one of the most primitive utensils found in the world. Yet we learn from wooden models found in Egyptian tombs, now preserved in the Museum of Gizeh in Egypt, that there was a time when grain was ground in another way, and one which is still in use among the Kaffirs of South Africa. Women spread some corn on a flat stone and triturerated it with the help of a smaller stone moved by their hands to and fro over the grains. Another very old way of producing meal was the pounding of the grains in a mortar. Though the latter system is still in common use in Palestine for pounding coffee, no trace can be found in the Bible that the Hebrews of Palestine took to this or the first-named method when they wanted to make flour. They were already in a higher stage of civilization, their system being the rotating of one round flat stone on another stone of the same kind by the power of the human hand—that is to say, the hand-mill. The Hebrew name of the hand-mill, *rechayim*, by its dual form indicates a utensil consisting of two parts. Indeed, these two parts are explicitly mentioned in Deut. 24:6, and the Bedouins of east-Jordanic Palestine have the same old Semitic name still in use for their hand-mill, which in its simplicity doubtless fully represents the hand-mill of the Hebrews. In Palestine the stones of the hand-mill are now mostly made of the hard black basalt of Bashan. Probably the author of the book of Job was thinking of the same kind of stone when he compared the hard and strong heart of Leviathan with a millstone (Job 41:15).

Both stones of the hand-mill are quite flat on their inner side. This needs to be said because a widespread picture of the oriental hand-mill wrongly makes the lower side of the upper

stone convex, and the upper side of the lower stone concave. I have turned many mills upside down all over Palestine, and have inquired of many people, but have never found or heard of such a curious kind of mill. The lower stone, with a diameter of eighteen inches to two feet, has at the center a wooden or iron



MAKING FLOUR.  
—Trumbull, *Oriental Social Life*.

peg, to serve as the axis for the upper stone. This upper stone, usually a little smaller than the lower one, has also a central hole. Sometimes small braces are fitted in from the peg to the sides of the central hole to make the rotary movement more regular. The peg does not close the hole completely, since there must always remain an opening sufficient for the grain to be put into the mill. Often the upper stone has a kind

of hollow at its central opening, and from this hollow place a groove like a band conducts to the periphery on one side (fig. 1). The stones are seldom thicker than four centimeters, and, of course, are not to be compared in size with the stones of our water- and wind-mills. Still, they are heavy enough to crush the head of a man when thrown from the height of a tower, as happened to Abimelech at Thebez (Judg. 9: 53).

According to certain indications in the Talmud, there was found in ancient times in Palestine an improved kind of hand-mill, such as I saw at Jezreel (*Qera'in*) and at Māṭḥa, near Jerusalem. In this machine the lower stone is fastened into a rough clay base, with a brim which catches the flour. On one side a basin is attached to it, into which the flour is collected (fig. 2). As the clay base of the mill is fastened to the floor of the house, a mill of this kind works more easily and smoothly than the common one. But naturally only peasants, not Bedouins, can have it.

2. *The work at the hand-mill.*—When a woman intends to grind, she spreads a cloth, a cloak, or a tray of basket-work on the ground. On this she sets the mill, and places at its side the vessel containing the grain. Then she sits down with crossed legs, taking the mill between her knees, and pours the grain into the hole of the mill with her left hand, while with the right hand she turns the upper stone by its handle. Some women, however, prefer to do the whole work with their right hand, and, in conse-

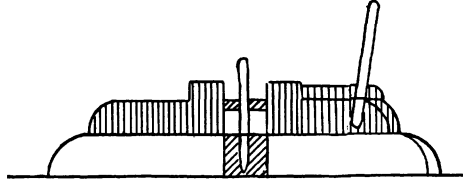


FIG. 1. THE HAND-MILL.

quence, interrupt the process of grinding to put new grain into the mill. The meal comes out over the edge of the lower stone and falls down on the cloth beneath it.

It is easy to get grain peeled by the hand-mill. But if real meal is to be made, the material must go through the mill several times over, or else only a few grains will be put in at one time. In each case the work proceeds slowly, and it will be understood that, at least in our time, people prefer to get their grain ground in water- and mule-mills. Even Bedouins use the hand-mill only in case of need, when the stock of flour from the water- or mule-mill has not been renewed in time.

It is quite probable that the millstones formerly were often larger than they are now, but even with the present mills it is better if two women can arrange to do together the tedious work

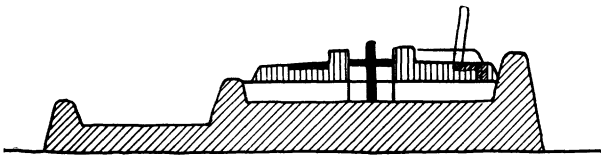


FIG. 2. A HAND-MILL WITH CLAY BASE.

of grinding their meal. Then one will turn the upper stone with her right hand, and the other help

her by seizing the handle with her left and at the same time pouring the grain into the mill with her right hand. When they become tired, they change places, and thus they can keep up the grinding for several hours, if necessary. When the writer of Ecclesiastes (12:3) describes the old man's inability to chew his

food by saying, "The grinding women cease because they are few," he refers to the fact that the work of grinding goes slowly and poorly when one of the two grinders is left alone by her companion. Two persons naturally belonging together are separated when, according to Christ's saying in Matt. 24:41, of the two women grinding at the mill "the one shall be taken, and the other left."

It cannot be proved that grinding in itself was a despised kind of work. Like kneading and baking, it belonged to the occupations of women. But if there were slaves in the household, it would be done by them, and not by the mistress; and, as no special ability was required for performing it, no slaves of higher qualifications would have been chosen. The maid-servant at the mill (Exod. 11:5) certainly means a slave of lowest rank; and the prophet in Isa. 47:2 calls the daughter of Babel to do lowest service when he bids her to take the mill and to grind flour. Samson (Judg. 16:21) and the young Judeans (Lam. 5:13) in being put to work at the mill were degraded to the rank of the lowest servants, even of maidservants. Still, circumstances could make it necessary for a man to grind his flour himself, as I saw it at the khan of Hammām, between Aleppo and the Taurus. Certainly the women and daughters of peasants having no slaves always did this part of the household work. The Mishna tells us that a wife who brings with her at least one slave from her father's house is free from grinding, baking, and washing. Only cooking, spinning, bed-making, and nursing of children cannot be refused by her. Two slaves would free her also from cooking and bed-making, and three from the remaining duties.

In every household a great quantity of bread was necessary every day, since in those times meat and vegetables were not part of the regular daily food; nor had they potatoes, which even yet are not in common use in the East. Oriental bread, besides, must be eaten as fresh as possible, because it quickly loses its good taste. At least twice a week peasants now do their baking, while the Bedouin women bake every day. Where the hand-mill is used for grinding, one usually prepares not



for grinding flour. This last work is done for peasants and Bedouins by water-mills, and for the town people at mills turned by donkeys. Palestine is, at least in winter, not quite without small rivulets, just strong enough to drive a mill. A rough channel leads the water of the brook along the hillside, whence it runs over a stone conduit to the roof of the mill-house, and finally disappears there in a perpendicular shaft like a chimney. At the lower end of this shaft, in an open vault under the mill-house, the water bursts forth through a side opening on to the water-wheel, which stands in a horizontal position. The axle of this wheel projects upward into the mill-house, where it connects with the two millstones, and above them hangs the hopper, which is suspended from the roof. The hopper is shaken by a simple apparatus moved by the millstone. This is the usual system of water-mills all over Palestine, both east and west of the Jordan. It may be seen also at the fountains of Capernaum, beside the lake of Galilee, and upon the small river which runs down to the Jordan from es-Salt on Mount Gilead. But probably water-mills were not found in Palestine before the beginning of the Middle Ages. In biblical and talmudical times Palestine was without them; as for wind-mills, they have been introduced into the country only recently.

4. *The Græco-Roman donkey-mill.*—We have good reason to ask whether the Palestinian people did not at least make use of the power of domestic animals for grinding purposes. It seems simple to fasten a pole to the upper millstone, so that the mill may be turned by donkeys or mules. Then heavier and larger stones could be used and a greater quantity, as well as a better quality, of flour would have been produced. Yet nothing in the Old Testament points to such an arrangement. When we come to the New Testament and the Talmud, we see that the donkey-mill of the Romans was in use in Palestine, and the Talmud shows by the Greek names given to the parts of this mill that it was not of Semitic origin. Apparently it had come into the country along with many other products of Græco-Roman civilization. I had no clear idea about the exact arrangement of this donkey-mill until I visited Mount Tabor.

There, among other fragments of ancient stonework found in the ruins on the top of the mountain, I saw a specimen of such a mill, quite complete in all its parts. On a round stone base a cone is set, which is nearly covered by another stone shaped like a bell. This last-named stone has a wide opening on its top and is provided with two shoulders with square holes, designed to hold the poles to which the donkeys were attached; or, in some cases, slaves were made to perform this task (fig. 3). It is clear that this stone from a donkey-mill, when attached to the neck of the wicked man (Matt. 18:6), would effectively

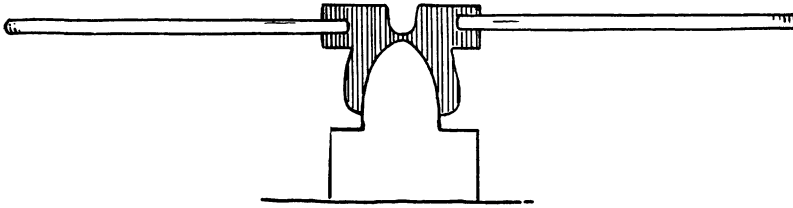


FIG. 3. AN ANCIENT DONKEY-MILL.

drag him to the bottom of the sea. The stone of the hand-mill would not give quite so vivid a picture.

5. *The mule-mill.*—The Græco-Roman pattern of the donkey-mill is now completely out of use, and, as I think, rightly, because it involved too much friction. Another pattern of mill, which possibly was used along with the former even as early as the first century, has superseded the donkey-mill entirely. In its simplest form I saw it at Hebron. Millstones of the usual shape, but larger than the stones of the hand-mill, were placed on a round stone base, and the upper stone was moved by a large pole, to which a mule was attached. From a basket, placed over the opening of the upper stone, the grain ran down slowly into the mill, and the flour came out upon the edge of the stone base, where it was collected into a vessel standing beneath it (fig. 4).

Another and an improved pattern of this mill I examined at Aleppo. In this case the upper millstone was not moved directly by the mule, but through the medium of a large, horizontal, toothed wheel, from which the movement was transmitted

to the mill. There they had also a special arrangement for setting the stones at different distances from each other, that they might produce different qualities of flour. A third kind of the mule-mill is in use at Jerusalem, operated by a treadmill. The animals stand on a sloping platform, upon which

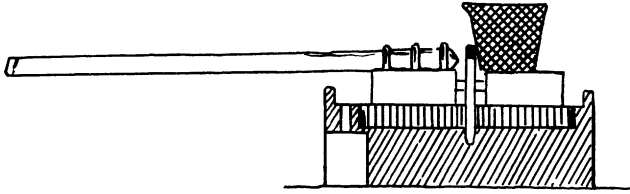


FIG. 4. A MULE-MILL OF HEBRON.

they continually walk in the same position. This turns the platform, and the motion is transmitted to the mill. I cannot determine which of

these two kinds of mill produces the greater amount of flour for the same amount of force. In any case, it is a long distance from the hand-mill of old Israel to the mule-mill of modern Palestine.

6. *Kinds of flour.*—Only two different kinds of flour are mentioned in the Bible—common meal (*kemach*) and flour (*zölet*). Nothing is said about the way of producing the latter. Talmudic references, however, make it certain that the process was by separating the bran from the meal by means of a fine sieve; but this sieve is not the same as the coarse sieve for cleansing the grain after winnowing. Thus it is still done today in the homes of the peasants and Bedouins of Palestine when the work of sifting has not been done at the mill. The Talmud mentions various kinds of flour, but we cannot make out with certainty what distinguished them. In modern Palestine three kinds of flour are usually separated besides the bran. The first two kinds are considered equally valuable; one is white, and is used for baked bread; the other is yellow, and is used for certain cooking purposes and by the confectioner. The third kind is of a dark color, and is cheaper; it is used for the bread of the poor. These three qualities of flour are separated by means of a box, which is shaken by hand, or by means of a mechanically turned sieve of cylindrical shape. As a curiosity we mention that the use of the cylindrical sieve was for a time prohibited at



Aleppo by the government, because it relieved the men of too much work.

7. *Bruised grain*.—The Bible speaks several times of “bruised grain” (*geres rîphôth*, Lev. 2:14, 16; 2 Sam. 17:19; Prov. 27:22). If flour was wheat (or barley) prepared for baking, then “bruised grain” was wheat prepared for cooking. At present this is done in two ways. Either they boil the wheat and break it afterward, or they break it without its having been boiled. The first method is now the more common one. Peas-

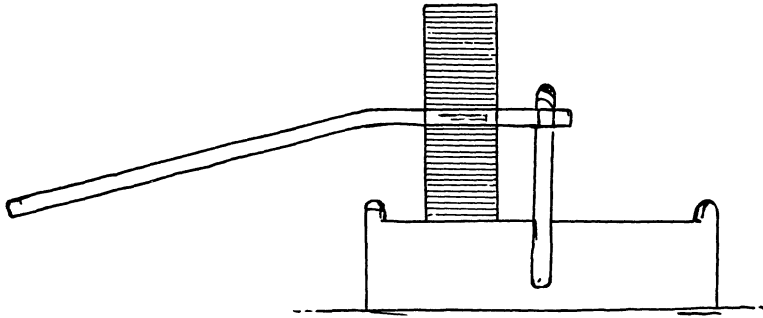


FIG. 5. A MILL FOR BRUISING GRAIN.

ants and Bedouins prepare from it their daily dish by boiling it in water and flavoring it with salt and butter. In biblical times, however, it is probable that the second method was the customary one. At least we do not hear anything about boiling the grain before breaking it, and the Mishna, when speaking about the way of preparing the “bruised grain” from the sheaf of the wave-offering (Lev. 23:10 ff.), makes it quite clear that at least in the temple no boiling was traditional. Yet from 2 Sam. 17:19 it is possible to infer that the *rîphôth* were spread in the court yard for drying after the process of boiling. Then *rîphôth* would correspond to the Arabic expression *selî a*, which means boiled wheat before it becomes *burrul* by drying and bruising.

As is occasionally seen today, a stone mortar, with wooden pestle, was used for breaking the grain (see Numb. 11:8; Prov. 27:22); but we may take it for granted that the mill itself was used for the same purpose. According to the Talmud, they had in Palestine special mills for bruising grain, different from the

usual hand-mill. These might have been like the usual mill, only with lighter stones; or they might have been built like olive mills, with a perpendicular round stone, moved around a pole on a cylindrical base (fig. 5). This latter method I saw in use at Aleppo. Otherwise all kinds of mule-mills and hand-mills serve for breaking grain, and a sieve is used for cleansing it from the husks and even for separating different qualities. The Mishna says that the bruised grain of the holy sheaf was sifted by thirteen sieves, to take away all the dust of the meal and all parts of the husks. Nothing but "bruised grain" was to be waved before the altar. In any case, even mills and sieves belonged to the furniture of God's temple, and were hallowed to his service by holy use. May we say that in this way was foreshadowed the time in which we live, when all household work done by God's children in his name has become as holy as the most holy rite of the sanctuary?



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