

Small-scale Milling in Morocco: the Watermill as a Kitchen Gadget

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A typical Moroccan country kitchen in mountainous areas and with poor communications with the nearest town is generally on the upper floor of the stone or mud house, on a verandah facing south. There will be a simple clay stove and also a bread oven, both with openings in the side large enough to insert glowing or smouldering logs. There will be one or two iron cooking pots (the traditional "kettles"), the tin, enamel and china utensils necessary for tea making and a couple of strong pottery jars for cooking and storing water. Nothing to plug in, because there is no electricity. No gas to turn on, unless the household can afford a butane gas light. No tap or sink, because there is no running water. Hardly even a shelf and certainly no larder; only a carefully locked pantry - in the original meaning of the word - where the precious grain supply from the last harvest, more likely barley than wheat, is stored in sacks, mud-plastered wicker containers, or spread loose on the mud floor.

Compare your own kitchen, with gas, electricity and running hot and cold water, a refrigerator, a freezer, a washing machine, a mixer, a blender, a grinder, perhaps a microwave oven, a row of cookery books and a large table or other special working surface. Your food shops are not many minutes away on foot or by car. That's where you buy your flour if you bake your own bread.

A Moroccan housewife bakes bread two or three times a day, in fact whenever it is needed; even, for example, when a scruffy British walker arrives unheralded and the householder wishes to welcome him with mint tea, bread and olive oil or butter. The bread will have been baked specially; a delicious brown flap, bubbly with air pockets, about 30 cm in diameter.

The flour will have been ground, generally within the last six days, or more often, the previous day, in the local diesel-powered mill, where one pays about ten pence per three kg, or in one's own rotary hand quern (now rare in 1985 Moroccan kitchens in my experience), or in the nearest watermill.

One surprise to me, visiting these mills, was to find the door usually open; if it was locked the key, like a large wooden toothbrush, would soon be produced and no questions asked or fee demanded. The mill is a free facility, it is an extension of one's kitchen; the stones are a powered gadget available for the asking. One puzzle at first about this system is why the millowner has built the mill out of his own pocket, knowing that he will make no profit from it when he lets his neighbours use it. Whenever I enquired about any toll charged, the answer was generally a slightly surprised comment that of course it was free - for wasn't the water sent by God free? So the man who builds a mill gains vaguely defined religious merit by providing a service for his poorer neighbours. I think of one man who built a fine mill in 1984 and who also owns an oil mill and press and a series of beehives. We should not underestimate either the cost of building a simple Moroccan watermill: this millowner did most of the work himself - he even made the wheel and the bedstone - and on his own admission his total outlay was roughly the equivalent of £150.

In countryside that is hot and dry during the long summer a village will be situated near water; perennial springs if possible. Close-knit habitation is the rule, with the houses clustered together for self defence and to keep off cultivated land, which stretches away according to the lie of the land and the pattern of irrigation channels. If a fall of a couple of metres on one of these or on a reliable stream is practicable, then a village mill or mills is likely if one of the inhabitants can finance its construction. So the kitchen gadget is individually owned, but communally used. The grain or flour is carried on one's own back, or if it is a week's supply, in the panniers of the family donkey if one can persuade one's husband to lend the animal for a few hours. Millowning is a man's business generally, but actual milling is nearly always everywoman's affair. Men are only involved when cash or toll changes hands.

A pond generally provides the head for mill in early summer (from July to August many mills cannot function). The mill is of course only incidental to

the important routine of irrigation, without which the crops would soon wither. Water rights are defined by tradition and jealously guarded. Since the mill does not use up any of the water, its existence poses no problem. However, it can obviously work while one water user is emptying the pond to irrigate his fields. Once it has run dry, it is blocked and slowly refilled for the next user, and during this time no milling is possible. So I have seen stationary mills with flour in the grinding area and corn still in the hopper (where there is one; see below) waiting for several hours until the pond outlet is unblocked again. The mill is used by the owner's wife and two or three neighbours, each two or three times a week, perhaps at night. Mostly they are grinding barley for bread and maize to go in the soup for the next day or two; the latter especially during Ramadan, the month of fasting, that fell in June this year.

The gadget has two simple "control switches" operated by the user rather than the millowner; she uses a pole that passes diagonally through the floor to push a plank out of the path of the water jet so that the wheel starts to turn, and she adjusts the gap between the stones by means of wedges or stones inserted in the lightening mechanism if the consistency of the flour is not to her liking. So far as feeding the grain into the eye of the runner stone is concerned, her hand does that job, just like one of us feeding meat into an old-fashioned mincer. Here the handle is turned by water power, but the gadget is kept supplied from moment to moment by hand.

Many Moroccan watermills do have elementary hoppers and chunky shoes held in the required position by strings or pegs and joggled by a stick that rides over the rough surface of the runner stone. But in several mountain villages I was initially astonished to enter mills in obvious working order that contained no hopper. A mill looks strangely empty when it contains nothing above ankle level! A runner stone sits on the floor with a rough ridge round it, an old bucket is sunk in the floor to one side of it, on another side protrude the tops of the lightening and deflecting poles. Any other contents - spare millstones, spare paddles for the wheel, even a cat! - are incidental.

As grinding proceeds the housewife scoops grain from a basket placed nearby and periodically sweeps the flour into the bucket or other depression beside the stones with a small palm leaf brush. Crouched beside the stones, she can easily sample the consistency of her flour whilst concentrating on feeding the grain into the eye of the runner stone. This job may well occupy her for several hours: of their very nature such mills do not work fast. For example, on one occasion I watched while one kg of barley was ground by a stone 61 cm in diameter and barely 7 cm thick, revolving at about 108 rpm. The girl at work reckoned that the water supply was good and that this particular stone was working at its peak efficiency; nevertheless the job took a whole hour.

Without a hopper the housewife is bound to the millstones; she cannot leave the mill to get on with the job - as is so often the case with small rural mills around the world - while she copes with other chores somewhere else for an hour or two. Moroccan women work hard, especially during the summer harvest months, in an unmechanised society, so that several mornings a week spent sitting in the mill seem to the outsider an unwarrented luxury. The cooking, the washing, the cleaning, the fuel gathering, the harvesting, the care of the farmyard animals, still have to be done. When challenged concerning this absence of a labour-saving hopper, the explanations were varied: "The feed from a hopper might disastrously clog up the stones"; "The feed might miss the stones if the unattended hopper skewed sideways", (the horse, like the hurst frame, is unknown in rural Moroccan mills; the hopper is always suspended from the ceiling on cords, wires, or crooked sticks); "A hopper is difficult to make and we cannot afford to have the village carpenter produce one for us"; "If there was a hopper the millowner would probably charge a toll or keep the door locked, thus keeping a more direct control over the use of his mill than at present"; or with disarming honesty, "When there is no hopper, we can't be summoned away for other tasks!". Admittendly women outnumber men in these communities; old women and young girls often cope with the milling and there are therefore other members of the household available for the other chores.

Squatting beside the quietly grinding stones in the cool, dark mill, often overshadowed by a large walnut tree, on a hot July morning, must seem infinitely more attractive than walking several miles in search of fuel, fodder or a full water pot. It is also an opportunity to talk to other women, taking one's time over a good gossip in a way which would be impossible with the outdoor chores. Women don't go to market in these mountain societies; that is a male prerogative. So, passing up the regular chance of a chat with one's friends in the interests of efficiency, represented by the introduction of a hopper, has little appeal.

It should be remembered too that measured time - minute and second time - means and matters little to these women. The sun is their only watch, the seasonal changes in temperature and crops and the Islamic festivals their only calendar. The evening meal is usually taken very late, the diet is very frugal, there are few in the queue for each mill: nobody is in a hurry and there is nothing more exciting to look forward to. So this grinding gadget is accepted uncritically and gratefully: after all, it is free.

The minimum maintenance required: stone dressing, which I suspect is infrequent, and the repair of the wooden blades of the waterwheel are the millowner's responsibility. The layers of dust and flour in the mill and the debris - sticks, grass, pebbles, even the odd dead toad - stuck in or around the wheel, is ignored. One winter a flood may destroy the chute and sweep away part of the wall, or break several of the paddles; if the millowner is tardy over putting things to rights the women will not pester him; such female agitation would be intolerable. If there is no other nearby mill, then their menfolk will have to take the grain to a convenient diesel mill, where they must wait and pay to have it ground. Machines and travel are men's business. Even though the resulting flour is generally agreed to be of inferior quality to that obtained by water milling, custom precludes a request to use the free facilities in another village and male tightfistedness or a sheer lack of sufficient spare cash probably prevents another household from bulding a replacement mill. Yet in not more than three years an average household will pay out, week by week at the diesel mill, enough money to finance the construction of a watermill.

To summarise, these mills are extremely simple and women and girls have few qualms about using them. Such a gadget resembles a potato peeler in that written instructions are superfluous; few women in rural Morocco are literate in any case. The full-time occupation of miller, operating a finely tuned though traditionally powered piece of machinery in order to make a living, is non-existent. Except in winter the water supply is limited and these mills are used sparingly. The gadget does not need to be run until it is red hot in any case, for it has a restricted circle of users and is a strictly local convenience. Much depends of course on the position of the settlement; near perennial springs I encountered three mills for eleven households, three more for seven households, even eight (though not all were functioning) for eighteen in one hamlet. Ratios of households to mills have little meaning here; much less than, say, South Devon where fourteen mills were once operating on about 13 km of the Harbourne river.

The watermill a few hundred metres up the village street, across the fields or along the watercourse, is a convenient, free extension to one's kitchen as a Moroccan housewife. When God wills its destruction or a drastic diminution in its power supply, as a woman in an Islamic society one accepts the loss of the facility and is dependant on male initiative for securing one's future flour supply. If the potato peeler disappears one can always manage with a sharp knife, after all, as one has in the past. When an invention disappears for an uncertain period of time from one's immediate neighbourhood, is it a characteristic of a poor or pragmatic or a Muslim rural community to accept its loss fatalistically and make do with a second-best approach to the problem? In this case it is the modern, fee-paying diesel mill, disliked for the way it warms the flour and impregnates it with a slight mechanical odour, which does duty when the traditional watermill becomes unavailable.