

THE OLD FLOUR MILLS OF MALTA AND GOZO

By Prof. J. GALEA

Wheat provides food to nearly two thirds of the human race. It was one of the earliest products of the vegetable kingdom to be utilized by man; there are records of its cultivation in prehistoric times and it is known that primitive man thrived on it and fed his animals with it. The sowing, mowing, threshing, winnowing and milling of grain came to substitute hunting when man discovered that he could secure better food at no risk to his life by cultivating wheat. The cultivation of wheat and its harvest were given a mythological significance in the cult of Ceres, the goddess of harvest and crops.

In prehistoric carvings and paintings recording the daily toil of our ancestors, one often comes across representations of mowing of wheat and grinding of grain, the former usually done by men, the latter by women. In the Bible there are innumerable references to sowers, mowers and gleaners of wheat, whilst bread is represented as a divine gift to man both for his material and spiritual needs.

In Malta we have archaeological findings demonstrating the use of wheat by the prehistoric inhabitants of this Island. There are implements for grinding grain, for kneading flour and for baking bread but we need not search in prehistoric times to show the essential part which wheat has always played in the life of Maltese people; indeed in these Islands bread is a staple article of diet more than any other foodstuff, perhaps much more so than in any other country. Since the locally grown wheat is far from sufficient to feed the local population, it has always been a matter of paramount policy with every Maltese Government to secure an adequate supply of grain for the people and to provide means for its milling and baking.

In mediaeval times the Municipality of Malta (*Università*) negotiated treaties with the Rulers of Sicily for the supply of grain to our Islands and during the rule of the Knights of St. John over these Islands a special loan was floated for the purchase of grain from abroad. The loan constituted a fund called the "Massa Frumentaria" which operated also during the early British occupation and which has never been wound up. In fact shareholders of the "Massa Frumentaria" still receive interest from the Government of Malta.

The corn and grain trade in the past was strictly under the control of the Government. Even before the Order of St. John came to Malta the local municipality, or *Università*, administered the importation and sale of grain. During the reign of Grand Master Gregorio Caraffa in 1686, was erected "La Casa dell'Anona", a municipal institution known also as the "Università dei Grani". It still stands where it was originally built against the wall of St. James Cavalier on the south of the Church of Our Lady of Victory. The building served as the Office of the Controller of the grain trade and in it all dealings in and brokerage of grain and corn were carried out.

The importation of grain is only a stage in the matter of feeding the people. For obvious reasons it is more economic to import large quantities of grain when markets are favourable. The imported grain, however, must be stored in suitable places and properly cared for. For this purpose the provident Grand Masters caused large cavities or pits to be excavated into the live rock. These granaries, called "*Fossae*", were ideal for the preservation of grain because of their equitable temperature and the protection they offered against infestation. The granaries were considered to form part of the system of protection against blockades and sieges. As a matter of fact they were always dug within fortified cities and towns.

The imported grain must be milled into flour, kneaded and baked. The process of milling has always constituted a major industry essential for the needs of a population irrespective of the degree of civilization attained by the people and the form of their Government. Leaving the primitive way of grinding corn and grain by hand in a stone or marble mortar, the usual method of turning grain into flour up to the middle of the last century was by grinding it between two large circular slabs called grinding stones.

The grinding stones were made of granite or some other hard stone and were circular in shape. There were two of them for each mill, placed one above the other, the lower remaining stationary whilst the upper revolved over it. The upper face of the stationary slab was slightly convex whilst the lower face of the revolving one was just a little concave so that the two faces fitted one over the other and imparted a peripheral motion to the flour produced by grinding.

The upper stone, by means of a leverage system, could be slightly raised or lowered thus producing coarser or finer flour as required. The grain was fed through an aperture in the centre of the upper revolving stone and was broken and ground into flour as it moved slowly between the two slabs towards their periphery where it fell into a wooden trough from which it was collected into sacks.

The opposing surfaces of the two grinding stones were rough to facilitate the breaking and crushing of the grain. Constant work, however, tended to render them smooth by friction against each other and in order to prevent this they were periodically lifted apart and the surfaces chipped and roughened by an expert craftsman called *Naqqâx*. These craftsmen had a busy time in the heyday of the windmills and the driving or mule mills; their services were in great demand and they enjoyed prosperity as long as the grinding stones kept turning but their trade died out with the passing of the grinding stones and the advent of the metal rollers.

The old grinding stones measured between five and six feet in diameter and were six or nine inches thick; each stone was surrounded by an iron rim and weighed about four hundredweight; they required considerable force to rotate when grinding. The motive force derived from two sources in accordance with the type of mill, i.e. wind in the case of windmills, or beast in the case of driving mills or "*Miexi*" mills.

The windmills were the oldest. When the Knights came to our Island in 1530, there were windmills in existence as evidenced by the report drawn by the Commissioners sent by Grand Master Villiers de L'Isle Adam prior

to his taking possession of this Island. Afterwards the Grand Masters, as Sovereigns of Malta, saw to it that all parts of the Island were provided with windmills for the benefit of the population. During the reign of Grand Master Nicholas Cotoner (1663-1680) eight windmills were erected, whilst nine others were built under Grand Master Manoel de Vilhena (1722-1736). When the Knights left Malta there were twenty six windmills in these Islands. The erection of windmills, like the excavation of the grain pits or "fossae", was incorporated in the defensive system. In fact all fortified towns had one or more windmills erected on the highest site inside the walls. Incidentally the top of the tower of such windmills provided an excellent observation point dominating the surrounding areas.

All windmills were more or less built on the same plan: a quadrangular building erected round, and incorporating, a circular tower about fifty feet high and ten feet in diameter. The premises was entered through the main door leading into a hall on one side of which was a room for the reception of grain; on the other side there was another room for the storage of flour or grain. Behind the hall a door led into the tower around the inner walls of which arose a circular flight of steps, between 50 and 52 in number, rising from the ground floor to the top of the tower. The rooms behind the tower and those on the first floor were for the accommodation of the miller and his family. Very often near the building were erected stables and sheds for the animals and carts of the miller. One can often observe, over the main door of the mill or in some other prominent place, the coat-of-arms of the Grand Master under whose reign it was erected. Some of the mills were given on lease to millers, others were managed by contractors working on behalf of the Government. The windmills yielded a revenue of about 12,000 *scudi* yearly.

The mill proper was lodged in the upper part of the round tower (*Tromba*) rising above the roof of the surrounding rooms. Half-way up the *Tromba* there was a wooden loft where the sacks were filled with flour; and about ten steps upwards there was another loft holding the grinding stones. This loft was supported on a couple of strong beams (*Gazi* or *Gzari*). The lower grinding stone, which remained stationary, was held inside a wooden bed (*Nasba*) whilst the upper stone revolved inside a wooden circle (*Dawr*) which prevented flour from spilling about. Round the wooden bed enclosing the stones, there was a circular passageway about two feet wide for the miller to handle the sacks of grain and see to the working of the mill. A strong upright iron bar (*Seffud*, *Fus*), at its lower end passed through the circular hole in the centre of the upper stone and fitted on the under surface of the said stone so as to turn it when in motion. The upper end of the bar revolved inside a pivot-bearing (*Trincetta*) attached to a horizontal beam (*Salib*) stretched between the opposite sides of the tower. The pivot-bearing could be released by a lock (*Stiratur*) thus permitting the upright bar to be moved sideways when the stones required scraping. Round the upper part of the bar, just below the pivot-bearing, was fixed a wooden spur wheel (*Luqqata*) which geared with a large cog wheel (*Dawwâra*) also made of wood, revolving at right angles with it.

On the top of the tower and at right angles with it, were fixed the sails (*Qlugh*) that turned the mill. There were six sails spread over six wings

(*Antinni, Dirghajn*). Each wing consisted of a pole or mast about 28 feet long to which was attached a wooden framework consisting of several bars (*Planec*) about two inches wide, nailed crosswise, on to the mast, and fourteen other bars (*Lasti, Gradiljoli*) of the same size, tied firmly to the cross bars and running parallel to the mast, seven on each side of it, spaced about four inches from each other; the whole forming a grid. Over each grid was slung a sail made of Malta spun cotton. Each sail was made up of two sections, one larger than the other; the larger one was called *Maggura*, the smaller *Kultellazz*. The six masts were firmly attached to six strong spokes (*Antinnoli*) radiating from a hub borne round a horizontal axis or shaft (*Arblu, Fus*). About three yards beyond the spokes, the shaft ended into an iron ring (*Legatura tal-Hadid*) to which six hooks were attached. The masts of the sails were held firmly in position and at equal distance from each other by means of ropes (*Bonnijiet*) rigged between their tops; other riggings between those tops and the hooks of the iron ring added stability to the whole set-up.

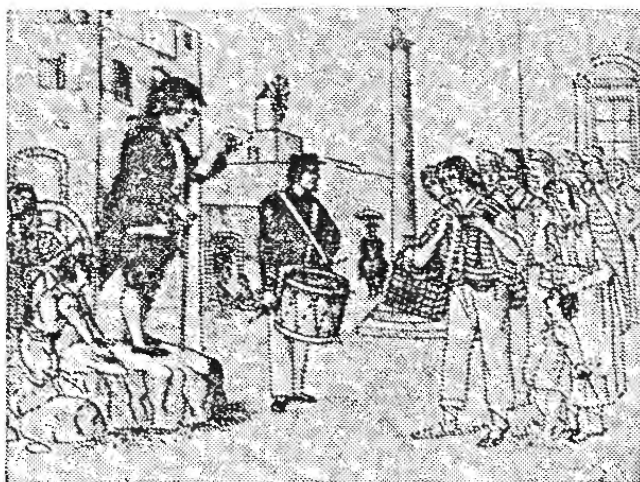
The horizontal shaft to which the sails were attached was posteriorly supported on a thick wooden circle (*Stringell*) resting upon an iron ring topping the round wall of the tower. The shaft traversed the tower from one side to the opposite side and revolved upon two wooden bearings (*Suffarell*). The outer part of the shaft was sometimes reinforced by lengths of wood tied around it (*Inforra*).

Attached to the wooden circle at the posterior end of the shaft was a horizontal framework opening fanwise horizontally (*Fekruna*) from the rim of which hung four ropes (*Vitti*) tied to four blocks of stone (*Kuntrapiz, Kantuni*) resting on the roof of the ground floor rooms. This contrivance was meant to stabilize the shaft and prevent it from moving sideways by the force of the wind. Round the shaft inside the tower was attached the large cog-wheel (*Dawwâra*) already mentioned.

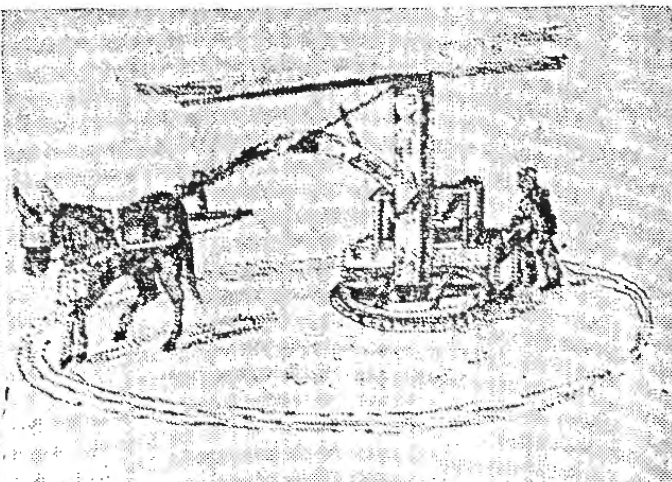
The wind blew the sails which owing to their big spread imparted a powerful turn to the shaft which revolved rotating with it the big cog-wheel (*Dawwâra*) which geared with spur-wheel (*Luqqata*). In this way motion was imparted to the upright bar which revolved turning the upper grinding stone with it. The slightest breeze was enough to put the mill in motion, so much so that when the wind was fresh the miller would fold one or more sails to reduce the force of the momentum. The folding or lowering of the sails was carried out from outside, the miller or his mate climbing the *Antinni* with the agility of sailors.

Wind being the source of power, the sail had to face its direction and for this reason the transverse shaft to which the six masts of the sails were attached, had to be turned and manouvered windward. This was a cumbersome operation requiring much heaving and pushing. The turning of the shaft was possible because the wooden circle (*Stringell*) supporting it and overlaying the iron ring on top of the wall, could be made to rotate by a system of leverage. The inner side of the wooden circle was toothed (*Dras*) whilst a series of holes were dug round the inner surface of the wall about two feet below the iron ring; a strong wooden peg (*Perru*) was plugged into a hole beneath a tooth and by introducing a pole or a long bar (*Manwella*) between

the peg and the tooth and pushing hard, the peg acted as a fulcrum moving and rotating the wooden circle (*Stringell*) together with the shaft (*Fus*) of the sails. To ease such movement the opposite surfaces of the wooden circle and the underlying iron ring were lubricated with soft soap. Sometimes two men plied the poles on the opposite sides of the wall to facilitate the turning of the shaft. When the mill faced windward it was held fast in that position by iron hooks locking the teeth of the circle with the pegs below them. The whole was covered over by a wooden roof (*Barjol, Pirjol, Parjan, Kuppletta*) shaped like an upturned funnel; it was fixed to the wooden circle so that it rotated together with the latter. On the apex of the roof was a weathercock and on its side was an observation window called *Bukkaport*.



Reading a 'Bandu' near
a windmill.



An old mule-driven flour-mill
(From an old print in the
author's possession).

The other source of power for turning the grinding stones was obtained from horses or mules. Such mills driven by animals (*Intiehen tal-Miexi*), unlike the windmills, did not require a specially planned building; any large premises could be adapted provided it had a large room where the milling took place.

The mechanism of the driving mill was in many respects similar to that of the windmill: the spur wheel (*Luqqata*) and the cog-wheel (*Dawwâra*) geared below, not above the grinding stones as in the case of the windmill; the two stones were embedded one above the other inside a block made of stones (*Nasba*) the top of which was in line with the upper surface of the upper grinding stone. This stone was fixed round a vertical iron bar which traversed both stones and ended below them into the spur-wheel (*Luqqata*) which geared with a large toothed wheel (*Dawwâra*) attached horizontally round the lower part of an erect pole (*Stwiel*) which ended in an iron pin (*Gharqub*) pivoted on a hollow piece of hard stone (*Bejta*) fixed on the pavement. The upper end of the erect pole was held by a pivot bearing on to the side of a transverse beam (*Ġejža*) running between the middle of two opposite sides of the room. The erect pole rose by the side of the stone block and was parallel with the vertical iron bar holding the spur-wheel.

The gearing of the two wheels below the grinding stones was made possible because the lower part of the block of stones next to the erect pole,

was hollowed thus allowing the peripheral part of the big toothed wheel to turn inside the block and mesh with the spur-wheel.

Half way up the erect pole (*Stwiel*) was attached at right angle a driving arm (*Migbed*) usually cut out of an olive tree trunk, about seven feet long, at the peripheral end of which hung two vertical rods (*Wasliet*) spaced about 2.5 feet from each other between which the beast was harnessed by strappings (*Htajriet* and *Kontri*).

The beast turned round and round the room pulling the driving arm, thus rotating the erect pole to which the toothed wheel was attached. This wheel was thus set in motion and its teeth turned the spur wheel under the grinding stones; the spur-wheel rotated the iron bar which made the upper grinding stone to revolve.

As already stated the upper stone by a leverage system could be raised or lowered, thus producing coarser or finer crushing of the grain. Leverage was activated by a handle bar (*Rimona*) in the windmill and by an iron screw in driving mills. The handle bar in windmills was fixed on the side of the wooden bed holding the grinding stones; by pressing down the bar, the upper stone was slightly raised thus increasing the interspace between the opposite surfaces of the stones, which resulted in coarser crushing. The lever or handle bar, which was made of wood, was beautifully carved into artistic patterns and was kept polished; it was the pride of the miller who often boasted of his fine *Rimona*. In the driving mill the screw lever was fixed on top of the stone block and worked like the handle bar of the windmill.

This system of leverage acted also as a brake to stop the mill and restrain it in foul weather because when the upper stone was released on to the lower stone, the friction and the jamming by the crushed grain held the two stones fast to each other and stopped the cog-wheel.

The sacks of grain were emptied into a rectangular wooden container (*Delu*) with a narrow bottom which was supported on the wooden base (*Nasba*). Loosely attached to the bottom of the container there was a spout (*Mizieb*) which could be lifted or lowered by means of a string tied to its tip and running over a peg (*Ghasfur*). The lifting and lowering of the spout was meant to regulate the flow of grain from the container. The grain fell inside the hole at the centre of the upper grinding stone round the upright bar, from where by the rotating action of the stone it was spread over the surface of the lower stone and crushed by the rotating upper one. The resulting flour emerged from the intervening space between the stones through a hole (*Farinal*) and fell into a wooden trough (*Kavetta*) the bottom of which was moveable and could be lifted by a string thus allowing the flour to fall into a funnel-shaped tube (*Lenbut*) leading down to the lower loft where sacks were held under the tube and filled with flour.

The same arrangement was made in the driving mill, only in the latter the grain box (*Delu*) was placed on the stone bed (*Nasba*) and the flour emerged directly into a sack held under the flour hole (*Farinal*).

The crushed grain thus collected was passed into a sifting contrivance (*Magna tat-Tqeghid*). It was a rectangular wooden container about 2.5 x 6 feet, slung on a framework of wooden supports in such a way that it could be swung from side to side and shaken by the turning of a wheel attached to

the framework. Its bottom consisted of a sieve made of horsehair the meshes of which were not uniform; they increased progressively from one side to the other, being very fine on one side and enlarging as they reached the opposite side.

Attached to the upright supports on the side with the finest meshes, was a container (*Delu*) into which the crushed grain was placed and from where it fell inside the sifter where the meshing was finest allowing to pass only the dense and heavy flour consisting mostly of the germ of grain. The other portions of the grain being of looser texture and lighter, were, by the shaking movement, driven along the sieve falling progressively in accordance with their size and density until the lightest and most coarse portion of the husk reached the opposite side and fell through the largest meshes of the sieve.

Beneath the bottom of the sifter were placed in a row four quadrangular wooden or metal troughs (*Dugh*) into which the different products fell as they passed through the sieve, starting with flour and ending with middlings and coarse bran.

To ensure better separation, the products sorted out by the sifter were subsequently passed through a series of hand sieves of different sizes of meshes, a tedious work usually undertaken by the womenfolk of the miller.

Sometimes a mixture of grain and barley was crushed into a coarse flour (*Mahlut*) which produced a sort of wholemeal bread very appetizing and nourishing.

In its heyday a windmill was an institution of importance in the town or village where it existed. It was the rendezvous of the area; people used to gather there in the shade of the tower during the sunny days of summer or inside the cosy hall in the dreary days of winter. They spent long hours discussing the affairs of the Grand Master, relating the news from town or just gossiping or scandal-mongering. New enactments (*Bandi*) or proclamations issued by the Government were read to the people at the sound of the drum from a platform near the mill by the *Kunestabli* or *Sindku* or *Loktent*. Very often the windmill was the mustering place for the local Militia (*Dejma*). Indeed the windmill was a characteristic feature in the life of the people and fitted well into the landscape of the Island. It inspired artists who painted it and poets who praised it in song and verse. A musical composition "Molino A Vento" by the well-known pianist Paolo Vella was very popular towards the beginning of this century. As an indication of the familiarity and affection with which windmills were regarded, one perhaps may mention the fact that the people used to tease the Knights by calling them "Imtiehen tar-Rih" (Windmills) because of the eight-pointed white cross sewn on their robes. One may also remark that even in our time miniature reproductions of windmills and little statuettes representing the miller and the villagers carrying sacks of grain, figure prominently in Christmas cribs which brighten our homes during the festive season.

The miller was a jovial person very popular with his cronies; as a rule he was a merry and friendly character always willing to give a helping hand and very liberal with his counsel and advice. He was well versed in weather lore and could precisely forecast any change in the weather; he was very conscientious in his dealings, so much so that he allowed a rebate of one

Rbieghi (One penny eight farthings) to the first customer who brought his grain after the periodical overhaul of the grinding stones; the rebate was meant as a compensation for the flour lost in the interstices of the machinery. A typical miller was a hefty man who made a picturesque figure with his eyes beaming in his honest broad face covered with flour dust and his ruffled hair also powdered with flour and shining round his head like a halo. He never let down his customers; early in the morning after the first mass (*Qud-diesa ta' l-Aurora*) when the wind was fresh, he used to climb to the top of the tower and from a window he called his customers shouting through the *Bronja*, a sea-shell (*Triton Variegatus, Lam.*) which he used as a modern megaphone. At his call busy housewives left their homes and wended their way towards the mill carrying on their heads bagfuls of grain, or their husbands drove cart-loads of grain for milling.

With the advent of the British in Malta the windmills were slowly but steadily edged out of business by the driving mills which were easier to manage and involved less risk. Moreover their working was not dependent on the vagaries of the weather. A large garrison and a big fleet were stationed and based on Malta and added thousands of men to the local population. For this reason a constant supply of flour was needed to feed the Army and the Navy besides the local inhabitants. To cope with this new situation hundreds of driving mills sprang like mushrooms, most of them were set up in Qormi. The flour mills provided work and employment for many other craftsmen besides the millers. An old guide book of Malta* states: "Many..... millwrights..... dwell at Qormi. Since the time of the Grand Masters that town has been the centre of the bread industry and the driving mills added work and prosperity. Many a wealthy family of Qormi owes its fortune to the "Miexi" mills.

A surreptitious revival of the "Miexi" mills took place in Gozo during the Second World War when owing to the siege there were short rations and the supply of flour was strictly controlled. In some out-of-the-way localities driving mills were stealthily assembled to supply flour which fetched very high prices!

Now both the windmills and the driving mills are things of the past, they have been substituted by modern machinery which excite admiration by their complexity, utility and efficiency, but it is only fair that the old mills which fed the people of Malta during the past and were the pride and the delight of our forefathers should not be forgotten.

* "A Guide To The Maltese Islands" by The Rev. G.N. Godwin. Printed by Paolo Bonavia, Malta, 1880.

For an interesting contribution on windmills by Sir T. Zammit see "Il-Malti", September, 1929.