

# PREHISTORIC MAN IN MALTA WORKED ON A SYSTEM OF MEASUREMENTS

By J. STORACE

The urge to confine myself to a special line of research in our Neolithic period came to me in the 'thirties during a discussion with my wife's cousin, Mr. Oscar Rizzo, Bachelor in Engineering and Architecture, son of the well-known Maltese geologist the late Mr. C. Rizzo, former Director of the Museum. As an amateur student of Archaeology, I used to discuss this subject with Mr. Rizzo and during one of these discussions he pointed out that the apses of Mnajdra Temples appear to have been constructed in a beautiful semicircle. My immediate reaction at the time was that since the Neolithic architect had built comparatively large temples, he must have used a system of measurements.

When I expressed my trend of thought, Mr. Rizzo pointed out that such a line of research would be long and hard but certainly original and worth-while. I set myself to my self-appointed task and in the aggregate I have spent many weeks — spread out between 1935 and 1940 — at various neolithic sites but particularly at Hagar Qim and Mnajdra Neolithic Temples measuring lintels, uprights, and other stones of various sizes.

Since 1940 I have not had the opportunity to continue my research, first because of the war and, after being demobilized in 1944, because of intensive work in journalism.

However, from the measurements I had taken, I feel that I have enough on which to base my theory. May I hasten to add that my conclusions may not be foolproof or complete by any means. There are other neolithic remains both in Malta and Gozo yet to be thoroughly studied in this particular subject. My aim first and foremost is to blaze the trail for others — trained and experienced archaeologists — who have ample time and funds to spend on this subject and thus by extensive measurements not only in Malta but throughout the Mediterranean littoral and islands, particularly Sicily, Crete and Cyprus, a somewhat tedious but worth-while research, they may firmly confirm or correct my system.

I wish to gratefully acknowledge the advice given me by Mr. J. Davies Evans, M.A., Research Fellow of Pembroke College, Cambridge, who is now in charge of the Malta Archaeological Survey.

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During the late Neolithic period (about 2,000 B.C.) the Maltese Islands were probably the centre of Mediterranean Neolithic Culture. It may be that the rudiments of this culture were imported here but if this is so it has yet to be

confirmed by field work further away from the Maltese Archipelago. Whatever the origin, I may modestly assert that the late Stone Age Culture in Malta is unique when the temples of Mnajdra and Tarxien are seen and studied.

Love of religion must have been very deep in the primitive Maltese and the magnitude of their work may be judged from the huge lintels and uprights at Mnajdra, Hagar Qim and Ggantija, the last mentioned in Gozo.

There is a very strong theory that the temples may have been domed or otherwise roofed. This theory is supported by the fact that at Mnajdra the upper layers of stone in the apses overlap and are finished curving inwards. Would it be too much to state that the late Neolithic Maltese architect managed to achieve miracles of time-defying beauty perhaps with crude flint implements and under conditions which overwhelm the imagination?

The huge blocks of stone with which the temples have been built could not have been cut without forethought by the neolithic architect. Man endowed by God with intelligence — a being vastly superior despite his primitive state than any member of the animal world — was and is still striving for perfection. The more I reflected on these achievements of the Neolithic Maltese, the more I came to convince myself that a system of measurements must have been used in the building process of neolithic temples. Furthermore the more I studied Mnajdra, the more I came to appreciate its more advanced architectural state than that of Hagar Qim.

In a way it was unfortunate that I used the Imperial instead of the Metric system in taking measurements for as I studied my notes I could see no similarity, I could not see any system or plan in the numbers of feet and inches, until I very nearly concluded that my task was an impossible one.

As a last effort I decided to reduce all the measurements I had taken into inches and then the system of measurements used by neolithic man unfolded itself.

Thus I came to deduct that the basic principle of measurements was equivalent to 10 inches and 18 inches. Many large blocks which I have measured are 18 inches thick while the length and width varies within the limits of multiples and sub-multiples of 10 inches.

So that I will explain more lucidly, I have classified the system as follows:

Measurement A = 10 inches

Measurement B = 18 inches

A typical example are the two upright blocks which perhaps formed part of a trilithon, at the head of the main passage in Hagar Qim Temples. The measurements of each block are as follows:

80 inches high,

18 inches thick to within a short distance from base.

45 inches wide at top and base slightly curving outward at the middle.

Thus the measurements of each block would read as follows:

Length, the multiple of A for eight times.

Width, the multiple of A for four times plus sub-multiple of A (slightly wider in the middle to give it a pleasing effect).

Thickness, measurement B only (slightly thicker at base probably for security reasons).

The measurements of a very large lintel at Mnajdra Temples are as follows:

118 inches long,

50 inches wide,

18 inches thick.

Therefore the measurements of this lintel would read as follows:

Length, the multiple of A for 10 times plus measurements B,

Width, the multiple of A for five times,

Thickness, measurement B only.

Although not of the same size, a large number of blocks of stone were cut on the above principle of multiples and sub-multiples, and since these measurements could not have been mere coincidence, I feel that this system appears to have been the fundamental system of measurements of the neolithic architect in Malta.

In some instances allowance must be made for erosion and also for destruction by man. In fact Sir T. Zammit, the pioneer Maltese archaeologist, writing about the Imgarr Temples pointed out that these temples "suffered much more than the rest of the buildings, from the ravages of time and the destruction of man. As in the other neolithic ruins, the main cause of destruction of the building is to be sought in the desire of farmers to utilize the barren space by levelling the same and turning it into an arable field."

It is a well-known principle in Archaeology that whatever may be discovered during field work must be measured and photographed. When I compared my measurements (Imperial) with some of those (Metric) in the possession of Mr. Evans which were taken by field workers, my measurements compared favourably.

It seems to me unaccountable why it has never occurred to professional field workers to discover the neolithic system of measurements when they had all the figures at their disposition of every single stone and of all the pottery and statuettes discovered in neolithic sites throughout the world.

Anyhow, whether this system was imported to or exported from Malta, I am unable to say. It is certain that it was not in exclusive use by Neolithic Maltese.

For example, Measurements A and B appear to have been well known in North Africa. This is borne by the fact that the various sites visited, measured and described by Mr. H. S. Cowper, F.S.A., in his book "The Hill of Graces — a Record of Investigation among the Trilithons and Megalithic Sites of Tripoli", (published 1897) possess a number of blocks cut on the same system of multiples and sub-multiples as in Malta.

Although Cowper came to Malta and inspected Hagar Qim and Mnajdra, it is extraordinary that he should have written the following:

"It is however, very strange that when we examine the different series of megalithic remains in the Mediterranean where everything would lead us to expect features of similarity, we find but little to compare with the *senams*. In the extensive temples of Hagar Qim and Mnajdra at Malta, we can trace no points of analogy between the irregular ground plan, with its ovate courts and apsidal chambers and the rectangular structure of Tripoli. Where masonry exists it differs in every way from that of the *senam* sites, and where there are trilithons they are low and wide, and in every way different from the tall narrow structures of Tarhuna." But Cowper could not have measured the local sites otherwise he would have noticed the similarity at least as far as measurements are concerned.

I understand that research work at Neolithic sites in some of the islands in the Mediterranean is contemplated in the not far distant future. When the result of field workers comes to be studied then it would be possible to learn with a fair measure of certainty whether the system of measurements was imported to or exported from Malta, and whether the system as I have explained it above is foolproof or not.