

# New aspects on the solution about cart-ruts and construction of roofs of megalithic buildings at the Maltese Islands

**-- A solution for the construction of big buildings --**

with 2 figures

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[Translation into English by Michael ALEXANDER (1924-2009) in memoriam; Ta  
`Xbiex/Malta]

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## 1. Introduction

Since the discovery of neolithic buildings at the Maltese Islands during the 19<sup>th</sup> and 20<sup>th</sup> centuries (MAYR 1868, 1924, ZAMMIT 1916) many scientific papers have appeared. They mainly deal with the reconstruction and development of the buildings, f. i. the increasing enlargement of the apsis from one apsis (Skorba/Malta) up to six apsis (Tarxien/Malta) can be followed and is quite well documented in the National Museum of La Valletta/Malta (SULTANA 2006).

The engineering technology of the neolithic people was tremendous. They were to cut and transport blocs of stone up to 75 tons of weight from the quarries containing the upper Coralline Limestone (miocene layer). The biggest stone we can see on the left side at the entrance of Ha`gar Qim, but the information given by the National Museum in La Valetta – 10,165 tons – seems to be much too low! Therefore the transport of those weighty stones cannot have been done by unrounded stone balls of the upper Coralline Limestone or other layers originating of the Maltese Islands (SULTANA 2006, p. 20 below). The stone balls would quickly be destroyed, due to the high punctual putting weight and the not even surface of the local soil or rock. Roll rods from hardwood were much better to imagine, due to the probable ancient existence of hardwoods on the Maltese Islands. The climatic conditions of neolithic times are able to produce large forests, the rest we can recently observe in Buskett Gardens near Dingli/Malta. At this time northern Africa and the land around the Mediterranean Sea were rainy and green!

The original more detailed paper is written in German language with more figures and explanations (see ORTLAM 2008b).

## 2. Cart-ruts

Another possibility of transport, though, existed using wooden sledges (ORTLAM 2003) with equidistant runners. In Germany they were smeared with snow and ice above the frozen soil only during the winter. But at the Maltese Islands there is no winter with glissing ice and snow. The surface consists of the upper Coralline Limestone, an middle miocene layer. Therefore the ancient people smeared the runners with watery loam from the Blue Clay of the middle miocene layer beyond the upper Coralline Limestone on the Maltese Islands or with shredded water plants now eroding and leaving behind the numerous equidistant cart-tracks (MIFSUD et al. 2001). They dive from the shoreline into the sea reaching a depth of ~7m below present sea level. Therefore, due to the well known curve of rising sea level in the world at the end of the last ice-age (15.000 B. C.: 125m below sea level), the cart-ruts existed and were already

formed in the Neolithic upto the Roman times (5.000-100 B. C.). The Egyptian people built the giant pyramids in any way with wooden sledges using the loam of the nearby river Nile together with water to transport the big stones (2,5 tons) on the top.

### 3. Roof construction of megalithic buildings

An important question has not been answered yet regarding the roof construction of megalithic buildings. No one has found any materials for the roofs, in spite of intensive research, until now: from what material consist the roof construction?

Upto now one assumed that a wooden construction was possible (SULTANA 2006, p. 21), although a small model, found at Ta'Hagra/Mgarr (Malta), shows half rounded stone slabs vertically standing. Both materials, wood and stone, should have been found and, due to local climate, they are preserved. Against a roof-construction with wooden material stands the relative smooth top of the buildings at Gigantija, Ha'gar Qim, Mnajdra and (middle) Tarxien (BONANNO 2005, pages 17, 27, 31 and 43), which do not show any notches to hold the roof beams. Instead one can observe a centri-petal pretended vault and a light centri-petal dipping of the smooth surface at the top of the buildings (BONANNO 2005, p.43). together with different attaching points on the outer walls and at their base of many megalithic buildings, f. i. Ha'gar Qim, Mnajdra and Tarxien, one could find holes for ropes (formed like an eight = rock eighter) and stone ball attachments to stretch the ropes (fig. 1 and fig. 2). The actual roof consisted therefore, out of the stitched animal skins fastened by stretched ropes, f. i. leather and fibre, which were taken off including the skins at the doors and the other house equipment when leaving the building.

Roof constructions using skins, therefore, could not be found upto now. ancient techniques of attachment by stone balls in manmade holes and by attachment points putting in rock can be seen today in some natural harbours, f. i. Birzebugga/Malta and Lazaretto Bay/Ta'Xbiex, for the mooring of ships. These roofs of animal skins are also observed in the neolithic ground buildings (Scarabray) with Tiffinagh inscriptions at the Isles of Orkney (= dragon isles) and Shetlands north of Scotland.

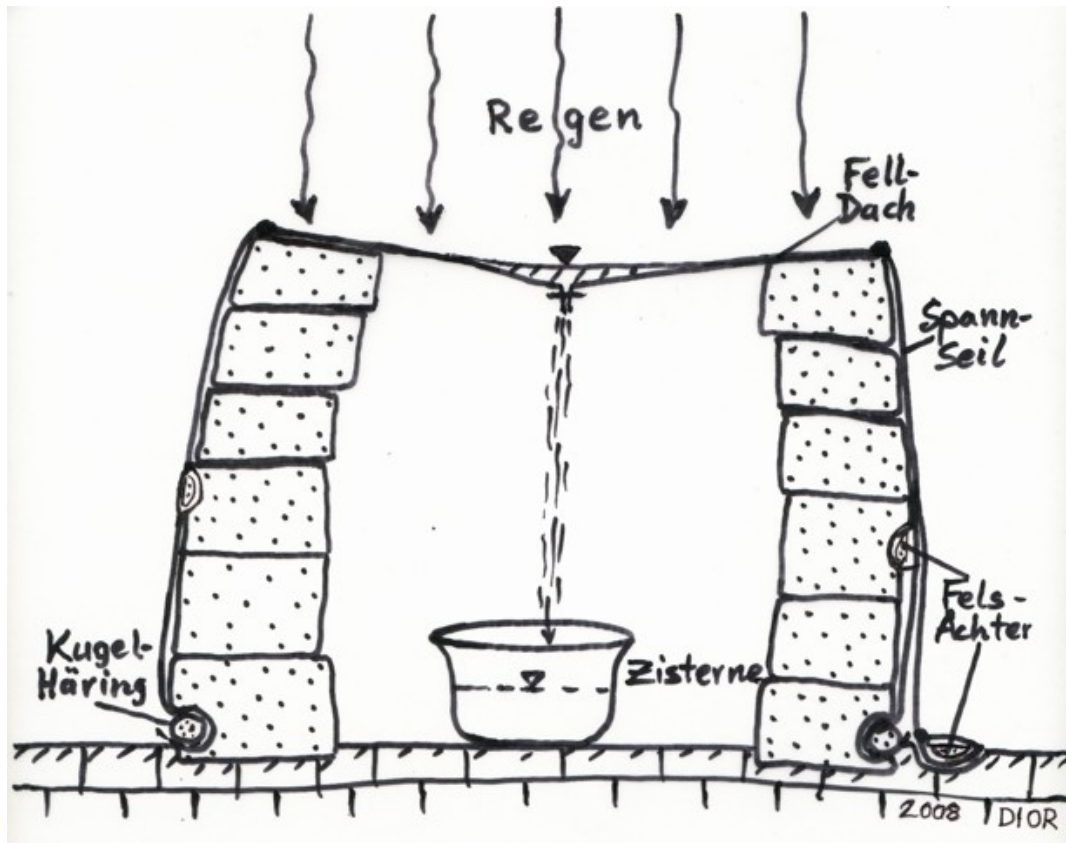


Fig. 1: Model of a megalithic building of neolithic people at the Maltese Islands with a cistern on the skin roof to catch rain water (primary cistern, for airconditioning in summertime, too), ropes for the attachments outside, f. i. stone balls (“Kugel-Häring”) at the base and rope holes (= rock eighers) and a big clay stone container for drinking water (secondary cistern).



Fig. 2: Recent model for getting raining water in the city of Bremen with a plastic cistern. Foto: Prof. Dr. D. ORLAM, Bremen.

These skin roofs served yet a more important purpose. For special reasons the megalithic buildings always had been erected world-wide at high places. Due to hydrogeological reasons there, as well known, no springs on high grounds to provide drinking water. Drinking water had to be carried out arduously from far away springs (SCLOTT 2018). On the other hand, the transport of foodstuffs from surrounding farmlands was quite easy. Therefore, the megalithic people had the obvious idea to use the skin roof as a cistern filled by rain water. The centrally located drainhole filled, at times, a big clay stone container beneath (upto 500 liters drinking water; BONANNO 2005, p. 38, SULTANA 2006, p. 39). The rest of water in the (primary) cistern of the skin roof served as a weight to secure the roof construction during storms as well as a pleasant airconditioning against the sun, due to the coolness of evaporation.

Those ancient people were very clever and tricky inhabitants of the Maltese Islands which were a southern half island of Sicilia in neolithic time, due to the the well known curve of rising sea level. The neolithic people have been always underestimated by recent persons.

#### 4. References

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