AEGEAN LECTURES

Friday 16 May 2025, 19:00
Swedish Institute at Athens (Mitseon 9, Acropolis Metro station)

Reconstructing a timber and mudbrick building at Malia: an experimental study of Minoan carpentry techniques during Protopalatial period (TiMMA Project)

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The experimental construction at Malia was the result of a collaborative work between the TiMMA research project on timber in Minoan and Mycenaean Architecture (scientific responsible S. Rougier-Blanc, E. Tsakanika), in collaboration with E. Maragoudaki, P. Bacoup, V. Loescher, N. Apostolou, N. Daroukakis, and a project of the EFA on earthen Minoan architecture (scientific responsible M. Lorenzon and M. Pomadère), in collaboration with members of the organization *Πηλοίκο,* and volunteers, mainly postgraduate students of archaeology and architecture.

The aim of the project was the construction of an experimental structure using the building techniques characteristic of the Protopalatial period at Malia. The design featured walls with a rubble stone foundation and an upper section of plastered sun-dried bricks, reinforced with horizontal timber elements. The flat roof was built with timber beams, branches and reeds, finished with the typical successive earth-based layers (*dorosis*).

Different horizontal timber reinforcing systems were employed for three of the walls to allow for experimentation, based on archaeological evidence, documentation on site, and publications for the mud brick walls of Quartier Mu, and the stone masonry walls of the Protopalatial palace of Phaistos and Akrotiri.

The fourth wall was designed to incorporate the timber 3d frame of a door and window unit, and the timber door leaf, drawing on archaeological evidence from the 'Crypte Hypostyle' at Malia, and Neopalatial buildings in Akrotiri.

Reconstructed bronze woodworking tools (by E. Maragoudaki), such as axes, adzes, saws, chisels, and metal hammers, along with wooden tools including mallets of various sizes and wedges, were used in the construction of the building. These tools were made from a medium tin bronze alloy, based on the standards of the Late Helladic period in mainland Greece, and were applied using construction techniques of the 2nd millennium BC. Their experimental use enabled the systematic observation of the operator's movements, the time required for each task, and the gradual formation of use-wear traces on the tools, shedding light on the performance and practical application of prehistoric woodworking techniques.

Building timber structural and non-structural elements with our own hands, using replicated bronze tools, provided valuable information on timber joints, the overall design and construction process of a Minoan adobe building, and on a range of technical details, that could not have been obtained otherwise. This hands-on approach significantly advanced our understanding of timber construction practices, giving unique insights into Minoan architecture through the use of timber.