HELLENIC MINISTRY OF CULTURE AND SPORTS
G.D.A.C.H. - D.P.C.A.

PALAMARI SKYROS
SCIENTIFIC COMMITTEE

Informative Brochure

"Research, Conservation, Arrangement, Protection and Presentation of the Fortified Prehistoric Settlement at Palamari, Skyros"

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THE HISTORY OF THE EXCAVATION

In 1979, the antiquities guard of Skyros *Achilles Katsarelias* collected from the cape *Kastraki* at the *Palamari* of Northeastern Skyros a large number of prehistoric pottery sherds and obsidian chips among the bushes and the thick depositions of sand; there, in several spots, sections of walls of big buildings were visible. The then Ephor of Evia and Skyros Mrs. *Evi Touloupa* immediately visited the area, noted its importance and the need for its research and organised a trial excavation, which was held in 1981, thanks to the small yet precious funds of the Ministry of Culture through the Fund of Archaeological Resources and Expropriations.

The archaelogists *Maria Theochari* and *Liana Parlama* undertook the project of the excavation, and the first sections at the centre and on the northern part of the cape's plateau were opened up based on the thorough topographic imprinting of the area of visible antiquities, which was carried out by *Nikos Papastamopoulos*. The existence at this specific area of a settlement of the Early and Middle Bronze Age, that is to say of the 3rd and the 1st centuries of the 2nd millennium B.C. was confirmed. From the beginning the potential of the site was evident from the type, size and quality of the buildings, the multiform pottery as well as the other findings, such as the metal objects, which implied contacts with the big islands of the N-NE Aegean, the Cyclades, Evia and the continental Greece. The abundant remains of the local- in situ- elaboration of obsidian, led to the conclusion that in this coastal area a settlement had been developed which, among other things, had also been an important station for the distribution of this precious material of the prehistoric period in the Aegean. Following the results of this first research, the area was declared an Archaeological site, was disappropriated by the Ministry of Culture, and the excavation continued from 1985 until 1998 in a systematic way. To the excavation team also contributed the archaeologists *Elisabeth Chatzipouliou-Kalliri* and, at time, *Christos Agouridis*.

1981

The difficulties during this period, despite the support of the *IA Ephorate of Antiquities* and especially with the aid of the *Skyros Museum personnel*, were many, and would have been insurmountable, had the *Municipality Skyros* and the local society not supported the efforts of the archaeologists with fervor. The municipality of Skyros entirely funded the excavation project, and its contribution has been more than decisive for the development of the work. Research from 1985 until 1994 was focused on Sector B, where the buildings and the objects of all kinds, of daily or of other particular use found among them, gave constantly more evidence of an open and active society, confirming the initial estimates for the importance of the settlement. With the study of the material and the stratigraphy of the excavations a

chronological frame was formed, where 4 successive phases of inhabitation were distinguished with no intermediary voids. The phases *Palamari I*, *Palamari II*, and *Palamari III* correspond to the periods 2 and 3 of the Early Bronze Age (3rd millennium B.C.), and the phase *Palamari IV*, to the early years of the Middle Bronze Age (the beginning of the 2nd millennium).

In 1995, thanks to the donation of the antiquary doctor of Skyros *Giorgos Nikolaou*, it was possible recall from Athens the foreman of the excavations Mimis Alagiannis, and thus to attempt the difficult task of detecting the limits of the settlement. This effort has been determinative since it led to the revelation of the complex, powerful and exceptionally maintained Fortification with the semicircular bastions, the ditch and the precinct walls. This discovery, was the undeniable proof of the significance of the area not as a simple island settlement anymore but as a fortified city of the Aegean, and from then on it placed the research on a different basis, which continued until 1998 with funds by the *Psycha Institution* for the maintenance of the walls, as well as by the Scientific *Institut of Aegean Prehistory (INSTAP*), which has been systematically funding the scientific activities as well as covering several other needs of the archaeological work ever since.

2001

In 2000, the *Ministry of Culture* gave the chance to this particular work to be further enhanced. The important results of the excavations, the need to intensively continue the research on the Fortification, but also the obligation to deliver this site as an organised archaeological site open for visitors to the local society, led to the approval and integration of this project to the *Fund of Credits Management for Archaeological Projects of the Ministry of Culture* of the Program *Research, Conservation, Arrangement, Protection and Presentation of the Archaeological Site of Palamari, Skyros*. This program was partly financed by the Greek State as well as the *3rd Community Support Framework of the European Union* (Regional Operational Program of Sterea Hellas and the Operational Program CULTURE). It has functioned under the supervision of the Scientific Committee, and was completed in 2008, when the site was delivered in its current form. The archaeological team was further supported by the archaeologists *Stamatis Bonatsos*, *Christina Romanou* and *Yannis Manos* and was framed by special collaborators that contributed with their work in all areas and fields necessary. Of course many are yet to be carried out in Palamari in terms of archaeological research. However, the site henceforth has been protected; its leading monument, the Fortification has been revealed, and the most important mobile findings are exhibited at the Museum of Skyros. The advancement of the planned extension of the project is currently under way, so that the archaeological wealth of the island may be further and more suitably enhanced.

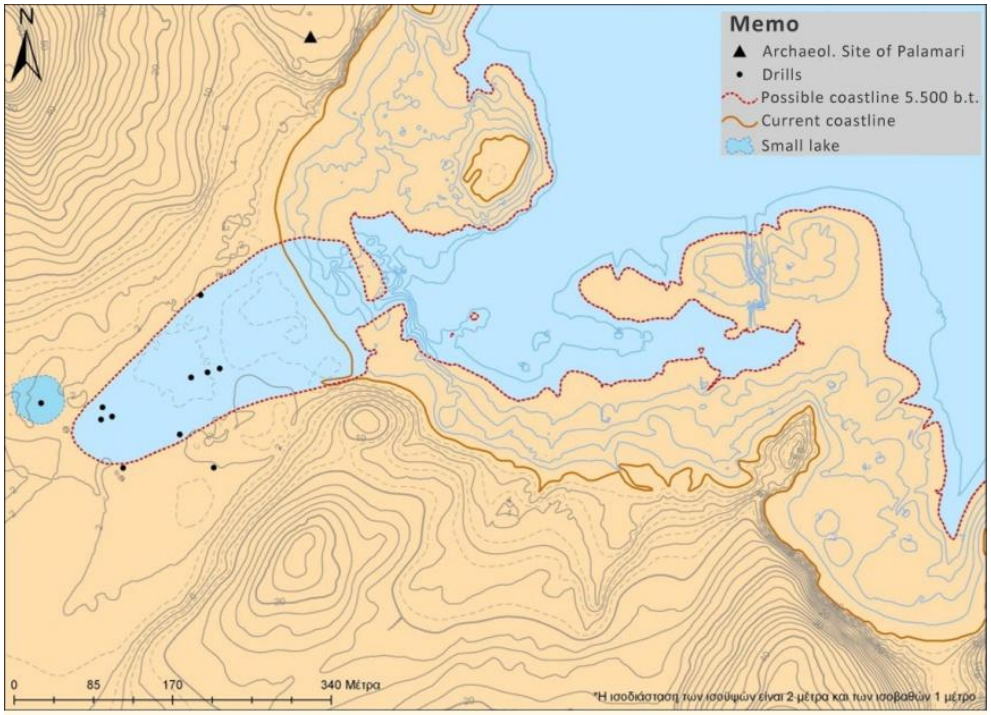
TOPOGRAPHY

At the north-eastern edge of Skyros, on the ridge of a low cape, which blocks the north-western side of the homonymous cove, a plateau is formed with its highest current altitude being 19,49 meters from the surface of sea, and extending at an area of approximately 17 acres, over which the remains of the prehistoric fortified settlement of Palamari are maintained. The hill to the east has a slight bent and ends in an abrupt precipitation where a natural section has been formed, in which one can detect the ancient embankments and the foundations of the buildings. The northern side descends abruptly in a small cove that has been shaped by the sinking of the ground and its entry is closed by rocks. Only the western side is even and even less so the south-south-western side, leading to the existing beach.

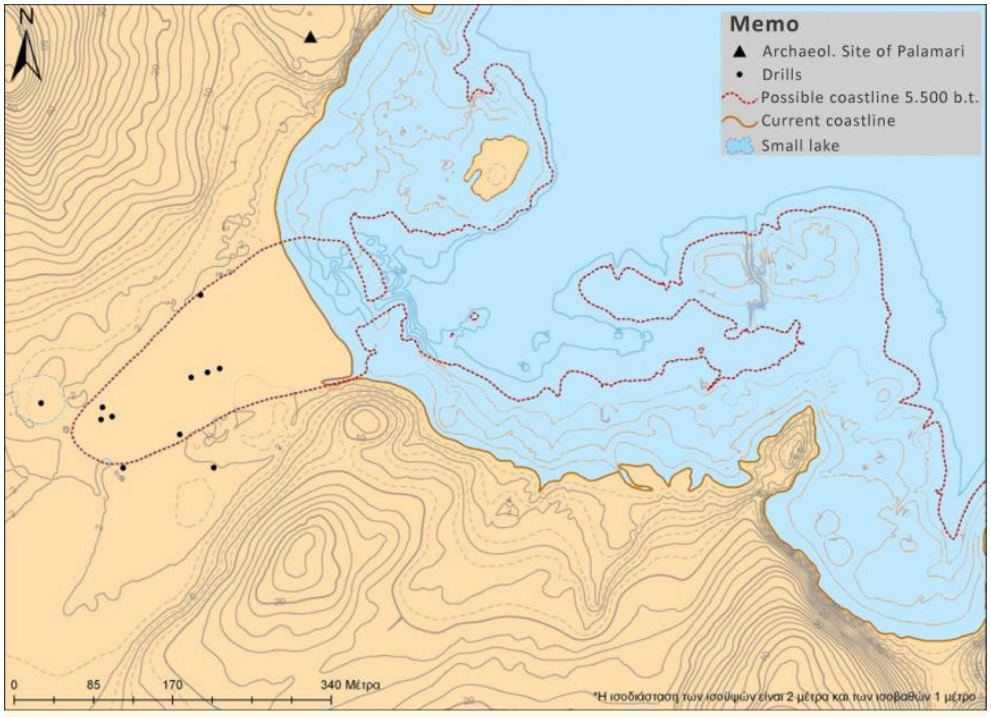
At the Palamari cove, debouches the river Limna that springs from piny, mountainous banks at the western side of the island, crosses the Trachi area and forms the valley between Polichri and Lakkous, the low mountain above Palamari. This river most probably supplied the settlement with water.

The ancient settlement extended far beyond the remaining 17 acres, yet we cannot however calculate the initial area with precision, while its eastern side has been sunk. The geomorphological data of the area make it ideal for the installation of people during the 3rd millennium B.C. As it has been proved by the recent geomorphological analyses, the coastline around the 3rd-2nd millennium B.C. was completely different from the one current. The mound of Palamari was extended further to the east, until the islet in the middle of the cove, thus shaping a leeward, natural harbour. At the south-eastern part of the settlement, a small zone of land with a narrow opening created, in the area where the beach is found today, a shallow lagoon with subsaline water, which could be a second harbour for the light ships of that era.

Today, the entire eastern side of the ancient settlement and part of its northern section have been sunk, with sole residue the islet in the middle of the cove, as a result of earthquakes, sea waves and winds in the passing of centuries, while the lagoon has been transformed into a sandy beach.



Palamari bay: Bronze Age coastline



Palamari Bay: current coastline

(Geophysical study prof. C. Pavlopoulos and associates)

PALAMARI AND ITS POSITION IN THE AEGEAN OF THE EARLY AND MIDDLE BRONZE AGE

The fortified settlement at the easily harboured bay of Palamari is found in a crucial position, at the centre almost of the Aegean, where most certainly marine routes for the communication between the coasts and islands of the Archipelago crossed paths; from the Cyclades up to the northern Aegean, and from the Asia Minor coast they reached down to Evia and Pagasitikos. Before its excavation, our own knowledge of the Early Bronze Age in Skyros was minimal while for the Middle Bronze Age it was almost non-existent. Along with the excavations of recent years at the Skala Sotiros in Thassos, Mikro Vouni in Samothrace, in Myrinna and Koykonnisi of Limnos, as well as in several new sites in Lesvos, the picture of the outstanding Civilization of the Northern Aegean is essentially completed, as it is known to us from the great excavations of the big centres, such as Troy and its surrounding area: Poliochni of Limnos, that has been called the first city of Europe, Thermi in Lesvos, Emporio in Chios. Palamari being as it is at the focal point of the central Aegean, lies in a key position for the exploration of relations of this culture with the Cycladic and Helladic one in the 3rd millennium B.C., during which the boom of the metal revolution dominates and regulates the developments in the Aegean Sea. It continues, however, to play an important role at the beginning of the 2nd millennium, when the correlations change progressively and a new order of things is unfolded in the Aegean.

The basic element of Palamari's importance is its complex and powerful Fortification, which is excellently maintained at a length of more than 200 meters. The fortifications of this characteristic type, which with the semicircular shape of their bastions defined a new more advanced concept as far as defensive possibilities are concerned, were presented in the Syropalaistinian area at the end of the 4th millennium B.C. and were rapidly difffused during the 3rd millennium in the entire Mediterranean (Tel Arad, Arslantepe, Limantepe, Lébous, Los Millares, Leceia, Vila Nova de São Pedro). In the Aegean, fortifications of cities and settlements with various types of systems, from the powerful walls of Poliochni and Troy II, to the simple enclosures such as those of Askitario in Attica, were quite common from the beginning of the early Bronze Age. On the site Kastri of Syros, Christos Tsountas had excavated in late 19th century, for the first time in the Aegean area, a fortification with semicircular bastions and traverse. Since then, and mainly during the last decades, a series of sections of such fortifications have been revealed, from the islands of Imbros and Thassos until

Lerna in Argolida, the site Kolona in Aegina, as well as Naxos and Amorgos in Cyclades and Heraio in Samos. From the data available today, it emerges that, before the middle of the 3rd millennium B.C., coastal sites are fortified with this advanced system of fortification or those very near the coasts, which are accessible through the currents which determined the routes of marine communication. These places are geographically distributed in the entire Aegean, and we can actually speak of a wide-spread networking of coastal sites that are protected by such fortifications. The excavation in Liman Tepe in the gulf of Smyrne of a section belonging to a very strong wall with an enormous semicircular bastion indicates one of the land routes of Asia Minor, through which the new fortification type found its way to the Aegean.

The Palamari fortification constitutes a serious indication that the settlement participated in very important movements and activities in the Aegean in the middle of the 3rd millennium B.C., movements that were connected to the expansion of contacts, the increase of transit trade, and the blooming of metallurgic activities. It is an era during which settlements and cities flourish in the Eastern Mediterranean, and either through sea or through Cyprus, or even through the land routes of Asia Minor, the traders, carriers not only of products and of an already developed technology, but also of the new ideas of a different world, finally reach the area where the Aegean and Helladic settlements - which already had from the Neolithic Period a long and exceptional cultural tradition- are already in a stage of essential development and organisation, following the model of urbanisation. The new technologies and the innovative ideas of the East that rapidly diffused in the Aegean area and in continental Greece are in fertile ground there, contributing to new ways of organisation and production.

As far as Palamari is concerned, this which is so far substantiated by the findings of the excavations, (mobile and fixed) is the existence of one flourishing coastal settlement in Early Bronze Age 2, which is evolved into a fortified city in EBA 3, and continues to exist, passing smoothly to the period of Middle Bronze Age precisely as is the case at the Pefkakia site in Volos, in Koukonisi of Limnos and in Molyopyrgos in Chalkidiki. Palamari at this period, provides elements of an impressive urban organisation, while at the end of the 17th century B.C. it is abandoned, and the unnamed city, which played a significant role in the Aegean for at least a millennium, or perhaps even more, remained for 3.500 years buried under thick depositions of sand.

SETTLEMENT AND FORTIFICATION

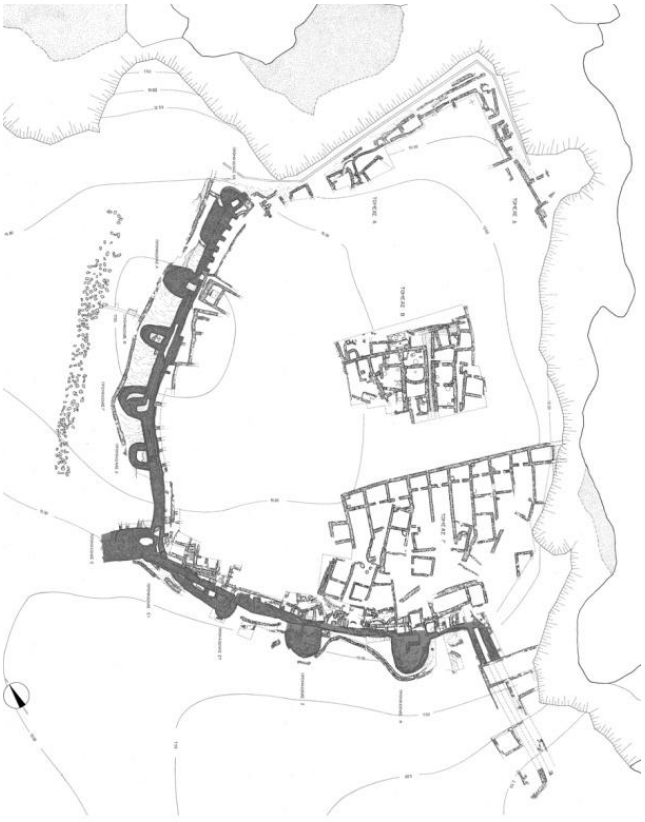
The findings of the excavation testify that Palamari has been continuously inhabited for a long period of time that can be defined, by the data available to us so far and with the help of radio-dating, from the EBA 2 until the end of the MBA that is to say roughly from 2800 until 1600 B.C. Very few parts of the Settlement have been excavated or are simply revealed; consequently we still ignore what was the outline of its urban configuration in each phase of the inhabitation periods. However, from the visible surface walls it is obvious that the layout is dense extending to the full 17 acres of the area inside the walls. Yet, the existence of a pavement which ascends from the southern wall towards the city, and the network of the built drain pipes, which has been pointed out on several spots, constitute an indication of the organisation of the area along with the possible implementation of community works. Characteristic samples of the buildings and the other constructions were brought to light by the excavations in Sections B in the centre of the area, and Γ in the SE part of it, as well as during archaeological cleaning of the terminal structures (sections A and Δ), at the east and north periphery of the settlement.

Paved street
at the SW part of the Site

In sector B the megaron-type and stone-built in their full height houses B, C and D were revealed, with a street in between, the use of which was continuous, with repairs and limited modifications in phases ***Palamari II*** and ***III***, which is the period from the middle until the end of 3rd millennium B.C. In sector B but also in other parts on the perimeter of the Settlement, some domestic workshop areas have been identified; the existence of which, along with the rich household paraphernalia of the houses (ceramic, metal and stone utensils and tools, objects of "prestige" and small object all kinds), establish the existence of various occupations, actions and specialized activities of an organized and productive society, always according to the standards of the specific period; there the first signs of "early urbanisation" are evident.

The prime of the Palamari settlement is also continued in the era of MBA (2000-1600 B.C.); its remains are maintained to all the extent of the surface layers of the Archaeological Site. In Sector Γ, an exceptional sample of an organized, planned district of that period came to light, with the Complex A standing out, which is composed of 10 adjacent megaron-type oblong residences. It is however certain that this complex was continued further to the East, in the sunk-today- part of the area. The Palamari of this certain period, when it will be excavated, will most certainly constitute one of the most significant settlements of the MBA civilization in the Aegean.

The impressive Fortification of Palamari is of particular importance to the Settlement. It has been maintained in an exceptional state in the N-NW and the south side of the current cape and constitutes the most important and more complete, until now, sample of fortifications of this particular type in the whole Aegean. It was built before in the 3rd millennium B.C. and remained in use until the beginning of the 2nd millennium. It is an exceptionally strong and complex fortification system, the basic element of which constitutes the Wall, which is preserved at a length of more than 200 m. and at a height of 2 up to 3,50 m. It has the semicircular bastions OA, A, B, Γ, Δ on the NW part and the ΣΤ, Z and H, ones on the south part. These bastions are preserved today in different sizes, due to the many repairs and modifications they were subjected to; their surface dimensions is 5-5,50 m. reaching to 11 by 9 m. and their height ranges from 2 up to 4 m. The angular bastion E connecting the two parts with surface dimensions of 11,50 by 7 m. was changed from a semicircular one to a rampart, most probably during the last period of the fortification's use. On the two parts of the fortification there are precinct walls in front of the bastions while at the vulnerable by the land and almost flat NW side, the defense is strengthened more with the 5,50 m. width ditch of unknown depth so far, that has been artificially formed on a natural crack. The dam of stones at the length of the west verge of the ditch constitutes the first line of interception in case of attack. The rectangular orifices of the pipes in the precinct wall between the NW part and the ditch imply a system of water drainage of the Settlement towards the ditch. On the south side, where the ground is inclining and the precinct walls must have also played a supporting role, the drainage pipes penetrate the body of the wall at several places. An important element on the SE outmost part of the Palamari fortification is the two long, strong, parallel arms, which descend to the beach, probably protecting the contact with the mooring cove and the distribution of people and goods between the city and the hinterland. The speculation about a special configuration of the fortification at this point is also strengthened by the presence of the two bulky bastions Z and H whose shape could well be repeated on the other side of the arms.



Greay lines indicate the Fortification
(drawing by P. Defterigos)

HOUSE Γ

In Sector B the preservation of the buildings, as it is evident from the photographs, is very good, thus providing us the chance to extract some conclusions on the form of the Houses, the way they had been built along with the type and the use of their space. The alterations, the new conversions to already existing buildings, the reconstructions after partial destructions most possibly due to earthquakes, are quite discernible in the consecutive building phases, attesting to the changes that took place through time. The remains of the Houses that we see today belong to a long period of time, of nearly 5 centuries, from the middle until the end of the 3rd millennium B.C. The earlier and lore long-standing are Houses B, Γ and Δ. The Houses A and E of the Middle Bronze Age, built in the beginning of the 2nd millennium and henceforth on the filled remains of the previous Houses, are partially preserved, since they belong to a not so thick fill, right below the current ground surface. This insufficient maintenance does not, therefore, allow for the identification of the actual form of the construction net into which these remains belong; it is certain though that the layout of these Houses at this specific point of the area during the MBA was not different by that partially uncovered in Sector Γ.

Airphoto of Section B′

"Depas Amfikypellon".
EBA II/III
("Kastri phase")

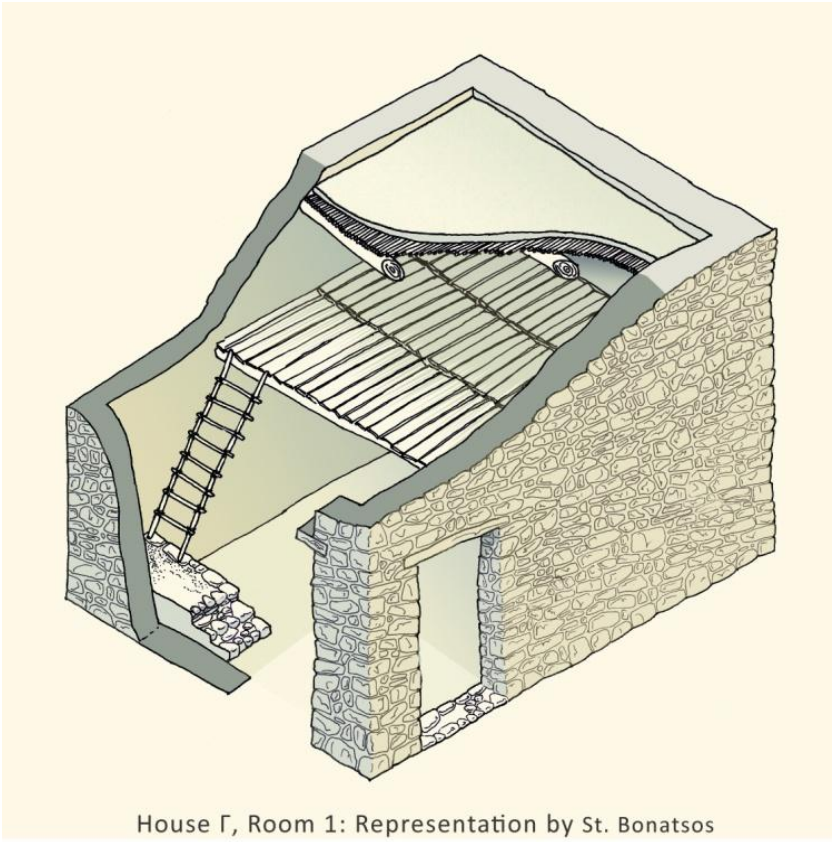
Room 1 of House Γ, with its walls being preserved at a height of approximately 1,70 m. has been selected for the attempted restoration, since its architectural elements have been very well preserved. We are supposing the existence of an upper floor due to the width of the walls, and especially the western one that reaches 1,10 m. in width, but also because we think that on the stone, stepped construction of the NW corner, was leaning a mobile, wooden ladder, which led to the upper floor. Findings from this room and from other areas of this Sector, allow us to come to a conclusion about the way the flat roof was constructed: it was made of beams, seaweed and reeds with a sealing, external overlay common to the Palamari buildings. Small parts of clay mass with incorporated seaweeds, imprints of reeds also in clay, a mass of "melangi", found in the adjacent Room 4, that is to say the "nigrescent earth", the local rock soil with exceptional sealing properties found in abundance in Skyros, testify that the materials used today for the manufacturing of the

superstructures and the roof of the Skyrian houses, have been in use since the period of the Early Bronze Age. So far, from the findings, it emerges that these buildings of Palamari were stone-built throughout their height, because there exist no traces from the use of plinths in the superstructure, as is usually the case in many prehistoric Settlements. The internal manufactures in the rooms are also stone-built as well as the benches, the workbenches, and anything else found to be of use in domestic chores.


Painted jug. EBA III vessel


Two-handled cup MBA

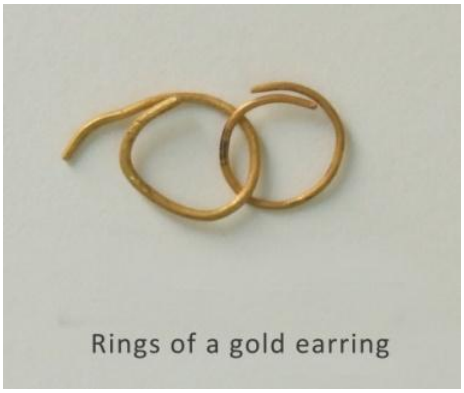
Pottery of Room 1 of House Γ is depicted here with other similar ones from the Houses of Sector B according to stratigraphic order, so that the chronological phases in this area can be well documented; they testify to the continuous inhabitation from the Early to the Middle Bronze Age. The depicted findings are exhibited at the Archaeological Museum of Skyros.


House Γ, Room 1: Representation by St. Bonatsos

METALLURGY AND METALWORKING AT PALAMARI

The significance of the fortified settlement at Palamari and its connections with other centres in the Aegean, Asia Minor, and the Near East during the 3rd and 2nd millennium BC is strengthened by the large assemblage of metal artefacts and metallurgical remains recovered, important both in terms of the nature and quality of finds, as well as for the potential for understanding their manufacturing technology. The copper-based artefacts, made of unalloyed or alloyed copper (approximately 170 objects, including weapons, jewellery, tools, vessels, as well as numerous slags and the lead artefacts (mainly rivets for repairing pithoi or other large ceramic vessels, but also hair-rings (sfikotires), spools, spindle whorls, as well as fragments of sheets are by far the most common, while 2 gold ring-shaped earrings, and two fragments of silver pins were additionally found. Several metallurgical vessels and wastes (moulds, mortars, crucibles, metallurgical slag fragments and others), as well as metallurgical furnaces, have also been identified, implying in situ working for the manufacture and/or repair of metal artefacts. Mineralisations, even small-scale ones of gold, silver, copper, and lead, were not identified on Skyros and the relevant ore sources therefore need to be sought beyond the island. The geological investigation, however, suggested that the argillaceous loose sandy sediments found in the immediate vicinity of the fortified settlement bear morphological, mineralogical, and micropaleontological characteristics, identical to the ones identified through optical microscopy in the ceramic crucibles recovered from the excavation. In addition, the mineralogical composition, texture and colour of the fine schist temper, deliberately added to the clay paste of the ceramic moulds in order to improve their thermal strength, are similar to those of the local micaceous schist, which forms one of the main components of the "alpine basement", located at a small distance south of the ancient settlement. These observations indicate that the raw materials used in the preparation of the metallurgical ceramics during the 3rd and 2nd millennia BC most probably come from local geological formations-sources.


Bronze weapons


Rings of a gold earring

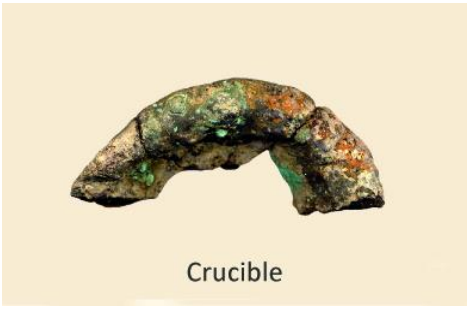

Lead spools

Based on the analyses of metal artefacts from Palamari carried out so far, all the copper-based objects are composed of copper alloys, the most common being arsenical copper. Four objects made of tin-bronze have been recognised so far, while two artefacts contained both tin and arsenic. This chemical composition is not surprising among Aegean artefacts dating to the end of the 3rd to the beginning of 2nd millennia BC. Lead is frequently also found in small quantities in the copper-based objects, and its presence is possibly due to the wide use of

crucibles, as suggested from numerous slags, which are the remains of crucible metalworking activities, rather than smelting. The use of unalloyed copper at Palamari, is however, suggested through the analysis of a copper spill stuck on the surface of a pottery sherd, which was found to be composed of pure copper.


Bronze jewelries: pins & bracelet

The analytical examination of 30 metallurgical samples, among them 17 slags, concluded that there is no evidence for smelting of ores at Palamari. Instead all the remains appear to correspond to secondary metalworking activities, such as recycling, refining, and possibly working. The crucibles probably had several uses, both in the recycling of copper-based as well as lead artifacts. The manufacturing technology of the few crucibles studied appears to differ depending on where they were found within the settlement. It is therefore possible that the melting of metals was not practiced only by specialized workmen, but by several inhabitants of the settlement, with at least some of them not possessing the necessary technical knowledge.


Crucible


Mould for bronze axe

STONE TOOLS

Since the Paleolithic era, man used stone as a raw material to make stone tools for his daily needs including food production, metals processing, hunting, fishing, etc. Detailed cataloguing and study of stone tools can offer valuable insight into the technology, economy, and evolution of human civilization.

Ground stone tools:

Ground stone tools examined in this section are those whose surfaces have been ground down through the use of other harder stone tools. In Palamari, a very rich assemblage of ground stone tools of various types, shapes and sizes haw to date been found. These tools were used in many different activities including agricultural production, the manufacture of pigments and metals, weaving, fishing and warfare.

Milestones, grinders, mortars and pestles

Millstones – Grinders:

The term millstones, refers for prehistoric times, to stone slabs on whose upper surfaces, processing of various products was executed by hand, using grinders (rubbers, handstones) with reciprocal or rotary motion.

Typology of millstones is based on their shape and use. The millstone assemblage from Palamari comprises all known basic types and shapes of the Early Bronze Age. (elliptical, rectangular, ovate). Grinders are found in various shapes and sizes determined by their use (cylindrical, etc.), most are spherical or ovate.

Spool grinder

Mortars and pestles:

Mortars and pestles were used for crashing and grinding various products. Most mortars have the shape of inverse cone and most pestles are cylindrical. Large, heavy mortars must have been used in the processing of metals, especially copper.

Of great interest is an impressive assemblage of reel shape pestles, made with special care, from different rocks and various colors.

Stone hummers:

Hummers are ovate and their surface was grooved where the handle was lashed. They were used for heavy work.

Hummers

Stone weights:

Stone weights were used in weaving looms and fishing nets. For these purposes simple stones or pebbles were shaped and a hole pierced through them for hanging.

Weights

Catapult balls:

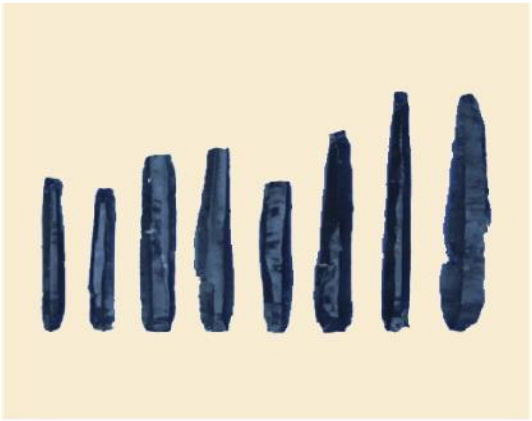
Around the settlement's defensive wall and bastions many ovate pebbles were found that once served as catapult balls for defense against besiegers.

Raw materials:

For the production of ground stone tools a variety of raw materials, both local and imported, were used in Palamari. Selection of raw materials was made according to a tool's final use. For the construction of millstones, mortars and hummers, volcanic rocks were preferred (andesite, dacite, etc.). Further study and analysis currently in progress will soon shed light on the question of the provenance of these volcanic materials. Wide use of stone tools in Palamari, attestified archaeologically during all phases of the settlement's life from Early Bronze II through Middle Bronze I (ca 2500-1750 BC), occurred in distinct areas characterized by investigators as "workshops", and points to social organization, labor specialization, and production intensification aimed at creating a surplus that could be exchanged through the newly flourishing process of maritime trade in the Early Bronze Age Aegea

OBSIDIAN AND FLINT-FLAKED STONE TOOLS

A large number of flaked stone tools were found in Palamari, made mainly of obsidian and flint. Since the earliest phases of Prehistory, the manufacture of flaked stone tools is based on the assumption that, with the appropriate knapping technique, (direct or indirect percussion or pressure), sharp flakes can be extracted by certain hard siliceous rocks with conchoidal fracture, mainly fine-grained and homogenous stones like flints, cherts, jaspers and chalcedonies. The most common of this siliceous materials are usually found in the surroundings of the prehistoric sites, but some of them, of the finest quality, have to be imported.



Obsidian blades

Obsidian is a volcanic glass that can be flaked for the manufacture of stone tools, mainly by indirect percussion or by pressure. There are only four known obsidian sources in Greece, which are all found on the volcanic islands of the southern Aegean volcanic arc: Antiparos, Melos, -with two different sources-, and Yali, a small island near Nisyros. During the Greek Prehistory, only obsidians from the two sources in Melos had a widespread use for the manufacture of stone tools; those from the quarry "sta Nychia" at the entrance of the Adamas bay, and from the quarry Demenegaki at the eastern, precipitous coast of the island.

During the Neolithic Age in mainland Greece as well as in the Aegean, Melian obsidian, was the preferred material for the manufacture of cutting stone tools and was acquired through complex exchange procedures. Despite the use of tools and weapons made of metal during the Bronze Age, obsidian and flint flaked stone tools continue to be the most numerous category of cutting tools for everyday and industrial use.

Obsidian arrowhead

With Palamari at its peak in the 3rd millennium B.C., chores such as harvesting, cutting and treatment of soft materials (wood, reeds and natural fibers, as well as bone, horn, hides etc) and many industrial activities were carried out with flaked stone tools. The Palamari obsidian is brought from Melos's quarries; one example must have come from the Cappadocian obsidian sources. At the same time many varieties of local or imported flint were also being used.

Several thousand artifacts have been found at the excavation of Palamari, most of which are blades and the by-products of the blade manufacturing procedure. Pressure knapped blades are oblong products, usually 10 cm long, with straight, parallel cutting edges. They were ideal

knives covering the everyday needs of the prehistoric inhabitants of Palamari at their chores in the fields, the sheepfolds or in the household as well as the preparation of food and the toilette; also at the workshops and in many manufacturing activities. The construction of these sharp, prismatic blades entailed special skills: after the careful preparation of the core, the removal of blades was carried out by pressure; only the perfect Knowledge of this technique could ensure the production of standard series of prismatic obsidian blades.

Flint blades

Since several core blades were found in Palamari along with numerous by-products, which are characteristic of the pressure technique, the local exploitation of obsidian cores by specialized knappers is therefore supported. As far as the tools are concerned, at least those formed by a specific retouch which is the intentional intervention to the flakes or blades for the manufacturing of specific implements tool such as a drill, a sickle, a scraper or a projectile point, they are not numerous. Denticulates, splintered pieces, blades and the flakes with lateral traces of use are those mainly found in large numbers at Palamari. The arrowheads with a notched base found at the Fortification area, belong to a very characteristic category of weapons dating to the end of the Early Bronze and the Middle Bronze Age.

ARCHAEOZOOLOGICAL REMAINS

The excavation in Palamari has produced a large number of archaeozoological material which is being currently researched/studied. Here, we present the concise conclusions deriving from the data of the excavations carried through at the Houses of Sector B.

1. *Cattle bones*. The recording and analysis of the bones found in the settlement's houses (section B), proved that a part of the nutritional remains was from cows. On an average, the percentages were 9,2% of the total of the collected bones and 9,7% of the total of the domesticated animals. The percentages are indicative and are related to all function periods of the houses. The refuse reflect the basic trends of the settlements' zootechnics. Indeed, since the majority of the survived teeth and the 84% of the bones which give data for the growth rate of the animals, are derived from adult cattle (the rest are of age 1,5-3 years), we could assume that few calves were slaughtered for their meat and the rest at the age of 7-8 years, after they had been used in agricultural labours. No indications for senile animals exist.

2. *Goat and Sheep bones*. Goats and sheep constitute the 78% of the total of the animal remains and the 82,4% of the bones of the domesticate vertebrates, which were revealed in section B near the centre of the Settlement. The quantity of the fragmented bones testifies that the goat herds were managed in a quite larger number than sheep. The death curve for sheep and goats hasn't showed important differences in animal management per period. Few animals survived after the age of 4 years, which, according to ethnographic observations, reminds us of an economy based on meat production. However, the avulsion of more young animals from their mothers during the last phase of the Settlement (phase IV or Middle Bronze age) indicates a turn to dairy products. In that phase 75% of the animals was alive at the age of one.

3. *Deer bones*. Red deer bones are very few, deriving from young and adult animals. They correspond to 0,5% of the total remains and 8,86% of the wild animals. Red deer was hunted. We don't know, though, at the time being, if an isolated population lived in wooded areas of Skyros or if the animals were transferred from nearby Evia, which has a better variety of biotopes (e.g deciduous forests, pleasing to red deer). One metatarsus fragment could be from roe deer, but this was not confirmed from the subsequent findings.

4. *Hare bones*. Hare bones correspond to 4,7% of the total of the bone assemblage and 87% of the game remains. Without any doubt hare hunting was the simplest and therefore the most preferred hunting for Palamari's settlers.

5. *Dog remains*. Adult dog's skeletal remains have been sporadically found in all the layers. They make up a 0,2% of the examined assemblage. One tibia bears traces from a sharp object (thin incisions). This indication combined with the fact that at least in section B an animal burial doesn't exist, leads to the assumption that dog eating, popular in Neolithic period, is also preserved as a custom in the first millenniums of Bronze age.

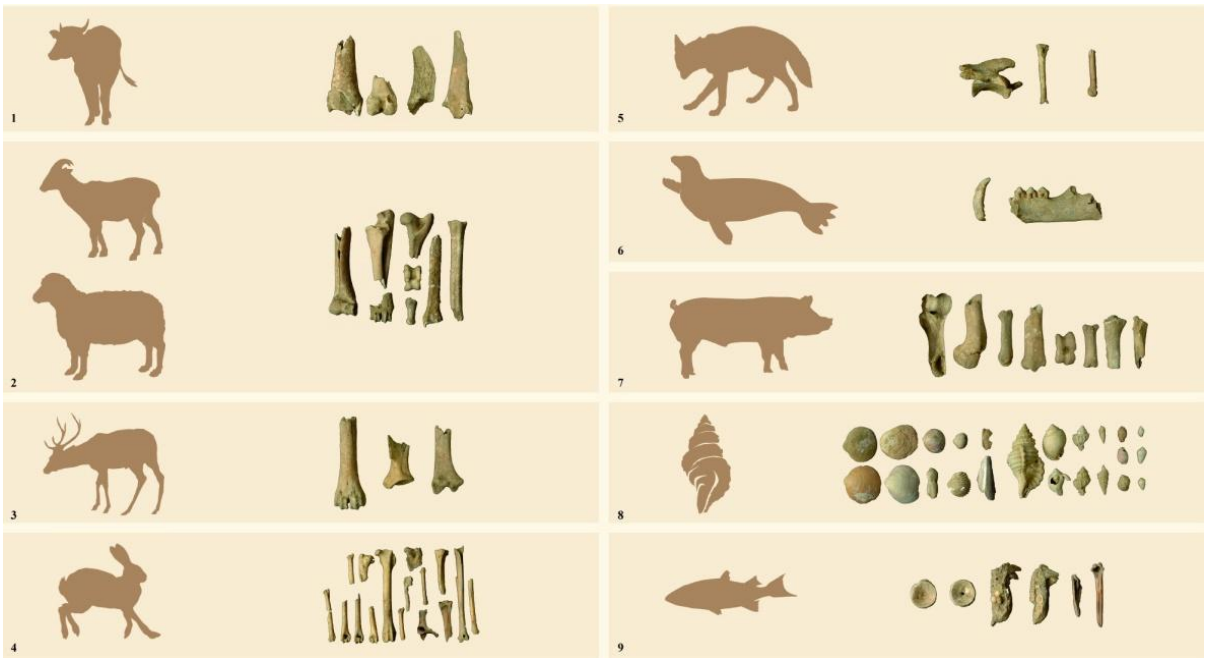
6. *Mandible and Canine of Mediterranean seal.* In Skyros these are the only, at the moment, samples of this sea mammal and they don't present any butchery marks. The earlier, until now, seal remains have been traced in the archaeological horizons of Cyclopes' cave in Gioura island (Alonnisos, N. Sporades) during the Mesolithic and Neolithic period as well. It is possible that the animal was hunted, since seals live in shallow waters near rocky and steep shores, mostly because these two fragments were found together with other bone fragments. A

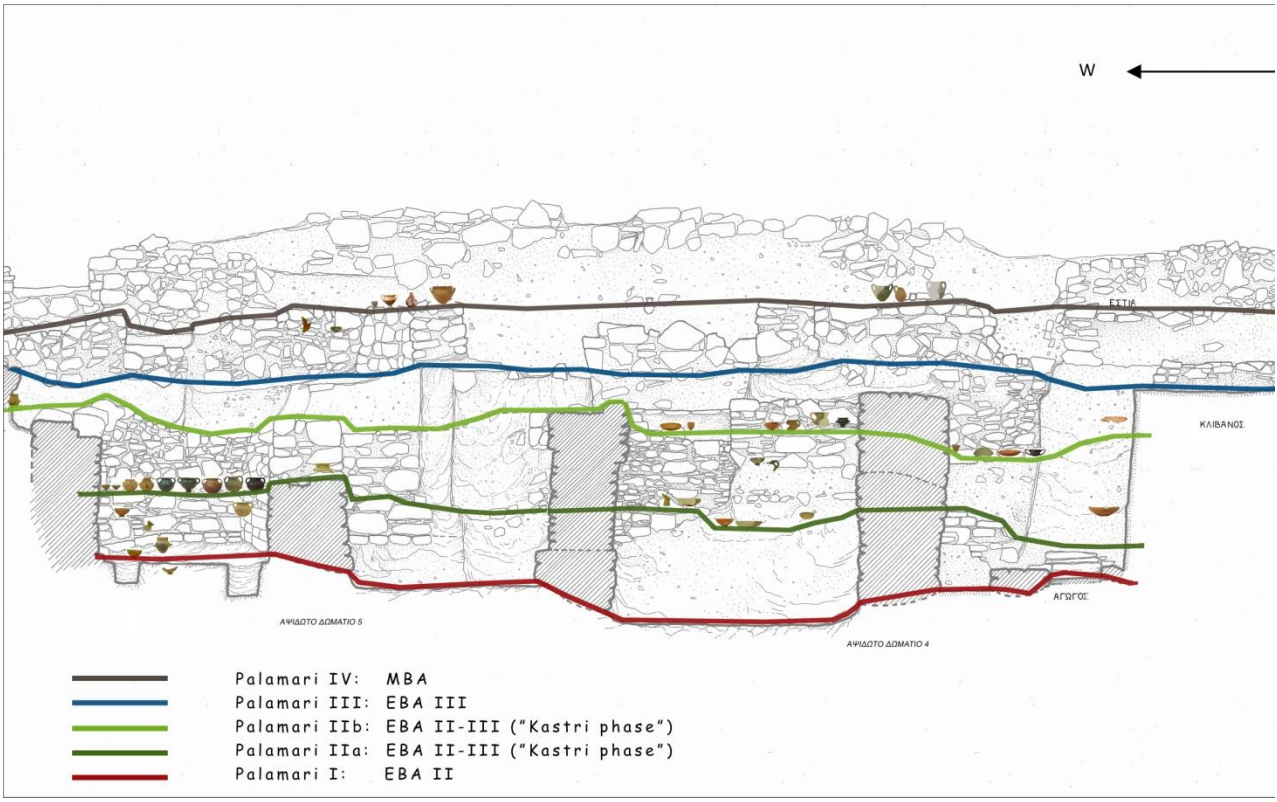
seal burial was found in the place of the present commercial port of Rhodes, but belongs to the historic period.

7. *Pig bones*. Pig bones constitute the 7,8% of the total of the bone assemblage. These percentages are related to the fragments' number and not to the animal's number (in our sample we have data for 3 males and 4 females) or the quantity of the consumed meat. They are, however, indicative, for the pig's role in the economy of the Settlement.

8. *Sea and earth organisms*. Shells and earth snails. During the excavation in the centre of the settlement (sections Β and Γ) a lot of gastropod species and bivalve mollusks, the common title of which is snails and warty-stripped venus shells as well, and the remains of other sea organisms (urchins, crabs etc) came to light, the majority of which was consumed. The most common shells come from the species Patella caurulea, Patella rustica (the known limpets which live attached to rocks in the middle coast zone), Monodonta turbinata (Topshells live between the rock breaks in the middle coast zone) and Glycymeris glycymeris (Dogcockles live in muddy, sandy and graveled bottoms, where they stick their muscular foot). So, through these invertebrate organisms, we get a picture for the sea environment and the activities of the Palamari settlers. It should be noted, furthermore, that earth snails belong to mollusk species that is to say in the invertebrate animals, which have soft body and usually small size. In Palamari during the excavation of the wall a large quantity of snails was gathered, the majority of which belong to the species Helix melanostoma.

9. *Fish bones*. Parts of the skull (mandibular zone) and the vertebral column. Fish bones are very few. The majority belongs to the taxis of perch, Sparidae family.





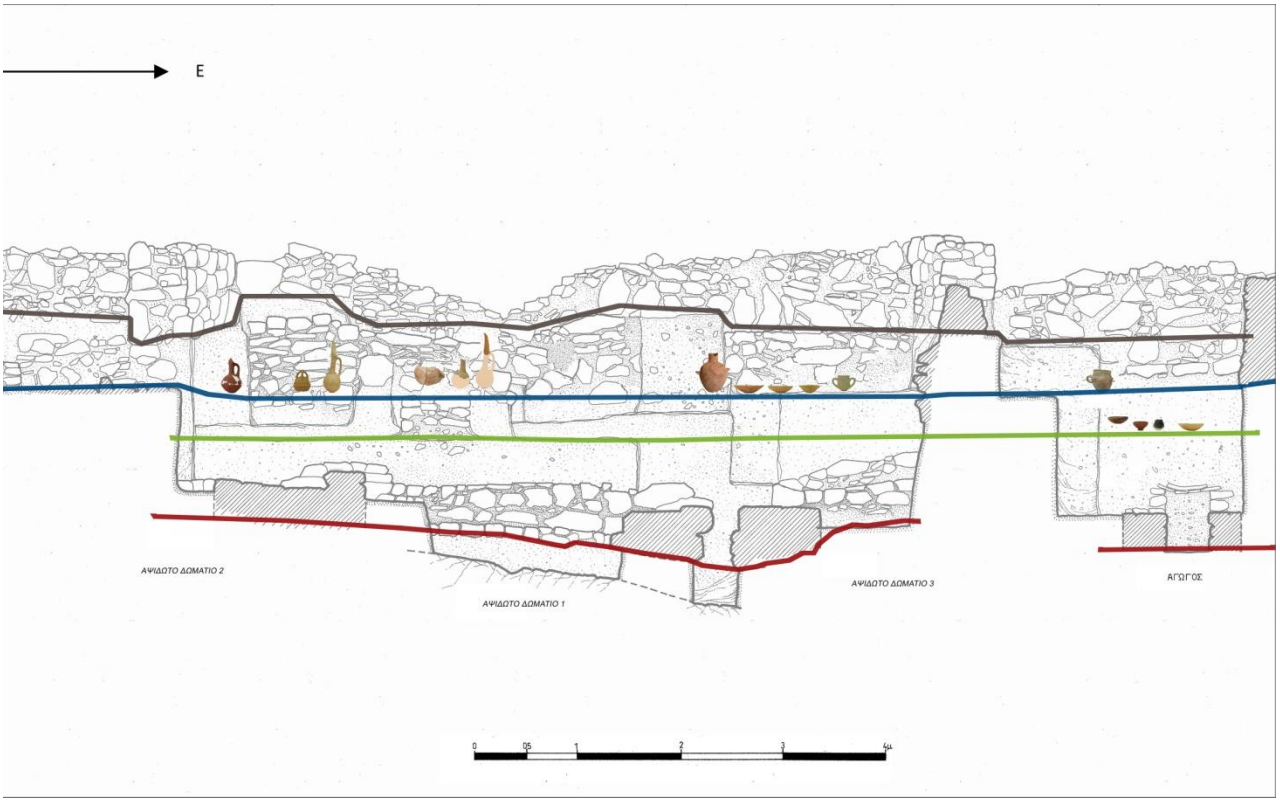
REPRESENTATION OF STRATIGRAPHY

In the Visitor's Building you can see a wall representation, in a scale of 1:10, of the stratigraphy that was emerged from the systematic research of the years 2004 and 2006 in the area of the Exploratory Section 6 of the excavation, between the big bastions Z΄ and H΄, on the inside of the Southern Fortification.

It is therefore the depiction of layers and the placement of ceramic findings, which were found on the floor of each layer in one conventional straight line that corresponds to the level of layer to which they belong.

The excavation in the Exploratory Section 6 proved that there has been a continuous and ceaseless activity in Palamari from the Early Bronze Age II until the Middle Bronze Age (2700-1650 B.C.). This is established by the continuous phases of construction and reconstruction of buildings, the configuration of the inhabited area, the reconstructions and repairs of the existing fortification wall with the regulation of rain waters, and the existence of abundant and well preserved pottery in all the corresponding phases. The static problems in the constructions of this side of the settlement were always grave due to the abrupt slope of the hill and the continuous flow of rain waters. Consequently, the repairs and reconstructions were obligatorily on a permanent basis.

With the passing of centuries, in the areas of inhabitation of each settlement additional levels were formed with the remains of human activity. In Palamari there are 4 main successive phases of the settlement. The distinguishment of the phases is based on the combination and on the comparative study of data offered by the typology and the technology of pottery, the



architectural provision and the constructional technique of buildings, as well as the depositions of geological sediments. The differentiation between the periods is usually marked by some destruction of the area that is detected either by depositions of materials with intense marks of carbonization, or by piles of unused material that were embedded in the area before its re-inhabitation.

On the lower level of the stratigraphy, the older phase of habitation is found where the 5 semicircular (vaulted) buildings belong to, which were most likely storage spaces. These vaulted buildings are partially destroyed when the fortification wall is founded above them, at the end of the phase **Palamari I**, which corresponds to the period of *Early Bronze Age 2*, that according to the radiometric dating so far, seems to begin in Palamari in the period 2862-2602 B.C.

After the construction of the wall some kind of destruction took place, very probably due to seismic activity. The habitation area is flattened and afterwards there is a notable building activity while a lot of new buildings are constructed. This second phase, **Palamari II**, corresponds to the well known from many Cycladic and Helladic Settlements "*Phase Kastri*" *(Early Bronze Age 2 to 3)*, which in Palamari is dated in the middle of the 3rd millennium B.C., roughly from 2550 until 2300 B.C. During this whole period, many reconstructions take place along with extensions and repairs in the buildings.

In the phase **Palamari III**, which corresponds roughly to the period of *Early Bronze Age 3* of the Aegean settlements (that is to say around 2300-1900 B.C.), most probably due once more to a seismic disturbance that caused the destruction of buildings, new building activity is observed, which in the particular area of this section appears to bring about change in the building plan.

On the upper level of the section, in the phase **Palamari IV** of *Middle Bronze Age*, a new levelling and reconstruction of the settlement can be observed with an extension to the south even above the fortification wall, especially on bastion Z΄, that plays no defensive role anymore.

At the end of this period, the settlement is finally abandoned, mostly after the destruction that is connected with the increased seismic activity of the region and is most probably included in the general turbulences that occurred in the Aegean after the explosion of the Thira volcano. However, the remains of this last phase of settlement do not quite reflect the phase of its abandonment with accuracy, since it is well known that during the last century sections of the residences were still visible and therefore there was a systematic use of the available stones as building material by the residents of the island.

PLAN OF THE FORTIFIED PREHISTORIC SETTLEMENT AT PALAMARI

Black color indicates the already excavated parts of the city and the Fortification.

Yellow color indicated the unexcavated buildings of the city, according to the Geophysical Mapping of I.M.F., Foundation for Research & Technology, Rethymnon, Hellas.

All the texts of this Informative Brochure

come from the Panels of the Visitors' Informative Exhibion:

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Επιχειρησιακό Πρόγραμμα Θεσσαλίας-
Στερεάς Ελλάδας-Ηπείρου 2007-2013

Ευρωπαϊκή Ένωση
Ευρωπαϊκό Ταμείο
Περιφερειακής Ανάπτυξης

ΕΣΠΑ 2007-2013
πρόγραμμα για την ανάπτυξη

Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης