

**REPUBLIC OF MACEDONIA, OHRID
LAKE OHRID – BAY OF THE BONES
PLOCHA MICHOV GRAD
PREHISTORIC PILE DWELLING SETTLEMENT**

PROJECT

**MUSEUM ON WATER "BAY OF THE BONES"
RECONSTRUCTION OF A PREHISTORIC PILE DWELLING
SETTLEMENT**

NATIONAL INSTITUTION INSTITUTE FOR PROTECTION OF
MONUMENTS OF CULTURE AND MUSEUM – OHRID



The pile dwelling settlements, as a way of human habitat in a specific environment, are characteristic especially for Prehistory in the period of the Neolithic – the Young Stone Age, the Eneolithic – the Copper Age, the Bronze and the Iron Age.

At the European continent, they are known and explored mostly in Switzerland, Northern Italy, Germany, Austria, Poland, Bulgaria and Greece, and this sedentary way of life is maintained until nowadays among different tribes in Africa, America, Oceania and other places on this planet. Based on the underwater archaeological investigations of the pile dwelling settlements on the Swiss lakes, a separate chronological system, including three distinct periods (entitled according to the names of the settlements): Robenhausen (the oldest), Locrian (medium) and Morgien (youngest) period, filling the time between 3 500 and 500 BC is formed. (H.A.Мушмовéí 1925, 18-20).



The oldest pile dwellings were built at 50-100 m inside in the lakes, and the earliest ones even at 200 to 300 m further offshore, on the lake surfaces. This depended more on the estimate or the presumption of danger of enemy attacks of other hordes or tribes or by attacks of wild animals (H.A.Мушмовъ 1925, 18). Concerning this matter, there are different interpretations.

Namely, some scholars consider that the pile dwellings were erected by the lake water, in marshy grounds, and never in the water, *which of course is not true*. After the investigation of the pile dwelling settlement in Sipplingen on Lake Boden in 1929 -1930 Reinerth strenuously opposed the Swiss pile dwelling theory that all those settlements had been built not above the lake level, but on dry land. Only for protection from the periodic floods, the constructions were situated on a pile bridge built at 50 to 100 cm above the support (Andrzej Kola-Gerard Wilke, Archeologia podwodna, Część I, Badania w akwenach śródlądowych Europy Środkowej i Wschodniej, Uniwersytet Mikołaja Kopernika, skrypty i teksty pomocnicze, Toruń 1985, 15; Калин Порожанов, Подводната археология - разговор със *света на мълчанието*, Човекът зад находките, Археологията днес и утре (съставител Иван Гацов), Интела, София 1975, 162). In any case, aside the unilateral extreme understanding of individual scholars, there are, in fact, both types of prehistoric settlements by the lakes, and also by the rivers. So, there are also marshy, but also shore and lake settlements. Here, we shall speak of the pile dwellings, more precisely, the lake i.e. the lake shore settlements of Prehistory.



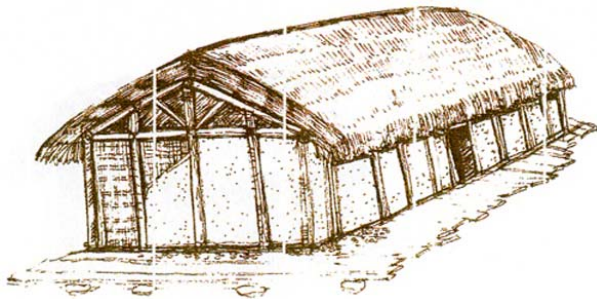
The dwellings were erected above the water on a wooden platform reclining on adequately lined wooden piles attached at the bottom of the lake. The houses were built of timber, reed and straw, and the entire settlement was connected with the shore by a light path – a bridge built in the same manner and with the same material. Because they were often caught in fires, they had to be renovated often. Hence, at the

lake bottom were created layers which, during the investigation, enabled an adequate stratigraphy, as well as discovering of the material culture based on which, and based on the other circumstances, we gain knowledge on the technical, cultural and the spiritual achievements of the prehistoric men from that period and from this living micro-environment.

THE PILE DWELLING SETTLEMENTS IN MACEDONIA are mentioned even by Herodotus (V, 16) giving a description of a lake settlement on Lake Prasiad (Lake Dojran).

Lake Ohrid, together with Lake Prespa, represents a remain of the large neogenous Deseret Lake and belongs to the Adriatic basin. The earlier investigations had determined a diluvial terrace at 10 to 12 m above the present water level of the lake and a shore line with heights of 4,0 m above the present lake level was determined. This lake had also been lower in the past. This was determined based on preserved traces, archaeological remains and other data, as well as legends. Historians, chroniclers, travelers and explorers left data based on which were registered or are presumed the archaeological values in the lake waters. There are three types of archaeological values in this lake:

1) Pile dwelling (palafitte) settlements from Prehistory; 2) Architectonic and other buildings built in Antiquity and the Middle Ages by the lake shore, and later submerged with the increase of the lake level, and 3) Submerged movable items and sailing objects during the lake traffic in Prehistory, Antiquity, the Middle Ages and in more recent times.

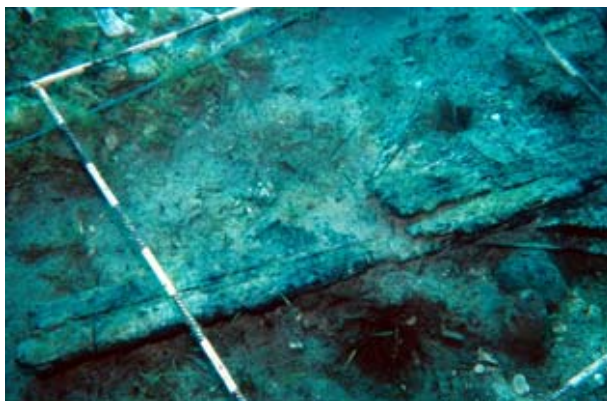


By now the most remarkable remains of the underwater cultural heritage are the remains of the pile dwelling (palafitte) settlements that belonged to Prehistory. Those are mainly remains of wooden piles attached at the bottom of the lake, as well as numerous movable archaeological materials in the area of the sites. Such sites are discovered in the Struga part of the shore and namely: **Usta na Drim**, spanning on a larger surface by the shore and in the water, at the spot where the river Crn Drim flows out from Lake Ohrid in Struga; **Vrbnik**, close to Struga, in the lake water to the west of Usta na Drim for about 2.5 km, on the position between Struga and Kalishta, to the south of the shore for about 200 m and **Crkveni Livadi**, at the village Vranishta, in the area where the river Shum is flowing in Crn Drim, a river settlement, but also of the type of the pile dwellings and close to Lake Ohrid. In the Albanian part of the lake are discovered remains of a pile dwelling settlement close to **Pogradec**. All these settlements abound with movable archaeological material chronologically appertaining to the Copper, Bronze and the Iron Age of the prehistoric epoch.

Among the above listed sites in the Struga part of Lake Ohrid, especially important is Usta na Drim, where, in 1961, during the works for regulation of the bed of the river Crn Drim, at this spot, stone and flint tools and ceramic fragments were pitched with mechanization. This was a reason for undertaking short-term protective archaeological investigation (trenches on the shore) thus collecting rich archaeological material chronologically related to the period of the Eneolith and the Bronze Age. It was a pile dwelling settlement and it had spanned on a larger surface by the shore. Actually,

there were several smaller pile dwelling settlements next to one another and the inhabitants were mainly hunting, fishing and cultivating the land. Today, the archaeological finds from this site are exhibited in three museums in Macedonia: in the Struga Museum “D-r Nikola Nezlobinski”, in the Museum in Ohrid and in the Museum of Macedonia in Skopje, as well as in several private collections in Struga.

The regulation of the bed of Crn Drim with mechanization in the 1960s was the reason for discovering another site of this type: Crkveni Livadi at the village Vranishta, at 4km distance from Struga, downriver, at the spot where the tributary Shum enters the Crn Drim. Then a protective archaeological undertaking by the National Museum in Ohrid was performed and in 1979 the Archaeological museum – the Museum of Macedonia, in cooperation with the Museum “D-r Nikola Nezlobinski” from Struga performed archaeological excavations that discovered another pile dwelling (coastal) settlement from the Bronze Age.



In the past couple of years of the 20th century were discovered remains of three prehistoric pile dwelling settlements by the eastern shore in the waters of Lake Ohrid, i.e. at the Ohrid rocky shore that was considered “hostile” for locating such type of prehistoric dwellings. In 1997 **the first underwater archaeological investigations in Macedonia**, at the site **Plocha Michov Grad**, in the Bay of the Bones, close to the village Peshtani were performed. At a depth of 3,00 to 5,00 m

were discovered numerous wooden piles attached to the bottom of the lake and numerous movable archaeological material with chronology towards the end of the Bronze and the beginning of Iron Age. In 1998 the second campaign of underwater investigations was performed at this site during which 3102 piles were discovered, numbered, measured and positioned. Underwater archaeological investigations were performed in continuous campaigns until 2002 and with interruptions until 2005, during which were discovered and documented remains of 6000 wooden piles. Based on the re-measurements of the surface area of the settlement it was determined that it had spread on a surface of about 8500 m². It was built on a platform of wooden piles attached to the bottom of the lake. The diameter of the piles ranges between 13,0 and 30,0 cm. It was determined that the closest pile to the northern shore of the bay is at cca. 12 m in the lake indicating that that is the pile of a pantone (movable) bridge that connected the settlement with the dry land. The investigations had shown that at the bottom of the lake on the area of this settlement there is an impressive concentration of complete and particularly fragmented ceramic vessels, stone artifacts and fragmented animal bones. The ceramic vessels and the fragments are mainly of rough facture and rarely decorated with relief ornamentation, and the dominant forms are the vessels with handles narrowing in the upper part and accentuated with angles, overhanging the opening of the vessel. Especially present are the horizontally placed handles, and there are also vessels without handles, pots with circular openings in the upper narrowed part, most probably used for inserting a cord or skin for easier usage i.e. carrying on the shoulders or similar. Among the ceramic handles there are such that overhang the opening vertically, and end with round or flattened cylindrical baluster, characteristic for the Early Iron Age, i.e. for the Protogeometric and the Geometric period in the Mediterranean. Among the movable archaeological material especially present are the

circular ceramic tiles with different diameter with two, three or four small circular openings. It is presumed that these objects were used as fishing tools by the inhabitants of the settlement. Among the ceramic objects there are different forms of vertebra, conical and bi-conical, as well as objects for rituals - sacrificial altars. The stone tools are mainly fragments of hand grinders for wheat, as well as complete smoothed elliptical stone objects that were certainly used as tools for clothes washing. Among the numerous fragments of bones of domestic animals, there are fragments of stag antlers probably used as tools. Based on the results of these underwater field investigations and based on the analysis of the movable archaeological material it can be said with certainty that this pile dwelling settlement belonged to the Late Bronze Age and the beginnings of Iron Age, i.e. the period between 1500 and 700 BC.



the Late Bronze Age.

In November 1998 remains of another pile dwelling settlement were discovered, this time close to the village Trpejca, the site **Na Dol** in the Bay of the Swank. Wooden piles and movable archaeological material (ceramics, stone tools) were registered at a depth of 5,00 - 7,00 m under the water surface. Then were performed test underwater investigations with surveying and photo-documenting of the remains of this settlement. Judging by the character and the specifics of the finds, it was determined that this settlement too is from

In July 1999 a third settlement by the eastern shore of Lake Ohrid was discovered. This time it is an area covering the northern shore of the village Peshtani, in part of the so-called **Bay of the Bombs**. Here there was a chance find of a wooden pile on the very shore, as well as numerous fragmented ceramics, which, according to its typological features is almost identical with the ceramic production from the previous two settlements.

There is an assumption for another prehistoric settlement in the waters of Lake Ohrid, south shore, for the site "**Military beach**" on the shore and in the lake, to the west of the monastic complex St.Naum.

The first and the further underwater archaeological investigations at Lake Ohrid of the above given prehistoric pile dwelling settlements were performed by the Department for Prehistory of the Institute for Protection of Monuments of Culture and Museum – Ohrid, led by the undersigned, as well as in cooperation with the Club for Underwater Activities "Ohrid" from Ohrid, led by Milutin Sekulovski, diving instructor.

Regarding the second type of cultural-historical monuments "*architectonic and other buildings constructed in Antiquity and in the Middle Ages by the lake shore, and later submerged with the increase of the lake water*", it is necessary to mention the following values that could be having the features of monuments:

- Remains of flagging roads in the lake waters at the neighborhood "Vojska" in Ohrid, as well as close to the monastery Kalishta (west coast), to the south towards the village Radozhda and to the north towards Struga, presumably remains of the great antiquity road Via Egnatia (testimonies of old scholars and chroniclers); than, remains of flagging roads in the lake waters near the peninsula Gorica, than at Panzir (St.

Stephen), close to the village Peshtani and the monastery of the Virgin at Zaum (by the east coast), as well as at the neighborhood Kaneo in Ohrid (information from eye-witnesses, noted by scholars and chroniclers);

- Remains of architectonic buildings (walls and floors), paved stockyards and other buildings at the neighborhood Kaneo in Ohrid (flagged stockyard), in the bay Panzir (ruins of architectonic buildings and stockyard), at the peninsula Gradishte (north coast of the peninsula and Trpejca and the monastery of the Virgin at Zaum (submerged flagged stockyards).

The third type of underwater values , "*submerged movable objects and sailing objects during the lake traffic in Prehistory, Antiquity, Middle Ages*", mainly, refers to individual chance finds from the lake bottom, as for instance: the area of the camping "Gradishte" and the village Trpejca at a depth of cca. 70 m – an iron axe with two blades and an elliptic opening in the center (6th c. BC); near the monastery complex "St. Naum" at cca. 50m from the shore at depth of 5-6 m – ceramic fragments of amphorae and other forms of ceramic vessels from Antiquity; not far from the ridge Kaneo in Ohrid, at a depth of cca. 101-12 m was discovered a "deposit" of medieval ceramic vessels from XII century; between Struga and Kalishta, by the north coast of the lake, close to the site Vrbnik, at shore distance of 500-700 m to the south and at depth of 7-8 m, were discovered two "Tomb" or epigraphic stone slabs with undetermined chronology.

Besides these, in this type of values are also a bigger number of sailing objects – monoxiles, skiffs and boats noted at the bottom of the lake, mainly in the Struga part and the area between Struga and Ohrid with unknown chronological determination (mainly from more recent periods)..

The above-given overview indicates an "exciting vivacity" of Lake Ohrid, "rich aquatic archives" and other cultural-historical treasures abundant in the underwater areas of the aquatic complex and which contribute to the clarification of life from the Bronze Age prehistoric times, i.e. from the times of formation and recognition of the tribal (and with that the ethnical) populations in these areas (the Brigi), as well as the Antique and medieval cultural continuities in the area of Ohrid region.

At Lake Prespa a pile dwelling settlement at the village Nakolec is registered, and remains of Macedonian – Hellenistic buildings are discovered at Krani, in the northern coast, in the 1980s, in the period of the large scale withdrawal of the lake waters. Many other remains and medieval settlements (in the southwest part of the lake), which, most probably, previously functioned by the lake shore and than were abandoned and submerged were discovered.

SITE "PLOCHA MICHOV GRAD/BAY OF THE BONES", GRADISHTE, LAKE OHRID 2005, UNDERWATER ARCHAEOLOGY

The underwater archaeological investigations of the site "Plocha Michov Grad" in the Bay of the Bones, in the waters of Lake Ohrid, by the south coast of the peninsula Gradishte, close to the fishing and tourist settlement Peshtani, are performed in campaigns each year since 1997, with a pause between 2002-2004, and with financial support from the Ministry of Culture of the Republic of Macedonia. With these



investigation activities, for the first time in Macedonia, the underwater archaeology was made an official branch of archaeology dealing with the remains, the protection and the presentation of the underwater cultural heritage, which, due to various circumstances in the past and today remained under the water surfaces of Macedonian lakes. From the previous findings, especially Lake Ohrid abounds with remains of prehistoric pile dwelling settlements, buildings from Antiquity and

the Middle Ages submerged in the waters, mainly because of the oscillations of the level, as well as movable artifacts from the bottom of the lake, mainly due to fishing activities or in times of lake traffic in the past centuries. At the site Plocha Michov Grad a prehistoric palafitte (pile dwelling) settlement from Late Bronze and Early Iron Age was discovered. In the course of the investigations performed until now were registered 6000 remains of wooden piles at the bottom of the lake at depth of 3-5 m which were the support most probably of a common platform on which about twenty prehistoric dwelling building built also of wood functioned. The archaeological activities had given the surface of the settlement, a square underwater archaeological net was placed and excavations at several investigation fields were performed. In the same time, rich documentation was provided and Bronze Age and Iron Age artifacts (mainly fragmented and complete ceramic vessels, stone and flint objects, less bronze, many fragments of animal bones, among which such used as tools) were collected.

In 2005 the last systematic underwater archaeological activities (21 October-2 November) were performed. Stratigraphic investigations were performed in IF (Investigation Field 10h10 m) M-10, with excavations in the trenches 14 and 15, to the north of the already investigated trenches in 2000: 19, 20, 24 and 25 from the same IF. Then were discovered remains of 20 wooden piles, densely placed in a small area (dimensions of the trenches 4,0 h 2,0 m). Using mathematical analysis it was concluded that the established density of the piles indicates foundations above one part (the western part) of a prehistoric house from the settlement. In the trenches we determined the following horizons from the bottom, at a depth of up to 0,50 m: surface layer with grass and intensive presence of stones with different dimensions (20cm), silt (20cm) in which we discovered rich quantities of Bronze Age ceramics and remains of wooden materials of a demolished house, out of which some were buried in the next 10cm, i.e. in the stubby mud (alike lake clay) that continued in the depth, for sure for 70cm more, determined with the previous excavation in IF/M-10, a depth up to which we determined the squatted piles from the settlement with a much rarer presence of cultural material.



In IF/J-6 we discovered again wooden piles (420 at an area of 10 h 10 m) for analysis of their disposition and comparison of the positioned samples registered at the base and again we came to the conclusion that actually the wooden piles supported a common wooden platform with a bigger probability (having in mind the same movable material), than the possibility of the great density of the wooden piles to mean chronological longevity of the settlement that would

cause the increase of the density of the piles. This reasoning will be confirmed or rejected only if dendrochronological analysis is made in some foreign laboratory. In this regard we undertook proper activities.

Besides these investigation undertakes, the diving team had performed daily bottom prospecting (bottom surveying) activities on a diagonal path from IF/M-10 (south-east position) towards IF/J-6 (north-west position) and continuing in that direction to the “dry base” of the site. These activities were performed in all previous archaeological campaigns, collecting all necessary data and giving an almost complete picture of the possible look of the prehistoric settlement.

ANALITIC OVERVIEW TARGETING THE GOAL



The several years of underwater archaeological investigations at the site Plocha Michov Grad provided a rich fund of information on the life of prehistoric people living in this area. Having in mind that the bottom of the lake at the place of the site is densely covered with remains of the material culture of the inhabitants of the settlement, and having in mind the contents of the cultural horizons, which at places can be traced in a stratigraphic vertical of 1,5 m, we can draw relevant

conclusions for proper realization of this project. Namely, the numerous remains and fragments of wooden beams and numerous other remains of wooden construction materials with different diameters, speak with certainty that the settlement at the available space was monolithic, i.e. it was built on a single wooden platform that was extended according to the needs for building new houses. The investigations had shown one exceptional feature when we speak of a lake settlement of this type in the water or at the lake shore. The initial impression is that the wooden piles were attached to the bottom of the lake, which in that period (three millennia ago) was probably with lower level for cca. 3,0m. Having in mind the achievement of the technology of prehistoric constructions, which is the only way in which the inhabitants could manipulate with squatting of the wooden piles in the lake bottom. But, the systematic investigation and the analysis of certain spots in the settlement indicate the fact that on the flattened surface at the lake shore to the south for cca. 50m (today under water),

i.e. to the first line ending with water depth of 2,1 m x 3,2 x 4,8 m after which the bottom of the lake suddenly descends to a depth of 15,9 m, i.e. here starts the so-called "eyebrow", this area by the shore was flattened and dry. If we add to this the information that the "squatted" or "attached" timber (piles?) with larger diameter end with roots in the bottom of the lake and today preserved with natural conservation, than we can conclude that, besides the incredibility having in mind today's lake level, that



the area where the settlement was erected was for sure on dry land or in a marshy ground, i.e. it was very close to the very lake shore, which, most probably, was more to the south for cca. 50m from today's coast, i.e. the coast was outlined at today's underwater "eyebrow". Having in mind the proximity of the water in that time, the people had built their sedentary dwellings raised on a platform built above wooden piles, than attached in a marshy terrain or on dry land by the water, and today found at the bottom of the lake. How? Around, or beside the naturally grown oak trees, which were used in such manner that their tops and branches had been cut off, the inhabitants squatted wooden piles with smaller thickness (today the bottom abounds with thinner timber densely placed, which were than placed on dry

land) forming a platform above which the houses were built. Of course that this manner of construction of the settlement, as hypothetical as it may seem, is logically rational, because in that way the settlement was protected from the waves and also from the land in a particular way. On the other hand, in this way the inhabitants could use the benefits offered by the lake (fishing) and in the same time they could impeccably function also on land (agriculture and hunting). Today, the stratigraphy of the lake bottom does not show multiple layers in spite of the fact that in the course of the investigations we found one ceramic fragment with ornaments of engraved triangles pointing to an Eneolithic chronological provenance. The hypothetical presence of this fragment might indicate a secondary appearance or preservation of the ceramic vessel for cult usage, brought from some other place. The movable archaeological material points to one continuous use from Late Bronze Age to the end of the Old Iron Age, meaning that the life was chronologically bound in a span of 400-500 years. The remains of burnt trees, coal and fine soot indicate fires, soon after which the houses had been renewed again.



The mathematical, i.e. the geometrical analysis of the disposition of the piles found today at the lake bottom, and placed in repetitive groups, considering the presumption that they could have been foundation structures as static basis for the construction of the buildings, show rectangular, square and circular bases. Above them the platform was built and above the platform the house. The platform was made first for individual houses or for several houses, but later, with the increase of the number

of houses the platforms were connected becoming a single platform in the period of maximum spatiality. The houses had been built on wooden supports up to a height between 2,0 - 3,0 m, with base dimensions: 3,0 h 3,0 m; 4,0 h 4,0 m; 3,0 (4,0) h 6,0 (8,0) m. The walls were comprised of two or more "boards" prepared with weaving of hazel rods, interconnected with ligatures or stripes of animal skin. Then, depending of the possibilities, weaved surfaces of the wall were coated, i.e. "mortared" with muddy chopped straw (weed). The roofs were pitched, circular or askant with monolithic cover, and were also built of bigger and smaller timber and branches, covered with straw or reed found in abundance at the lake. Having in mind the composition of the material, fires occurred oftentimes, after which the houses were renewed, attaching new piles at the bottom of the marshy terrain. This explains the present base at the bottom of the lake, where the piles appear in an unusually big density at certain places of the settlement, i.e. because the houses were built generally on a relatively small area in the Bay, we get the impression that at the entire space the density of the piles is very big. Having in mind the chronological phase of our settlement within Prehistory, it is certain that there was an internal planned disposition of the houses, meaning that certain spaces in the buildings were partitioned, of course in the same manner and with the same material as the basic wall had been built. Having in mind also the remains of material culture, in this case the movable archaeological objects, it is possible to make a reconstruction of the internal secondary appearance of the houses: the bigger ceramic vessels – the pythoses were placed by the entrance of the house or in its vicinity, other bigger ceramic vessels close to the hearths, which were regularly placed in the central part of the room, i.e. in the central part of the end of its length. The ceramic vessels with two circular openings were hanged on cord or a leather stripe on the walls beside the hearths, while the other movable arsenal, the tools, at different places inside the building, or the larger ones, before or to the side by the houses. The partitioned spaces or other separated places, cornering the interior, were for sure intended for sleeping. They usually had furs of wild animals (bears, stags, deers, boars etc.).



This way of organization of life in the final stadiums of Prehistory is only a more advanced consequence of the development of societies from Neolith (Early Stone Age), through Eneolith (Copper Age) to Bronze Age, and in this case the final phases of Bronze Age (1300-1200 BC.) and Iron Age, in this case the oldest phases (1200-700 BC.). Thus, the elements comprising the sedentary profile of the characteristics of the prehistoric societies, especially those using the palafitte dwellings by waters (rivers, lakes), could not change greatly, and they have not changed even long after, and even until today, because in the same or in a similar way those buildings had preserved their basic characteristics through all times and all places.

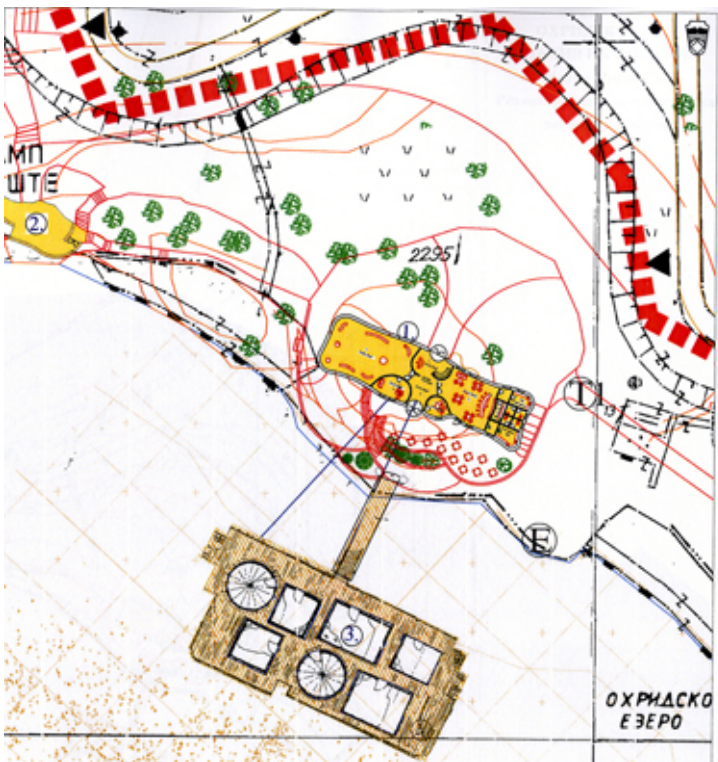
LAKE OHRID/ BAY OF THE BONES/PLOCHA MICHOV GRAD

PROJECT PROGRAM

The Project “MUSEUM ON WATER” is a complex museum space having these three main contents:

- A reconstructed part of a prehistoric palafitte settlement on a platform above water, built on wooden piles attached to the lake bottom;
- Accessible museum building and a diving base;
- The Gradishte – Roman castrum

POSITION



The main museum complex: ***the reconstructed part of the prehistoric palafitte settlement*** – should be placed above the lake water at the site Plocha Michov Grad, between the two smaller concrete beaches on the southern coast of the peninsula Gradishte, i.e. in the Bay of the Bones, above a lake depth of 2,80 - 3,50 m. The wooden platform will be at a distance from the shore of 15,0 - 20,0 m, in the very center between the two beaches and opposite the scenic rocky part of the shore, which is now overgrown with vegetation.

Accessible museum building should be built on the land by the Bay of the Bones,

between the two concrete beaches at a distance from the lake of 6,0 - 8,0 m, and opposing to the north the palafitte settlement.

The diving base should be placed to the west of the western concrete beach at the south shore of the peninsula Gradishte, as an arc by the small rocky bay with length (east-west) of cca. 12 m and width (north-south) of cca. 5.0 m.

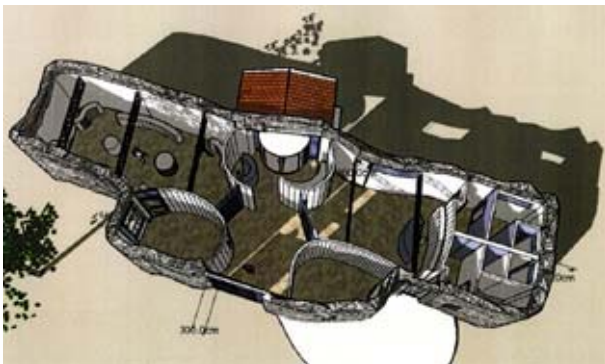
The Gradishte – Roman castrum is located on the hilly part – the flattened plateau at the highest part of the hill by the western shore of the peninsula Gradishte at CP 1729/1 (old), 2299 (new). In the eastern and the northern part of the plateau are noticed remains of fortifications – Roman castrum.

Between the southern position of the castrum and the northwestern area of the land part of the museum complex should be built a path of stone slabs (Roman path) with width of 2.0 m that would connect the *times* (Antiquity with Prehistory).

DESCRIPTION



- The reconstruction of a part of the prehistoric palafitte settlement on a platform above water built on wooden piles attached to the lake bottom is the main idea of the project. At a distance of 15-20 m from the shore and at a surface of cca. 20 (north-south) h and 40 (east-west) m, cca.. 900 wooden piles with individual length of 6,0m should be placed. They should be attached at the lake bottom at cca. 1,5m; 3,0 m (having in mind the lake depth in this part of 2,5 - 3,0 m) to be in water and cca. 1,5m above water. The upper ends, with mild recesses, on which the beams will be supported, should be connected with halved wooden beams, which, connected in this way, would form the platform. The platform should look as if it is unfinished. This is because this will not represent a reconstruction of the entire settlement, but only of one of its parts, i.e. 7-8 prehistoric houses with Bronze Age characteristics. Two of the houses will have circular form and a diameter between 3,5 - 4,5 m; three will be square with base dimensions of 4,0 - 5,0 m and three rectangular ones with dimensions 4,0 h 8,0 m. They will be built on wooden supports; the walls will be made with weaved surfaces coated in the exterior and in the interior with clay mud and binding means –weed. The interconnection will be made with ligatures, wooden forked objects and animal skin. The roof constructions made out of wooden beams and thinner branches will be covered with straw or reed. The height of the houses will be of 3,0 to 4,5 m. The interior of the houses with bigger dimensions will represent a prehistoric ambiance: beds of animal skin, tools and other objects with the original artifacts discovered in the course of the underwater archaeological investigations. The settlement will be connected with the shore via a wooden bridge with a mechanism for partial lifting and lowering, which will be built on wooden piles.



- Accessible museum building and diving base. A building with irregular form and dimensions of 15,0 h 5,0 m which should be built in the central part between the two beaches, at a distance from shore of 6.0m. It should contain: an ample entrance, porch with a panel, an exhibition area to the right, a souvenir area, a coffee-bar and toilettes to the left, two smaller offices and an exit towards the lake. The building should be built out of stone and glass with a roof construction which should be camouflaged. Like this, the building will be fitted in the rocky surrounding of the shore-line.

The *diving base* should be built in the area to the west of the right (the western) beach, above the small bay with dimensions of cca. 12 h 5,0 (6,0) m. It should have one smaller room (office) and a bigger one for placement of the diving equipment, as



well as sanitary facilities. It should be made out of stone, glass and metal bars for protection of the glass parts (the windows).

The Gradishte – Roman castrum should be treated with the following schedule;

- Conservation and restoration with accentuated re-building;
- Presentation and partial revitalization.

The above is necessary for fitting of the Roman castrum in the museum complex and enriching the contents which will be result of the investigation and conservation-restoration works. The idea is to enable the visitors to “visit the times”, i.e. to have an opportunity to “travel from Prehistory to Antiquity and back”.

The entire museum complex “BAY OF THE BONES” (Museum on Water) will be separated from the other part of the camping “Gradishte” with a fence made out of stone (plinth) and light, but high metal fencing part. The fence will be closing the eastern position of the Roman castrum, the north and the northeast side of the part from the castrum to the other part of the museum complex, the north yard of the complex to the eastern position of the area, i.e. to the base of the mild slope descending from the road Ohrid-Peshtani-St.Naum. The independent communication of the museum complex with the outside world will be enabled with the building of a path (“Roman path”) of stone slabs (2.0 m wide), descending from the main traffic road (Ohrid-Peshtani-St. Naum) to the complex, close to the eastern concrete beach at the shore. To the north and to the south of the separation of the “Roman path” a parking place should be built.

PRESENTATION

In this regard, the activities will be in two directions:

- Scientific presentation of the results:
 - Scientific publication about the cultural heritage in the waters of lakes Ohrid, Prespa and Dojran;
 - Scientific publication about the Prehistoric palafitte settlements at Lake Ohrid.
- Advertising presentation of the values:
 - Scientific-popular publication on the values of the Prehistoric above-water settlement at Plocha Michov Grad in the Bay of the Bones at Lake Ohrid;
 - Photo-monograph about the underwater archaeological investigations at the site Plocha Michov Grad in the Bay of the Bones;
 - Photo-monograph about the other underwater activities of Ohrid clubs in the aquatic environment of Lake Ohrid;
 - Publication – Manual for underwater activities;

- Posters, postcards;
- Souvenirs: copies of the material culture from the site Plocha Michov Grad in the Bay of the Bones;
- Web-site for the Bay of the Bones (Museum on Water)

PRACTICAL PERSPECTIVE

The museum complex “Bay of the Bones” will be within the National Institution Institute for Protection of Monuments of Culture and Museum – Ohrid, Ministry of Culture, Republic of Macedonia. In organizational sense, the continuous presence of two archaeologists, one ticket vendor, one sales-person, one cleaning-staff and two night guards is necessary.

From the very beginning of the activities it is necessary to have a functioning coffee bar at an open terrace in the area between the *accessible museum building* and the shore before the palafitte settlement.

In the future, at the area to the west of the parking place by the road Ohrid-Peshtani-St. Naum, by the “Roman path” is foreseen building of a modern catering-tourist facility.

GOAL

The goal is to present one exceptional archaeological complex located in an attractive cultural landscape at the eastern riviera of Lake Ohrid. The remains of the prehistoric above-water settlement which are today at the lake bottom, together with the overall adjacent archaeological arsenal, point to the fact that actually it is a small “prehistoric town”, which, at least partially, with the realization of the project, will be exposed to the Macedonian, the European and the global cultural public. Having in mind the fact that at the Balkans there is no such presentation so far of one prehistoric civilization (except by the waters of Lake Castoria in Aegean Macedonia in Greece, at a marshy terrain), this endeavor will be unique even within the frames of the Mediterranean cultural complex.

The goal is presentation of the prehistoric life of the people – ancestors from these Macedonian areas, a civilization approach of reconstruction of one distant time, one cut-out from the time of 3000 years ago, bringing that time closer to our third millennium, one open air museum and all these, based on the findings from the archaeological investigations under the waters of Lake Ohrid. The goal is presentation and affirmation of the Macedonian archaeological science and the Macedonian cultural heritage to the world. It is inevitable to mention the fact that this project will be a feasible investment, because such an attractive scientific and cultural presentation in an even more attractive natural ambiance will have powerful economic, touristy and financial effects. Altogether, one exciting future based on the lights of one distant past.

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