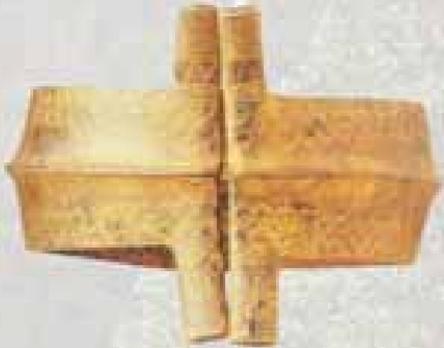




**BRONZE**

The catalogue of objects in bronze is both rich and varied, bearing in mind that this was a precious metal used for luxury items and one which could easily be melted down and used again. The fact that there is very little evidence of bronze-working at Ledro (crucibles, form for melting, ceramic beaks for blowing) may be explained by the unsuitability of highly flammable wooden huts to prehistoric craftsmen's forges. The right and proper place for their workshops would have been on the shore - free from the fear of fire and close to the source of fuel. The items most commonly

discovered during excavations were axe-heads and splendid triangular-bladed daggers, decorated with intaglio and of a high level of craftsmanship. Their hilts are usually formed by a series of bronze rings. Personal ornaments comprise pins of different shapes - many similar in style to those found in Central European lake-settlements - wire twisted into spiral and bronze 'crowns' which were worn on the head, probably as badges of rank. Such crowns are particularly rare and no less than four examples have come from Ledro.



**Synthetic scheme of the Period of the trentin populating**

Superior Palaeolithic 15'000 till 10'000 BC	Mesolithic from 10'000 till 5'500 BC	Neolithic from 5'550 till 3'300 BC	Copper Age from 3'300 till 2'200 BC	Bronze Age 2'200 till 900 BC Village of Ledro from 2'200 till 1'350 BC	Iron Age from BC till the roman period
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On the shore of Lake Ledro (Garda – Trentino) near the museum and the archaeological site is a pile-dwelling village dedicated to experiment and hands-on the Alpine Prehistory.

**THE NEW PILE-DWELLING VILLAGE**

The three huts, arranged to an imitation of a part of a village, are the result of a born project wished by the Natural Science Museum of Trento. For its planning, it has been taken advantage of the collaboration of the Archaeological Service of the Independent Province of Trento, of archaeologist of the University of Trento and Padua and other scientific advising.

The new village of Lake Ledro is almost the same of the reconstruction of a portion of a built-up pile-dwelling, which could be found on the shores of the alpine water mirrors approximately 4000 years ago. The employment of wood material with sections and thickness bigger than the prehistoric correspondents and the choice of some modern building technical solutions that go away from a reconstruction rigorously based on digging data in order to concur the adhesion with the canon of experimental archaeology, are the necessity to mediate between the will to show an extract of prehistoric every day and the obligation to guarantee the maximum safety to all the visitors. The wooden platform is for half resting on the land and half suspended on piles over the river bed of the Ponale Torrent.

The three huts have various dimensions and introduce the different uses of the space inside a village that based its own economy on activity like agriculture, breeding, fishing, hunting and that, through a consolidated system of exchanges with other pile-dwellings villages, could have had raw materials, objects of prestige and symbols of power.

The hut 1 (adjacent the museum) is the hut of the craftsman of the village: in it a rich instrumentation is found, copy of the archaeological objects, that it sends back to the activities of fusion and bronze working, carpentry, working of the linen, production of the nets from fishing, stone-chipping, ceramic...

The hut 2 (the largest) is or an habitation, space in which the typical pile-dwelling domestic activities are carried out (to weave, to sew, to mill the grain, to cook, to rest...), or a place of encounter between the head village and its tribe, distinguished from the presence of a great number of prestige goods.

The hut 3, that resting on the so-called structure "Stelzbau", various from the others has a structure lighter and opened being be thought like a lumber-room for tools, and sometimes could be transformed in shelter for goats or sheep.



It goes specified that the acclimatization of working activities in various huts answers to a necessity of a didactic / usefulness criteria, but that there aren't archaeological tests in favour of a separation of spaces between domestic and handicraft activities. At the scientific rigor of the realization is yet a tested model made with a professionalism of the archaeologist of the Museum of the pile-dwelling of Lake Ledro, inventors of a lively activity of spreading and centralized cultural entertainment on the topics of Prehistory. Using the suggestions of the theatral animation, but above all the education potential of the experimental archaeology in the hands of the visitors. The visit of the museum becomes an unforgettable experience to share with the friends and the family.

**THE NUMBERS OF THE NEW PILE-DWELLING VILLAGE**

The surface of the platform is of 300 square m. , rests on 130 piles. That of the huts is of 11, 15 and 20 square m. They have been used approximately 70 m3 of lumber of larch with long piles till 9 meters. 2500 reeds were needed for the roofs. The building site opened in September 2005, has been closed in June 2006, with a winter pause of 4 months.



**museo tridentino di scienze naturali**

La rete dei musei della scienza in Trentino - ITALIA

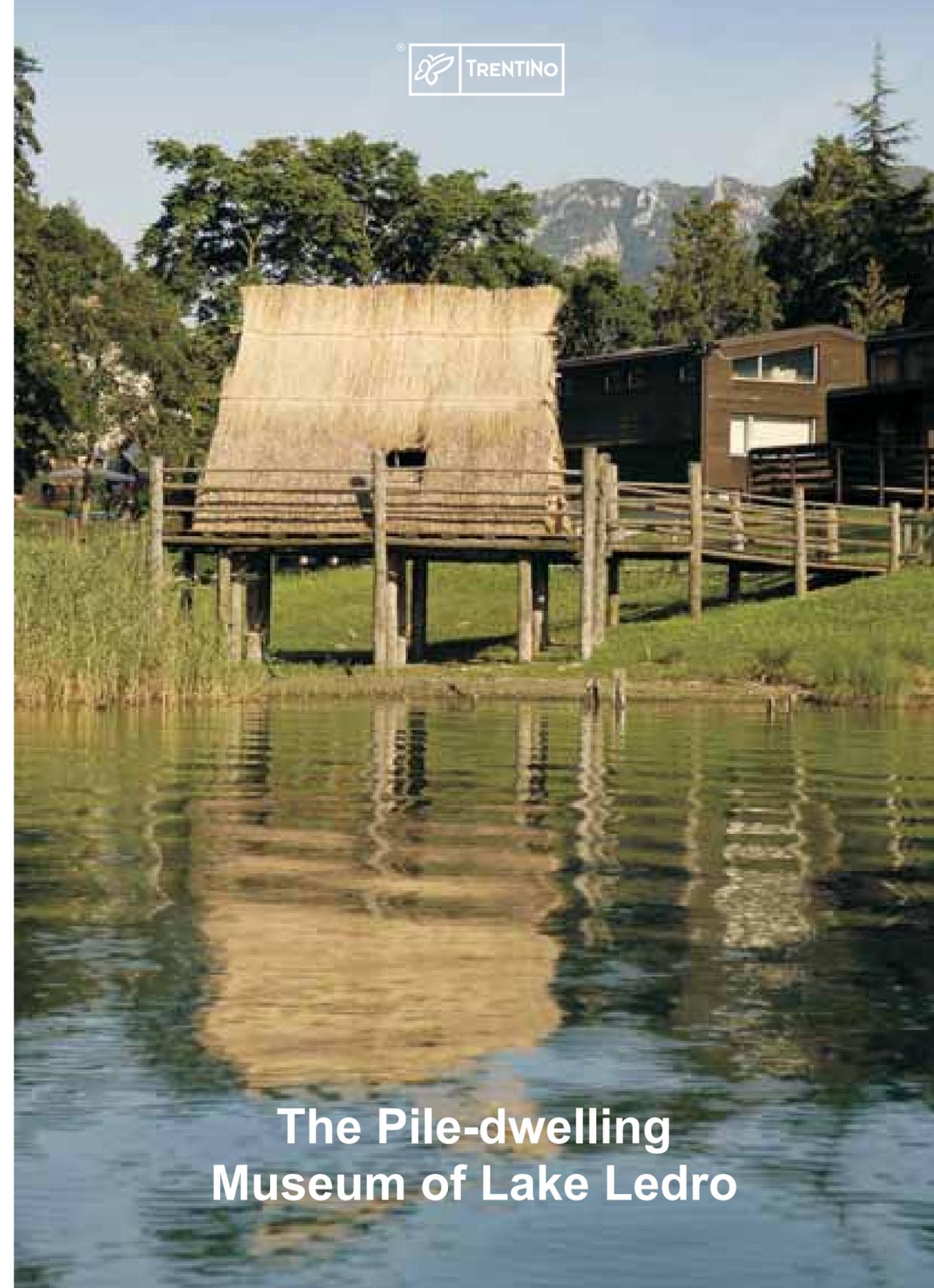


**Museo delle Palafitte del Lago di Ledro**

Via al Lago, 1 - 38060 Molina di Ledro - Tn  
Tel. 0464 508182 - Fax 0464 509382  
www.palafittedro.it - comunica@mtsn.tn.it

**Aperture:**

from Mars till June from 9 am to 5 pm closed on Monday  
July-August from 10 am to 6 pm  
from September till November from 9 am to 5 pm closed on Monday



**The Pile-dwelling  
Museum of Lake Ledro**



In the autumn of 1929, when the level of Lake Ledro was appreciably lowered to supply the hydroelectric plant being built at Riva on Lake Garda, after thousands of years a lake-settlement re-emerged into the light of day. Along the southern shores of the lake a forest of wooden piles (10.000) broke the surface, bearing all the marks of their long immersion. At first they were thought to belong to some long-forgotten sluice built to control the level of the lake, but soon they were shown to be the remains of the largest prehistoric site to have been uncovered hitherto in Italy and a site which provided archaeological evidence of European dimensions. From its remains the lake-settlement was shown to have spanned the period from the Neolithic to the Bronze Age. The news created a stir in the archaeological world. The site was excavated and finds - including what appeared to be a hut floor (16 m<sup>2</sup>)- were recorded. Then the water-level rose once more

and all was submerged, until the drought of 1936-37 lowered the level of the lake significantly and enabled further excavation to be undertaken.

These first researches, by the University and the archaeological service of Padua, saw the continuation in years '50 while in years '60 - were in order to find material to expose in the constructing Museum of pile-dwelling. In the 80s, the Natural Science Museum of Trento realized campaigns of excavations with techniques previously not available, following the stratigraphic criteria and adopting scientific naturalistic methodologies.

The motivations that have determined the construction of vast lake dwellings, built on piles with the size of work that it demanded, only find an answer in the field of the hypotheses. Probably more concomitant factors are the consequence, joined to a detached ability to adaptation to specific morphologic-environmental conditions. The common and diffused opinion doesn't find support that the pile-dwellings were an answer to the fear of "fierce animals". Rather it can be thought, they were a special solution to several requirements connected to the subsistence economy: deforestation to advantage the agricultural activities and breeding with consequent finding of the raw materials for the constructions.



#### THE LAKE-DWELLERS

The extreme scarcity of human remains makes any statement on the physical characteristics of the inhabitants highly speculative. However, by analogy with those from other contemporary lake-settlements, they probably averaged about 5 feet in height (156 cm).

As with other prehistoric lake-settlements there is a total absence of inhumation at Ledro, which inclines to the view that lake-dwellers practised the rite of cremation of their dead.

When and for how long did the lake-dwellers colonized the Ledro Valley? The experts agree in thinking 2'200 BC and 1'350 BC the dates limit of their presence on the shore of the lake.

#### ENVIRONMENT

The archaeological discoveries attest a composition of animals and vegetables species not much dissimilar that what could have been find today without the man's modifications. Between the molluscs, they have been found in remarkable amount the valve of the Anodonta Mutabilis Cless, soft water oyster, currently not present. The more important domestic animals : oxen, goats, sheep and porks, are of medium dimensions regarding the other faunas of the metals Ages. The dog present at Ledro becomes part in an intermediate evolutionary form between the Stone Age, the Iron Age and the Roman Period. The bear is of medium stature regarding the other European faunas, even if some discoveries indicates the presence of a few individuals of greater dimensions. The deer, the roebuck, the fox, the chamois and the wild boar haven't allowed particular observations.

Ledro was a village economically self-sufficient. The wild fauna wasn't very well exploited, hunted and episodically consumed.



The domestic fauna was exploited to satisfy the maximum the needs of the population and raised without details precautions. The breeding was extensive, at least during the summer, while during the winter the difficult problem of the nutrition existed that perhaps induced the slaughtering of an important number of animals. It cannot be excluded that the transhumant was practiced.

#### WOOD

Wood was a day-to-day material of prime importance to the ancient people of the Alps. Apart from its obvious use for the piles and platforms and for the palisade around the settlement, wood, which the lake-dwellers worked with confident skill, was used to make the majority of household utensils, weapons for hunting and defence, canoes, etc. Clearly then, both in range and numbers, wooden objects once far outnumbered those which have survived to be catalogued by the archaeologists.

Cutting implements were used to carve the smaller items; the larger were first burned away before being planned or carved. The commonest objects are bowls, dishes, plates or the handles of unknown implements - most probably used to prepare food. Weapons comprise clubs with spherical heads, throwing sticks and bows. The discovery of a plough with a sharply-pointed coulter and a pole for the beam shows the agricultural use of wood. A dug-out canoe is a class of find which provides ample scope for creative theorizing.



#### WEAVING

Plentiful finds of loom weights, as well as spindles, sometimes decorated with dot-patterns, carding combs made of antler, bone needles and even strips of woven material are all evidence of this activity. The cloth was woven from pure linen thread, the width of the weft varying considerably, and was found in strips, in superimposed squares (perhaps for patchcords) and in rolls, one of which could only have been a belt (length 190 cm, wide in average nearly 3 cm, with the two carrying extremities an eyelet reinforced with winding of thread, the other final one with a fringe). Although there is no proof that it was the case, it is perfectly reasonable to suppose that the clothes were coloured with vegetable dyes, as is the case with the oldest surviving textiles. It is worth adding that the absence of any woollen stuffs is due to the rapidity with which they deteriorate.

#### FOOD

A valid assessment of the nutrition and way of life of the villagers may be made solely from the remains of meals.

All the animals provided basic foodstuffs, of which their brains and marrow were important elements, since long bones and skulls are habitually found split open. Given the abundance of freshwater oyster shells, it is natural to suppose that fish and shellfish provided an especially important part of their diet even if no bone or objects for fishing were found.

This also comprised cooked vegetables and a porridge of cereals and frequently of acorns, too, the remains of such meals often being found encrusted on pots. Singular tempers are the so-called "pagnottelle" (sort of flat bread) pasted with flour of cereals milled in rough way; one of these discovery, still integral, gives the possibility to suppose the way it had been baked (the paste spread on a red-hot pebble).

Another convenient source of food was wild or cultivated fruits and berries - hazelnuts, strawberries, elderberries, raspberries, wild pears, cornel, etc. The seeds of the latter have been found in such vast quantities as to suggest that the fruit was fermented to produce an alcoholic drink.



#### STONE

At the dawn of human history roughly polished stone-chippings or highly polished flints provided materials which combined with wood in a whole range of tools. Although the Ledro settlement reached its apogee in the Bronze Age, there is a comparative wealth of evidence to show that stone was still used for a wide variety of tasks.

Flint implements are in the majority, small in size and, because of the fissile nature of the stone, confined to cutting tools. Laurel-leaf arrowheads are uncommon, lance-heads scarce and scrapers in the majority. Axes are usually small in size with the longer side curved and the shorter straight. An unique find was an unfinished axe of the 'stirrup' type, with a hole for the handle. Sandstone was used for lissoirs and fragments could have been moulds for bronze melting. A neighbouring glacier moraine provided crystal for beads. Volcanic stone, generally granite, was comparatively widely used for hand-mills, clubs and hammers.

The amber which regularly recurs on the site was clearly used for personal ornaments. Its provenance is unknown, but taken with other items of evidence would seem to point to a barter-trade with Central European lake-settlements. The "amber road" was covered not only by things, but also by ideas, technologies and fashions.



#### HORN AND BONE

Animal horn and bone provided implements for a wide range of uses. The tarsal and long bones of various animal species were carved into awls and occasionally used to make genuine daggers. Other bone objects included small spatula, needles, decorated bangles, buckles, wrist-guards for bowmen, etc. Antlers of the red deer were used in various ways and their relative plenty is hardly surprising given that they are shed each year by the stags. They were used as hammers and punches and as the shafts of metal tools, or else were bored to take wooden handles. Their points were used to make patterns on pottery. There are also two combs for carding wool or flax, made of antler. The antlers of the roebuck are far less frequently encountered, but were put to the same uses.

#### POTTERY

The variety and quantity of pottery at Ledro is truly vast, type, shape and size differing enormously. The coarse clay is broken down by the addition of minerals to produce a paste which is often delicate, smooth and glossy (almost the same as the Etruscan Buccheri). The colour is black, darkish brown or red, except when it has been blanched by overheating when a hut burned down. The pottery varies in size. Of most common occurrence are the large biconical bodied jars used for storing foodstuffs and decorated, almost without exception, in ribbed patterns either incised into the body of the pot or applied to its surface. They often encircle or spiral round it in a style which survives to this day. There are many different types of beaker, bowl and small cup, which have often survived intact because of their very smallness. Typologically they differ widely. However, if pottery is classified by number of finds, the order is as follows: loom-weights, spindles, spools, small ladles for bronze-working, platters with slightly raised rims, pipes used as bellows, rounded disks which may have been used as gaming-tokens and small rectangular segments impressed before firing with a dot and cross pattern. As a simple matter of interest the use should be mentioned of a binding material used to patch vessels or make them watertight, as well as to mend cracks across their surface. The same substance was used as an adhesive to fix flints to wooden handles or ornaments to different mounts. Several small forms of such adhesive, have been found in the archaeological layers, and an analysis of the same ones would want to them composed of resin of conifers mixed to an indeterminable milling.

