

La Draga (Banyoles, Catalonia), an Early Neolithic Lakeside Village in Mediterranean Europe

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ABSTRACT

The site of La Draga is located on the eastern shore of the Estany de Banyoles (Lake Banyoles). The excavation work carried out so far has lasted from 1990 to 2005. It was coordinated by the Museu Arqueològic Comarcal de Banyoles and the Centre d'Arqueologia Subaquàtica de Catalunya.

Three different areas were investigated: the upper area, or Sector A; the lower area, beside the Lake, or Sector B; and the Neolithic lakeshore, or Sector C, which is now under water. Appropriate methods of excavation, including extraction pumps and underwater divers, were applied to each sector.

La Draga is an early Neolithic village (Cardial-ware phase) which dates from the end of the 6th millennium BC. Its material culture is similar to that found at other contemporary sites in southern France, Catalonia and Valencia. One feature, however, makes it unique in the Iberian Peninsula: the remains of large rectangular huts with oak posts, numerous wooden and basketry items, and vast quantities of animal bones and cereal grains have been preserved there.

Two monographs about the site have been published so far, one in 2000 and the other in 2006. It has been the subject of many papers given at conferences and published in specialized journals in Catalan, Spanish and French. This is the first text of any length to be published directly in English.

KEY WORDS: village, Neolithic, Banyoles lake, prehistoric Catalonia

LA DRAGA: AN UNUSUAL DISCOVERY

A village dating from the early Neolithic was found at La Draga (Banyoles, Pla de l'Estany) in April 1990. The discovery, which was the result of work being carried out to turn the area into a park, was considered a minor archaeological revolution.¹ For the first time a prehistoric site in a lakeside environment had been found in the Iberian Peninsula and if, as seemed likely, wooden tools, handles and other objects similar to those found in chronologically comparable habitats in Alpine Europe were disinterred, this could contribute substantially to our knowledge of the early Neolithic. After eighteen years of research and archaeological excavations many of our initial expectations have been amply fulfilled. However, despite all these efforts, we still have only a rough idea of certain important aspects, such as the shape of the houses and the urban layout.²

All this work has been carried out thanks to the joint efforts of the Museu Arqueològic Comarcal de Banyoles (MACB) and the Centre d'Investigacions Subaquàtiques de Catalunya (CASC), which comes under the Museu d'Arqueologia de Catalunya. The project directors are Àngel Bosch, Júlia Chinchilla and Josep Tarrús (MACB) and Xavier Nieto, Xim Raurich and Antoni Palomo (CASC).

The settlement of La Draga was located half-way along the eastern side of Lake Banyoles. The Lake has a figure-of-eight shape and the village stood at the narrowest point, on the white chalk shore that lined that side of it. In topographical terms the area was a peninsula at the end of the 6th millennium BC, when the Neolithic village stood there, and the ground sloped steadily from east to west and from north to south. A stream flowed out of the Lake to the south of it, marshland lay to the east, and the waters of the Lake stretched away to the north and west, giving it virtually the appearance of an island. As a dwelling place this location had numerous advantages, because it was easy to defend (Fig.1).

The altitude is 170 m above sea level, and the geographical coordinates are as follows:

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Latitude: 42° 7' 41" north
 Longitude: 2° 45' 33" east of the Greenwich meridian

UTM: 48 01 04 m east
 46 64 097 m north

Nowadays the site is divided in two by a 19th century dike running along the eastern shore of the Lake which is used as a promenade. One part, comprising the Neolithic shoreline, lies beneath the waters of the Lake, but the most extensive area of the village is still on dry land. In Neolithic times the whole settlement was out of the water, though the huts that stood right on the edge of the Lake must have been subject to frequent flooding.

It has been claimed that the first Neolithic inhabitants of lakeside areas in Europe were usually drawn there by defensive considerations, perhaps because their status as newcomers to the area demanded it. In the case of La Draga, however, this explanation seems unlikely, since no sites belonging to the last surviving Mesolithic hunter-gatherers — who still existed in the early 6th millennium BC — have been found in the immediate region and it is impossible to estimate their numbers.



Figure 1. Location of the Neolithic village of La Draga (Banyoles, Catalonia)

The site must originally have occupied over 8,000 m² but archeological investigations have concentrated on an area of 3,000 m² located on the northern side of the settlement, which is the best preserved. This area has been fenced off and has gradually been converted into an archeological park devoted to everyday life in a Neolithic village and designed on the basis of the data yielded by the site itself.

In its heyday the original village stretched for over 100 m along the Neolithic shoreline, in a north-south direction, and approximately 80 m inland towards the east. The excavations have shown that it was occupied during a single period of the early Neolithic, though there are several superimposed layers of activity, sometimes separated by a flood stratum, and a final layer displaying the unmistakable signs of severe fires at the time the village was abandoned.

Field research was first carried out in 1990 to verify the site's importance and state of preservation. Then a project got underway for the excavation of the area on dry land, which continued until 2005. In 1994 work began on the underwater part of La Draga. The year 1996 was again devoted to exploration round the inner rim of the Lake — in search of other prehistoric sites — and on land, to define the Neolithic topography (Fig.2).

During these years research has been conducted in three sectors and a total of 726 m² have been excavated. In the first sector — Sector A —, which measures approximately 284 m², investigations went on from 1991 to 1995. It is located in the eastern zone, which is also the highest and where the water table is approximately 70 cm below the archeological level. In the second sector — Sector B —, an

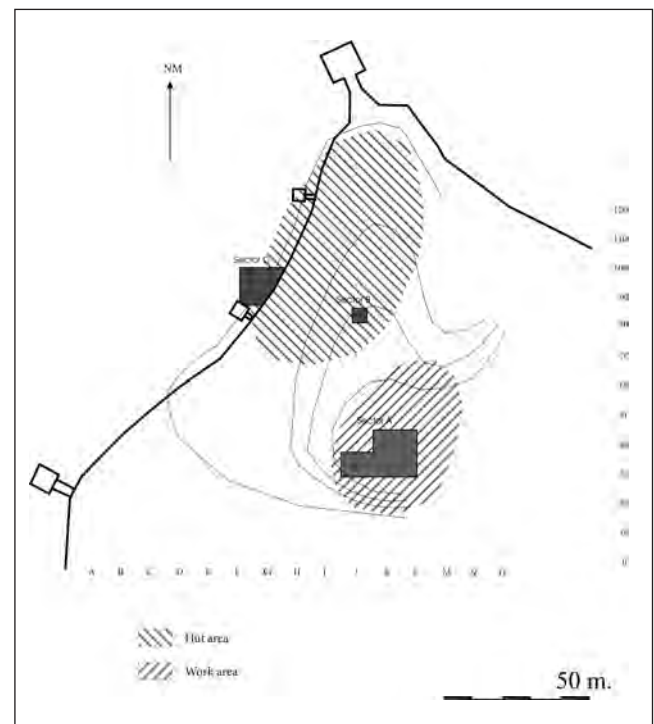


Figure 2. Internal layout of the village, according to 1996 data

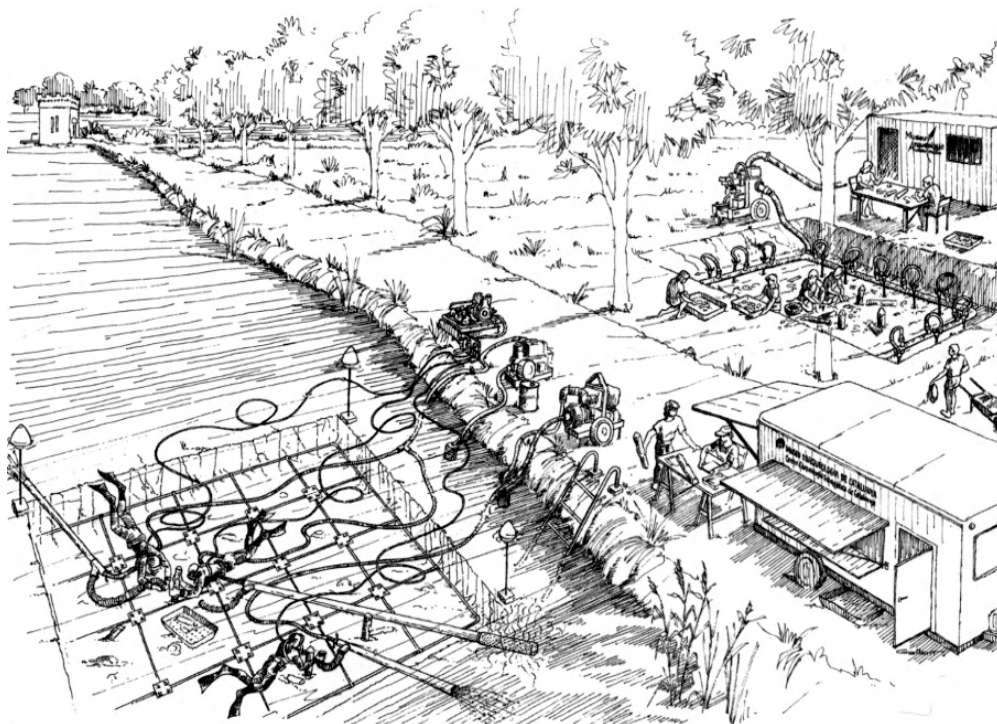


Figure 3. The methods of excavation used in the dry-land and underwater sectors

area of 126 m² was excavated between 1997 and 2005. Sector B lies in the western zone, right beside the present-day lake-shore promenade. It is lower than Sector A and here the water table is approximately 40 cm above the archaeological level. The third sector — Sector C — lies along the Neolithic shoreline. Here an area of 310 m² was excavated by the CASC between 1994 and 2005. This area is now submerged because the dikes built round the eastern side of the Lake raised the water level 1.5 m above that of the Neolithic lake.

These variations in the groundwater level have affected the conservation of the Neolithic objects. Thus in Sector A no wooden tools have been recovered, though the tips of the posts from the huts were found about 70 cm below the archaeological level, where the water table had remained unchanged during the intervening 7,200 years. On the other hand, in Sector B, which is also on dry land, and Sector C, which is now below water, the archaeological relics have remained below the water table ever since the village was abandoned. Consequently the discovery of wood and basketry artefacts and posts and beams from Neolithic constructions, which had collapsed onto the archaeological layer or been driven into it, has been a constant feature of the excavations and has enriched them enormously.

However, the presence of these objects made of perishable materials caused the excavation to progress much more slowly than if the Neolithic village had been found on dry ground. Taking charge of these wooden Neolithic tools was a great responsibility and we had to work on small areas — approximately 25 m² on the average on dry land and 40 m² in the underwater sector in latter years —

to make sure that the laboratories where they were sent for restoration were able to analyse them without difficulty.

At the very beginning, between 1995 and 1997, such objects were entrusted to Beat Hug, the director of the laboratory of restoration at Laténium. Parc et Musée d'Archéologie de Neuchâtel (Switzerland), one of the foremost European experts the use of lyophilization in the treatment of objects saturated in water. Since 1998 the CASC's own restoration laboratory (Anna Jover and Cati Aguer) has been able to take over the work, which is of vital importance to La Draga, and has achieved very good results.

Needless to say, the excavation methods have had to be adapted to the particular characteristics of each zone, though the system for recording the data has always been the same: it is based on Cartesian coordinates and the individualized study of each structure discovered. In Sectors A and B, which are on dry land, we initially worked with a Well Point diesel-powered water pump (1991-2002). This powerful drainage pump lowered the water table in the area under investigation and enabled us to work there almost as though we were on dry ground. The snag was that it considerably dried out the archaeological level and this could affect objects made from organic materials.

Later, between 2003 and 2005, we were able to use an electric drainage pump. This drew water from a well sunk into an area that had already been emptied, next to the area currently under investigation. In this way the archaeological level was kept slightly moist and wood and basketry items were preserved in better conditions until they could be removed.

In Sector C, the Neolithic lake shore which is now under water, the CASC has always worked with underwater divers, who have had to adapt to the excavation methods used on prehistoric sites, which differ widely from the methods they normally used to deal with ships from Greek, Roman, medieval or modern times. Team work with these specialists has been very rewarding and mutually instructive (Fig. 3).

There is no doubt that La Draga belongs, culturally and chronologically, to the end of the impressed Cardial-ware phase in the Western Mediterranean. Both the relative data provided by the archeological record (ceramic pots, tools made from bone or horn, chipped and polished stone implements, ornaments and sumptuary items, tools with wooden handles) and radiocarbon dating enable us to assert this.

The numerous C-14 datings obtained from charcoal from the hearths, cereal grains, animal bones, posts from huts and wooden tools point to a period situated, very roughly, in the second half of the 6th millennium BC (5,400-5,000 BC). If, in order to attain greater precision, we select the most reliable carbon dates — from the items with the shortest life span —, then the period from 5,300 to 5,150 BC seems the most likely. In any event our estimates always fall within the Cardial cultural context, not the Epicardial. This is especially obvious from the richly decorated ceramic pots, in which shell impressions predominate, and the wide array of bone tools and sumptuary items.

We are unable to offer an absolute dating for La Draga on the basis of the tree-ring analysis carried out by Patrick Gassmann, the director of the dendrochronology laboratory at Laténium. Parc et Musée d'Archéologie de Neuchâtel (Switzerland), because the Alpine dendrochronological curve cannot be used to study the rings in the oak-wood posts. Despite this, it has been possible to determine that the lifespan of the village was not more than a hundred years, which leaves us with a very short timeline for the entire archeological sequence at La Draga. Dendrochronology does however reveal different phases of building and rebuilding.

It is worth recalling that the first dendrochronological results from the village of La Marmotta, on Lake Bracciano some 40 km north of Rome — the only European lakeside settlement with the same chronology (the second half of the 6th millennium BC) and the same cultural context (impressed Cardial pottery) as La Draga — revealed a duration of 139 years.³

The abandonment of La Draga was associated, as in many other cases, with a fire that affected some or all of the huts in the settlement. There could have been various other causes: the resources of the nearby fields and woods may have been depleted; social changes may have made easily defended lakeshore settlements unnecessary; or perhaps the inhabitants preferred to set out to conquer other lands further inland, in river valleys where the agricultural land was more fertile. However, the existence of another settlement somewhere on the lakeshore at the

same period cannot be ruled out, though none has yet been discovered.

THE NATURAL ENVIRONMENT: LAKE BANYOLES DURING THE NEOLITHIC

Palynological and anthracological analyses and data from the study of the 892 trunks, stakes and building timbers unearthed at La Draga between 1991 and 2005 enable us to reproduce the Neolithic plant environment quite accurately. It should first be pointed out, however, that La Draga belongs to the beginning of the Atlantic period, when the climate was cool and damp with frequent precipitations.

It seems clear that lakeside forests grew on either side of the site. The species found there are characteristic of this type of woodland: hazelnut trees, ash trees, alders, poplars, elms, willows, laurels, dogwoods and elders. We know, from the basketry items discovered, that the aquatic plants that grew in the wetland areas included sedge and possibly rushes.

Further inland well-established oak forests were predominant (downy and sessile oaks, *Quercus pubescens* and *Quercus petraea*) with accompanying species typical of humid Mediterranean climates, such as hazelnut trees, box, juniper, blackthorn, maple, yew, linden trees and wild fruit trees (pomaceous species). The occasional presence of holm oaks, pines and strawberry trees shows that dry Mediterranean mixed woodland was already beginning to



Figure 4. Roll of wild clematis (*Clematis vitalba*), Sector B, 2001

develop alongside the oak forest. This pattern matches the construction materials perfectly — trunks, stakes and fallen timbers — since the immense majority were made from deciduous oak, except for a few instances of holm oak or poplar wood, and one case of maple wood.

The palynological data studied by Francesc Burjachs (Universitat Rovira i Virgili, Tarragona) indicates that some distance from the habitat there was a higher woodland belt, probably on nearby highlands such as the Rocacorba or Bassegoda. In these forests fir trees grew in vast numbers, along with beech trees, silver birch and Scots pines, which were unlikely to be found in the immediate vicinity of the village.¹

The way the wood from these trees and shrubs was used varied according to the purpose to which each was put, and this involved deliberately and carefully selecting the right species. Thus we can see that the inhabitants basically preferred oak timber for building, whereas they used either oak, laurel or box as firewood. For wooden implements, on the other hand, they employed an astonishing variety of species, each suited to a particular function: box wood is by far the most widespread for making handles for all kinds of tools, yew is used almost exclusively for bows, while arrow shafts and heads were mostly made from willow or dogwood. Other items were made from oak, pine, holm oak, maple, laurel, elder, hazel, juniper, strawberry tree or apple wood. A form of wild clematis (*Clematis vitalba*) was used for binding, and ropes were made from linden bast (Fig. 4).

Most of the objects from La Draga were made out of materials from the immediate surrounds: wood, plant fibres, bones and horns of animals, clay and stones from the beds of nearby rivers. However some raw materials — including stone for polished stone implements (types of schist and hornfels), shells for beads and pendants, and flint to be chipped into tools — had to be brought from more distant places, such as the Cap de Creus (stone and shells) and the area around Narbonne (flint). Only a few very special items, such as those made from marble (a pot, a brooch and bracelets), seem to come from very far away (Sardinia and the Lipari Islands). They may have reached La Draga by being bartered, from one village to the next, over a period of many years.

BUILDING THE VILLAGE: HUTS, GRANARIES AND HEARTHES

In an open-air prehistoric settlement on dry ground one usually finds a few post holes, often with stone wedges but invariably without the timber. By drawing a line from hole to hole, one can define the shape of the huts, which can be rectangular or oval. If the walls were made of stone blocks, the ground plan is usually oval and the post holes only indicate the central row of trunks that supported the thatched roof, which was made of heather or straw and rested on beams and rafters.

On the Neolithic site of La Draga, which was built on damp ground, most of the posts driven into the ground have been preserved, as have the beams and parts of the walls that collapsed onto the archeological layer. One would expect it to be very easy to define the shape of the huts in these circumstances but nothing could be farther from the truth. The sheer number of posts — sometimes as many as five per square meter — makes it impossible at first sight to discern any precise or definite shape.

We must bear in mind that the tips of 345 posts were recovered in an area of 284 m² in Sector A. This amounts to a density of 1.2 posts/m². In Sector B, 459 posts were removed from an area of 132 m², a density of 3.5 posts/m². In Sector C, the density was lower, with 88 posts preserved in the 310 m² excavated, or 0.28 posts/m². If we distribute the 892 impaled posts disinterred at La Draga over the total excavated area of 726 m², we obtain an average density of 1.23 posts/m².

Since the huge number of posts recovered makes it difficult to define the shape of the huts, dendrochronological analysis ought to enable us to attain the same objective, as it does at most Alpine lakeside settlements. Unfortunately, though we enlisted the services of one of the foremost

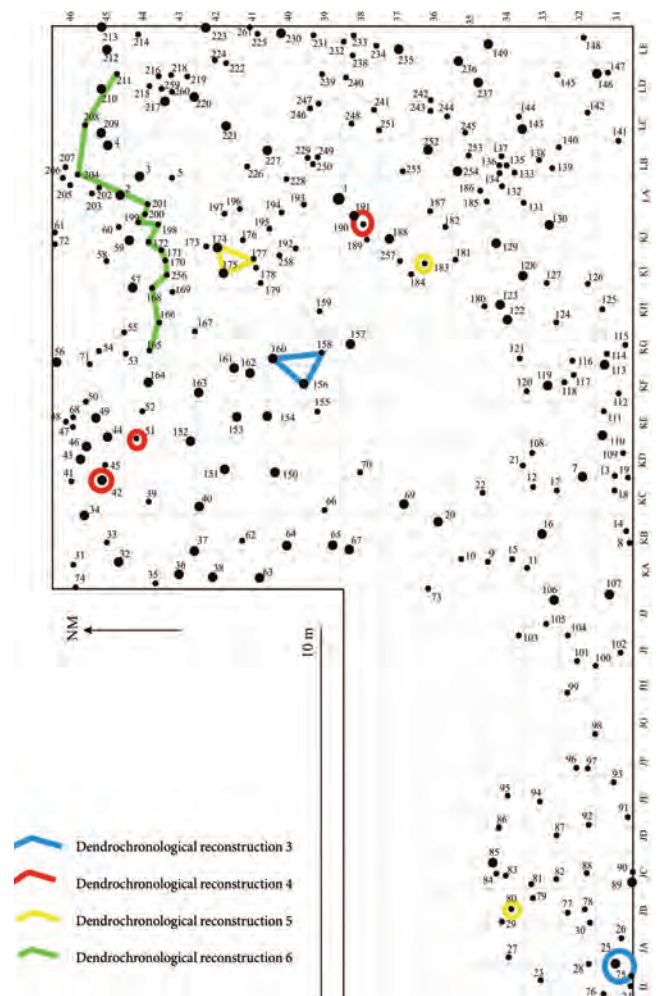


Figure 5. Posts and dendrochronological reconstructions of Sector A, 1995

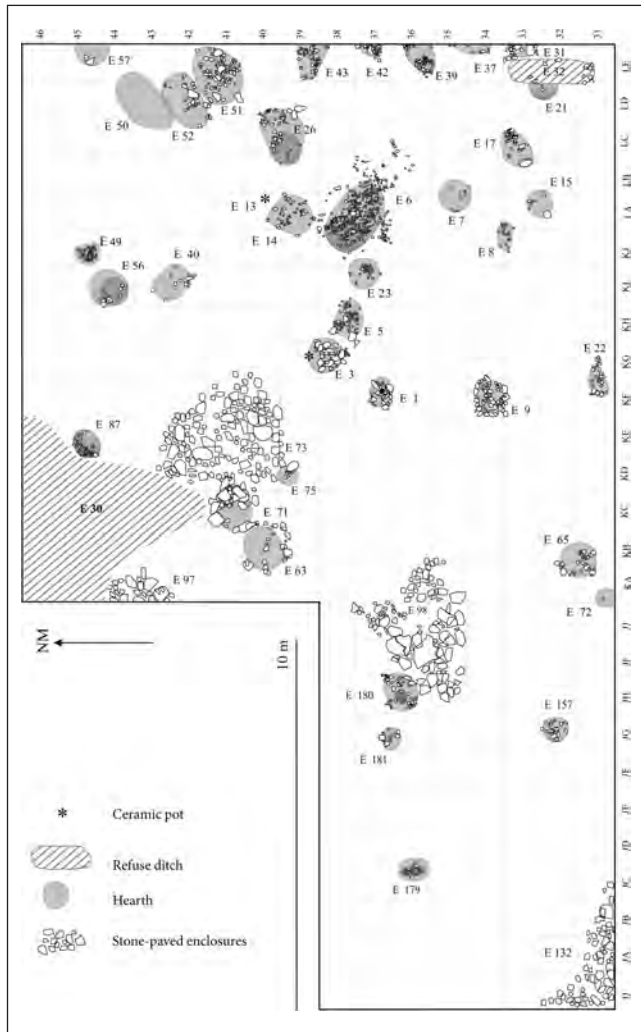


Figure 6. Stone paving of the granaries, hearths and refuse areas in Sector A, 1995

specialists in the field, as already mentioned, the first results failed to produce a conclusive answer.

All we know is that the huts at La Draga were rectangular, because a dendrochronological reconstruction of four posts in a straight line in Sector B indicates that this was so. Moreover in Sector C, which is under water and has considerably fewer posts per square meter, we can observe the fronts of rectangular huts, but since they are made from poplar trunks, this cannot be confirmed by dendrochronology. From these data it would seem likely that there were at least two rows of huts along the edge of the Lake, and other constructions on the higher part of the site.

Dendrochronology provided some very interesting data about the construction process nonetheless. There appear to have been at least six phases of building or rebuilding, in other words, six different times at which oak trees from the surrounding woodland were felled. Moreover, correlations between the six dendrochronological reconstructions so far carried out, which concern all three excavated sectors, enable us to state that huts, or other types of wooden structures, were erected simultaneously

in A and B on at least one particular occasion (reconstruction 4). Furthermore, at a slightly later date (reconstruction 3), we have evidence that building activity was taking place throughout the village, from the shore (Sectors C and B) to the higher part (Sector A).

Other by no means negligible details have come out of the dendrochronological study of La Draga. These concerns a long palisade in Sector A, which zigzagged in an east-west direction, and two triangular constructions located beside two of the communal fires, also in Sector A. There has been speculation that these were wooden stands or platforms on which large earthenware storage jars containing cereal grains for roasting were placed (Fig. 5).

Dendrochronological analysis has not yet been able to afford precise data about the village's true lifespan. Many of the posts recovered so far at La Draga were made from the trunks of young trees (10-35 years) and a few from the trunks of old trees (35-95 years) and effective correlation is impossible until specimens of intermediate age appear. So how long might the Neolithic settlement of La Draga have been there before the final fire broke out?

If we compare La Draga to middle-late Neolithic villages in the Alpine zone built around large and small lakes, a short lifespan of around forty years would seem most likely. This is the known average duration of this

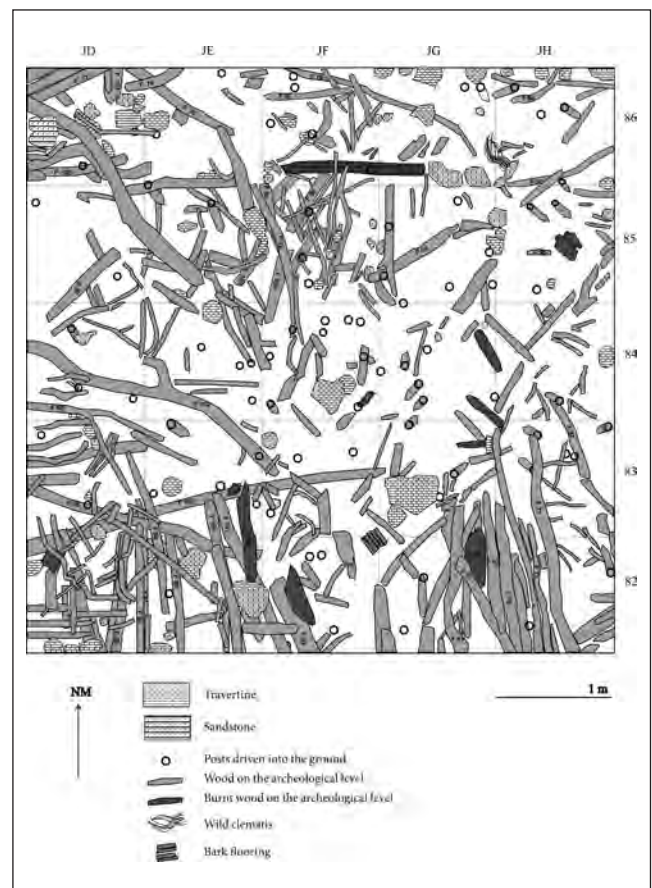


Figure 7. The archeological level in the southwestern quadrant of Sector B, 1998

type of settlement in Alpine Europe during the middle Neolithic and Chalcolithic (4,000-2,200 BC). If on the other hand we think in terms of other villages in Catalonia with long cultural sequences of between 300 and 500 years — early Neolithic villages such as Les Guixeres (Viloví, Alt Penedès) or Plansallosa (Tortellà, Garrotxa) and middle Neolithic villages such as Ca n'Isach (Palau-saverdera, Alt Empordà) — then a more extensive time scale could be envisaged for La Draga.

The fact is that radiocarbon data for La Draga, as mentioned earlier, suggest a fairly wide chronological range within the second half of the 6th millennium BC. So can datable archeological materials, especially decorated ceramic pots, help us to achieve greater accuracy? For the time being there are no clear indications of relics from outside the latter part of the Cardial phase, during which shell decorations still predominated. This, in any event, does not necessarily mean that La Draga had a relatively short lifespan of about 100 to 150 years, because the Cardial pottery has not yet been dated precisely,⁴ and so the true range could be shorter or even longer.

These data, then, enable us to assert that the Neolithic village of La Draga comprised two clearly differentiated zones: one beside the Lake and the other in the higher, drier part of the site, towards the east. The first was probably the dwelling zone and the latter an area for storage and communal work (Fig. 2).

Two rows of 8 to 10 huts each probably stood along the Neolithic shore and 30 m inland. The huts were about 10-12 m long by 3-4 m wide and were raised slightly (approximately 1 m) above the lake chalk to prevent flooding

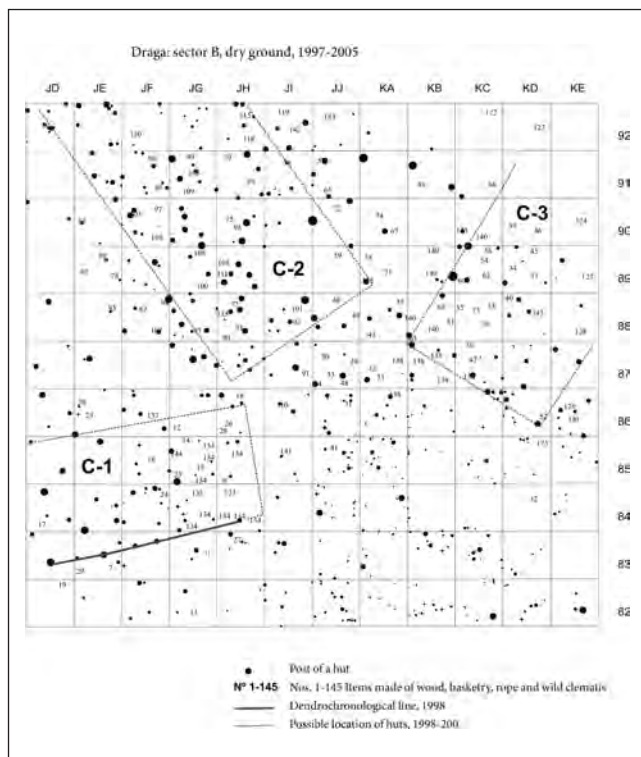


Figure 8. Posts and possible rectangular huts in Sector B, 2005

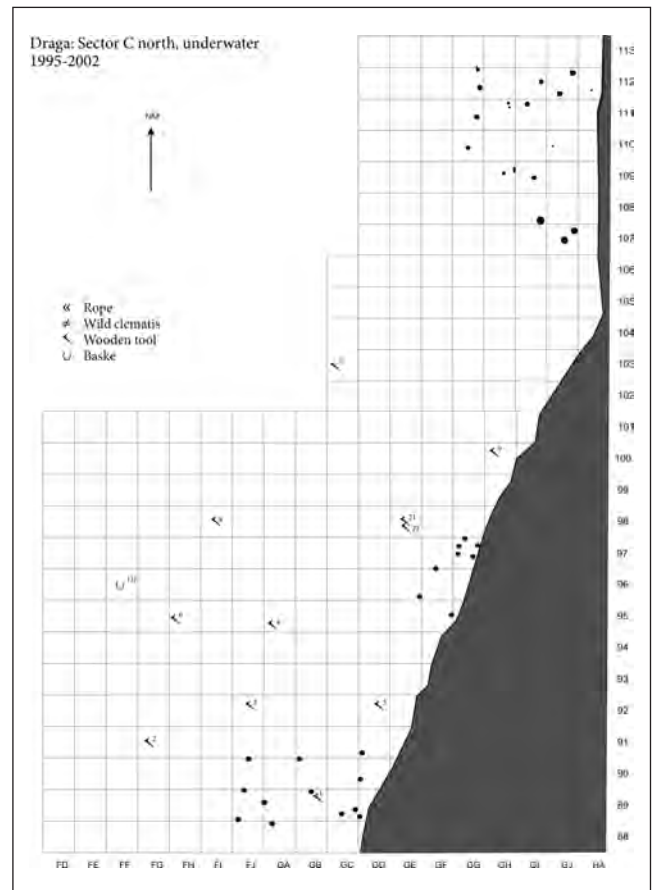


Figure 9. Fronts of the rectangular huts in Sector C, 2002

when the level of the Lake rose. The floor was made of planks and logs, split down the middle or left round. Inside there was probably a small hearth, because relics of such hearths (pebbles and charcoals) have been found, upside down, between the posts driven into the ground. No doubt the hearths were thrown out from time to time, which is why we find them upside down, and then a new one was made (Fig.8).

A ball of rope made from linden bast and a roll of wild clematis (*Clematis vitalba*) were also found in the archeological layer in Sector B. Both were ready to be used to lash the wooden frames of the huts together. Numerous wood fungi also appeared, and a few dog and pig coprolites (Fig. 7).

The huts, which had an east-west orientation, perpendicular to the Lake, were probably separated by gaps, or streets, 3-4 m wide, as can be seen in the underwater Sector C (Fig. 9). This layout would have given the village an organized appearance. There were probably about sixteen to twenty huts, apart from the constructions that were erected in the higher zone during the first phase. From the density of construction it can be inferred that La Draga had a population of approximately one hundred at the end of the 6th millennium BC.

During the first phase of building some small oval huts and other unidentified constructions were put up about 60 m farther inland, in the higher zone (Sector A). They

all rested on the ground, directly on the lake chalk. The oval huts were paved with stone slabs inside, had posts round the perimeter, and one or two posts in the middle to support the thatched roof. We believe they may have been granaries, because the charred remains of many cereal grains (wheat and barley) and legumes (peas and broad beans) were recovered inside them.

The long palisade running in a zigzag line from the eastern tip of Sector A in a westerly direction was probably also erected during this first phase. A stretch about 8 m long has been preserved. It may have served to protect the high, dry area that was used for grain storage and community work and separate it from the lower, damper area where the dwellings stood. During this initial phase a causeway approximately 1m wide and made of small stakes may have joined the two parts of the village.

A structure of this type, made up of a vast number of parallel stakes, was discovered in 2000 in the southwestern part of Sector B, heading towards Sector A. This layout, featuring two areas allocated to different activities, is in fact quite common in Neolithic Alpine villages.⁵ The lake chalk round the huts would have been covered in a muddy sediment full of refuse that had been throw out of the houses and walking on it cannot have been easy.

In the second phase Sector A was turned into a community work area. This is obvious from the fact that hearths and ditches containing food refuse have been laid on top of earlier posts (Fig. 6).

The thirty-five hearths in Sector A were dug out of the lake chalk. They measured between 60 and 180 cm. Two seem to have been flat but most are shallow pits, always with an upper layer of quartz pebbles and a lower mass of charcoal or fragments of firewood (chiefly oak, but also laurel and box wood). Pit hearths of this type were used for 'Polynesian style' cooking, a method that involved surrounding the meat in hot pebbles until it was stewed. Food could also be cooked by dropping hot pebbles into water in an earthenware pot (always shaped by hand) to make it boil.

The hearths also seem to have been used to roast grain (wheat and barley). Hundreds of thousands of grains have been found at La Draga. Possibly they were placed in large earthenware vessels standing on triangular platforms beside the hearth until the heat and smoke from the fire roasted them.

Ditches for refuse, which in the second phase were fenced off by many of the posts of the buildings in Sector A, were irregular in shape and somewhat shallow. They contained mostly left-over bones from animals slaughtered for food and artefacts.

The plentiful building materials retrieved in Sectors B and C — ends of pillars with forked tips, fragments of walls made of branches tied together, large beams and planks — enable us to imagine the method used to build the huts at La Draga: a rectangular structure with three or four rows of pillars and walls made of branches lashed together and coated in mud and straw would have support-

ed a double-sloping roof, possibly made from sheaves of reeds.⁶

The posts were usually made of oak, 12-15 cm in diameter, and driven into the ground 80-90 cm apart. The upper end could be fork-shaped to support the main roof beams, which were 3-3.5 m above the ground. A large number of stakes, 3-5 cm thick, were driven into the chalk between the trunks to strengthen the walls, which were made of interwoven willow or hazel branches.

The bark of the posts was always left on. The ends were single-bevelled, double-bevelled, multifaceted or conical. This enabled them to be driven into the lake chalk to depths of up to 2.7 m. The pillars were probably lashed to the beams and rafters with wild clematis, *Clematis vitalba*, which is common in oak woods, or with ropes made of plant bast.

The rectangular huts at La Draga match the usual patterns for Neolithic lakeside villages, which are well known in the Alpine zone from the middle Neolithic to the Bronze Age. Rectangular wooden huts are the most suitable for lakeside environments where buildings have to be erected on chalk. The village of La Marmotta (Lake Bracciano, north of Rome) presents the closest affinities to La Draga, both chronologically and culturally, and here the first dendrochronological findings also point to rectangular huts.

On the other hand, in Cardial settlements on the dry, hard, stony terrains characteristic of the western Mediterranean basin — Les Guixeres (Viloví, Alt Penedès), Barranc d'En Fabra, near Tortosa (Montsià), or Baratin (Courthézon, Provence) — the traditional pattern is invariably that of oval huts resting on a plinth of stone blocks with thatched roofs of sticks and heather, supported by a row of wooden pillars.

Neolithic villages in the Alpine region⁷ comprise groups of ten to fifteen rectangular huts, arranged in one or two rows, which stood at right-angles to the lakeshore during the middle Neolithic and parallel to it from the late Neolithic and Chalcolithic to the Bronze Age. The huts were 12-15 m long, 4-5 m wide and 3-4 m high. This gave them a somewhat heavy appearance, which was accentuated by walls made of interwoven branches with a mud and straw daub.⁸

In the Alpine region, middle Neolithic huts — the oldest so far discovered date from the mid-5th to the mid-4th millennium BC — were built directly on the ground or were slightly raised.⁹ In contrast, during the late Neolithic and Chalcolithic (from the middle of the 4th to the middle of the 3rd millennium BC) and especially the early Bronze Age (late 3rd and early 2nd millennia BC), they were often built on platforms, but nearly always on the shore, not over the water.

The true pile-houses are not found in the Alps until the closing stages of the Bronze Age or the early Iron Age (between the middle of the 2nd and the beginning of the 1st millennium BC). During this particularly violent period, it must have been necessary to build dwellings over water.

NEOLITHIC IMPLEMENTS: CLAY, STONE, BONE AND WOOD

The spectacular nature of the tools and other items made of wood discovered at La Draga tended, at least from 1995 onwards, to overshadow objects such as ceramics, implements made of chipped flint, polished stone and bone which are found on all early Neolithic sites in Catalonia, including La Draga. Yet some of these objects, notably pottery vessels, still afford vital assistance in defining the chronology of the settlement more precisely.

Ceramic pots are always hand-modelled from local clay tempered with quartz and mica. In recent years some fairly large pieces with lavish cockleshell decorations have been found among the huts in Sectors B and C, in the lower part of the site. It is possible that they fell into the muddy sediment beneath the huts and were preserved there much better than in Sector A, where only small and rather badly eroded potsherds have been retrieved, often without any trace of decoration.

The commonest earthenware receptacles at La Draga are small and medium-sized round pots (bowls and cooking pots), with or without a neck, subspherical or hemispherical in shape, and suitable for cooking. The second most widespread receptacles are large cylindrical jars. These too have convex bottoms but were used for storing food (Fig. 10).

The decorations follow the usual patterns of the western Mediterranean Cardial-ware culture: cockleshell and comb impressions, moulding (smooth cords, nipple-like projections) and combed areas produced by dragging the edge of the shell over the surface. The closest equivalents, within the tradition of Cardial-impressed pottery, are those found at the Leucate-Corrège site,¹⁰ rather than on other sites on the central Catalan coast,¹¹ the coast of Alacant⁴ or the western Mediterranean coastline in general.¹²

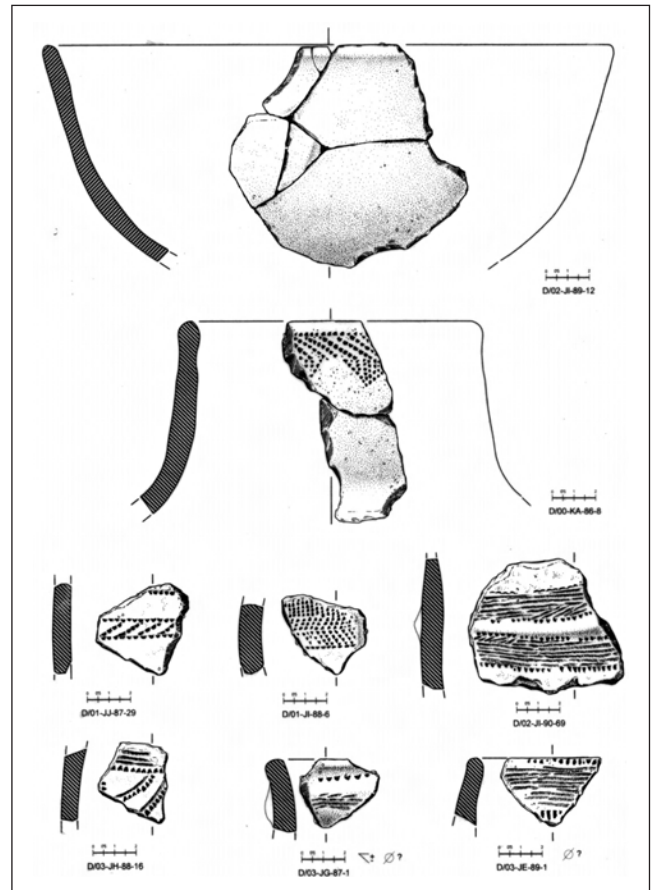


Figure 10. Ceramic pots with Cardial decoration from La Draga

Chipped stone tools were made basically from flint and quartz crystals. These materials were brought from outside the immediate area, because Banyoles lies in the midst of a lake basin and the only local stone is travertine. Tools made here included blades with a flaked edge which were inserted into the wooden handles of sickles or used



Figure 11. Bone spoon from La Draga, 1998

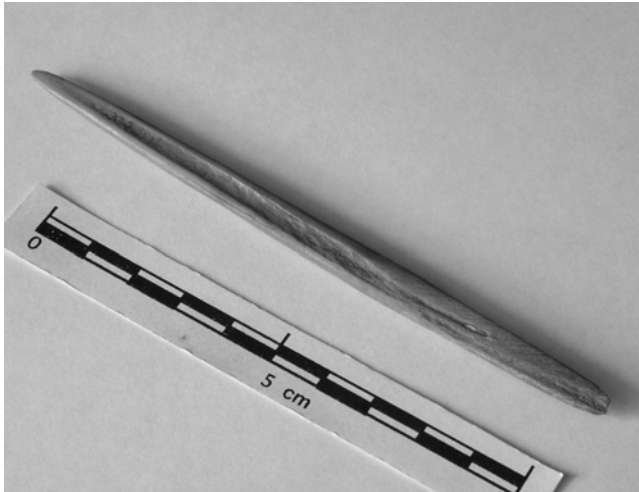


Figure 12. Bone arrowhead from La Draga, 2003

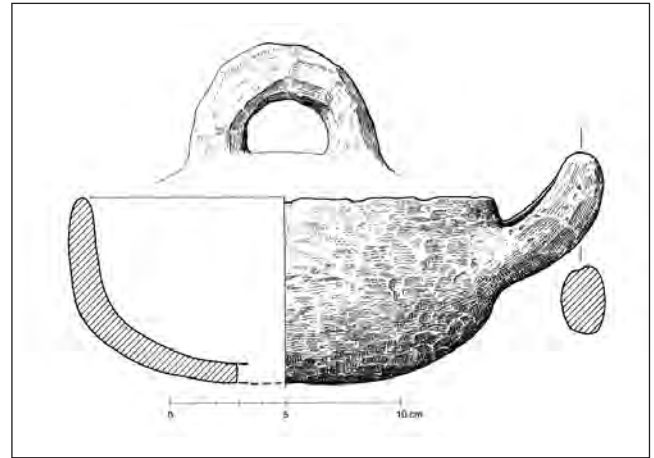


Figure 14. Oak-wood vessel from La Draga, 2005



Figure 13. Ring made from horn from La Draga, 2003



Figure 15. Box-wood comb from La Draga, 2005

as knives; microlith arrowheads (in the shape of a trapezium or a segment of a circle); and piercers and scrapers set into handles made from deer antlers.

The only polished stone items found at La Draga are adze blades (no axes have appeared so far). They are made from schist or hornfels from the Cap de Creus, on the Mediterranean coast, or the Pyrenees. It is also worth stressing that no wooden axe handles have been found in the village either, only adze handles. This is very strange and has led us think that we should check whether polished stone axe blades really existed in the western Mediterranean in the early Neolithic (the second half of the 6th millennium BC). Perhaps they do not occur until the middle Neolithic (the 5th millennium BC).

As on most Cardial sites, implements made from the horns and bones of animals — chiefly deer, sheep, goats and bovines — are numerous and varied. The items recovered include burins, spatulas, long pins, a curved needle with an eye in the base, spoons, toothed spatulas for decorating earthenware, and tubes made from birds' bones, the purpose of which is unknown (Fig. 11).

But one magnificent discovery made in recent years deserves to be highlighted: several arrowheads, some short and some long (7-12.5 cm), with single or double bevelling at the end that was attached to the shaft. They bear marked similarities to the famous assegais of the Upper Paleolithic and very few have been found in Catalonia in Cardial contexts. Points of this type could kill quite large animals (deer, roe-deer, wild boar, goats and wild bulls), whereas flint microliths seem suitable only for hunting birds or rabbits (Fig. 12).

The bedstones of the hand-operated mills used at La Draga for grinding cereal grains are small and slightly concave. They are made from porous rocks such as basalt or coarse-grained rocks such as granite or sandstone. They were used in conjunction with oval grinders, and possibly pestles as well, made from similar stones. Large stone artefacts also included strikers for chipping flint and polishers for smoothing and burnishing pottery.

Personal ornaments, some of them veritable sumptuary items, were made from seashells, polished stone, animal bones and horns. Many (dentalia for instance) were

used in their natural form, others were pierced (Columbella, cockle and scallop shells and animal teeth), while still others (beads for necklaces, rings and bracelets) were entirely carved out of stone (soapstone or marble), or bone, horn or seashells. Rings are especially plentiful, though few had previously been discovered on Catalan early Neolithic sites. They consist of a simple circle with one or two rounded protuberances. Several deer antlers have also been found with grooves that served as matrices for shaping rings (Fig. 13).

The marble items are something of a novelty in the early Neolithic in Catalonia. Beads, rings and bracelets, both narrow and broad, have been found at La Draga, as well as a proximal fragment of a round-headed pin and a small tulip-shaped pot, all made out of marble. They were not made in the village itself because the marble is of foreign origin. They may have been obtained by bartering, travelling from hand to hand over long distances.

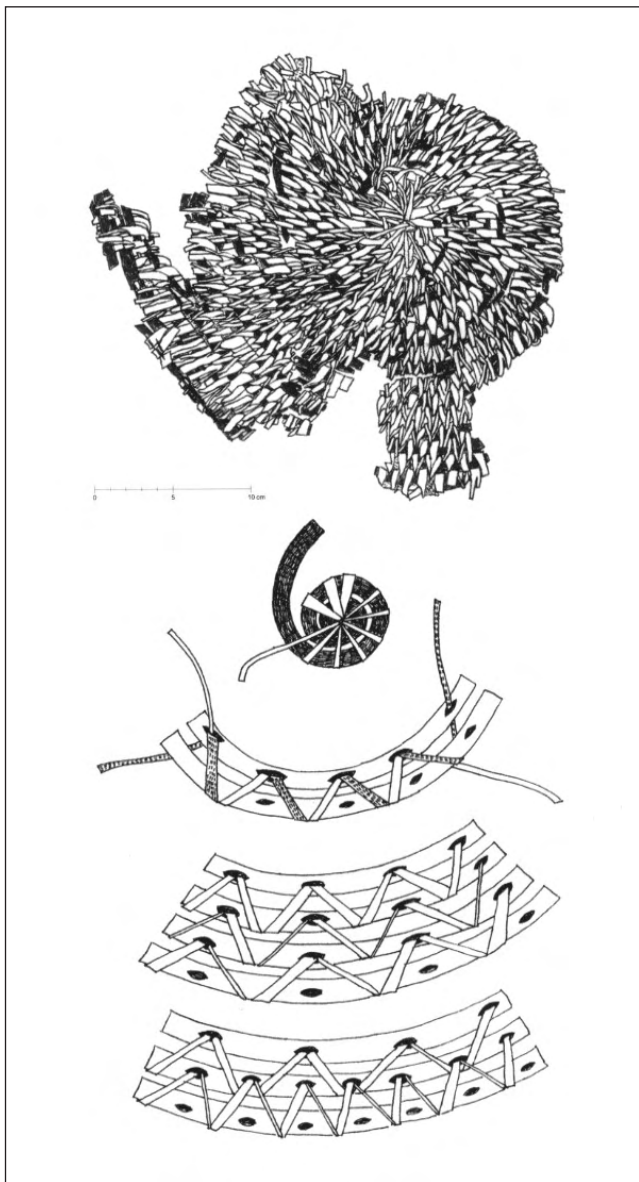


Figure 16. Bottom of a basket from La Draga, 1997

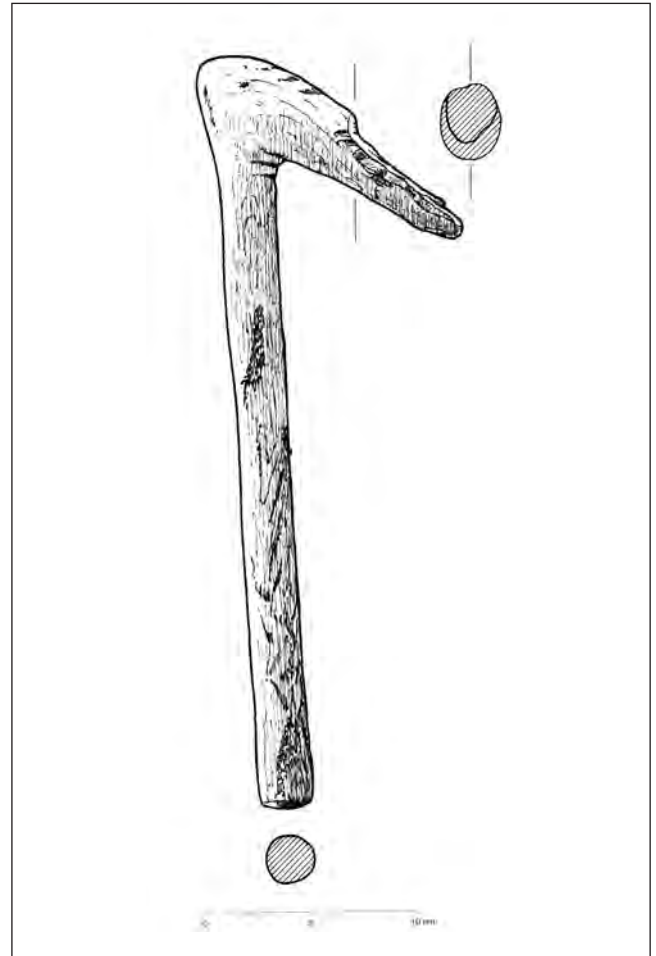


Figure 17. Adze handle from La Draga, 2001

The preservation of organic materials is a unique characteristic of La Draga and endows it with special importance among prehistoric sites in the Iberian Peninsula. Thanks to the number and variety of the wooden objects found there, this early Neolithic village in northeastern Catalonia is an irreplaceable source of information on Neolithic implements made from perishable organic materials and has yielded the most important collection of finds from the period, both quantitatively and qualitatively.

We will not devote much space to the description of each of the 168 wooden items found in Sectors B and C at La Draga between 1995 and 2005 because a monograph has already been devoted to them.² The identification of the species used and the experiments to determine the manufacturing process were conducted by Raquel Piqué (Universitat Autònoma de Barcelona) and Antoni Palomo (Arqueolític).

Suffice it to recall that numerous household items have been unearthed here. Some are kitchen implements (bowls, ladles and scoops made from oak, a yew-wood stirrer, and two spatulas, one made from box and the other from hazel); others are for weaving (two combs and eight double-pointed needles or spindles, all made of box-wood). Numerous fragments of baskets — for carrying or



Figure 18. Box-wood sickle from La Draga, 2005

storage — have also been found. They were made from aquatic plants, sometimes reinforced by hazel branches (Figs. 14-15-16).

Box-wood wedges and adzes were used in the building of huts, household furniture and pirogues (Fig. 17). Ten adzes have been found to date, six of which were made of oak, one of juniper, one of boxwood, one of pine and one of yew. The platform to which the polished stone blades were fitted measured between 6.5 cm and 14 cm. One, however, measured 26 cm, which means that either the polished stone blade was enormous, or it was made of deer antler. As mentioned earlier, the beams were lashed to the wooden pillars with wild clematis and rope made from plaited or twisted plant fibres.

One of the noteworthy items of furniture is an object we refer to as a hook. It consists in a thin, narrow piece of wood, with a hole at one end and a hook at the other, reinforced with two concave rims. Six fragments and one whole hook have been found. Three of the fragments are made of laurel, one of maple, one of holm oak, and one of apple wood. The complete hook is made of box wood. We assume they were either for hanging things on, or possibly bucranes, and that they were attached to the inner or outer walls of the huts.

Farming tools are the most numerous and varied. Of special note are nine sickles (seven complete and two unfinished). Nearly all (seven) are made of box wood, but one is of elder wood and one of juniper. They were made by heating a branch and bending it until the distal end formed a right or obtuse angle, or by choosing two branches that were already joined at the desired angle (Fig. 18).

The sickle had a curved end for catching the stalks, one or two slots for the teeth or flint cutting edges, and a cylindrical grip. The flint blades were inserted into one side of the tool, at right angles to the handle. The reaper hooked the curved end round the stalks just below the ears, and at a flick of the wrist the flint blade severed them. If the straw was needed, the same operation was repeated at ground level.

The other essential farming tool at La Draga was the digging stick, which was used for sowing grain in furrows and the seeds of leguminous plants in holes. Of the twenty-

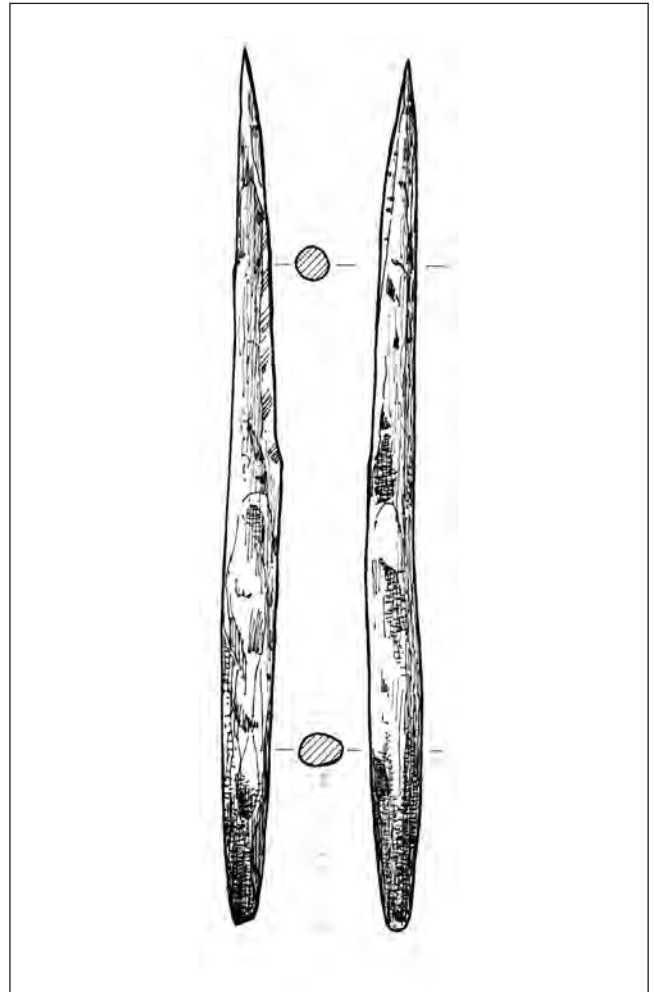


Figure 19. Long double-pointed digging stick from La Draga, 2001

ty-four sticks identified, twenty were made of box wood, two of apple wood, one of oak, and one of hazel wood. Five were short (23-31 cm) with a single conical tip, and fifteen were long (41.5-87 cm), with a conical pointed tip at one end and a bevelled tip at the other. We assume that those with two tips could be used to dig holes or furrows as required (Fig. 19).

Under the heading of agricultural implements we include a few complex items with secondary branches or forks, which seem to have been used like a garden fork, to turn the soil over. We will not discuss the many other pointed sticks found at La Draga without the finishing touches that enable us to identify the digging sticks and which could be used for a variety of different crafts. We will however refer to a few items to do with hunting, a by no means negligible activity in this early Neolithic village.

Six carefully smoothed or polished box-wood tips of shafts have been recovered and we have tentatively identified these as lance or javelin heads. The pieces are 12-52.3 cm long and 1.2-2.7 cm in diameter. One has a notch on the back and another has a thicker cylindrical portion at the base of the tip. The magnificently polished and sharpened points lead us to believe that they really are the distal ends of throwing weapons.

Since 1995 twenty-nine pieces of arrow shafts have been found at La Draga. Some belong to the medial part of the shaft, others to the distal part. The sharp head is carved out of the wood itself. The surviving fragments measure 5-15 cm in length, with diameters ranging from 0.6 to 0.9 cm. They are made of dogwood, willow or box wood. No distal tips have so far been found with a notch for inserting a trapezoidal flint head — many such heads have been found on the site — or for fitting the horn and bone assegai heads which have also been found there. On the other hand we have retrieved a cylindrical shaft tip made of solid box wood. Among Neolithic lakeside groups in Switzerland, where they are commonplace, these are considered to be arrows for bringing birds down without killing them.

Of all the tools disinterred at La Draga, those that caused the greatest excitement were possibly two bows made from yew found in 2001 and 2003 respectively (Fig. 20). One is 105 cm long, 3.4 cm wide and 2.2 cm thick, with an oval cross-section. The surface is lightly polished and the tips to which the string was attached have not survived. The other is only 35 cm long, 2.8 cm wide and 1 cm thick and the cross-section is plano-convex. In this case one of the tips still bears the two notches to which one end of the string was fixed. The string was probably made of animal gut or plant fibres. These two Neolithic bows from La Draga — along with some from the Linear Pottery Culture of Central Europe, such as grave 704-706 at the

chwanfeld necropolis¹³ — are probably among the oldest in Europe.¹⁴

It seems likely that a very large proportion — possibly the majority — of the implements used by prehistoric populations from the upper Paleolithic onwards were made of wood. But their relative value depended on the ease with which they could be made and the length of their useful life. Some implements, such as sickles, adzes or bows, required painstaking preparation and often the whole surface was polished. This makes us think that their users were especially attached to them and their useful life could be a long one. On the other hand items such as pointed posts were fashioned with as few blows of the adze as possible, and some still bear the bark of the original branch. These objects were destined to perform a specific function for a short time.

Undoubtedly the amount of specialization that existed is also shown by the different ways such items were made. We cannot rule out the possibility that certain objects which were made with special care (bows or sickles) were produced by artisans with some degree of specialization. However, there seems little standardization, generally speaking, in the method of working, so probably anyone good with their hands could make them.

The discovery at La Draga of all these tools and other items made of wood and basketry is exceptional in the context of the Iberian Peninsula, especially in view of the fact that they date back to the early Neolithic, the end of the 6th millennium BC.

Some exceptional Neolithic and Bronze Age items made from plant materials have in fact been found in other parts of the Iberian Peninsula, deep inside caves where the unchanging, oxygen-poor environment has helped to preserve them. For instance, basketry items painted with geometrical motifs and esparto-grass shoes were found in the Cueva de los Murciélagos (Albuñol, Granada) at the end of the 19th century by Manuel de Góngora.¹⁵ More recently they have been studied by Carmen Alfaro¹⁶ and the team headed by Carmen Cacho.¹⁷ The last-mentioned study yielded three new radiocarbon datings which situate these items at the end of the Andalusian early Neolithic, between 5,200 and 4,600 BC.

Another important find was made in Murcia. It dated from the second half of the 3rd millennium BC, which there belongs to the Chalcolithic. Grave offerings made from organic materials (a linen tunic, remains of a painted leather bag, an esparto-grass mat, an oak-wood vessel, and a wooden eye-idol) were discovered in the Cueva Sagrada in Lorca,^{18,19} where at least three persons were buried. Alongside these items four flint arrowheads and three copper burins were found. Radiocarbon analysis of the esparto grass dates this collective burial at $3,870 \pm 100$ BP which, when calibrated, means the 3rd millennium BC. Another find worth mentioning is the magnificent whole axe with a wooden handle and a polished stone blade which was found in the early 20th century in the Cueva de los Blanquizaes at Lébor (Totana, Murcia). The date is

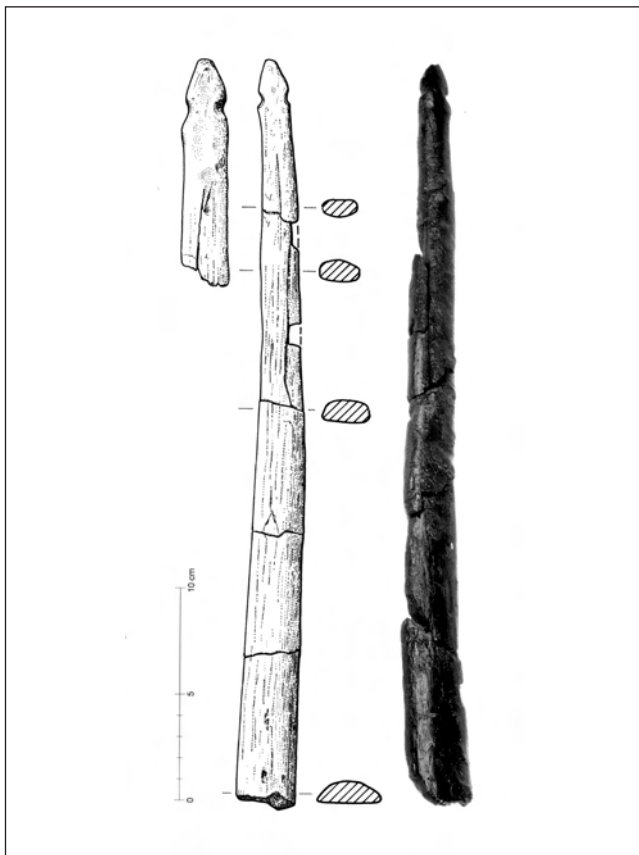


Figure 20. Fragment of a yew-wood bow from La Draga, 2005

uncertain — somewhere between the Neolithic and the Chalcolithic.²⁰

If we continue into the Bronze Age — the 2nd millennium BC —, we can also refer to the curved sickle handle with numerous flint teeth found at the village of Mas de Menente (Alcoi, Alacant)²¹ or the grave offerings from tomb 121 at the Argaric site of Castellón Alto (Galera, Granada). The latter included a complete holm oak-wood adze with a copper blade, as well as pottery vessels, silver rings, bracelets and a copper dagger. All were recovered from beside the partially mummified remains of an adult and child.²²

To conclude this section we recall that some prehistoric objects made of organic materials have been found on other sites not far from Catalonia: the Cova des Càrritx and Cova des Mussol (Ciutadella)²³ and the Cova des Pas (Ferrerries).²⁴ All three are in Minorca and all date from the end of the 1st millennium BC, which on the island corresponds to the Bronze Age or early Iron Age.

All these prehistoric finds, however, except those from the Cueva de los Murciélagos, belong to a period very far removed from La Draga. In order to find Neolithic objects made from organic materials comparable to those from La Draga we must focus on Mesolithic and Neolithic sites in the north and east of Europe, in addition to the Alpine sites mentioned earlier. Even so, the site of La Marmotta (Lake Bracciano, Rome) is the only one with the same time range — the second half of the 6th millennium BC — and the same cultural facies: the early Neolithic Cardial-ware phase.

If we compare the collection of wood, basketry and rope items from La Draga with items found on European Mesolithic sites dating from the 6th millennium BC, we observe certain curious coincidences that are not repeated in early or middle Neolithic groups. The bows and arrows of the Mesolithic cultures of Denmark and northern Germany (the Ertebølle culture) are already well known, as are those found more recently on the Russian plain north of Moscow, where other important sites have been discovered in peat bogs, such as Vis-I and Zamostje-2.²⁵

The simple bow with an oval or triangular cross-section is present on the first-mentioned site²⁵ (see Fig. 4), while in Zamostje-2 many wooden lance and arrow heads and large baskets and paddles for pirogues have been discovered²⁵ (see Fig. 36). These lance heads, notably, have not been found on any other European early Neolithic site except La Draga.

If we now turn our attention to early Neolithic settlements from the second half of the 6th millennium BC, virtually the only possible points of comparison are La Marmotta (Lake Bracciano), north of Rome, Erkelenz-Kückhoven (Cologne), in north-western Germany, and the Schwanfeld necropolis in the Main valley near Frankfurt, which was recently studied by D. Gronenborn (reference 13, p.178). The first of these belongs, like La Draga, to the Mediterranean Cardial culture and various wooden

tools fulfilling similar functions to those found at La Draga (digging sticks, sickles and hoes) have been found there, underwater. They are of a quite different type, however (reference 3, pp. 12 and 22).

The wooden sickles from La Marmotta usually consist of a handle and a semicircular blade fitted with several sloping flint flakes. Thus they differ considerably from the right-angled or obtuse-angled sickles found at La Draga, with cutting elements perpendicular to the shaft. Apparently at La Marmotta the sickle struck the stalk, whereas at La Draga it severed it just below the ear. We must recall, however, that some exceptionally fine early Neolithic finds were made at La Marmotta: earthenware models of pirogues (reference 3, Plates XVI and XVII) and a mother goddess carved in black soapstone (reference 26, p. 29, Figs.1-2), which was found during the latest excavations.

Let us turn now to German sites of the Linear Pottery culture. Discoveries at Erkelenz-Kückhoven include hoes, spades and forks with several prongs suitable for turning over soft earth, a piece of a bow, and medial portions of arrows (reference 27, Figs. 6 and 8a). In Tomb 704/706 at the Schwanfeld necropolis in southwestern Germany, which belongs to an early phase of the same cultural group, a skeleton was found in a crouching position holding a complete wooden adze with a polished stone blade, a complete bow, and several arrows with trapezoidal flint heads (reference 13, p. 178).

But it is only when we consider the middle Neolithic sites in the Alpine area dating from the 5th and 4th millennia BC that we find truly striking resemblances to tools and other items found at La Draga. At the villages on the shores of Lakes Chalain and Clairvaux^{5,6,9,28} and the village of Charavines on Lake Paladru²⁹ — all in French Jura —, at the sites in Switzerland belonging to the Cortaillod and Pfyn cultures,^{7,8,30} and those of the Horn culture on Lake Constance in southern Germany,^{31,32} the list of finds bears marked similarities to La Draga: pots, stirrers, ladles, spatulas, spades, needles, combs, baskets, ropes, rolls of wild clematis (reference 9, p. 156), wedges, adzes, sickles, posts, digging sticks, bows and arrows.

FOOD PRODUCTION: FARMERS AND HERDSMEN

The studies carried out by Ramon Buxó (Museu d'Arqueologia de Catalunya) indicate that the agricultural production system at La Draga was fairly complex and varied. The inhabitants grew the same early Neolithic cereal crops as are usually found in the western Mediterranean: naked wheat, naked compact wheat, emmer wheat, naked and husked barley. Naked wheat is found in vast quantities; amounts of other crops are virtually residual.¹

These crops must have been grown on the magnificent fields located on the broad plains nearby: the Pla d'Usall and Pla de Martís, half a kilometre north of La Draga. The grain was winnowed in the village itself and stored in large

pottery vessels, which may have been kept in the oval, stone-paved enclosures in Sector A. Afterwards much of the grain was roasted on the hearths also located in Sector A so that it could be made into flour more easily or for immediate consumption. The triangular constructions identified in the dendrochronological study beside the two fireplaces in Sector A could well be small platforms on which the jars containing the grain stood while it was roasted.

Broad beans and peas were also grown: large quantities of beans were recovered from the archeological level in Sectors A and B, and a small number of peas in Sector A only. This leads us to believe that leguminous crops were cultivated in the village itself, probably on the muddy ground near the edge of the Lake. There is ample evidence that fruits, nuts and berries were gathered in the nearby woods: hazelnuts, walnuts, acorns, pine nuts, blackberries, sloes, crab apples, wild pears, cherries and grapes are found in large quantities.

Animal husbandry was widespread among the early Neolithic inhabitants of La Draga.¹ The more than 22,000 fragments of dead animals recovered from the site constitute a sufficiently significant sample; indeed, research carried out by Maria Saña (Universitat Autònoma de Barcelona) indicates that it is unquestionably the best sample from the Catalan early Neolithic.

Bovines and pigs were numerous, alongside the usual sheep and goats. This was seldom the case on existing Catalan early Neolithic sites, most of which were located in caves, but since open-air settlements, such as the nearby Plansallosa settlement in Garrotxa, have begun to be excavated, it is becoming more frequent.³³

The age scale of the animals indicate that they were used in two ways: they were raised for meat but also for milk and dairy produce (butter and cheese). Interesting, albeit scarce, traces of the presence of dogs have also been found, as on most other early Neolithic sites in the Iberian Peninsula and elsewhere in Europe.

It has sometimes been suggested that the motive power of older oxen was used for dragging trunks, for instance, or for breaking up the soil, because of certain malformations that are detected in their limbs and occipital bones.³⁴

The diet of the Neolithic inhabitants of La Draga also depended to a considerable extent on plant gathering and hunting wild animals. These activities assured a wide variety of foodstuffs, which were obtained from the sea, the Lake, the nearby forests and the mountains which formed the border of their supply area.

That the villagers were fond of seafood is shown by the large numbers of marine mussel shells found round the hearths. These were brought from the closest Mediterranean beaches, located 50–60 km away as the crow flies. We can assume that the remains of a cormorant skeleton found in Sector B are also the result of an expedition to the coast. Probably the bird was shot so that its feathers could be used for arrows.

Lakeshore woods (hazelnut trees and willows) and hinterland forests (oaks and firs) grew round about the village. Here the inhabitants gathered a wide variety of berries (blackberries and sloes), other fruits (grapes, apples and cherries) and nuts (acorns, pine nuts, walnuts and hazelnuts), which they kept in baskets or leather bags. These were a very necessary complement to a diet already quite rich in cereals, pulses and the meat of domestic livestock.

On the other hand, the villagers obtained very little food from the Lake. The only signs of the exploitation of its resources are the numerous remains of fresh-water turtles (*Emys orbicularis*) retrieved from the hearths and the hut area, very small numbers of mussels from the Lake, the odd freshwater fish (eels, barbels, *Leuciscus cephalus* and *Rutilus arcasii*), and a single fragment of a goosander (*Mergus merganser*). The inhabitants probably went fishing on the Lake in pirogues, armed with harpoons and nets, but no relics of these have come down to us so little can be said on the subject. The dearth of finds to do with fishing, apart from the remains of the fish themselves (spines and jaws), is truly surprising, because such items are found in most lakeside habitats.³⁵

Hunting³⁶ was still a very important source of animal protein at La Draga, despite the relative abundance of protein from domestic livestock. It is interesting to note the clear and plentiful signs of the presence of wild oxen, and of wild boars, rabbits, deer, roe-deer and wild goats. Relics of the two last species show that the hunting grounds of the Neolithic inhabitants of La Draga extended beyond the woods of the immediate hinterland into the highlands surrounding the Lake basin. Remains of a few foxes and a small musteline indicate that certain species were hunted to obtain skins for winter clothing.

All this shows that the diet of the Neolithic inhabitants of La Draga can be considered quite rich and varied, though the proportion of meat must have been far in excess of the figures available for medieval and modern Europe.

FINAL CONSIDERATIONS: LIVING AND DYING ROUND LAKE BANYOLES

The discovery of the sites of La Marmotta and La Draga in 1989–1990, both located at the same latitude and near the western shores of the Mediterranean, brought about a major change in the study of Neolithic lakeside villages in Europe. Not only did they introduce Mediterranean settlements into the field for the first time, but they are, for now, the only early Neolithic sites belonging to the Cardial cultural facies which date from the middle or late 6th millennium BC. This has lent weight to the idea that the first Neolithic lakeside villages in fact sprang up near the Mediterranean and moved from there to the Swiss valleys, as the presence of groups with Cardial-style pottery in the Alpine zone already seemed to indicate.

We can say little of the spiritual or religious beliefs of the inhabitants of La Draga. We know that in other sites from the same period, including La Marmotta, stone idols have come to light.²⁶ The fact that most of these are steatopygous female figurines with exaggerated sexual attributes is a sign that the cult of the mother goddess, which started in the Upper Paleolithic, was still alive. This cult, with local variations, was to persist as least as far as the Chalcolithic (the end of the 3rd millennium BC).

The few early Neolithic tombs discovered in Catalonia and adjacent zones indicate that this early phase of permanent settlements and food production was marked by a firm belief in the afterworld.³⁷ Unfortunately no burial places (graves, cists or caves) have been found at La Draga itself or in the vicinity which could give us an idea of how they buried their dead.

However about 4 km to the northwest, in some of the Serinyà caves — Cova d'en Pau, Cova de l'Arbreda and Cova de Mollet-III — a few archeological Cardial remains have appeared which may date from the same period as the La Draga site. Excavation work done in the mid-20th century revealed that all these caves contained human remains from different periods. It is possible, therefore, that one or more served as a necropolis for the inhabitants of the nearby Neolithic village. But we must also consider the possibility that many corpses were simply thrown into the Lake, ritually cremated, or buried in deep graves in the travertine, since any of these methods would make it almost impossible to locate them.

It only remains for us to mention that remains of a human adult — an incisor and a phalanx from a foot — appeared among the animal remains found in Sector A of La Draga. Human remains — even skulls and a few long bones — have often been found mixed with the bones of animals that were eaten in Neolithic lakeside villages in Switzerland. Often this phenomenon is not reported because it is difficult to account for.⁸ In any case, these two isolated instances of human bones being found at La Draga could easily be explained as work accidents.

To conclude this article we wish to express the conviction that, despite the seventeen years that have passed since excavations began, La Draga still has a tremendous amount to tell us about the early Neolithic in Catalonia and other parts of the Iberian Peninsula. Archeological work was halted in 2005 so that we could concentrate on publishing all the results obtained so far and put the finishing touches to the Parc Neolític de La Draga, where the general public can now find out what life was like on the shores of Lake Banyoles 7,200 years ago.

We are confident that we will be able to resume excavations in the coming years with renewed strength and broader perspectives. This should enable us to clarify certain aspects that at present can only be guessed at, for lack of adequate information, such as the way the huts were arranged in the village and the purpose of some of the im-

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