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Shell beads of the Last Hunter-Gatherers and Earliest Farmers in South-Western Europe

Los colgantes en concha de los últimos cazadores-recolectores y de las primeras sociedades campesinas del Suroeste de Europa

PALABRAS CLAVES: Objetos de adorno-colgantes, Malacofauna, Mesolítico, Neolítico, Europa.

KEY WORDS: Suspended objects of adornment, malacofauna, Mesolithic, Neolithic, Europe.

GAKO-HITZAK: Edergailu zintzilikariak. Malakofauna. Mesolitoa. Neolitoa. Europa.

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RESUMEN

En esta trabajo se analizan los objetos de adorno-colgantes elaborados a partir de conchas de moluscos marinos documentados en los yacimientos mesolíticos y y del Neolítico inicial del SW del territorio europeo. Se hace hincapié en la determinación taxonómica, en aspectos tecnológicos y en las estrategias de captación de la materia prima con la que se elaboran estas piezas, así como en la distribución de determinadas especies y de tipos de adorno utilizados por los últimos cazadores-recolectores y las primeras comunidades campesinas.

ABSTRACT

This paper analyses the suspended objects of adornment made from marine mollusc shells that have been recorded at Mesolithic and Neolithic sites in southwest Europe. Particular attention will be given to taxonomic determination, technological aspects and the strategies utilised to obtain the raw materials for these objects. The distribution of certain species and the types of ornamentation used by the last hunter-gatherers and first farming communities will also be discussed.

LABURPENA

Lan honetan Europako hego-mendebaldeko hasierako neolitoaren eta mesolitoaren aztarnategietan dokumentatutako itsas moluskuluen maskorrez egindako edergailu zintzilikariak aztertzen dira. Artikuluan honako aldeak azpimarratuko ditugu: zehaztapen taxonomikoa, alde teknologikoa, pieza horiek lantzeko lehen gaiaren biltze-estrategiak, eta azken ehiztari-biltzaile eta lehen nekazarien komunitateek erabiltzen zituzten edergailuen eta zenbait espeziaren banaketa.

1.- INTRODUCTION

In the early Holocene, the sea was an important source of food resources for European hunter-gatherer groups who lived in settlements near the Atlantic and Mediterranean coasts. The presence of sites with large accumulations of molluscs (shell-middens) is a clear indication of the massive and selective exploitation of the marine environment. However, as had occurred during the Upper Palaeolithic, on rare occasions the shells of the species that were consumed (different species of *Patella* sp. and *Osilinus* sp., and also of *Mytilus* sp.) were converted into suspended objects of adornment (ÁLVAREZ-FERNÁNDEZ 2008a).

Since the Early Upper Palaeolithic, as well as using the sea as a source of food, hunter-gatherer groups had chosen certain marine mollusc species with no bromatological value (mainly gastropods, but also scaphopods, and to a lesser extent, bivalves), which they collected on beaches and then made into pendants and beads (ÁLVAREZ FERNÁNDEZ & JÖRIS 2007). Their choice of shell was possibly based on the colour, size and shape of the objects. Thus, while at Atlantic sites the most characteristic species are *Littorina obtusata* and *Trivia* sp., in Mediterranean deposits the typical species found are *Cyclope* sp. and *Homalopoma sanguineum*. However, in the Mesolithic, the species that would be selected

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were different from the ones used until then (ÁLVAREZ-FERNÁNDEZ 2001, 2005, 2006; TABORIN 1993, 2004).

Equally, perforated molluscs from the shores of both the Mediterranean and the Atlantic have been found at Upper Palaeolithic sites situated hundreds of kilometres from either coast. This phenomenon becomes particularly significant in the Late Glacial period (e.g. *Homalopoma sanguineum* at the Magdalenian sites of Gönnersdorf in Germany and Tito Bustillo in Northern Spain). The valleys of the rivers Rhone and Rhine, and also the Ebro, Po and Danube were natural routes of communication (“highways”) among groups of Palaeolithic hunter-gatherers occupying areas near the Mediterranean and Atlantic and those living in the interior of the Continent (ÁLVAREZ-FERNÁNDEZ 2001, 2005, 2006).

The same “highways” that communicated the North of Europe with the South (for example, the Rhone communicates with the Mediterranean Sea and the Rhine with the Atlantic) and the East with

the West (Ebro, Po, Danube) would continue to be in use during the Mesolithic and early Neolithic (ÁLVAREZ-FERNÁNDEZ 2006, 2008b; BARGE 1982; RÄHLE 1978; TABORIN 1974a, 1974b).

In addition, it was in the Mesolithic when some of the islands in the western Mediterranean (e.g. Corsica) were colonized for the first time, probably by settlers arriving from the continent of Europe on coastal boats. In the same way, in the early Holocene, clear proof exists for contacts between Europe and Africa (ÁLVAREZ-FERNÁNDEZ 2006, 2008b; TOZZI & WEISS 2001).

2.- SHELLS BEADS AT MESOLITHIC ARCHAEOLOGICAL SITES IN EUROPE

In the Mesolithic, the sites where suspended objects of adornment manufactured from shells have been found are mostly located near the Atlantic and Mediterranean coasts, although sites are known along the valleys of the principal rivers (Fig. 1). A difference can be seen between sou-

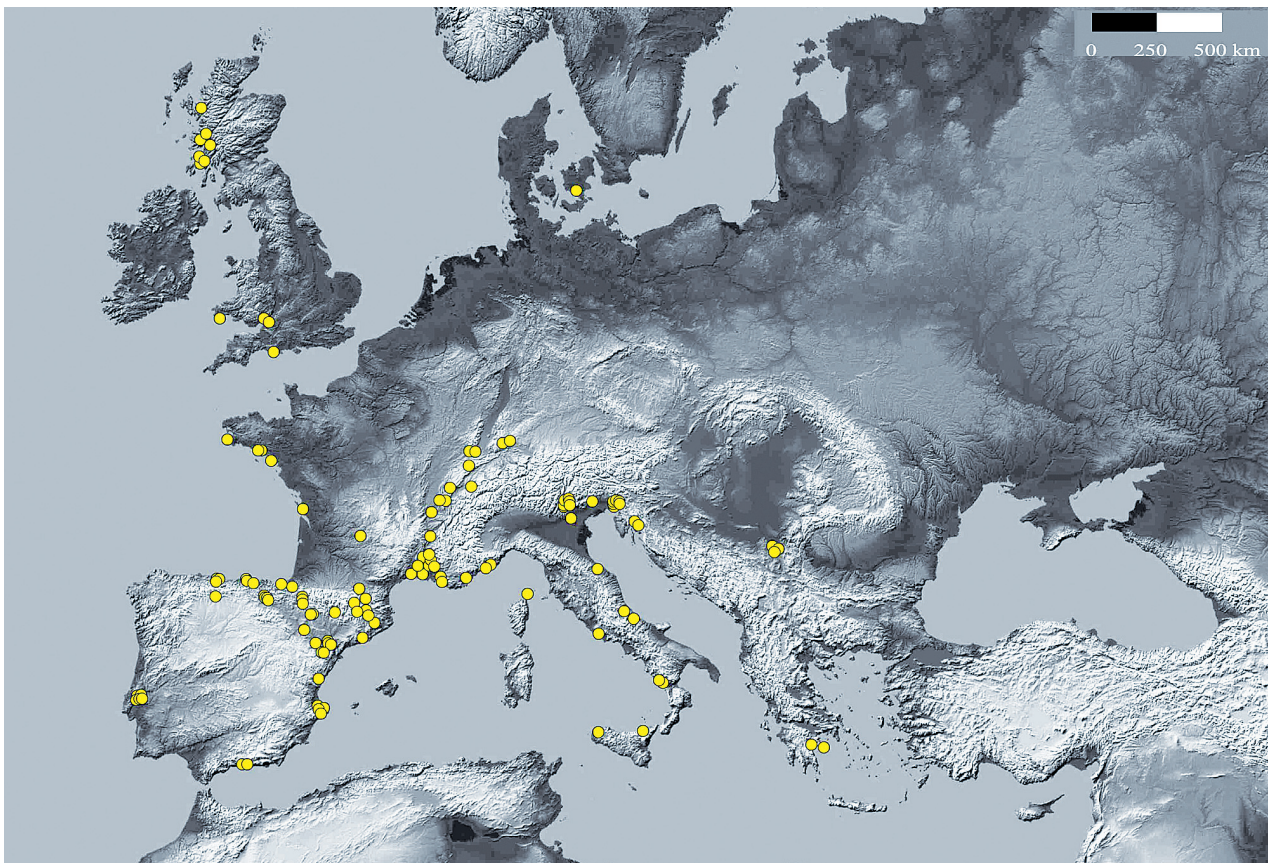


Fig. 1. Distribution of Mesolithic sites in Europe where personal ornaments made from recent marine shells have been found (modified after Álvarez-Fernández 2006, i. p. 2).

thern Europe, where the use of marine shells predominates, and northern Europe, where animal teeth are more commonly used to make pendants (ÁLVAREZ-FERNÁNDEZ 2006).

The most characteristic species in the Mesolithic are *Columbella rustica*, at Mediterranean sites, and *Trivia* sp., at Atlantic locations (Fig. 2 and 3). Regarding the former species, it has been recorded both at habitat sites and at burials, whereas it is very rarely found at Upper Palaeolithic sites (ÁLVAREZ FERNÁNDEZ 2006, 2008b, i.p.2).



Fig. 2. Characteristic marine shells at European Mesolithic sites: *Columbella rustica* (Botiquería de Los Moros).



Fig. 3. Characteristic marine shells at European Mesolithic sites: *Trivia* sp. (Los Canes, Grave II).

Therefore, the gastropod *C. rustica* was one of the shells most often used to make beads in the Mesolithic in Europe (Fig. 4). Regarding the Iberian Peninsula, it is found at sites located near the Mediterranean coast (e.g. Cueva del Lagrimal), and also at sites positioned inland, mainly along the tributaries of the River Ebro. In this case, this species represents 64.2% of the gastropods found there. Its area of distribution reaches the south of the Basque Country (e.g. Atxoste) and even Cantabrian Spain (Berroberria). The absence of specimens without perforation at sites furthest from the mouth of the River Ebro suggests that the shells were perforated on the Mediterranean beaches or at sites near them and that, later, the hunter-gatherer groups living near the coast exchanged them with other groups occupying the interior of the



Fig. 4. Distribution of European sites with perforated *C. rustica* shells in the Mesolithic (modified after Álvarez-Fernández 2006; 2008b; i. p. 2).

Iberian Peninsula (ÁLVAREZ-FERNÁNDEZ 2003, 2006, 2008b; in press 1 & 2; BENGHIAT et al. 2009; CADE 1998).

C. rustica has also been classified at a large number of archaeological sites (habitat and burials) located in the central and western part of the Mediterranean region. It has been recorded at sites along the whole of the Rhone Valley (Châteauneuf-Martigues, Le Rouet) as far as southern Germany (Grosse Ofnet-Höhle) (Fig. 5). *C. rustica* is much less common in the interior of France (Mas d'Azil). In the Maritime Alps, on the border between France and Italy, they are present, for example, in the Mesolithic levels at Arene Candide, Pendimoun and Rastel. It is particularly abundant in Sauveterrian and Castelnovian layers at sites in the Dolomites (Riparo Gaban), situated over 100km. from the Adriatic Sea, as well as in the Friuli Region (Riparo di Biarzo). It is also present at Mesolithic sites near Trieste, western Slovenia and northern Croacia (Mala Triglavka, Ciclami, Šebrn). In the centre of the Italian Peninsula, perforated *C. rustica* shells have been recorded at Riparo Blanc and in the Sauveterrian at Grotta Continenza. These beads have also been found at Mesolithic sites on the Italian island of Sicily (Sperlinga di San Basilio III and at Grotta dell'Uzzo), and also in Corsica (Torre d'Aquila) (See references in ÁLVAREZ-FERNÁNDEZ 2006; 2008).

Equally, this gastropod is found at numerous sites in North Africa, again both at habitat sites and in burials. It has been recorded in the Upper Capsian in Tunisia and Algeria, both in its earlier phases (El Mekta) and in its more recent phases



Fig. 5. Grosse Ofnet Höhle. "Schädelnester". Multiple burial of skulls. Perforated *Columbella rustica* beads were recorded among the suspended objects of adornment associated with the human remains (Schmidt, 1912).

(El Mermouta). One important site is Ain Khanga, where the burial of a child 6-7 years of age was accompanied by grave goods including perforated *C. rustica* shells and some 5000 beads made from ostrich egg shell. This site is located about 200km from the shores of the Mediterranean (ÁLVAREZ-FERNÁNDEZ 2003, 2006, 2008b; NEHREN 1992).

Other exclusively Mediterranean species, found in much smaller numbers, are *Cerithium* sp. and *Cyclope* sp. In Europe, Mas d'Azil is the site located furthest from the coast where the former of these gastropods has been recorded, while the latter was found in the burials at the Iron Gates (Vlasac 21 and 31). Bivalve shells are scarce at Mesolithic habitat sites near the Mediterranean (e.g., *Cerastoderma edule* at Cova Fosca). Neither are there many Mesolithic sites with scaphopods beads. In the Iberian Peninsula, they have been cited at the Catalan sites of Font del Ros and Sota Palou (ÁLVAREZ-FERNÁNDEZ 2006; i.p.1).

In contrast, in Atlantic Europe, no changes in the choice of species can be recognised between the Upper Palaeolithic and the Mesolithic.

In the Atlantic region, the gastropods most commonly used to manufacture beads were *Littorina obtusata* / *fabalis*, *Trivia* sp. and *Nassarius reticulatus*. In the case of sites in Cantabrian Spain, for example, the use of *Trivia* sp. predominates (75%). These species have been documented in habitat layers and in burials, mainly in France (Téviec and Hoëdic), but also in Grave II at Los Canes, while *Nassarius reticulatus* was found in the burials at La Vergne. Regarding habitat sites, perforated examples of *Trivia* sp. have been recorded at Berg-er-Vil, Cnoc Coig and Risga, *Nassarius reticulatus* specimens at Berg-an-Dorchenn and *Littorina obtusata* in the shell-midden at Culverwell. Examples of the Naticidae Family are less abundant, but were found in the burials at Téviec y Hoëdic, at La Crouzade and at Los Canes II (Fig. 6). Bivalve and scaphopods shells are not too abundant at Mesolithic habitat sites in Europe. The most numerous are specimens of *Cardium* sp., for example in Téviec and Hoëdic. Examples of *Cerastoderma* sp. have been cited at the latter graves, but also at Portuguese burials (Cabeço da Amoreira and Cabeço dos Mórros). In addition, *Glycymeris* sp. has been recorded in Grave 3 at La Vergne and *Callista chione* in Grave II at Los



Fig. 6. Los Canes. Grave II. Distribution of perforated shells, mostly *Trivia* sp. (Arias i. p.)

Canes. Scaphopods beads have been found in habitat deposits (La Cruzade) and also associated with funerary structures, especially in the burials at La Vergne, where over a thousand beads have been recovered (see references in ÁLVAREZ FERNÁNDEZ 2006, but also DAVID & WALKER 2004; DUPONT 2006; NEWELL et al. 1991; SIMPSON 2003; TABORIN 1974a).

3.- SHELLS BEADS AT EARLY NEOLITHIC SITES IN EUROPE

In western Europe, sites ascribed to the early Neolithic usually yield beads manufactured either from whole shells, mainly of gastropods or from fragments of bivalve shells. The whole shells tend to belong to the same species that have been recorded in Mesolithic deposits.

In the case of Mediterranean sites (at least in the Iberian Peninsula) the most common species

is still *Columbella rustica*. This gastropod is found again at coastal sites, and also at sites in the interior of the continent. In some deposits, these shells were found in Mesolithic levels, situated directly beneath Neolithic layers.

In Spain, the data from sites with layers ascribed to the early Neolithic is abundant. In the Upper Ebro Valley, specimens were found at Fuente Hoz; in the Middle Ebro further shell beads were found at Zatoya; and in the Lower Ebro, at Botiquería de Los Moros. In Catalonia, examples of *C. rustica* have been recorded at some early Neolithic sites (e. g. Pau IV). In the region of Valencia, shell beads were classified at L'Or. In Andalusia, shell beads were found at Nerja. In all instances these are habitation sites (see references in ÁLVAREZ-FERNÁNDEZ 2003; 2006; 2008b). *Columbella* shells have also been found in Galeria da Cisterna (Torres Novas, Portugal) (ZILHÃO 2009) Equally, outside the Peninsula, *C. rustica* is found at early Neolithic sites both near the shores of the Mediterranean (Châteauneuf-lès-Martigues, Jean-Cros, Pendimoun) and in the interior of the continent, particularly along the Rhone Valley (Courthézon, Grotte du Gardon). It is also present on Mediterranean islands (Torre d'Aquila). The gastropod is found in association with habitat contexts, and also in funerary structures (Ensisheim). *C. rustica* is also present at Neolithic sites in Switzerland (Sion, Sain Gèrin 1 & 4) assigned to the second half of the fifth millennium and the first half of the fourth millennium B.C. (BORELLO 2003). These latter sites are located over 400km from the Mediterranean Sea.

The same kind of beads have been found at Neolithic sites in North Africa, where they are generally associated with funerary contexts (CAMPS 1974; NEHREN 1992)

Another sign of the importance of this gastropod in the early Neolithic is, for example, that it was used to make impressed decoration on pottery (large dots), as has been documented at the Italian site of Giovanna Piano (Pianosa Island) (TOZZI & WEISS 2001: Fig. 4.6).

Other whole gastropods that were made into beads in the early Neolithic are, for example, *Conus* sp. (L'Or, Gazel) and *Cerithium* sp. (Châteauneuf-lès-Martigues), which are also known Mesolithic sites. Equally, specimens have been found of bivalves (*Cardium* sp. at Arene Candide, *Glycymeris* sp. at Barranc Fondo) and

scaphopods (Esteve, Courthezon) (PASCUAL BENITO 1998; TABORIN 1974b).

As well as using whole shells, commencing in the early Neolithic, fragments of the valves of certain bivalves were used to manufacture pearls of different typologies. One of the most characteristic types have a discoid shape. They are between 3 and 9mm in diameter and 1 to 2.5mm thick, with a central perforation about 2mm in diameter. Many of them were manufactured from marine shells of the Cardiidae family, especially of the *Cerastoderma* genus and, to a lesser extent, *Acanthocardia*.

The manufacturing process for this type of beads is as follows (PASCUAL BENITO 2005) (Fig. 7):

- Fragmentation of the shell.
- Regularisation of the fragment by percussion in order to give it a more or less circular shape.
- Abrasion of both sides and the perimeter with a fine-grained stone.
- Perforation from both sides of the object (biconical perforation).

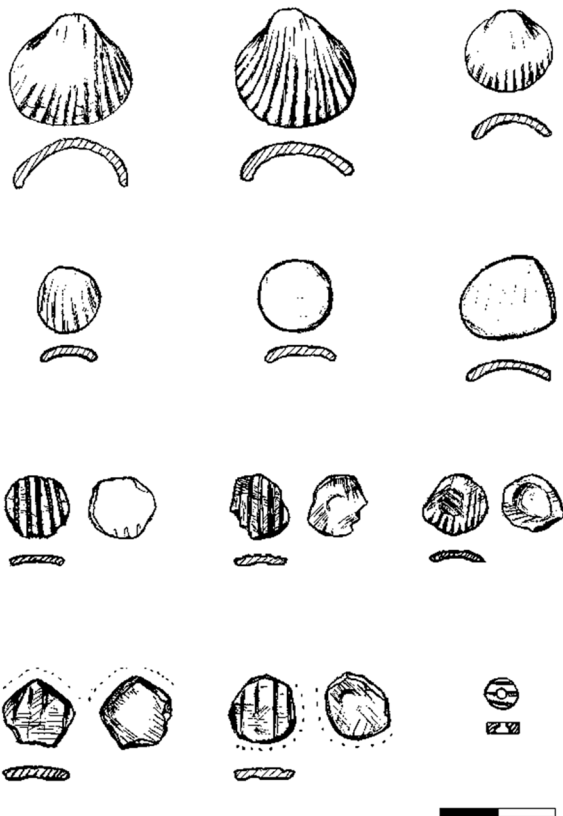


Fig. 7. Discs made from shells of the Cardiidae Family, found at Nerja (Málaga, Spain) (Pascual Benito 2005).

- Final polishing and, in some cases, application of ochre to their surfaces.

They are particularly abundant at sites in Mediterranean Spain, where they are found both at settlements in the open-air and in caves (La Draga, Nerja), and in funerary contexts (Avellaner). The excavations carried out in the cardinal levels at L'Or obtained two radiocarbon determinations: 6510 ± 160 BP, for the base of the cardinal strata, and 6265 ± 75 BP for the upper cardinal layer (Bernabeu Aubán, 2006). They are also present at sites in France, in the Mediterranean area (Châteauneuf-les Martigues, Riaux), as well as at sites in Italy (Caverna Pollera) and in Greece (Franchthi) (TABORIN 1974b; MICHELI 2004; PERLES 2001) (Fig. 8).

This type of pearl continued in use at sites on the Spanish Mediterranean coast during the middle and late phases of the Neolithic (PASCUAL BENITO 2005).

As well as the discoid beads, another kind of larger pearls were made from fragments of new species, which are practically unknown at European Palaeolithic and Mesolithic sites. In particular, pearls manufactured from *Spondylus* sp. (non-fossil and clearly gathered on the shores of both the Adriatic and the Aegean), have been cited for example in Grave 14 at Ensisheim (LENNEIS 2007; MÜLLER 1995).

However, turning to Atlantic Europe, few sites are known with early Neolithic remains (ARIAS 2007; DUPONT 2006; MANEN et al 2007), and therefore, mollusc shells used as suspended objects of adornment are equally rare during this period. One deposit that can be cited is Level NA2 de Caldeirão, where a perforated specimen of *Nassarius pfeifferi* was recovered. The same site and Galeria da Cisterna have yielded oval pearls about 2cm long made from *Glycymeris* sp. (in appearance these look very much like red deer atrophied canines) (ZILHÃO 1992; 2009). Nevertheless, Atlantic shells have been found in the interior of the continent, in some cases over 500km from the shores of the Ocean. For example, perforated specimens of *Nucella lapillus* have been classified at early Neolithic sites (Linear Pottery) in the north and north-east of France and the south-west of Germany. They have been cited at burials in the Ile de France region (Frignicourt), and also in graves in the Oberrhein region (Hoenheim-Souffelweyersheim, Wettolsheim) (BONNARDIN 2009; LENNEIS 2007).

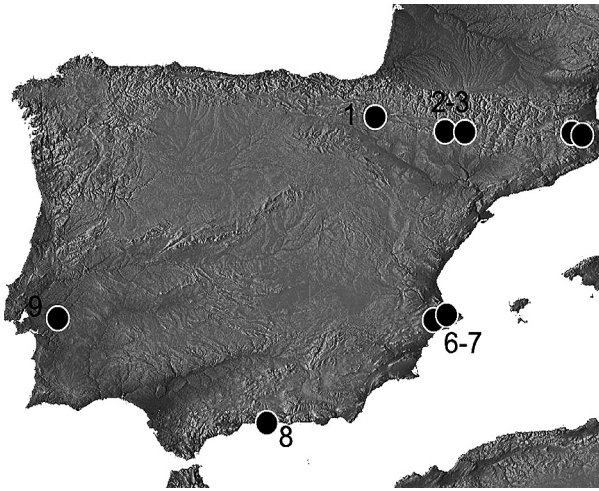


Fig. 8. Left. Distribution of early Neolithic sites in the Iberian Peninsula where evidence has been found of the manufacture of discoidal beads out of fragments of shells of the *Cardiidae* Family. 1. Paternanbidea (García Gazólaz 2007); 2. Moro de Olivena (Alday 1995); 3. Chaves (Pascual Benito 2005); 4. La Draga (Planas 2000); 5. Avelaner (Bosch & Tarrús 1990); 6. L'Or (Pascual Benito, 2005); 7. Cendres (Pascual Benito 2005); 8. Nerja (Pascual Benito 2005); 9. Gruta do Escoural (Araujo et al. 1993). Right: *Cerastoderma edule* valves.



At the same time, as occurred in the Mediterranean region, a new kind of suspended object of adornment, which had previously been unknown on the Atlantic façade, began to be manufactured. The discoidal beads made from bivalve shells have been recorded at Atlantic sites since the early Neolithic. For example, at the double burial at Germignac (Charente-Maritime), dated to 6090 ± 70 BP, a large number of this type of beads made from the shells of lamellibranches were discovered. At this site, the full *chaîne opératoire* of the manufacture of these artefacts could be reconstructed (LAPORTE & GÓMEZ DE SOTO 2001). These beads have also been recorded recently in Grave II at Paternanbidea (Navarre) (Fig. 9), with a very similar chronology to those from Germignac (6090 ± 40 BP) (GARCÍA GAZÓLAZ, 2007).

This type of bead (in *Cardium* sp. and in *Spondylus* sp.) was still in use in the middle and recent phases of the Neolithic, in the Chalcolithic and in the Bronze Age in Europe (BARGE 1982; PASCUAL BENITO 2005; TABORIN 1974b).

4.- FINAL REMARKS

Hunter-gatherer groups continued to use marine shells to manufacture suspended objects of adornment in the early Holocene. However, across Europe, differences can be seen between Mediterranean and Atlantic sites.

At sites in the Mediterranean region (both habitat sites and burials) the most abundant spe-

cies is *Columbella rustica*. This gastropod has rarely been documented at Upper Palaeolithic sites. In contrast, a characteristic species in the older period, *Homalopoma sanguineum*, was no longer used in Europe after the start of the Holocene (ÁLVAREZ-FERNÁNDEZ 2006). *C. rus-*



Fig. 9. Paternanbidea (Ibero, Navarre, Spain). Bracelet with discoidal pearls from one of the burials (García Gazólaz 2007).

tica is found at Mesolithic sites in the interior of the continent, and has been recovered at sites over 500km from the shores of the Mediterranean. But *C. rustica* is also found at Mesolithic sites near the coast. Its widespread appearance at coastal sites across the western Mediterranean (Easter Iberia Peninsula, SW France, Italian Peninsula, Corsica and North Africa) reveals the existence of contacts by sea (coastal trade) before the spread of the early Neolithic in the region.

This gastropod continued in use in the early Neolithic (Fosca, Châteauneuf-les-Martigues, Torre d'Aquila, Dourgne, Le Rouet, Pendimoun). The routes used would later favour a rapid spread of Neolithisation through the western Mediterranean (ÁLVAREZ-FERNÁNDEZ, 2008b).

Equally, it is in the early Neolithic when the first evidence is seen in Europe (at sites located near the coast and in the interior of the continent) of discoid beads with a central perforation made from the shells of bivalves belonging to the Cardiidae family (mainly of *Cerastoderma* sp.). This is a further indication that the groups manufacturing the artefacts on the Mediterranean coast maintained contacts with the interior of the continent during and after the Neolithic.

As regards Atlantic Europe, continuity can be seen with the Palaeolithic in the use of certain species for the creation of suspended objects of adornment (mainly *Trivia* sp., but also *Littorina obtusata* and *Nassarius reticulatus*).

However, in comparison with Mediterranean Europe, the available data about the early Neolithic on the Atlantic façade is very limited, owing to the fewer sites and smaller number of pendants that have been found. Nonetheless, contacts between dwellers on the Atlantic and the interior of the continent can be shown (presence of specimens of *Nucella lapillus* at Oberrhein sites).

Together with these perforated shells, in the early Neolithic we also find discoid pearls, made from valves of shells of the Cardiidae Family at Atlantic sites (Germignac), which suggests that this type or adornment spread rapidly from the Mediterranean coasts to the Atlantic, linked with the diffusion of Neolithisation from Mediterranean areas to the interior of the continent. This is supported by the presence of this type of pearl in Mediterranean deposits with a slightly older chronology than those in the Ebro Valley and at Atlantic sites.

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Fig. 10. The Patient Wait. Of course, we'll end up in Europe one day, mate. Look, without hardly knowing it, we're already in the Neolithic. Antonio Mingote, ABC Newspaper.