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# Marine shell beads from the Gravettian at Gargas cave (Hautes- Pyrénées, France): cultural and territorial markers

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# Marine shell beads from the Gravettian at Gargas cave (Hautes- Pyrénées, France): cultural and territorial markers

## Objetos de adorno en concha del Gravetiense de la Cueva de Gargas (Altos Pirineos, Francia): marcadores culturales y territoriales

**KEY WORDS:** Gravettian – Pyrenees – Lithic Industry – Worked Bone – Shell ornaments – Technological traditions – Natural resources Long distance mobility.
**PALABRAS CLAVE:** Gravetiense, Pirineos, movilidad, Industria lítica, Industria ósea, objetos en concha, tradiciones tecnológicas, recursos naturales, contactos a larga distancia.
**GAKO-HITZAK:** Gravettiarra, Pirinioak, higikortasuna, industria litikoa, hezur-industria, maskorrez egindako objektuak, tradizio teknologikoak, natura-baliabideak, urruneko kontaktuak.

**Cristina SAN JUAN-FOUCHER[1] & Pascal FOUCHER[1]**

**ABSTRACT**

The new perspectives opened up by a research project dealing with the Gravettian and the Solutrean in the Pyrenees allow us to situate the Gravettian occupations of Gargas Cave within networks of raw material procurement and of technological tradition exchanges, in a geographical context including the Western and Central Pyrenees.

A set of perforated shells from marine and fossil sources were discovered in Level 2 during the 2004-2007 excavations at Gargas. Therefore, these personal ornaments point up some direct links between Gargas, the Atlantic shore and the Miocene fossil outcrops of Aquitaine. This confirms a hypothesis about regular human movements between this region and the Central Pyrenean area.

**RESUMEN**

Gracias a un proyecto de investigación sobre el Gravetiense y el Solutrense en los Pirineos hemos podido documentar cinco ocupaciones gravetienses en la cueva de Gargas. Este hecho ha abierto nuevas perspectivas sobre el conocimiento de las redes de adquisición de materias primas y sobre los cambios de tradiciones tecnológicas en un contexto geográfico que incluye el Oeste y el Centro de la región pirenaica.

En el nivel 2 de Gargas (excavaciones del 2004 al 2007) se descubrieron un conjunto de conchas marinas, actuales y fósiles. Estos ejemplares apuntan a la existencia de contactos con la costa atlántica y con los sitios con fósiles miocenos aquitanos, lo que ratifica la hipótesis de la existencia de movimientos de grupos humanos, que con regularidad unían estas regiones con el área central de los Pirineos.

**LABURPENA**

Pirinioetan egindako Gravettiarrari eta Solutrearrari buruzko ikerketa-proiektu bati esker, Gargaseko haitzuloa bost aldiz okupatu zela dokumentatu dugu. Horrela, aukera berriak zabaldu dira lehengaiak eskuratzeko sareen ezagutzari eta tradizio teknologikoen aldaketei dagokienez, Pirinioetako mendebaldea eta ekialdea hartzen dituen testuinguru geografikoan.

Gargaseko 2. mailan (2004tik 2007ra arteko indusketak), itsas maskorrak aurkitu ziren, egungoak eta fosilak. Ale horiek aurkitu izanak adierazten du Atlantikoko itsasertzarekin kontaktua zegoela, bai eta Akitaniako fosil miozenoak zituzten lekuekin ere; eta horrek gizakien mugimenduen hipotesia berresten du, eskualde horiek eta Pirinioetako erdialdeko gunea lotzen zituztenei buruzkoa.

## 1. INTRODUCTION

The Gargas cave (Hautes-Pyrénées, France), located in the middle of the Pyrenean piedmont at the same distance from the Mediterranean and the Atlantic coastlines, is a key Gravettian site of south-western Europe because of its exceptional parietal art (Fig. 1) and rich archaeological strata.

The excavations carried out in the late 19th Century and early 20th Century showed that the deposit covered a wide chronological range: Mousterian, Chatelperronian, Aurignacian and Gravettian. A new series of excavations was commenced in 2004 with the aim of establishing a detailed stratigraphic sequence, more precise than the schematic profile proposed by E. Cartailhac and H. Breuil in their studies of 1911-1913 (Breuil and Cheynier 1958), that would enable us to better understand the relations between rock art and settlement levels. At the same time, a further objective has been to carry out the first palaeo-environmental study of the deposit.

The area excavated now (Fig. 2) corresponds to a debris cone, which closed the cave naturally. There are two *locus* within this area, separated by 20

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**Figure 1.** Gargas cave – Main painted panel (picture J.F. Peiré, DRAC Midi-Pyrénées).

metres. The first one (GES) is at the base of the cone, near the former Cartailhac-Breuil excavations. The second one (GPO), at the top of the cone, is near the prehistoric entrance and it has not been excavated.

In GES, we recognized the upper part of the stratigraphical sequence described for the Cartailhac-Breuil excavations and corresponding to the Gravettian occupations. In GPO, the filling shows some sedimentological differences, but the Gravettian ensemble is also represented there.

This fieldwork is a part of a research project in regard to the Gravettian- Solutrean complex in the Pyrenees that includes multidisciplinary studies on the archeological material from old collections in order to obtain a better characterization of the regional lithic and bone industries (Foucher 2004, 2006, Foucher *et al.* 2007, 2008, Foucher and San Juan 2008, San Juan-Foucher 2006, San Juan-Foucher and Vercoutère 2005).

The Gravettian levels discovered in the recent excavations (dated by C14-AMS to between 27,000 and 23,000 BP, see Tab. 1) have yielded lithic and bone assemblages that are characteristic of the middle Gravettian with *Noailles* burins, which has confirmed the initial attribution of the level. The bone industry is composed essentially by "mattocks" made on engraved herbivore ribs, smoothers, awls and retouchers. The antler waste products show that grooving was used for the equipment manufacturing, specially the "*sagaies d'Isturitz*", type of point cha-

| Locus | Level | Cultural attribution | BP date | Bone samples taxons | Laboratory ref. | References |
|---|---|---|---|---|---|---|
| ***Gargas-GPO*** | 2.1 | Grav MBN* | **23,590 ± 100** | Ibex / Izard | Ly-3400-Gr1 | Foucher *et al.* i.p. |
| ***Gargas-GES*** | 2.1 | Grav MBN | **25,030 ± 110** | Reindeer | Ly-3404-GrA | Foucher *et al.* i.p. |
| *Gargas-Cartailhac/Breuil* | 6 | Grav MBN | 25,050 ± 170 | Reindeer antler | Ly-1625-GrA | Foucher 2004 |
| ***Gargas-GES*** | 2.1 | Grav MBN | **25,230 ± 110** | Large sized herbivore | Ly-3406-GrA | Foucher *et al.* i.p |
| ***Gargas-GPO*** | 2.1 | Grav MBN | **25,520 ± 110** | Medium size herbivore | Ly-3401-GrA | Foucher *et al.* i.p |
| **Gargas-GES** | 2.1 | Grav MBN | **25,700 ± 120** | Red deer | Ly-3405-GrA | Foucher *et al.* i.p. |
| ***Gargas-GPO*** | 2.3 | Grav MBN | **25,920 ± 130** | Large sized herbivore | Ly-3403-GrA | Foucher *et al.* i.p |
| ***Gargas-GPO*** | 2.2 | Grav MBN | **26,260 ± 130** | Medium size herbivore | Ly-3402-GrA | Foucher *et al.* i.p. |
| **Gargas-GES** | 2.3 | Grav MBN | **26,380 ± 120** | Large sized herbivore | Ly-3410-GrA | Foucher *et al.* i.p |
| **Gargas-GES** | 2.3 | Grav MBN | **26,480 ± 420** | Large sized herbivore | Ly-3409-GrA | Foucher *et al.* i.p |
| *Gargas-Panneau peint* | | Gravettien | 26,860 ± 460 | unidentified bone | GifA-92369 | Clottes *et al.*1992 |
| ***Gargas-GES*** | 2.2 | Grav MBN | **26,910 ± 130** | Large sized herbivore | Ly-3408-GrA | Foucher *et al.* i.p |

**Table 1.** Gargas Cave - Radiocarbon (AMS) dates from the Middle Gravettian level with Noailles burins.

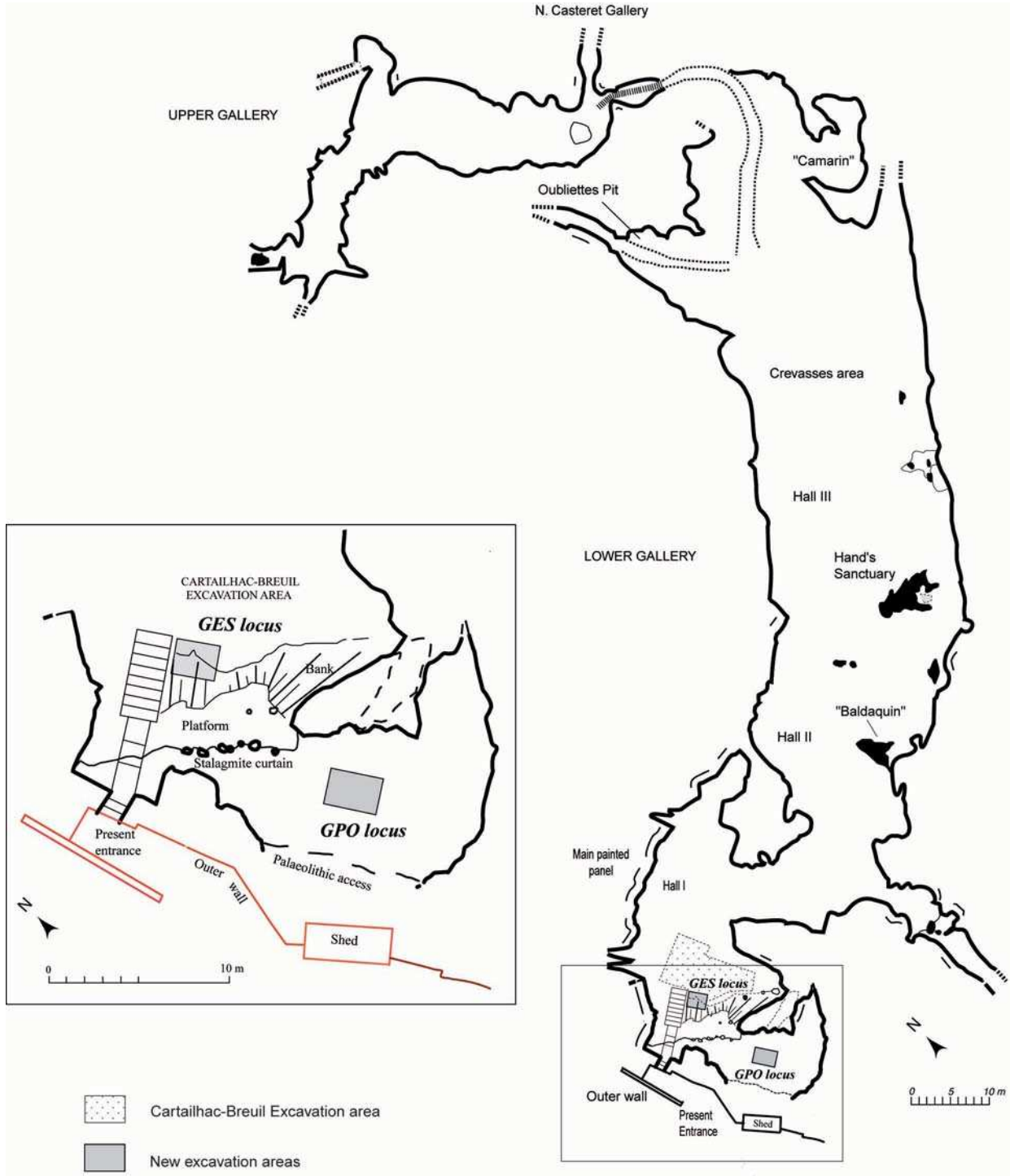


**Figure 2.** Gargas Cave. Location of old (1911-1913) and new (2004-2007) excavation areas (topographic map adapted from Barrière 1984, modified by Texier, Foucher 2004).

racteristic for the Gravettian, documented within the old collections. Perforated teeth of *Cervidae, Bovinae* and carnivores were used as body ornaments. The meat diet of the Gravettian was composed mainly by Reindeer, *Bovinae* and Izard (Pyrenean Chamois). The archaeozoological analysis allows us to establish also that men were at Gargas during all the periods of the year. The cave was then a butchery and consumption site.

The new archaeological material comprises a series of 17 personal ornaments made from marine shell beads (Fig. 3, 4, 5), including a dozen exam-

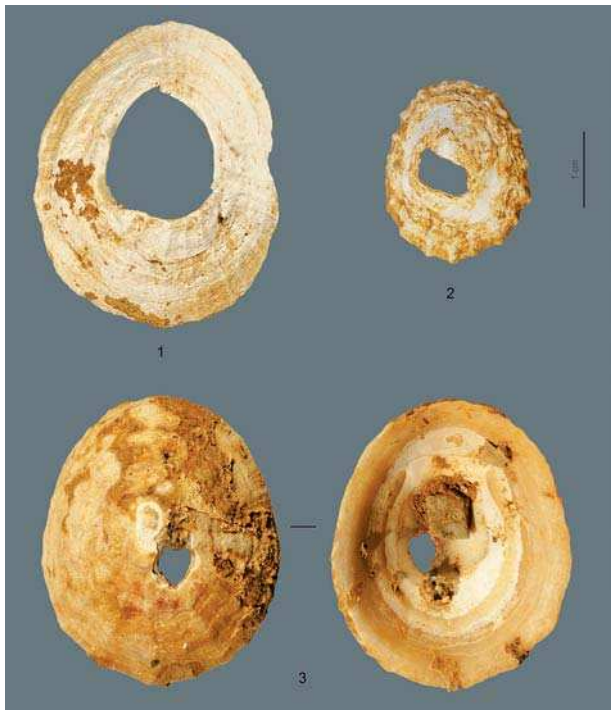


**Figure 3.** Atlantic gastropods – 1, 2, 3: *Patella vulgata*

ples with a single perforation intact. The majority of these perforated shells are Atlantic gastropods well-documented in Gravettian deposits in south-west France (*Littorina obtusata, Littorina littorea, Patella vulgata, Nucella lapillus*), three pieces represent marine species found in both Mediterranean and Atlantic waters (*Trivia europea*), and one example comes from fluvial environment (*Neritina fluviatilis*). Two beads are made from fossil species (*Neritina picta and Pirenella plicata*) found in lower Miocene outcrops (*faluns*) in Aquitaine. None of these shells correspond to species restricted to the Mediterranean coast. Most of the potential sources are located at distances between 150 and 250 km from the cave, on the Basque coast and in the middle and lower valleys of the Adour and Gave de Pau. These areas coincide with the sources used for the supply of the most common allochthonous flint at Gargas (Foucher & San Juan 2005).

## 2. DISCUSSION

The results of preliminary research about the sources of siliceous raw materials and the techno-typological analyses of lithic industries, as well as observations about the patterns of manufacturing of bone and antler artefacts, clearly show that the Western Pyrenees was frequently visited by the Gravettian groups of Gargas. Some close relationships between Gargas and another Pyrenean

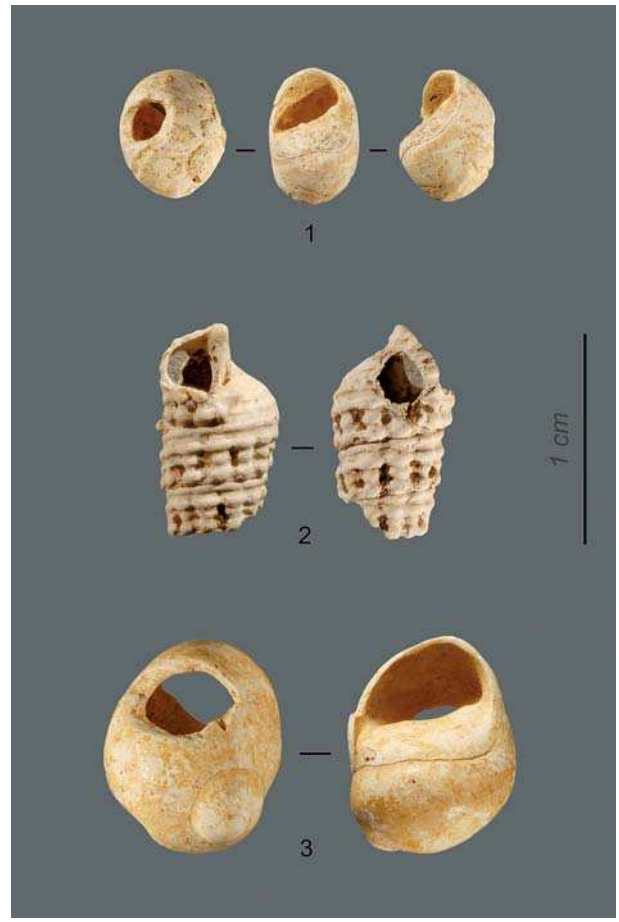


**Figure 4.** Fluvial and fossil species – 1: *Neritina fluviatilis*. 2: *Pirenella plicata*. 3: *Neritina picta*.

caves (Isturitz, La Tuto de Camalhot / Saint Jean de Verges), are recently perceived through the morphological characteristics of engraved bone industries; this technological area is partially superimposed on the long distance movements for flint and shell procurement (Fig 6). The new ornamental objects of Gargas, radiocarbon dated from 27,000 to 25,000 BP, contribute to clarify the perception of the economic networks and the cultural interactions of Gravettian populations in the Central Pyrenees.

## 3. ACKNOWLEDGEMENTS

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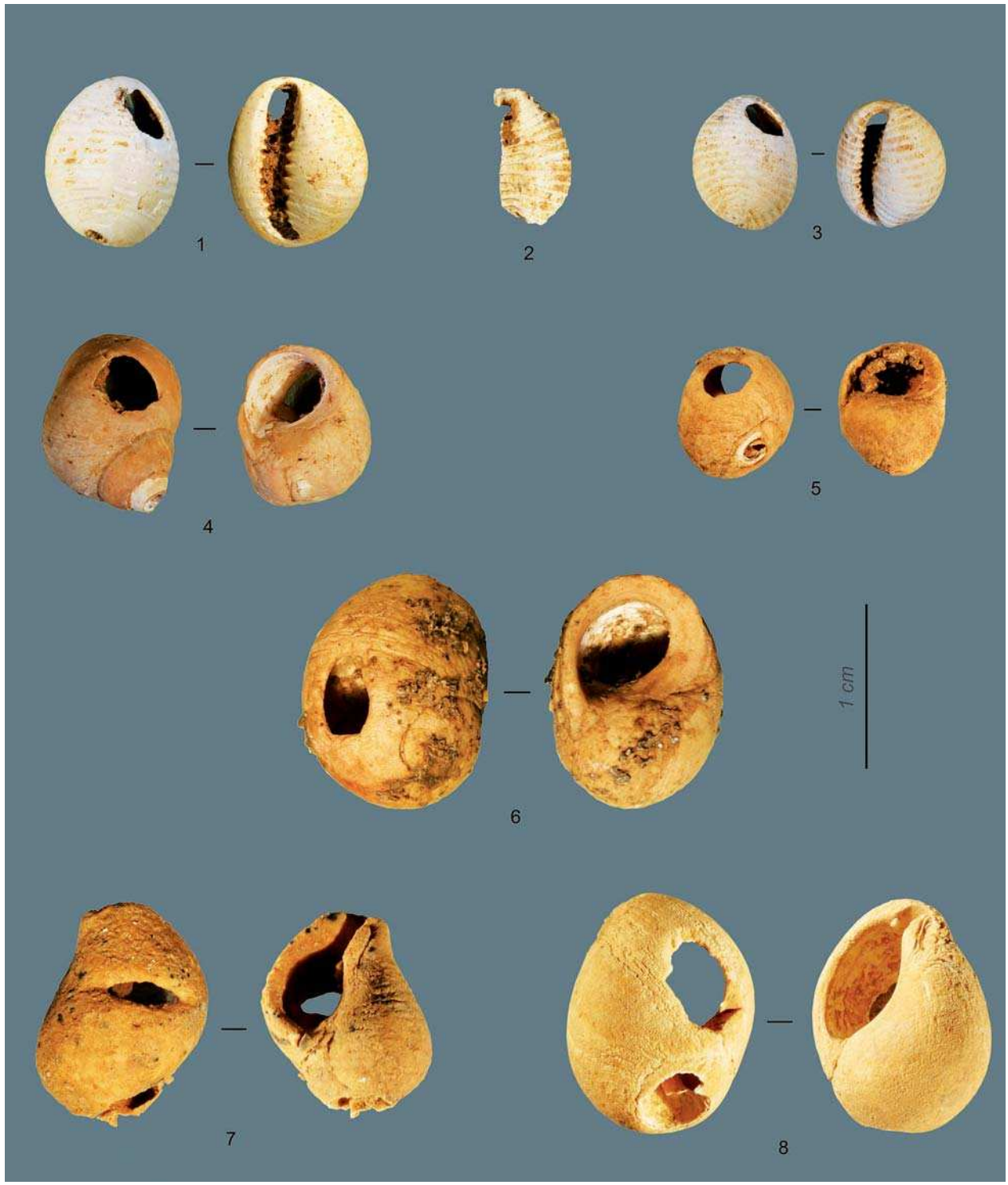


**Figure 5.** Atlantic gastropods – 1, 2, 3: T*rivia europea*. 4: *Littorina littorea*. 5, 6: *Littorina obtusata*. 7, 8: *Nucella lapillus*.

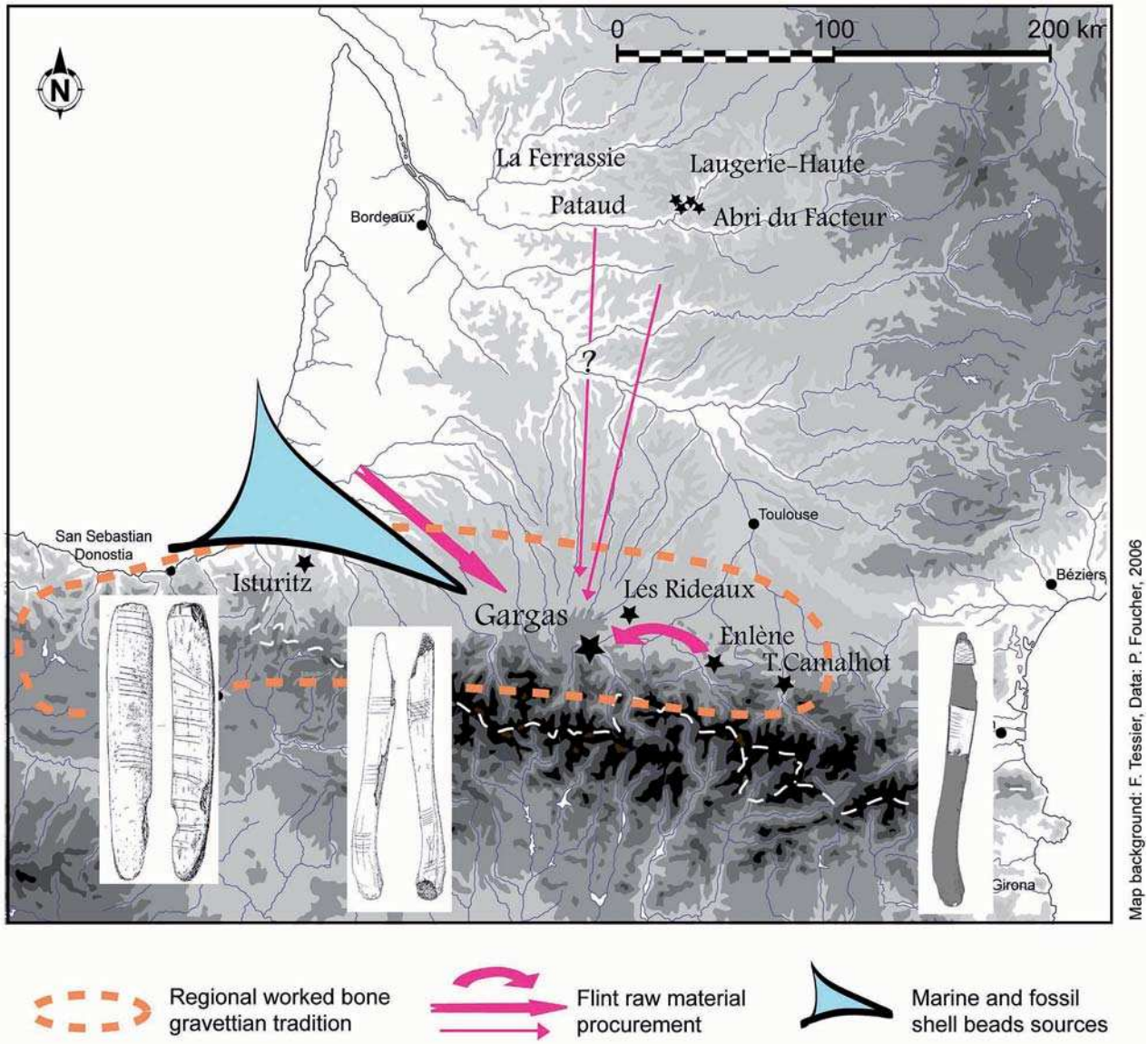


**Figure 6.** Networks of technological exchanges and raw material procurement for the Gargas Gravettian.

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