The Archaeology of Beekeeping in Pre-Roman Iberia

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Abstract

This paper presents a set of pottery hives from the pre-Roman Iberian peninsula, dating from the third century BC, and all coming from a single region known in antiquity as Edetania. These hives are closely related to similar examples from Greece and to a type described by Roman authors such as Columella. It is the first such archaeological material that can be associated with apiculture in this area.

Introduction

The ancient Greeks and Romans must have known of sugar-cane, which originated in southern Asia and India, although it was only in the Middle Ages that it spread with the Arabs to the West (Saglio 1900: 931). In practice, however, honey was the only product used to sweeten food and drink in the ancient world. It has important nutritional, energy-giving and antiseptic properties; curative properties have also been claimed, though not always proved, and in many cases these in fact derive from the plants from which the honey originated (Matesa et al. 1993: 45-46). Honey was also employed in magico-religious rituals, and it is related to gods and kings (Vázquez Hoyes 1991: 64-70). Justin (44.4) attributed the invention of honey-collecting to the mythical Tartessian king Gargoris.

Already in prehistoric times honey was widely collected, as exemplified in the rupestrian painting in the rock-shelter at La Araña in Bicorp (València, Spain). The most ancient evidence of beekeeping in hives—i.e., the production of honey as an activity on the agricultural calendar—comes from ancient Egypt (Crane 1983: 35-39). It is not, however, until we come to the classical authors that there exists documentation about the processes involved in beekeeping, the calendar of harvesting, beehives, and honey's uses and prices. Honey, of course, is the principal product extracted via beekeeping activities, but one must not forget pollen, royal jelly and beeswax too.

The production of honey must have occupied a significant place in the domestic economy, given the space devoted by Roman authors to bees and their care. Book IX of Columella's De re rustica collects those aspects of farming that relate to beekeeping, while Virgil, in his Georgica, devotes no less than one line in every four to apiculture and points out that an apiary can succeed in producing as much as a vineyard.

The beehive is precisely the artifact that makes it possible to distinguish apiculture from wild honey-collecting. Various types of
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The Iberian Civilization is an Iron Age culture that developed throughout an area extending from the Guadalquivir river (in Spain) to the Hernaut river (in France). The Iberians (so named in the ancient sources) developed an individual culture—with a writing system, coinage, wheel-made pottery, sculpture, cremation, etc.—which was nonetheless broadly similar to other contemporary Mediterranean civilizations (Greek, Etruscan, Punic and Roman). They lived in autonomous territories with a hierarchical settlement pattern. Through the study of material culture and settlement patterns, it is possible to follow the evolution of Iberian society from chiefdom to early state in the course of three phases: Early Iberian (6th-5th centuries BC), Middle Iberian (4th-3rd centuries BC), and Late Iberian (2nd-1st centuries BC).

The name Edetani refers to an Iberian ethnic group (again, one named by the classical writers), which lived in an area located in the central part of the Mediterranean coast of Spain. Their settlement pattern reveals a pyramidal structure with four types of settlements: the city itself, Edet, identified with the site of Tossal de Sant Miquel (Fig. 3, no. 27); some villages and hamlets, located near cultivable land; and a network of hill-forts comprising a frontier line established for purposes of defence of the landscape.

Literary references to apiculture in the Iberian peninsula (Pliny XXI.74; Strabo III.6) are limited to citing the good quality of the honey and beeswax from Hispania, above all descriptions of the practice of apiculture in antiquity in fact show many similarities throughout the Mediterranean region, despite chronological and geographical differences (e.g., Cherry et al. 1991: 260-63; Crane 1983; Gregori et al. 1985: 51-61; Molina García 1989). So it is not difficult to reconstruct this activity for the Iberian Culture also.

Here we present a set of pottery beehives of the 3rd and 2nd centuries BC, identified by us on the basis of archaeological and ethno-
graphic comparisons (Mata and Bonet 1992: 136). The complete examples come from the excavations of Puntal dels Llops (Olocou, Valencia), La Monovana (Llíria, Valencia) and Tossal de Sant Miquel (Llíria, València), and are currently on display in the Museo de Prehistoria in Valencia (Spain) (Figs. 1 and 2). In addition, we consider here the fragments collected during preliminary explorations undertaken before the survey project that studied the territory of the Iberian city of Edeta/Tossal de Sant Miquel, as well as other unpublished pieces from the Plana de Utiel (Valencia), and from the district of Alcublas (Valencia) (Fernández Aragón 1992; 1994) (Fig. 3).

**Typeology**

According to the typology of Iberian pottery we proposed several years ago, these beehives are cylindrical, open at both ends, between 24 and 29 cm in diameter and between 53 and 58 cm long, with differentiated rims and a grooved interior surface; the fabric is local (Mata and Bonet 1992: 136) (Figs. 1 and 2; Table 1). A beehive with the average dimensions of all complete beehives has a capacity of 47.8 litres, which is consistent with the calculated capacity of Roman and of some other traditional beehives (Crane 1983: 17, table 2). All the complete beehives were found in excavated sites, which were destroyed between the end of the third and the beginning of the second BC.

The grooves are deep incisions made before firing with an instrument that produced very pronounced, almost sharp, ridges (Figs. 4 and 5).
This characteristic is essential in order to differentiate the beehives from the cylindrical supports, which do not have this interior finish, known from the same region (Ballester et al. 1954: pl. XI, 13; Bonet 1995: fig. 211) and from Murcia (Lillo 1981: 373, 375). In fact, until we published our Iberian pottery typology (Mata and Bonet 1992), this shape was classified as a cylindrical support.

In this type of beehive, the combs are fixed (Matu et al. 1993: 14). These beehives are placed horizontally, either separately or in stacks, on the ground or on a small platform. The two ends are closed with covers of cork, wood, pottery or dried mud, and a small opening is made so the bees can enter. The joints are sealed either with mud or with dung to prevent insects or other animals entering. The fact that such beehives are open at both ends is a very important advantage for the beekeeper, since he can take out some combs without destroying the others, or join two cylinders together to make a larger hive (Crame 1983: 48).

Fig. 5 Beehive with internal incisions, from a survey site (Asguedo de Portocelles, site 17).

Fig. 6 Different beehive rim-types from excavated and survey sites.

No variants have been found that would allow a meaningful division into sub-types, but there is great variety in the form of the rims (Fig. 6). Despite the large number of classified pieces, it is not possible to establish any relationship between different rim-forms and chronology: in the same site various types can be found (Table 3). At Middle Iberian sites (4th–3rd centuries BC), such as Tossal de Sant Miquel (no. 27), Casteller de Bernabé (no. 13), La Monraván (no. 14) or Puntal dels Llops (no. 16), only moulded and raised rims were found (Figs. 1 and 3; Table 3); all of these are from the same Late Iberian period.
these come from excavated contexts. In Late Iberian sites (2nd and 1st centuries BC), on the other hand, there is much greater variety, but these are only survey sites, none of which has been excavated (Figs. 3 and 6; Tables 2 and 3).

Very similar examples, although closed at one side, were used in Attica in the 4th century BC. These too have a grooved interior which enables the honeycombs to adhere more securely. The Attic examples are scored only for about half of their circumference, whereas the Iberian beehives have incisions all around the interior of the vessels. Chemical studies have revealed the presence of beeswax in the examples from Vara in Attica, conclusively confirming the use of this shape for beehkeeping (Jones et al. 1973: 397-414, figs. 79d, 80a); no analyses are yet available for any of the Iberian beehives.

Find-contexts and Probable Location of the Beehives

According to the Roman sources, the apiary should be near the house, both to facilitate access and for protection. Historical and ethnographic examples from various regions show beehives built as an annex to the rural house, as well as being hung from, or embedded in, the walls of the house (Crane 1983: 49-50, 69-70), or placed on a flat roof (Jemina-Gouzon 1989: 132); one also finds beehives situated in areas further away from the dwelling places.

All the Iberian beehives found in excavations come from the interior of roofed rooms, among the ruins of the walls along with other types of material (Fig. 7.2). There are various alternative interpretations and none of them is, at present, exclusive. Although they can be found placed in the walls of the modern
houses, as for instance in Kashmir (Crane 1983: fig. 34), examples of beehives situated on flat roofs are much more frequent. Thus, in the villages of Aurès in Algeria, each family nowadays has between four and eight beehives for domestic use installed on the upper, less-used flat roofs of the buildings (Jenna-Gouzon 1989: 132). Similarly, until just a few years ago, log beehives were regularly placed on the flat roofs of houses on the island of Ibiza in Spain. The flat roofs which we proposed for the Iberian construction (Bonet et al. 1994: 122, fig. 2) (Fig. 7.1) are compatible with these ethnographic parallels, and could explain the presence of so many beehives found inside these Iberian settlements. Moreover, in Iberian architectural walls range in width between 40 and 50 cm, so it might have been impossible to embed beehives 53–58 cm in length completely within the thickness of the wall. On the other hand, the household furnishings of some rooms at Punta del Llops reveal an association of beehives, amphorae, mortars, mortar handles, dishes, jars with an underpot, etc., and these are interpreted as being for storage (Fig. 7.2). We propose that the beehives were stored in the rooms when not in use.

With regard to the beehive sherds collected during the field survey, it is not possible to specify the locational context. Of all the sites studied, only one is not a habitation site. The collection made on the southeastern slope of La Monovana is composed exclusively of fragments of beehives with fluted bodies and rims; although the material is very scanty, it could represent an apiary for La Monovana, given that the spot is isolated but also near the village (Fig. 3, nos. 14 and 78).

**Distribution and Chronology**

At present, we have catalogued 78 sites where pottery beehives have been collected, the majority being found in the territory of Edeta and its surroundings (the regions now called Camp de Túria and Los Serranos) (Fig. 3). On the island of Keos in Greece, it is possible to see a similarly dense spatial distribution (Cherry et al. 1991: Fig. 11.19). One hundred sites have been surveyed in the territory (now called La Plana de Utiel) of another Iberian city, Kelin; but pottery beehives have been found at only four of them (Fig. 3, nos. 18, 28, 49 and 69)—and these are almost on the border of the area of Los Serranos. It seems, therefore, that the type we have found is peculiar to the territory of Edeta and nearby areas. More extensive and systematic survey of the bordering areas, and the proper identification of these pieces as beehives by other investigators, would no doubt considerably increase the number of sites. Nonetheless, they have not all been documented in Arsa/Saguntum (Sagunt, València), El Solaig (Betz, Castellón), Puig de la Nau (Benicarló, Castellón), and Manacor (Vinaròs, Castellón), La Bastida de les Alcoises (Moixent, València), Los Villares Kelin (Caudete de las Fuentes, València), La Serreta (Alcoi-Cocentaina-Penagolla, Alicante), or El Oral (San Fulgencio, Alicante). Nor have they yet been identified in other parts of the Iberian peninsula. The most likely explanation for this lacuna is that beehives (whether of cylindrical form or not) were indeed used, but that they were made of organic materials—e.g., wood, cork, or woven wicker—which would not survive archaeologically.

Significant chronological data have been obtained from these sites (Table 2). The fragments from excavations (Castell de Benáber, La Monovana, Puntal dels Llops and Tossal de Sant Miquel) (Fig. 3, nos. 13, 14, 16 and 27) confirm the presence of pottery beehives, and therefore the practice of apiculture, from at least the end of the 3rd century BC. In the Early Iberian levels (6th-5th centuries BC) of La Serreta (Fig. 3, no. 3) or Tossal de Sant Miquel, there are no beehives (Bonet 1988; 1995). Neither have they been documented at Los Puntaletcos Blancas (Gatova, Valencia), a site of the 6th century BC, nor at La Loma del Manzal (Llíria, Valencia) whose occupation spans the 5th and 4th centuries BC. At a number of sites that can be dated only in broad terms as Early to Late Iberian, fragments of beehives collected on the surface cannot be assigned definitively to one period or another, although all the indications are that they belong to the Middle or Late Iberian period; beehive fragments are certainly very frequent at Middle and (especially) Late Iberian sites. On the other hand, they hardly existed in Roman imperial times, being found only at seven sites whose occupation is exclusively of this period. This decrease of pottery beehives during the earliest imperial period may not in fact imply the abandonment of apiculture in an area where it had previously enjoyed such success, but perhaps rather the adoption of some other type of beehive more in keeping with the recommendations of the Roman writers (as discussed above).

**Other Equipment Possibly Used in Ancient Iberian Apiculture**

Objects relating to apiculture are difficult to identify, since they are mainly made of perishable materials, such as the wicker baskets on which the honeycombs were squeezed, or are multi-functional, like the containers in which the honey was stored (Gregori et al. 1985: 60). Nevertheless, there have been attempts to identify certain artifacts as associated with apiculture.

The iron instrument for cutting the honeycombs is one of the objects that Pia (1968: 51) attributes to this activity in his study of Iberian tools. In spite of the doubts expressed by the author, this functional identification has not so far been refuted. Columella's description of instruments used to extract the honey—a long, double-bladed knife with a curved blade at the tip; a tool flat and sharp on one side, with a curved point on the other—shows that these are not necessarily function-specific tools, but only needed to be long and sharp. At present, the tool illustrated here (Fig. 8, no. 4) is the only one so far documented from the Iberian Culture; it was found in an excavated site dated to the 4th century BC. The kalathos is the vessel-form that Cuadros (1968: 129) considered most likely as a container for honey, not only because of its open mouth, but also because it was the most widely exported type of Iberian pottery during the 2nd and 1st centuries BC (Fig. 8, nos. 2 and 3). Conde (1992: 138), on the other hand, does not agree with the hypothesis that it was a receptacle used for a commercial product, but believes that it was bought or sold in its own right. While there is a certain similarity with the straight-sided, almost cylindrical, containers used in Rome to store honey (Fernández Urciell 1988: 190), the truth is that no confirmed evidence exists of their use for this purpose. Although chemical analysis would be necessary to demonstrate the point with certainty, we ourselves believe that the kalathos was a receptacle for some product—whether honey, bee wax or something else. For one thing, it has an essentially coastal distribution, and appears in shipwrecks as part of the cargo (Fernández Izquierdo 1995); for another, it is improbable that, within the great variety of Iberian pottery, the kalathos of the Catalan area should have been exported extensively as objects of commercial value, but those of the southeastern region only rarely. These considerations suggest to us that the Mediterranean distribution of these kalathos was due to their industrial production to hold a product specific to this region, which was exported within the commercial circuits of the Roman republican world (Guérin 1987: 52, n. 2; 1993: 89).
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The site of Coimbra del Barranco Ancho (Jumilla, Murcia) (Page et al. 1987: 18-19) might confirm such a function. The funnel is in any case an uncommon object in the Iberian ceramic repertoire, although it does appear at some sites throughout the whole area from Andalucía (Vaquerizo et al. 1992: 76, fig. 11) to the Ebro valley (Arrián 1966: 157, fig. 2). In our survey region, it has been found only in some rooms at Tossal de Sant Miquel (Fig. 3, no. 27).

General Discussion

Pottery beehives dating from the 3rd century BC are not a foreign form, but an indigenous Edetan product. At present they have not been documented in any other areas of ancient Iberia where Greek (Catalaunia, where the only two Greek colonies known in Spain, Emporion and Rhode, were located) or Punic influence (Andalucía, Spain) was more intensive. These Edetan pottery beehives are thus the first archaeological artifacts that can be associated with certainty to apiculture in the Iberian peninsula in antiquity, although knowledge of it in earlier times cannot be ruled out, since beehives were also made from perishable materials such as cork or wood.

Apiculture is an activity that requires knowledge of the behaviour of bees and skill in their handling, but little specialization, and so can readily be developed in a domestic context. Until the introduction of modern apiculture with boxes of mobile frames, many peasants kept bees, especially those who lived in isolated country houses and farms (Gregori et al. 1985: 53; Jemma-Gouan 1989: 132). In pre-Roman times, therefore, the production of honey may have been important in the family economy, both as a foodstuff and as a commercial product.

The data furnished by the excavated sites (i.e. unpublished inventories of the reports of excavations) seem to indicate an activity developed in a domestic setting. Thus, at El Puntal dels Llops beehives have been documented in 12 of the 17 rooms (Fig. 7); at El Castellet de Bermejó (Fig. 3, no. 13) the absence of fragments of beehives has been found in almost all the rooms (Guérin 1995); the same is true of La Seña (Fig. 3, no. 3). The absence of fragments of beehives, except for one complete example, at Tossal de Sant Miquel (Fig. 1, no. 2585; Fig. 3, no. 27) is explained by the selective retention of material from the excavations of the 1930s and 1950s, since in the restoration campaign of 1994 they appeared equally in rooms 15, 42, 43 and 46.

On the other hand, at sites 3, 13, 14 and 27 (Fig. 3) structures have been documented which were intended for the processing of foods such as oil, wine or flour, which, judging by their size and the installations and the technology employed, do not appear to be for production on a grand scale (Bonet et al. 1994: 124, 126-27; Pérez Jordà 1993: 89-90). These data support the hypothesis that at Edetan sites during the Middle Iberian period there existed a system of domestic production based essentially on subsistence agriculture, with commercial relations of a local or regional nature. By the Late Iberian period, however, when the Romans conquered the Iberian peninsula, the quantity of pottery beehives recovered at almost all these sites increases; this may suggest that, as well as production for home consumption, some of the honey and honey-products derived from it began to be marketed long-distance, in agreement with what Roman authors mention about honey and beeswax from Baetica (Andalucía, Spain) (Blázquez 1968: 249).

In conclusion, evidence of cereal, olive and vine crops already document extensive agriculture within the territory of ancient Edeta. The pottery beehives discussed in this paper now provide additional evidence about the agricultural system, one much like that found
on the island of Keos in Greece (Cherry et al. 1991: 263). Their local fabric suggests a technological advantage: they are more durable and, because they are open at both ends, they allow honey to be collected several times a year. Consequently, the growth of honey and beeswax production allowed the marketing of these products beyond our survey area.

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