

GORGE BUILDERS ANDALUSI PEASANT SETTLEMENTS IN THE SOUTH OF MINORCA ISLAND (10TH-13TH)

Fèlix RETAMERO

The study of the Andalusi peasant settlements in Minorca (Fig. 1) forms part of a broader research programme into the patterns of the peasant strategies both in the Iberian Peninsula and the Balearic Islands during the Andalusi period (more recently, see H. Kirchner 1997 and M. Barceló (coord.) 1997).

Quite distinct from the greater part of the previously studied zones, the available written documentation elaborated soon after the feudal conquest of the island in 1287 is extremely scarce, so that very little is known about a good number of the names, the location and limits of many Andalusi settlements. In contrast to this, the surviving toponymic record is very rich and allows us to identify the names of most clan groups settled in the island, as well as to identify the networks linked to specific agrarian spaces.

The fieldwork, accompanied with the exhaustive research of different archives, has been under development since 1997¹. To start with, we selected one of the gorges crossing the southern part of the island, known as Algendar, *al-handaq*, "the gorge" in Arabic (Fig. 2). Specifically, one of the rare available written references dating to immediately after the conquest mentions the *barranch vocatum Viridarium del moixeriff*, "the gorge named the garden of the *mušrīf*", the fiscal officer. The correspondence between this identification and the name Algendar is clearly attested in later texts. According to this document, dated 1290, there were vineyards, trees, and different species of plants in the ravine (*vinea, arboribus et plantis diuersorum generum qui ibi sunt*). Moreover, the text also states that water flowed through the fields and that there were springs above them (*aques que discurruntur per medium dicti viridarii mouendo de fontibus que sunt supra dictum viridarium*). Finally, the document authorised the construction of water-mills along the gorge (*facere construere et hedificare molendinum (...) seu molendina*) as well as those water channels needed to bring the water to the mills (*facere regum uel reguos ad ducendum dictas aquas ipsis molendinis que feceritis*). A later document, dated 1580, mentions the *Font del Moixerif*, the fountain of *al-mušrīf*, as the upper point from which mills could be constructed.

During the 1997 campaign, we were able to identify the *viridarium* mentioned in this document (Fig. 3). The uppermost spring in the ravine is that currently named *Font des Sobrevell* which can be identified with the previously mentioned *Font del Moixerif*. The water from this spring runs into the river current. At this point, the flow was diverted by a barrage to a channel that brought the water to successive fields, set out in the valley floor, up to the plot containing the remains of an ancient mill worked by a vertical wheel. On the other side of the valley, another spring, the *Font de s'Aranjassa* (from the Arabic *al-'ijjās*, the pear or plum trees) allowed for the irrigation of different fields facing those of the Font des Sobrevell's system.

A thorough examination in the area of the remains of these two currently abandoned irrigation systems have allowed us to discern the original shape of the agrarian space corresponding to the *Viridarium del moixeriff* mentioned in 1290, three years after the Catalan conquest. Clearly, the water mill did not form part of the original design. The aforementioned document of 1290 determined the division of legal rights for the fields, the water, etc. among four feudal lords. However, although mills were not mentioned in such a distribution, the beneficiaries were permitted to construct them anew. This mill, currently known as *Molí de Dalt* was then built between the end of the XIIIth century and the second half of the XVIth century, when rights to

1 This research project is directed by Prof. M. Barceló (Universitat Autònoma de Barcelona) and has been financed by the Council of Minorca Island since 1997.

milling were well attested in the documentation available. The inclusion of this hydraulic device did not entail important changes in the irrigation layout: the only additional elements being a ditch dug under the channel to fit the wheel, and, possibly, the broadening of the plot where the mill was built.

More changes have been identified in the Font de s'Aranjassa system, in the eastern side of the valley. At this point, the original level of the channel was raised in order to allow for the construction of a new terrace over the fields situated at the bottom of the valley, and of two reservoirs. Arguably, these modifications took place contemporaneously, when the rights to the managing of the system were divided, and this therefore required the construction of reservoirs that would regulate the privatised use of water. The raising of the channel level meant that the water had to be taken at the highest possible point, that is, at the point of emergence. Originally, the spring water probably flowed uncontrolled through the gully and was diverted by a dam to the fields situated at the bottom of the valley (plot 2) before these changes took place.

The size of the irrigated area is almost the same in both systems: 1.11 Ha in the case of the Font des Sobrevell system, and 0.96 Ha (1.11 Ha including terraces number 1 and 3), and the added surface of the two blocks is 2.11 Ha.

The research has been extended to comprehend the entire agrarian area within the ravine (Fig. 2). We have been able to identify three hydraulic systems which closely followed the main characteristics of the cases described above, and which could therefore be identified as Andalusi spaces. Firstly, the water was taken from springs and not diverted from the stream. In contrast, the construction of later irrigation systems or the enlargement of previously existing ones entailed the setting up of dams, known as *trencades* in Minorca. Strictly speaking, these were not diverting dams, but they served to accumulate and to raise the level of the water. This is not to say that Andalusi peasants were unable to construct such devices, but that cumulative dams were not the principle solution adopted at a local level.

Secondly, the identified areas are linked to a toponymic register that is undoubtedly Arabic or Berber. The two consecutive irrigation systems constructed in the heart of the gorge (Font des Molí de Baix and Font de Sa Dragonera) are linked to the place name Bajjāna (currently Torrepetxina) (Figs. 4a and 4b). As is known, this was also the name of a centre close to Almería (in the south-easternmost part of Spain) where the activity of the *baḥriyyūn*, the stateless groups controlling the navigation between the Iberian peninsula and the North of Africa during the IXth century and the first years of the Xth century, is well attested. It is reasonable to suppose that Bajjāna was settled in Minorca while the name still retained a certain relevance, that is to say, before the integration of the *baḥriyyūn* into the caliph navy and the subsequent importance attained by Almería during the first half of the Xth century (Barceló 2000; Ballestín forthcoming). Moreover, four Arabic coins dating from the VIIIth and the IXth centuries have been found in Torrepetxina and the surrounding area (Moll 1996, 81-138; Retamero – Moll forthcoming). Such a concentration of single finds clearly shows that this zone was specially frequented before the general colonisation of the island by Arabic and Berber peasant groups from the early Xth century.

The irrigation system placed in the lower part of the ravine (Font de Binissaid) is linked to the clan name Binissaid (from *banū*, "the sons of"). The main plot forming part of the system is still known as "s'Hort de Binissaid", the Garden of Binissaid. Next to the residential area related to this system, a hoard containing hundreds of Arabic coins dating from the Xth to the XIIth century was found in the last century (Campaner 1879, 255-258).

Last but not least, there is a consistent spatial relation between these identified agrarian areas and the places where these peasants lived and where parts of the harvests were stored. With this in mind, the paths linking the fields and the settlements were studied during the process of fieldwork. These paths, normally dug from the rock, coincide with the course of the water flow that abruptly descends to the bottom of the gorge. In the case of the residential areas linked to the Font de Sobrevell and Font de s'Aranjassa systems (the *Viridarium* mentioned in the document of 1290), the communication between the fields, the houses and the storage areas partially coincided with the course of the pathway that led to the ancient Madīna Manūrqā (currently Ciutadella de Menorca), towards the west. To the east, this ancient pathway passed through the upper part of other gorges where the names of the colonising groups are still recognisable: Biniatzem (the Berber Banū Aššen, the sons of the Jackal), Binigaus (the Berber Banū Qabūz), Binicodrell (Benicadell?) or Biniarroí (the Yemenite Banū Ru'ayn), for example. However, whether those paths were far-reaching, as in the aforementioned case, or simply connected the fields to the houses, their load-bearing capacity was particularly limited. These pathways are rarely wider than one meter, and therefore rarely allowed for the passage of more than a single load-carrying animal. In some cases, as in the track connecting the settlement of Sa Talaia de Torrepetxina (TPN1) and the bottom of the valley, steps were dug into the rock in order to maintain the low ground-high ground slope.

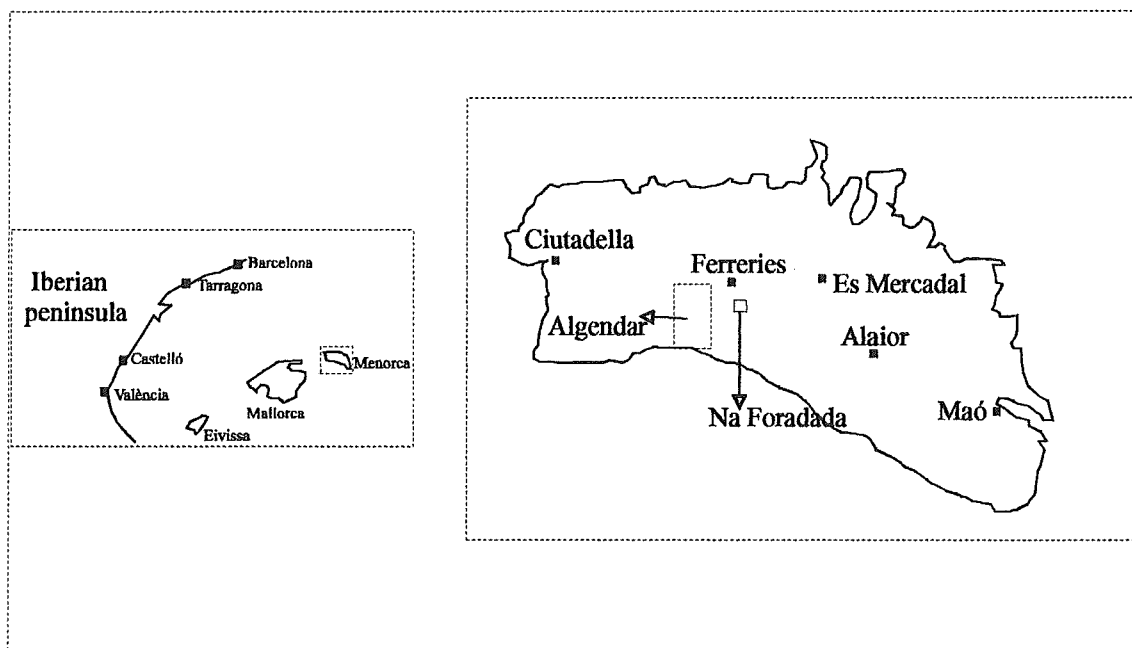


Fig. 1. Minorca island.

As a rule, the distance from the nearest point of the hydraulic systems to the houses (indicated by surface concentrations of pottery) varies from between 25 minutes maximum in the majority of the cases to 45 minutes in that of the farthest settlements.

One of the aspects that will merit special attention in the future is be the systematic presence of storage pits close to the residential areas. We have found them both isolated or, as in most cases, forming silo groups of two, four (as those linked to Sa Talaia de Torrepexina-TPN1, dug into the soil of a cave) or even more. Nevertheless, it is difficult to determine the exact number of storage pits that can be attributed to each settlement, since many of them may have been subsequently covered by forest growth.

The homogeneity of the silos is remarkable, as much for their situation with respect to residential zones, as for the building techniques that they exemplify. In certain cases, we were able to examine silo interiors: in all instances, the pits have a belt-shaped profile, with a maximum height and width of about 2 m.

During the campaigns of September 1998 and June 1999 the fieldwork was mainly focussed on the settlements of the ensemble of ravines generically known as Trebalúger, the specific name of the lower part of the gorge. Up to the present, the survey of the different agrarian spaces built at the bottom of the various valleys has allowed us to identify one irrigation system that we can confidently consider to be Andalusi (Fig. 5). From the spring currently known as Font de Na Foradada, a single water-channel irrigated a narrow strip of land on the western side of the gorge. The spring has now dried up, and the irrigation system is abandoned, but its remains are still visible. Work undertaken at the site of the system has allowed us to discern the modifications of its original design. Essentially, these transformations have entailed the enlargement of the cultivable surface (roughly, from 1 Ha to 1.5 Ha), whether by broadening plot width where possible, or by constructing additional plots which were both terraced and extremely narrow. These changes have implied the modification of the pre-existing irrigation layout, particularly the elevation of the water-channel. This elevation, nevertheless, was not achieved by taking water from an outlet situated upstream. As there are no springs higher up, water-raising had to be undertaken by forcing the gradient to the maximum. Inevitably, this implied a loss in the speed of the water. It is reasonable to assert that the accumulative dams (*trencades*) were constructed when the volume emerging from the spring could not guarantee supply of the water to the farthest plots.

As far we are aware, the holding referred to as Na Foradada existed at the end of the XVIIIth century. It was mentioned in a document of 1716 that made reference to a house and two irrigated plots (*horts*) bought in 1693 (Pons 1989, 120). Probably, it was in this century when Na Foradada was constituted from a break-up of Biniatzem. The documentation of the XVIIth and XVIIIth centuries clearly shows an acceleration of the fragmentation of ancient estates, which doubtless corresponded in most cases to the construction of new cultivable areas. It is striking in this sense that the land of the irrigation system starting in the Font de Na

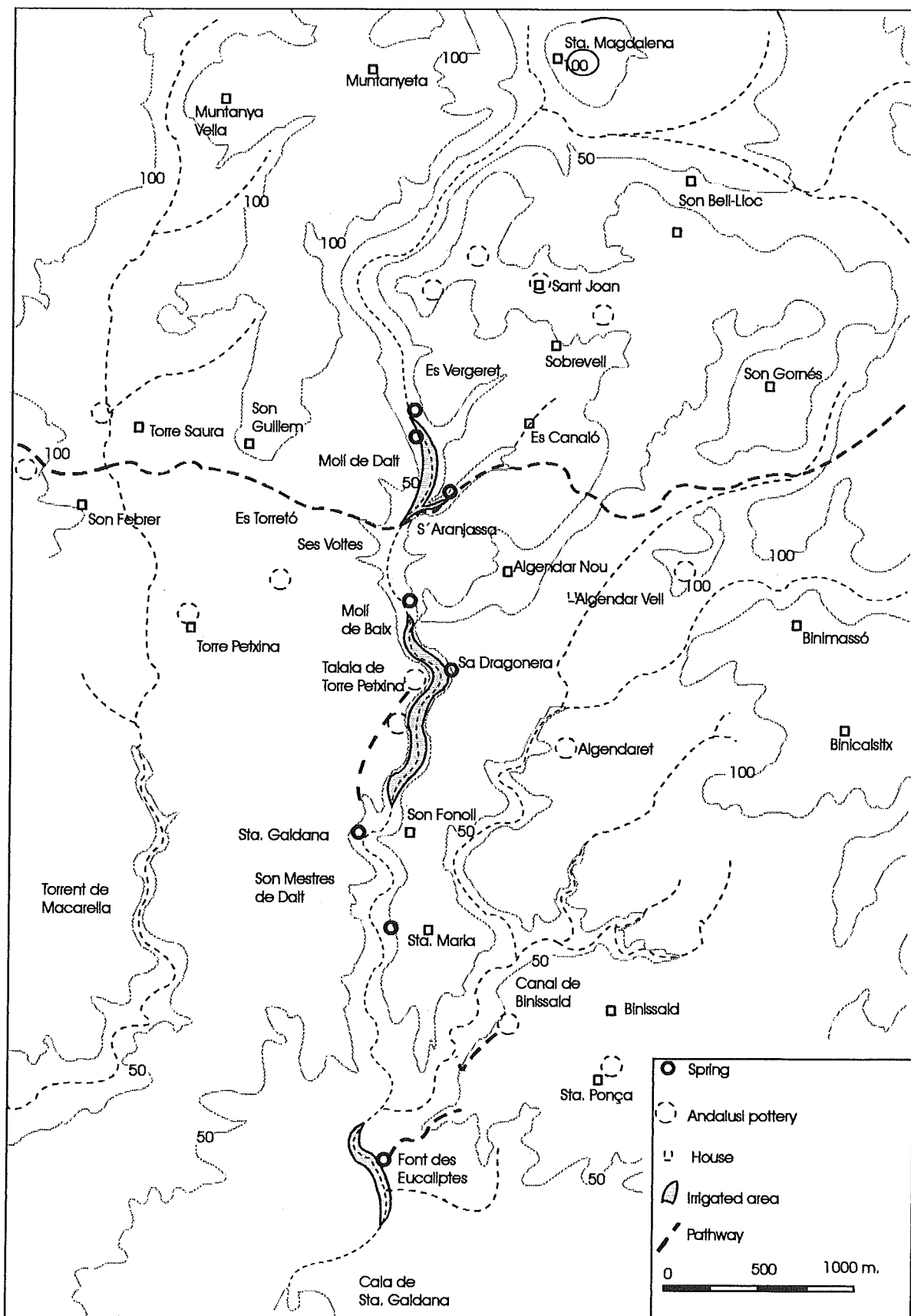


Fig. 2. Algendar.

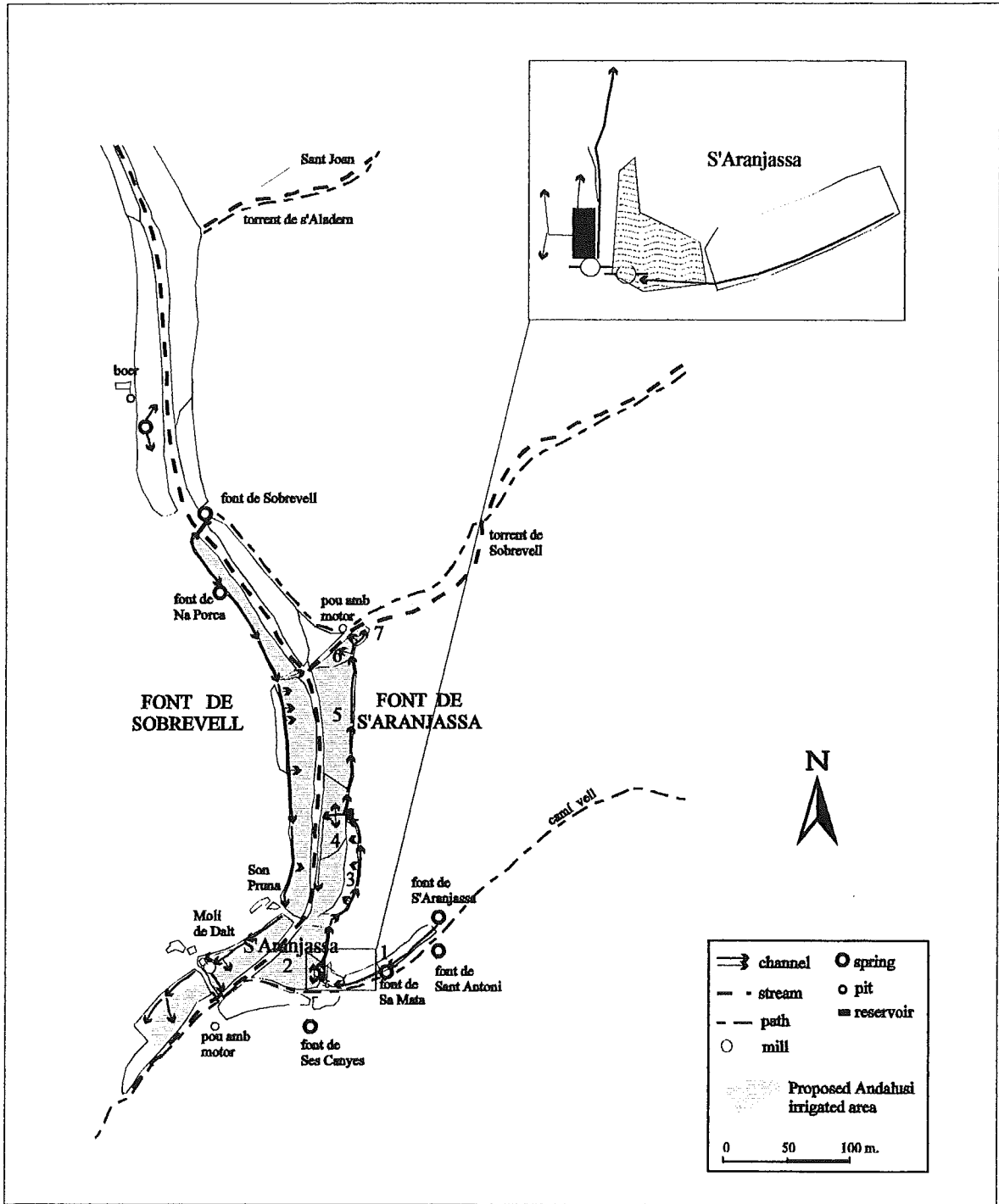


Fig. 3. Font de Sobrevell and Font de s'Aranjassa systems.

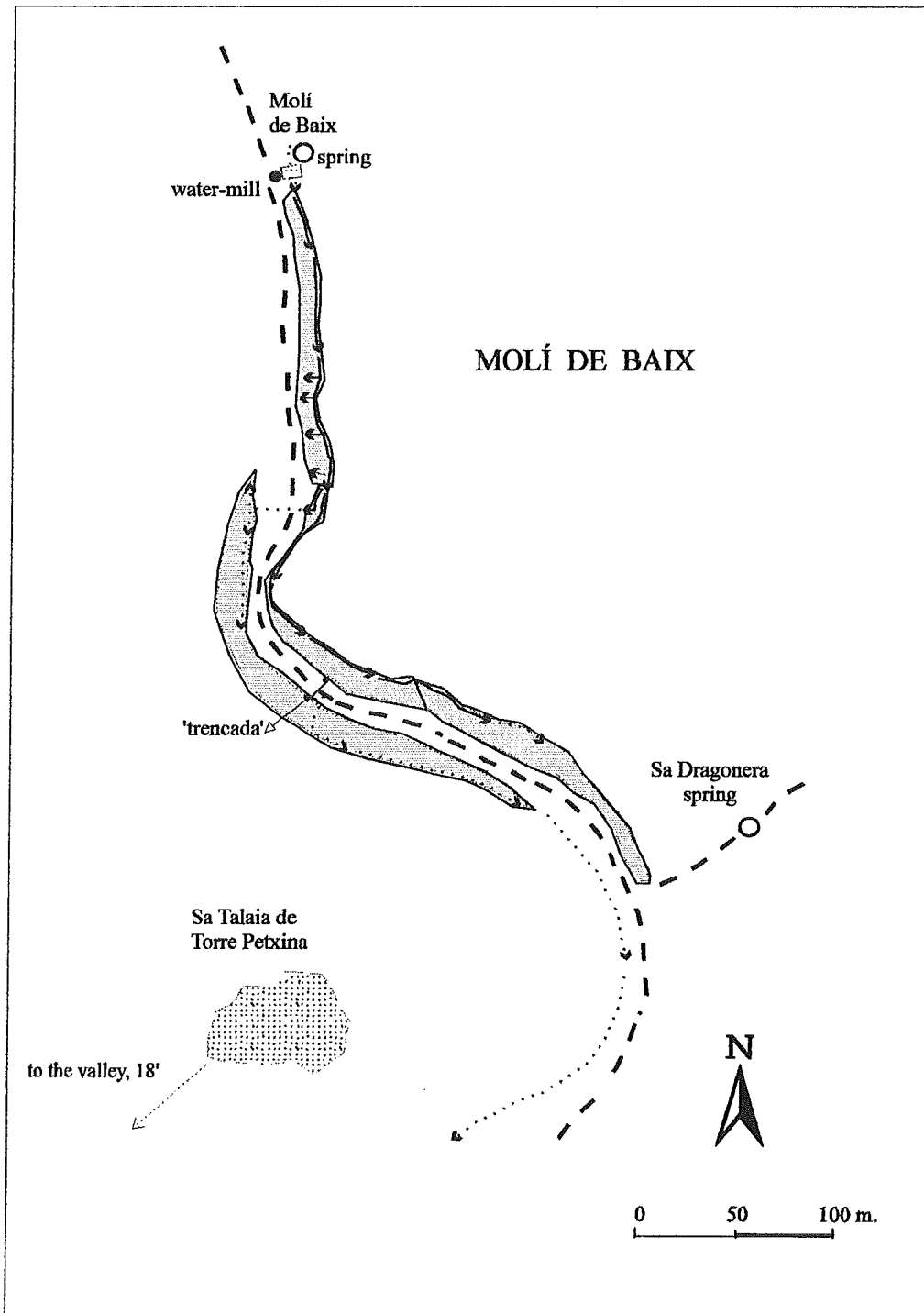


Fig. 4a. Font des Molí system.

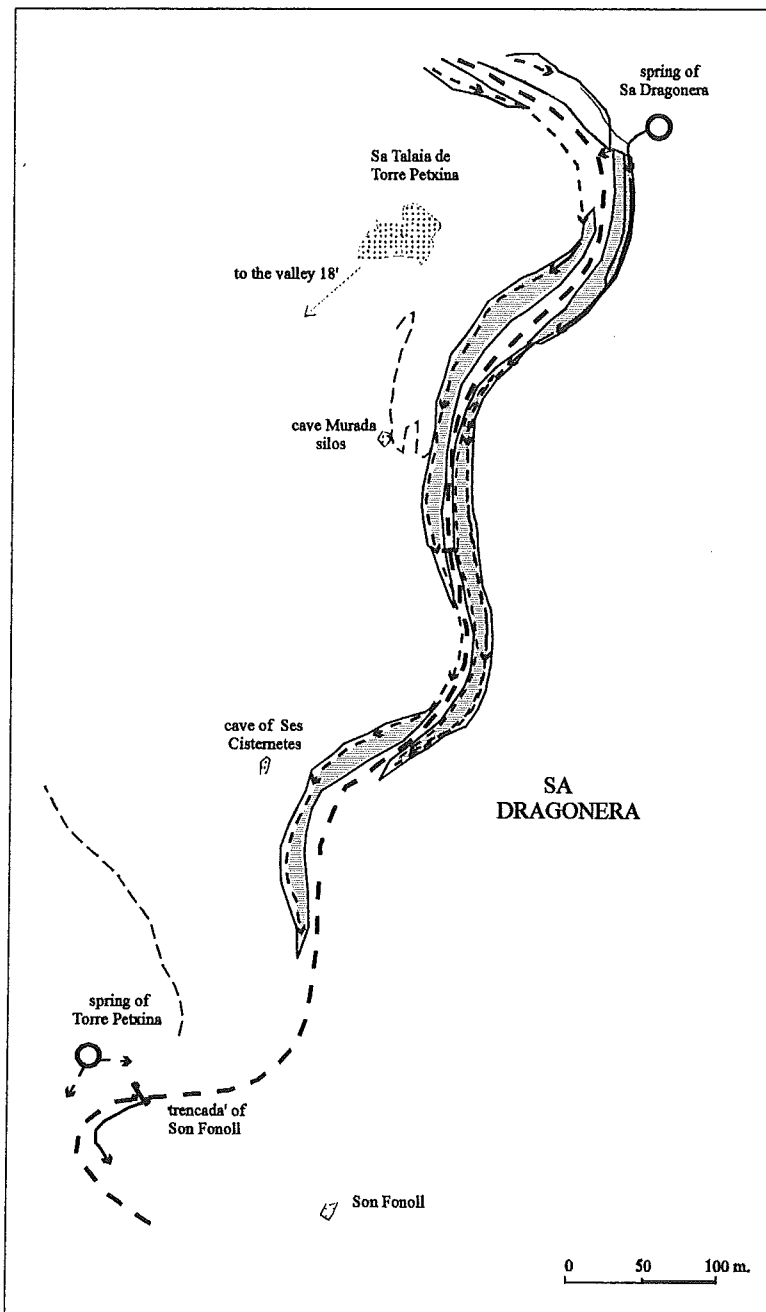


Fig. 4b. Sa Dragonera system.

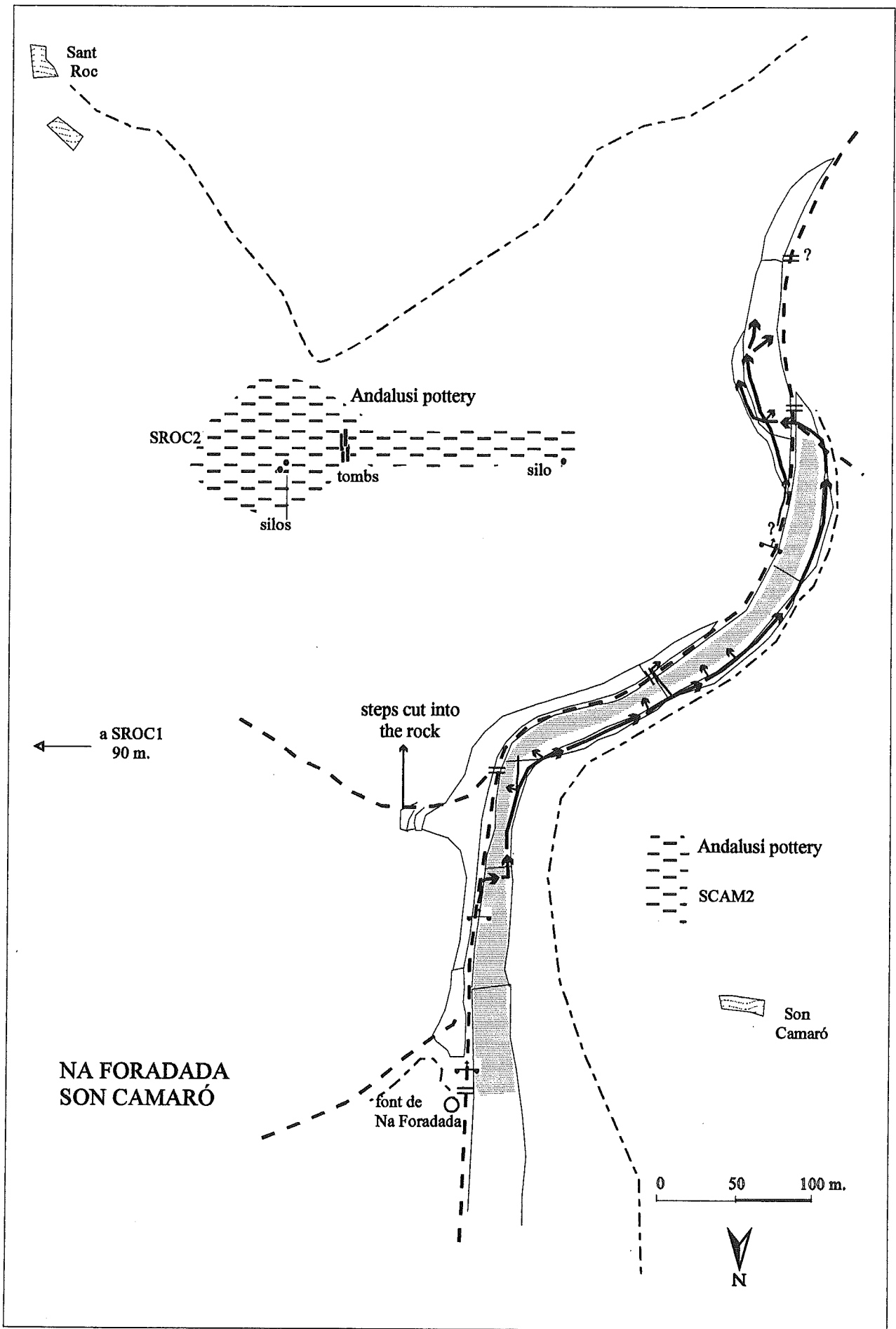


Fig. 5. Na Foradada-Son Camaró hydraulic system.

Foradada was divided into two different holdings (Na Foradada and Son Camaró). That means, firstly, that this agrarian space was previous to the constitution of the new estates, and secondly, that the extension of cultivable land prevailed upon the management of the irrigation system as a whole when establishing legal rights upon the agrarian areas. In clear contrast, the hydraulic system of Barranc de la Cova (the gorge of the cave), next to Na Foradada-Son Camaró, was -and still is- included within a single holding. Quite significantly, the construction of this cultivable area is dated to the end of the XVIII century.

The system of Na Foradada-Son Camaró (ancient Biniatzem) is clearly linked to two residential areas, as indicated by the presence of pottery at the surface (*Fig. 5*). It is worth saying that these two concentrations of ceramic fragments do not coincide exactly with the remains corresponding to the Roman or the Talaiotic periods. In the case of the area located on the eastern slope of the ravine, the main concentration of late-Roman pottery is located almost 100 metres to the north-east.

As we have already observed for the settlements of Algendar, the residential areas were also storage areas. In this case, there are at least three storage pits dug into the earth, in the rock, very close to or actually in the middle of the houses (*Fig. 5*). In addition, we were able to identify the paths that connected the fields to the houses and the pits. Beside the spring of Na Foradada arrived a mule track, at certain points dug into the rock, led to the higher ground following the water flow. There was a more direct pathway, also coinciding with a rainfall waterway, but which did not allow for load-bearing animals to use it, as the steepest section obliged users to pass along a very narrow series of steps cut into the rock, at which point users would also have had to press themselves into the rock face to retain their foothold.



Fig. 6.

To sum up, research undertaken from 1997 has allowed us to identify the principal selective *criteria* employed by the peasant groups that colonised the gorges of Minorca from the Xth century. Their preference was for the construction of irrigated spaces on the alluvial soils of valley floors. As a rule, the canalisation started from springs that provided a more regular flow of water than the streams. The introduction of dams to accumulate and to raise water was a later solution arising from the water shortage produced by the construction of new irrigated areas, both adjacent to or overlapping previously existing ones. In most cases, this extension of the irrigated zones was linked to the production of commercial crops, such as the general but swiftly unsuccessful spread of rice in the middle of this century.

The shape and size of the constructed fields is repeated throughout the cases studied: a single channel bringing the water to successive non-terraced plots measuring approximately one hectare. With the exception of the system of Font de Binissaid (2.27 Ha.), the arrangement of a bigger cultivable area did not imply an enlargement beyond this limit, but rather the construction of a different system having the same characteristics. The concentrations of Font de Sobrevell-Font de s'Aranjassa -the documented *Viridarium*-, totalling 2.26 Ha., and that of Font des Molí-Font de sa Dragonera, with 2.77 Ha. as a maximum, are clear examples of this.

The systematic presence of grouped silos next to the houses gives an idea of the storage capacity of these communities, and of the peasants ability to manage food accumulations. The connections between different communities throughout the island were similar to the modest paths linking the houses and the fields. The path network and the localisation of Andalusí peasant markets will also merit special attention in the future, as will the identification of botanical remains which may provide information relating to some of the species that were cultivated.

ANDALUSISCHE DÖRFER ALGENDAR
IM SÜDEN VON MINORCA (10.-13. JAHRHUNDERT)

LES BÂTISSEURS D'ALGENDAR
- L'HABITAT RURAL ANDALUSIEN DANS LE SUD DE MINORCA (10^e-13^e s.)

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