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## Serra de l'Almirant Survey Project: 1994 report

*Se presentan los primeros resultados de un nuevo proyecto de prospección, que constituye el inicio de una amplia investigación arqueológica y etnológica en la Serra de l'Almirant, entre Valencia y Alicante.*

*Es presenten els primers resultats d'un nou projecte de prospecció, que constitueix l'inici d'una àmplia investigació arqueològica i etnològica a la Serra de l'Almirant, entre València i Alacant.*

### INTRODUCTION

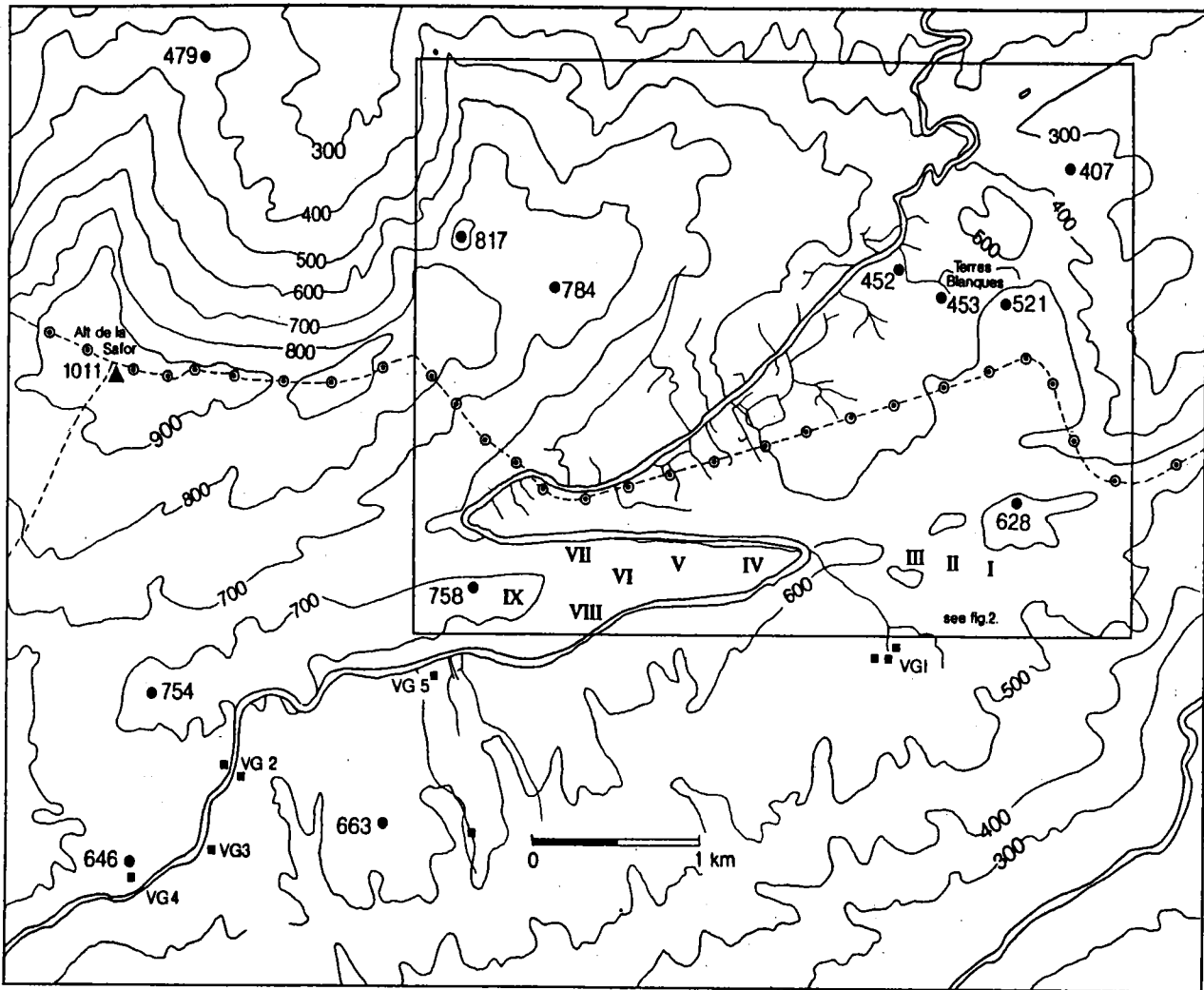
*"Puede afirmarse que, dentro de la agricultura valenciana, se carece de vocación ganadera. La ganadería ha venido ocupando un lugar muy secundario, de aprovechamiento residual, de ocupación menor, constituyendo el trabajo de mujeres y niños en el recreo llevado a cabo en el regadío intensivo" (Font de Mora, 1974).*

*"It can be said that within Valencian agriculture there is no tradition of pastoralist vocation. Pastoralism has come to play a very secondary role: it is a residual activity, of minor value, the job of women and children..."*

Easter 1994 saw the commencement of a research project in the Serra de l'Almirant, an upland area 30 km inland from the Spanish coast between Alicante and Valencia (Figs. 1 and 2). The zone is currently undergoing modern development in terms of forestry growth, in the construction of holiday homes/chalets and in the extraction of clay and deposits of terraros-

sa soil, creating potential high risk damage to the archaeology. The zone overall contains many archaeological and extant traces of human activity, primarily of post-medieval and early modern date but with indications of prehistoric, Roman and medieval activity. The survey seeks to counteract this modern damage by mapping the extant archaeological data for the Serra de l'Almirant through a planned programme of surveying, fieldwalking and excavation.

The visible evidence relates to recent pastoral activity and comprises farm houses, cisterns, animal and field enclosures. The majority of the houses are out of use with only one working farm still present on the Serra and another on the high ridgeland while many of the older field enclosures have in part been re-used by modern seasonal farmers from the lowlands. The land is now principally used for the cultivation of olives and almonds to supplement the extensive orange production of the fertile coastal plain. The initial aim of the project is to survey and plot the visible structu-



●---● Alicante/Valencia Boundary

Figure 1. Location of Vall de Gallinera (VG) Houses.

res and surface sites on the Serra and to carry out a programme of fieldwalking in order to gain a clear ceramic sequence for the further study of the archaeology of the zone. The plotting of the various unmapped and new sites, whether buildings, scatters or field systems, is initially through a GPS (Global Positioning System), with more detailed planning to be achieved in subsequent seasons. Finally, the project also includes extensive ethnographic research designed primarily to investigate local farming practices, with particular regard to the local animal economy.

Although field survey projects are underway in various parts of Spain few of these have the aim of fully analysing patterns of medieval and later settlement. The Middle Ages in the Valencia region marked a seemingly extensive colonisation of land and it

is assumed that this expansion of activity included the somewhat marginal area of the Serra de l'Almirant. More recently, from the later nineteenth century, the Serra gained relative importance through increased pastoral activity, as marked by the emergence of a high number of seasonal shelters, corrals and farmsteads. A key question concerns the degree to which these structures denote a recolonisation of land or a maintenance of much older agricultural practice. The Serra de l'Almirant Survey Project in effect offers a preliminary study of a single upland zone which seeks to combine as far as possible all types of available evidence ranging from architectural and archaeological data to toponymical and historical (documentary and oral) evidence. It is essential for the study of any region -not just a marginal zone such as the Serra- to integrate such data.

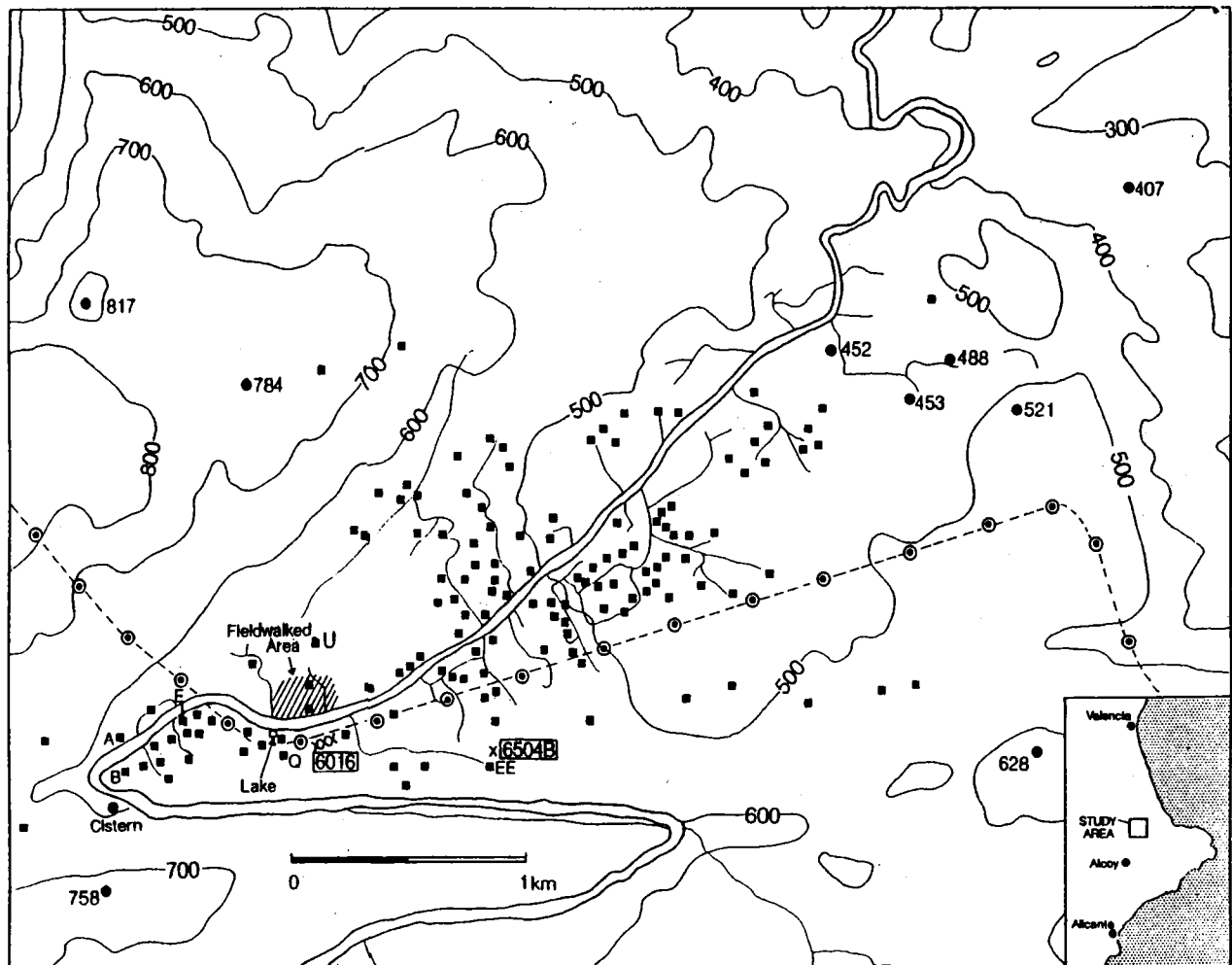
GEOGRAPHY (JAG)

The Serra de l'Amirant divides into two physical zones: to the north the low-lying, more fertile and extensive plain of La Llacuna, largely within the confines of Villalonga, but with the southern part belonging to the La Vall de Gallinera district; its northern limit is marked by the Serra de la Safor. To the south, the high ridge and plateau zone of La Vall de Gallinera, more exposed and largely scrub- or macchia-covered, with isolated pockets of fertile soil. Ownership of the Gallinera highland is divided up between various of the La Vall de Gallinera villages, notably Patró and Benialí.

The geographical and human boundaries of the valleys of Villalonga and of Gallinera in particular are well defined. In both cases they are units with very clear links with other units in the area: whereas the development of Villalonga presents interesting simi-

larities with the development of the district of La Safor, that of La Vall de Gallinera is more closely paralleled with La Vall d'Alcala and La Vall d'Ebo (Torró, 1985), both in the mountain district of Marina Alta.

From the geographical point of view the most important aspect is the high rainfall of the zone (higher than 1000 mm per annum) compared to the average of the rest of the Valencian region. A consequence of this is the continual activation of the karstic process which has determined the evolution of the landscape. The Serra de l'Almirant and Pla de la Llacuna are part of the geomorphological group which is mainly a karstic landscape integrated in a larger hydro-geological unit. This unit comprises several chains of mountains, the Serres del Benicadell-Almirant-Gallinera. Structurally this area belongs to the outer area of the Cordilleras Beticas, an alpine cordillera which is oriented NE-SW.



●---●---●--- Alicante/Valencia Boundary

Figure 2. Location of La Llacuna Buildings.

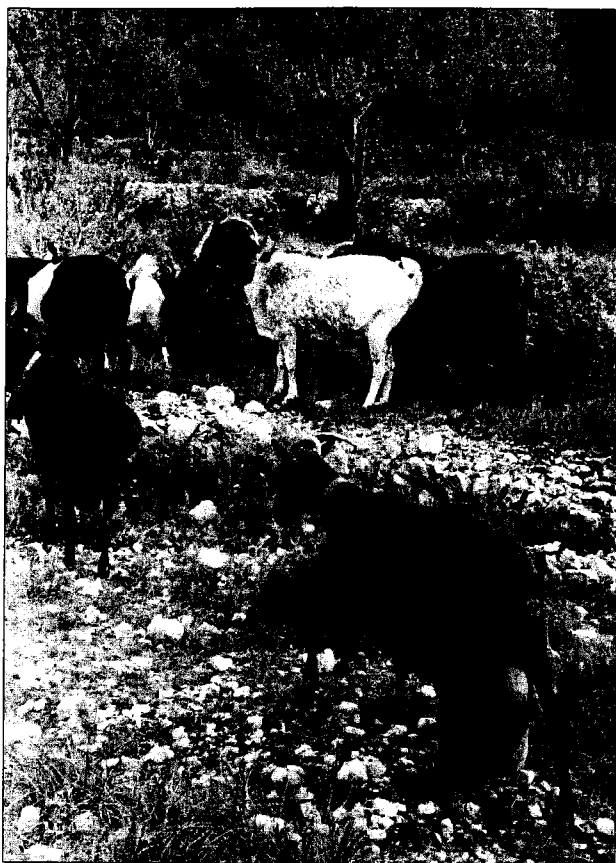


Plate 1. Goat grazing at La Llacuna. Note device preventing mating on male at top right.

Detailed geomorphological study is required to understand the landscape of the Serra de l'Almirant. In particular it is essential to understand the evolution of the lake and its environs: it can be assumed that in antiquity the lake covered a much greater extent, thereby restricting perhaps good soil land; problematic, however, are the questions of the changing boundaries of this water source and whether more than one lake existed. The whole area of the La Llacuna basin is covered with red soil, *terraossa*, which is derived from the erosion of the limestone hills around the basin. The study area's high rainfall count can be assumed to have assisted in the rapid build-up of this soil, in places four metres in depth. A major objective of the 1995 season will be to describe soil profiles in the sections which have been exposed in the process of extracting clay for the potteries of the coastal plain. In 1994, prehistoric evidence, in the form of flints dating from the epipaleolithic period (10000-7000 B.C.) and material from the later Iberian period (125-50 B.C.) were found within these areas of exposed clay (see below). It is assumed that examination of the exposed soil, along with a clearer understanding of the processes of soil formation,

will facilitate the recovery of later prehistoric, Roman and medieval materials and begin to clarify the settlement history of the region.

The La Llacuna area is now much used for the cultivation of olives and, more importantly, of almonds, and with occasional cultivation of soft fruit; the orange plantations are restricted to the coastal plain. The La Vall de Gallinera high ground is largely uncultivated, but where terraces exist, almond trees are again evident. The ethnographic survey (see below) allows a good understanding of present landuse in the Serra de l'Almirant; usefully, reasonable post-medieval documentation exists to allow us to trace back through time at least some methods of land activity.

#### HISTORICAL FRAMEWORK (JAG)

Minimal documentary data exist for the Serra de l'Almirant before the Middle Ages, suggesting thereby a marginal agricultural rôle: for the Roman period the zone will have probably lain in the territory of the *municipium* of *Dianium* (Dénia), but here certainly the economic and settlement emphasis lay on the fertile coastal plain where a consolidated system based on *villae* existed, geared towards the production and trade of wine and oil (Gisbert, 1983) - the thick network of modern orange plantations probably fairly closely resembles the density of Roman period vine production. In contrast, for La Vall de Gallinera, apart from a few finds from caves (Torró, 1985), no rural settlement trends can be recognised in our study area. That is because the inland E-W communication routes passed through La Vall d'Ebo, La Vall d'Alcala and La Vall d'Albaida, thereby marginalising La Llacuna, Serra de l'Almirant and La Vall de Gallinera. This is not to exclude some form of activity in the area, notably pastoralism, though evidence for this will come solely from the survey.

#### *The Islamic period*

The Vall de Gallinera and Villalonga in the Islamic period present a quite homogeneous population structure, comprising a system of upland fortifications dependant upon the farming of rural settlements. The administrative organisation has been largely reconstructed by Pierre Guichard (1980): this consists of districts or tax units with a castle (*hisn*) and a dependent rural population based in townships or hamlets (*alquerías* or *rahalles*). The representatives of the Islamic governments had this structure in order to carry out their role of tax

collectors collecting revenue in either kind or coinage. This organisation formed part of the administration of the City of Daniya (Dénia) at least from the eleventh century. Within La Vall de Gallinera in the twelfth century we find a network of upland fortifications, notably the Castell de Gallinera, the watch-tower of the *Penya Foradada* and the Castell d'Alcalà (Torró, 1985: 31-2). Surveys have documented various 'peasant' settlements located on terraces of the Gallinera river but with a lower population density than in later times (Rubio, 1988; Torró & Ivars, 1990).

As regards Villalonga the castle oversaw probably nine small towns (*alquerías*) located on both sides of the Alcoy river and featuring an economy based on intensive irrigated agriculture. Three of these *alquerías* in fact lay within the urban area of Villalonga (Alcúdia, Cais and La Font); the other presumed sites are Reconx, Reconxent, Buixergues, l'Almassita, Simat and Ràfol.

#### *The Christian Conquest and after (13th-16th centuries)*

The Christian Conquest of the thirteenth century introduced feudal government by *Señorios*. In the first phase, the threat of military activity by the Christians led to a series of pacts with the existing occupants of the castles and other settlements. The second phase saw a movement of Christian population from the north of Spain to the urban areas of the south. However, this Christian colonisation process did not displace the older population, but instead marked a co-existence between Christians and a still significant Muslim population. Interestingly, these Muslim communities continued to be organised and structured according to the pre-Christian system; indeed, they continued to form the bulk of the population in the valleys around the Serra de l'Almirant.

In 1240 the group of *alquerías* which were under the government of Villalonga castle and also those under the government of the Bairen, Borró and Vilella castles, came under the control of the army of Jaume I (Chabas, 1887: 289). As a consequence of this the valley of Villalonga was incorporated into the Corona de Aragon. El Llibre del Repartiment unfortunately does not refer to any of the lands of this area. From the second half of the thirteenth century Villalonga came under the control of Arnau de Romaní. In 1269 Arnau de Romaní asked the King for permission to buy '*castrum et villam de Villa Longa cum alqueriis et terminis et pertinentiis suis omnibus*' (the castle and village of Villalonga with its *alquerías* and district and all its houses and property)



Plate 2. Demonstration of milking by goatherd in La Llacuna basin.

(Rocher, 1984). Subsequently this *Señorio* was the property of the Romaní (later Llancol de Romaní) family until the early seventeenth century.

Before the seventeenth century few documents exist which inform us of about the role of the livestock in the economy of our study area. For the sixteenth century, however, we can note the census of 1510 (García Cárcel, 1977), which gives an idea about the importance of livestock in the kingdom of Valencia. This census shows Villalonga as the second largest livestock holder in La Safor with 2519 animals. This comprises 16.6% of the total number documented. Unfortunately the census omits to mention livestock in La Vall de Gallinera but the property system in Castell de Castells probably was very similar, with a total number of 43 livestock owners, 32 of whom between 11 and 100 animals, seven owners with from 101-200 animals, and the remaining four with more than 201 livestock. The number of animals is very small in comparison with Castilla because in the district of La Safor in this period the economy was geared chiefly towards the production of sugar cane. Nonetheless, it was still one of the three main livestock production areas of the kingdom of Valencia, yielding meat, leather and wool (García Cárcel, 1977: 98).

#### *From post-medieval to modern (17th-20th centuries)*

A significant rediscovery is the partial transcription of a yearbook dated 20th December 1611 (A.H.N. Seccio Osunsa, Signatura 567. No Exp. 37; see Aranda, 1992). This yearbook is a brief description of the situation of the Vall de Gallinera just after the expulsion of the Moors. The document describes some of the difficulties faced by the population which repla-

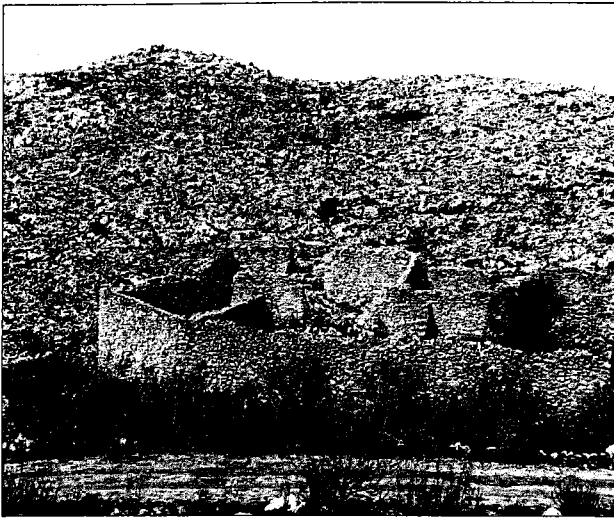


Plate 3. Corral VG4 viewed from south. Note internal division walls.

ced the Moors and in addition proposes means to improve the forms of taxation within the area. It also comments on livestock and general living conditions (Aranda, 1992: 260-1), revealing in particular how landlords had exploited the population. The document also gives a detailed inventory of landholdings and crops raised: hence we hear of one Paulo Rambau, an owner of a corral who owned a house in “Benimarçoch” with an irrigated vegetable garden and an olive and carob plantation and also held further (uncultivated) land with two corrals, one in the mountains, the other in the plain.

Equally useful is the ‘Carta Pobla’, which details many aspects of local agriculture, even if there are very limited references to actual quantities involved in livestock production. The purpose of this document was to describe to the Christian immigrants the rules and regulations concerning production and exploitation of the territory. For instance, for 26th January 1612 the Carta Pobla describes the regulations in Villalonga for the plantation of sugar cane in irrigated areas and other crops such as olives in non-irrigated areas; it also stresses regulations regarding firewood necessary in the processing of sugar. Other documents indicate strongly enforced regulations against the cutting of timber thereby restricting use of the timber for the purposes of the Duke which included numerous building projects.

Less information is available for the eighteenth century. Of most interest is the 1787 census of Floridablanca which indicates that whilst the populations of the Vall de Gallinera and Villalonga were

similar in many respects the population distribution in the former (1,336 persons) was more dispersed, following the Islamic pattern, whilst that of the Villalonga district (1,103) was more intensive. Also of interest are references to long-haired cattle in the region (Codina, 1993: 83-4) and to the local cherries which ripen early (Cavanilles, 1797: 151-2).

In the nineteenth century a number of large dictionaries with encyclopaedic objectives offer us some scant, but nevertheless interesting information: Sebastian de Miñano in his 1826 geographical dictionary of Spain and Portugal informs us that in La Vall de Gallinera from the base to the summit of the mountain one could see fields with a great variety of trees and products -carob, pine, olives, cherries, walnut, maize, wheat, barley, chickpeas-. Pascual Madoz in his 1845-1850 descriptions presents a similar view. Cultivation is still intensive in parts, but clearly not to the level viewed by these authors.

In the present century and before the 1960s, a narrow track provided the only route to La Llacuna, and this difficulty of access helped in the preservation of traditional farming methods, based mainly on olive, carob and some cereals. The landowners were mainly modest people from Villalonga who had small houses in La Llacuna where they spent some weeks each year, with the production from La Llacuna supplementing their lowland produce. However, in the 1960s a new road was built between Villalonga and La Llacuna and many changes began: clay, gravel and calcite were extracted and used predominantly in constructions stimulated by the tourism boom. Furthermore new construction began in La Llacuna; now there are more than four hundred chalets as second homes to people from Villalonga and its surrounding areas. This activity has dramatically changed the landscape of La Llacuna and its traditional rural economy is now almost lost: the present survey therefore offers the hope of obtaining vital archaeological and ethnographic data before the process of modern ‘colonisation’ encompasses the whole zone.

#### MODERN FARMING PATTERNS (PB, JC, FN, JS)

The two major farming groups present across the Serra de l’Almirant comprise landowners (*agricultores*) and pastoralists (*pastores*). The landowners are primarily concerned with farming the soil, and they may also own sheep and goats, although frequently they themselves do not tend the animals; in addition

they may possess a mule, used for transport and even for ploughing; nowadays, however, tractors have replaced mules. Pastoralists, whilst they possess some land, are geared chiefly to tending and rearing sheep and goats; in most cases the shepherds own their flocks, with an average flock size of c. 70 sheep; frequently the pastoralists also look after the sheep belonging to landowners who do not themselves tend sheep, with a general proportion of 3:1 to 2:1 of 'own' to 'other' sheep. The proportion of non-pastoralist landowners' sheep has tended to decline in recent years as the number of pastoralists has diminished. The bargaining power of the shepherds has increased as their numbers have declined because they are now able to enforce ratios of three of their own to one of the landowner's sheep. Within the village communities, a rôle of the *mitger*, a man of local wealth and influence, was to act as an agent between flock owners and shepherds and to negotiate with the latter the tending of the landowner's sheep.

In order to understand better the present and past farming practices in the Serra de l'Almirant, a principal element of the Project has been to initiate a series of detailed interviews with active and retired farmers and shepherds (cf. Beavitt, 1991 for comparative studies in Central Italy). It can be noted here that there was some slight reluctance on the part of some of those interviewed - due in some cases to a worry that the interviewers were state officials and in others to a desire to receive payment for disclosure of their life stories! In all fourteen interviews were taped for reference and, in addition, shepherds and farmers were accompanied on their rounds. The chief findings relating to their respective work are set out below, followed by a discussion on the buildings of the two farming groups:

### *Agriculture*

Interviews with farmers who still work the fields in the La Llacuna area revealed that the main crops are almonds and, to a lesser extent, olives - this contrasts with cultivation trends previous to the 1960s when olives comprised the primary crops and almonds were only of secondary importance. Nowadays the time dedicated to farming is in the evenings after wage work or at the weekends. All of the farmers interviewed indicated that non-irrigated farming is not very productive. The extent of the land holding varies between 15-25 ha.

During the harvesting of either olives in December or almonds in August the family would stay in the

upland farm house because harvesting required one or two weeks' full-time labour and thus it was not possible to travel between the villages and the fields every day. A more common occurrence, however, was a general family move to the farm house during the early summer in order to stay for the whole season and with a short-term residence in December. The olives collected were destined mainly for the production of olive oil - a notable and valuable commodity in the past but now, as noted, only of partial significance and primarily grown for household use. It was commonplace for other crops, notably wheat and barley to be sown between the rows of the trees; furthermore, a small kitchen garden was often cultivated near the house to produce herbs, flowers, etc. This produce was mainly for immediate consumption. Indeed, such small kitchen gardens are still cultivated beside most of the seasonal houses in the La Llacuna area.

### *Pastoralism*

As stated, an essential part of the Project involves ethnographic study, assisted by interviews with working farmers and shepherds: most informative were those with shepherds, with the interviews carried out by Catalan speakers over a period of several days. Suspicion or rather caution on the part of the shepherds was allayed by incorporating the interview within a number of informal conversations within which the answers to our questions were sought. It was then fairly easy for the shepherd to signal his wish to terminate the conversation, by either quickening his pace with the flock, or stating that some other task such as visiting a relative, or going to town needed to be carried out. Two shepherds, each with flocks in very different locations, were interviewed: one, 65 years



Plate 4. Interior arch in Corral LLEE.

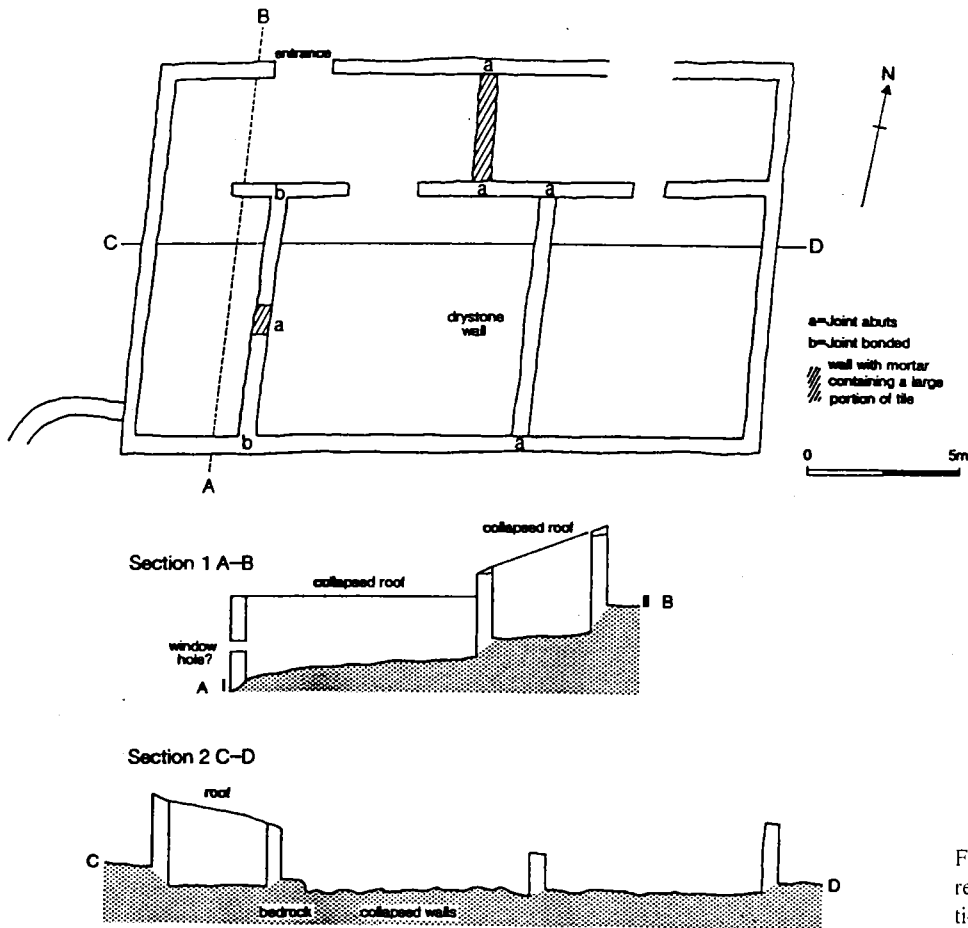


Figure 3. SA 94. Corral de la Serreta Baix (VG.4). Plan and sections.

old, grazes a flock of nearly 30 goats on the flat basin floor of La Llacuna; the other, 63 years of age, has a flock of some 300 sheep which graze on the mountains of the Serra de L'Almirant. The second shepherd noted that whilst goats were better suited to the former scrub vegetation of the mountain, unfortunately now much of the scrub has been replaced by pine trees, and so sheep are equally viable.

As noted above, an average flock size would consist of 70-100 sheep. For sheep, the proportion of males to females is c. 1: 25 and for goats, 1: 12 or 14. Most males are sold for meat (*cordero*) at around the age of two months, when they have reached a weight of about 20 kg; females are mostly retained in order to maintain or enlarge the flock and are then sold at the age of six or seven years, but for a low price. Rams likewise are only sold off at the age of seven or eight years. Occasionally flocks are sold in their entirety, either simply because the shepherd seeks to retire permanently or temporarily, or because the shepherd desires a change and so switches to goat-rearing before resuming with sheeprearing at a later date.

The goats which are grazed on the basin floor each day are kept for both meat and milk. The goatherd walks with the flock and allows them to graze mainly on abandoned terraces. Noticeably, the goats frequently stand on their hind legs to eat the lower branches of the trees, and even though these were not under cultivation, the goats were shouted at if they spent too long eating the leaves. They are driven back to the purpose-built shed in which they are accommodated at about 6.00 p.m., but are not milked until 6.00 a.m. the next day. Milking is carried out in the shed, the shepherd catching them by the leg, squatting down and milking the udder into a metal bucket, which is then tipped into a metal churn. No stool, yoke or milking pen is used. The milk is used primarily for cheese, the production of which usually occurs in a lowland village where the two children of the goatherd live, although at the weekend when more people are present at La Llacuna some cheese may be made here for local consumption. Cheesemaking was described as primarily the work of women, although it was stated that there is no prohibition on men carrying out this kind of work.



Both men interviewed had known almost no other life other than pastoralism; one had been a shepherd since he was eight, the other had worked for five years in the construction industry on completion of his military service. This man's father had formerly worked in a factory, but had become a shepherd, looking after the flocks of others when he lost his job. The other shepherd was part of a farming family, and he had looked after flocks whilst his brothers did other farming work. The pastoralist life is not, however, isolated: both of the shepherds interviewed were married with children.

Pastoralism in the region is, nonetheless, clearly a hard life, particularly in comparison to other upland regions of Europe. For example, the recent studies made in the Cicolano in Central Italy have demonstrated how the tending of the sheep is often carried out by men who have 'retired' from paid employment in lowland towns and returned to their natal villages (Beavitt, 1991); in the Serra de l'Almirant many shepherds have known no other work. However, it is notable that, in common with other areas of Europe, pastoralism in this region has been modernised, in particular through the use of motor vehicles, allowing shepherds to return to their village homes most evenings.

#### *Relations with Farmers*

As in other parts of the Mediterranean the manure provided by the sheep and goats is of great importance and underpins the nature of the relationship between farmers and pastoralists. Manure accumulates in the corrals from the animal faeces mixed with maize straw and with the remains of olive and orange branches which are provided as supplementary fodder in the corral. Farmers will in some cases provide corrals for shepherds on the understanding that the manure belongs to the farmer and may be collected and utilised according to his requirements. Indeed, in the case of one of the corrals observed (VG2 = La Vall de Gallinera Building 2), the structure had recently been substantially renovated to include a large rainwater reservoir and the corral was then made available to a shepherd to use in return for manure. Supervision of grazing is clearly necessary in order to prevent damage to crops. Shepherds usually accompany the flocks at all times, shouting, whistling and throwing stones at animals which try to eat the leaves of fruit trees - one shepherd shouted the name of his dog to control the sheep, even though the dog was not with him! In the event of serious damage to crops farmers have recourse

to the town mayor who will set a level for the compensation which the pastoralist must pay. In general, however, the indications from the two pastoralists interviewed were that relations with farmers were good. Manure, if sold for cash, commands a high price and the defecation of the sheeps whilst grazing presumably explained the willingness of farmers to tolerate some disturbance of the lower leaves of tree crops.

#### *Extant structures*

The different fertility and agricultural rôles of the two zones of the Serra de l'Almirant appear to be well reflected in the domestic architecture, with largely small single- or double-celled structures on the La Vall de Gallinera side, suggestive chiefly of seasonal bases and shepherds' houses (though with a few scattered larger units with related terraced fields), and with larger and more closely spaced house units in the La Llacuna district, indicative of more fixed farming activities. As noted, many 'farms' on the La Llacuna side are now redundant, with House E alone still active.

Few of the available maps for the Serra correctly mark on the location of all of the ruinous houses and corrals, and so a preliminary task was the plotting through GPS of their various positions so as to provide a more accurate base map for the survey zones. GPS functions through the location of navigational satellites and the computation through these of the instrument's position in terms of latitude, longitude and height. The instrument can be preset to display readings according to a variety of national and international grid systems; in the present survey UTM (= Universal Trans-Mercator) was selected and the displayed reference plotted onto a 1:10,000 base map of the area. In cases where buildings were printed on the base map, some checks were made and the accuracy of the instrument was such that at this scale the thickness of the dots indicating the buildings was as much of a limitation to accuracy as errors in the precision of the instrument. In terms of precision, the GPS fairly rapidly received latitudinal and longitudinal readings, whereas altitudinal measurements frequently required five or more minutes - shorter exposure could mean that the height measurements could be upto 20 m in error.

In terms of form and construction, the houses could be classified into three basic forms:

1. *Corrals*. (Figs. 3, 4 and 5) The first type of structure is the corral. Seven corrals were observed in the initial season survey, five in La Llacuna (LLA, LLB,

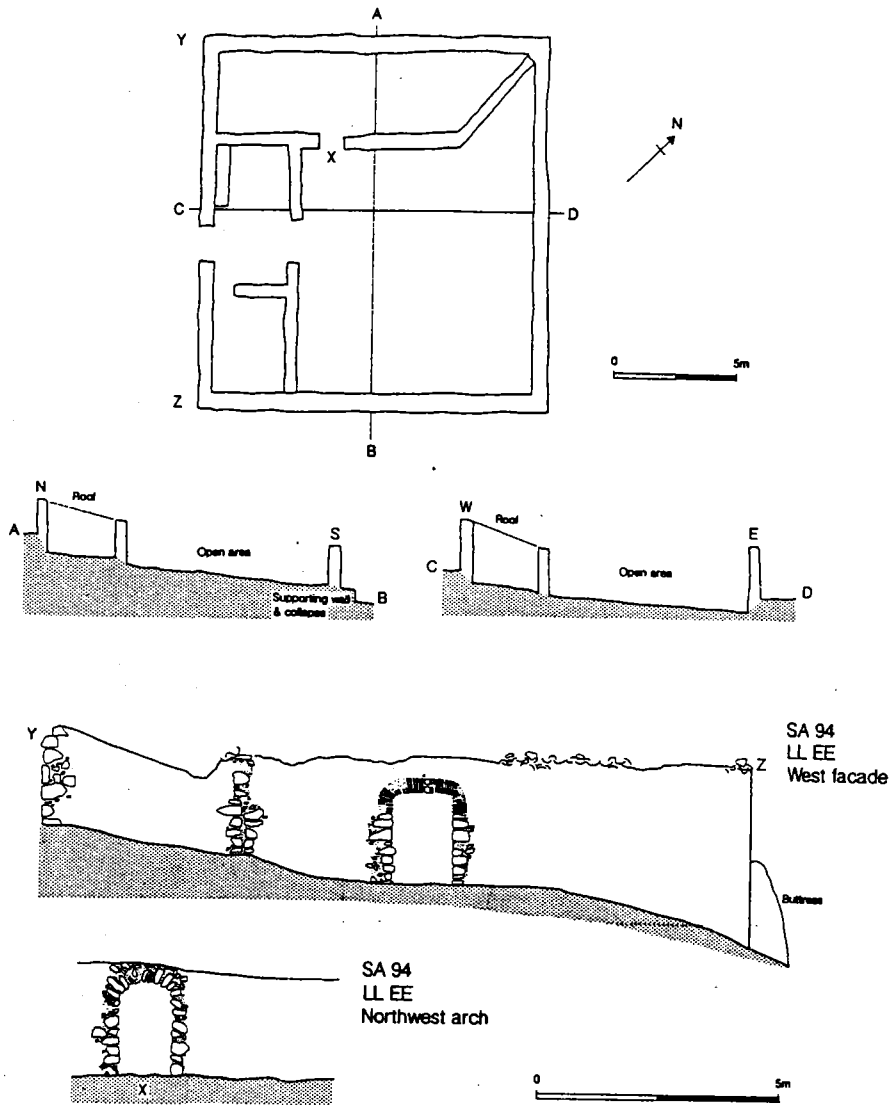


Figure 4. Corral del Tio Joaquim (LLEE): plan, sections and elevations.

LLE, LLU and LLEE) and two in La Vall de Gallinera (VG2 and VG4) (see Figs. 1 and 2). These corrals had a fairly regular structure: covered areas which provided shelter for humans and animals and an unroofed animal enclosure. In all the cases investigated, access to the unroofed area was through the covered area, which had once housed the human occupants. One corral, VG4, was particularly interesting in that both the roofed and unroofed areas had been divided into two. This was very apparent from observation of dividing walls, all of which abutted, rather than were bonded to, the walls of the first phase (Fig. 3). The main dividing wall in the open area was of drystone construction, rather than mortar bonded as were the rest of the walls. Furthermore an additional phase of alteration is indicated by the blockings containing stones bonded with mortar

rich in tile fragments. However, the view of one of the pastoralists whom we interviewed was that this corral had always been not one but two structures. Presumably the explanation for this was that the division had taken place some considerable time in the past, and that there was no local recollection of the rebuilding. Assumptions from present day patterns of use would indicate that these corrals are primarily intended for seasonal occupation. Shepherds have village houses in the lowlands, which accommodate them for most of the year.

2. *Agricultural buildings.* These comprise single family dwellings, containing two or three rooms, presumably for combined human and animal accommodation and for food and tool storage. In 1994 none of these structures were planned in detail; however, Fig. 6a offers a sketch plan of VG1.

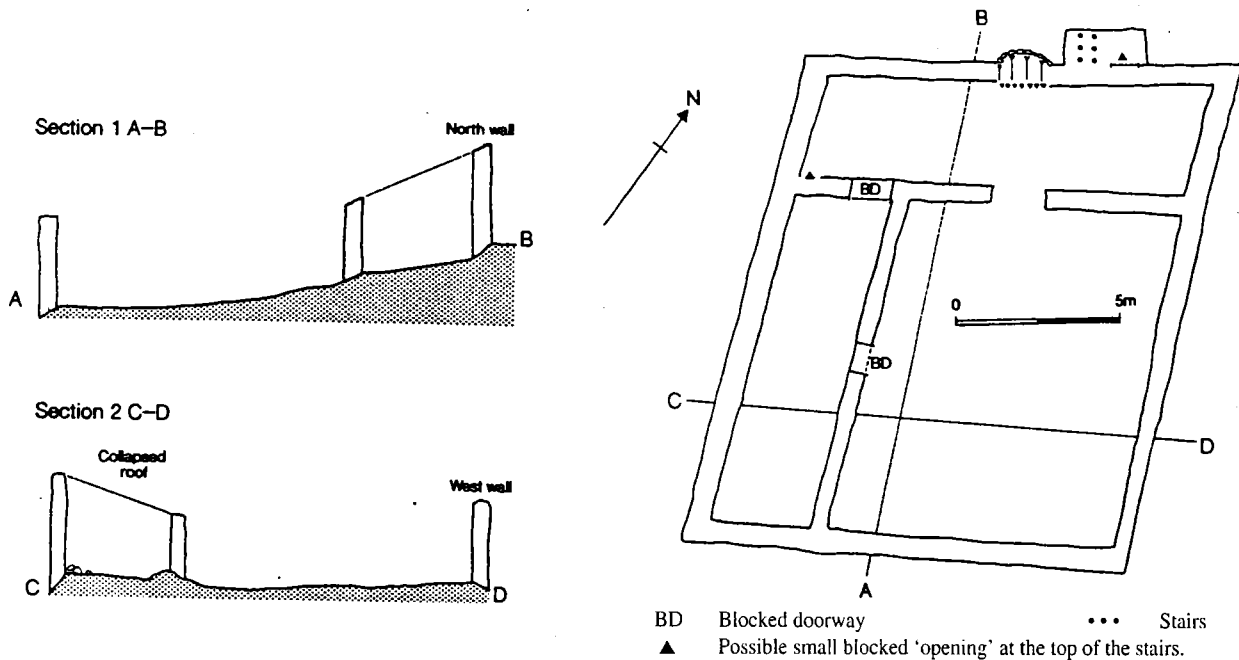


Figure 5. Corral La Solana (LLA): plan and sections.

3. *Shelters*. A second type of structure is the upland stock and human shelters. Fig. 6b is a good example of such a structure (SA IX = Serra de l'Almirant building IX), approximately 7 m in diameter, and surviving to a height of 0.5-1.0m; it perhaps provided seasonal shelter to a flock of sheep or goats and a pastoralist. No mortar had been used in the construction, nor was there evidence of roofing tiles.

#### *Other upland structures*

Survey of the ridge to the south of the La Llacuna basin revealed a number of structures (SA I-IX) which are interpreted as deriving from 17th-19th century agricultural activity. These consist of terraced areas (SA III, V, VI, VII); sheep pens lacking evidence of roofing (SA IV, IX); a small roofed tool-store or storm refuge (SA I); and two possible farmhouses together with unroofed animal enclosures (SA II, VIII).

## ARCHAEOLOGICAL SURVEY DATA

### *Ridge and plain sites (JAG)*

Besides fieldwalking (see below), systematic walking was carried out within the plain (in sectors 1-3 south and east of the relict lake, focussed on the clay-extraction zones) and across the ridges and heights dividing the La Llacuna and La Vall de Gallinera zones of the Serra de l'Almirant in order to locate and

plot any surface sites. Finds relating to the earliest (Prehistoric to Islamic) periods are set out below. The data are in all cases provisional since finds are yet to be scrutinised in full detail.

### *Prehistoric Sites*

Without doubt the most interesting result of the archaeological reconnaissance was the location of six lithic sites and indications of two settlements. The Foia Fonda is one of these in which the flint occurs in the red soil (terrarossa) at the bottom of the valley (INVJA 6013). Associated with this site are two other activity areas which occur on the hillside which forms the northern boundary of the valley. Finds here were surface scatters and between the fissures of rocks in the calcite soil. The second site has a better lithic record and the most interesting sector lies around the pool at La Llacuna and to the east of it (INVJA 6016, Sectors 2 and 3). The geological context of the latter is a large layer of terrarossa that formed the karstic subsoil of the Pla de la Llacuna and which from the geomorphological perspective is a 'polje'. The depositional levels have been disturbed through the processes of clay extraction undertaken in the last fifty years, and this activity, combined with rainfall and erosion, is responsible for the exposure of these significant finds (identifications made with the collaboration of Don Salvador Cloquell Esteban).

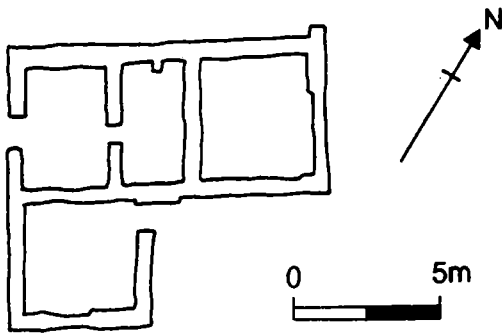


Figure 6a. Sketch plan of VG2.

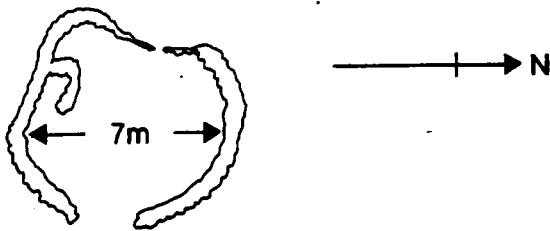


Figure 6b. Sketch plan of SA IX.

The lithic industry of these sampled sites reveals clear typological and technological homogeneity. The scarcity of items is typical of open sites in contrast to finds from cave sites (Villaverde & Martí, 1980) but in INVJA 6016 we recovered items which enable the site to be clearly identified in terms of technology and typology as a palaeolithic site. Finds comprised small flint items with waste flakes forming more than 33% of the total assemblage (INVJA 6016). The finds (see Fig. 7) comprise a scraper made from a flake and another made in the shape of a leaf; plus a flake fragment showing heavy retouching. The rest of the assemblage and the waste consists of fragments of flakes, some of which are notched or form cores.

These industries are certainly of late upper palaeolithic and most probably of lower epipalaeolithic date (Fortea, 1973): the leaf-shaped scraper is very similar to the epipalaeolithic microlaminar industry (Fortea & Jordá, 1976). Provisionally a date of 9000-8000 B.C. can be suggested.

The location of this open site is in general line with other late palaeolithic settlements in the País Valencià, being situated between the 500 and 550m contours, and thus in relation with sites on the first inner valleys and thus within easy access of the coastal plain (Aura *et al.*, 1993: 100). Potentially Pla de la Llacuna was an area with a quite important population density.

Our survey as yet lacks any data relating to the Neolithic or Bronze Ages. However, sites of these periods are recognised in surrounding areas, and could be expected in Vall de Gallinera, because of its relatively high mountains and good areas of defence. Many fortified sites of second to first millennium date are known in the area of Valencia (Rubio, 1987; Torró, 1985).

*Iberian culture (Iron Age) and Romanisation*

Despite the prominence elsewhere in the Valencia region of Iberian (Iron Age) and Roman finds and sites, our study area as yet offers an almost total absence of related archaeological remains. The characteristics of this landscape are perhaps not the most suitable for finding Iberian remains of note. Whereas the neighbouring areas of La Vall de Gallinera or Pego in the Marina Alta district and Villalonga in the La Safor district show a standardised settlement pat-

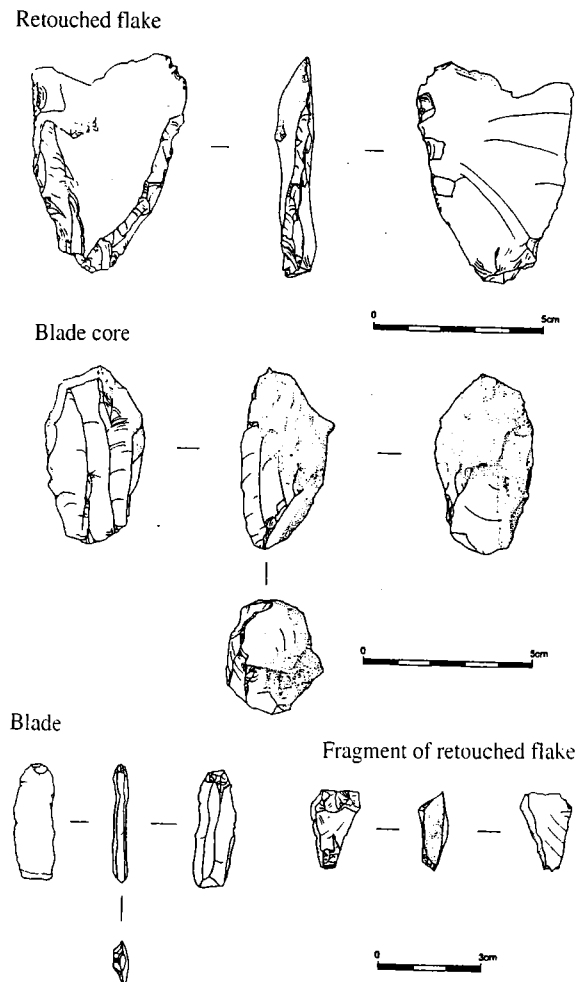
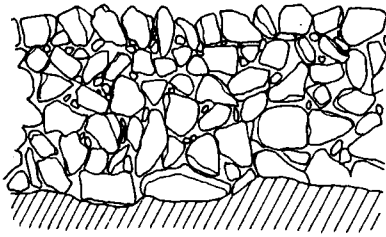
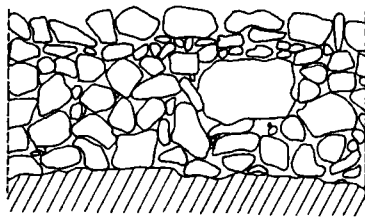


Figure 7. La Llacuna survey INVJA 6016 flint finds.

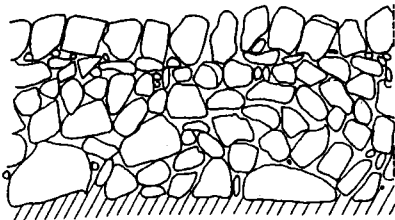
SA '94 LL Terrace wall field 1/2



SA '94 LL Terrace wall field 6/7



SA '94 LL Terrace wall south of corral EE



SA '94 LL Terrace wall field 7/9

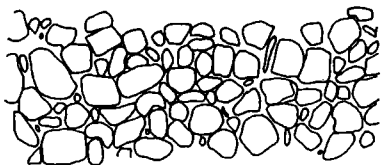


Figure 8. Elevations of sections of selected terrace walls at La Llacuna.

tern, the area we are studying is marginal, too high above sea level and away from the main communication routes. (Nonetheless, note should be made of the large site of Xarpolar in the nearby La Vall d'Alcala: Rubio, 1987).

Iberian period activity is thus at present represented solely by the remains of a badly destroyed settlement with a ceramic group dated to the second and first

centuries B.C. The site lies 200 metres from the residual lake 'bassa de La Llacuna'; one of its boundaries is also the old pathway from Villalonga to Al Patro. This site is identified as INVJA 6016, Sector 1. The material remains are not very numerous: mainly Italic amphorae from Campania, type Dressel 1, for wine transport, as well as coarse ware of Iberian types.

A Roman coin - a likely 'Semis' of second century A.D. date - was recovered from this site, but there was no pottery or other finds to show full Roman period activity. This is true for the rest of the Serra de l'Almirant, although potentially the field-walking material, once processed, may provide at least some hint of a Roman presence.

*The Islamic period and later settlement*

Interestingly, the settlement INVJA 6016, Sector 1 in La Llacuna presents not only Iberic evidence but also evidence indicating (re)settlement in the twelfth century and into the first third of the thirteenth century. This pottery consists of sherds of domestic ware and monochrome glass which are characteristic of the late-Almohade period. The extent of activity will be assessed in 1995. At present, however, this site forms the only clear evidence for Arab period settlement/activity within our study area. Subsequently, material gathered from fieldwalking (see below) readily identifies activity from the seventeenth/eighteenth century on across the Serra de l'Almirant. Undoubtedly some of the extant or ruinous structures have their origins in this time period - as may be claimed for the Corral del tio Joaquim (LLEE - Fig. 4) on the basis of a multi-phase plan and buttressing - although

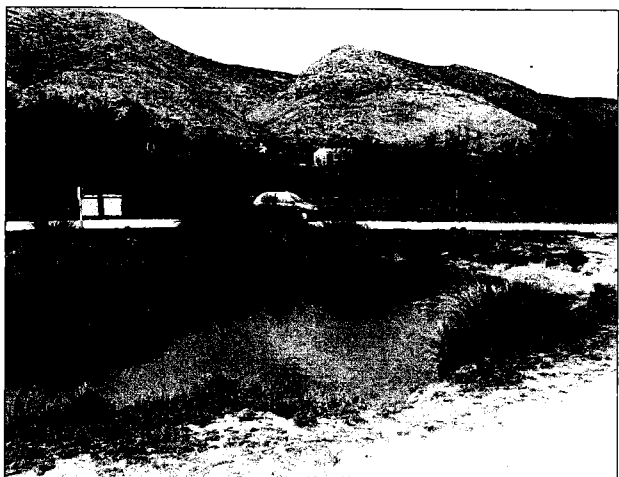


Plate 5. Lake at La Llacuna, viewed from south, looking towards fields 1 and 2.

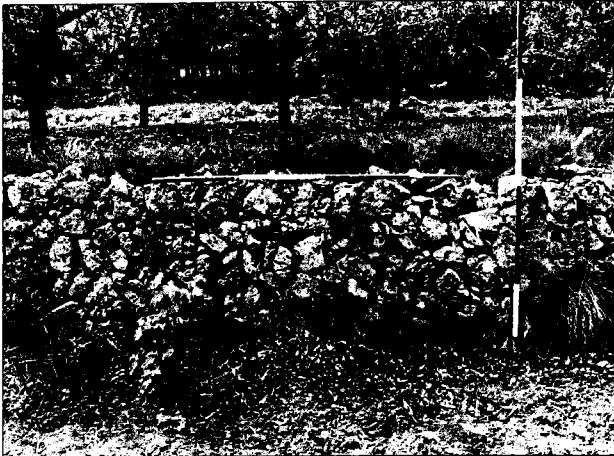


Plate 6. Section of terrace wall 2/1 from east.

the full extent of this will only be revealed through further survey work.

#### *Fieldwalking (NC)*

A series of ploughed and cultivated fields in the La Llacuna zone was systematically walked (by teams of 3-5 walkers) in the course of the 1994 season of study. These comprised a group of extended fields (nos. 1-9, 17-18) mainly running northwards from the course of the tarmac road (Fig. 2) in the immediate vicinity of the lakelet. These fields were selected due to their proximity to this constant water source with the assumption being that this area would have formed a natural focus of settlement and agricultural activity through time. Thus it was assumed that finds from these fields would give a good representative sample of material for the survey zone as a whole. In addition the associated terrace walls were examined in detail, as part of a broader programme of wall analysis in the hope of identifying a chronological typology for the whole La Llacuna zone.

Problematic in the interpretation of the fieldwalking data is the possibility that the walked zone will not be typical of the rest of La Llacuna: this may be argued from the fact that the fields selected are more regularly laid out in rectangular strip fashion as opposed to the curved terracing adopted elsewhere and as dictated by bedrock slopes and outcrops. In effect the walked fields may relate to more recent agricultural activity than elsewhere and reflect perhaps an exploitation of land which was previously subject to flooding from the lake or which may in fact have formerly been under a bigger lake than exists today. Detailed geomorphological study in 1995 will allow for more positive discussion in this regard. Furthermore it can be noted that the southern half of La Llacuna has seen much recent removal

of the deep terrarossa deposits, designed to extract clay, but with the disturbed soil used to spread on the cultivated land. Potentially the fields have been subjected to this redistribution of soil and this will undoubtedly distort the evidence derived from the fieldwalking - as a result some archaeology will be buried deeper and some collected material will relate to activities which had occurred elsewhere. Indeed, as noted, preliminary archaeological scrutiny of the extraction areas identified in the lower red clay levels signs of epipalaeolithic activity, and, elsewhere, in the higher yellow clay levels Iberian material. In effect, given the depth of the alluviation, it seems that full data regarding pre-post medieval land use in the La Llacuna zone will not be easily forthcoming, and may only properly be obtained through excavation work.

In addition to the collating of ceramic data from the fieldwalking programme, to assist in the identification and classification of pottery finds from the Serra, a dump of material from the cleaning of a recently restored cistern immediately north-west of the Llacuna was sampled. This provided a range of vessels and other objects (including coins and a pair of binoculars) dating from the seventeenth/eighteenth century to the present day. In addition, the fields and site of a former pottery production centre, located close to modern Villalonga in the coastal plain, and active from the seventeenth into the present century, were sampled in order to provide a suitable comparative study collection for the La Llacuna survey material. The Villalonga-Potries area contains a number of good natural clay sources and, although many former potteries have closed down or been demolished, a few centres persist amongst the orange groves.



Plate 7. Excavation of clearance debris from the cistern adjoining the La Llacuna lake.

Full analysis of finds made during the La Llacuna fieldwalking remains to be made - a report on the preliminary findings will be given in subsequent interims.

## DISCUSSION

The first season of study in the Serra de l'Almirant has already demonstrated the wide-ranging potential of both archaeology and ethnoarchaeology in revealing important new data on the exploitation and history of this upland, marginal zone. For early and badly-documented periods archaeology alone will provide our guide to this story: the results already indicate a palaeolithic 'colonisation', plus hints at least of Iberian and Islamic activity; these facts alone should argue against a total Roman absence, although the marginality of the area may well have restricted a 'Roman' presence to pastoralist activity, and thus largely independent of fixed structures on the Serra. Medieval and more recent documentation in theory offer scope for analysing the level and rôle of pastoralism in this area and yet problematic is the fact that the available written documentation is centred on the urbanised or nucleated settlement units of Villalonga and La Vall de Gallinera and so details regarding the various zones of the Serra are at times vague at best, and firm evidence for activity on the Pla de La Llacuna in particular appears scanty. The Serra de l'Almirant Survey Project therefore offers a vital new source of information for clarifying the patterns of medieval, post-medieval and early modern settlement and exploitation of the various sectors of study. In particular, it will help to pinpoint, through analysis of the surviving buildings, the last peak of colonisation of the Serra, and this, combined with the evidence of ethnographic study, should provide strong data to place alongside and compare with the extant documentation. Archaeology and history can then combine to reveal something more tangible of the past human presence in the Serra de l'Almirant.

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