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**Evaluation of biological remains from excavations on the site of St Antonin,
Mt Sainte-Victoire, Provence**

by

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Summary

During the excavations in September 1993, exploratory fieldwork and sampling were carried out in order to assess the potential for the preservation of biological remains from the site and its immediate surrounding area. Although the results from this season do not appear to be very promising, land snails, bones and charred plant material are likely to be recovered from deeper contexts on the site, and there is potential for useful sedimentological work to be carried out in the area.

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Introduction

The massif of the Montagne Ste Victoire lies to the east of the plain of Aix-en-Provence, some 8 km east of the town of Aix, and its limestone bulk dominates the landscape over a very wide area. Ste Antonin is the most westerly of the hillforts on the southern scarp of Ste Victoire, and, with these other forts, commands the east-west route along the base of the massif. Ste Antonin itself also commands the approaches to the massif from the Aix basin. From the site, other important hillfort settlements in the area, for example, Entrement (the regional "capital" north of the site of Aix) and Ventabren, on the western side of the Aix basin, overlooking the Arc valley, can be seen. The valleys are quite fertile, whereas the mountain slopes on the southern facing side are most notably vegetated with the low-growing species *Quercus ilex* and *Quercus coccifera*, and aromatic herbs such as *Rosmarinus officinalis* and *Thymus vulgaris*.

One of the most striking aspects of the landscape is the amount of change evident as a result of water flow and erosion.

The provision of water is of economic importance in the area today, and the presence of the aqueduct built by the Romans to carry water from the foot of Mt Ste Victoire to Aix, and traces of canals (les "drains") in the area, testify to the importance of both these factors in the past. The Bayon river, which runs below the site, is intermittent in its flow, and in some areas dry. To the west of the site, it forms stagnant or quietly flowing pools where its flow has been impeded by blocks of limestone, and travertine is forming in some of these today. However, it is worth noting that, after the storms at the end of September 1993, it became a raging torrent. The force of such large and sudden amounts of water on the rather fragile landscape can cause erosion on a large scale.

The prevention of soil loss through erosion is also of importance in the area today, and the remains of terracing on the hillsides, some of which is of medieval date and some of which is likely to be earlier, indicate its importance in earlier times. Below the site of Ste Antonin, there are great swathes of erosion products which have "flowed" down: these date from different periods throughout the postglacial, and will cover earlier land surfaces as well as affecting the shape of the terrain.

Summary of the archaeology and environmental history in the area of Mt Sainte-Victoire, Provence

(This summary of the archaeology of the area has been drawn together from the sources cited in the bibliography.)

There is very little evidence of human activity during the palaeolithic and mesolithic periods, and little during the neolithic. However, systematic survey of the area directed by d'Anna and carried

out by Mocci has begun recently, and the results of this survey will give a more detailed picture of the history of the area.

In the fourth millennium bc, there was an increase in the number of settlements in the area generally (D'Anna *et al.* 1992). Large villages were sited close to the best agricultural land, such as in the Trets basin (Mills 1980); caves were occupied occasionally, especially by shepherds and hunters; and open air sites were used by small travelling groups. Caves were also used for inhumations, such as at the cave of Delubre at Vauvenargues. However, the massif of Ste-Victoire itself seems to have been regarded as largely marginal territory, and occupied only sporadically.

At the end of the third millennium, there was another increase in the population, which coincided with the emergence of new settlement types and agricultural systems, and with some settlement on more marginal soils, such as those in the Vauvenargues valley to the north, and on the plateau of Le Cengle in the south.

It is likely that the forest cover was opened up or reduced, although no local pollen sequence exists. There is evidence of the erosion of Holocene soils from the area downstream being redeposited in the Étang de Berre, where the Arc delta extended rapidly, and some indications that the reduction in vegetation cover might have been more widespread and therefore perhaps climatic in origin.

There are few sites identified which give evidence of occupation in the Bronze Age, the reason for which is not yet understood. There are suggestions that the preferred settlement pattern may have changed, for example that larger sites such as Camp de Laure au Rove with its stone rampart were used, or perhaps those without any obvious structural remains on the massif of Ste Victoire. It may also be that these sites have been covered by subsequent colluviation or alluviation. By the end of the Bronze Age at around 800 bc, the sites of burial grounds and small tumuli had been established.

During Iron Age 1 there is some evidence of occupation on the higher zones of the north slope of Ste Victoire, but, in the areas where the lower parts of the south slopes have been examined, no settlement evidence has been identified. There is no pottery dating from the fourth to the second century BC (Leveau *et al.* 1992), not surprisingly as it is notoriously difficult to date.

The first important occupation of the Massif dates from Iron Age 2 (La Tène III), with the most prominent sites being those of the hillforts. The hillfort of Roque-Vaoutade is said to have been occupied between the beginning of the second half of the second century and the first quarter of the first century AD. The nearby hillfort of Bramefan was occupied from the second half of the second century BC. Both these sites may have been occupied before the arrival of the Romans in the area, and their beginnings may predate the founding of the site at St Antonin, which was occupied between the last quarter of the second century BC and the middle of the first century AD.

A series of villages which follow the routes along the mountain west-east or north-south, and along the Pas-du-Berger, which appear to be roughly contemporary with the hillfort sites and each other, has been identified from this period. There is dense occupation on the massif itself: 42 sites have been identified on the south slopes. Dispersed settlement has been identified on the lower slopes

and on the plateau of Le Cengle, closest to the best agricultural land. There are indications that the light soils, the calcareous plateau valleys and the lower slopes may not have been used for agriculture. However, some of the terraces may have been built in this period, although these are, of course, very difficult to date, and may have been subsumed by subsequent terracing.

The accepted date for the foundation of the Greek colony of Massilia is c. 600 BC. This colony came into contact with the local celto-ligurian tribes, later to be known as the confederation of the Saluvii, and a rich, idiosyncratic, hellenised native culture developed during the subsequent centuries. But changes in the political map of the Mediterranean powers in the 3rd and 2nd centuries BC, coupled with increasing pressure from the hinterland, resulted in a cry for help from Massilia to its long time ally, Rome, who readily came to the rescue in 154 and 124 BC, since it was looking for a pretext to create a physical link between its Spanish Province and Gallia Cisalpina. Thus, in 124 BC the Roman army destroyed the confederation of the Saluvii and its "capital" at Entremont just north of Aix, founding the *castellum* at Aquae Sextiae in the plain below. But Romanisation may have been fairly nominal in its initial stages and the region saw many incursions (Cimbri and Teutons in 102 BC) and rebellions (crushed in 49 BC).

There is increasing evidence of Romanisation in the area under Augustus from 27 BC, leading to the second century zenith of Gallo-Roman civilisation, and the introduction of Christianity under Antonius Pius. Marseilles became the commercial centre of the area, whilst Aix became the administrative centre.

During the first century AD several villae appear to have been founded a few kilometres from Aix. At about the same time, there is a change in the position and organisation of settlement of the south facing slopes of Mt Ste Victoire, from the hillforts down to dispersed settlement on the plains, and thus close to agricultural land, abandoning the hillforts of Bayon, Roque-Vaoutade and Bramefan in the first half of the first century BC. All known villae from this period in the Aix basin are in the Arc valley, where the lowest alluvial terraces allow intensive agriculture.

On the plateau of Le Cengle, there is evidence of an intensification of agricultural activity in the Imperial period. However, during the Augustan period, there seems to be a hiatus: twenty-two La Tène III sites have been recorded, but only one Augustan site - that of Le Pas de la Lèbre at St Antonin. During the two centuries of high empire, the south slope was re-occupied: 35 sites have been dated to the first and second century; the occupation of 17 sites continued, and some of the higher sites were re-occupied (Leveau *et al.* 1992).

Romanisation may not have affected the rural agricultural system which had been in existence from the second Iron Age. Roman influence extended to the foot of St Antonin, along the course of the aquaduct, and this may argue for the integration of people and agricultural systems. It is likely that it was one of several co-existing agricultural systems, where some settlements were sited on unsuitable agricultural land, and some on good land. At the end of the Roman period, only the site of Coquille at St Antonin has evidence of occupation for the third and fourth centuries AD.

In 476 AD, the Roman empire fell, and in 536, Provence was ceded to the Franks. The

abandonment of water circulation controls and the relaxation of careful husbandry measures allowed a massive increase in erosion.

Extant environmental evidence

The Massif and the area surrounding the site of St Antonin itself are both largely calcareous, and lack any obvious pollen traps: there is no pollen sequence from the area.

However, tufa deposits in the area have yielded sedimentological and molluscan sequences which give some indications of the environmental change in the area (Magnin and Thinon 1988, cited in Ballais and Crambes 1992), and geomorphological work has been and is being undertaken which also contributes information on the landscape change in the area (the work currently in progress by Bruneton for example). The geomorphology of the area is complex, although there are detailed accounts (e.g. Ballais and Crambes 1992; Jorda and Provansal 1992), and an understanding of this is central to the interpretation of the land use in the area.

There is a sequence of river terraces, the lowest of which formed during the upper palaeolithic. Above the lowest Holocene terrace travertines formed, indicating the onset of warmer, damper conditions. The uppermost facies of the tufa at the Cascade, St Antonin has been dated to the Dryas period (9440 +/- 220 BP). Woodland or forest growth is suggested by the formation of brown soils, although the presence of the xerophile land snail *Helicella* suggests that the woodland may not have been closed. The massive tufa formation at Le Bouquet began forming during the mesolithic, and stopped forming during the Bronze Age, thus containing a very valuable record of the environmental change in the area. D'Anna has suggested (pers. comm.) that parts of the Bayon river may have been dammed by such formations, thus giving rise to small lakes and marshy areas in the valley bottom. If this was the case, then sequences from parts of the valley bottom may contain fuller biological information.

The end of the Atlantic period and the beginning of the sub-Boreal period marked the end of a time of stability. The rivers eroded the landscape rather than depositing sediment in the area, and there is evidence of solifluxion.

There are several locations in the area of the massif (although not all on the south facing side) where tufa occurs (at St Antonin; and at Vauvenargues where charcoal from level 2 has been dated to 9440 +/- 210 BP or 7490 bc, although the upper levels at the site are likely to date from the later neolithic or chalcolithic) (D'Anna and Courtain 1986).

Methods

The evaluation was composed of the following elements:

1

Initial orientation

with the landscape of the area and with its archaeology through visiting museum collections (such as those held in the Musée Granet in Aix, and in the Musée de la Vieille Charité and Musée

Archéologique in Marseilles) and important sites such as hillforts in the area (e.g. those at Entremont and Ventabren), current excavations of the Greek waterfront in the Place Charles de Gaulle, and the remains of the Greek and Roman harbours in Marseilles. The importance of these visits should not be underplayed as the archaeology and landscape are both of a very different scale to those in Britain.

2

Initial orientation

on the site of St Antonin itself in terms of solid and drift geology and archaeology, of the archaeological contexts; the location of the site within the valley itself; the examination of the Bayon valley bottom beneath the site; and the location of the tufa deposits in the valley.

3

Samples were taken

for testing the effectiveness of the arrangements for on-site riddling, wet sieving, and soil pH and phosphate testing.

By necessity, each of these was simple: the very fine, dry sediment was fairly easy to sieve at the site using garden sieves with a 1 cm mesh; soil samples were brought down from the site so that biological material might be extracted using the washover method (Kenward *et al.* 1980) in the field next to the Mairie. Conditions were not suitable for any large-scale operation. Soil pH and available phosphate were tested for using a basic kit: precise results were not expected, but it was hoped to be able to note any broad differences in the concentrations of these properties to use as a guide to the presence of organic materials.

4 Sediments were described in the field using a standard *pro-forma*.

5 Samples of sediment from several contexts were brought back for a full laboratory analysis of their bioarchaeological potential. Each was described, and then 1 kg 'test' sub-samples were processed following methods outlined by Kenward *et al.* (1980; 1986) and 'squashes' for parasite eggs made following methods of Dainton (1992).

Results

The site within its environment

Several attempts were made to locate areas on the site itself or adjacent to it which would yield sequences containing information of landscape and environmental change covering the period of the occupation of the site. Two areas on the site itself seemed likely to contain a greater depth of deposit, and had greater potential for the preservation of organic material.

1. A doline (polje) (F 7) on the northern rock shelf immediately at the foot of the face of the Mte Ste Victoire, where an incomplete sequence had been established during the previous season (Intervention 4). It was hoped to augment the information by using the auger to map a transect of the deposits in the doline. However, the sediments were very stony, and although several attempts were made, it was not possible to do this. The sequence established seemed to be largely as

follows, and no promisingly organic deposits were identified:

0-2cm Modern turf
2-20cm A dark reddish brown slightly sandy silt
20-25cm A dark reddish grey slightly sandy silt
25-85cm A dark reddish brown slightly sandy silty clay
85-120cm A reddish yellow clay containing small fragments of limestone. pH 7.5+. Probably natural.

2. In the area between the hillfort and the northern rock shelf which is currently not surveyed and referred to as the "entranceway". Again, it was hoped that the natural basin-like characteristics of part of this area might have served as a sediment trap, and thus preserved organic deposits, but the amount of stone in the sediment prevented the auger being used very successfully. A shallow sequence was recorded:

0-30cm A moist, very dark grey (5YR 3/1) soft humic silt, which appears to be ashy. pH 7.5++.
30-40cm A moist, dark reddish brown (5YR 3/3) slightly anhydrous, organic silt which has an uneven boundary with the layer above.
c 40cm Around this depth there is a lot of stone which proved impossible to auger through (at least 6 attempts were made).

3. In the valley bottom. It was hoped to be able to establish the relationship of colluvial and alluvial deposits in the valley bottom immediately below the site, and to determine if these could provide a sequence relevant to the occupation of the site. A series of auger profiles were recorded across the north side of the valley bottom.

BV I

0-35cm A dry, brown (7.5YR 5/4) loose crumbly, very slightly sandy clay silt containing abundant small stones (less than 1 cm in size) and modern roots, and which becomes more compacted from 20-35 cm. A sample at 30-35 cm had a pH of 7.5.

40-50cm A slight colour change to strong brown (7.5YR 5/6), was noted, although the sediment was the same dry loose crumbly, very slightly sandy clay silt containing abundant small stones (less than 1 cm in size) and modern roots. A soil chemistry sample was taken, and had a pH of 7.5.

It was not possible to auger below this depth at this location.

BV2

0-2cm Modern turf
2-40cm A slightly moist, brown (7.5YR 5/4) loose crumbly, very slightly sandy clay silt

containing abundant small stones (less than 1 cm in size) and roots.

It was not possible to auger below this depth at this location.

BV 3

0-20cm A dry, light brown (7.5 YR 6/4), soft, relatively stone-free clay which worked to plastic when wet, and which contained the land snail *Helicella*.

20-95cm A strong brown (7.5YR 5/6) clay, which works to slightly sticky when wet, and which contains charcoal, a little stone and abundant land snails. A sample taken at 20-30 cms had a pH of more than 7.5. At about 55cms, the colour appears to become more orange, although the Munsell colour does not change. A sample taken at 50-55 cm had a pH of 7.

A sample was taken for biological analysis, primarily of any Mollusca, at 60-80 cms. This sample was sieved at Ste Antonin: it contained individuals of several landsnail genera: *Cochlicopa* (6); *Vertigo* (3); *Vallonia* (1); *Ena* (1); *Oxychilus* (1); Limacidae (1 slug plate); *Ceriuella* (1); 1 unidentified. Another sample was taken at 90-95 cms, and this had a pH of greater than 7.5.

85-90cm A strong brown (7.5YR 5/6) clay which becomes slightly sticky when wet, and which contains limestone fragments up to 2cms in size.

It was not possible to auger below this depth.

BV 4

0-30cm A brown (7.5 YR 5/4) soft, very slightly sandy silty clay, which worked plastic when wet, and which contained abundant small, but fairly angular stone, which is mostly limestone.

30-80cm A strong brown (7.5YR 5/6) soft, very slightly sandy clay, which worked plastic when wet, and which at 30-40 cms contained an individual of the land snail genus *Ena*.

50cm A layer of stone or stone fragments through which it was very difficult to auger.

60cm Charcoal was noted at this level.

65cm Occasional flint pebble and other stones were noted.

It was not possible to auger below 80 cm.

Sediment descriptions of excavated contexts

The excavations were focussed on two trenches: Intervention I at the northern end of the interior of the hillfort had been opened up during the previous season, and consisted of a 5m x 35m area which exposed the walls of buildings, and was subdivided into smaller areas across its length. Intervention 7 on the northern rock shelf at the foot of the face of the Mte Ste Victoire was begun this year, and during the season exposed the walls of a building which contained the remains of the large storage vessels (*dolia*). Intervention 8 was a test pit on the ledge below Intervention 1, to the east, and immediately next to a wall made of enormous limestone blocks: a terrace or retaining

wall rather than a rampart.

Intervention I

Sector 3 (the area immediately to the north of the domestic structure encountered in sector 4, and probably an "outside" area, perhaps a yard.

Context 1012 A dry, reddish brown (5YR 5/4) brittle, very slightly stony clay which worked plastic when wet, which contained stones 2-6 mm in size, and which had a pH of 6.5 to 7 and low levels of available phosphate (5-15 mg/l).

Context 1040 A dry, reddish brown (5YR 5/3) brittle, very stony clay which worked plastic when wet, and which contained stones 2-20 mm in size; it had a pH of 7.5, and low levels of available phosphate (5-15mg/l).

Context 1046 (though to be either a drain or perhaps a drip trench). A light to medium reddish brown (5YR 5/4) soft and crumbly, very stony silty clay which contains common modern rootlets and abundant limestone 2-20 mm in size; it had a pH of 7 or slightly less, and low to medium levels of available phosphate (15-50 mg/l).

This sample was sieved to 10 mm to remove the larger stones, and a one kilogramme test sample of sediment was washed to 300 microns, with a further sub-sample being tested for parasite ova.

The test sample contained one charred grain of *Hordeum vulgare* (hulled barley), a weevil, ?beetle larva (2), beetle wings, ???termite, worm capsule, Elateridae larva apex and ?modern ova, ?fungal hyphae, mite, ?chafer beetle trochanter and three landsnails, one probably *Trichia* spp, and two *Cecilioides acicula*, a burrowing species.

Sector 4 (A domestic structure)

Context 1044 A dry, reddish brown (5YR 5/4) brittle, slightly silty clay, which worked plastic when wet, and which contained stone 1-6 mm in size; it had a pH of 7.5 and very low levels of available phosphate (5-15 mg/l).

Context 1050 A dry, reddish brown (5 YR 5/4) soft, very stony, slightly silty clay, which worked plastic when wet, and which contained abundant stone 2-6 mm in size; it had a pH of over 7.5, and medium levels of available phosphate (25-50 mg/l).

Context 1052 (A sediment sample from the inside surface of a dolium). A dry, strong brown (7.5YR 4/4) crumbly stony, slightly silty clay, which worked plastic when wet, and which contained abundant limestone fragments 20-60 mm in size, and common modern roots; it had a pH of 7.5, and low to medium levels of available phosphate (15-50 mg/l).

This sample was sieved to 10mm to remove the larger stones, and a one kilogramme test sample of

the sediment was washed to 300 microns, with a further sub-sample being tested for parasite ova.

It contained very little beyond two elaterid larvae, a beetle and a beetle fragment, and a mite, all likely to be post-depositional contaminants.

Sector 5 (The area to the south of the domestic structure, below the doorway, which consisted of rubble disturbed by burrows (contexts 1004 - 1018 and 1059, 1060 were sampled from the section of a small, deep sondage through the deposits. The others (1043 - 1049) from the disturbed rubble.

Context 1004 A dry, dark reddish brown (5YR 3/3) crumbly slightly gritty clay, which worked plastic when wet, and which contained abundant limestone fragments 20-60 mm, fragments of dolia, charcoal, land snails and modern roots; it had a pH of 7.5, and low levels of available phosphate (5-15 mg/l).

Context 1007 A dry, reddish brown (5YR 4/4) crumbly, gritty clay, which worked plastic when wet, and which contained abundant limestone fragments 2-6mm in size, common 6-20 in size, and present 20-60 in size, and some modern roots and land snails were noted.

Context 1008 (Feature 6, under a field wall) A dry, reddish brown (5YR 4/4) crumbly, gritty clay, which worked plastic when wet, and which contained some limestone fragments 2-20 mm in size, and some modern roots and land snails. This sample had a pH of 7.

It was sieved at St Antonin.

It contained a number of charred pieces of plant material, which included fragments of what are likely to have been the cups of acorns, a seed of the family Boraginaceae, and 1 possible charred cereal grain, and a modern ant and weevil as well as land snails of the following groups: *Cecilioides acicula* (3); *Clausilia* (6); *Cernuella* (2); *Cepaea* (1); *Zonitidae* (4); *Punctum* (2) and 3 unidentified species.

Context 1009 A dry, reddish brown (2.5YR 4/4) crumbly, gritty clay which worked plastic when wet, and which contained abundant limestone fragments 2-20 mm in size, and common fragments 20-60 in size, and some modern roots.

Context 1010 A dry, reddish brown (2.5YR 4/4) crumbly slightly gritty clay, which worked plastic when wet, and which contained common limestone fragments 2-6 mm in size and also greater than 60 cm in size and some modern roots.

Context 1011 (The surface of 1017) A dry, crumbly to soft, very slightly gritty clay, which worked sticky when wet, and which contained common limestone fragments 2-6 mm in size, and abundant stone 6-20 mm in size and some rootlets.

Context 1015 (The surface of 1018) A dry, dark reddish brown (5YR 3/4) crumbly to soft, very slightly gritty clay, which worked sticky when wet, and which contained abundant limestone

fragments 6-20 mm in size and common fragments 20-60 mm in size, and some rootlets.

Context 1016 (The surface of context 1010) A dry, crumbly gritty clay which worked plastic when wet, and which contained abundant limestone fragments 2-6mm in size and some rootlets.

Context 1017 A dry, light reddish brown (5YR 6/3) crumbly to soft, slightly gritty clay, which worked sticky when wet, and which contained abundant limestone fragments 2-20 mm in size and some rootlets.

Context 1018 A dry, yellowish red (5YR 5/8) crumbly to soft, gritty clay, which worked sticky when wet, and which contained limestone fragments 2-20 mm in size and some rootlets.

Context 1043 A dry, very dark brown (10YR 2/2) soft, very slightly humic, slightly silty clay, which worked sticky when wet, and which contained common stones 2-6 mm in size; it had a pH of greater than 7.5, and low levels of available phosphate (5-15 mg/l).

Context 1045 A dry, light reddish brown (5YR 6/4) brittle, very stony clay, which worked sticky when wet, and which contained stones 2-20 mm in size; it had a pH of greater than 7.5 and low levels of available phosphate (5-15 mg/l).

Context 1048 (animal burrow) had a pH of greater than 7.5, and low to medium levels of available phosphate (15-50 mg/l).

Context 1049 A dark reddish brown (5 YR 3/3) brittle, very stony, slightly silty clay, which worked sticky when wet, and which contained stones 2-20 mm in size; it had a pH of greater than 7.5 and low levels of available phosphate (5-15 mg/l).

Context 1052 A dry, yellowish red (5YR 4/6) crumbly, very stony, slightly gritty, silty clay, which worked sticky when wet, and which contained stones 2-20 mm in size; it had a pH of greater than 7.5 and low levels of available phosphate (5-15 mg/l).

Context 1059 A dry, light buff, brittle to crumbly, and working crumbly, silty clay or ash, which was highly calcareous, and which contained stones 2-6 mm in size, and abundant modern roots and some humic matter associated with the roots; it had a pH of 7.5, and low levels of available phosphate (5-15 mg/l).

Context 1060 A dry, light buff, brittle to crumbly, working crumbly, silty clay or ash, which was highly calcareous, and which contained common stones 6-20mm in size and abundant modern roots and some humic matter associated with the roots; it had a pH of 7.5, and low levels of available phosphate (5-15 mg/l).

Intervention 7

Context 1002 A dry, dark brown (7.5 YR 4/2), crumbly, slightly humic, slightly silty clay, which

worked sticky when wet, and which contained common stones 2-6 mm in size; it had a pH of over 7.5, and low levels of available phosphate (5-15 mg/l). Interpreted as topsoil and root mantle 1993.

Context 1003 A dry, brown (7.5YR 5/4) crumbly, slightly silty clay, which worked plastic when wet, and which contained stones 2-6mm in size; it had a pH of 7.5, and low levels of available phosphate (5-15 mg/l). Interpreted as topsoil, under 1002, over the whole of Intervention 7.

Context 1004 A reddish brown (5YR 5/3) brittle, slightly silty clay, which worked plastic when wet, and which contained stones 2-6 mm in size; it had a pH of 7.5, and low levels of available phosphate (5-15 mg/l). In sector A, this was interpreted as a disuse level, under 1003 and also rubble 1005 in the western part of the sector.

Context 1024 A dry, reddish brown (5YR 5/4) crumbly to soft, moderately stony silty clay, which worked sticky when wet, and which contained common stones 2-6 mm in size, some charcoal, and common modern roots. This was the lower of the contexts within the dolium F6 (the dolium wall being 1011, the upper fill 1012, and the lower fill 1024).

This sample was sieved to 10mm to remove the larger stones, and a one kilo test sub-sample of the sediment was washed to 300 microns, and tested for parasite ova.

It contained several charred seeds similar to those of *Vicia ervilia*, invertebrates likely to be post-depositional contaminants (a mite, worm capsule, Hymenoptera sp., modern fly, modern larva/nematode), and individuals of the following land snails groups: *Vertigo* (1); *Cecilioides* (1); *Cernuella* (5); *Clausilia* (2); *Aegopinella pura* type (1); *Ena* type (2); 3 unidentified; and 1 operculum of *Pomatias* type.

Context 1025 (The area within the dolium F7 (upside down) A dry, reddish brown (5YR 5/3) brittle, stony, slightly silty clay, which worked sticky when wet, and which contained common stone 2-20 mm in size, and some stone greater than 60mm in size; it had a pH of 7.5, and low to medium levels of available phosphate (15-50 mg/l). This was the second context allocated (1013, the dolium wall; 1014 the upper fill; 1025 the second fill; 1026 the lowest fill).

Context 1026 (The lowest fill of dolium F7, under 1025) A dry, light reddish brown (5YR 6/4) crumbly, moderately stony clay, which worked plastic when wet, and which contained common stone 2-20 mm in size; it had a pH of 7.5, and low to medium levels of available phosphate (15-50 mg/l).

Intervention 8

Context 1000 Leaf litter.

Context 1001 The sediment of this context was affected by burning to various degrees, and probably as a result of this has three main components:

A moist, dark reddish brown (5YR 3/2), soft and crumbly, fibrous, mostly humic silty clay which had roots running through it and which contained charcoal and land snails.

A reddish grey (5YR 5/2) soft, crumbly, slightly sandy, ashy silty clay, which contained abundant limestone 2-6 mm in size and abundant rootlets.

A black (5YR 2/5) soft, crumbly, slightly sandy, moderately humic silty clay which contained common rootlets.

Context 1002 A dry, dark brown (7.5YR 4.2) crumbly, moderately humic, very stony, slightly sandy, silty clay, which worked plastic when wet, and which contained abundant limestone 2-20 mm in size, 20-60 mm fragments were also noted, and modern roots were also present.

This sample was sieved to 10 mm to remove the larger stones, and a one kilo test sample of the sediment was washed to 300 microns, and tested for parasite ova.

It contained several mites, elaterid larva (4), beetle wings and metanotum, ant (2), fragments of individual of the following groups: Omaliinae, Aleocharinae sp., *Corticaria* sp, Scotylidae, Bibionidae; and a large weevil, all of which are likely to be modern.

Context 1003 A dry, dark brown (7.5 YR 4/2) crumbly, very stony, slightly sandy, silty clay, which worked sticky when wet, and which contained common stones 6-20 mm and stone 20-60 mm in size; it had a pH of over 7.5, and medium to high levels of available phosphate (50 mg/l and above).

Context 1004 A dry, brown (7.5 YR 5/4) crumbly, moderately stony, slightly sandy clay, which worked sticky when wet, and which contained common stone 2-6 mm in size; it had a pH of 7.5, and medium levels of available phosphate (25-50 mg/l).

Context 1005 A dry, light brown (7.5 YR 6/4) crumbly, very stony, slightly sandy clay, which worked plastic when wet, and which contained common stones 2-6 mm in size and abundant stone 20-60 mm in size; it had a pH of 7, and medium levels of available phosphate (25-50 mg/l).

General comments

Most of the sediments examined were silty clays, which contained limestone fragments to varying densities, and had a pH of 7.5 and above and low levels of available phosphate. The feature thought to be a drain or drip trench in Intervention 1 (context 1046) had a lower pH and higher levels of available phosphate; context 1048, thought to be an animal burrow, also had higher than usual phosphate levels; in Intervention 7, contexts 1025 and 1026, associated with the dolia, also had higher levels of phosphate; in Intervention 8, contexts 1003, 1004 and 1005 had the highest levels of available phosphate on the site, probably reflecting their position off the edge of the site and above the rampart. The samples from the site which appeared most likely to contain biological remains proved to contain few, a proportion of which may be best interpreted as modern contaminants, and

no gut parasites. Therefore, at face value, the site appears to have little potential for the recovery of biological remains. However, it was largely only at the end of the season's excavation that contexts were found which might be more likely to have contained such material in the past, and thus it is probably too soon to stop looking for economic and ecological evidence on the site itself.

The auger transect of the valley bottom, even though it was limited, did suggest that evidence which relates to land use change may be preserved there. It is also likely that carefully taken and carefully sited molluscan sequences from might be taken from areas below the site to reconstruct some of the land-use history. It would be very interesting to establish the vegetational or land-use history of the Bayon Valley at this point, and also of the small valley to the north which lies immediately under the ramparts of the site itself. However, this work should be carried out with geomorphologists already working in the area to get the most out of it.

The animal and human bones

A very small assemblage of bone was collected from two seasons of excavation at St Antonin, Provence (Table 1). This consisted of 69 fragments (404.5g) from nine contexts. All were recovered by hand-collection, and, although limited evaluatory dry sieving and flotation were undertaken during the second season, no bone fragments were present in any of the residues.

Preservation of the material overall was poor to very poor with most of the fragments exhibiting very eroded and often pitted surfaces. As a result of the resultant brittle nature of the material much fresh breakage was also noted throughout. There appears to be extensive leaching and decalcification of the mineral component of the bones (although pH averaged 7.5 and above) possibly exacerbated by the aridity of the local environment and the shallow depth of the soils being excavated. Most of the fragments were also very rounded and battered looking, although a few had relatively angular fracture surfaces. No measurable fragments were recovered.

Of the 69 fragments, just under half were identifiable. All but three identifiable fragments were human and represented a range of skeletal elements. These were recovered from four contexts (1062, 1063, 1050 and ?1055) and may represent remnants of disturbed burials. However, it is just as likely, if not more, that these human bones emanate from disturbed late Iron Age domestic contexts, as the keeping of human remains within the household is a feature of the late Iron Age Provençal cultural vocabulary: context 1050 being the disuse level of a floor within a domestic structure in sector 4, contexts 1055, 1062 and 1063 being redisturbed rubble to the south (outside) of the structure in sector 5. All were found in contexts excavated during the 1993 season.

Implications and recommendations

From this preliminary examination it would appear that the likelihood of recovering a large well preserved faunal assemblage, or human skeletal series from St Antonin is slim. The preservational regime appears not to favour good preservation of calcified tissue. However the excavation area from which this small assemblage was recovered is limited, and it is apparent that midden deposits, or rubbish disposal features have not yet been encountered. The disposal of economic refuse may

have occurred around the periphery of the settlement and over the steep slopes at the edge of the settlement, for example. But it is certainly also possible that no obvious location for refuse-rich deposits can be detected (at Lattes, over an extremely large area of excavation, only certain disused structures were the repositories of refuse). It may be that only the cumulative recovery of a series of excavation seasons will begin to build up an idea of the assemblage present. Better preserved assemblages may well exist in or around the settlement, within abandoned buildings or under deep hill-wash deposits at the foot of the hillfort. It is therefore recommended that resources be focused on examining these types of contexts. Should this prove fruitful a systematic program of sieving should be instigated since there are few systematically recovered assemblages of this date from this region.

The presence of human bone from deposits within the settlement requires an explanation: although a cemetery cannot be rejected out of hand, it is unlikely. It may be that we are in the presence of the remnants of excarnated individuals whose remains are associated with ancestor worship, ossuaries or trophy collection, a practice known of in the region during this period, and which may also explain the very poor state of preservation of the bulk of the human material. If excarnation is the reason that the bone is so badly preserved, it may be that animal bone recovered in the future may well be much better preserved.

Soil micromorphology

A thin section of is being prepared to see if there is potential for more of this work.

Recommendations

It is possible, perhaps likely, that charred plant material and bone may be recovered from features at the site in the future, when contexts which might contain domestic rubbish are located. Other classes of biological material, such as insects, may be preserved in particular circumstances, and should these deposits be found would add greatly to the understanding of the site. In spite of the logistical difficulties, site riddling and wet sieving should be carried out.

In order to understand the site within its landscape, biostratigraphical work should be carried out in close conjunction with geomorphologists in the valley below the site, and in the Bayon Valley, and in consultation with the other archaeological teams working in the area. It should be carefully planned and located to maximise the amount of information retrieved.

References

Dainton, M. (1992). A quick, semi-quantitative method for recording nematode gut parasite eggs from archaeological deposits. *Circaea* **9** 58-63.

D'Anna, A. (1992). Le peuplement préhistorique du massif de Sainte-Victoire. *Méditerranée* **1992**, 59-68.

D'Anna, A. and Courtin, J. (1986). Le point de vue du préhistorien: travertins holocènes et sites préhistoriques: exemples dans le Var et les Bouches-du-Rhône. *Méditerranée* **1986** 31-38.

D'Anna, A., Leveau, P., Mocci, F., Muller, A and Ströbel, M. (1992?). Dix mille ans d'occupation du sol dans le massif de Sainte-Victoire.

Ballais, J.-L. and Crambes, A. (1992). Morphogenèse holocène, géosystèmes et anthropisation sur la montagne Sainte-Victoire. *Méditerranée* **1992**, 29-41.

Jorda, M. and Provensal, M. (1992). La montagne Sainte-Victoire. Structure, relief, et morphogenèse antérieure au Postglaciaire. *Méditerranée* **1992**, 17-27.

Kenward, H.K., Engleman, C., Robertson, A., and Large, F. (1986). Rapid scanning of urban archaeological deposits for insect remains. *Circaea* **3** (for 1985) 163-72.

Kenward, H.K., Hall, A.R. and Jones, A.K.G. (1980). A tested set of techniques for the extraction of plant and animal macrofossils from waterlogged archaeological deposits. *Science and Archaeology* **22** 3-15.

Leveau, Ph., Mocci, F., Muller, A. and Ströbel, M. (1992). L'occupation du sol dans le massif de la Sainte-Victoire de l'époque de la Tène à la fin de l'Antiquité. *Méditerranée* **1992** 69-79.

Mills, N.T.W. (1980). *Prehistoric agriculture in southern France - case studies from Provence and Languedoc*. PhD thesis: University of Sheffield.

Table 1. The animal and human bone from St Antonin

Context	Preservation, colour, breakage	Species	Measurable	Unidentifiable	Bone alterations	Weight	Comments
C1049 F.No 3729	Poor, fawn rounded	Pig			Eroded	Id 2g	Pig incisor
C1050 F.No 4210	Fair, fawn, rounded	Human			Fresh breaks, fairly eroded surface	Id 10.5g Un 2g	8 human skull fragments
C1050 F.No 3090	Fair, fawn, rounded	Human			Eroded enamel	Id 1.5	Human molar
C1053 F.No 3807	Fair, fawn, rounded	Pig			Slightly eroded surface	Id 3g	Pig canine (?female)
C1055 F.Nos 3085 + 3086	Poor, ginger, rounded			? Human	Very eroded	Un 5.5	2 possible human metapodial fragments
C1063 F.Nos 4388 + 4394	Poor, fawn, battered	Human			Very eroded, fresh breaks, calciferous deposit on shaft	Id 196g	7 Human femur fragments, all from same bone
C1066 F.No 4087	Poor, variable, brown			23 fragments	100% fresh breaks, eroded surface	Un 20g	Possible some are human cranial fragments
1005	Poor, variable, brown			1 cow-sized shaft	Very eroded	Un 36g	
1013	Poor, variable, brown			1 cow-sized shaft, 1 sheep-sized shaft	Very eroded	Un 23g	
C1062 F.Nos 4208 +	Poor, fawn, battered	Sheep/goat		1 shaft fragment	Very eroded, pitting and channels	Id 16.5	Caprovid metatarsal

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F. No 3744	Poor, brown, battered		1 fragment		Un 3.5	Almost certainly human pelvis fragment
F.No 3740	Poor, fawn, angular		1 sheep-sized shaft fragment	Very eroded surface, fresh breakage.	Un 1g	
F.Nos 3736 + 3739	Poor, brown, angular	Human	1 fragment	Very eroded surface, fresh breakage.	Id 29g	Human humerus shaft fragment, two fragments join
F.No 3737	Poor, fawn, angular		1 fragment	Eroded	Un 1.5	
F.No 3742	Poor, fawn, angular	Human		Eroded, surface pitting, fresh breakage	Id 16g	Human pelvis fragment
F.No 3738	Poor, fawn, angular	Human		Fresh breakage, erosion	Id 2.5	Joins humerus shaft fragment F.No 3736
F.No 3743	Poor, fawn, rounded		1 fragment	Very eroded, fresh breakage	Un 0.5	
F.No 4080	Poor, brown, battered		10 fragments	8 fragments burnt	Un 26.5	8 burnt fragments probably human
F.No 3741	Poor, brown, angular		1 fragment	Fresh breakage, eroded	Un 2g	Possibly part of humerus shaft fragment