Hooper Street charred plant remains

Introduction

The 2nd-4th century Roman cemetery situated east of the City of London included an area of cremations and shallow pits in which remnants of pyres were thought to have been dumped. There were no signs of in-situ burning on the site. Forty seven cremations and the pits were excavated. All were sampled in the hope that charred plant remains from the burnt deposits could throw some light on the type of food, if any, the dead were cremated with and on the relationship between the deposits.

Recovery and processing

The cremations and the spreads associated with the cremations fell into three groups: the cremations found in pots, those placed directly in the ground in cuts and spreads of burnt material. The soil samples from each group varied in size depending on the feature. All of the soil from the pots and the cuts in the ground was used. Most of the soil samples from the pots measured between three and five litres, a few were larger, up to 20l. The samples from the cuts ranged from between 5 to 100l. The spreads were divided horizontally every half to one meter in order to detect any concentration and soil representing 5% to 100% of each division was taken; these samples measured 15 to 300l. The soil samples were processed on site at the time of excavation. A modified `Siraf' tank was used to recover the charred material by flotation; the flots were recovered in 250 sieves.
Twenty two cremations in pots yielded small flots ranging in volume from 1ml to 5ml. Nineteen of the cremations in cuts contained flotations ranging from 18ml to 800ml, most of them measured between 50 and 100ml. The nine shallow pits containing spreads of material thought to be associated with the cremations were thoroughly sampled horizontally as explained above. In the western part of the site contexts 946 and 916 situated near the cremations in pots yielded respectively six (113, 116, 117, 119, 121, 124) and four (96, 107, 108, 109) samples and context 992, one sample (126). Some of their flots were very large, measuring up to 1250 ml, but most of them measured 100-500ml. In the centre, context 521 was divided into four samples (12, 13, 14, 15), context 491 into three (28, 29 and 31) and context 1535 into two (214 and 215). The size of flots was between 30 and 1300ml. The

third group of spreads near the southern end included context 1535 (samples 214 and 215), context 1638 (samples 227 and 230), context 1589 (sample 207) and context 1590 (samples 208, 210 and 216) the flots of which measured between 25 and 1100ml.

Because of the differences in the size of the flots and the unmanageable size of the largest flots, a system of sub-sampling had to be adopted. Most of the smaller flots below 100ml were fully sorted and the sorted material identified. The flots measuring over 100ml had to be divided in a soil sample divider into 50-100ml fractions; some flots were therefore divided three or four times. In order to ensure that all different taxa or types of material were present in a subsample, two subsamples were usually sorted and analysed. The total volume of the larger flots studied therefore measured in the region of 200ml each.

The material was identified using a low power microscope at magnification up to x50. The results of the identification and the details of the size of the material are set out in Tables I to V.

Description of the remains.

The material recovered from the flots belonged to a narrow range of taxa while the number of items varied from context to context. The main taxa or groups of plant food which were frequently recovered are described below. Lens culinaris was the most common seed, appearing in many of the samples. The seeds were often split in two; they were small, similar in size to the small brown lentils found in today's health food shops. Many were noticeably curved on the outside and because of their rounded shape, some could have been confused with Vicia sp. seeds. Their identification was confirmed by A. Butler of the Institute of Archaeology who remarked that the ballooning of the seeds often occurs at high temperatures. She also noted that some lentils were quite hollow inside. This could indicate that they may have been immature which would be consistent with the fact that lentils are often picked slightly immature. The hollow inside might be due to mishandling of the crop; this condition is called "hollow heart" and is mainly known in peas. Another cause for this

feature could have been the conditions under which the lentils had been charred. The way the embryos stick out away from the cotelydon indicates a very fast loss of humidity. Both this factor and the balooning of the seeds would indicate sudden heat stress, such as a sudden exposure to a fairly high temperature. A high temperature for seeds is around or above 300 C; at 400 C lentils are thoroughly carbonised under experimental conditions (A. Butler, pers. com.).
Domesticated lentils are believed to have originated in the Near East or the Mediterranean region and are usually considered an import into Britain. However, they can also be grown in this country in cold green houses (A. Butler pers. com.) or on a light, warm soil (Harrison, 1969). The day length is the crucial factor for their growth and long day length in this country in summer would be an advantage. Whether the lentils from the cremation area were grown here is therefore difficult to prove or disprove. It is possible that lentils were grown in Southern Britain during Roman times and later abandoned. They have a high protein content and are therefore considered as a wholesome nourishing food. Nowadays they are mainly used in stews and soups, but were also roasted with the meat in Roman times. Lentil is also considered to be a very good fodder. There are not many records of their recovery in archaeological deposits in Britain the most important one being the Isca store (Haelbek, 1964). Lentils have been recovered in substantial amounts in London from St Thomas Street, Southwark (Willcox, 1977) and from the Forum (Straker, 1984) where, respectively, 75 and 20 lentils were found. In both cases, the samples were interpreted as having been imported. Other finds of lentils are sporadic and their identification tentative chiefly because of the small numbers involved. These occurences may confirm the idea that lentils came as a weed of crop or that unsuccessful attempts have been made at growing them.

The other common remains of plant food from the samples were also legumes. They have been grouped under the names of Lathyrus/Vicia/Pisum , Vicia faba and sometimes Vicia sp. or Leguminosae indet. The distinction between these groups has been made chiefly on the size and shape of the fragments recovered. While the lentils were mainly whole or halves of seeds, the other legumes were nearly all fragments. The characteristic texture of the charred cotelydons and the testa were recognisable but no hila, attachment points of the seeds, were recovered. The hila are diagnostic and would have allowed to make a more precise identification. The few Vicia sp. recovered were

small rounded seeds. The term Leguminosae indet. applies to fragments and because of their small size and lack of definite shape could have equally belonged to any of the legume species. The category Lathyrus/Vicia/Pisum was chosen to indicate large rounded fragments which could have equally been part of the large rounded seeds of species of any of these genera. The few fragments of seeds tentatively ascribed to Vicia faba were very large fragments reminiscent of the shape of half a broad bean. Broad beans have been recovered from Iron Age sites in Britain. The plant is very hardy and it grows well in Britain although its origin is in the Mediterranean area where it has been cultivated since the Neolithic.

Cereals: Hordeum sativum, barley, was the most common grain recovered in the samples. The preservation of the grains was not very good. The grains were quite small and badly burnt but their angular shape indicated that they were probably the hulled variety. Whether the barley was six-row could not be established as so few grains had been recovered and their preservation was not good enough to see whether the grains were straight or twisted.

A few grains of badly preserved wheat, Triticum sp. were recovered and also one or two glumes. One or two grains of oat, Avena sp. were recovered. In addition many very badly burnt fragments were found. They fall into two categories. First those which can be identified as cereal grain fragments by analogy with badly burnt identifiable grains, they were very vesicular and distorted and have been listed as Cerealia indet. The other group of fragments was more puzzling: the fragments were also very vesicular and some had a clinkery shine about them; although different from the cereal grain fragments they were thought to be fragments of plant material. The possibility of them being edible root fragments was investigated but inconclusive. They were similar to the description of "hair clinker" from Anglo-Saxon cremation urns (Wells, 1960). This theory was refuted (Henderson et al., 1987) and the fragments were reassessed and chemically analysed, and it was suggested that they were a siliceous or vegetable ash, possibly plant fuel ash from dung or straw. The Hooper street fragments are similar to the small fragments on plate (Henderson et al., 1987), although a different colour. They resemble other fragments of plant fuel ash recovered from a midden with an important layer of ash. It is

suspected that such fragments must be frequent in hearths and ash layers but not often accounted for in reports. Now that chemical analysis can be more easily carried out than previously, it might be worth investigating this sort of material routinely.

Other seeds: The number of taxa of other seeds recovered was very small; a few weed seeds of disturbed ground and other Compositae were found mainly in the cremations in cuts (Table II).

Results:

Subsampling: The results from the subsampling were very constant. Both the range of taxa and the number of items per taxa were very similar in the two subsamples analysed from the same sample and the few small discrepancies that occurred did not seem to justify looking at further subsamples.

Composition of the remains:

1. The remains recovered from the cremations in pots (Table I) were very few. However, they were found in very small flots and most belonged to the edible taxa described in the section above. Lentils and barley were found in three out of the thirteen cremations and lentil and barley together were found in two of them: contexts 807 (sample 144) and 1251 (sample 163), the latter also contained a grain of wheat. Cereal fragments were found in all the pots except for one (context 789, sample 143) which included a fragment of a large legume. A few of the fragments of the "plant fuel ash" described above were present in most of the flots. Samples 163 from context 1251 and sample 161 from context 1259 included more items than the others. 2. The remains from the cremations in cuts (Table II), included a few of the taxa characteristic of the site. Lentil was present in six of the thirteen samples (five of the eleven contexts), barley was found in three contexts and cereal grain fragments and/or "plant fuel ash" were found in all of them. However, very few legume fragments other than lentil were found in these samples. Fragments of large legume were recovered in only two samples from this group. On the whole, the fragments of food plants were few. On the other hand these samples included weed seeds such as Rumex sp., docks, Plantago major, plantain and small Gramineae and Cyperaceae

reminiscent of ordinary burnt assemblages from features such as floor surfaces or even hearths and pits where debris are disposed of. Flots from contexts 1170 and 1566 were larger than the others and contained more items because of that. However, the composition of all the flots was very similar.

3. The spreads (Table III-V) were located in groups of three in three locations across the site. One group, contexts 946, 992 and 916, is situated quite close to the cremations in pots at the eastern end of the site, it contains the richest spreads. The second, contexts 521, 491 and 1535, is situated in the middle of the site between the preceding group and the area where most of the cremations in cuts are situated. The third group, contexts 1589, 1590 and 1638 is situated nearest the scatter of cremations in cuts at the south-west end of the site. The samples from the spreads included a very restricted number of taxa of food plants and hardly any weed seeds. The flots were usually large and quite a few items in each were present. Lentils were found in all the samples from all the spreads, the most in the samples from contexts 491 and 521, the least from context 916 and 1589. Wheat was found in all the contexts except for 992 but in only some of the samples in each. Barley was present in 19 of the 26 samples but absent from context 992. The large legume fragments (Vicia/Lathyrus/Pisum sp.) were recovered from 17 of the 26 contexts. Vicia faba was recovered from four of the nine contexts. The cereal fragments and "fuel ash fragments" were present in all the samples. The greater concentration of material was found in spreads 521 and 491 in the centre of the site and in 946 in the eastern side.

Differences between samples in each spread were noted (the relative sizes of the soil samples and the flots have been taken into account when making the comparisons): in context 1535, sample 215 was richer than 214; in context 1590, sample 210 was richer than samples 208 and 216 and in context 1638, sample 230 had more items than sample 227. In context 491, sample 31 was the richest, then sample 29; a concentration of material at the centre of the spread can be seen. In context 521, sample 12 at the extremity of the spread was the poorest and we observe a slight concentration in the centre, samples 14 and 15. In context 946, the concentration is greatest in sample 124, sample 121 in the centre is also rich while the samples on the right of the spread and context 992, sample 126 on the left of it are increasingly poorer near the edge. In context 916, the

greater concentration of material was in sample 109, on the right of the spread, from there the number of items diminishes from sample to sample from right to left.

Discussion:

One of the main questions that we hoped to answer through the study of the charred remains at Hooper Street was whether they confirmed the ideas that the excavators had formed about the burnt deposits. The individual pots were undeniably cremation pots but the question in this case is whether they are associated with the other features. The assumption was that the shallow pit contents were redeposited material from a pyre and that the contents of the small pits or cuts and of the pots might have been scooped out of the pyre or of the redeposited spreads.

From the results above, a number of observations can be made to help examine the hypothesis described above. The conclusions have to be tentative as far as the cremations in pots are concerned as so few remains have been recovered from them but the quantity of soil found in the pots and the size of the flots was so small that any find from them must be treated as more significant than if they had come from large amounts of soil. It seems that the contents of the pots were very similar to the remains from the spreads in that they contained the same restricted number of taxa from food plants. It is therefore possible that the contents of the pots may have been scooped out or picked out of the spreads or from the same place of origin as the spreads. The proximity of the pots to the spreads may argue in favour of the former. The excavators felt that the material from the pots had been picked out, sorted, maybe even washed, before being deposited in the pots. This would explain the small amount of material recovered in the pots which would have simply been the residues adhering to the burnt bones.

The cremations in the cuts included remains which were different from those of the pots and from the spreads because they included other weed seeds commonly found in London from disturbed and wet habitats or even from weeds of agriculture. Although the absence of such weed seeds from the pots may not be surprising because of the small amount of material, it is interesting to note their near complete absence from the spreads. If the cremations in

cuts had been taken from the spreads or from the same place as the spreads, they would have included more of the food plants and the spreads would have contained many more weed seeds.

All the spreads are compatible with the idea that they have been dumped, the point of dumping being possibly where the samples with the greatest concentration of charred material is found, the concentration falling off from that point to the edges of the spread. One exception to this is context 916 where the concentration is greater at one end and falls off in one direction. However, the amount of charcoal and soil is greater in sample 107 (nearer the middle) than in sample 109 (at the edge). It is therefore possible that material was dumped there more than once: one of the dumping episode at the extremity of the spread would have included more food plants.

The very restricted number of plant taxa in the deposits and the absence of the usual weed seeds from the samples except for those found in the cuts is a characteristic of the assemblages. Furthermore, the type of taxa involved, mostly plant food, some of distinctly foreign origin, adds to the special nature of the deposits. It is therefore thought that they represent food placed there with the dead. Whether the plant food may have been part of funeral rituals has been suggested but no evidence for this has been found so far.
The use of lentils and other legumes would be a sensible one to go on a voyage as these seeds are very nutritious and fairly easy to cook and store. The place of the lentils in these contexts is more important than in the usual charred plant remains assemblages from Roman sites. This might be due to the fact that lentils were a relatively rare food in Britain and that a special food was thought to be fit for the dead. Documentary evidence on the diet of the Roman army on the continent show that it is one of the important food for both the military and civilians (Davies, 1971); it could be that if the cremated bodies were people who had come from the Mediterranean area to live and die in Britain, they would have liked to go on their last journey with a familiar food not so readily obtainable in their country of adoption. On the other hand, their presence may also be due to the fact that lentils do not need processing in a fire as some other food plants need to and are therefore recovered in small quantity. However, if it had been common, it would be found in large quantity in stores and in hearths as the result of accidental

fires. It is therefore not possible to be sure whether lentils were used because of their nutritional and long lasting qualities or because they were a rare food in Britain. The use of lentil as fodder is probably not likely in this instance. Cereal grains are part of people's staple diet and would have naturally been included; yet it is interesting to note the relatively small importance of wheat in the samples from this site. Barley is often associated with animal food and may have been intended for the animals cremated with the dead, if any, for company, transport or food. One grape pip suggests that other food plants may have also been present and burnt to ashes but were probably a minor component.

The temperature at which most of the plant remains recovered were burnt is probably not the same as that at which the bodies were cremated. Experiments on charring plant remains have shown that beyond 350 C, extreme distortion takes place, and indeed it is possible that the badly burnt cereal fragments and the plant fuel ash fragments originated from near the centre of the pyre where the temperature would be around 900 C. While it is likely that many other plant remains were burnt to cinders in the hot areas of the pyre, those which were actually recovered must have come from the edges of the fire or have been buried very rapidly under the hot ashes. This would mean that if the remains found in pots were scooped out from the pyre, this was done, not very surprisingly, from the top of the centre of the pyre once it had cooled down. The spreads on the other hand would represent the remnants from the whole of the pyre. The study of the human bone fragments and other artefacts may confirm this observation.

Cremations from cemetery sites have not been systematically floated in the past to recover small bone fragments and charred plant remains. It is hoped that this will become more common. Few of them have yielded charred plant remains so far and none from Roman cremation sites in Britain. Comparisons are therefore so far not possible. In London, it would have been very interesting to compare the Hooper Street charred remains with similar material from Mansell Street, a cemetery nearby excavated shortly before it, as it also included several cremations; unfortunately, it was not possible to obtain flotations from these. It is clear from the material analysed in this report that plant remains can be recovered from cremations and give some idea of the diet provided for the dead. The narrow range of plant food recovered may be a diagnostic feature of such cremations and

associated contexts. This will only be ascertained when similar sites are sampled and processed in the same way as Hooper Street.

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