USE OF PLANTS IN THE EUROPEAN PALAEOLITHIC:
A REVIEW OF THE EVIDENCE

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The varied evidence available for the different uses to which plant materials were put
during the European Palaeolithic is summarised. Actual remains of plants are more
abundant than is generally realised, while the indirect clues provided by tools, human
teeth and artistic depictions help to fill out the picture.

INTRODUCTION

This paper summarises the evidence for the use of wood and other plant materials during
the Palaeolithic of western Europe. It is not intended to be an exhaustive catalogue of
examples, nor does it overlook the obvious fact that use of plants will have varied
enormously through both space and time according to needs and availability. However, we
hope to demonstrate that a surprisingly wide range of direct and indirect clues remain which
can help to assess the role played by these perishable materials in the Palaeolithic.

WOOD

The use of wooden posts in the construction of frames for dwellings (tents or houses) is
well attested for the Palaeolithic (e.g., see Gábori-Csánk, 1976), and structures which seem
to have included wood as a building material have been dated as early as the Lower
Palaeolithic (e.g., Terra Amata, see de Lumley, 1969). Perhaps the best preserved example
of a post-hole comes from the Mousterian site of Combe Grenal, layer G (Bordes 1961)
where a plaster cast of the hole clearly shows that the post must have been a pointed
wooden shaft, possibly one in a row of posts used in the construction of the shelter. It seems
likely that such a wooden framework would have been covered over, and perhaps roofed,
with skins and/or plant material. In those areas where numerous stone tools show the
presence of Man but where there are no signs of shelters, either natural or man-made, it
must be assumed that some artificial shelter was constructed, either of vegetation, or of
skins, stones or earth.

It is certain that scaffolding or ladders were used in some caves, where art work has been
found high up on the walls, far beyond the reach of man: for example, the great polychrome
horse of Labastide, in the Pyrenean Magdalenian (Omnès, 1982). Traces of scaffolding
have been found at Lascaux, where clay-filled holes and ledges in the cave-walls would have
formed suitable supports for beams (Delluc and Delluc, 1979a).

Wood-burning fires, known in Europe and Asia in association with occupation levels
from the ‘Mindel’ glaciation onwards (Terra Amata, Choukoutien) would have provided
heat, light, defence and a means of cooking food (Perlès, 1977; Cohen, 1977). Charcoal has
been found in numerous Palaeolithic sites (e.g., see Leroi-Gourhan et al., 1979), and
anthracological analysis has proved a useful complement to palynology in that it identifies
species which were definitely available to, and used by Man in particular periods.

Smoky wood fires may have been used for the preservation of meat and for the oil-
tanning of hides (Geist, 1978). Fire may also have been used to control animals when
hunting; to burn land deliberately to increase the productivity of plant resources (and thus
to attract animals) (Cohen, 1977); and to fell trees or hollow-out treetrunks.

Charcoal was used for pigments, as has been shown by recent analysis of black paintings
in the Magdalenian Salon Noir of the cave of Niaux (Brunet, 1981). The frequency of
remains recovered from deep caves without signs of fire suggests the use of some form of
portable light source, and this is confirmed by finds of stone ‘lamps’, possibly used to burn
vegetable wicks in animal fat (Delluc and Delluc, 1979b; de Beaune-Romera, 1983), and by
the fragments of wood, probably torches, found in caves such as Basua (Blanc, 1957) and
Niaux (Perlès, 1977). No complete or unburned torches have yet been recovered.

Exposing a wooden tool to fire, to dry out the wood but not to char it, makes the tool
harder and thus more efficient. This technique is used frequently by present-day
hunter–gatherers (Coon, 1972). However, it is difficult to decide whether Palaeolithic tools
were exposed to fire deliberately or by accident. The only Palaeolithic implement which is
recorded as showing signs of deliberate fire-hardening is the Lehringen spear, reportedly
‘well sharpened with stone knives and then hardened in the fire’ (Movius, 1950). Burned
wood has been recovered from Torralba, but it is not certain that a fire-hardened
implement is present (Biberson, 1964). A broken and charred stick found at Krapina,
Moravia, has been identified tentatively as a ‘fire stick’ used in the production of fire by the
friction method, but this too cannot be proved.

Few wooden tools survive from the European Palaeolithic, but comparison with better
preserved African sites, such as Kalambo Falls (e.g., see Fagan and van Noten, 1966), and
with present-day hunter–gatherers indicates that this is undoubtedly the result of poor
preservation rather than lack of use. Two clear examples of wooden spears have been
recovered in Europe: the lower Palaeolithic spearhead from Clacton-on-Sea, Essex, and
the middle Palaeolithic Lehringen spear. Both are made of yew (Oakley et al., 1977).
Biberson (1964) states that there may have been a Palaeolithic spear at Spichemen, Forbach,
but in fact this site is now known to be a natural deposit of Villafranchian age (A. Thévenin,
pers. comm.). Seventy-six substantial wooden fragments and thirty-one casts of wooden
objects have been recovered from Torralba/Ambrona and one of these has been tentatively identified as a spearhead (Biberson, *ibid.*). It was recovered ‘between the bones of elephants’ (as was the Lehringen spear) and has an asymmetrical pointed end.

There are no surviving palaeolithic bows, although there is a report of the destruction of a wooden bow of late Magdalenian date during excavations at Teijat, Dordogne (Coles and Higgs, 1969: p. 240). Two wooden fragments recovered from the Ahrensburgian site of Stellmoor (Rozoy, 1978) have been identified as possible bows, and several of the accompanying pieces of wood, with socketed or bifurcated bases, are probably projectiles or arrows. On some of them there is a clear nock, which gives support to the idea that they were arrow-shafts, while one of the long pieces may be a spear. It seems certain, therefore, that the bow was in use in northern Europe by at least the Epipalaeolithic.

Bone spearthrowers have been found in some Palaeolithic sites, and it is highly probable that there were also wooden specimens, which have vanished. Presumably they were used to launch wooden spears. Discoveries of bone hafts, some still containing stone tools (Jelinek, 1975), and of stone and bone tools with bevelled, split or tanged bases suggest that hafting in wood was common in the Upper Palaeolithic (Bordaz, 1971). Unfortunately, no definite wooden hafts have been preserved, although some well preserved wood ‘specially shaped and used for hafting stone tools’ has been recovered from Königsau, E. Germany (Mania and Toepfer, 1973); in 1894 Worthington Smith reported finding a handaxe at Bedford with ‘the butt end when first found wrapped round with herbaceous stems, probably rushes, as if for protection of the hand’, which unfortunately disintegrated soon after discovery. Some of the flint bladelets from the late Magdalenian site of Duruthy, France, have shown signs of a gum, presumably used to fit the blades into some form of haft (Arambourg and Thibault, 1975).

Digging sticks have been recovered in fairly large numbers from Palaeolithic sites in Africa (Cohen, 1977; Fagan and van Noten, 1966), and it seems quite likely that they were known and used in Europe, presumably to gather vegetable matter. The only European site to have yielded what may be remains of digging sticks is Torralba, where nine pieces of wood, all showing signs of being worked with a stone tool, have been found in the area around the suspected spear. At least one shows signs of being sawn, and the others show a form of polish (Biberson, 1964). Striations in three Aurignacian post-holes at Cueva Morin, N. Spain, have been interpreted as marks made by a digging stick (Freeman and Gonzalez-Echegaray, 1970).

Some of the enigmatic symbols found in Palaeolithic parietal art have been interpreted as wooden animal traps (Lips, 1949), though this idea is impossible to prove, especially as one has no certainty that the ‘traps’ are contemporary with the depictions of animals with which they are ‘associated’.

There is little evidence for other uses of wood. A spherical imprint in sand at Terra Amata, filled with a whitish substance, has been interpreted as the remains of a wooden bowl (de Lumley, 1969). Wooden beads have been recovered from a few sites, such as Gönnersdorf (Brunnacker, 1978), and, together with finds of bone needles, they could be indicative of the use of some form of thread (of animal or vegetable matter).
FIBRES AND FLOWERS

Less evidence exists for the use of non-woody plants: for example, the only surviving Palaeolithic rope comes from Lascaux, but it has not been possible to determine the material used in its construction (Delluc and Delluc, 1979a). Oakley (1962) has suggested that a dried fungus would have been used as a tinder, since fragments of *Fomes fomentarius* have been found in the Mousterian site of Salzgitter-Lebenstedt, Germany.

Pollen grains are generally the best preserved part of a plant, but most of those found in archaeological sites are present through natural causes: they may indicate which species were available, but they tell us nothing of the uses to which they were put. Only where there is a substantial mass of pollen present in an area occupied by man is it plausible that its presence is not accidental. Thus there is a certain amount of evidence suggesting that plants were used as a form of bedding at Tautavel (France, Lower Palaeolithic), at Franchthi (Greece, Upper Palaeolithic), and the Mas d’Azil (France, Azilian) (see Hansen and Renfrew, 1978; Boone and Renault-Miskovsky, 1976). Other examples exist, such as the Magdalenian decorated cave of Fontanet (Ariège), where armfuls of gramineae seem to have been carried in by man (Leroi-Gourhan, 1980). The best example, however, is Lascaux, where pollen was discovered in a dense mass, some having the form of the anther still preserved (Leroi-Gourhan and Girard, 1979). Analysis has shown that they were mainly grasses. The heaps of pollen are found in several levels throughout the Magdalenian phase, especially in the passage where the Magdalenians would have needed to sit down when decorating the walls.

Although a digression outside Europe, it is worth remembering that a Neanderthal grave in Shanidar cave, Iraq, contained pollen traces of eight different types of flower, presumably part of a wreath (Solecki, 1971; Leroi-Gourhan, 1968). The flowers were mainly small, brightly-coloured varieties, possibly woven into the branches of a shrub. Solecki has pointed out that most of the flowers are known to have herbal properties, and are used by the people of the region today. This may be a coincidence, but it is highly probable that the people of the Palaeolithic knew something of these uses, and perhaps others of which we have no knowledge. Some idea of the range of uses to which plants can be put is given in Appendix 2: many of them have been well presented in a fictional Palaeolithic context by Auel (1980, 1983).

ART

To assess the importance of flora from a study of the surviving art is impossible without an understanding of the mind of the artist. The dominant emphasis is upon animals, although there are a few fairly definite representations of plants, while many are open to a variety of interpretations. They may be harpoons, feathers, abstract symbols, or schematised plants. Leroi-Gourhan (1965) has suggested that many of these designs are symbolic of ‘maleness’, while more recently Marshack (1972) has suggested that some should be regarded as stylised seasonal indicators with a floral basis. Of course, some representations of plants may have gone unrecognised in Palaeolithic iconography. A compilation of the most probable depictions, both parietal and portable, is presented in Appendix 1.
TOOLS

Microwear analysis is a relatively new technique for examining the polishes, striations, etc., which remain on a stone tool after its use. There are limits on the tools which can be analysed by present methods, but, given suitable pieces to work from, it is possible to distinguish between six broad categories of polish: wood, bone, hide, meat, antler and non-woody plant. The interpretation of the results obtained by this method can be a great help in understanding the function of the implements. For example, Keeley’s analysis of implements from Clacton and Hoxne has shown that there was a considerable amount of woodworking at both sites, with evidence for the sawing and cutting of wood (Keeley, 1977). Hoxne also gave evidence for the cutting or slicing of a non-woody plant material. Similar results have been obtained from the analysis of other Palaeolithic tools recovered in Europe (e.g., Pant, 1979).

It is not the function of this paper to discuss microwear analysis in any detail. However, the importance of the results is obvious, and the technique may lead to a complete rethinking about the role of certain stone tools. Comparatively little analysis has been carried out using the scanning electron microscope, although Anderson (1980) has, for example, been able to identify a phytolith attached to an area of sickle gloss on a Mousterian scraper from Combe Grenal.

It is unfortunate that the collecting of plant-food does not really require any specialised equipment. Grinding-stones/pestles and mortars have been recovered from a number of Palaeolithic sites (Kraybill, 1977) but their presence need not indicate the grinding of plant food: there is no reason why they may not have been used for the grinding of meat, bones, cartilage or ochre.

FRUITS AND NUTS

Quantities of acorns, nuts and perforated fruit-stones were found in Magdalenian/Azilian contexts by a series of excavators in a number of Pyrenean caves (see Bahn, 1979 and in press a and b); although they were from apparently undisturbed deposits, under stalagmite. Breuil (in Déchelette, 1908) believed that all such finds were attributable to the activity of rodents. Piette (1896b) and others insisted that the perforations had been made by flints, and that there were no teeth marks. Piette also speculated that the fruit-stones had been opened in order to make drinks with the contents, whereas Briguel (1911) argued that the perforated stones made excellent whistles.

Seeds have been found preserved in a number of sites, including the lower Palaeolithic cave of Tautavel. A special mention should be made of the pioneering Frossards who, in 1870, retrieved carbonised raspberry and strawberry seeds from the Magdalenian sediments of the cave of Aurensan (France) by a crude but effective method of flotation (Frossard and Frossard, 1880).

CEREALS

Piette (1896a) several times mentioned a find of a small heap of (what seemed to him to
be) wheat grains in the Azilian layer of the Mas d’Azil (see Bahn, 1973 and in press a and b), and his faith in a Palaeolithic knowledge of cereals was strengthened by several examples of cereal ‘ears’ in Magdalenian portable art. Two of the three reported specimens were never published, and are now lost. The example from Lourdes is well known, but open to a number of interpretations (see Appendix 1; and Schiemann, 1940a).

Claims for Palaeolithic cereals continued to occur sporadically: for example, grains in a ‘Palaeolithic breccia’ in a cave at Engis in Belgium (Doudou, 1904); and Magdalenian grains and grinders mentioned by Baudouin (1932a, b). The best known claims were based on finds of carbonised grains in bird-pellets in a number of Austrian caves, most notably that of Merkenstein (Mühlhofer, 1935, 1940; von Stokar, 1939, 1942; Obermaier, 1939: p. 128) in apparently undisturbed ancient deposits. These claims were vigorously debated, with Schiemann (1940a, b) arguing that the deposits were disturbed and the grains too domesticated to be ancient. At present it is Schiemann’s opinion, that the finds represent intrusive materials from the castle above the cave, which prevails (W. Angeli, pers. comm.).

It was difficult to take such finds seriously for many years. Now, however, the finds of wild oats and barley in levels dated to 10,000 BC at Franchthi cave, Greece (Hansen and Renfrew, 1978) and that of cultivated wheat and barley in the Egyptian Upper Palaeolithic (Wendorf et al., 1979 — but see New Scientist 21/7/83, p. 182) may well invite a more open-minded approach, especially as Couteaux (1977) claims to have found cereal pollen in many French Palaeolithic sites from the Acheulian onwards!

Certainly, in view of the evidence of ‘bedding’ made of gramineae, it is highly probable that Palaeolithic man made abundant use of whatever wild grasses were available to him: In the late Magdalenian of Duruthy (S. France), for example, a great number of backed bladelets display a kind of ‘sickle sheen’ which has led the excavators to a hypothesis of intensive gathering of wild gramineae (Arambourou and Thibault 1975).

HUMAN REMAINS

It is clear from the animal bones at countless sites that meat was a staple diet of Palaeolithic man in Europe (Saffirio, 1975). However, it is likely that, in some periods, plants were also of great importance to man, and indeed may have constituted the bulk of the food consumed, in terms of weight. Lack of preservation prevents a more accurate assessment of the relative contributions to diet of meat and plants, and one must turn to human remains for clues here.

Work on the teeth of Palaeolithic man has revealed features such as scratches and surface wear which may have been caused by plant food in the diet, but which could also have been caused by an occupational use of the teeth (stripping bark, chewing leather, etc.) or by small pieces of bone or grit in the food. Puech has made a study confined to the lingual surfaces of the teeth, as these surfaces are somewhat inaccessible, and hence less likely to bear marks from anything other than food (Puech, 1976). He believes that there was very little plant food in the diet of Neanderthal Man, but that the amount of plant food eaten increased throughout the Palaeolithic. Certainly, in southern France, the teeth of the Magdalenians — even of small children — are very worn (see Bahn, in press). However,
additional experiments and comparative studies are needed to accurately determine the relationship between groove morphology and dietary factors, including the cooking of food (Ryan, 1979).

The study of coprolites, which has proved extremely useful in the New World, has been unsatisfactory in the Old owing to the lack of well preserved specimens. Samples obtained from Terra Amata have been examined (Trevor-Deutsch and Bryant, 1978; Bryant and Williams-Dean, 1978) but there is some doubt about their human origin: Hall (quoted by Trevor-Deutsch and Bryant) states:

‘There is absolutely nothing about these specimens that suggests that they are fossilised excrement’. Four samples from Lazaret were found to contain bone, hair and charcoal, but no plant matter (Callen, 1963).

CONCLUSIONS

It has been shown that there is evidence for the use of wood in the construction of shelters, scaffolding, and in the manufacture of certain tools. Presumably there were many other uses of wood which have left no trace. Differential preservation tends to give the impression that wood was the most commonly-used plant material; but there is a certain amount of evidence for the use of non-woody material for bedding. It is very difficult to determine what was eaten during the Palaeolithic; the amount of plant food in the diet can probably not be estimated with any accuracy. In any case, it will have varied enormously according to environment, season and latitude, as shown by ethnographic studies (Lee and Devore, 1968).

Despite all the problems of preservation, it is clear from the variety of evidence reviewed above that plants of many different types were used throughout the European Palaeolithic for a wide variety of purposes. Ethnography and microwear analysis suggest that many stone tools will have been used in the procurement and working of wood; and in view of the surviving objects in wood, it could be argued that differential preservation has forced us to concentrate on the less important aspects of the period’s technology. In a sense, therefore, the Palaeolithic might more accurately be termed the ‘Palaeoxylic’, or ‘Old Wood Age’.

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APPENDIX 1

A Compilation of Palaeolithic Floral Representations
Identified in Published Works

FRANCE

Grotte du Mas d’Azil, Ariège

1. An engraved piece of bone showing a central spine and side ‘branches’.
   Delcourt-Vlaeminck, 1975, 83, Fig. 32.

2. An engraved and cut bone with a very flat surface.
   Delcourt-Vlaeminck, 1975, 74, Fig. 6.

3. An engraved reindeer antler.
   (1) Chollot-Varagnac, 1980, 132, Fig. 47.023.
   (2) Delcourt-Vlaeminck, 1975, 76, Fig. 9.

4. A carved reindeer antler which shows a head (of a horse?) which appears to have something
   associated with its mouth. It has been described as a horse ‘grazing on foliage’ (Marshack)
   although this is rather difficult to see.
   Marshack, 1972, 73, Fig. 3.

5. This is one of many fragments of engraved shoulder blade. It has been identified as a man in the
   midst of seven stylised reeds or rushes. There may be an animal to the left of the man but this part
   has been broken off.
   (1) Delcourt-Vlaeminck, 1975, 82, Fig. 26.
   (2) Pales, 1970, 86.
   (3) Péquart and Péquart, 1960–63, 152, Fig. 117.

6. An engraving on reindeer antler which shows a tree or plant with its roots. Leroi-Gourhan
   believes that it shows an oval female symbol and a branching male symbol.
   (1) Chollot-Varagnac, 1980, 122, Fig. 46.609.
   (2) Delcourt-Vlaeminck, 1975, 85, Fig. 39.
   (3) Piette, 1896, 410, Fig. 59.

7. Engraved reindeer antler which shows two vertical lines surmounted by a circle and another
   line/branch. This is a doubtful floral representation as it has also been identified as a fish and a
   stylised bird.
   (1) Chollot-Varagnac, 1980, 188, Fig. 47.105.
   (2) Delcourt-Vlaeminck, 1975, 77, Fig. 12.
   (3) Piette, 1904, 47, Fig. 73.
8. A piece of reindeer antler with a rounded, flattened base bearing a rough perforation. There are light grooves on the flat surface, deeper incisions on the edges.
   Delcourt-Vlaeminck, 1975, 72, Fig. 1.

9. Two painted pebbles resembling rushes or reeds.
   Piette, 1896, 31, Fig. 63, 64.

10. Piette believes the engraving to show stylised rushes coming out of water.
    (1) Chollot-Varagnac, 1980, 138, Fig. 47, 742.
    (2) Delcourt-Vlaeminck, 1975, 83, Fig. 27, 28.
    (3) Péquart, 1960, 151, Fig. 116.

Grotte de Niaux, Ariège

11. A wall painting showing the head of a horse and a long barbed sign parallel to the back. There are four other similar barbed signs in this cave. Marshack believes the signs to be representations of plants, but Leroi-Gourhan (1965) believes them to be 'male symbols' associated with the horses.
    (1) Delcourt-Vlaeminck, 1975, 90, Fig. 80.
    (2) Marshack, 1972, 66.

Tuc d'Audoubert, Ariège

12. This parietal painted sign was found on a wall associated with a 'vulva'. It shows a central rib with semi-circles which may represent leaves or branches.
    Marshack, 1972, 324, Fig. 188.

Grotte de la Vache, Ariège

13. A fragment of engraved rib which appears to show a branch or twig separating two horse heads.
    Marshack, 1972, 225, Fig. 113(a).

14. An engraved bone which may be a fragment of a knife although no signs of use have been found. Marshack has examined both sides using a microscope. On one side he has identified a doe, three wavy lines, (water?), three flowering plants, and the head of an ibex. He believes that this side represents 'spring'. On the reverse he has identified the head of a bison with an open mouth (which he believes shows the mating season), four floral representations (branches of conifers?), one plant and three seeds or nuts. He believes that the two sides represent the opposite seasons of spring and autumn.
    (1) Delcourt-Vlaeminck, 1975, 72, Fig. 8.
    (2) Marshack, 1972, 174, Fig. 67.
Abri du Château, Les Eyzies, Dordogne

15. An engraved rib which appears to show schematic people carrying branches over their shoulders near two trees. Two more ‘trees’ are shown above the heads of the people. De Sonneville Bordes (quoted in Delcourt-Vlaeminck) suggests that they may represent either willows or alder.
   (1) Delcourt-Vlaeminck, 1975, 80, Fig. 20.
   (2) Marshack, 1972, 203, Fig. 94(b).

La Madeleine, Dordogne

16. An engraved bone which shows both the head of an animal and a flower in the form of a phallus. Marshack, 1972, 342, Fig. 201(b).

17. An engraved bone baton originally drawn by Breuil who did not reproduce the ‘harpoon’ correctly. Marshack has examined the piece using a microscope and has discovered that the harpoon is more like a twig or a branch. Marshack, 1972, 209, Fig. 97.

Lascaux, Dordogne

18. Two signs found engraved above the head of a horse in a multitude of engravings. They show a central rib and side ‘branches’. Leroi-Gourhan and Allain, 1979, p. 287.

19. A wall painting showing an enigmatic sign close to the head of a bull.
   (1) Delcourt-Vlaeminck, 1975, 89, Fig. 47.
   (2) Marshack, 1972, 223.
   (3) Windels, 1948, 67, Fig. 26.

20. A large wall painting situated near the ‘Chinese Horse’. There appear to be simplified branches above an enormous cow. Marshack, 1972, 211, Fig. 106, p. 223.
21. An engraving found on the wall of a passage which appears to show a long creeper or feather. Windels, 1948, Fig. 5.3.

22. This wall painting has been thought to show a bird-headed man with spear and either a spear thrower or a bird sitting on a stick. However, Marshack has suggested that the 'spear' does not represent any known type of spear or spear thrower. He suggests that this instrument should be interpreted as a branch. Marshack, 1972, 281, 283.

23. A yellow horse known as the 'Chinese Horse' associated with shapes that have been identified as harpoons. The shapes may be floral representations as the harpoon does not appear in this cave until Style 4. However, it is possible that these are either very early harpoon representations or that they have been added at a later date.
   (1) Delcourt-Vlaeminck, 1975, 89, Fig. 48.
   (2) Marshack, 1972, 220, Fig. 105.
   (3) Windels, 1948, 67, Figs 42, 43.

24. A mysterious sign which may be interpreted as a flower very close to the feet of a horse. Both are painted on a wall.
   (1) Delcourt-Vlaeminck, 1975, 88, Fig. 46.
   (2) Marshack, 1972, 220.
   (3) Windels, 1948, 80, Fig. 28.

_Laugerie Basse, Les Eyzies, Dordogne_

25. Schematic design of a central rib with side branches, engraved on bone. Delcourt-Vlaeminck, 1975, 79, Fig. 19.

26. An engraved bone with parallel incisions on either side of a central rib. Delcourt-Vlaeminck, 1975, 79, Fig. 18.

27. This reindeer antler has been described as being decorated to represent bark. If this is true it is very unusual, but it is very difficult to see from the line drawing. Delcourt-Vlaeminck, 1975, 85, Fig. 38.

28. An engraved bone which appears to show the head of an animal and a flower in full bloom.
   (1) Breuil, 1937, 49, Fig. 29, No. 9.
   (2) Marshack, 1972, 175, Fig. 69.

29. Feathers? or plants? engraved on bone. Stylized fish may also be seen. Marshack, 1972, 201, Fig. 93b.
Grotte de Raymonden, Chancelade, Dordogne

30. An engraved bone plaque showing a dead bison with the vertebral column visible. Seven stylized people are shown carrying branches and other lines which may represent twigs or branches appear.
   (1) Delcourt-Vlaeminck, 1975, 81, Fig. 22.
   (2) Marshack, 1972, 207, Fig. 96b.

31. A bone baton which has engravings of animals and fish and schematic plants (or harpoons?). There is also what appears to be a schematized bud or flower.
   (1) Breuil, 1937, 47, Fig. 28.
   (2) Marshack, 1972, 213.

Montgadier, Charente

32. An engraved, pierced baton made from reindeer antler. The original drawing of the baton, made by Breuil, failed to identify all the details which have since been discovered by Marshack using a microscope. Three plant-like objects which Breuil had identified as harpoons are identified by Marshack as some form of aquatic plant, as the barbs appear to go the wrong way to be used as a harpoon and their great length would have made them unsuitable. (a) Marshack has also discovered what looks like a flower bud showing sepals, leaves and petals (b) situated above a large fish and a little shoot or root (c) near to a stylized ibex head. These are not visible to the naked eye.
   (1) Delcourt-Vlaeminck, 1975, 77, Fig. 11.

Grotte du Placard, Charente, France

33. A deeply engraved bone which may show schematic flowers.
   Breuil, 1937, 30, Fig. 21, No. 5.

34. An engraved bone which shows three little stars which may be schematic flowers.
   Delcourt-Vlaeminck, 1975, 84, Fig. 33.

Fontarnaud, Lugasson, Gironde

35. Marshack has examined this engraved bone using a microscope and has identified flowers and lines between the antlers of a reindeer which may represent feathers or branches. However, it is difficult to recognise much from the line drawing which has been published.
   Marshack, 1972, 175, Fig. 68b.

Grotte de Gourdan, Haute-Garonne

36. An engraving on stone which has been described as a wolf bounding above lines which may represent grass.
   Delcourt-Vlaeminck, 1975, 86, Fig. 43.

37. Engraving showing the head of a doe facing a ‘V’ shape which has been identified as some form of foliage or vegetation.
   (1) Chollot-Varagnac, 1980, 350, Fig. 47, 349.
   (2) Delcourt-Vlaeminck, 1975, 84, Fig. 34.
38. An engraved pebble which shows a stalk and two leaves.  
   Delcourt-Vlaeminck, 1975, 86, Fig. 40.

39. An engraving on a pebble showing three or (possibly) four stalks with side ‘branches’ or leaves.  
   (1) Chollot-Varagnac, 1980, 114, Fig. 47, 185.  
   (2) Delcourt-Vlaeminck, 1975, 87, Fig. 45.

40. An engraving on a pebble showing a plant with leaves and a flower at the top, possibly a tulip.  
   (1) Chollot-Varagnac, 1980.  
   (2) Delcourt-Vlaeminck, 1975, 87, Fig. 44.  
   (3) Piette, 1896a, 47, Fig. 72.

Grotte de Marsoula, Haute-Garonne

41. A barbed sign found painted on the wall of the cave. There are other such signs in the same cave. They may represent some plant form, perhaps algae?  
   (1) Delcourt-Vlaeminck, 1975, 91, Fig. 51.  
   (2) Marshack, 1972, 222, Fig. 107a.

42. Bone ‘point’ with unequal grooves on one surface.  
   Delcourt-Vlaeminck, 1975, 72, Fig. 2.

43. An engraving on bone, star shaped, which may represent schematic flowers.  
   Delcourt-Vlaeminck, 1975, 84, Fig. 35.

Grotte de Lortet, Hautes-Pyrénées

44. The engravings on this antler tine have been identified by Marshack using a microscope. By the head of a serpent there appear to be two plant forms. Marshack also identifies some young birds, portrayed in a schematic way. He believes that this piece represents spring.  
   (1) Clot, 1973, 94, Fig. 120.  
   (2) Marshack, 1972, 224, Fig. 109b.

45. An engraved bone which shows a number of animals and some small vertical engravings which suggest grass.  
   Delcourt-Vlaeminck, 1975, 81, Fig. 24.

46. A very clearly engraved piece of mammoth ivory, showing a central line and side ‘branches’.  
   (1) Chollot-Varagnac, 1980, 114, Fig. 48, 196.  
   (2) Clot, 1973, 95.  
   (3) Delcourt-Vlaeminck, 1975, 78, Fig. 13

Lourdes, Hautes-Pyrénées

47. An engraved pebble showing little stars which may be schematic flowers.  
   (1) Clot, 1973, 94, Fig. 124.  
   (2) Delcourt-Vlaeminck, 1975, 86, Fig. 42.  
   (3) Omnès et al., 1980, 66.

48. A sculptured piece of reindeer antler with an unusual cross-section.  
   Delcourt-Vlaeminck, 1975, 74, Fig. 5.
49. Fragment of engraved reindeer antler showing an engraved central line and side ‘branches’. Dr. Hugh McAlister (Pers. Comm., 1981) has suggested that this may represent *Thymus vulgaris*. Delcourt-Vlaeminck, 1975, 73, Fig. 31.


51. A carved piece of reindeer antler, which has been broken.
   (1) Chollot-Varagnac, 1980, 108, Fig. 55, 349.
   (2) Delcourt-Vlaeminck, 1975, 7, Fig. 4.
   (3) Marshack, 1972, 262, Fig. 137a.

52. An engraving on bone, which appears to show branches and leaves.
   (1) Clot, 1973, 94, Fig. 122, No. 2.
   (2) Delcourt-Vlaeminck, 1975, 78, Fig. 14.
   (3) Omnes *et al.*, 1980, 66.

53. Engraving of central line and side ‘branches’ on a piece of bird bone. Delcourt-Vlaeminck, 1975, 83, Fig. 29.

54. A central rounded rib and parallel side ‘branches’ engraved on reindeer antler.
   (1) Clot, 1973, 94, Fig. 122, No. 3.
   (2) Delcourt-Vlaeminck, 1975, 84, Fig. 36.
   (3) Omnes *et al.*, 1980, 66.

55. An engraving on bone which appears to show a central rib with side ‘branches’ along one edge and small circles (fruit?) along the other.
   (1) Delcourt-Vlaeminck, 1975, 88, Fig. 30.
   (2) Omnes *et al.*, 1980, 66.

56. A pebble with a deep engraving of a leaf.
   (1) Clot, 1973, 94, Fig. 122, No. 5.
   (2) Delcourt-Vlaeminck, 1975, 85, Fig. 41.

*La Grotte du Veyrier, Haute-Savoie*

57. A reindeer antler engraved with a stalk bearing juxtaposed leaves. The stalk narrows towards the perforation.
   (1) Breuil, 1937, 68, Fig. 41.
   (2) Breuil and St-Périer, 1927, 103, Fig. 46.
   (3) Delcourt-Vlaeminck, 1975, 75, Fig. 7.

*Grotte de Saint-Marcel, Indre*

58. A bone engraving showing a central rib with juxtaposed ‘branches’.
   Delcourt-Vlaeminck, 1975, 81, Fig. 23.

*Duruthy, Landes*

59. A plant-like engraving.

*L’Abri Durif à Enval, Vic-le-Comte, Puy-de-Dôme*

60. Engraving upon a pebble.
   Pales, 1979, 133, Fig. 32.
Arudy, Pyrénées-Atlantiques

61. An engraving on bone showing the head of an animal and an oval shaped leaf.
   Delcourt-Vlaeminck, 1975, 78, Fig. 16.

Roc de Courbet, Bruniquel, Tarn-et-Garonne

62. A round piece of bone with denticulated edges, divided in two by a schematic plant? A similar piece has been recovered from Mas d’Azil, and a fragment of another from Gourdan.
   (1) Chollot-Varagnac, 1980, 114, Fig. 8.
   (2) Delcourt-Vlaeminck, 1975, 80, Fig. 21.

63. These engravings on bone are not easy to see with the naked eye and Marshack used a microscope to examine them. Graziosi (quoted in Marshack) believes that the ‘trees’ are stylized human forms.
   Marshack, 1972, 201, Fig. 93b.

Grotte du Trilobite, Yonne

64. An engraved reindeer bone which shows a stalk with leaves and a small side branch.
   Delcourt-Vlaeminck, 1975, 79, Fig. 17.

CZECHOSLOVAKIA

Pekarna, Moravia

65. A bone ceremonial/symbolic knife which has been in contact with ochre; one small fish, vegetable forms and perhaps insects or nymphs have been identified. The reverse shows a horse.
   Marshack, 1972, 263, Fig. 136.

66. One side of this bone fragment shows a serpent-like form.
   Marshack, 1972, Fig. 262.

ITALY

Polesini

67. Fragment of bone, engraved on two faces. Examined by microscope.
   Marshack, 1969, 262, Fig. 32.

SPAIN

El Castillo Cave, Santander

68. A black sign painted on a wall near to three red ‘vulvae’.
   (1) Delcourt-Vlaeminck, 1975, 90, Fig. 49.
   (2) Marshack, 1972, 326–327, Fig. 187.
APPENDIX 2

A Compendium of Possible uses of Plant Material During The Palaeolithic Excluding Food and Drink, Obtained from the Ethnographic Record

(1) WOOD

It is fairly difficult to make planks of wood without the use of metal tools — although it is not impossible, planks can be formed by using wedges to split the wood, but the plank produced is rarely even and may need considerable work with an adze-like instrument. Carving, drilling, weaving, plaiting and bending may have proved easier to achieve in the Palaeolithic.

General Uses

* Constructions e.g. dwellings, fences and hurdles, scaffolding, thatching etc.
* Fire making by the friction method.
* Hafting — ethnography suggests the use of timbers such as elm which do not cleave easily.
* Implements e.g. weapons (bows, clubs, spears etc.) utensils (bowls, digging sticks etc.)
  Ladders
* Torches — especially Juniperus sp. which burns with a bright light but little smoke.
  Transport e.g. sledges — not necessarily snow sledges, boats — canoes, coracles etc.
  shoes etc.

Uses of Bark

Bark is used widely for its waterproof properties.
Clothing — as used by Lapps.
Roofing.
Tanning — especially Quercus sp.
Containers — especially Betula sp.

Uses of Branches and Twigs

Brushes — for use in parietal art and for personal use.
* Rope manufacture — especially Betula, Pinus and Salix sp.
  Weaving — baskets, mats etc. — especially Salix sp.

* Indicates a use mentioned in the text.
Uses of Leaves

Containers — especially for food, when they are often cooked to become edible containers.
Dyes — also used for tattooing by California Indians.
* Tinder, when dried.

Uses of Resin/Sap

Binding medium for pigments — as used by Anadaman Islanders.
Glue — may also be used to trap birds, similar to bird lime.
Mastic for hafting — or to form the haft.

(2) NON WOODY PLANTS

Unfortunately, the use of non-woody plant material tends to leave little trace in the archaeological record.

General Uses

* Aesthetics — such as the Shanidar ‘wreath’ of flowers.
* Bedding and seating.
  Clothing.
  Fodder to attract animals.
* Fuel.
* Threads and ropes e.g. bridges.
  nets and traps.
  Scent — Juniperus and Pinus are still widely used for this purpose.
  Thatching and roofing.
  Weaving and basketry.
* Wicks.

(3) LICHENS AND MOSSES

Absorbent pads for use in painting, babies’ nappies etc.
Dye.
* Tinder — especially Fomes fomentarius as recovered from Palaeolithic sites.
* Wicks

(4) POSSIBLE USES OF FIRE

* Animal management — used to both lure and dazzle animals.
* Cooking.
  Cremations.
* Fire hardening of wooden implements.
  Flint working.
* Heat.
* Land clearance — to improve both hunting and plant growth.
* Light — torches, lamps, etc.
* Meat smoking and preserving — especially Juniperus sp. (It is likely that the smoke would also keep insects away.)
* Tree felling.
* Woodworking.
(5) MEDICINES

Many plants have different medicinal uses (e.g. elder will act as a purgative, an ointment for bruises, an eye lotion, fly repellent etc.). Therefore only a few common uses (of common plants) are given below. For further examples consult Mabey, 1977.

Antibiotic e.g. common mould.
Antiseptic e.g. conifer resin, iris root, hollyhock, ash.
Appetiser and laxative e.g. dandelion.
Hallucinogen e.g. datura (chewed by Chukchi), agaric.
Insecticide e.g. horsetail, fern, alder.
Painkiller e.g. willow bark.
Poison — for both men and animals — e.g. yew.
Abortives and contraceptives e.g. mistletoe, ergot, golden thread.

(6) FOOD AND DRINK

The possible uses of plants as food and drink are too numerous to list in detail. It should be remembered that berries, fruits, nuts, tubers, roots, bulbs, seeds, vegetables and greens would all have been available for human consumption. The production of different flavoured drinks, such as herb teas or fruit juices would also have been possible.

It must be assumed that there were some uses of plants that we know nothing about.

REFERENCES


