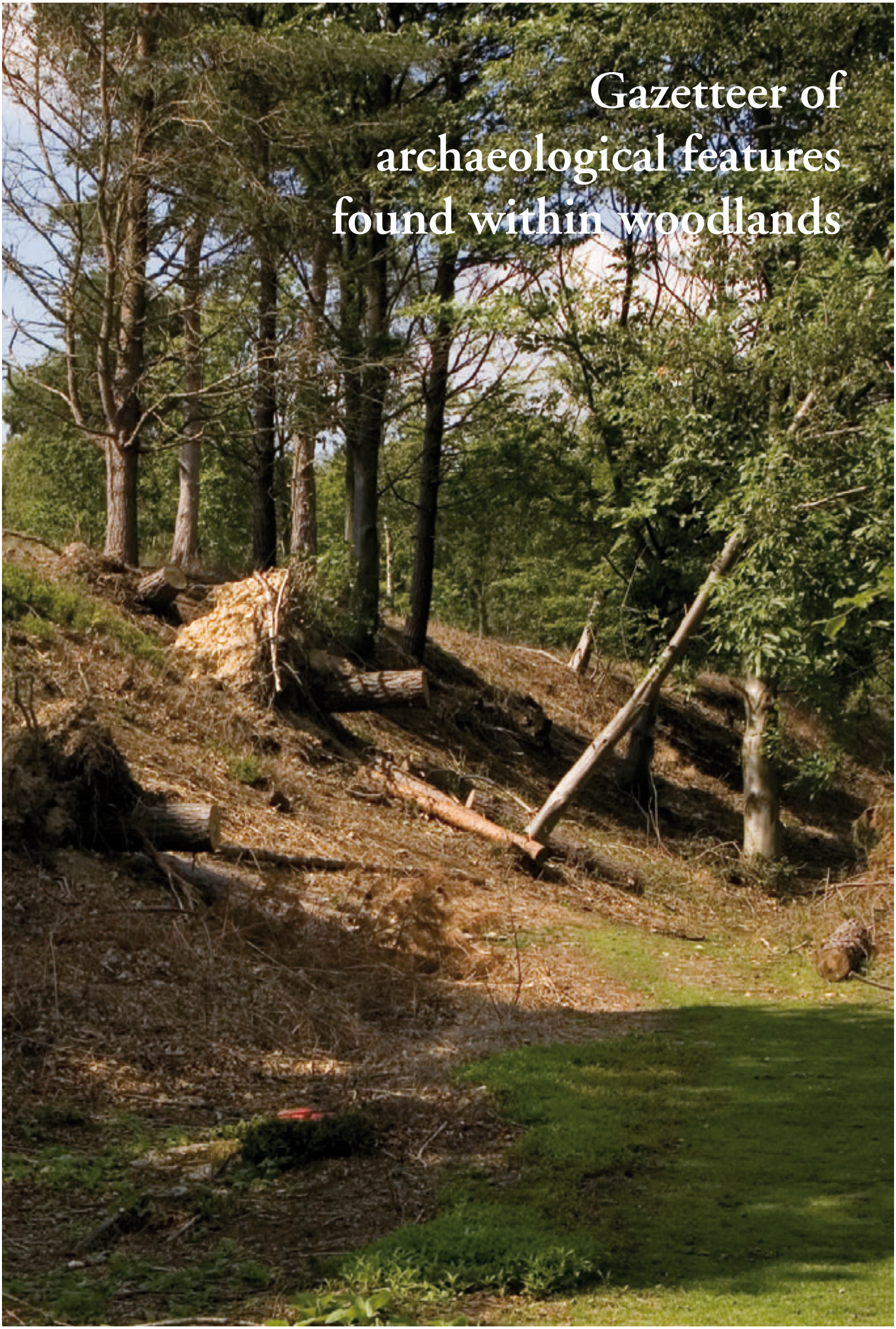
Gazetteer of archaeological features found within woodlands



Ramparts of the Iron Age hill fort at Holmbury Hill in the Surrey Hills (Photo - PM)

Gazetteer of Archaeological Features found within Woodlands

Introduction
The following section gives brief descriptions of the range and type of features likely to be found within woodlands in the South East, and particularly the High Weald, Kent Downs, and Surrey Hills AONBs. Some features may only be found within woodland due to their origin as part of the management of that particular wood. These are termed '*woodland origin*'. When woodlands include areas of secondary encroachment on to other land uses, then the scope and range of archaeological features that can be found is much greater. These are generally termed '*non-woodland origin*' [1].

The following gazetteer is not a definitive list but rather a guide to the most commonly encountered archaeological features already recorded in woodlands. In the future, further survey work is likely to add additional features to this list. The individual descriptions are often a 'rule of thumb' and like most things there are always the exceptions, particularly where, for instance, there has been a complex land use history for a given area of woodland.

Gill woodland at Fairlight Glen near Hastings in the High Weald, known as the 'Dripping Well' (photo - PM)

The Shape and Name of the Wood itself
Before actually looking for individual features within the wood, it is important to look at both the shape of the wood and its relationship with adjacent land use features, its position in the landscape and its name or names. All these can provide clues to its past land use, its origin and what might be found within it.

Woods with irregular and sinuous outline with chunks 'bitten' out of them are remnant woodland remaining from the assarting of fields – that is the creation of fields by the clearance of the woodland, leaving thick woody hedges with a characteristic diverse woodland shrub composition. These woods are likely to be ancient in origin. Names such as 'copse' may also be an indication of continuous woodland management. More regular shaped woods - often square or rectangular with very straight boundaries, sitting within a regular field pattern - may be plantations or fox coverts. Woodland names which include 'plantation' or 'acres' are a strong indication of secondary planted woodland. Other names such as 'rough', 'furze' or 'brake' usually indicate secondary woodland developing on former farmed land or areas of unenclosed common.

A specific form of woodland, which occurs in the High Weald and in more undulating areas of the Low Weald are 'gills'. These are sinuous, narrow strips of woodland often bounding steep, narrow valleys containing streams. In summer these streams can be mere trickles or even partially dry out, but in winter they can become raging torrents, loaded with silts and stones. Gills are important ecological habitats, where the woodland has often been undisturbed for centuries and where the dark, moist environment makes them ideal habitats for shade- and humid-tolerant flora, especially bryophytes.

Archaeological Features Originating from Woodland Management
The study of woodland archaeology recognises the cultural importance of living structures as part of the historic record. Repeated cutting or harvesting of wood from trees prolongs their life and as a consequence some individual specimens can be of considerable antiquity. In many cases, the presence of such veteran trees may be the only indication of how that wood was managed in the past.

Field maple stub near Hucking in the Kent Downs (photo - PM)

Living Structures

Traditionally, archaeology is the study of inanimate objects. However, woodland archaeology includes the recording of and research into living features, namely the trees and woods themselves. These features are discussed in detail below.

Coppice

Coppice stools are created by the repeated cutting of trees to ground level in cycles of between 7 and 25 years. This is termed 'underwood' – the layer beneath the standard timber trees. The cut stem, known as a stool, then responds by producing numerous new shoots, which become the coppice poles for the next 'harvest'. This form of management is probably the earliest method used by humans to exploit woodland. With repeated cutting coppice stools extend in size and some species can reach diameters of several metres. The most common form of traditional management was coppiced underwood with standard trees (full grown trees from a single stem).

Different species of tree were coppiced for different uses; hornbeam for fuel either as faggots or for turning into charcoal; oak for building and the bark stripped for its tannin used in curing animal skins for leather; alder made good charcoal for gun powder and sweet chestnut coppice was used for hop poles. In the 18th and 19th centuries, large areas of traditional oak and hornbeam woods were grubbed and planted to sweet chestnut for the hop growers. After coppice was cut, it had to be protected from browsing by herbivores, so a hedge was 'laid' or a hurdle fence erected on the boundary bank as a form of protection. In some areas, after about seven years from cutting, the fence was thrown down and animals allowed in to graze the ground flora.

Stubs

A 'stub' is produced by cutting a coppice tree at about 1 metre high (3 feet) to form a 'marker' tree. The tree develops a short thick stubby trunk with a multi-branched crown. Lines of stubs running through woodland may mark 'undefined' (i.e. with no defined earthwork) boundaries such as a parish or manor boundary but may also mark changes in ownership between different parts of the same wood. Stubs can also be associated with an earthwork bank.

Pollards

Pollarding of trees took place where animals were grazed on the same land, such as commons giving rise to 'wood-pasture'. The crowns of mature trees were harvested for their timber by regular cutting at a height of between 2 and 3 metres above the ground level. Pollards are larger versions of stubs, identified by significantly thickened trunks and many upwardly curving multi-branched stems forming the crown. The practice of 'pollarding' has all but ceased today, and many pollarded trees are over mature, with extensive decay and loss of branches. However, these trees - usually termed 'veteran'

Historical photograph of a woodsman stripping bark using a metal 'spud' (by kind permission of Hastings Museum and Art Gallery)

Ancient laid hedge on the edge of Admiral's Wood near Bicknor in the Kent Downs (photo - PM)

or 'ancient' - are of immense ecological and cultural significance. Apart from rare examples of former wood-pasture, pollards are most often found on edges of woodland, marking boundaries. But they also occur in areas where secondary scrub and wood has encroached on to a former common or more rarely in an area of wood-pasture. Oak pollards are most frequently found on the clays but beech, chestnut and lime are also found, especially on the chalk and Greensand Hills.

Outgrown Hedgerow Trees
Where a laid hedge once topped a boundary bank around a wood, remains of the hedgerow trees may be identified by the presence of branches with right-angled 'elbows'. These are where the former 'laid' branch or stem has turned through 90 degrees, creating a new upright stem. Oak, hornbeam and beech are common examples.

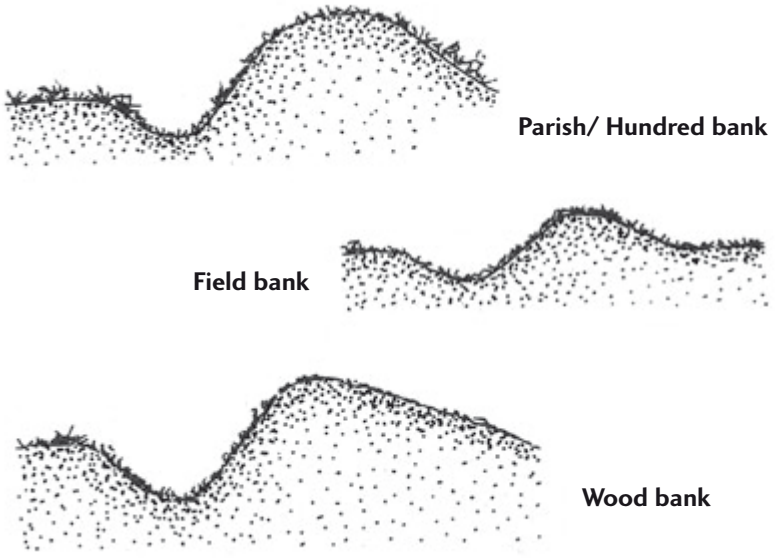
Timber Trees
Trees grown for timber rather than underwood are the other main component of the traditional coppice-with-standards method of managing deciduous woodland. Mature single stemmed trees of oak, beech, or ash will often occur throughout a coppice wood. Those standards grown from a coppice stool will have a swollen base to the trunk where the other coppice stems have been removed. Planted or self sown timber trees will have a regular base. Traditionally, timber trees will have been recruited from the natural self-sown regeneration. However, in the 18th and 19th centuries clear felling of the traditional coppice may have been replaced by new standards being planted and managed as 'high woodland'. A period of intensive harvesting and replanting is often associated with the setting out of drainage ditch networks (see next page).

Shaws – Shaves - Rews
There is some debate about what a shaw is. On the chalk hills, shaws, shaves or rews are identified as narrow strips of woodland dividing up fields. Many show characteristics of an ancient woodland origin, whereas others may be managed encroachment of former fields, sometimes medieval strip fields. Earthwork lynchets are closely associated with these small woodland strips (see page 51). As a general term 'shaw' is also applied to thick woody hedges in the High Weald. However, the term is also given to small areas of woodland planted in the 19th century. This usage is particularly frequent in Sussex. These shaws are usually located next to areas of ancient woodland or to gills. It could be that the original shaws were narrow woods but in the 19th century the name was adopted for small planted woods, in a similar manner as the name for 'gill' was changed to 'ghyll'.

Linear Features
The following section covers both boundaries arising from various origins and also drainage networks.

Boundary Earthworks
The most frequently encountered earthworks in woodlands are linear boundaries. These earthworks can be found bounding the edge of the wood and also running through it, creating subdivisions within the

Figure 2. Generalised profiles of boundary banks (adapted from Bannister, N., 1996, reproduced with the kind permission of Surrey County Council)



woodland. Sometimes the origin of the boundary is clear but in many cases the original function for the division has ceased or been 'lost'.

Wood bank and ditch at Kilndown Wood, near Kilndown in the High Weald (photo - PM)

Wood Banks

Wood bank boundaries are usually accompanied by a ditch, with the latter generally lying on the non-woodland side of the bank. Wood banks bound and define the woodland and can be of varying sizes depending on their historic ownership and former management. A characteristic feature of many wood banks is that the profile of the bank is usually asymmetrical with a long dip slope on the woodland side and a sharper scarp slope into the ditch. These earthworks can vary in size, with banks having a width of not less than 1 metre but sometimes being several metres wide and up to a metre high. Their original size is difficult to determine as erosion and settlement of the soils have taken place over the centuries. The ditch is usually heavily clogged with leaves, silt and debris unless it forms part of a still functioning drainage network. The larger, more sharply defined wood banks often bound woods which were in ecclesiastical or monastic ownership. This is probably because the church owners were richer and were able to afford the manpower to repair and make good the banks on a regular basis.

These earthwork banks are often devoid of ground flora, except for a covering of mosses. However, the presence of moss is not an indication of age, as relatively recent banks under the right environmental conditions can become covered in moss quite quickly. Where clearly obvious wood banks run through woodland, they may mark changes in ownership, or else define the former woodland edge where secondary woodland has encroached onto farmed land.

Rounded Banks

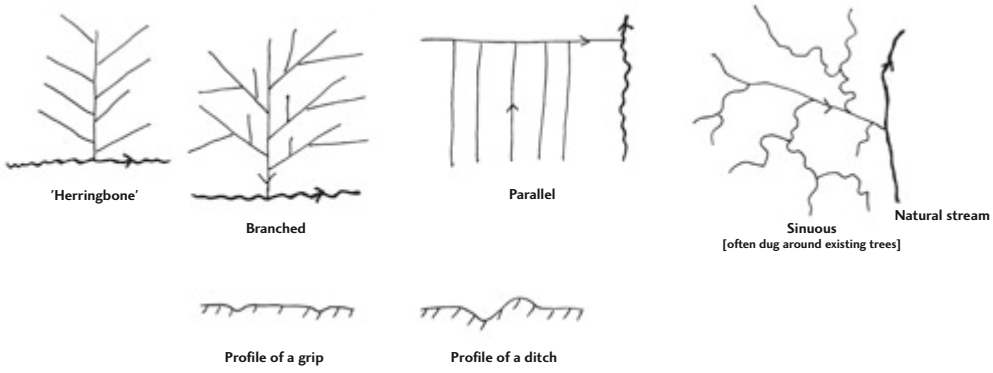
Low (less than 0.25 metres high), and wide (between 2 and 3 metres) rounded banks may also be found in woodland, especially ancient woods. It is not clear what their origin may be – former coppice divisions perhaps, or former ancient field boundaries (see page 50).

Drainage Earthworks

The second most common linear feature of many woods, especially those on clay soils where seasonal waterlogging occurs, are the drainage networks. The layout of these drainage networks can come in several patterns, with ditches of varying sizes, and often they may incorporate existing natural water courses. More often these systems are associated with a period of intense clearance and harvesting, followed by replanting, such as conversion from coppice-with-standards to high plantation woodland.

A parallel ditched system may at first glance look like ridge and furrow. But the ridges are flat and wide and the 'furrows' are clearly narrow ditches. These ditches individually run into a natural stream or a main ditch to a wood bank. A more sophisticated system is the 'herringbone' pattern where in plan, the network looks like the branches of a tree, the straight grips and ditches feeding into a main ditch and thence into a stream (see Figure 3, opposite).

Figure 3. Types of drainage networks (NB)



These regular networks were probably laid out when the wood underwent a period of

Culvert at Strawberry Wood, near Benenden in the High Weald (photo - NB)

intense harvesting either in the 18th or 19th centuries, or, if found in forests belonging to the Forestry Commission, were constructed after the Second World War.

Where there is already a pre-existing natural drainage network of small rills and streams, a smaller herringbone network of grip may feed into the streams. Within a wood there may be several phases of drainage networks. Although cessation in management means that many of these systems appear blocked, they may still continue to contribute to the drainage of the woodland.

Ditches and Drains
Wide, deep ditches with corresponding banks may occur winding their way through woodland or cut through in clear straight lines. An approximate guide is that the more sinuous ditches are possibly older than straighter ditches. Ditches can vary in size from 0.5 to 1 metre wide and the same deep. The banks may not have a clear formed profile, but be more irregular where spoil from cleaning of the ditch has been piled up.

Grips
Ditches which are only a spade's depth and width are often termed 'grips'. They may be straight or sinuous. The straight ones are probably part of an extensive 'herringbone' pattern or may head up a complex drainage system within a wood. Sometimes the grips are very sinuous and it is clear they have been dug around standing trees.

Streams and Gills
Natural streams can be identified by their very sinuous course, with varying depths within a given length. They may even be marked and named on maps. Gill streams can be fierce and fast flowing in winter and gentle trickles in summer.

Access Routeways
Once timber and underwood was cut it had to be taken out of the wood. Access routes can take the form of trackways, sometimes bounded on either side by a bank and ditch. The bank may be a former wood bank topped with outgrown stubbed trees, or the route may be just a faint but sinuous line through the trees. Where the ground is more undulating and the soil liable to erosion, hollow ways can occur. Older routeways are often sinuous, winding through the woodland, whereas later tracks or rides are straight, forming a distinct network which accesses all parts of the wood. Some of these routeways may have a form of hardcore or metalling to the surface to prevent wear and rutting. In the High Weald, slag from iron manufacture was frequently used to metal tracks. Flints were frequently used on the chalk hills. Other features such as saw pits may be associated with access routes (see below).

Culverts
Where a track has to cross a stream or ditch, a small bridge or culvert will take the water beneath the routeway. Culverts may be small simple structures made from brick, or a single pipe, or they may comprise a more complex construction made of stone or a combination of stone and brick. Older culverts may have been rebuilt, with large modern concrete pipes laid in them. Where a stream may become swollen in winter more than one culvert might be constructed to take the flow of water. Associated with culverts and drains are overflow or sump ponds (see Ponds section, page 49).

Mounds & Depressions
Woodlands preserve mounds and depressions, a feature of numerous activities which have taken place. The origins of some of these earthworks may not be very clear but others have distinct characteristics which enable them to be identified.

Saw Pits
The felling of standard trees and turning them into sawn planks produces a considerable amount of 'waste'. It made sense to process the trunks into planks on site, especially where access into and out of the wood was difficult. Thus, the cost of haulage was for the finished product, rather than the whole trunk. Many estates, large landowners and also villages had their own timber yard with a saw pit and its location may be identified by field names such as 'Saw Pit Field'. Pits in yards were permanent structures, often lined with stone or wood, surmounted by a wooden frame and lifting tackle.

Where it was necessary to process timber on site,

Left: Remains of a sawpit at Yellowcoat Wood, near Flimwell in the High Weald (photo - PM)
Right: Reconstruction of a sawpit at Cotehele National Trust property, Cornwall (photo - NB)

temporary saw pits were dug. When standing timber and coppice were purchased or let for felling, the leases may have specified the digging but also the making good of pits for sawing. In reality many pits were not backfilled or if so only in a cursory manner. These saw pits can be found in woods across the South East - dug not only on sandy soils, but also on clay and into chalk. Several pits may be found in one wood, but it is in the chalk hills of the Chilterns that numerous pits, sometimes as many as 30, may be found in a single woodland.

Saw pits are often located on gently sloping ground adjacent to old access tracks leading out of the wood. However, they may also have been dug close to where the standard was to be felled. The spoil from the pit was thrown up in the downslope side of the pit to create a level area on which to construct the frame to hold the trunk. Today these pits survive as shallow, elongated, elliptical depressions (about 3 metres by 1 metre), with the mound about 0.5 metres high. The pit had to be deep enough to take a small man or boy (probably the apprentice) who stood beneath the trunk to push the saw upwards. This is where the term 'under-dog' came from. The 'top-dog' stood on the trunk and pushed the saw down.

Once the tree had been felled and all the canopy branches removed, the trunk was rolled on to the platform, supported by cross poles and fixed into position using iron 'dogs' or hooks. Excavation of a saw pit in Gloucestershire revealed the remains of an iron hook, a pair of metal dividers, sawn oak planks lining the bottom of the pit and covered by a layer of saw dust, a bottle for fortified spirits and a drinking cup [2]. The width of the planks to be sawn were possibly measured using the pair of dividers and the line of the cut may have been marked by a length of taut chalked string. Sawing tree trunks into planks was dry and thirsty work – hence the bottle and drinking cup. The latter artifact dated the Gloucestershire saw pit to the late 18th century. More saw pits need to be excavated professionally in the South East in order to ascertain their age, duration of use, and if any artefacts are associated with them.

Charcoal Hearths

Another woodland industry which can leave traces behind on the woodland floor is charcoal burning. This is a process of turning underwood, usually tree species such as oak, alder, hornbeam, willow, and ash into 'coals' by heating the wood under conditions which limit oxygen, to leave just the pure carbon component of the wood. The round charcoal 'clamp' or 'kiln' was carefully constructed of cut lengths of underwood, covered by turves and soil, and located on an area of circular, levelled

Historical photograph of charcoal burners in the High Weald (by kind permission of Hastings Museum and Art Gallery)

Soil disturbance around an animal earth revealing charcoal remains in a woodland in the High Weald. Further evidence of iron industry activity here is the presence of two pond bays nearby (photo - PM)

ground, called a 'hearth[3] or pit'. It is this latter feature which can be found in woodland today. The hearth is approximately 4 to 5 metres in diameter and where the ground is slightly sloping, a small 'back wall' between 0.25 and 0.5 metres high can survive. The main clue to a site being a charcoal hearth is the presence of dark, nearly black soil beneath the layer of leaf litter covering the site. Pieces of charcoal may also be present, especially around the 'front' or downslope edge, where the coals were loaded into bags or panniers for transport out of the wood.

The whole area around a kiln was kept swept and clean of debris in order to prevent anything catching fire. During a burn, the charcoal burner would have lived on site to tend the kiln. Home would have been a wooden shelter made out of coppiced underwood, perhaps with a thatched roof or a tarpaulin. Evidence for these is very rare.

Ponds

A source of water was important for those working in woods as well as for their draught animals. Ponds of many origins and types can be found in woodlands. Some ponds created from springs or damming small streams. A specific form of 'multi-armed pond' are those which acted as overflow or sump ponds linked to drainage networks. During periods of heavy rain they acted as reservoirs collecting water before it discharged into the ditches beyond the wood, thus preventing flooding onto farmland or adjacent roads. Other ponds may have arisen through the flooding of former extraction pits (see Irregular Ponds section, page 54).

Badger Setts and Rabbit Warrens

Although not a feature of woodland management, but rather the use of woodland by wildlife, extensive areas of mounds and depressions can represent the burrows of badgers, foxes or rabbits, and occur in many woods. Areas of freshly turned soil and bedding material indicate the area being in active use. Badgers and their setts are protected under the Protection of Badgers Act 1992, which makes it illegal to kill, injure or take badgers or to interfere with a badger sett. Interference with a sett includes blocking tunnels or damaging the sett in any way.

Archaeological Features Originating from Non-Woodland Management

Archaeological features which have originated from land use activities other than woodland management are covered in this section. They are most often found in areas of secondary woodland and plantations, but may also be found on ancient sites where other activities took place within the woodland, such as mineral exploitation or military activity. Features from the latter are often difficult to identify or even interpret.

Non-woodland features can be grouped according to their original function: agrarian, settlement, industry, recreation or military, or by their form as below. Earthworks dating from the prehistoric period are often well preserved in woodland compared with

Field bank at Highfield Wood near Wanborough in Surrey (photo - NB)

other landscapes because, despite damage by roots and burrowing animals, woodland management is relatively less damaging and intrusive compared with intensive farming or development.

Living Structures
As with trees managed for their timber and underwood in ancient woodland forming distinct features, so there are trees which have been planted or managed for other uses, but which occur in woodland.

Pollards
Boundary marker pollards which mark parish or manor perambulations can survive within woods and are often associated with an earthern bank (see Administrative Boundaries section, page 51). They are almost identical to pollards managed for timber as part of a grazed wood or common. Pollards on boundaries which have become enveloped in woodland may have been cut by farmers or former manorial tenants as part of the right to 'hedge-bote' – the right to gather underwood for repairing hedges and fences. Boundary pollards may often be recorded on early editions of the Ordnance Survey maps or even on estate maps of the 18th century.

Specimen Trees
Individual specimen trees of both native and non-native origins may be found within woodland. In ancient woodland sites, these trees may have been planted as part of a formal designed landscape or as landscape markers. Where they occur in areas of recent woodland, they again may have been part of a formal planting, which has been allowed to scrub over.

Exotic Plantings
Former nurseries which have been abandoned to woodland may contain groups of exotic species - not only trees but also shrubs. In some cases these have become invasive, such as with rhododendron, causing severe management problems. The planting up of existing woods with non-native specimens reached a peak in the 19th century as part of Victorian 'gentrification' of small country estates and large 'villa' gardens, particularly in Surrey.

Linear Features
Linear earthworks originate from a range of land uses and served a host of functions. Woodland, especially areas of secondary woodland and plantations preserve many linear features arising from a wide variety of origins. A number of such features are described below, however the list is not exhaustive.

Field Boundaries
Where woodland has encroached into areas of former farmland, the hedgerows with their bank and ditch will become fossilised within the woodland. Boundary

Manor, parish, and hundred boundary at Great Ridings Wood in the Surrey Hills (Photo - NB)

banks created to divide up fields tend to have a more rounded or symmetrical profile and are accompanied by a ditch, which is usually silted up. Depending on the length of time the area has been under woodland, there may be well developed vegetation cover with evidence of an outgrown laid hedge. When conditions are shady the shrub component of a hedge dies out leaving only the shade tolerant tree species which grow to join the woodland canopy. The earth banks are usually between 0.75 and 1.5 metres wide and up to 0.75 metres high with a corresponding ditch.

The shape of the fields that the former boundaries enclosed can give a clue to the age and origin of those boundaries. Where the fields are a regular shape with straight boundaries, with few hedgerow shrubs surviving, then these are planned fields laid out perhaps to enclose former open fields or commons. If the fields are irregular and the boundaries sinuous, with a high proportion of woodland trees on them, then these fields were probably originally assarted from woodland, with the boundaries possibly deriving from the remains of

the original woodland. In both cases, the farmed fields were abandoned to pasture, with scrub and secondary woodland then developing.

Administrative Boundaries

A characteristic feature of woodland in the landscape, especially of ancient woodland, is that it is often found at the margins of 'territories' - either parishes, manors, or country estates. There are several reasons for this. Woodland was often left to grow on less productive soils which historically were found at the edges or margins of territories. Woodland was not an intensive land management activity, i.e. woodland did not need daily care and attendance as did live stock, thus it was enclosed at a distance from the main settlement. As a consequence of this woodlands will often preserve boundaries which served an administrative or territorial function. Parish, Hundred, Lathe and Manorial boundaries can often be defined by substantial earth banks and ditches well preserved within woodland, both of ancient and more recent origin. These banks are often large, between 3 and 5 metres wide, and up to 1 metre high. The bank may be bounded on both sides by a ditch. Pollard marker trees may also be found located either on the bank or close by.

Administrative banks can also be confused with park pales. These may comprise a large earth bank with a deep ditch on the non-parkland side. The actual wooden pale is long gone but it would have comprised a split oak fence surmounting the mound. There may also be evidence of 'deer leaps' along the bank; places where deer could get into a park but not jump out again (as for example on the north side of Godmersham Park in Kent, where it abuts Kings Wood - see photo, page 30). The boundary itself will generally be curved and it may be possibly to trace the outline of the park in the adjacent landscape.

Lynchets

Frequently found on sloping ground, especially on the chalk and Greensand Hills, lynchets are the result of cultivation of the adjacent fields. They appear as a 'step' on the slope and can originate in any period. Some are as little as 0.25 metres high with others reaching over 2 metres in height. Lynchets are created by the downslope movement of soil under cultivation. The soil catches and collects against a barrier – a hedge, grass balk, fence or line of stones marking a field division. An accumulation of soil occurs on the upslope side of the obstruction – the positive lynchet.

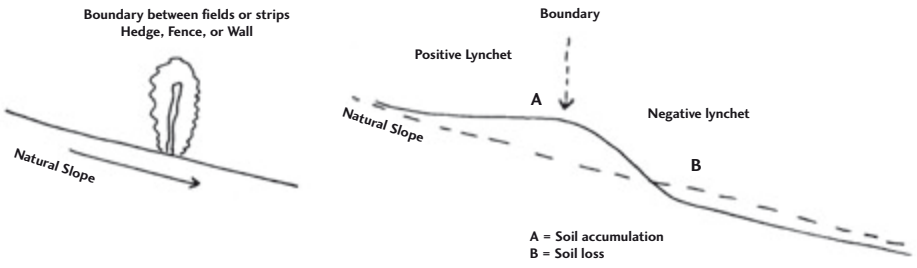
If cultivation takes place on the downslope side of the obstruction, soil creep downslope then creates a negative lynchet. These features are common in secondary woodland covering former fields on the chalk hills. Some shallow lynchets can be identified by lines of flints along their length, the result of former field clearances. Lynchets are a valuable archaeological record of stratified deposits. The process of manuring fields by spreading domestic and farmyard waste on to fields results in fragments of domestic artefacts being introduced into the ploughed soil. Some of these will, with the process of cultivation, be caught in soil deposits in lynchets. The position that they are found within a section or profile can provide evidence as to the age of the lynchet boundary. Similarly palaeo-environmental evidence such as snail shells can provide clues as to what the surrounding vegetation was like when the lynchet was being formed.

Ridge & Furrows

The large, sinuous and wide ridge and furrow earthworks, which are so characteristic of the Midlands, are not encountered in the South East. However, ridge and furrow can occur in woodland created by ploughing of the ground, but for different reasons. Ridge and furrows are created by the process of repeated ploughing of a number of narrow strips, using a fixed mould board, continually in the same direction. By ploughing the same strips the sods are turned in from the resulting furrows. Where it occurs on former commons or heathy ground, now covered by secondary woodland, it may represent a brief period of cultivation of the common before abandonment. Elsewhere, evidence of narrow ridge and furrow is likely to be an indication of a former orchard. Fruit trees were often planted on raised ridges to help the roots become established. There may even be some old fruit trees still growing in the wood.

Confusion may arise between ridge and furrows arising from cultivation, and the wide flattened ridges with narrow ditches formed to aid drainage in new plantations. The relationship of the ridge and furrow with other features such as boundaries and drainage ditches will provide further evidence as to its origin.

Figure 4. Development of a lynchet, formed by the downslope movement of soil as a consequence of cultivation (NB)



Routeways

Woodland preserves former routeways arising from all types of land uses: from the raised agar of a Roman Road to the modern forest rides laid out in plantations. A characteristic feature of routeways in the South East are the numerous sinuous and deep hollow ways. These are generally found on sloping ground, where the combination of passage of feet and hooves over centuries, combined with a soft substrate and water action, have created deep, sometimes sinuous, almost tunnel-like tracks. On the chalk or Greensand the hollow way may be bounded by knarled and ancient yew or beech trees, whereas on the more clayey soils old oak trees may line the route. These hollow ways are of great antiquity, with possible prehistoric origins. They may occur on routes linking the sources of iron ore in the Weald with settlements on the Greensand and chalk hills. The routes in turn were then used as drove ways in the medieval period and today may form important links in the networks of public routeways. By contrast, other trackways may survive as just a break in the trees, or are bounded by earth banks. Modern forest rides are usually wide and straight with ditches on either side. The mound from the ditch will have an irregular profile, the result of mechanical excavation.

Ancient drove way in the High Weald (photo - MJ)

Military Trenches

Many woods in the South East were used for military activities during the Boer War, and the First and Second World Wars. Sites were used for training practice by the home defence, and also the Allied Armies, or for the hiding and storage of ammunitions. In some areas Prisoner of War Camps were erected. Whilst many dugouts, trenches and other earthworks were 'made good' at the end of hostilities, others were abandoned. Field defences in the form of slit trenches and 'fox dugouts' (see page 54) occur on both ancient and secondary woodland sites. Slit trenches may have a characteristic 'W' or 'M' alignment, occurring singly or as part of a larger network. Other large scale earthworks may be anti-tank defences.

Mounds and Depressions

The most common feature found in many woods of all types are undulating mounds and depressions. Many have little form or pattern but some are relatively easy to recognise by their location and character. However, it is important to record all earthworks even if their origin and form is not immediately apparent. Future research or field walking may reveal what they are.

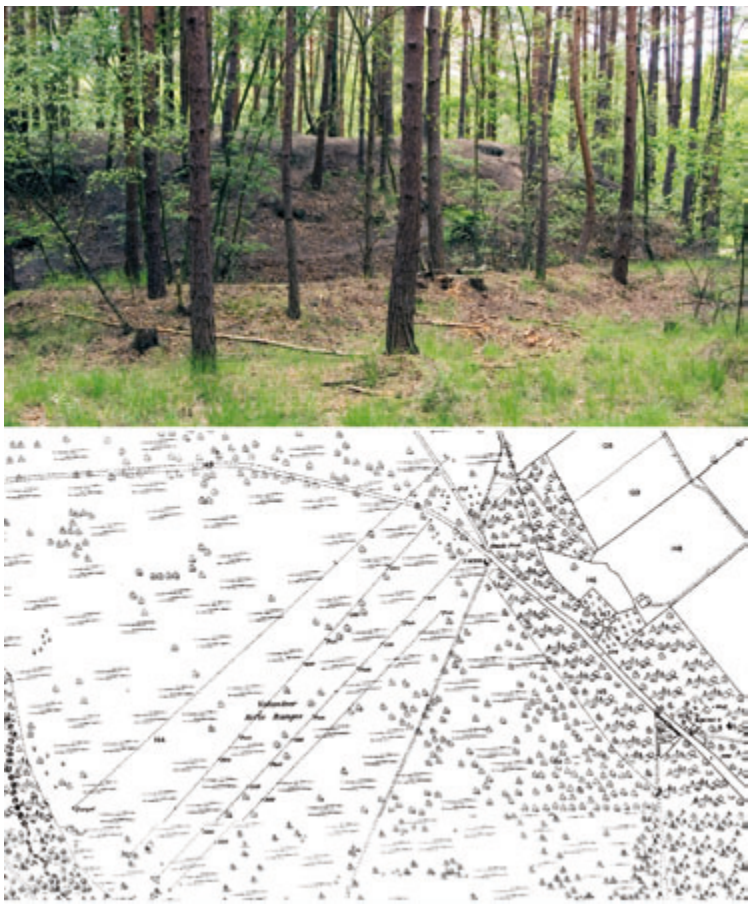
Round Mounds

Single circular mounds, 4 to 6 metres in diameter, may be one of several features - either a Bronze Age (2,000 BC - 600 BC) or Saxon (6th to 7th centuries) burial mound, a tree or prospect mound, or a mound on which a post-mill once stood. Deciding which it may be will be determined by size, location and also archive evidence. Generally most burial mounds are recorded and also statutorily protected. However previously unrecorded ones can still be found, especially in woodland on former heaths and commons. Tree mounds are more variable in size, whilst windmill mounds tend to be larger – 10 metres in diameter. It has been known for burial mounds to be modified to take a post mill.

Prospect mounds are associated with designed landscapes and therefore it is necessary to look at the wider landscape. Tree mounds were used for displaying specimen trees as part of a designed landscape and also to form a landscape feature. The mound also helped the tree roots to become established.

Elliptical Mounds

Burial mounds may also be lozenge shaped - these are the rare long barrows dating from the Neolithic period (4,000 BC – 2,000 BC). As with round barrows, most known long barrows are recorded and scheduled. Long barrows should not be confused with pillow mounds found on the sites of former rabbit warrens. These are long, lozenge shaped earthworks, often occurring in groups, sometimes with a shallow ditch on each long side. The mounds were built as places for rabbits to burrow into where they could be easily caught for their food and fur.



Top: Victorian rifle target at Broadwater Forest in the High Weald (photo - PM). Bottom: The rifle ranges shown on the Ordnance Survey First Edition County Series map for East Sussex (25 inch to the mile, 1869-75). The longest firing distance of 800 yards to the target is accurately mapped.

Other Mounds

Undulating ground or more rectangular mounds, called 'platforms', may be the sites of former buildings. They can be several metres in size and may occur on level or sloping ground. There may be other clues, such as garden plants growing close by, fruit trees or even an outgrown garden hedge. There may also be a water source and a hollow way associated with the platform. Verification from map evidence will be needed to give a date to the feature.

Round Depressions

Circular depressions are another common feature of all types of woodlands. Again, as with round mounds, they can be one of several features. Where circular depressions occur on chalk they may be the tops of deneholes. These were vertical shafts (up to 10 metres or more deep) opening into underground quarries, where chalk or possibly flints were mined. Surrounding the depression may be low mounds of spoil. Deneholes may remain as open holes or more often as sunken depressions 3 to 4 metres in diameter. The sunken depression does not mean that the shaft has been back filled. The usual method was to build a wooden framework to fit in the top of the shaft and cover this with vegetation and soil. Over time the frame begins to rot away causing the ground surface to sink. The frame is then likely to collapse. Therefore, it is very important not to stand in the middle of any depression in woodland until its origin has been verified. If a denehole is suspected, seek professional advice from the Kent Underground Research Group [KURG] (see Useful Contacts section).

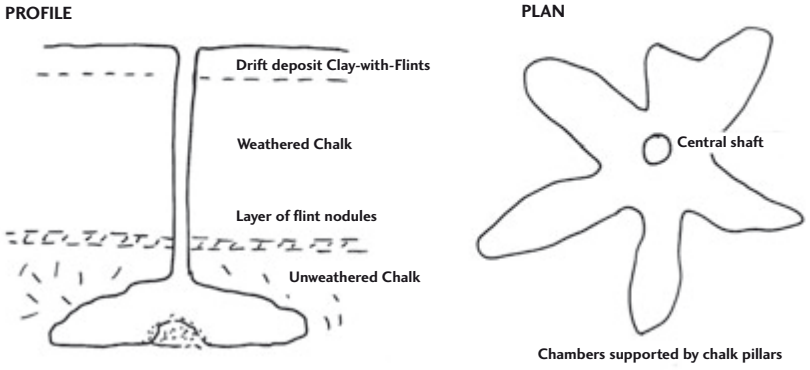
Not all the circular depressions found on the chalk hills are deneholes - they may also be bomb craters, a feature of which is an absence of a mound or ring of spoil around the depression. German fighters returning from a bombing raid over London would often drop the remainder of their lethal load across the countryside, resulting in a line of craters. Many craters in arable fields were backfilled, but those in woods were left.

More rarely, dew ponds may become preserved in woodland, where scrub has encroached on to former pasture and downland. Dew ponds are large, shallow circular depressions made of layers of puddle clay, straw and chalk or more recently of concrete. Fresh water is a scarce commodity on top of the chalk hills and therefore these ponds, with impervious bottoms, were constructed near to drove routes and on former sheep pastures. Unless regularly managed, the roots of invading trees and scrubs will penetrate the 'skin' leading to water loss.

Irregular Mounds and Depressions

Woodlands were often the location for the extraction of minerals and stone used in local industry. Evidence of extraction activity is usually shown by irregular spoil mounds and depressions. Some depressions can be

Figure 5. Diagram of a denehole (after Le Gear 1992) (NB)



quite deep with a clear working face and an access track where the material was hauled out by horse and cart or on skids. What was being quarried depends on the local underlying geology in the vicinity of the wood in question. Stone, iron ore, sand, clay, gravel, chalk and flints are all common raw materials exploited in the South East. In fact the varied, sedimentary geology of the Wealden anticline means that many different industries have operated within the region.

Chalk and Flint Pits
On the Downs, chalk pits and quarries are a frequent feature of woodland and scrub. The chalk was dug as the raw material to burn in kilns into 'quick' lime for mortar and fertilizer. Lime kilns may also be found nearby. In some areas, chalk blocks or 'clunch' were dug for use in constructing buildings. Flint pits tend to be smaller, and more shallow than chalk pits, and follow a seam or deposit of suitable stone. Flint was used both as hard core for roads and also shaped or 'knapped' for facing buildings and walls. Flint knappers also worked in the post-medieval period producing flints for armaments - hence the 'flint stock gun'. Many of the narrow shaws and woods on the Downs have small pits hidden in them.

Iron Mining
Water-filled pits and irregular mounds occur in many woods across the Weald, but are especially associated with outcrops of Wadhurst Clay. Iron ore has been dug in this area since around 600 BC. Often the line of a deposit can be traced along a valley by the location of pits in the numerous shaws or rews. Fragments of the heavy iron rich stone may still be scattered around. A concentration of woodland names, which include 'pit' and 'mine' may provide clues for presence of an exploited seam of iron stone.

By contrast, hidden in the Wealden gills may also be irregular mounds, comprising iron slag, the by-product of extracting the metal from the stone. These mounds are likely to be sites of bloomeries and may be Roman in origin. Later blast furnaces are more commonly associated with the large embanked hammer ponds (see page 55).

Brickworks
Former 18th and 19th century brickworks can often be identified on historic maps. All that often remains of the site complex is the pit with its working face from which the clay was dug and possible the shallow rectangular depression where the pug-mill was located. This was a machine powered by a horse, mule or donkey which turned the paddles that churned or 'pugged' the clay – mixing it with sand and making it suitable for moulding into bricks, tiles and drains. The remains of the kiln and drying sheds are rarely found.

Stone Quarries
Within the various softer deposits of the Wealden Series are bands of harder stone - sandstone and limestone - which were quarried locally for use in buildings. Kentish Rag, Bethersden Marble, Sussex Marble, Horsham Stone, and Reigate Stone are all local names for the limestone or Greensand rocks. Some quarries are large but many found in woods are small and were probably used by the local landowners for the construction and repair of adjacent estate and farm buildings.

Irregular Ponds
Water features are described below. However small, deep irregular ponds are frequently found in or adjacent to woodland especially where there are Weald Clay outcrops. These are probably water-filled extraction pits where marl, a bluey/grey calcareous clay was dug and spread on adjacent arable fields as a form of soil improver. Marl pits could be up to 5 metres deep, depending on the depth of the deposit and the level of the water table. Occasionally there may be spoil mounds associated with them.

Military Fox Dugouts
Dugouts or small machine gun hides are similar in appearance to saw pits. However, their profile is likely to be more sharply defined and the hole less silted,

Former hammer pond at Slaugham in the High Weald (photo - PM)

indicating a more recent origin. Dugouts may survive as an elliptical mound, with a mound on the downslope side, and are often located in an apparently strategic position overlooking the local landscape. The advantage of the position may now be less apparent if mature woodland obscures the view.

Water Features

Some water features, namely flooded extraction pits have already been covered above. The control and management of water, especially in the Weald itself, was an important part of the exploitation of the mineral resource. The numerous, fast flowing streams were often too small to power machinery directly and thus they were embanked and empounded, creating ponds and lakes to provide a suitable head of water to power mills, forges and furnaces. In order to achieve a regular supply through the summer months, penstocks or smaller ponds were created by embanking the gill streams often a mile or more upstream from the operating site. Today, only the breached bay or dam may survive from these smaller pen stocks. By contrast the main pond - more often called a 'hammer pond' after the large hammer used in the forges - may still hold water and survive as part of a tranquil scenic landscape, set within its woodland. This character belies its industrial origin. Many former hammer ponds became mill ponds powering corn and/or fulling mills. Others were used as fish ponds or incorporated into more formal landscapes.

Another water feature sometimes found in woodland is the homestead moat - rectangular ponds sometimes with associated fish ponds and earthworks, which surrounded a homestead and its outbuildings (see, for example, the photo on page 63). These features were mainly created in the 13th century as a status symbol but also gave some defence to the homestead, as well as a regular supply of fish. Most moated sites are today recorded and statutorily protected as scheduled sites.

Natural water courses have been discussed above but lengths of artificial water courses such as leats and canals can also be found surviving intact in woodlands. Leats are usually associated with mills, iron works and sometimes with designed landscapes, bringing water to lakes and ponds.

Ruins and Built Structures

Abandoned industrial, domestic and military sites may still survive as upstanding structures and ruins. The form they take and the extent of preservation depends on their origins, what they were built of, and when they were abandoned. Once a roof is no longer water tight rapid decay begins, until the site remains as just a scatter of building material, some of which may have previously been robbed for use elsewhere. Most structures are post-medieval and therefore there is likely to be some archive evidence to support their presence and original function.

One land use not often recorded is hop pickers' camps. These were temporary accommodation used by the hundreds of families who trekked south from London to help in the fruit and hop harvest in the 19th and 20th centuries. Originally, accommodation was limited to barns and livestock shelters, but a move was made in the 19th century to provide clean, sanitary conditions for the pickers and this was when tin and timber huts with cookhouses and latrines were built. Bricks and later concrete blocks were used to build permanent huts on the larger hop and fruit farms. Many camps were located in or on the edge of woodland, both to provide shelter and to ensure there would be a ready supply of fuel for the cook house. Today, few camps survive, having either rotted away, been demolished, or converted to other uses.

Appendix 2 contains flow diagrams to aid identification of features in woodland.

Footnotes

[1] Darvill, T. (1987) Ancient Monuments in the Countryside: an archaeological management review. English Heritage. p.92
[2] Hendry, G., Bannister, N. R. & Toms, J. (1984) The earthworks of an ancient woodland. Bristol and Avon Archaeology. Vol. 3 pp.47-53
[3] John Evelyn (1664) 'Sylva' or a Discourse of Forest Trees

Former hop pickers' huts restored by the National Trust, Broadham Wood, Scotney Castle estate in the High Weald. The original wallpaper put over the corrugated iron walls can still be found in some of the huts (photo - PM)