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NOTES

DEATH OF OLD BEECH TREES IN THE NEW FOREST

Recent correspondence in the Southern Evening Echo and statements on television have suggested that the large numbers of dead beech trees to be seen in parts of the New Forest have been killed by acid rain, though to our knowledge no concrete evidence in support of this theory has been produced. One of the worst affected areas is the beech-oak wood section of Denny Inclosure, and the neighbouring part of Denny Wood, to the south-east of Lyndhurst. One of us (JGM) has been familiar with this area for nearly forty years, so has been in a position to watch the decline and death of the old trees. If the dead trees are examined, it will be seen that up to three-quarters of the roots have been thoroughly rotted by a white-rotting fungus, the well known honey fungus (*Armillaria mellea*), which fruits on and around the dead and dying trees. The fungus may be found attacking the roots of most ancient and ornamental beech trees throughout the New Forest: most of these trees are around 200–250 years old. Other fungi also occur on the dead and dying trees; the most important of these are *Ganoderma applanatum* and the closely related *G. adspersum*. These species, and some of the other fungi to be found on old beech rot the trunks and branches, but seldom kill the whole tree, in contrast to *Armillaria*. In the drought and heat of the summer of 1976, many old beeches suffered greatly, since the remaining roots were unable to supply enough water to the tree, and in particular the upper parts of the tree, to satisfy its needs. Subsequent death was rather gradual, taking two or three years in most cases, but the starting point was quite clearly the 1976 drought and heat-wave, followed as it was by several years when the summers were quite hot and dry.

In 1954, Southampton University Biology Department laid out a transect 1000m long and 20m wide in the eastern parts of Denny Inclosure and the number of trees in each size class

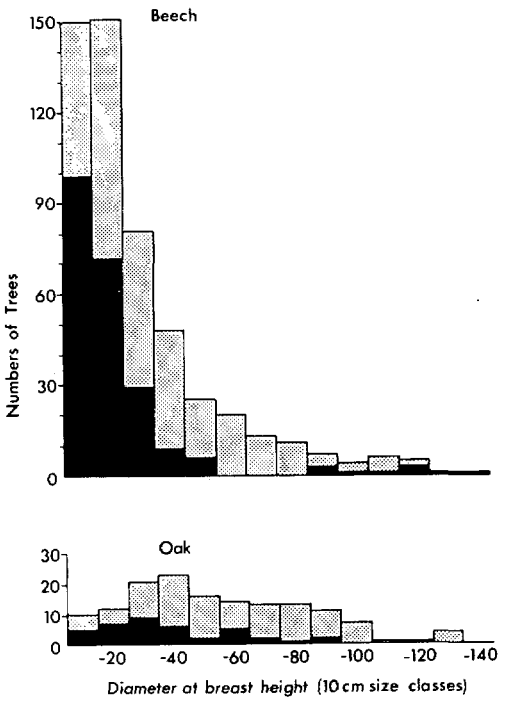

Fig 1. Size distribution (diameter at breast height in 10cm classes) of beech and oak trees on the transect at Denny Inclosure in 1964. The black portions indicate trees which had died by 1984.

was recorded at intervals. It is difficult or virtually impossible to bore large trees to the centre, enabling the investigator to obtain a core in which annual rings may be counted, so size was taken as a guide to age. Fig 1 shows the size distribution of all oak and beech trees (apart from seedlings) on this transect in 1964. It also shows the numbers of trees which had died by 1984 when the transect was resurveyed. There are several features of these results which are worth noticing:

1) In recent years beech has regenerated much more than oak, and most of the smallest trees

are now beech. The probable explanation is that following inclosure of the wood in 1870 the canopy has become closed and now casts a more uniform and deeper shade beneath which oak seedlings cannot become established.

2) A large proportion of the smaller oaks and beeches which were recorded in 1964 had died by 1984. It is usual in woodland that only a small proportion of tree seedlings survive to grow into large trees. Competition for resources, particularly of light, is intense and most of the small trees perish. In this area other factors such as the drought of 1976 and browsing of bark by ponies and deer, were probably also important.

3) Between 1964 and 1984 a substantial proportion of the beeches exceeding 120cm in diameter had died, but there was no death among oaks exceeding 100cm. Roots of beech are much more liable to attack by *Armillaria mellea* than those of oak, probably due to the much higher tannin content of oak wood. If pollution were an important contributory factor, it would not be expected that death would be confined to beech, or within beech, to very old beech.

While no detailed surveys or experiments have been carried out to determine beyond all doubt the cause of the widespread death of large beech trees which has occurred in the New Forest in recent years, all the evidence points to a combination of drought and attack by honey fungus as the principal cause. In a case such as this, it is impossible to prove a negative, and the possibility of pollution being involved as a contributory factor cannot be ruled out, but we know of no definite evidence for its involvement.

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LATER UPPER PALAEOLITHIC FLINT TOOLS FROM BROOM HILL, HAMPSHIRE

Broom Hill (SU 384 260) is located in the parish of Braishfield and is situated 1.2km northeast of the village of Braishfield, Hampshire. Temporally diagnostic lithic and ceramic finds recovered by both excavation and fieldwalking from the site range in an unbroken sequence from the Upper Palaeolithic to the end of the Roman period (cf Boismier 1982). The purpose of this note is to describe briefly three Later Palaeolithic flint tools collected from the surface of the site by a local amateur in 1970. These tools comprise two shouldered points and a denticulated blade (Fig 2).

Raw material and condition

All three pieces were manufactured from flint and exhibit an identical type of patina. In colour this patina ranges from a light grey to white and covers both sides of a piece. Minor post-depositional edge damage is present on the denticulated blade and one of the shouldered points (no 1), with the other shouldered point (no 2) exhibiting considerable post-depositional edge damage.

Shouldered points

Both pieces are characteristic 'type fossils' of the Later Upper Palaeolithic (Campbell 1977). Piece no 1 is plano-triangular in transverse section and plano-convex in longitudinal section. It measures 55mm in length and 20mm in width at the shoulder. Convex marginal retouch occurs along both lateral edges with concave retouch forming the shoulder. Typologically this piece corresponds to Campbell's type AE7 (1977, 5, 151 Fig 1). Piece no 2 is plano-trapezodial in transverse section and plano-convex in longtudinal section. It measures 58mm in length and 18mm in width at the shoulder. The edges of this piece are highly damaged with retouch surviving along the point and part of both lateral edges. Inverse retouch