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A NEOLITHIC FLINT ASSEMBLAGE AND ASSOCIATED PALYNOLOGICAL SEQUENCE AT GATCOMBE, ISLE OF WIGHT

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THE SITE

Gatcombe Withy Bed is situated in the River Medina Valley two miles south of Newport, adjacent to the area of Blackwater Mill and Whitecroft Hospital (SZ 502858). The peats and sediments occurring here were chosen for detailed pollen and stratigraphical analyses in 1974 and subsequently found to show the complete Flandrian vegetational sequence.

In addition to pollen diagrams spanning the whole period, a detailed close-sampled analysis was undertaken to elucidate the events taking place in the Neolithic period. In order to do this the elm decline horizon was located in the peat stratigraphy and contiguous 2 mm samples were pollen analysed. A degree of resolution not usually found in pollen diagrams was thus obtained and has proved of interest in relation to archaeological material obtained from within 100 metres of the mire. It is a selection of struck flints which is discussed here; and a brief account is also given of the phases of human activity distinguished in the pollen record. Pollen diagrams and a full palaeoecological discussion will be published at a later date (R.G.S.).

THE FLINT ASSEMBLAGE FROM GATCOMBE WEST

This material was gathered by fieldwalking immediately west of the palaeoecological site at Gatcombe peat bog. The material was obtained between 1975 and 1978 and comprises a total of 288 struck flints. The material was exposed by ploughing in a field centred at SZ 501860 which descends from a gravel terrace to the edge of the bog. Most of the material was obtained from above the Lower Greensand at the edge of the gravel terrace. The site name, Gatcombe West, serves to distinguish this material from a larger assemblage recovered from the Lower Greensand ridge immediately east of the bog and which will be the subject of a later report.

The material may be summarised as follows:

Cores	28
Core rejuvenation flakes	7
Hammerstones	5
Hammerstone spalls	3
End scrapers	56
Side scrapers	20
Hollow scrapers	8
Notched flakes	16
Denticulate flakes	3
Piercers	7
Awls	1
Burins	1
Steeped end scrapers	7
Fabricators	2
Utilized flakes	20
Axes and adzes	2
Sickles	1
Waste	104
Push plane	1
Total	292

Cores (Fig. 2. 1–6)

Twenty-eight cores were recovered, of which two were indeterminate. Seven types were distinguished, of which two proved to be dominant: single platform cores used all the way round and bi-polar cores with parallel platforms. Five of the latter cores are columnar in shape and have been used for the production of long blades of Mesolithic character.

Core rejuvenation flakes (Fig. 2. 7)

These were divided equally between those showing slicing of the core from top to bottom and those struck obliquely. Two examples may belong to microlithic cores.

Hammerstones

These were largely non-cortical and the small ones may have been utilized cores. Weights were: 0.030 kg, 0.055 kg, 0.100 kg, 0.105 kg, 0.145 kg. Three spalls from ovoid hammerstones were also observed.

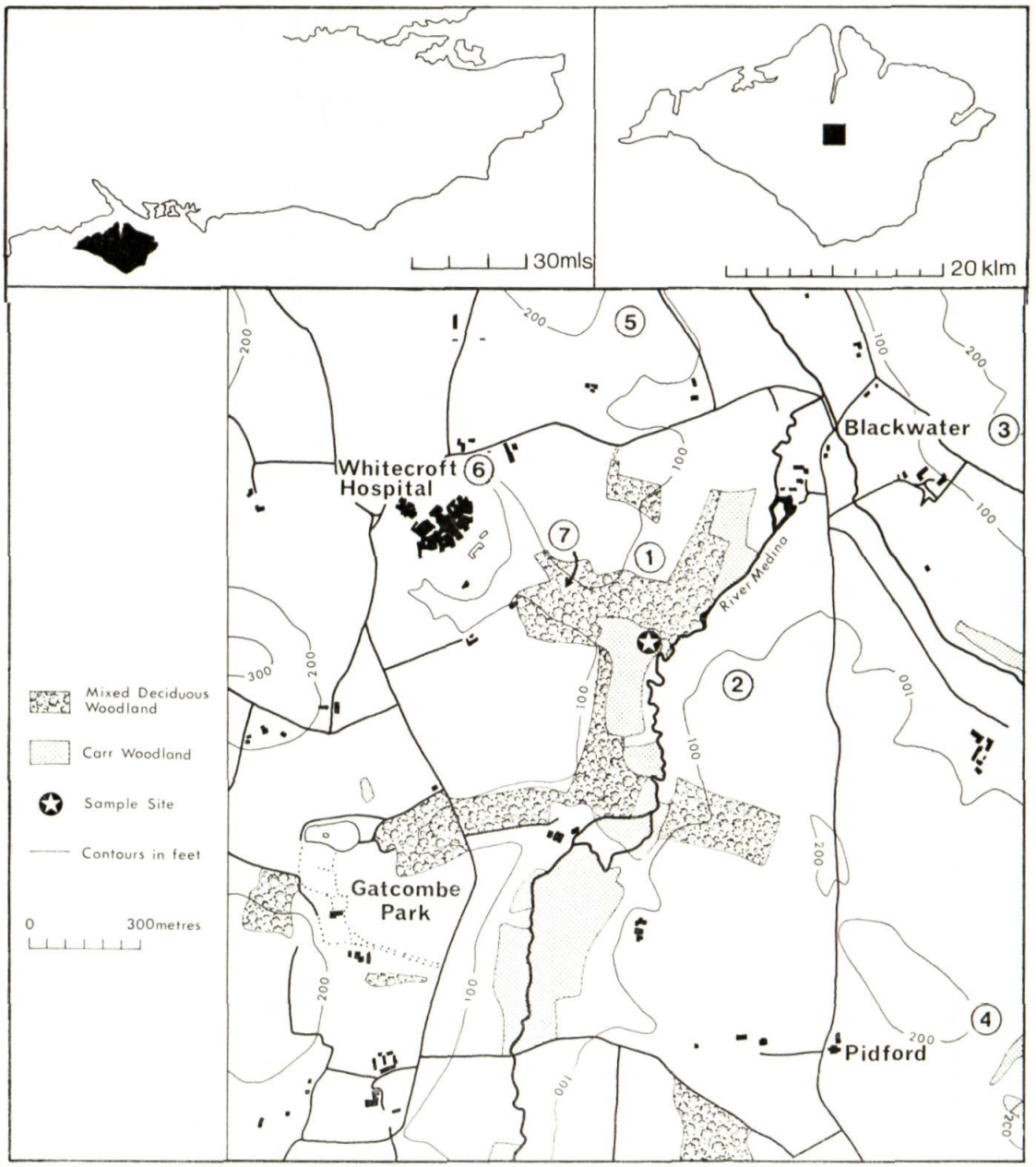

Fig. 1. The location of the Gatcombe Peat Bog and adjacent flint assemblages. 1. Gatcombe West (present paper), 2. Gatcombe East, 3. Lower St Georges Down, 4. Rookley, 5. Marvel Lane, 6. Whitecroft, 7. Hungry Hill.

End scrapers (Fig. 2. 8)

Length/breadth measurements (Bohmers and Wouters 1956; Smith 1965) carried out on the assemblage showed pronounced preferences for scrapers with lengths between 30 and 40 mm. Preferred breadth lay between 20–30 mm. A single double-ended scraper comprised a substantial keeled flake with retouch applied from opposed sides at each end. This is a multi-purpose tool retouched also as a side scraper.

Side scrapers (Fig. 2. 9)

These showed a preferred length ranging widely between 30 and 50 mm. The preferred width ranged from 10–30 mm. The side scrapers are largely cortical, and two examples show short lengths of unifacial retouch applied from opposite sides of the tool.

Hollow scrapers (Fig. 2. 10, 11)

Six of the eight examples are worked on substantial flakes and two are utilized cores. The hollow scrapers have been distinguished from notched flakes by the width of the retouched hollows which range from 11 to 22 mm (notched flakes have nominally been classified as those with hollows or notches less than 10 mm wide). Two flakes have twin hollows and one has a doubtful burin facet and may have served as a graver. The hollows on the utilized cores show a steep retouch and it is possible that these two pieces were used for a purpose other than the spokeshave function generally presumed for these scrapers.

Notched flakes (Fig. 2. 12–15)

Ten flakes display single notches up to 10 mm wide. In all examples the notch is accompanied by a retouching on an opposite or adjacent edge of the flake.

Five flakes display two notches and in four others further retouch also occurs. One example is a bifacially worked multiple tool combining two notches, hollow scraper and side scraper. The side scraper edge shows a small area of gloss.

Two further flakes appear to be fine, end scrapers with opposed notches showing an attempt at strangulation.

Denticulate flakes or saws (Fig. 2. 25–6)

Two examples show denticulate notches prepared on blunted back flakes. The finer of the two examples shows alternately struck notches. A third example is a thin prismatic blade combining the functions of denticulate saw and hollow-ended scraper.

Piercers (Fig. 2. 16–18)

Eight examples of piercers were recovered. Seven are unifacially worked and three have a hooked or beaked appearance produced by the convergence of concave and convex retouched edges. One example is worked on the opposite end of a steeped end scraper and may have been intended as a tang for hafting. Two piercers have dual purpose tools prepared on short end scrapers. Each has a single denticulate spur produced by the convergence of two closely punched notches.

Awls (Fig. 2. 19)

A single specimen of poor-quality flint shows retouch applied from opposed faces to produce a small awl.

Burin (Fig. 2. 20)

An end scraper from the site has a retouched beak, apparently produced by two uncertain burin facets.

Steeped end scrapers (Fig. 2. 21)

Seven examples were distinguished from the end scrapers by their steep retouched edges. Multiple blind percussion fractures in the working edge of four of these tools suggest that they may have been used in the fabrication process of applying retouch to other implements.

Fabricators (Fig. 2. 22–3)

Two examples were recovered showing multiple blind percussion fractures or bruising at one or both ends of long heavy triangular-sectioned flakes. The single ended example is also notched on one edge.

Axes, adzes and axe fragments (Fig. 2. 4 and Fig. 3. 28)

There is an element of absurdity in attempts to quantify flint axes (Tyler 1976, 2).

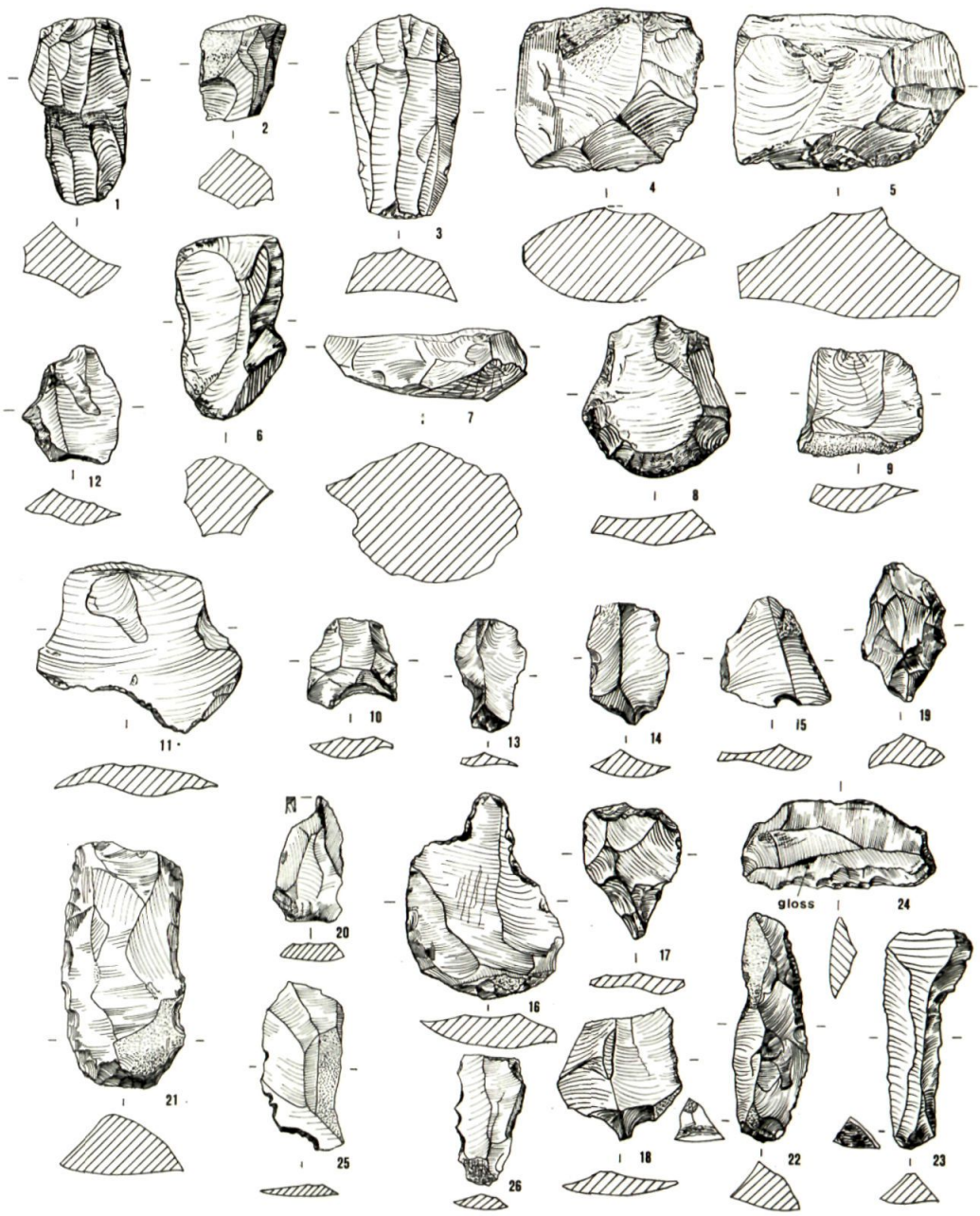

Fig. 2. The flint assemblages. (Cores 1–3 and burin 20 are Mesolithic.)

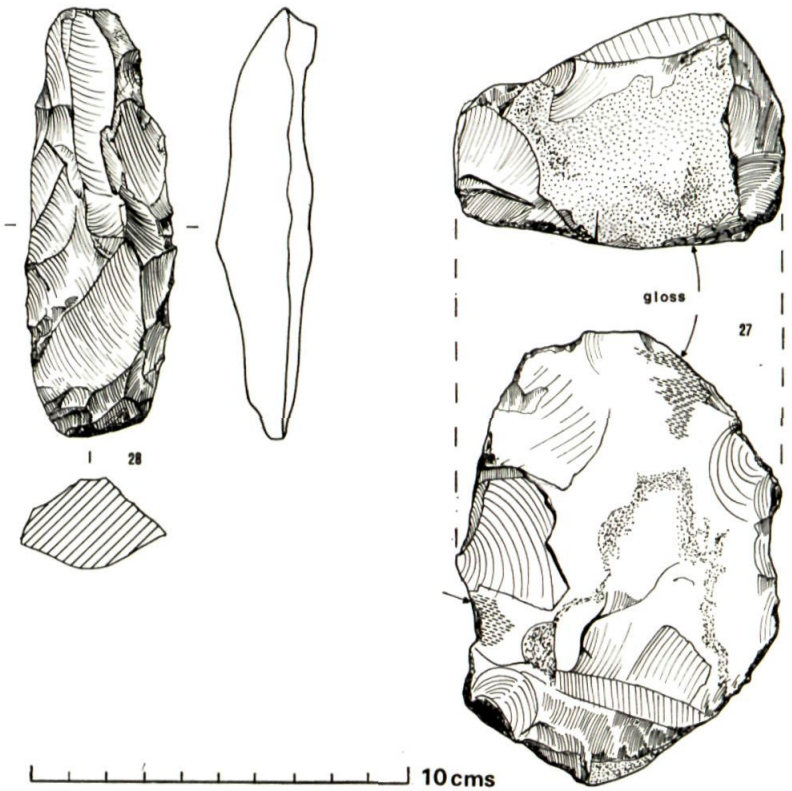

Fig. 3. The flint assemblage.

Fragments of flaked axes can seldom be recognised, and fragments of ground ones may pass similarly unheeded unless portions of their outer surface survive. At Gatcombe the scarceness of raw material appears to have led to an almost miserly utilization of flint fragments, and it is not surprising that axes are represented by only two specimens. A complete example in poor-quality chalk patinated flint is 109 mm long and 39 mm at its maximum width (Fig. 3. 26). The form is adze-like, with a flattened underside and equilateral triangular cross-section. Zig-zag edges have been produced by steep alternate flaking along its sides. The cutting edge shows light reworking applied to a tranchet scar.

A chopper core from the site bears the traces of a well-ground axe with modestly flattened sides (Fig. 2. 4). A large hinge fracture suggests that the axe had once sheared flush with its haft. A comparable and almost complete example with semi-flattened side comes from Ventnor (Poole 1930, 31, Pl. 3). The excellent control sample of Neolithic axes from Island held at Carisbrooke Castle Museum suggests that there is a colour and quality to certain flaked axes which is seldom if ever to be found among other implements and waste. A single flake of this character from Gatcombe can perhaps be tentatively ascribed to the utilization of another axe of this type. A small flake 20 mm long may also have been detached from ground axe.

Sickles (Fig. 2. 24)

A thin crescentric sickle 66 mm long bears gloss along its flat retouched edge. It is closely comparable with a similarly glossed sickle blade from Lea Farm, Sandown (Poole 1941, 276, Pl. III). Gloss was also observed on alter-

nate faces of a broken double-edged tool of high-quality flint. Only the butt end of the tool survived but its shape is compatible with a broken sickle.

Push plane (Fig. 3. 27)

This implement weighs 1.00 kg and comprises a truncated and trimmed cortical nodule of mediocre quality. The undersurface bears finely striated gloss indicating the main areas of wear and the direction of use. A large recent fracture appears to have removed some further gloss. A bruised lobe, projecting 0.5 cm below one edge of the planing surface and deeply shaded in Fig. 3, does not seem to have obstructed use. Some of the large trimmed facets on the upper surface show inward conical punch marks denoting occasional use as a hammerstone or anvil.

Chert

A single struck flake of poor-quality chert was recovered. A pebble of chert with thermal fractures was also recovered from the base of the peat bog.

The Palynological Evidence

It is evident that the flint assemblages might be related to phases of anthropogenic activity seen in the pollen record. This is shown to be the case, with five distinct periods being recognised; they may be summarised briefly:

Phase 1

A period from 6385±50 bp (SRR – 1339) to 4850±45 bp (SRR – 1338), corresponding with climax deciduous forest of Atlantic period (Godwin's Zone VIIa). This was dominated by *Quercus, Tilia, Ulmus, Alnus* and *Corylus* with some *Ilex, Fraxinus* and climbing shrubs present. There is little evidence of any Mesolithic settlement shown in the pollen record, although sparse representation of *Plantago lanceolata, Artemisia* and woodland herbs may be due to local glades created by Mesolithic man. Some archaeological material which is referable to this period is substantial evidence for his presence. Although such glades may have been formed naturally by death of individual trees and herbivore grazing, the creation of forest pathways seems likely.

Phase 2

The primary Elm decline is dated here at 4850±50 bp where *Ulmus* pollen declines from greater than 20% to less than 2%. Various suggestions as to the cause of this decline are given by several authors (Smith 1970; Godwin 1956 and 1975; Ten Hove 1968). The selective polling of *Ulmus* for fodder as suggested by Troels-Smith (1966) is felt to be of importance here because of the strong negative relation between *Ulmus* and herb pollen frequencies. It is suggested, therefore, that Neolithic activity became evident at this time, possibly utilizing elm leaves as fodder for cattle in a forested environment.

Phase 3

Small-scale, relatively local cereal cultivation is shown from 4850 bp to the Middle Neolithic. Two interesting features may be noted. Firstly, the arable activity took place within an essentially open-canopy forested environment with little forest clearance. Secondly, the pollen representation of cereal type and ruderals shows a series of alternating peaks and troughs thought to be evidence of ephemeral cultivation of crop patches adjacent to settlement.

Phase 4

A distinctive phase of local forest clearance of Landnam type (described by Iversen *et al.* 1941 and 1949) is evident in close proximity to the core site. This proximity is evidenced by high herbaceous pollen percentages, local eutrophiation of the mire and the clear-cut evidence of a transient forest phase. A period of clearance, occupation and cereal cultivation took place in a restricted area of the adjacent valley side. From the analysis of the flint assemblage, given above, this period is thought to correspond with the bulk of the archaeological material. A Late-Neolithic date is inferred for this event by comparison with analysis by R.G.S. at Borthwood, Isle of Wight. This latter site has produced comparable pollen data subsequent to a local Middle-Neolithic decline in *Tilia* dated at 4010±110 bp.

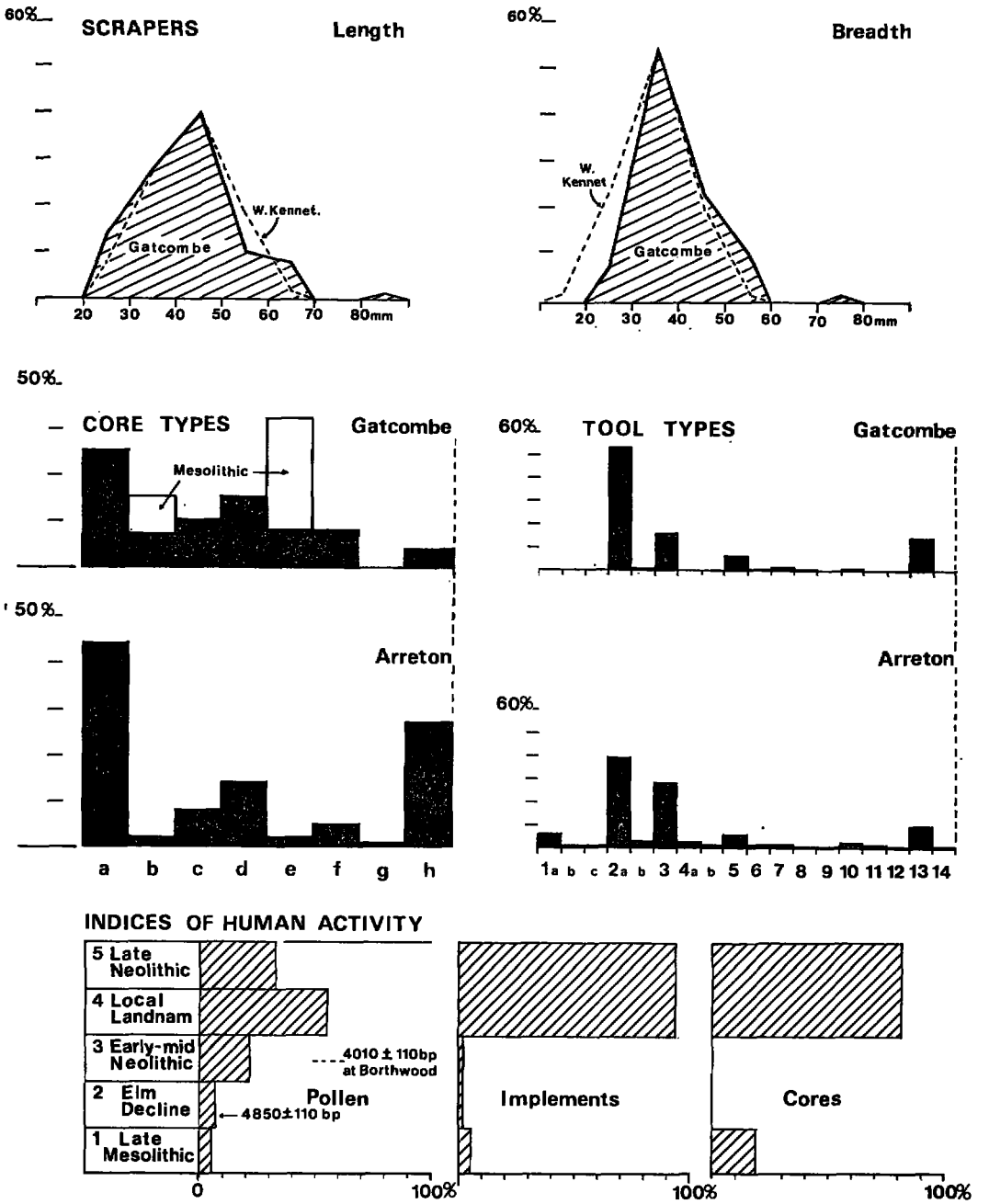

Fig. 4. Frequencies of tool types for Gatcombe showing close comparability with Late-Neolithic assemblages from the West Kennet Avenue and Arreton Down. In 'Indices of Human Activity' the frequency of diagnostic implements for the Late-Mesolithic, Early/Middle- and Late-Neolithic respond to pollen evidence for human activity in the vicinity of the peat bog. Human activity in the pollen histogram is based on the sum of *Gramineae, Plantago lanceolata* and *Rumex* expressed as a percentage of arboreal pollen excluding *Alnus*.

Phase 5

Subsequent to these phases of transient agriculture is a period of Late-Neolithic forest regeneration with reversion to secondary forest. It is likely that the flint assemblage discussed here is largely representative of Phase 4, showing clearance of the immediate valley side, occupation and surrounding arable cultivation. Comparison of the flint assemblage with that from Arreton Down suggests that Late-Neolithic activity, at least in this region of the Isle of Wight, was from small communities creating local opening of the forest. Subsequent to soil depletion, abandonment and vegetational regeneration occurred.

Discussion

Excavations at Hurst Fen (Clarke 1960), Windmill Hill (Smith 1965), and Durrington Walls (Wainwright and Longworth 1971) have produced large and discrete assemblages to assist our differentiation between Early/Middle and Late Neolithic flint industries. At Durrington Walls a sample of 12,000 worked flints has provided persuasive evidence that polished flint axes and leaf-shaped flint arrowheads are generally not to be found in Late Neolithic contexts.

At Gatcombe the surface collection of flint may by analogy be divided into three phases.

A. *Mesolithic*

Mesolithic activity is represented by six fine microlithic blades including two with notches. Other items are a strangulated flake and an obliquely blunted point. Small cores worked all the way round and columnar bi-polar cores are notable, and could distort the Neolithic core histograms (Fig. 4). Both core types occur in the Island river valley Mesolithic sites at Newtown and Werrar (Poole 1936, 551, Pls. 1 & 4).

B. *Early/Middle Neolithic*

The utilized polished axe fragment (Fig. 2. 4) offers tenuous evidence for Early- or Middle-Neolithic activity, although its later use cannot be entirely precluded. Its use as an axe may perhaps accord with local activity emanating from the Early/Middle-Neolithic flint scatter located by Mr. J. Dunn 1.3 km E.N.E. of Gatcombe West at site no. 3 (Fig. 1).

C. *Late Neolithic*

94.7% of the implements from the site can be assigned to this period. This includes the complete tranchet adze (Fig. 3. 28) which is well at home in a Late-Neolithic context like those from Durrington Walls (Wainwright and Longworth 1971, 177, F8) and from the old ground surface beneath the round barrow on Arreton Down (Alexander and Ozanne 1960, F37–40).

A comparison of the preferred length and breadth sizes for end scrapers (Fig. 4) shows good concordance with the scraper sample from the Late-Neolithic occupation floor in the Avebury stone avenue of West Kennet (Wainwright and Longworth 1971, 167). Confirmation of the character of local Late-Neolithic flintwork is also, fortunately, available 3.8 km east of Gatcombe beneath the round barrow on Arreton Down. Here a substantial assemblage of 13,610 flints from the old ground surface was associated with Mortlake, Fengate and European Bell Beaker sherds. A comparison of tool frequencies in Fig. 4 shows close agreement between the two sites, although at Arreton a number of minor additions have been brought to light by the greater size of the sample.

Flint Sampling and Indices of Human Activity

At Gatcombe the degree of early human activity is attested by the independent means of pollen analysis and the analysis of a surface flint scatter. In Fig. 4 an attempt has been made to use the relative proportions of Mesolithic, Early/Middle and Late-Neolithic implements as an index of successive degrees of human activity in the locality.

In the left-hand histogram of Fig. 4 a general index of human activity is illustrated by the quantities of *Plantago lanceolata, Gramineae* and *Rumex* pollen expressed as a percentage of arboreal pollen excluding *Alnus*. In the implements histogram, the single polished axe fragment provides the only

measure of Early/Middle-Neolithic activity and is an understatement of the mid-third millennium elm decline and Middle-Neolithic *landnam* attested in the pollen record. The problem here is the apparent longevity of most kinds of implement and our lack of knowledge of exclusive Middle-Neolithic tool types. The core histogram fails to remedy this problem, but provides a simpler alternative for obtaining similar information. If the phase 2 and 3 pollen horizons reflect the activities of the occupants of site 3, living 1.3 km distant and 43 metres up the east side of the valley, then the implement diagram may provide an index of local occupation as opposed to farming activities in the close vicinity of the bog.

The flint evidence may be summarised in the following terms:

1. Minor evidence of Mesolithic activity.
2. Some possible evidence for Early/Middle-Neolithic activity.
3. Substantial evidence of Late-Neolithic activity.

The rare combination of pollen evidence with the flint assemblage from the site provides valuable and remarkable corroboration for these events. This corroboration should be borne in mind when assessing the value of field-walk flint assemblages and the optimum sample size for flint analysis.

Acknowledgements

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