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# A Prehistoric (Neolithic–Bronze Age) Complex on the Severn Estuary Levels, Oldbury-on-Severn, South Gloucestershire

By J.R.L. ALLEN*

## *Introduction*

There is growing evidence that the marshlands (Severn Estuary Levels) and associated lowlands on the margins of the Severn Estuary were being exploited by humans during early and mid Flandrian times, contrary to the impression given by many regional distribution maps of archaeological sites (Green 1980; Aston and Burrow 1982; Darvill 1984, 1987; Marshall 1985; Aston and Iles 1986; Saville 1990). A number of workers independently recognised the presence of a Mesolithic occupation on the fringes of the bedrock 'island' of Goldcliff in Gwent, preliminary accounts of an excavation being given by Bell (1992, 1993, 1995). Further up-estuary, Neolithic polished stone axes were reported from the shore at Oldbury-on-Severn and Hills Flats (Allen 1990), and from the latter a small but diverse assemblage of transposed Neolithic–earlier Bronze-Age flintwork, including scrapers, knives and arrowheads, was recently described (Allen 1997a). A variety of features and stratified flints suggested to be Neolithic or early Bronze Age were recorded by Hume (1992) from beneath a thin blanket of estuarine alluvium during salvage excavations by the Avon Archaeological Unit in 1992 at the site of a new silt lagoon for the Oldbury Power Station. Although none of the discoveries at Barnwood (Clifford 1930), St. Briavels (Saville 1986), Brean Down (Bell 1990) and Chepstow (Hughes 1996) actually come from the outcrop of estuarine alluvium, each is sufficiently close as to imply that the shores of the estuary could easily have been reached, exploited and occupied if only temporarily.

The present paper aims to give a description and synthesis of all of the discoveries made through line-walking and excavation at Oldbury-on-Severn. Assemblages totalling more than 2,000 lithic items, ranging in date from Mesolithic to Bronze Age, have become available for assessment. The occupation, scattered over a considerable distance along the banks of a tidal palaeochannel, seems to have been long-lived and substantial. The lithic industries involved were impoverished and parsimonious, yet drawing on a wide variety of raw materials, and it is interesting to compare them with another parsimonious but earlier industry from the Severn Estuary Levels, that at Goldcliff noted above.

## *Setting, Contexts and Approach*

The modern village of Oldbury-on-Severn (O.S. Nat. Grid ST 610928) lies on a low bedrock 'island' surrounded by an embanked outcrop of Flandrian estuarine alluvium, part of the Severn Estuary Levels on the margins of the Severn Estuary and inner Bristol Channel (Fig. 1a–b). On the shore of the estuary 2 km to the north lies Oldbury Power Station and, in the broad

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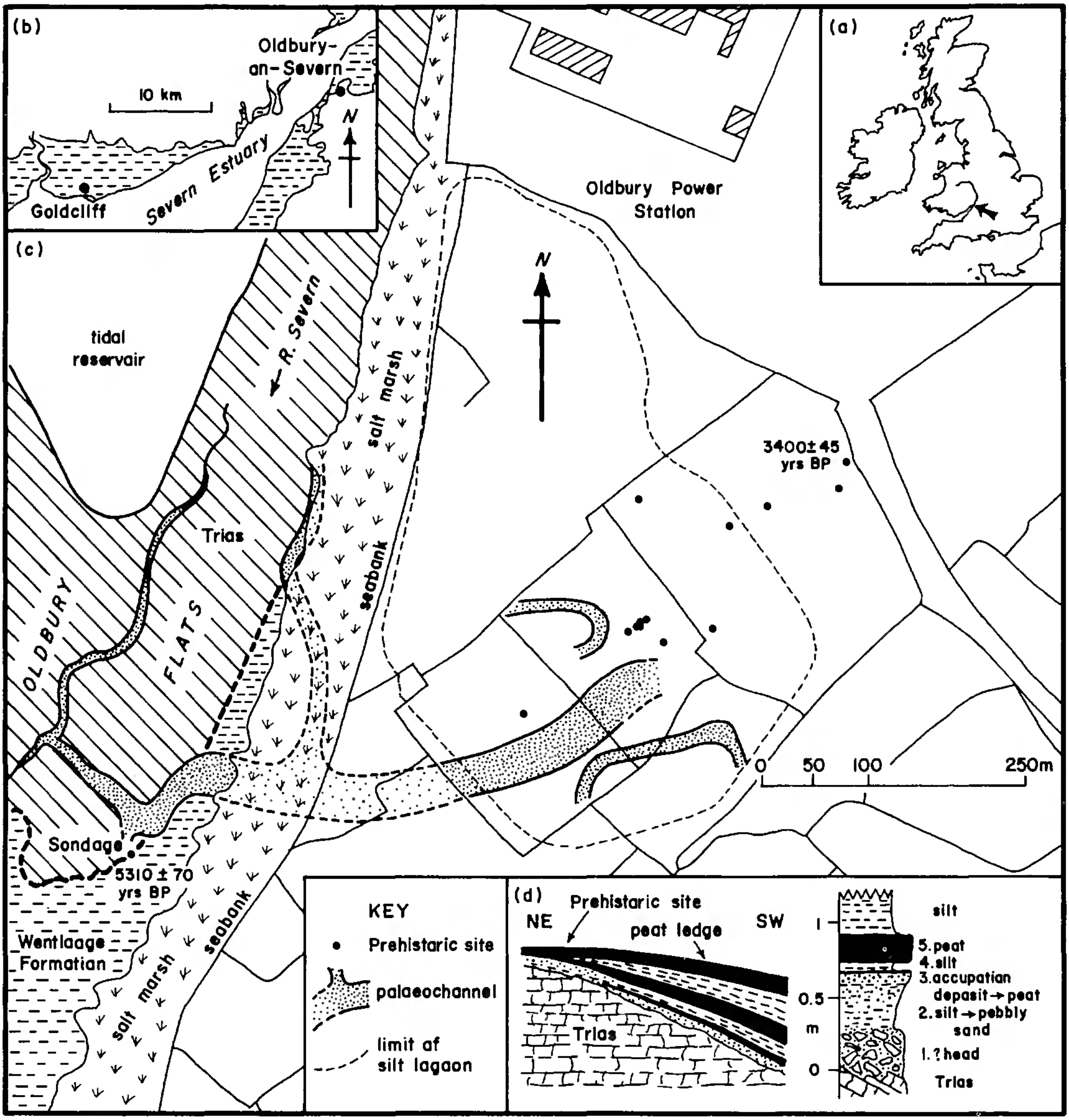


Fig. 1. Prehistoric sites at Oldbury-on-Severn: (a, b) context, (c) site distribution and foreshore geology (the Wentlooge Formation also underlies the embanked area), (d) summary stratigraphic section (right) and schematic cross-section (left, not to scale) at the sondage.

inter-tidal zone to the west, the rock platform of Triassic mudstones and sandstones (Welch and Trotter 1961) called Oldbury Flats (Fig. 1c). The visible part of the platform has a maximum elevation of a few metres above Ordnance Datum; it descends gently to the west and more steeply southward toward the palaeo-valley now occupied by Oldbury Pill. Eastward the platform extends at a level height beneath a thin cover of estuarine alluvium (Wentlooge Formation) before rising as the 'island' at the village. The rocks in late Pleistocene times were affected superficially by periglacial processes (Allen 1987) before bleached, sandy–pebbly soils were formed prior to the deposition of the Flandrian estuarine sediments. The latter—the middle and upper Wentlooge Formation (Allen and Rae 1987)—are basal and intercalated peats and estuarine silts followed by thick silts that drape onto the bedrock surface rising northward and eastward (Allen and Fulford 1992). The bedrock and overlying silts and peats are cut by tidal palaeochannels (Allen and Fulford 1992; Allen and Rippon 1997) which can be traced eastward from the shore into the embanked alluvium (Fig. 1c). The estuarine silts infilling the east–west branch yielded chiefly later Romano-British occupation debris (Allen and Fulford 1992), together with a probable fishing hedge of woven wood that gave a conventional radiocarbon age of 2,120 ± 60 years BP (CAR–1179). Thus the channel was active in the later Iron Age and Roman period, but there is as yet no direct proof of its existence during the Mesolithic–Bronze Age, when relative sea level in the area would have stood some metres lower than today (Heyworth and Kidson 1982) and the eastern portion of Oldbury Flats would not have been inter-tidal.

Three contexts afforded the archaeological features and materials described. The great bulk of the lithic material is unstratified and, following its discovery (Michael Fulford 1985), has been assembled from Oldbury Flats by repeated line-walking between approximately ST 601935 and 603944 (Fig. 1c). It lies chiefly toward the high-water mark of neap tides, either dispersed over smooth surfaces of mud or peat, or lodged among blocks of rock or with pebbles concentrated into shingle patches and pocket beaches. In 1995 debitage was discovered on the eroding shore in an outcropping primary stratified context (ST 600936), no doubt the source of at least some of the unstratified material. A small sondage (trial excavation)—the second context—was executed at this place, in order to seek independent dating evidence and begin to explore the nature of the occupation deposits (Fig. 1c). The third context (SMR Avon 8332), also yielding some stratified lithic material, is a string of features at the buried contact between the bedrock and the alluvium. These were excavated by Hume (1992) during the building of a new silt lagoon in the embanked marshes south of the power station (Fig. 1c). Unstratified/residual debris was also recorded, but the degree of transposition may be presumed negligible in comparison with the inter-tidal suite. Most of the lithic material recorded is lodged in the City Museum and Art Gallery, Bristol (BRSMG 6/1996).

Because an exceptional diversity of rock types is represented in the collections, and the two differently dated sets of stratified flintwork differ in the raw materials exploited, a lithological as well as typological approach has been adopted toward the predominantly unstratified pieces, on the basis that chronological as well as other factors were operative. The lithic material in the unstratified inter-tidal assemblage is generally speaking fresh-looking but, under the hand-lens, exhibits varying degrees of overall polish and damage related to movement in the wave and tidal currents which sweep the moderately exposed and pebbly–rocky site. Heavily retouched items presented no difficulties, but a conservative approach was adopted toward items apparently retouched only locally or lightly, with reliance being placed on a comparison of the two sides of an edge and different edges on the same piece, in addition to the character of the apparent retouch. In describing the cores, the classification of Clark *et al.* (1960) has been slightly amplified.

### *The Unstratified Inter-Tidal Assemblage*

(a) *Introduction*

Including microliths and a dagger (see below), but excluding numerous burnt flakes, the assemblage amounts to 1,941 items with a total weight of 15.184 kg (Table 1). Flint of three kinds—light grey, dark grey and brown—is overwhelmingly dominant, but three intergrading varieties of chert occur, and other rock-types are sparsely represented (Table 4). The items present vary from worked raw material to elaborately modelled tools. A measure of spatial segregation unrelated to size is evident in their distribution over the inter-tidal area, although some dispersion by wave and tidal currents has no doubt occurred (Fig. 1c). Brown flintwork is concentrated in the north, whereas items in chert and grey flint, and particularly in the dark grey variety, chiefly occur around the sondage and palaeochannel in the south. Worked stone was also chiefly found near the latter.

(b) *Light grey flint*
This material, with poor to moderate fracturing properties, varies from very pale to mid grey in colour and commonly is mottled. An analysis of items with an adequate surviving natural surface suggests that water-transported pebbles and small cobbles were the most frequently used raw material, followed by generally small, water-smoothed and commonly broken cortical nodules (Table 2).

The cores (Table 1) are small, with a weight distribution (logarithmic scale) slightly skewed toward heavier items (Fig. 2a). At least six forms are represented (Table 3). Cores of cuboidal type (see Fig. 3.6–7), worked overall and from three or more directions, form almost half the assemblage. Less common are parallel- to subparallel-sided cores with either one (Fig. 3.1) or two (opposed) working platforms (Fig. 3.3). Also less common are cores of pyramidal type from which flakes or bladelets have been removed at a moderate angle toward the axis from one struck platform or flattish area of natural surface (see Fig. 3.8–9). In the biconical type (see Fig. 3.10–11), represented by a single core, centripetal removals at a fine to moderate angle have taken place along each side of a circular or almost circular edge; these forms somewhat resemble Durden's (1995) tortoise cores. In the remaining type, described as pebble cores (see Fig. 3.12–13), removals occurred in a single direction from a natural surface (cortical or abrasional) or, less commonly, a prepared platform on a pebble or small nodule, until most was consumed.

Flakes (Table 1) are plentiful and very variable in relative proportions, although for the most part small (Fig. 4a). Only the smaller ones are, however, commensurate in size with the surviving cores. Tertiary

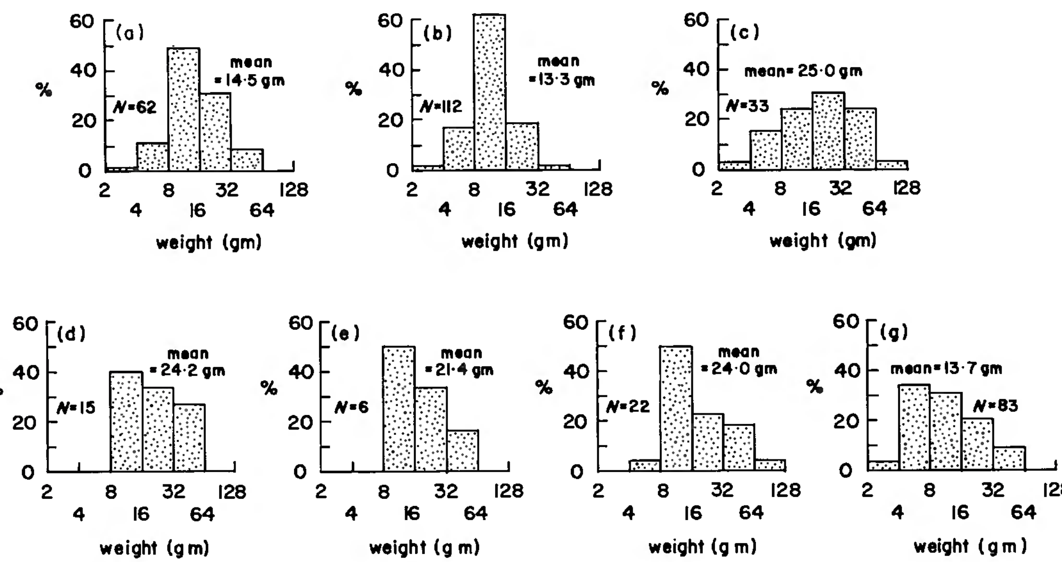


Fig. 2. Core weight-frequency distributions. Unstratified inter-tidal assemblage: (a) light grey flint, (b) dark grey flint, (c) brown flint, (d) chert (all varieties). Sondage: (e) all lithologies. Goldcliff: (f) chert (all varieties), (g) flint (all varieties).

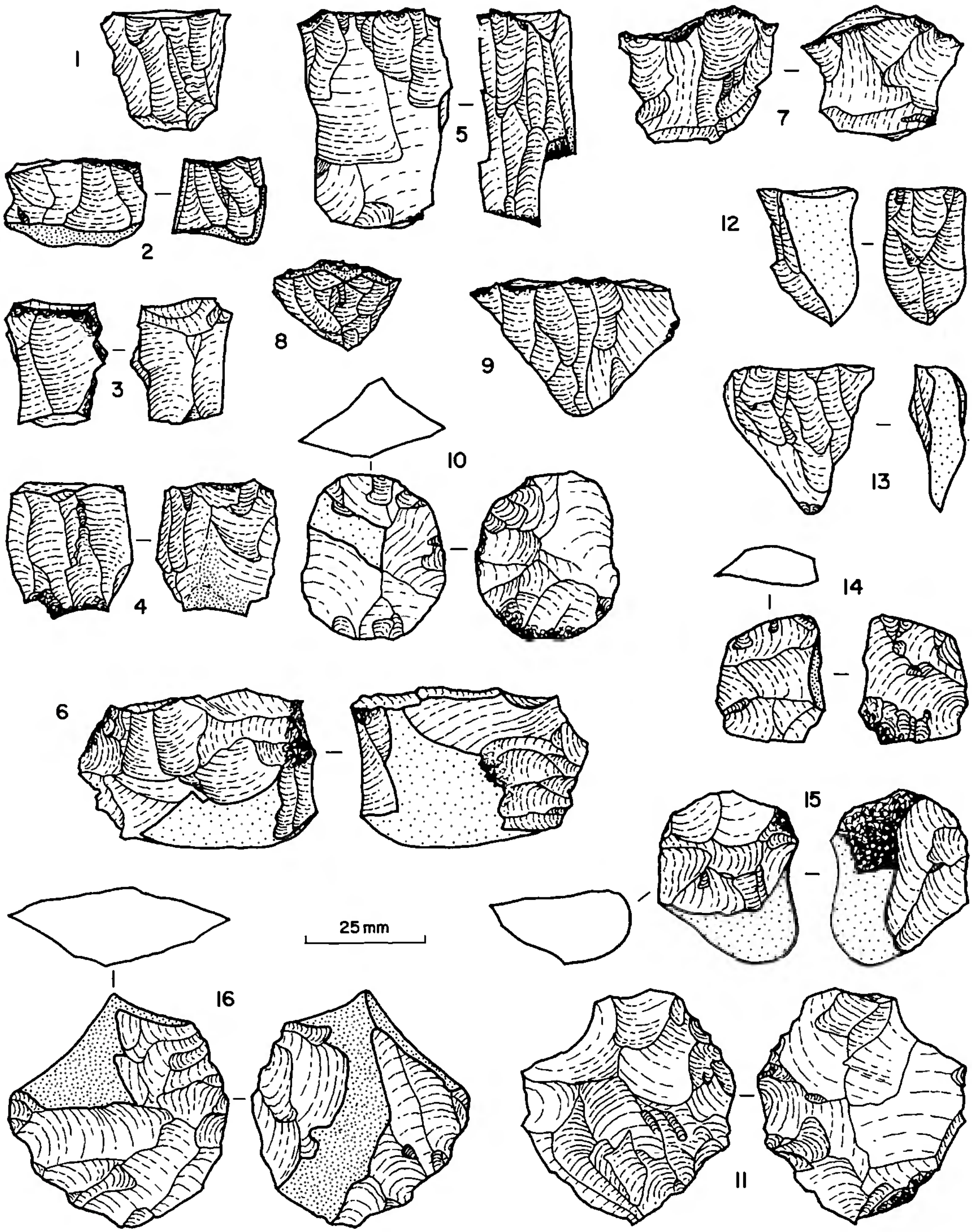


Fig. 3. Cores from Oldbury-on-Severn. Unstratified inter-tidal assemblage: light grey flint (1, 3), dark grey flint (2, 4, 8, 10, 12, 14), brown flint (5, 6, 11, 15–16). Sondage: light and dark grey flint (7, 9, 13).

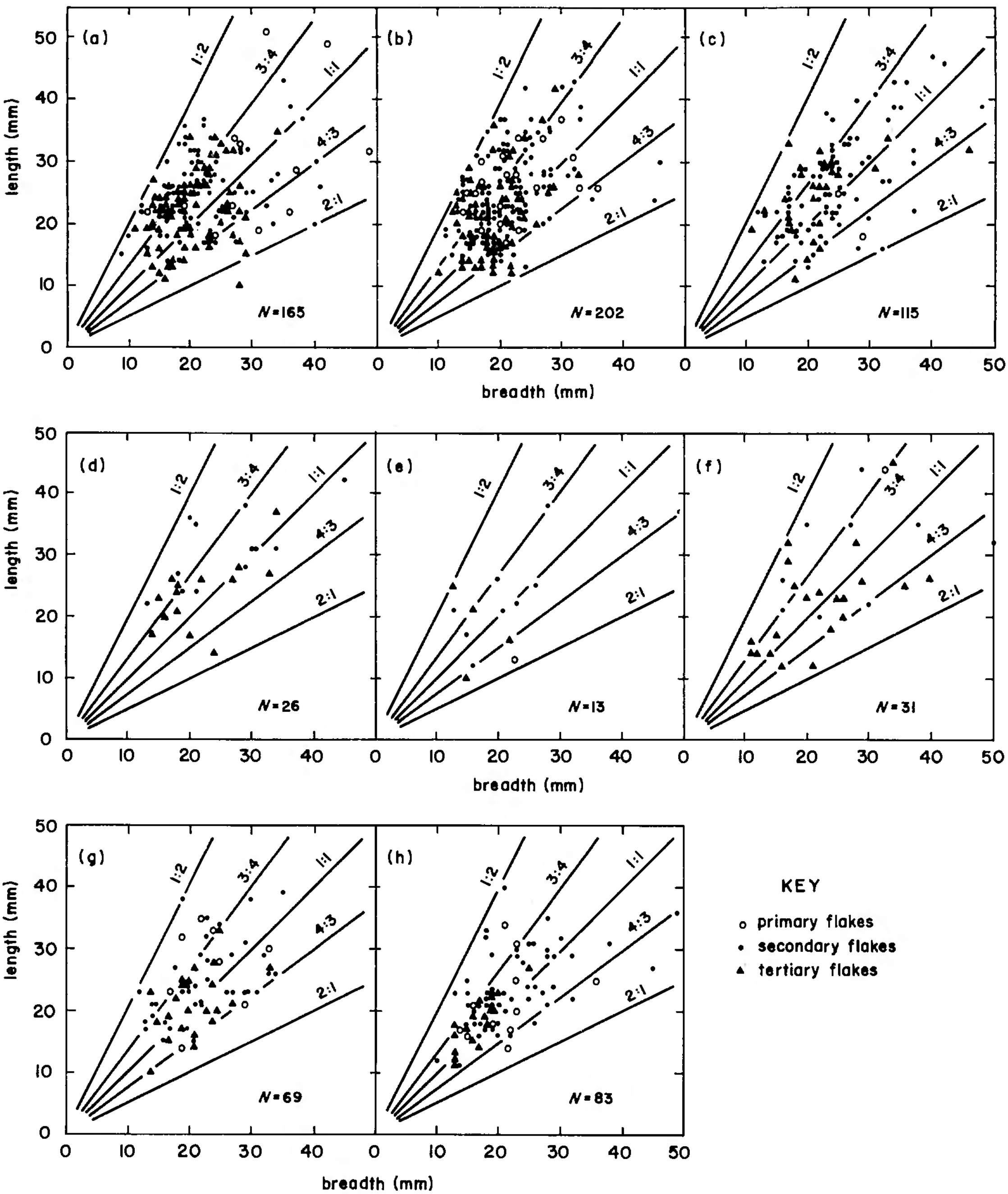


Fig. 4. Flake length–breadth. Unstratified inter-tidal assemblage: (a) light grey flint, (b) dark grey flint, (c) brown flint, (d) chert (all varieties). Sondage: (e) chert and flint. Power station assemblage: (f) flint. Goldcliff: (g) chert (all varieties), (h) flint (all varieties).

flakes on the whole are the smallest and primary ones the largest. Two shape groups may be present, clustering about breadth:length ratios respectively of 3:4 and 4:3.

The 16 unutilised blades in the assemblage (Table 1) are comparatively small and irregularly parallel-sided, with lengths between 21 and 44 mm. Three are obliquely pointed.

The implements (Table 1) present a limited range. There are four small scrapers, three oval (24, 27 and 28 mm) and one (Fig. 5.1) of irregular shape (30 mm). One oval form may be either a combined concave–convex scraper or a combination piercer-scraper. The two possible leaf-shaped arrowheads (Fig. 7.1), attributable to Green's (1980, 1984) types 3A or 3B, resemble some described by Clark *et al.* (1960, fig. 13, F34–8), Smith (1965, fig. 45, F108–12) and Robertson-Mackay (1987, fig. 61, F111) in their limited degree of retouch. The numerous piercers (13), between 26 and 49 mm long, are based on stubby to slender, blade-like flakes. Most were retouched at the distal end (Fig. 8.1–3) but in one case the retouching is proximal. Most of the tools (36) are edge-trimmed forms 23–67 mm long based chiefly on blades but in several cases on tapering or irregular flakes (Fig. 8.9–10). The retouching may be on either one or both edges, and in some cases also on the distal tip, and typically is from the ventral surface. Continuous fine retouch added to deep removals give some flakes the appearance of serrates. To judge from local bruising, one core was used as a light hammer.

(c) *Dark grey flint*

The type may grade from the light grey flint. It ranges in colour from dark grey to black, with seldom any mottling, and the fracturing properties vary from moderate to very good. Water-transported and nodular raw materials seem to have been available in similar proportions to the light grey flint (Table 2), although some of the nodular flints were probably larger (see below). One flint had been struck from a pebble that had a natural surface marked by delicate, parallel flutings and appeared wind-polished (Laity *in* Abrahams and Parsons 1994). The cores (Tables 1 and 3) are even smaller than those of light grey flint, the weights forming a symmetrical, unimodal cluster (Fig. 2b). Single-platform (Fig. 3.2), double (opposed)-platform (Fig. 3.4), cuboidal, pyramidal (Fig. 3.8), biconical (Fig. 3.10) and pebble (Fig. 3.12) types are all represented, with the cuboidal form again paramount. The illustrated biconical core may have ended up as an attempt toward a small, oval knife, to judge from the sporadic small retouches. Two further kinds are present. In the wedge-pebble form (Fig. 3.14), bladelets–flakes were removed at a fine to moderate angle from both sides of a straight to slightly curved edge on chiefly one side of a pebble or small nodule of raw material. The related but rare double-wedge type (see Fig. 3.16) shows removals from both sides of two opposed edges on the piece of raw material, with generally little natural surface remaining. The flakes (Table 1) are similar in size to those in light grey flint but in general are more blade-like (Fig. 4b). Again only the smaller ones are commensurate in size with the surviving cores. There are a few (13) unretouched blades (20–61 mm), three of the shorter ones being pointed.

The implements are modest in number and variety (Table 1). The crudely made scrapers (5) include an oval form, based on shatter from a water-smoothed nodule (Fig. 5.4), and a concavo–convex type (Fig. 5.2). One of the three side scrapers may incorporate a piercer (Fig. 5.3). Three stout flakes carry a shallow, concave notch with substantial, steep removals and are regarded as concave scrapers; a point seems to have been lost from the illustrated example (Fig. 5.5). The assemblage includes a single scraper-knife (Fig. 6.7). There is a possible leaf-shaped arrowhead of Green's (1980, 1984) type 3B (Fig. 7.2). The removals are steep but small and the tip is rounded. The six piercers or combination-piercers are based on tapering or obliquely-pointed flakes (Fig. 8.4–5); all show the heaviest retouching at the tip, in some cases on a different face along one edge than the other, like a twist drill. Most of the edge-trimmed flakes (33), measuring 18–97 mm in length, are parallel-sided blades but three are pointed (Fig. 8.14). There is a distinct group of six, roughly oval, stout flakes (< 42 mm) which could be regarded as scrapers, but the retouching is slight and discontinuous (Fig. 8.13). The remaining utilised items (10) are stubby and irregular flakes. A slender serrate was noted.

(d) *Brown flint*

This distinctive material is opaque to semi-translucent, varying in colour, to some extent within items with accompanying mottling, from brownish grey through yellowish grey to green-tinged or honey yellow-brown. There are occasional small voids lined with tiny pyramidal crystals of quartz. The fracturing properties are moderate to excellent. In contrast to the grey flints, the brown sort was overwhelmingly available

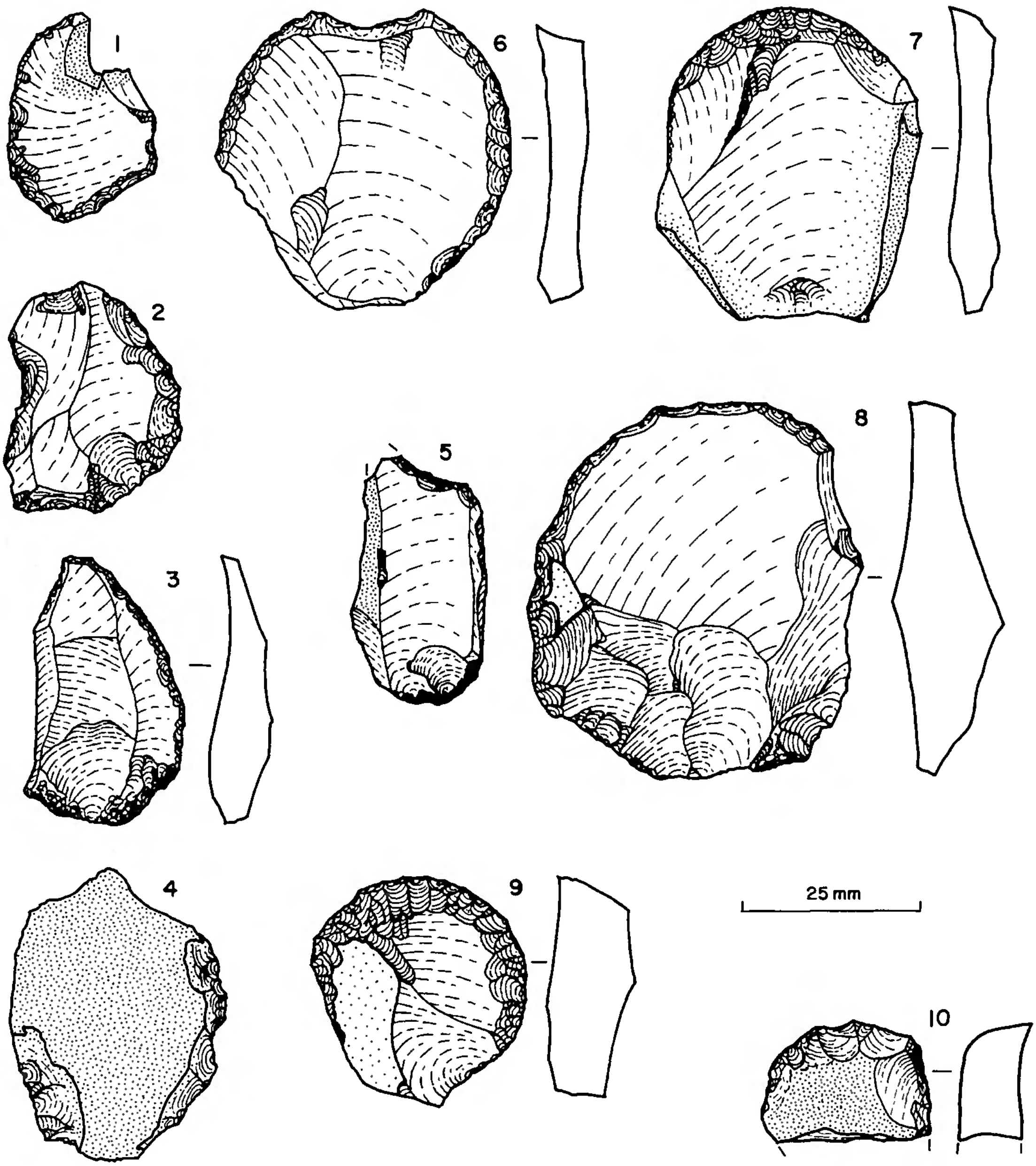


Fig. 5. Tools from Oldbury-on-Severn. Unstratified inter-tidal assemblage: scrapers (1–9). Power Station assemblage: scraper (10).

as comparatively large nodules with only limited signs of water-smoothing (Table 2). Some water-transported cobbles were also recorded. Firmly cemented to several of the flints are patches of red–brown Triassic silt, showing that they were derived from close below the base of the alluvium.

The cores (Table 1) are roughly twice as heavy on average as those in the grey flints, with weight skewed toward the smaller sizes (Fig. 2c). Although the cuboidal form remains dominant (Table 3), it has only

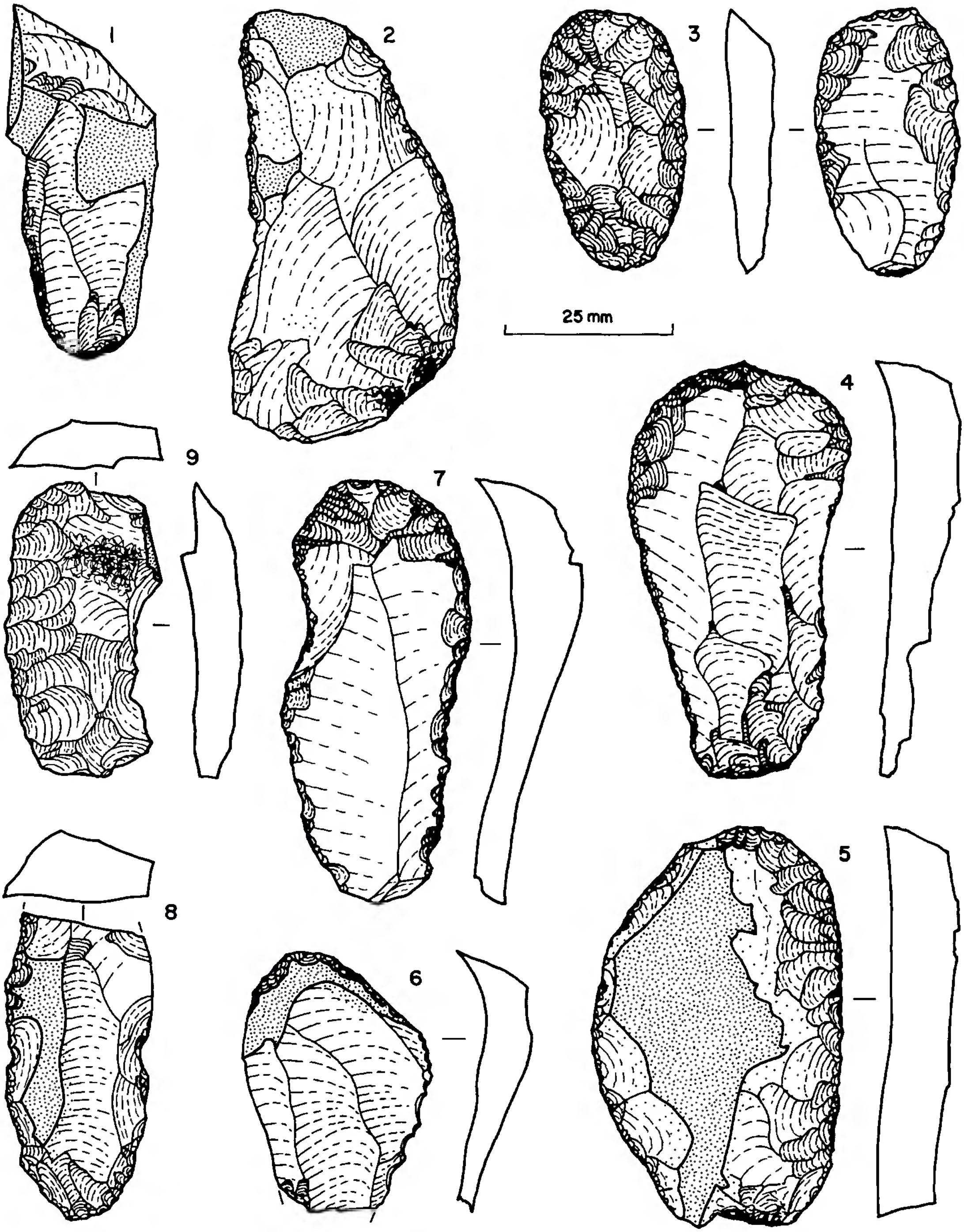


Fig. 6. Tools from Oldbury-on-Severn. Unstratified inter-tidal assemblage: knives (1–3), scraper-knives (4–7), rod/fabricator (8). Power Station assemblage: knife (9).

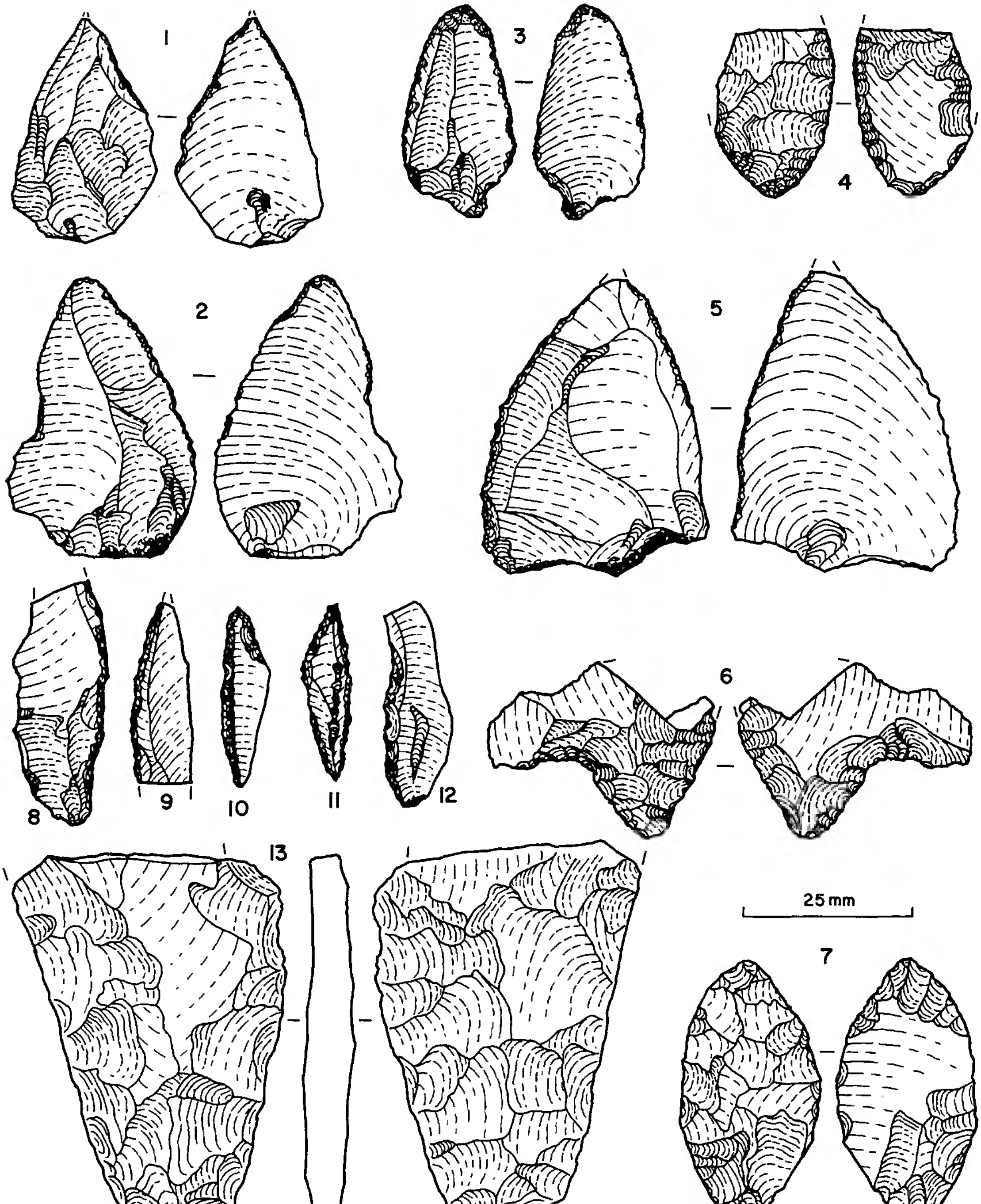


Fig. 7. Tools from Oldbury-on-Severn. Unstratified inter-tidal assemblage: arrowheads and missile points (1–7), microliths (8–12), dagger (13).

about half the importance recorded from the grey varieties of flint, the pyramidal and especially the biconical forms being more noticeable. Figure 3.5–6, 11, 15 and 16 illustrates examples of the double (opposed)-platform, cuboidal, biconical, wedge-pebble and double-wedge forms in this lithology.

The flakes also differ from those in grey flint (Table 1), being on the whole larger and less blade-like, with a low proportion of primary forms (Fig. 4c). The unretouched blades are 24–45 mm long, four being pointed.

Brown flint was used to manufacture in substantial numbers a wide variety of generally large and well-fashioned implements (Table 1). Scrapers (Fig. 5.6–9) are represented by oval (7, 16–53 mm), end (2, 43 mm), side (3, 26–48 mm), combined end–concave (1, 54 mm), and concave (1, 29 mm) forms; one or two display what may be scale flaking. Four of the knives show moderately to steeply plunging removals from straight to slightly curved edges on otherwise irregular flakes (Fig. 6.1). One knife is a small, bifacial, oval form (Fig. 6.3). Another somewhat resembles a form described by Clark *et al.* (1960, fig. 15, F51) but has no removals along the ventral side of the cutting edge; it is not strictly backed, the wide straight edge having been only slightly retouched for the user's convenience (Fig. 6.2). Most of the eight scraper-knives (35–63 mm) were formed by lightly retouching irregular flakes so as to combine an end-scraper and an edge with coarse serrations or steep removals (Fig. 6.6). Two scraper-knives are much more elaborately worked, but only dorsally (Fig. 6.4–5). A single broken rod/fabricator (Fig. 6.8) is present. The three arrowheads are a broken leaf-shaped type (Fig. 7.4), a little-worked and poorly symmetrical example of Green's (1980, 1984) Sutton a type (Fig. 7.3), and a broken chisel type (Fig. 7.6). There is a possible leaf-shaped arrowhead (35 mm), similar in form and degree of retouch to one in dark grey flint (Fig. 7.2), and two other possible missile points retouched mainly dorsally (Fig. 7.5). Based on substantial, triangular flakes, and lacking definite tangs and/or barbs, these points are larger and much heavier (44 mm and 13.5 gm; 45 mm and 8.9 gm) than the arrowheads, and could have tipped small javelins. Narrowly-tapering flakes (35–54 mm) were used for the three, well-formed piercers (Fig. 8.6). The predominant edge-trimmed flakes (57) vary from a few thin ovals to chiefly blade-like forms and blades (Figs. 8.11 and 15; 9.1). The largest measures 79 mm long and 46 mm wide and twelve exceed 50 mm in length; the smallest is an oval flake 15 mm long. There is also a small number of serrates (10) on blades or irregular flakes (Fig. 9.4–5). Two of the cores are bruised and were probably used as light hammers.

(e) *Chert*

Chert of three intergrading kinds—light grey, mid grey and black—forms a subordinate but distinctive part of the assemblage (Table 1). As with the grey flints, water-transported pebbles and small cobbles are generally the dominant raw materials, but there is an almost equal emphasis on small, irregular to rounded masses carrying water-smoothed cortex (Table 2). Fossil debris and other detrital components are conspicuous in the rocks. The fracturing properties are moderate at best and, in the case of much of the lighter-coloured chert, poor or very poor.

Few cores were recovered (Tables 1 and 3), but all kinds except the double-wedge variety are represented, with the emphasis again on the cuboidal type. Weight is skewed toward the heavier items, as with the cores of light grey flint (Fig. 2d), but the mean is similar to that of the brown cores.

Few flakes are available (Fig. 4d). They resemble the flint flakes in shape and size (Fig. 4a–c). The blades, of which four are broken, range from 22 to 34 mm long; one has lost the pointed distal end.

Only seven implements were recognised (Table 1). The light grey chert is represented by a large (> 57 mm), broken, edge-trimmed flake. There are two smaller, edge-trimmed flakes in mid grey chert. The rather crude leaf-shaped arrowhead in this lithology, attributable to Green's (1980, 1984) type 3B, has been coarsely worked over the whole dorsal surface, but removals from the ventral side are largely confined to the tips (Fig. 7.7). In black chert there is a broken, oval scraper (> 41 mm) with removals from only one quarter of the circumference, a piercer (Fig. 8.7) and a broken, edge-trimmed flake (Fig. 9.2).

(f) *Other lithologies*

Several kinds of stone were being worked (Table 4), perhaps chiefly into axes, although there is no direct knowledge of the artefacts. All but the quartzites were examined microscopically in thin-section.

There are various struck flakes, four of which join to define a large rough-out, from a moderately rounded, wind-facetted and polished cobble of a pale bluish-grey, porphyritic, sodic microgranite. Large phenocrysts of perthitic orthoclase and subordinate quartz, together with others of poikilitic riebeckite, are set with a little aegirine-augite in a uniform, equigranular matrix of alkali feldspar and quartz. The mineralogy suggests an ultimate source in the Tertiary igneous province of north-west Britain, but the rock is more porphyritic, and the groundmass finer grained, than is typical of the mineralogically similar Ailsa Craig microgranite (Sutherland 1982).

Fine grading to coarse tuffs are represented by worked lumps and various struck flakes, five of which are small, tertiary forms. They came from moderately rounded cobbles, some of which had been water-smoothed and others wind-facetted and polished. The rocks are dark grey to black and faintly to boldly laminated. Mainly broken plagioclase and other feldspar crystals are set in a siliceous, clay-rich groundmass with signs of a weak cleavage. The rocks compare with some of the Ordovician bedded tuffs of the Berwyn Hills, north-east Wales (Wedd *et al.* 1929).

The struck quartzite flakes come from grey to pinkish grey, tough, compact rocks. These occur as well rounded pebbles or cobbles with either percussion-marked or wind-polished surfaces.

A wind-polished lump of silicified wood was the source of two small, secondary flakes. The rock in hand specimen is a dark brown, compact quartzite, but in thin-section reveals woody tissue replaced by finely equigranular quartz. Professor Dianne Edwards (University of Wales, Cardiff) reports that the tissue is of coniferous type and could be as old as the Devonian. An ultimate northern provenance is most likely.

(g) *Microliths and a dagger*

Standing apart from the bulk of the unstratified assemblage are five well-preserved microliths with steep retouching (6.2 gm). Two are broken and in a greyish brown flint like some of the brown flint above. Possibly the larger form (Fig. 7.8), carrying a little cemented Triassic mudrock, is an example of Jacobi's (1980) type 3C and the smaller (Fig. 7.9) a type 4. A dark grey to black flint similar to the dark grey flint in the unstratified assemblage was used for the remaining microliths. The two smallest are complete (Fig. 7.10–11) and respectively resemble Jacobi's (1980) types 3C and 3CD. The possibly unfinished third form (Fig. 7.12) is retouched only along the greater part of one edge and remains blunt distally.

Also standing apart is a finely-made dagger (21.0 gm), surviving as the butt end (Fig. 7.13). It is more obviously water-transported than any of the other transposed lithics. All the corners, edges and arrises are slightly rounded to the unaided eye, and there is a high polish overall which is unrelated to use; the narrow sides and the broken end display faint percussion marks and their edges are chipped and locally smoothed (not shown in figure). The dagger was made from a translucent, milky grey flint distinct from the other lithologies found at Oldbury-on-Severn. A deep, curved removal from one edge where the item broke suggests the original presence of possibly a pair of hafting notches. The dagger may be compared to others known from Wales (Green *et al.* 1982). The Llanelieu dagger has a pair of hafting notches on one side only, the Ystradfellte dagger a pair on each side, and the Bryn Panel, Candleston Castle and Ffair Rhos daggers none.

### *The Inter-Tidal Sondage*

(a) *Stratigraphy and dating*

The occupation deposit discovered inter-tidally crops out to the south of the east–west palaeochannel (Fig. 1c), on a clifflet marking the outer edge of the ledge formed by the highest peat in the Wentlooge Formation (Allen and Fulford 1992, illus. 2). Here the bedrock surface begins to dip down beneath the estuarine alluvium southward toward Oldbury Pill.

A dug section revealed an upward vertical sequence of five units (Fig. 1d). Bed 1 (0.25 m) is a rubble (?head) of Triassic sandstone and mudstone blocks in a yellow-red silty matrix with some sand and scattered pebbles toward the top. The overlying deposit (Bed 2) consists of 0.3 m of pale green sandy silt of estuarine origin with increasingly abundant sand and pebbles in the uppermost 0.05–0.1 m. Grading up from this is a dark grey, organic-rich, silty–pebbly sand slowly succeeded by a few millimetres to centimetres of reed peat, the whole constituting Bed 3 (0.06–0.1 m). The sand—the occupation deposit—

includes toward the top much charcoal mixed with worked lithic material and thermally-fractured stones (see below), but no pottery. A sample of charcoal gave a conventional radiocarbon age of 5,310 ± 70 years BP (Beta–84850). Bed 4 ( < 0.07 m) above is a pale green estuarine clayey silt with roots and rhizomes. Bed 5 (0.15–0.19 m) is a locally silty reed peat with scattered timber from shrubs and small trees. The top preserves occasional trackways of red deer and cattle (Allen 1997b). On the marsh cliff to the east the peat is seen to pass up into a few decimetres of estuarine clayey silt.

Beds 2 and 4 thin and eventually disappear within a few tens of metres to the north-east, the rise of the bedrock surface forcing Beds 3 and 5 to merge and overlie the weathered Trias directly (Fig. 1d). A sample taken here from the lowermost part of the peat gave a conventional radiocarbon age of 4,630 ± 70 years BP (Beta–44057).

A sondage of about 4 $m^2$ in area was carefully excavated down at the site of the dug section after removing the cover of Bed 5. In origin Bed 3 and the uppermost part of Bed 2 appear to be a soil. As well as worked lithic material from Bed 3 (Tables 1, 2 and 4), they yielded 322 small pebbles of vein-quartz (97), various quartzites (93), angular flint (85), weathered gypsiferous sandstone (Triassic, 35), white sandstone (5), and assorted igneous rocks (7), suggested to represent wash from concealed slopes to the east. No post-holes or pits were detected in Beds 3 and 4, but they had been separately trampled by large animals (Allen 1997b). The better-preserved animal footprints in Bed 3, imprinted both during and after its accumulation, included those of cattle and deer, and several large, elongated forms of a size and shape pointing to a human origin. A total of 229 occasionally joining fragments of thermally-fractured, large, well-rounded pebbles and cobbles was recovered from Bed 3 at the sondage. They chiefly represent a considerable variety of mainly pale grey quartzitic sandstones, pebbly quartzitic sandstones and subordinate compact quartzites (212), but there is some vein-quartz (10), friable white sandstone (5) and flint (2). Except for the compact quartzites, vein-quartz and flints, the main components find no obvious parallels in the Pleistocene fluvial terrace deposits along the Severn (Wills 1938) and Wye (Hey 1991) valleys, but recall Upper Carboniferous lithologies present in Gwent gravels. These clasts would seem to have been imported.

(b) *Flint*

Only the light grey (15, 177.0 gm) and dark grey (24, 158.4 gm) varieties of flint present in the unstratified assemblage were recorded from the sondage, discounting three unattributable burnt flakes. The sample is limited, but the emphasis on water-transported raw materials seem to be greater than inter-tidally (Table 2). Cores from the sondage are comparatively small and similar in size (Fig. 2e), types and proportion (Tables 1 and 3) to those in the grey flints from the inter-tidal assemblage, the cuboidal (Fig. 3.7) and cortical (Fig. 3.13) forms being emphasized. A pyramidal core from the sondage is illustrated in Fig. 3.9. The small sample of flakes is indistinguishable from the much larger unstratified collections (Table 1; Fig. 4e). There are two small blades ( < 22 mm). None of the flint items had been retouched.

(c) *Chert*

Only four items of chert were recovered, two black tertiary flakes (1.7 gm) and a mid grey secondary flake (6.6 gm), plotted with the flint in Fig. 4e, and a single, pale grey edge-trimmed flake (3.5 gm, 34 mm). The latter had been continuously retouched from the ventral surface for about 12 mm along the proximal left edge (Fig. 9.3).

(d) *Other lithologies*

Of importance for the interpretation of the unstratified inter-tidal assemblage is the presence of a little worked stone at the sondage (Table 4). The tuff is a tertiary flake indistinguishable lithologically from the coarse tuff in the inter-tidal assemblage. The quartzite, with no precise counterpart inter-tidally, is a secondary flake from a large, well-rounded cobble. Although smooth, the natural surface is dull and, therefore, probably water-worn.

### *The Power Station Assemblage*

(a) *Stratigraphy and dating*

The Avon Archaeological Unit's salvage excavations in the embanked marshes to the south of Oldbury Power Station (Hume 1992) gave evidence of supposed prehistoric activity at a total of 27 features or

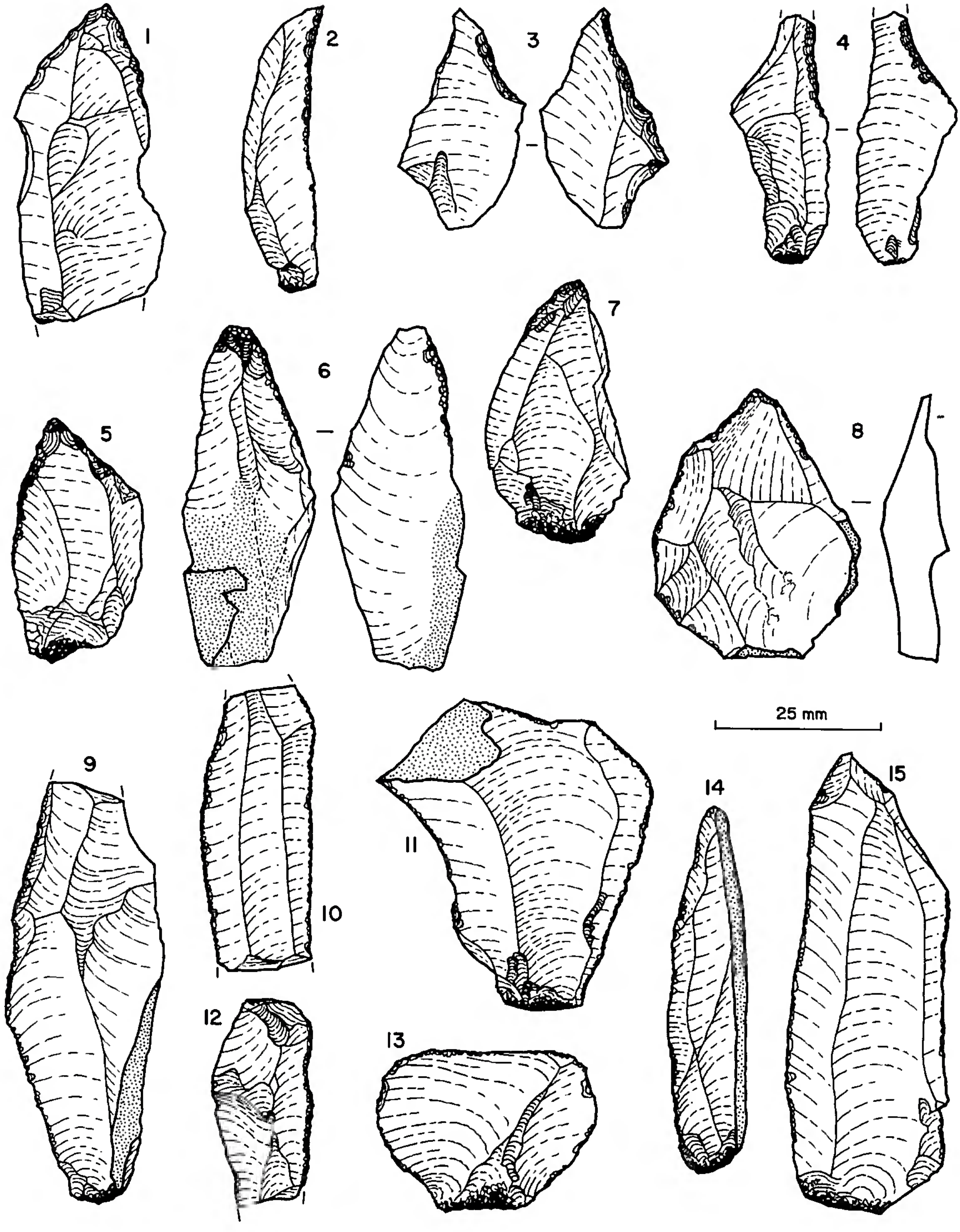


Fig. 8. Tools from Oldbury-on-Severn. Unstratified inter-tidal assemblage: piercers (1–7), edge-trimmed flakes (9–15). Power Station assemblage: piercer (8).

groups of features, chiefly in a strip measuring *c.* 100 × 400 m immediately north of the palaeochannel. They appeared to be associated with a slight ridge or table-like feature of Triassic mudrocks buried beneath *c.* 2 m of estuarine alluvium. Stratified flintwork was recorded from 13 of the features (Fig. 1c) and technically unstratified/residual flints were found near several of these and a number of the remainder. No pottery, thermally-fractured pebbles, or items of worked stone were recorded. Charcoal and wood ash occurred at almost every feature, and burnt bone was found here and there. At some features there were also stone blocks and slabs; these sites need not be prehistoric, as there was Romano-British settlement later in the area (Hume 1992; Allen and Rippon 1997). Stake-holes, post-holes, hearths and pits were recognised among the features, but no definite buildings were identified. At one feature with stratified flintwork, however, stake-holes and burnt, dressed timbers were found (Fig. 1c) which gave a conventional radiocarbon age of 3,400 ± 45 yrs BP (SRR–4777).

(b) *The Flintwork*
The Bristol museum collection from the Power Station was assessed in the same manner as those from the sondage and inter-tidal zone (Table 1). Apart from burnt flakes, including a pebble core, it consists almost entirely of items in a flint with the same range of properties as the brown type described above from the unstratified assemblage. Three items only—a trimming flake, a tertiary flake, and a blade—were in a mottled, light grey flint that more resembled the light grey inter-tidal variety. Red–brown Triassic silt was cemented to several of the brown flints, as with some of the inter-tidal items noted above.

Nodular flint appears to have been the predominant raw material (Table 2). Only two pieces were recognisably derived from percussion-marked, water-transported cobbles. Worked raw material and core trimming/rejuvenation flakes are well represented, but no shatter or cores (apart from the burnt example) were recognised (Table 1). The plentiful flakes (Fig. 4f) are comparatively small, with tertiary forms dominant, and more like those in the brown than the grey unstratified flints in terms of the breadth:length ratio (Fig. 4a–c). Most of the six blades (< 43 mm) exceed 30 mm in length.

Retouched items are present to about the same proportion as in the inter-tidal brown flint (Table 1), but they mainly seem crude and many are broken. The scrapers (3) are a complete, small half-scraper (28 mm) based on a bruised core fragment, an ill-formed scraper-knife, and a broken end-scraper or scraper-knife (Fig. 5.10); three roughly circular scrapers (38, 39 and 50 mm) figured by Hume (1992) are not included in the museum collection. The single knife (Fig. 6.9) was mainly retouched along the left-hand edge, on the dorsal face heavily but on the ventral side much more lightly and only distally. A light retouch characterises the three piercers (Fig. 8.8). Twelve edge-trimmed flakes (Fig. 9.6–7), exploiting mainly blade-like forms, and two serrates (Fig. 9.8) are present.

### *Comparison with a Mesolithic Assemblage*

This transposed suite was assembled from 1986 onward by repeatedly line-walking a narrow beach (ST 371819–369821) of Triassic debris at the foot of the sea defences to the south and east of the bedrock 'island' of Goldcliff, Gwent (Fig. 1b). The lithic material had been eroded from an extensive occupation layer (lithics, charcoal, bone), later excavated by Bell (1992, 1993, 1995), overlying late Pleistocene head and sealed beneath Flandrian estuarine silt (*c.* 0.4 m) and peat (*c.* 1.5 m) outcropping close by on the edge of an inter-tidal peat ledge. The peat began to accumulate at a conventional radiocarbon age of 5,920 ± 80 years BP (CAR–1501); charcoal from the occupation deposit has a conventional radiocarbon age of 6,430 ± 80 years BP (GU–2759). A very few items could have becn derived from the bedrock 'island' during the erosional retreat of the low cliff that fronts it. Chert, flint and tuff are the lithologies represented by worked raw material or struck flakes (Tables 1 and 4). Because of the much greater exposure of the beach to wave action, the transposed lithic material at Goldcliff is generally more polished and damaged than at Oldbury-on-Severn.

Chert is relatively more abundant than at Oldbury, but the varieties present—light grey, mid grey and black—seem to be identical. Water-transported pebbles and small cobbles dominated as raw materials (Table 2). The cores are comparatively small (Fig. 2f) and similar in mean weight and weight distribution to transposed cores from Oldbury and the sondage. With only the biconical and wedge-pebble forms

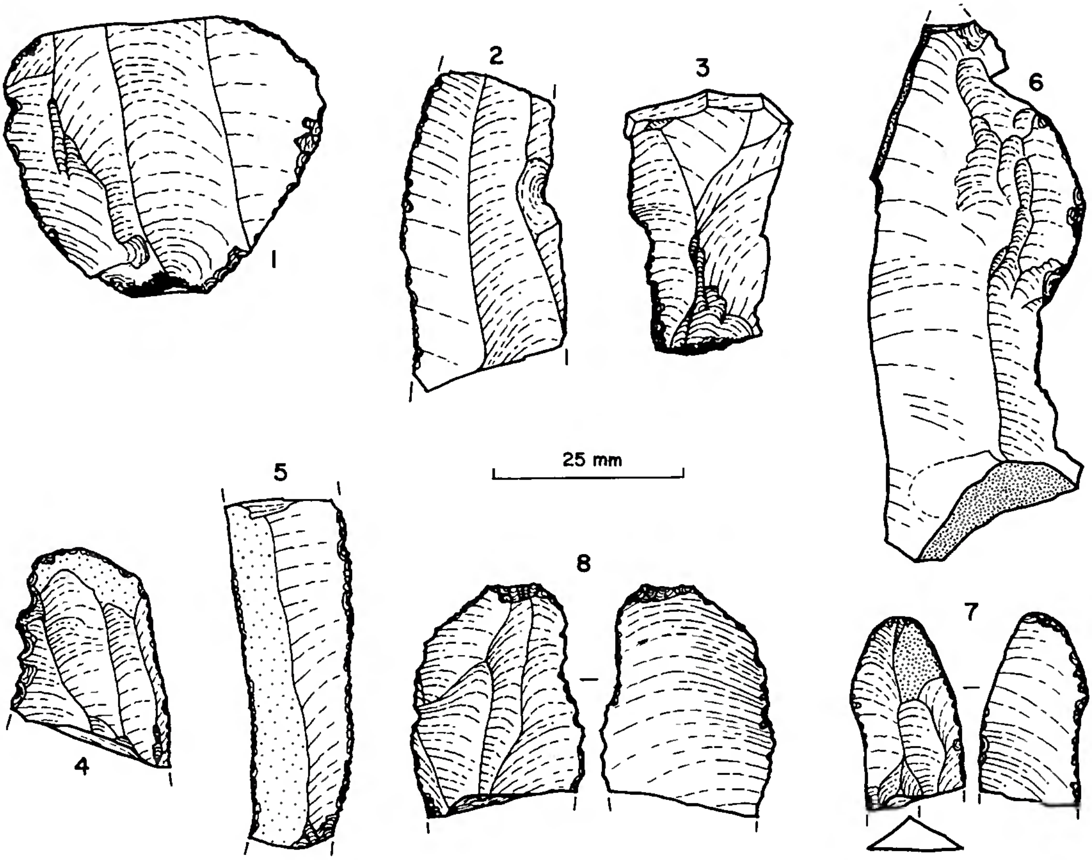


Fig. 9. Tools from Oldbury-on-Severn. Unstratified inter-tidal assemblage: edge-trimmed flakes (1–2). Sondage: edge-trimmed flake (3), serrates (4–5). Power Station assemblage: edge-trimmed flakes (6–7), serrate (8).

unrepresented, the emphasis is again on the cuboidal type (Table 3). The flakes are small and tend toward the equidimensional (Fig. 4g), like the chert at Oldbury (Fig. 4d) and later Mesolithic assemblages of Pitts and Jacobi (1979). The proportion of tools is low but slighter greater than at Oldbury. They are crude and of little variety (Table 5), although scrapers are represented by oval (1), semicircular (1) and side (9) forms. Two of the microliths resemble triangular forms described from Rhuddlan M in north Wales (Jacobi 1980, fig. 4.12 and 18–20). The third could be a broken *mèche de Foret.*

The grey flints present at Oldbury reappear at Goldcliff, with dark grey-black material dominant (Table 1). All kinds are well-represented by water-transported pebbles and small cobbles, but the light and dark grey varieties seem to have been most plentiful as small, commonly broken nodules (Table 2). Taking the flints together, the same types of core are present as at Oldbury, with the cuboidal form again dominant (Tables 1 and 2). The mean weight per core is similar to that at Oldbury but, in contrast, the distribution of weights is strongly skewed toward the larger forms (Fig. 2g). Very few unretouched blades are recorded, most of the flakes, as with the chert at the site, and unlike the grey flints at Oldbury, tending to be equidimensional (Fig. 4h). Again taking the flints together, the proportion of items recognised as implements is about the same as at Oldbury (Table 1). The variety is, however, narrow and the tools are comparatively small and ill-made (Table 5). Edge-trimmed blade-like to irregular flakes dominate, followed by piercers, and edge, oval or semicircular scrapers. The five microliths present include three probable *mèches de Foret* and a triangular form (see above) deeply notched on one edge. Three cores are bruised, suggesting use as hammers.

Intergrading very fine, fine and coarse tuffs in the form of subangular to subrounded cobbles are the only items of worked stone at the site, but occur in some abundance (Table 4). Their surfaces appear to be wholly water-smoothed and lack indisputable signs of wind-polishing. The rocks are dark grey to black and faintly to conspicuously laminated; thin-sections reveal broken feldspar crystals set in a strongly siliceous groundmass. There are many similarities to the worked tuffs at Oldbury, but the matrix is more siliceous and there are no signs of clcavage. The worked material takes the form of shatter, flaked lumps, and plentiful mainly tertiary and secondary flakes. Repeated similar bruises on three faces of one roughly cuboidal lump (239 gm) of very fine tuff suggested that it had been used as a hammer to strike another tool. No other lithologies appear to have been worked, although a few thermally-fractured pebbles of quartzitic sandstone were encountered.

*Discussion*

Several factors restrict the extent to which the evidence for prehistoric activity at Oldbury-on-Severn can be interpreted. First, most of the assembled archaeological material lacks an established primary context. Second, of the little securely-stratified material, the greater part came from excavations unavoidably performed at speed during engineering work. Third, the assemblages themselves, and the numbers of implements, are comparatively small. Fourth, the various excavations provide only a tiny window through which to view the now-buried land surface and encroaching marsh edge on which activity took place. Several conclusions are nevertheless warranted.

Activity was linked to slightly elevated parts of the bedrock surface and the marsh inner edge, and ranged over a substantial area (Fig. 1c). The sites are scattered along the banks of a tidal palaeochannel which was definitely active in the later Iron Age and Roman period (Allen and Fulford 1992). However, appealing as is the association from the standpoint of communication and resource exploitation (see Allen and Rippon 1997), the question of the significantly earlier existence of this channel remains open. Given the way sea-level fluctuations seem to control channel evolution in tidal wetlands (Allen 1997c), the feature is likely to have had a precursor in the bedrock landscape only if it also discharged fresh water.

Although substantial in total, the area of proven activity need not have been occupied all at the same time (Fig. 1c). At the inter-tidal sondage, south of the palaeochannel, the charcoal accompanying thermally-fractured stones dates to the earlier Neolithic; by later Neolithic times, this particular location on the bedrock surface lay sealed beneath estuarine silt and peat which had encroached upon it. Excavated features at the Power Station to the north of the palaeochannel are, however, dominated by a single kind of flint (brown), and burnt worked timbers suggest that activity here was over by the mid Bronze Age. None of the stratified contexts are known to be of Mesolithic age, but the presence of unstratified but well-preserved microliths (? early–mid Mesolithic) points to at least fishing or hunting at Oldbury.

Chronological and raw-material factors apparently determined the character of the overwhelmingly unstratified lithic artefacts at Oldbury (Tables 1 and 2). The earlier Neolithic context yielded only cherts and grey flints; more than two thirds of the unstratified inter-tidal assemblage is of a similar character. No chert and only a very little grey flint occurs at the Power Station, where brown flint, largely as nodules, is present in many features and activity had ceased by the mid Bronze Age. Items in chiefly nodular brown flint form less than one third of the unstratified assemblage. A 'chert-grey flint industry' could have been followed or overlapped in time by a 'brown flint factory'. The known stratified contexts are, however, few and only one is of early date; brown as well as grey flint was used for the microliths. Moreover, the cherts and grey flints would seem much less acceptable for tool-making than the brown flint, and were not available in such large masses. As well as being more varied, implements in brown flint are proportionately several times more plentiful than tools in grey flint or chert. Hence the possibility cannot be excluded that the availability of raw materials limited the industries independently of the chronological factor. Much of the material was clearly being drawn from the river gravels and beaches of the Severn Estuary and inner Bristol Channel. In addition to an evident impoverishment, the 'industries' were also parsimonious, a feature also evidenced by the diminutive cores and flakes (Fig. 4) from the Mesolithic site at Goldcliff. Oldbury and Goldcliff cores are very small to small (Fig. 2), and even those shaped from nodular brown flint, at earlier stages affording blades up to 79 mm long, were worked down to very little. For example, the latter have a mean weight of only 25.0 gm (Fig. 4c), in contrast to the mean of 48.5 gm for a comparable sample from Windmill Hill (Smith 1965), Wiltshire. At Hazleton North (Saville 1990), Gloucestershire, the modal core weight is only 10–19 gm, but some very large cores also occur here. The flakes from Oldbury are also diminutive, as at Hazelton North, showing some variation in breadth:length ratio with lithology (Fig. 4).

It would be surprising if such small numbers of implements offered a chronological resolution finer than the evident, predominantly Neolithic–early Bronze-Age typological span of the collections overall (Holgate 1988). There are no laurel leaves/ovates in any raw material, but the two polished stone axes reported earlier from the shore are Neolithic (Allen 1990). Scraper-knives, suggestive more of the early Bronze Age, are commonest in the brown flint but there is one example in dark grey flint. The oval knife and some of the smaller scrapers suggest early Bronze-Age manufacture; the dagger is also of this date, but not indigenous, although an example of an implement with an essentially lowland distribution (Grimes 1932). Following Green (1980, 1984), the chisel arrowhead in brown flint seems to point only to some time in the Neolithic,

Table 1. General composition of lithic assemblages.

| | worked raw material | shatter | trimming/ rejuvenation flakes | primary flakes | secondary flakes | tertiary flakes | cores | blades | tools | total no. | total weight (gm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Unstratified inter-tidal assemblage** | | | | | | |
| light grey flint | 25 | 81 | 172 | 12 | 102 | 105 | 62 | 16 | 55 | 630 | 4442.2 |
| dark grey flint | 30 | 102 | 139 | 30 | 171 | 91 | 112 | 13 | 66 | 754 | 4707.2 |
| brown flint | 3 | 23 | 68 | 3 | 139 | 38 | 33 | 27 | 107 | 440 | 4390.1 |
| light grey chert | 1 | — | 1 | — | 10 | 4 | 1 | 3 | 1 | 21 | 126.6 |
| mid grey chert | 1 | 3 | 3 | 1 | 12 | 15 | 6 | 2 | 3 | 46 | 401.7 |
| dark grey chert | 6 | 1 | 6 | — | 15 | 3 | 8 | 2 | 3 | 44 | 1088.6 |
| *sub-total* | *66* | *210* | *388* | *46* | *449* | *256* | *222* | *63* | *235* | *1935* | *15156.4* |
| | | | | | **Inter-tidal sondage** | | | | | | |
| flint and chert | 1 | 12 | 3 | 1 | 11 | 6 | 6 | 2 | 1 | 43 | 347.2 |
| | | | | | **Power Station assemblage** | | | | | | |
| flint | 4 | — | 19 | 1 | 15 | 30 | — | 6 | 21 | 96 | 499.3 |
| | | | | | **Goldcliff** | | | | | | |
| light grey flint | ——— | 20 | ——— | 19 | — | 2 | 2 | — | 2 | 26 | 237.3 |
| mid grey flint | ——— | 24 | ——— | 10 | 44 | 16 | 19 | 1 | 15 | 129 | 1086.1 |
| dark grey flint | ——— | 76 | ——— | 34 | 135 | 37 | 62 | 3 | 33 | 380 | 2469.9 |
| chert (all kinds) | - | 67 | - | 19 | 68 | 45 | 22 | 2 | 22 | 245 | 2290.4 |
| *sub-total* | | *187* | | *82* | *247* | *100* | *105* | *6* | *72* | *780* | *6083.7* |

Table 2. Character and abundance of raw materials.

| | natural form | | | |
|---|---|---|---|---|
| | **A** | **B** | **C** | **total** |
| | **Unstratified inter-tidal assemblage** | | | |
| light grey flint | 129 | 157 | 30 | 316 |
| dark grey flint | 193 | 278 | 18 | 489 |
| brown flint | 222 | 36 | 7 | 265 |
| light grey chert | 3 | 9 | 2 | 14 |
| mid grey chert | 13 | 10 | 2 | 25 |
| dark grey chert | 12 | 17 | — | 29 |
| *sub-total* | *572* | *507* | *59* | *1138* |
| | **Inter-tidal sondage** | | | |
| flint and chert | 6 | 18 | — | 24 |
| | **Power Station assemblage** | | | |
| flint | 24 | 2 | 3 | 29 |
| | **Goldcliff** | | | |
| light grey flint | 9 | 4 | 4 | 17 |
| mid grey flint | 11 | 26 | 45 | 82 |
| dark grey flint | 174 | 87 | 39 | 300 |
| chert (all kinds) | 64 | 110 | — | 174 |
| *sub-total* | *258* | *227* | *88* | *573* |

Explanation of forms: A—irregular to rounded, commonly broken nodules with water-smoothed cortex; B—subangular to rounded water-worn pebbles and cobbles with percussion marks (Klein 1963) on edges and corners or overall; C—angular to subangular with mainly broken surfaces and water-worn edges and corners.

Table 3. Types and distribution of cores.

| | **single-platform** | **double-platform** | **cuboidal** | **pyramidal** | **biconical** | **pebble** | **wedge-pebble** | **double-wedge** | **other** | **total** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **Unstratified inter-tidal assemblage** | | | | | | |
| light grey flint | 8 | 10 | 30 | 10 | 1 | 7 | — | — | 1 | 62 |
| dark grey flint | 15 | 10 | 45 | 7 | 5 | 11 | 15 | 1 | 3 | 112 |
| brown flint | 1 | 4 | 8 | 5 | 5 | 4 | 4 | 1 | 1 | 33 |
| chert (all kinds) | 2 | 1 | 7 | 1 | 1 | 1 | 1 | — | 1 | 15 |
| *sub-total* | *26* | *25* | *90* | *23* | *11* | *23* | *20* | *2* | *6* | *222* |
| | | | | **Inter-tidal sondage** | | | | | | |
| flint and chert | 1 | — | 2 | 1 | — | 2 | — | — | — | 6 |
| | | | | **Goldcliff** | | | | | | |
| flint (all kinds) | 8 | 6 | 45 | 4 | 3 | 4 | 8 | 1 | 4 | 83 |
| chert (all kinds) | 2 | 2 | 13 | 2 | — | 1 | 1 | — | 1 | 22 |
| *sub-total* | *10* | *8* | *58* | *6* | *3* | *5* | *9* | *1* | *5* | *105* |

Table 4. Items of worked stone from Oldbury-on-Severn and Goldcliff.

| | no. of items | weight (gm) |
|---|---|---|
| **Unstratified intertidal assemblage** | | |
| microgranite | 7 | 593.1 |
| fine tuff | 10 | 710.8 |
| coarse tuff | 6 | 80.9 |
| fine grained quartzite | 1 | 8.1 |
| mid grey, medium-coarse quartzite | 1 | 5.2 |
| pinkish grey, medium-coarse quartzite | 2 | 124.9 |
| silicified wood | 2 | 7.1 |
| *sub-total* | *29* | *1530.1* |
| **Inter-tidal sondage** | | |
| coarse tuff | 1 | 5.2 |
| coarse–very coarse quartzite | 1 | 9.5 |
| *sub-total* | *2* | *14.7* |
| **Goldcliff** | | |
| very fine tuff | 20 | 739.9 |
| fine tuff | 24 | 817.1 |
| coarse tuff | 5 | 285.2 |
| *sub-total* | *49* | *1842.2* |

Table 5. Flint and chert tools from Goldcliff.

| | chert (all kinds) | light grey flint | mid grey flint | dark grey flint | total |
|---|---|---|---|---|---|
| scrapers | 11 | 1 | 1 | 4 | 17 |
| piercers | 2 | — | 3 | 5 | 10 |
| edge-trimmed flakes | 6 | 1 | 8 | 22 | 37 |
| microliths | 3 | — | 3 | 2 | 8 |
| *totals* | *22* | *2* | *15* | *33* | 72 |

whereas the Sutton a arrowhead would suggest the later Neolithic–earlier Bronze Age. Leaf-shaped arrowheads, represented by all lithologies, range from the late Mesolithic to the early Bronze age, and elaborately worked and little-retouched forms can be found together (e.g. Clark *et al.* 1960; Smith 1965).

The Oldbury and Goldcliff sites are also of interest because of the evidence that rocks other than flint and chert were being worked, although no actual artefacts have yet been recovered. Polished stone axes of porphyry and especially quartzite and tuff are, however, all recorded from the region of the Severn Estuary Levels (Clough and Cummins 1988). Some of the rocks worked at Oldbury seem to have originated in distant parts of Britain, but their representation as cobbles, with either water-worn or wind-polished surfaces, suggests that the immediate sources of the raw materials included the Pleistocene fluvial terrace gravels present throughout the Severn river basin and nearby (Pocock *et al.* 1938; Wills 1938; Thompson and Worsley 1967). Glacially dispersed debris contributes significantly to these gravels. The tuffs worked at Goldcliff differ slightly from those at Oldbury, but are also likely to have come from a local, either fluvial or marine immediate source after transport from a Welsh outcrop.

Apparently there was Neolithic–early Bronze-Age settlement on the estuary margin at Oldbury-on-Severn, judging by size of the affected area (Fig. 1c), the diversity (Figs. 5–9) of the implements (Holgate 1988), and the presence in stratified contexts of thermally-fractured stones, fragments of bone, charcoal, post-holes, stake-holes, pits and hearths. In the kind and range of the tools, Oldbury compares with such domestic sites as Hurst Fen (Clark *et al.* 1960), Suffolk, and the domestic element at Hazleton North (Saville 1990), Gloucestershire, and with inhabited enclosures as exemplified by Windmill Hill (Smith 1965), Wiltshire, and Staines (Robertson-Mackay 1987), Surrey. It also bears comparison, in the total number of flints and the range and proportion of tools and retouched items, with the Thornwell Farm (Gwent) site overlooking the Wye and Severn near Chepstow (Hughes 1996). The ritually broken barbed-and-tanged arrowhead from Hills Flats (Allen 1997a) could indicate burials (Green 1980) on the lowlands bordering the Severn Estuary. Also badly broken were the two polished axes found within a few metres of each other at Oldbury (Allen 1990).

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