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The excavation of a Mesolithic horizon at 13–24 Castle Street, Inverness

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with contributions by Rosemary Bradley, Camilla Dickson, Mary Harman and I Maté and illustrations by Gillian Harden

ABSTRACT

A microlithic flint industry dating to c 5000 bc was found, containing 137 retouched pieces and 4700 other fragments. No structures were identified. The occupation level in which the flints were found was sealed by a complex soil horizon that included two marine transgressions.

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BACKGROUND

The original excavation of 13–24 Castle Street was designed to recover deposits remaining from the medieval occupation of Inverness, as discussed by the writer in *Proc Soc Antiq Scot*, 112 (Wordsworth 1982). The discovery of Mesolithic levels was accidental and although efforts were made to examine this deposit, they were partly constrained by the conflicting demands of time and labour for the medieval horizons.

No previous Mesolithic activity has been recorded in the Inverness district, although at the same time as Castle Street was being excavated a shell midden was examined at Muirtown (illus 1, x). This was dated to 5635±65 bc (GU-1473), (R Gourlay, pers comm). Further shell deposits were noted c 10 ft down and c 1 ft thick when a bank was built on the east corner of Castle and High Street (illus 1, y, pers comm local informant to the author) and in 1839 on the north side of the High Street

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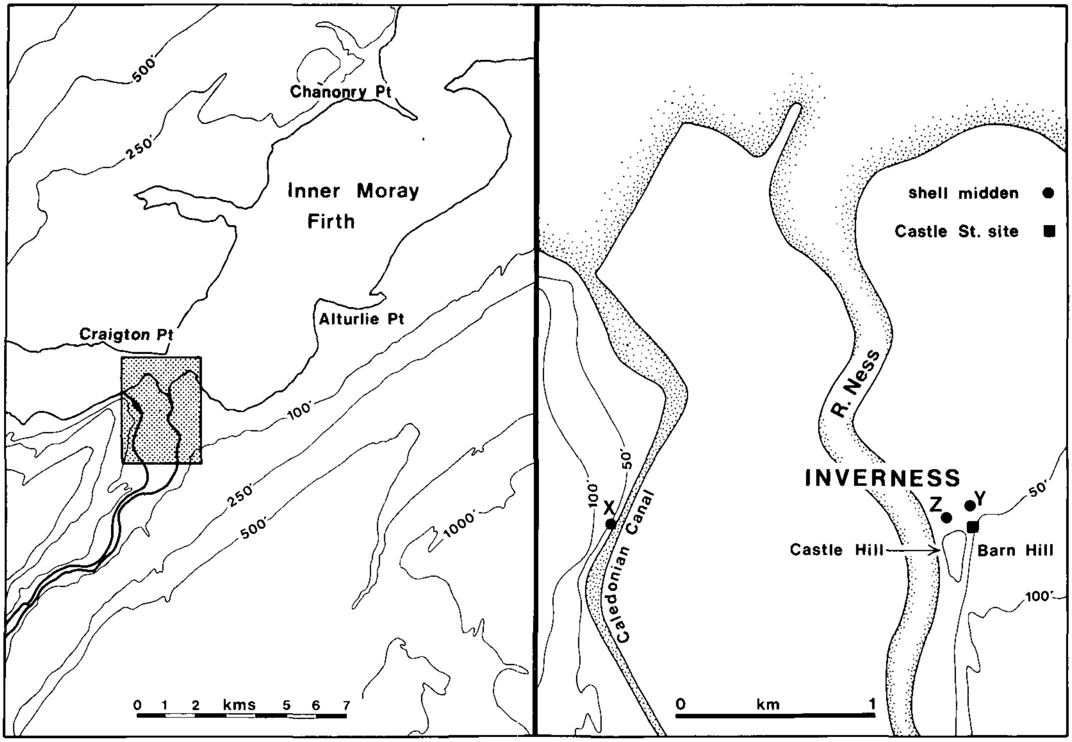


ILLUS 1 Location Map

(illus 1, z), workmen 'found part of a deer's horn, 36 inches in length, about ten feet below the surface of the street. Part of the horn was covered with sea shells' (Pollitt 1981, 81). Although these deposits may be the remains of Mesolithic shell middens, the writer considers it unlikely that they were contemporary with the deposit reported here, as these shell deposits would have been subject to the erosive effects of the marine transgressions described below.

The primary site records are stored in the National Monuments Record, 6 Coates Place, Edinburgh as are the main flint catalogue and report. The soil analysis by I Maté and the microwear analysis by Rosemary Bradley are printed in full in fiche at the end of this journal. Summaries of these have been incorporated by the author with other reference material and the excavation evidence to produce the report presented here. For convenience of description all chipped stones are referred to as flint.

GEOMORPHOLOGY (illus 1, 2 & 3)

The evidence for this description is based on received geological thinking as presented by F M Synge (1977, 83–102), on observations by the writer and on a detailed study of a soil profile at Castle Street by I Maté. This profile was taken from the north end of the site, its exact position being shown on the section drawing, illus 11, in I Maté's report (fiche 1: A7). Further column samples, including one at the south end of the site, were taken by J C C Romans of the Macaulay Institute, but these had not been analysed at the time this report was written.

The site was located in a natural hollow in a ravine worn through glacial gravels, A, that now form the Castle and Barnhills. According to Synge (1977, 87) these gravels are deltaic, being part of much larger deposits laid down by a sub-glacial river. As similar gravel has been observed on the opposite side of the Moray Firth above Craigton Point, it has been assumed that this delta extended further into the Firth. The shore line may have lain as much as 5 miles NE of the site, as a shingle ridge at 30 m OD, cutting across the edge of a prominent kettle moraine, has been noted at Alturlie Point. This deltaic gravel was then eroded by the sea as the ice sheet retreated. On the basis of radiocarbon dates in the Forth valley the deposition of the gravels is placed before 13 000 bp. In the succeeding isostatic uplift the Castle and Barnhills and at least part of the Castle Street ravine were raised above sea level.

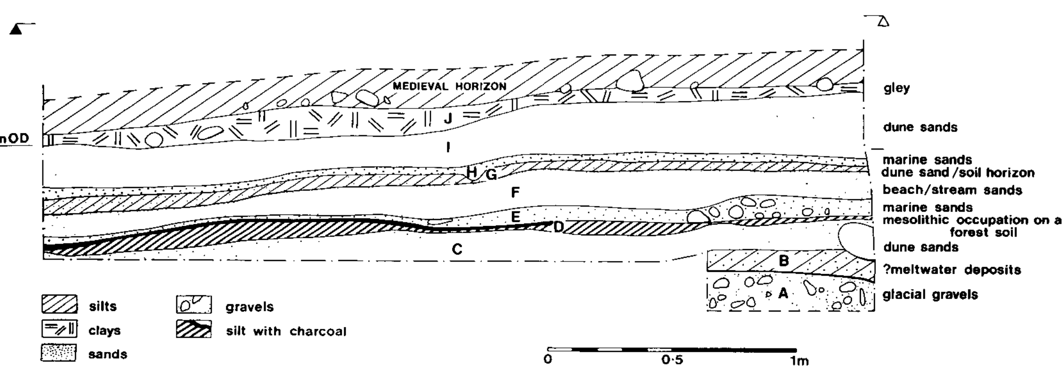
The cause of the ravine is not known. The surface of the surviving gravel slopes at an angle of 57 m/km from measurements taken on site and this is not too severe an angle for a beach gravel, particularly as there has been considerable, though undetermined, isostatic uplift since the ravine was formed. However, it is more likely that the ravine was caused by meltwater from the ice that lay above the deltaic gravels, as there was no evidence for a marine horizon over these gravels. There was a series of fine silty sands and clayey silts, B, in the hollow where the main Mesolithic occupation was recorded (see illus 2 & 3). These may have been water deposited, perhaps by the fluctuating flow of the glacial meltwater. As the column sample analysed by I Maté did not extend down this far this will have to be confirmed by J C C Romans (illus 11, fiche 1: A7). These fine sands and silts did not occur over the rest of the site where a slightly coarser but still fine grey white sand, C, was deposited. Particle size analysis indicated that this was an aeolian deposit, almost certainly dune material deposited after the meltwater ceased to flow.

Over this what has tentatively been identified by J C C Romans as an acid brown/brown forest soil formed and it was on this, D, that the Mesolithic material was recovered. The uppermost level of this horizon is dated 7080±85 bp (10-GU-1377) though the deposit was almost certainly truncated and the final date for the Mesolithic occupation is not clear. Above this a coarse white sand with occasional stones was noted, E. The stones probably eroded out of the gravel that surrounded the site, while the coarse sand has been identified as a beach sand and represents a marine transgression over the Mesolithic horizon. These coarse sands were traced from the north of the site at a point 8·65 cm OD to a height of 9·5 m OD at the south of the site (see illus 2 and sections 1, 2 and 3, illus 10, fiche 1: A5).

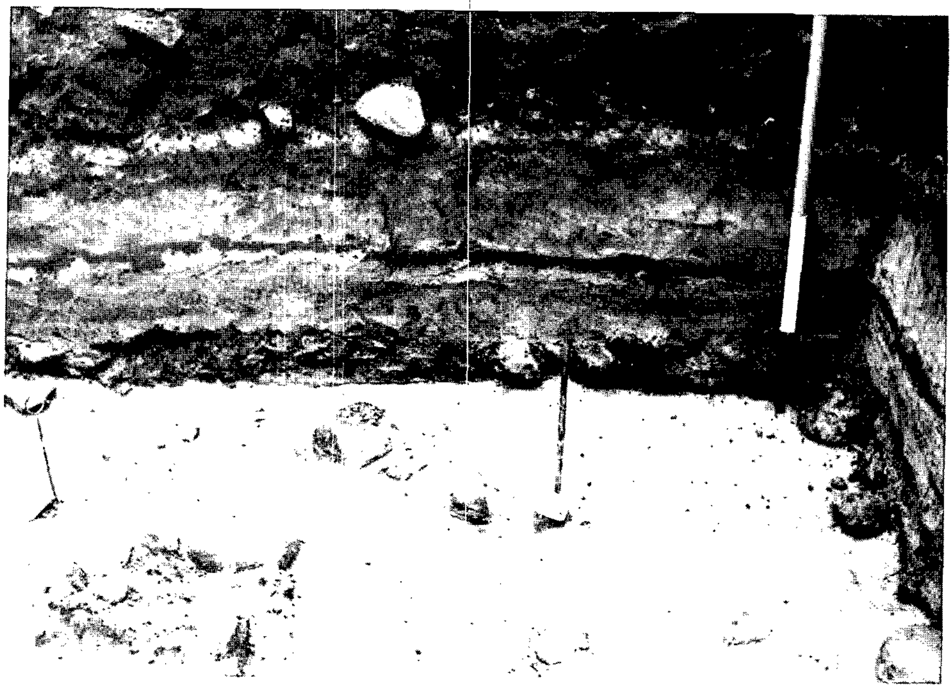
The beach sand was covered by coarser water-deposited sands, F, which I Maté suggests may have been laid down by a beach stream. This would have occurred after the sea receded or, more plausibly, when the land continued to rise, as there is no evidence for increased freezing of the oceans at this period.

Above the coarser beach sands another aeolian sand collected that was not differentiated on excavation. A soil horizon, G, formed on this that was clear on excavation, and in the east section (illus 2 & 3). The clayey silt horizon in this section and the evident gleying suggest a period of stability. This soil was succeeded by more beach sands, H, showing a further marine transgression at a maximum height of 8·9 m in the east section. These beach sands did not show at the south of the site though they may have been removed by more recent erosion.

This second beach horizon was the highest marine transgression on the site and the height recorded accords well with the generalized isobase of c 9 m suggested by Sissons (1976, 130, fig 9.6) for the main post glacial transgression. This has been dated in the Forth Valley to between 6800±250 bp and 6645±120 bp



ILLUS 2 East section in cellar 3 and its interpretation



ILLUS 3 South part of east section in cellar 3

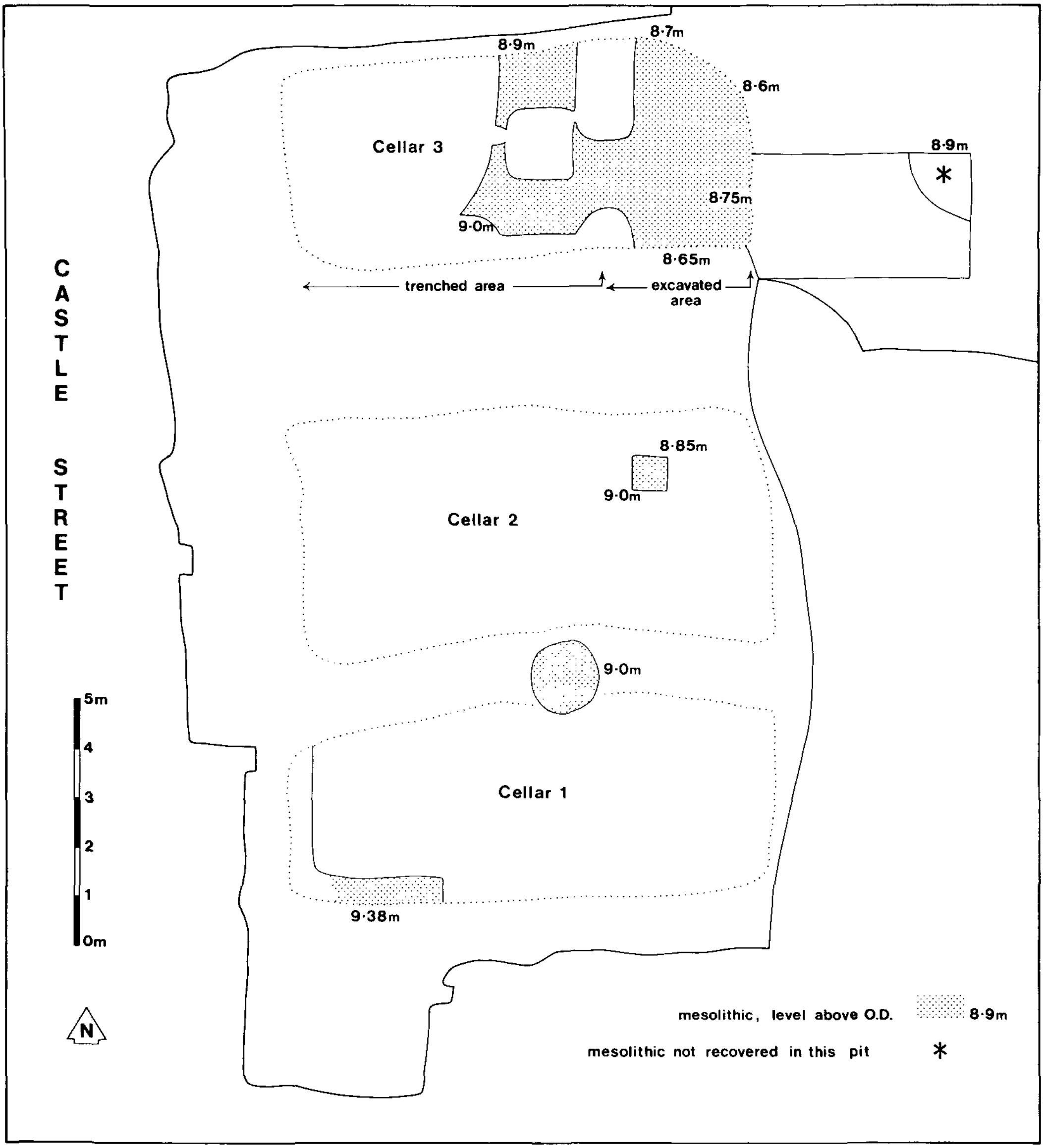
(Sissons 1976, 131) and between 6300±60 bp and 5140±60 bp for the Philorth valley near Fraserburgh (Smith *et al* 1982, 321–36). It is impossible to compare these dates directly with those from Inverness because of the complex oscillation between the isostatic forces uplifting the land and the rising sea levels caused by the melting polar ice. Recent evidence, as summarized in Smith 1982, has confirmed this complexity by showing more than one marine incursion elsewhere on the eastern seaboard.

After the second transgression the sea receded and more wind blown deposits, I, were laid down. These were sealed by a thick gley, J, that lay beneath the medieval horizons described previously by the writer (Wordsworth 1982, 322–91).

EXCAVATION (illus 4 & 5)

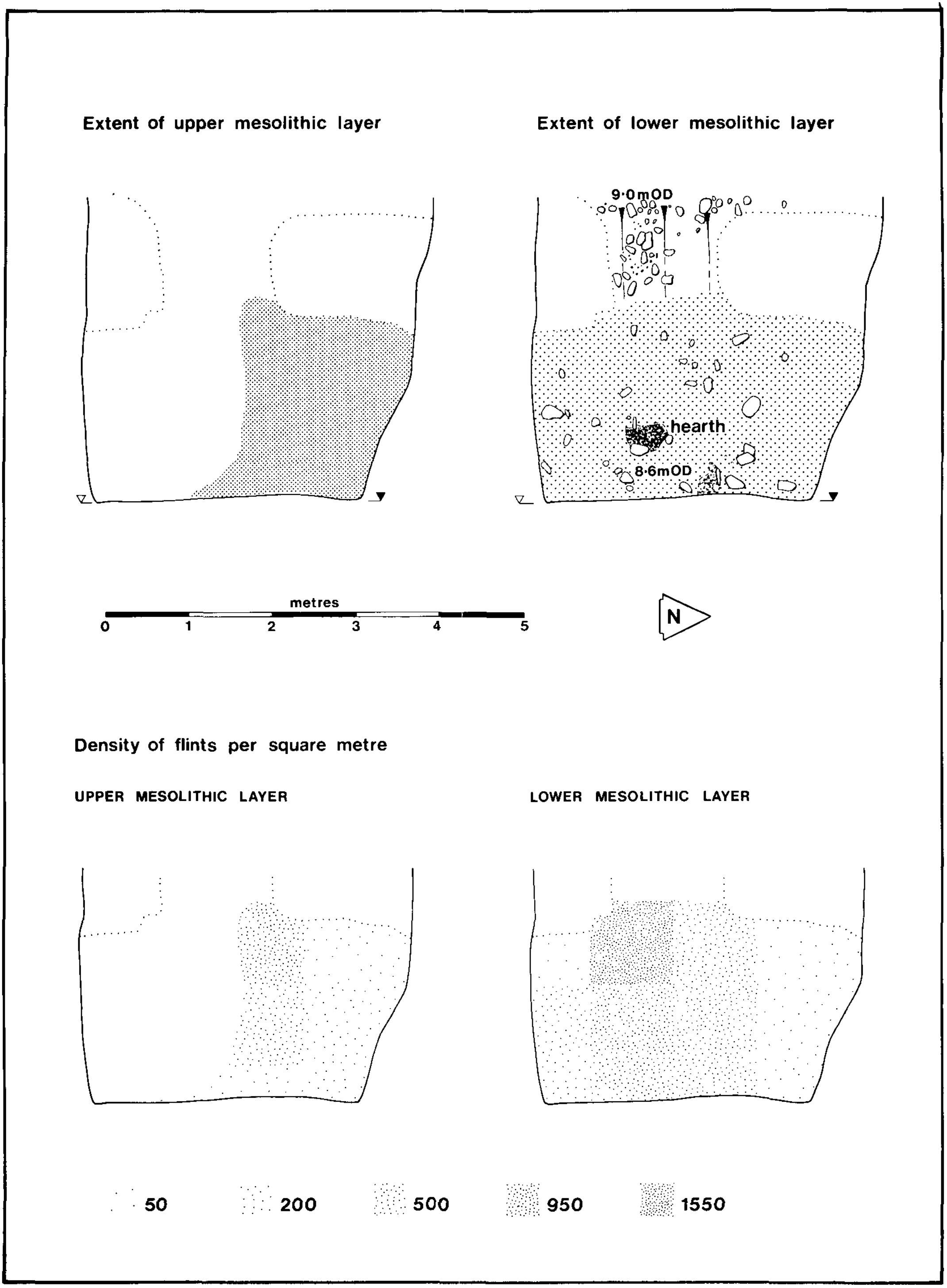
During the course of the medieval excavation various flint objects were recovered and a few of these were clearly from a microlithic industry. At the end of the site a charcoal horizon sealed beneath a layer of undisturbed sand was revealed in the cuts for two medieval pits. Therefore, when naturally deposited sands were recovered below the medieval levels they were trenched in the west half of cellar 3 to reveal the underlying horizon. The charcoal was restricted to the east end of the area and to the west was a white sand, identical to the lowest dune sands identified by I Maté. At the extreme west the sand lay in pockets amongst the glacial gravel, as the height of the gravel rose slightly from east to west. In this trial examination 110 flints were found, 52 of which were recovered from sieving the soil residue through a 5 mm sieve.

As a result of this excavation a more careful study was made of the area to the east of the medieval pits in cellar 3 (illus 5). The Mesolithic occupation consisted of a series of fine lenses most of which became less discrete on excavation, so that the definitions of each lens/layer were imprecise.



ILLUS 4 Site plan showing the excavated extent of the Mesolithic horizon

These layers were rich in flints and each piece was recorded *in situ* according to lens, though a significant proportion of the total number of pieces was recovered by sieving the soil residue from each 1 m grid square through a 5 mm mesh sieve. Because of the recording necessary for this, excavation was slow, taking an average of three people six weeks to complete. As the recovery of the flints was both *in situ* and through wet sieving it was not possible to record all the typologically significant artefacts in position.



Illus 5 Plans of the Mesolithic horizons and the density of flints in each

The occupation was divided into two horizons. The lower horizon was excavated as four separate lenses of grey silt and sand with occasional stones up to 0·2m in diameter. They may have formed a series of separate occupation levels, but the distinctions were vague and the deposits had almost certainly been altered by the fluctuations of the water table when the sea transgressed. This was perhaps shown by the working of individual flint chips by as much as 0·1m into the underlying dune sands, as waterlogged sand is more permeable for solid objects than dry sand. An alternative explanation is that they were moved biologically by agencies such as sand worms, though the latter's interest in flints is likely to have been slight.

The lenses of grey silt and sand lay in a natural hollow as illustrated in illus 4 & 5. These may have formed the occupation levels of a structure, though no structural features were found, apart from a possible hearth. This feature is described as a hearth from the placing of a flat-sided stone on its vertical edge. It is not likely that this was an accidental or natural placing as there was a concentration of charcoal around it.

The upper Mesolithic horizon consisted of large numbers of small rounded pebbles, no more than 10 mm in diameter, intermixed with a black charcoal-rich silt. This horizon was clearly distinct from the grey silts and sands of the lower horizon and probably represents some form of surface. Its south edge was indistinct and may have been removed by the tailback of the transgression waves.

There may have been some rodent activity as well as water action to disturb the deposits, as a burrow was clearly noted penetrating from the surface below the second transgression down to the Mesolithic levels. Within the burrow were found charcoal flecks and two flint fragments.

While this area was being excavated attempts were made to define the extent of the Mesolithic occupation (illus 4). A trench 4 m long by 2·5 m wide was dug to the east, and although this was not completed in the time available, a medieval pit in the north-east corner revealed no occupation material between a fine white sand similar to the first dune sands and a coarser sand similar to the sands of the first transgression. However, between identical layers from a 0·5 m square trench dug in cellar 2 was a horizon which produced one flint fragment and a few flecks of charcoal, (section shown in fiche 1: A5). Similar horizons with very occasional charcoal flecks and flint fragments were recorded in the side of the medieval pit between cellars 1 and 2, and in the south section of cellar 1 (illus 10, fiche 1: A5).

When the site was revisited with Mr Romans in April 1980 a half-demolished building to the north of the site had been removed, revealing another cellar. A small sondage was dug in this to reveal a horizon visually similar to the upper Mesolithic deposit, though with no evidence for small rounded pebbles or flints. Because the site grid had been removed its position was not plotted.

It remains unclear whether these flecks of charcoal and occasional flints chips were the remains of more extensive deposits that had been eroded by the sea or trampled material peripheral to the main settlement. The former is more probable, since the best explanation for the survival of deposits in the natural hollow is that they were protected by deposits above until the sea levelled up this hollow with marine sands. Nine flints were found in the marine sands overlying the Mesolithic horizon in cellar 3.

DATING OF THE MESOLITHIC HORIZONS

Several samples of charcoal were taken for C14 dating including one from the possible hearth. However, the quantity and quality of the charcoal after cleaning were such that only two samples were large enough to be dated. Fortunately these were from separate horizons. To make up the samples material was combined from various grid squares and in the case of the lower horizon from various lenses. The dates are presented at a one sigma level of confidence.

GU-1376 lower horizon. Mixed charcoal (*Ulmus, Pinus, Betula*)
7275±235 bp $\delta^{13}C$: −25·5%.

GU-1377 upper horizon. Mixed charcoal (*Ulmus, Pinus, Betula*)
7800±85 bp $\delta^{13}C$: −25.5%.

There is no significant difference between the two dates and therefore it cannot be said that the two horizons necessarily represent two or more distinct occupations.

EXCAVATED MATERIAL

CHARCOAL

The material was identified by Camilla Dickson, Department of Botany, Glasgow University and the following species were found to be present: *Betula* (birch), *Corylus* (hazel), *Crataegus* (hawthorn)/*Malus* (crab apple), *Pinus* (pine) and *Ulmus* (elm).

The hazel was present in both its wood and nut form and all species were found in both horizons. Mrs Dickson has commented that the above species 'still grow around Inverness. However *Malus sylvestris* (crab apple) is not now native in the Inverness area (Webster 1978) and its status in north Scotland generally is unclear.' As there have been no pollen diagrams drawn for any locality closer than Nairn (Knox 1954), and as some of the charcoal may have been derived from driftwood, no further conclusions can be drawn from this material.

SHELL

One small fragment from a mussel shell was recovered from the upper horizon.

BONE

A few small fragments of calcined bone were found in both horizons, though only at the north end of the site. Four fragments in the upper level came from the same bone and were identified by Mary Harman, as follows:

Proximal and first phalanx deer, probably red?
ap approx 16 mm
mp approx 13 mm

As the proximal epiphysis was fused this was considered to be part of an adult animal. The other fragments were not recognizable, although at least two large mammal long bone shafts were recognized.

THE FLINTS (illus 6–9)

A catalogue and a full report on this material by Daragh Lehane is stored in archive. The account presented here is a summary and interpretation by the writer, based on the above report and catalogue and observations by G Harden and J Kenworthy. It is not necessarily a reflection of the opinions of any one of these.

TABLE 1
Raw material

Flint	4696
Chert	9
Quartz	43
Mudstone	6
Total	4754

As table 1 shows, the stones chosen for working were almost entirely flint. From the surviving cortex on some pieces it was clear that beach pebbles were the main source, as is the case elsewhere in Scotland (Wickham Jones & Collins 1978, 7). Three retouched pieces from the lower horizon and one from the upper horizon reused previously worked pieces as the retouch cut through the cortication (formerly termed patination) that had formed over these pieces after they had been first struck. Such a discovery is not surprising (see Mercer 1971, 10) in an industry based on beach pebble collection, as one assumes that in the selection of pieces preference would be given to already worked pieces. It is not possible to tell how many pieces were reused and therefore how many were recovered from an earlier industry.

TABLE 2
The industry

	Primary/ Preparation		Cores	Core trimmings	Secondary waste	
	Chips	Flakes			Chips	Flakes
Lower horizon	35	7	10	24	173	30
	(1·1%)		(0·3%)	(0·6%)	(5·4%)	
Upper horizon	6	5	–	6	31	6
	(1·7%)			(0·9%)	(5·6%)	

	Tertiary waste		Damaged/ Utilized	Retouched	Total
	Chips	Flakes			
Lower horizon	3121	151	166	91	3808
	(86·3%)		(4·4%)	(2·4%)	(100·5%)
Upper horizon	472	51	47	34	658
	(79·5%)		(7%)	(5·2%)	(99·9%)

The figures in this table differ from the total number of pieces quoted in the full report as that report discusses all the flint recovered from the site. The most striking element of this table is the low proportion of primary and core waste and the correspondingly high proportion of tertiary waste. The significance of this is discussed later.

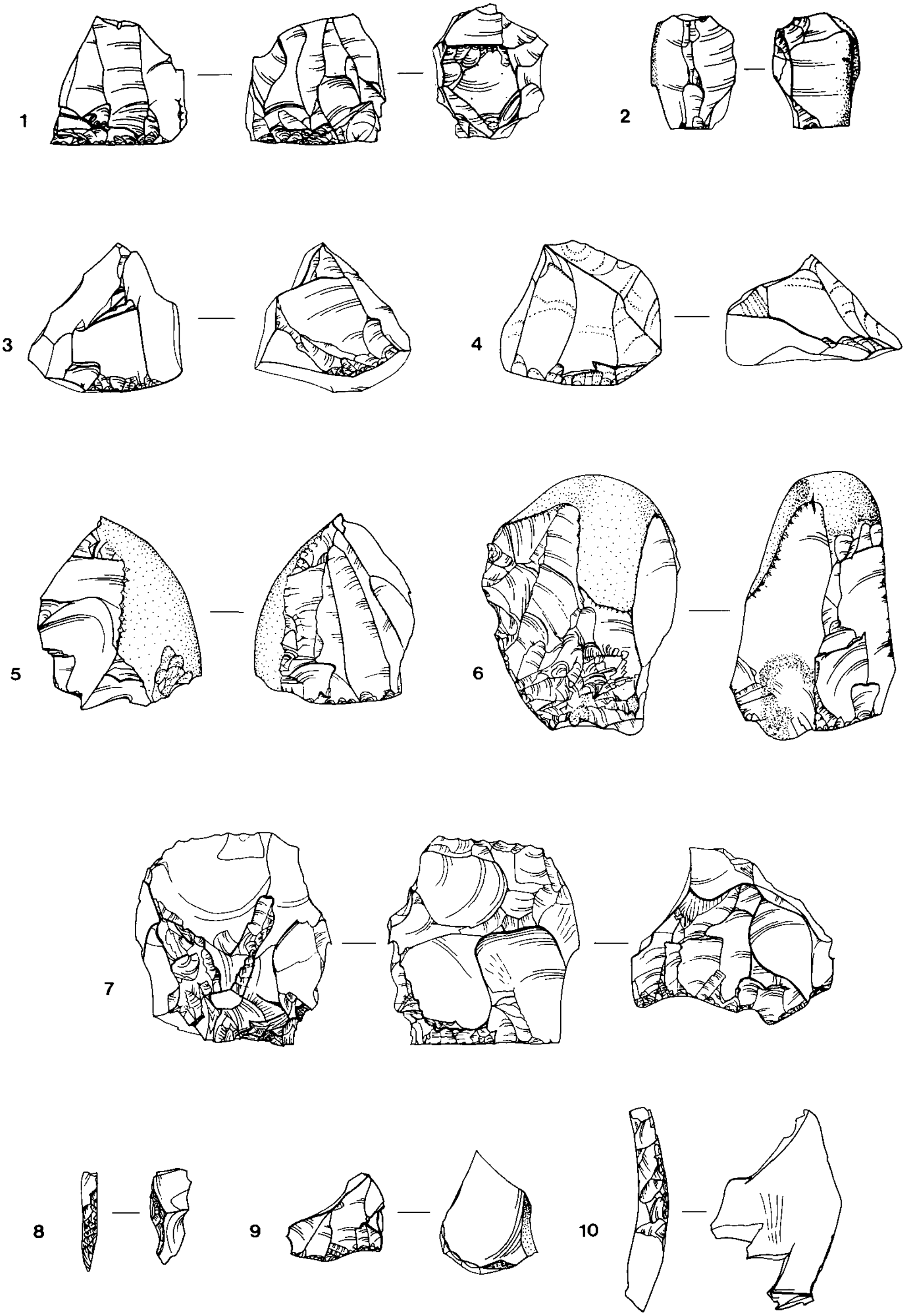
The cores were predominantly single platform, though double platforms were also found (see illus 6, 1 & 7). It would seem that a simple core preparation technique was used with indirect percussion being the main method of flaking, though there was evidence for hard hammer direct percussion also being used.

The damaged and utilized pieces were difficult to separate. 18·7% of the total in this category had chance chipping of the edge and 10·8% were fractured to a sharp ragged edge and these were probably the result of damage. The remaining 70·5% had serrated edges which may be the result of use.

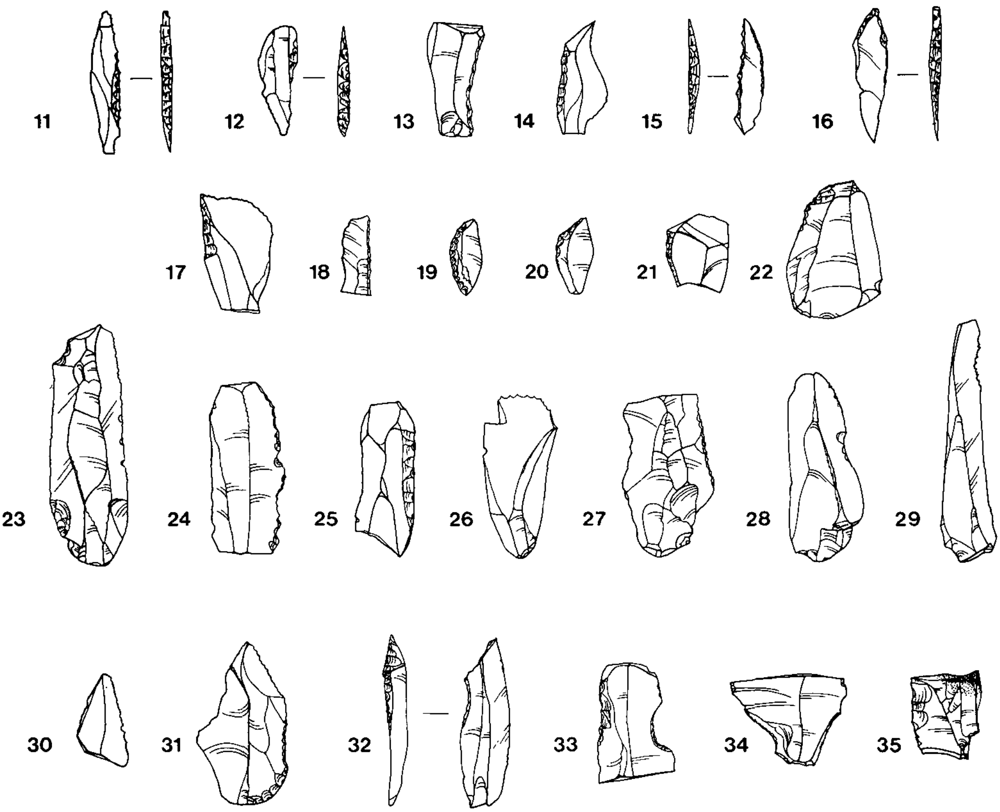
The retouched pieces were divided into three categories, namely light retouch, miscellaneous (or broken pieces), and morphological, the latter being pieces with heavy or steep retouch. A high proportion, 56·4% of the light retouch and 31·8% of the miscellaneous pieces, had 5% or less of the edge modified. The edge shapes in all three categories were predominantly straight and convex, either because these were preferred forms or because these shapes were easier to produce. It was only in the heavy retouch category that distinct morphological types were distinguished and these were limited to two, namely microlithic backed blades and unspecific scrapers. The 16 microliths did not have classic geometric forms, as the examples in illus 7 demonstrate. There were two thumbnail and 13 unclassifiable scrapers, which Coles (1971, 308) has termed small edge tools. The remaining pieces could not be classified.

A microwear analysis was made by Rosemary Bradley of the microliths to establish their function, but severe cortication had removed any obvious evidence for use-wear. The report on this analysis is stored on fiche 1: B12. It is not possible to state the functions to which these tools were put. The random rather than clustered distribution of the backed blades, as shown on illus 9, may mean that these were used as individual points rather than in composite tools. But this inference cannot be taken far as it is not certain whether these pieces were discarded or lost.

None of the sites listed below can be individually compared to Inverness because there is no standarization in the sampling methods or in the presentation. However, it is possible to use these as a group with which to compare the Inverness material. The most striking variation is the low proportion of core preparation and trimming waste found. For this the most plausible explanation is that the Inverness



ILLUS 6 Flints: *1–7* cores; *8–10* core rejuvenation flakes (scale 1:1)



ILLUS 7 Flints: retouched pieces, *11–16*, *18–20* microliths, remainder miscellaneous pieces, *28* mudstone (scale 1:1)

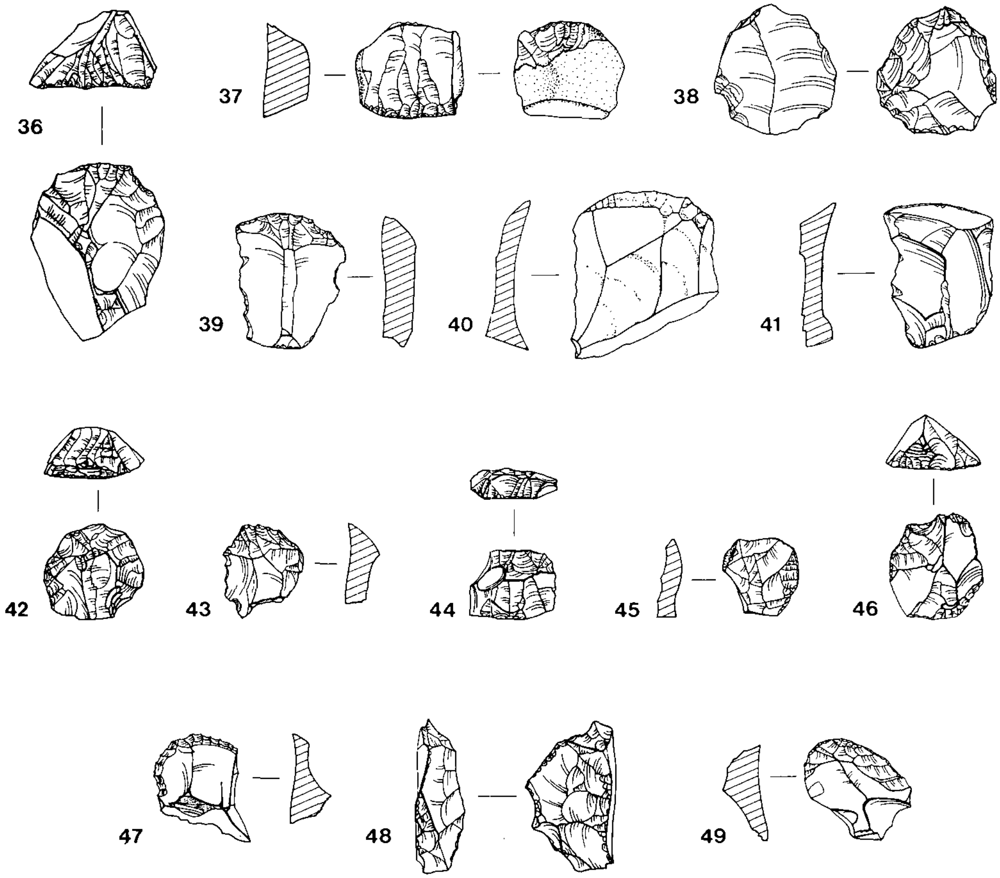
TABLE 3

	Light retouch	Miscellaneous	Morphological/ steep retouch
Lower horizon	24	28	39
Upper horizon	11	13	10
Total collection	39	44	54

area was a poor source of flint and that the majority of the material was brought in from outside. In transporting the unworked pieces it would obviously save weight and space if the cortex was removed. It is significant that there is a very low proportion of worked stones of materials other than flint as this is additional support for stating that most of the stone was brought in from outside. A hunting party would not willingly encumber itself with low grade stones (not that the flint is of particularly high quality).

DISCUSSION

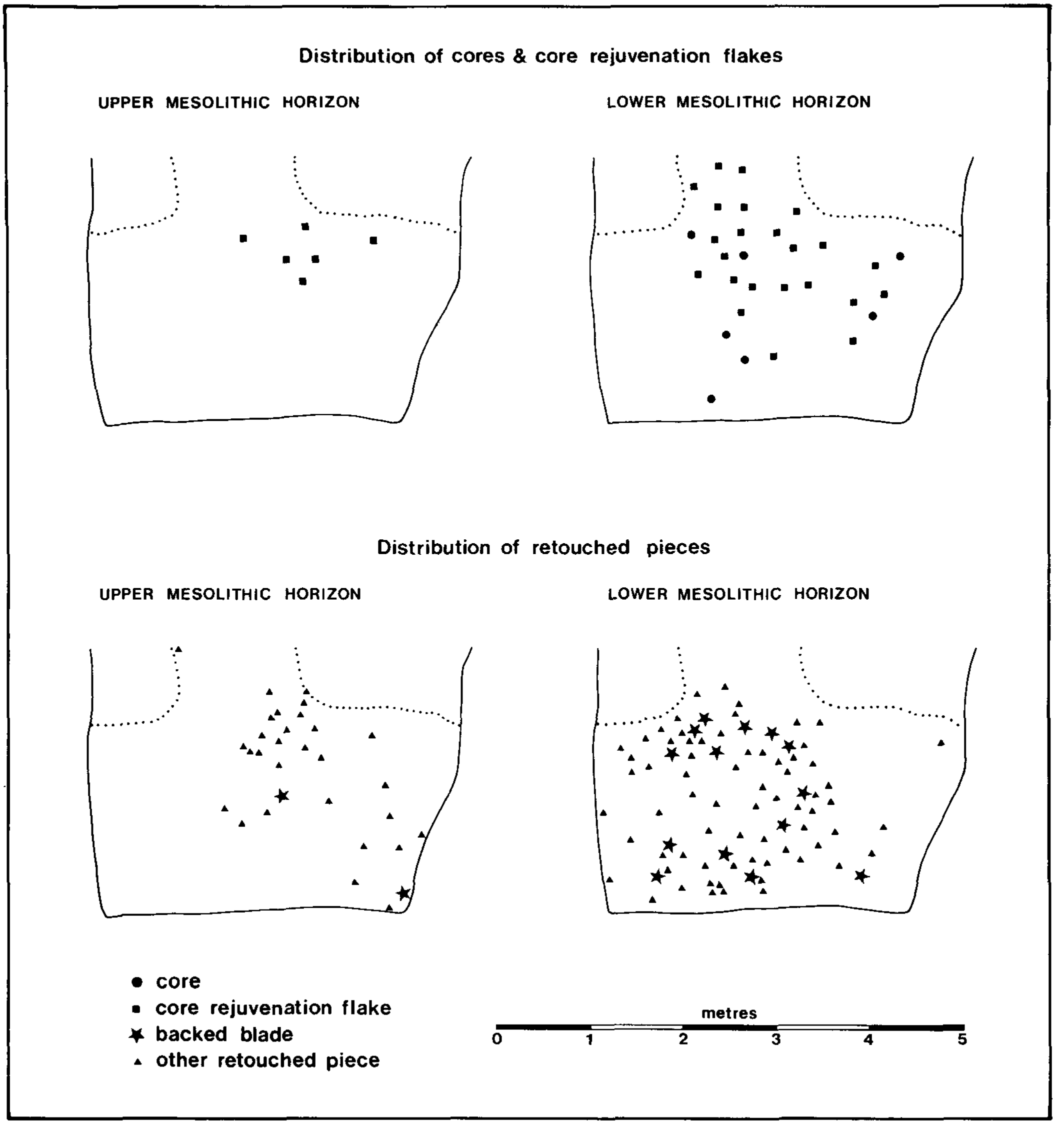
The full extent of the site at Castle Street is not known, although the limited evidence from the test pits suggests that the main focus of the settlement was found. The density of finds on illus 5 and the distribution of retouched pieces on illus 9 may also show this, especially as the ground is known to



ILLUS 8 Flints: retouched pieces, *40* mudstone (scale 1:1)

have risen to the south, east and west of the sampled area. However, the effects of the sea's incursion on any settlement outwith this natural hollow and indeed, on the material within the hollow, must remain uncertain.

Mellars (1976, 375–400) has suggested a hierarchy of Mesolithic sites based on tool types and the settlement size, and this discussion has been carried further by Bradley (1978, 73–95). The main hypothesis is that there is a correlation between settlement size and the range of tool types, with the smaller settlements, covering an area less than 15 m^2, having a microlithic-dominated assembly whereas the larger settlements may have a much larger tool range with a predominance of scrapers and burins. This division is seen as functional, with the smaller camps being used by hunting parties whose tool kits and maintenance would be specific to the hunting. The larger camps, being less specific in their activities, would use a wider range of tools. While this theory is not verifiable with present evidence it does seem internally convincing. The presumed size of the Castle Street settlement and the limited range of tool types would fit the criteria for a small temporary hunting camp. The low proportion of primary and core waste found lend emphasis to this, in displaying a settlement not established long enough for it to be possible or necessary to exploit the local stone resources.



ILLUS 9 Distribution of flints in the Mesolithic horizons, other than the flakes and chips

Too few sites have been examined for this site's relation to a wider Mesolithic society to be known. The preponderance of flint as the basic raw material may point to the hunting group coming from the north or east rather than west up the Great Glen, but without a larger number of sites being discovered this guess is of no significance. The importance of the site perhaps lies more in the complexity of its soil history than in the problems of interpreting an incomplete hunting settlement. The main post-glacial transgression has often been seen as a single steady encroachment (eg Mitchell 1977, 181) but it is clear that this was not the case at Inverness and that the rising sea level was competing with varying rates of eustatic land recovery. Recent research on the shoreline near

TABLE 4
A comparison of various Mesolithic industries

	Site	Date	Subdivision	Chips	Waste (incl blades)
(A)	45–49 Green, Abderdeen (Kenworthy 1982)	–			53·6%
(B)	Banchory, Aberdeens (Kenworthy 1981)	–	Sample	73·8%	17·9%
(C)	Morton, Fife (Coles 1971)	8050±255	T46 I–VI	50·3% (92)	17% (31)
(D)	Morton, Fife (Coles 1971)	6790±150	T44/47/55 56 II–III	56·7% (289)	23% (19)
(E)	Morton, Fife (Coles 1971)	6400±125	T53 hearth	60·3% (41)	23·5% (16)
(F)	Lealt Bay, Jura (Mercer 1968)	Pre/post-transgression	Total collection		89·3% (34 816)

	Cores	Core trimmings	Utilized/ Damaged	Retouch	Primary/ Preparation
(A)	1% (3)	18·5% (55)	12·8% (38)	4·4% (13)	9·7% (29)
(B)	0·3%	2·9%	6·3%		6·1%
(C)	5·5% (10)	7·6% (14)	8·7% (16)	12% (22)	5·7% (10)
(D)	0·6% (3)	5% (26)	6·6% (34)	8·5% (44)	7·4% (38)
(E)	4·4% (3)	2·9% (2)	4·4% (3)	4·4% (3)	8·8% (6)
(F)	0·3% (129)	not listed	3·3% (1279)	7·1% (2776)	not listed

Fraserburgh (Smith *et al* 1982, 321–35) has confirmed the complexity of this recovery. Because of this local variation, caution must be used in applying dates from other sites to transgression deposits. If the upper transgression horizon had been removed by later actions such as medieval agriculture it would have been normal to assume that the lower marine sands were the maximum marine transgression. This may have been 500 years or more later, and in terms of Mesolithic settlement and flint typologies is probably not significant, but without precise data a more detailed understanding of the Mesolithic period will not be possible.

ACKNOWLEDGEMENTS

The author wrote this while being, as I Maté puts it, 'a medievalist at heart' and he is grateful to those who have helped him learn better, in particular G Harden, J Kenworthy and I Maté. The excavation and this report were funded through the former Urban Archaeology Unit for the SDD (AM branch) and the author is grateful to the staff of both groups for help given.

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