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Rhum

Mesolithic and Later Sites at Kinloch, Excavations 1984–86

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7 THE LITHIC ASSEMBLAGE: SECONDARY TECHNOLOGY

WITH S McCARTAN

INTRODUCTION

A total of 1608 pieces were modified after primary flaking. The strategy for modification was always retouching (ie the removal of small flakes from the original blank), and the most common technique was the application of pressure to the edge of the blank, probably through an antler tine. In addition, some light percussion was used to modify flakes, particularly when a steeper edge angle was required, as on many of the scrapers.

The modification of a blank, although related to the intended function of that blank, does not necessarily indicate its working edge. Modification may be used to alter either an edge in a particular way or the whole shape of the blank. In the first case the edge in question may either be the working edge of the tool, or it may be a secondary edge altered for some other purpose, eg to fit into a haft. If the whole blank is to be modified then modification of all edges is obviously involved, and general thinning of the surfaces of the piece may also be required. Therefore, although the modification of an artifact is related to its function, it is impossible to identify the working edges of a tool without further study. As the analysis of the Kinloch material did not involve work on the use-wear patterns, the examination of the modified pieces was concentrated on the nature of the modification (i.e. the type and the location of alteration), and artifact types were constructed from this. In general, these types coincide with conventional tool types, so they have been assigned conventional names where appropriate. It must be stressed, however, that these types are based upon technological and morphological information only.

THE MODIFIED TOOL TYPES (Ills 52; 53)

SCRAPERS

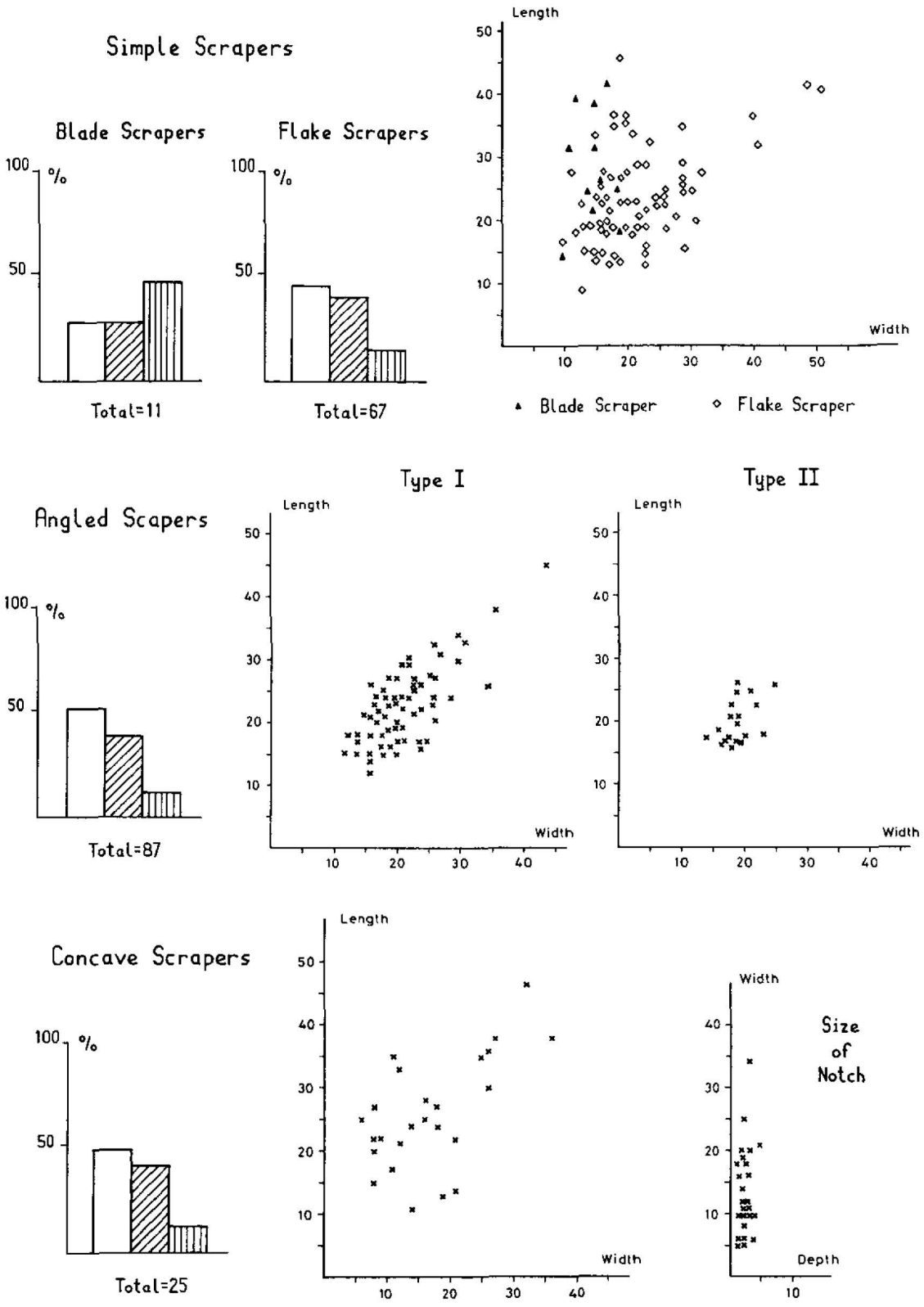
Scrapers have modification to produce a 'scraping edge'. A 'scraping edge' is unifacial; the retouch is shallow, regular and short, and runs steeply up from the edge of the piece at an angle of between 55°–95°. Various sub-types exist.

SIMPLE SCRAPERS

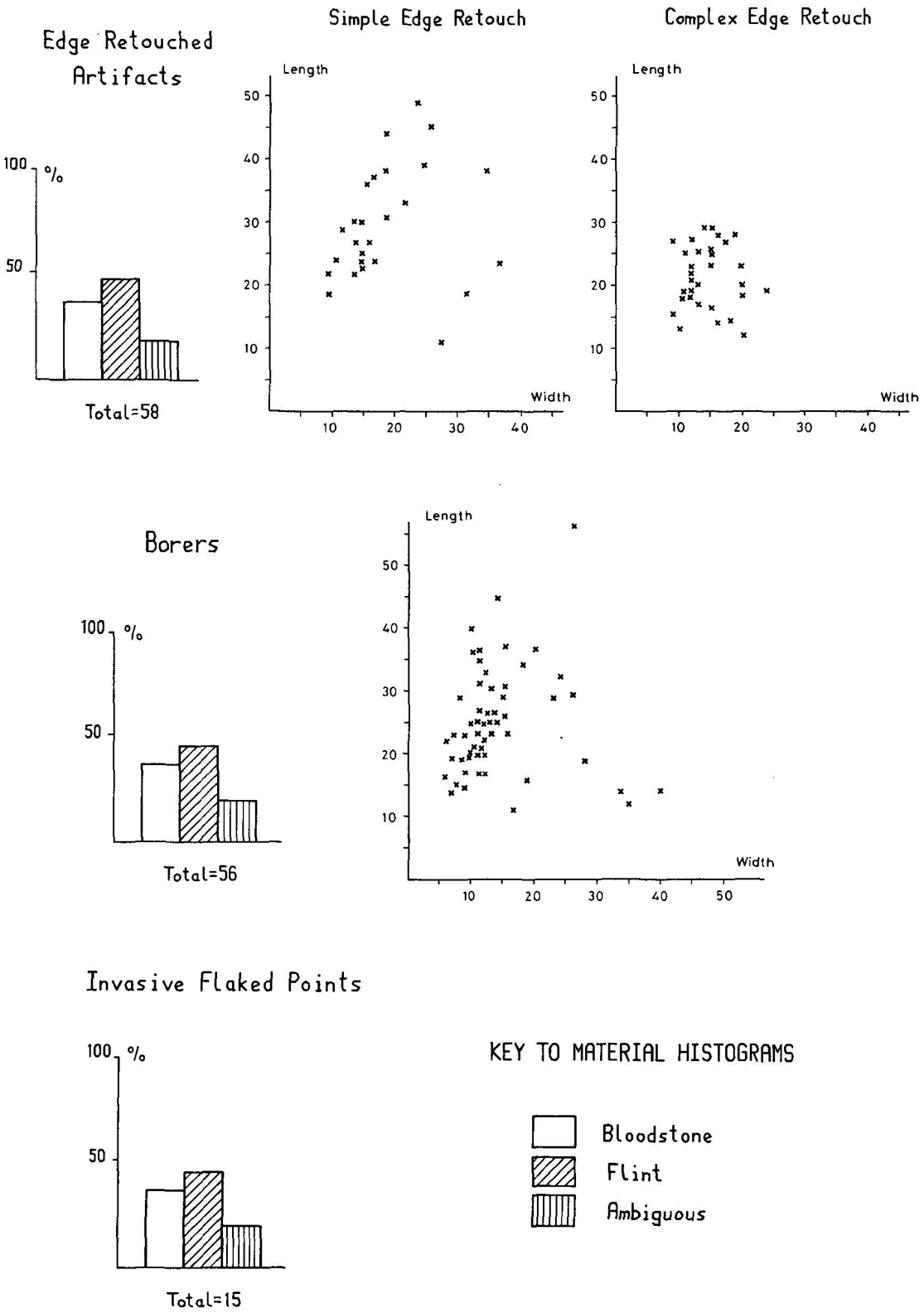
Simple scrapers have a single 'scraping edge'.

There are 78 simple scrapers; they were made on both blades (11) and flakes (67), of both bloodstone and flint, and there is one of silicified limestone. There was a preference for the selection of inner pieces as blanks (80% are on inner blanks). The flake-blanks may be divided into blade-like flakes (i.e. parallel sided) (17), regular flakes (43), and irregular flakes (8). The shape of the finished artifact was dependent on the original blank; regular blanks were preferred which needed little modification away from the scraping edge. The size of the simple scrapers varies greatly, a comparison of Ill 52 with 37 and 41 shows that although the flake blanks were selected from the larger end of the size range, the blade blanks which were chosen reflect the complete size range of unmodified blades. The majority of simple scrapers were modified on one end only, usually the distal, but some (on flakes), were modified along a side. Where necessary, inverse retouch was used to create the scraping edge on the ventral surface of the flake; this occurs on only a few examples. Wherever the retouch, the scraping edge was always prepared on the shortest side of the piece. Most scraping edges are convex in plan, but a few are straight.

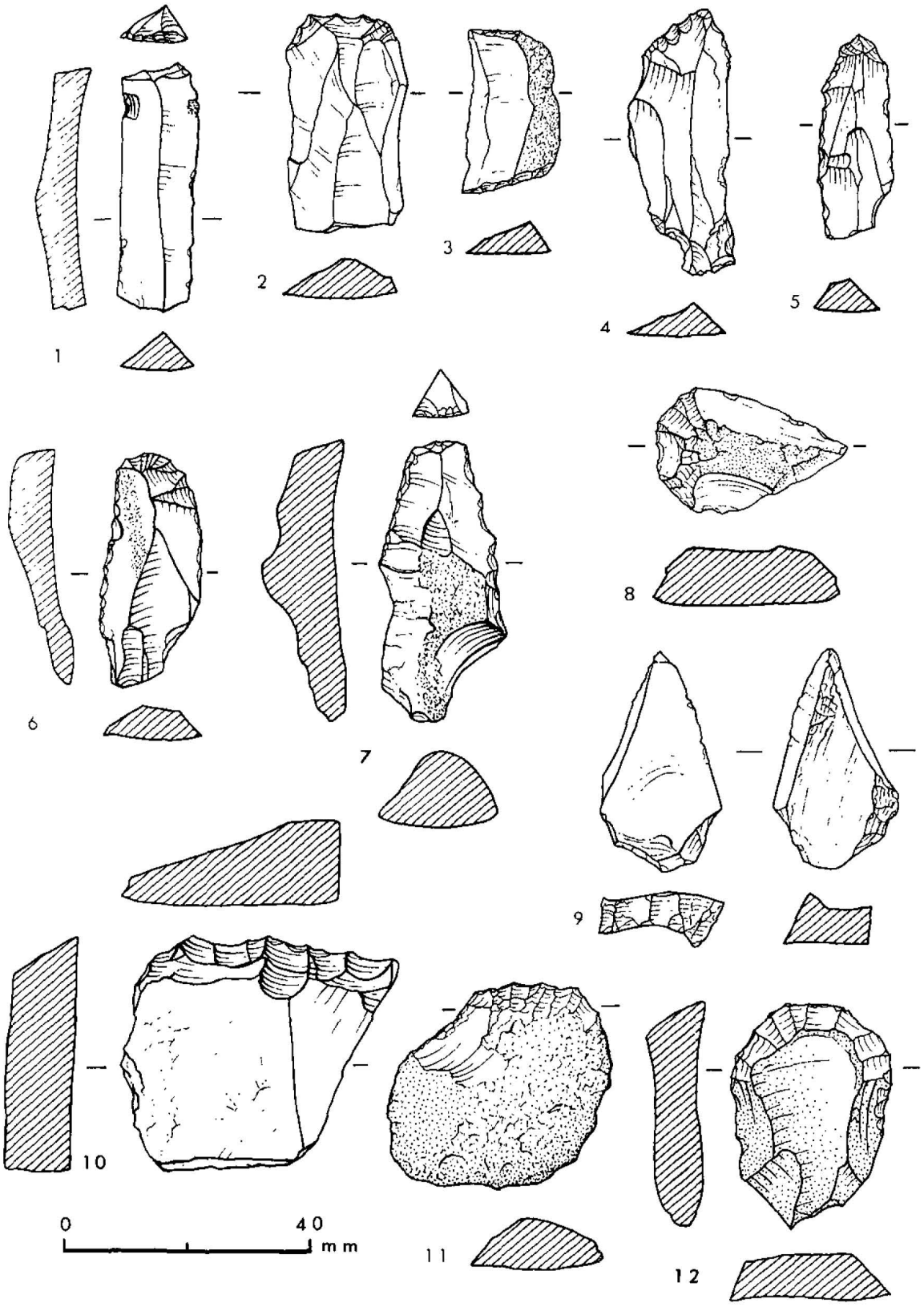
Simple scrapers may be sub-divided by the type of blank into blade scrapers and flake scrapers.



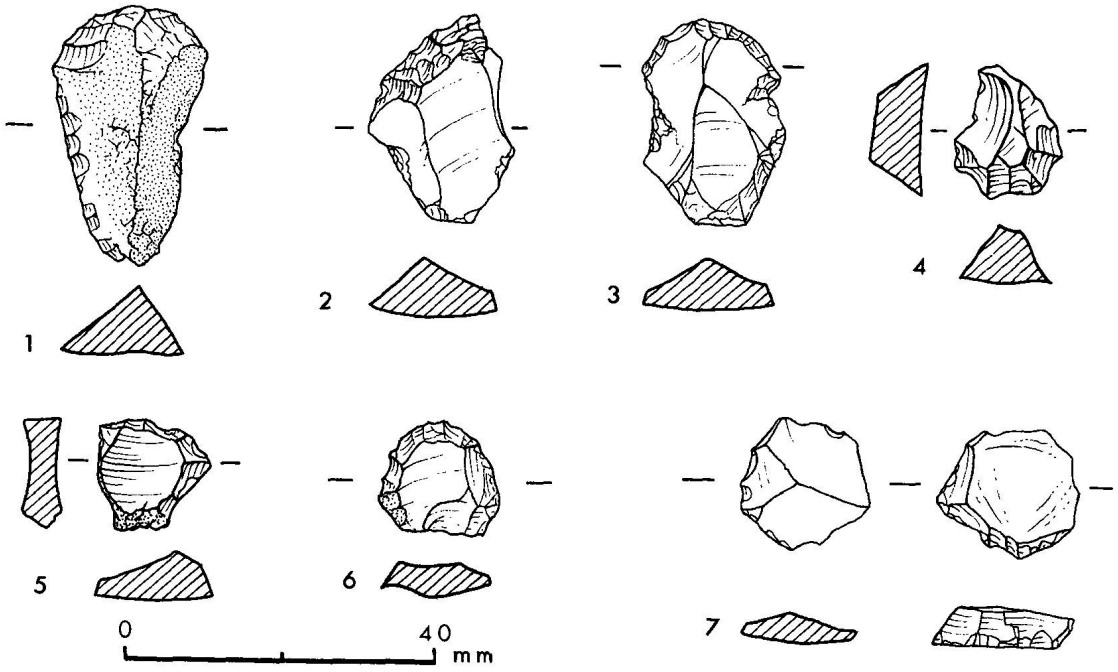
ILL 52: The lithic assemblage, modified artifacts by type, material and dimensions (mm).



ILL 53: The lithic assemblage, modified artifacts by type, material and dimensions (mm).



ILL 54: The lithic assemblage, modified artifacts: simple scrapers. 1-6 blade scrapers: 7-12 flake scrapers. 4-7 with tangs. 4, 6, 9 bloodstone: 8 & 11 flint: 10 silicified limestone: l-3, 5, 7, 12 abraded. (Image by Marion O'Neil)



ILL 55: The lithic assemblage, modified artifacts: simple (flake) scrapers (4-7 horizontally truncated). 2, 4, 7 bloodstone: 1 & 5 flint: 3 & 6 abraded. (Image by Marion O'Neil)

Blade Scrapers (Ill 54. 1–6)

Blade scrapers always retain the shape of the blank; the scraping edge is always located at the distal end, and it is abrupt and short. One has a second scraping edge at the proximal end (Ill 54. 3). Three blade scrapers have tanged bases on the proximal end (Ill 54. 4–6). There is one simple scraper on a blade-like flake which has a similar basal tang (Ill 54. 7); it has been retouched along the right side to enhance its regular shape. Few blade scrapers are of bloodstone (Ill 52), and this presumably reflects the advantages of flint for blade production.

Flake Scrapers (Ills 54. 7–12; 55. 1–7)

Flake scrapers are more irregular in shape than blade scrapers; they are more round in outline and thus the scraping edge is often wider. Eight may be singled out, all are small and of a round outline, and each has been thinned by a horizontal blow which has removed the dorsal surface and truncated the scraping edge (Ill 55. 4–7). They resemble scraper resharpening flakes, but are more regular in shape and the truncated scraping edge is very uniform. The truncation was apparently deliberate, perhaps to facilitate hafting.

All these scrapers are either intact, or have only a small fragment missing. Broken scraper fragments cannot be assigned to a particular type of scraper (see below), but it is worthy of note that seven of the eleven blade-scrapers have been laterally snapped. This may be due to the particular pressures of use or it could be deliberate, but it also reflects the weak point of any blade.

ANGLED SCRAPERS

Angled Scrapers have two or more adjoining 'scraping edges'.

Angled scrapers are usually on flakes and there are more of bloodstone than of flint (Ill 52); there are 87 in all. There was no apparent selection by type or size of blank: primary, secondary and inner flakes are all present, both regular and irregular. On many angled scrapers the junction of the scraping edges forms a pronounced angle, but others have a more rounded outline. There are two sub-types:

I – those with two adjoining scraping edges.
II – those with three or more adjoining scraping edges.

Angled Scrapers I (Ills 52; 56. 1–3)

There are 68 of these angled scrapers in total; they are retouched round the distal end and one of the sides; a few are modified on the proximal end. If necessary, inverse retouch was used so that one of the scraping edges is on the ventral surface of the blank. Although all pieces are of similar proportions, there is a great range of size within this sub-group.

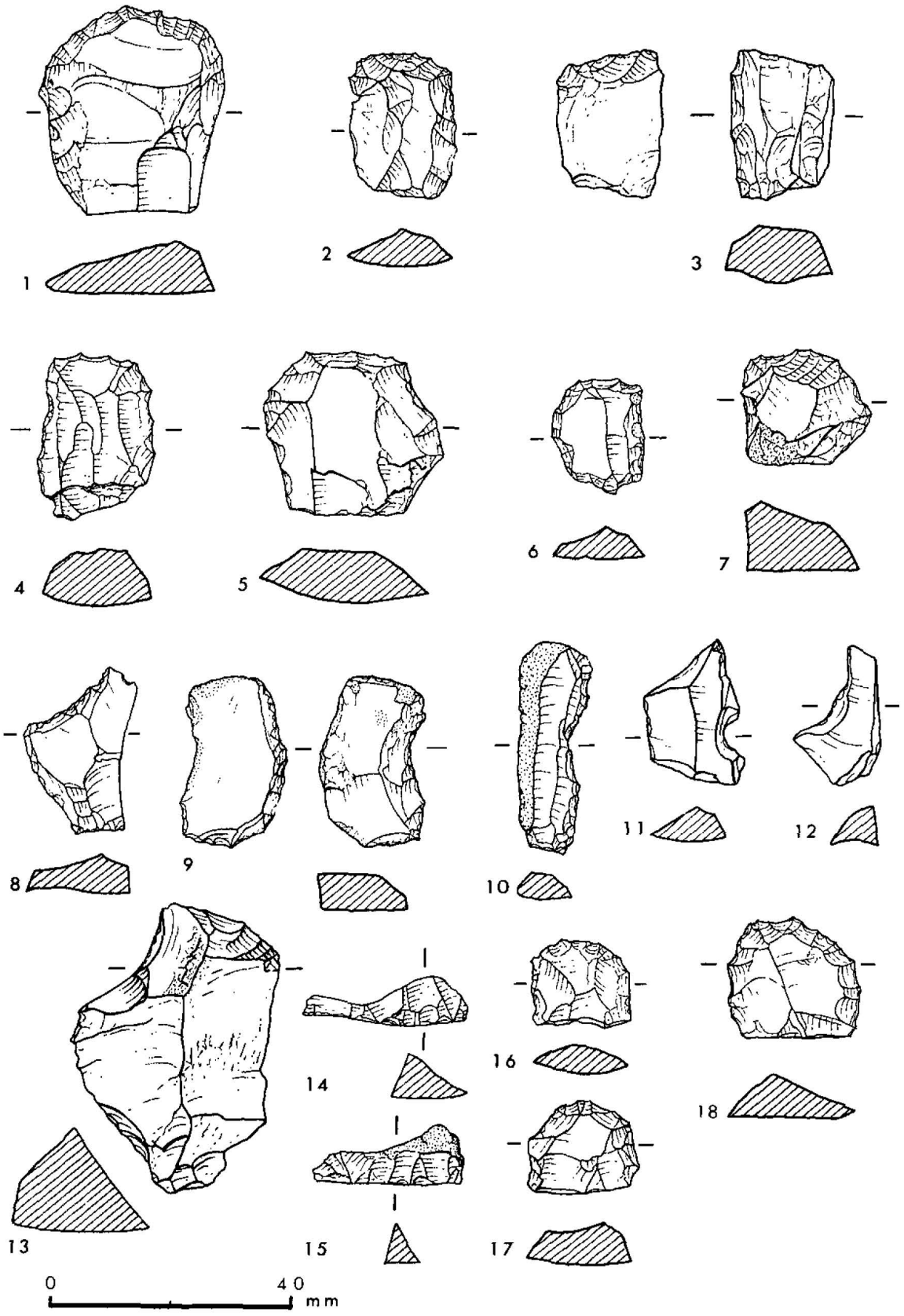
Angled Scrapers II (Ills 52; 56. 4–7)

There are 19 of these; many are modified round the entire perimeter of the flake, but the steep scraper edge and the characteristic angled outline remain. There are no examples of inverse retouch in this sub-type. These pieces tend to be smaller than those of Type I and they are less varied in size.

CONCAVE SCRAPERS (Ills 52; 56. 8–13)

Concave Scrapers have an inwardly curving 'scraping edge'.

There are 25 concave scrapers; they comprise a varied type with little uniformity of size or shape. A range of both bloodstone and flint blanks were used. The outline of the scraping edge ranges from a short, deep notch to a broad shallow curve, but no clear groupings were identified. The modification is most often along one of the sides of the artifact, and inverse retouch is frequently present.



ILL 56: The lithic assemblage, modified artifacts: l-3 angled scrapers I: 4-7 angled scrapers II: 8-13 concave scrapers: 14-15 scraper resharpening flakes: 16-18 broken scrapers. 1-3, 5-7, 12, 16-18 bloodstone: 8-11, 14 flint: 4, 13, 15 abraded. (Image by Marion O'Neil)

SCRAPER RESHARPENING FLAKES (Ill 56. 14–5)

Scraper resharpening flakes are identified by the possession of a length of 'scraping edge'. In contrast to other scrapers, this edge is usually truncated both in width and in height.

There are a total of 17 scraper resharpening flakes; most are long and thin. They were removed by a blow to the side of the original scraper, just behind the scraper face, so that the remnant edge runs along the length of the resharpening flake. The flake removed varied from a narrow spall along the redundant edge, to a wider, flatter tablet that took away much of the base of the original scraper: eleven spalls and six tablets were found. Five of the scraper resharpening flakes were removed from angled scrapers, the others may all have come from simple scrapers, but the lateral truncation of the scraper edge has made the original type harder to identify.

Scraper resharpening flakes have resulted from the removal of a worn scraping face so that a new scraper edge could be prepared by further modification. No flakes from such re-working were identified, but they must lie undetected within the 'less than 1cm' fraction of the irregular flakes.

BROKEN SCRAPERS (Ill 56. 16–8).

Broken Scrapers have a length of 'scraping edge' on a broken blank.

The assemblage contained 21 broken scrapers. The breakage pattern is remarkably consistent: the majority are laterally broken behind the scraping edge, and over half were originally retouched on the distal end. There are several possible explanations for this pattern: it could either reflect the natural weak point of any flake or blade; or the deliberate truncation of scrapers; or the particular pressures of use. Experimental analysis of breakage patterns on both used and unused pieces would be necessary to throw light on this problem. Broken scrapers are too fragmentary to be allocated to a particular scraper type.

EDGE RETOUCHED ARTIFACTS

Edge retouched artifacts have an edge modified by a length of shallow, acute retouch.

59 edge retouched artifacts were identified. They were made on both regular and irregular flakes, and a few blades were also used. There was some preference for inner blanks. Both bloodstone and flint were used, but there was more use of flint (Ill 53) suggesting selection by material also. This is not surprising when the shape of these pieces is considered. Two sub-types have been identified:

Simple Edge Retouched Artifacts: those with modification on a single edge.
Complex Edge Retouched Artifacts: those with modification on two or more edges.

SIMPLE EDGE RETOUCHED ARTIFACTS (Ill 57. 1–8).

There are 26 simple edge retouched artifacts; they are more blade-like in shape than the complex pieces, and the retouch is predominantly along the side of each piece. The retouch scars are usually short and they only alter the very edge of the piece. Three have invasive retouch across the dorsal surface (Ill 57. 1, 4, 6), and inverse retouch was also occasionally used to create an appropriate edge. The retouched edges are either straight or slightly convex in plan. There is a great range of size within this type, and there are no obvious sub-groups (Ill 53), but it is likely that a variety of 'prehistoric tool types' have been subsumed under this classification.

COMPLEX EDGE RETOUCHED ARTIFACTS (Ill 57. 9–16)

There are 33 complex edge retouched artifacts, the majority of which were modified around the entire artifact; several were modified to provide one broad end and one narrow end (Ill 57. 9, 11). The retouch is always short and only on the edge of the blank; there was little use of inverse retouch and no invasive retouch. Although many of the retouched edges are straight or slightly convex, a number are irregular. Complex edge retouched artifacts differ in shape to the simple edge retouched pieces: they are smaller and more irregular in outline, with less variation in size (Ill 53), but it is likely that several different 'prehistoric tool types' are included.

BROKEN EDGE RETOUCHED ARTIFACTS

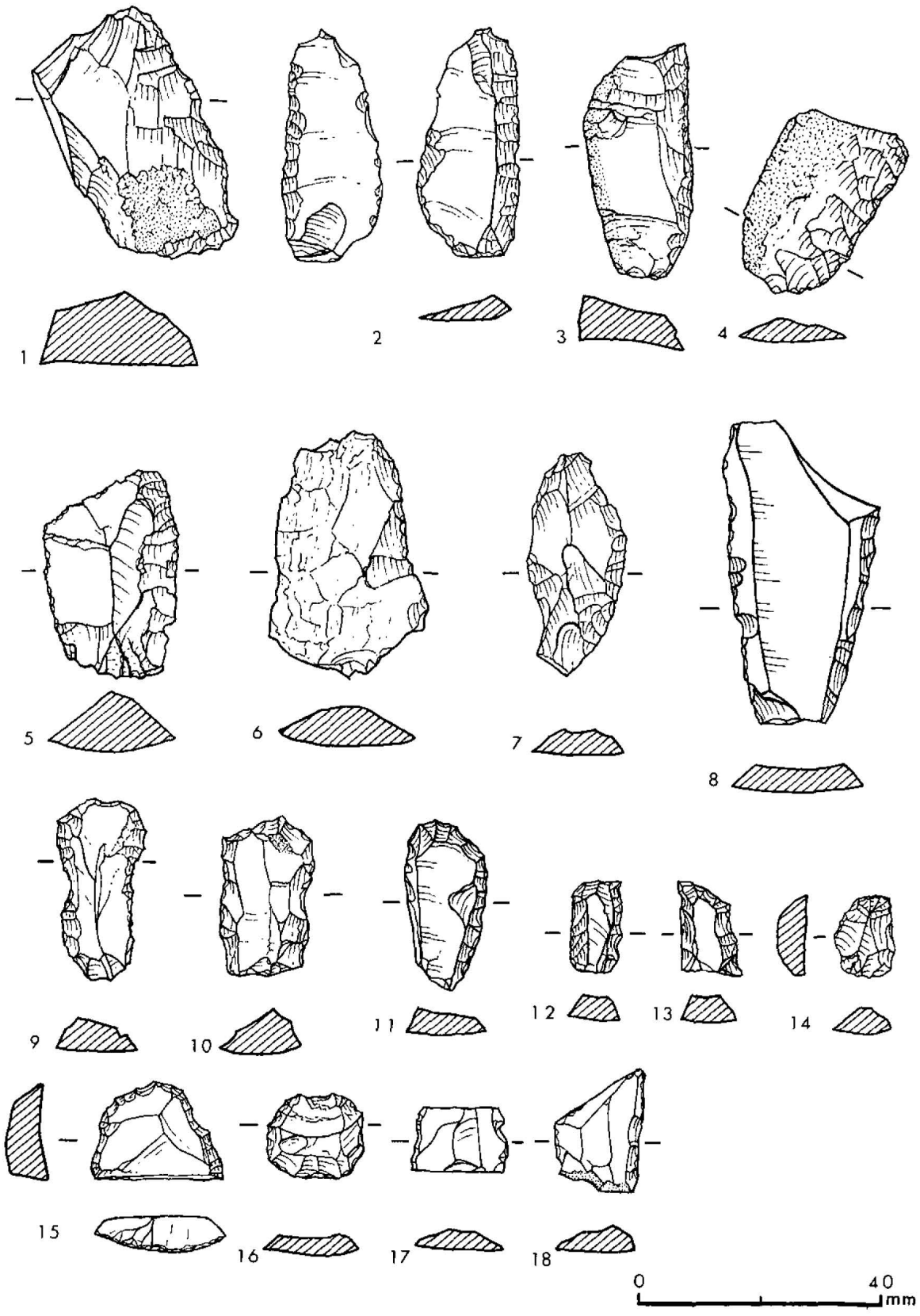
Broken edge retouched artifacts have a length of edge modified as above, but the artifact has been broken so that the original morphology can be longer be ascertained.

The assemblage contained 38 broken edge retouched artifacts, none of which could be assigned to either subtype. Like the broken scraper fragments, the majority are broken laterally, but unlike the scrapers the modified edge is truncated.

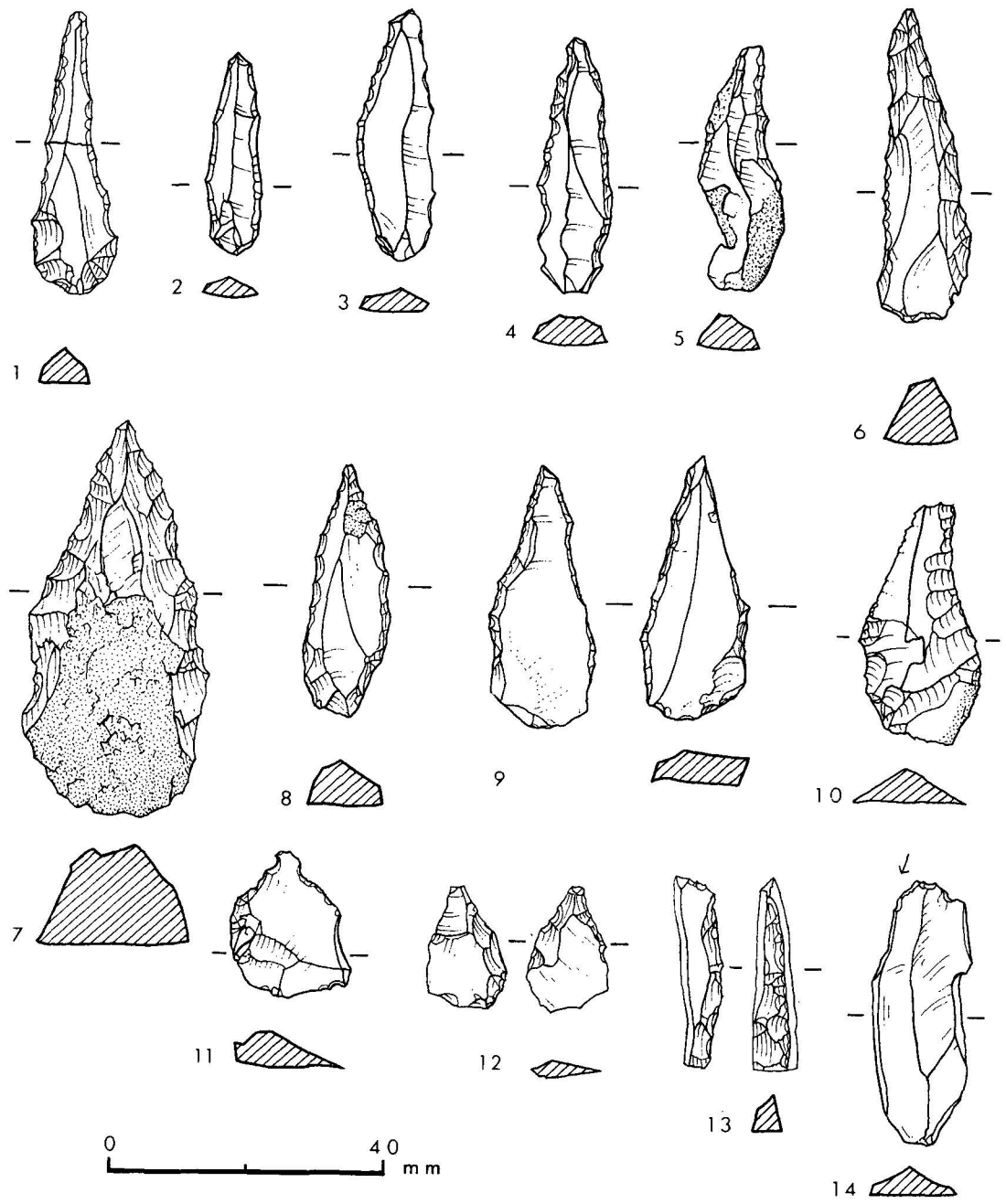
RETOUCHED BLADE SEGMENTS (Ill 57. 17–18)

Retouched blade segments are deliberately segmented blades that have been modified along one or more edges.

There are 7 retouched blade segments, none of which retain either the distal or the proximal end. The majority are retouched on one side only, and the non-retouched edge is often damaged. Two pieces are retouched on both sides and two have been retouched across the break.



ILL 57: The lithic assemblage, modified artifacts: 1-8 simple edge retouched artifacts: 9-16 complex edge retouched artifacts: 17-18 retouched blade segments 5-6, 9, 12-14, 16 bloodstone: 1-4, 7-8, 10-11, 15, 18 flint: 17 abraded. (Image by Marion O'Neil)

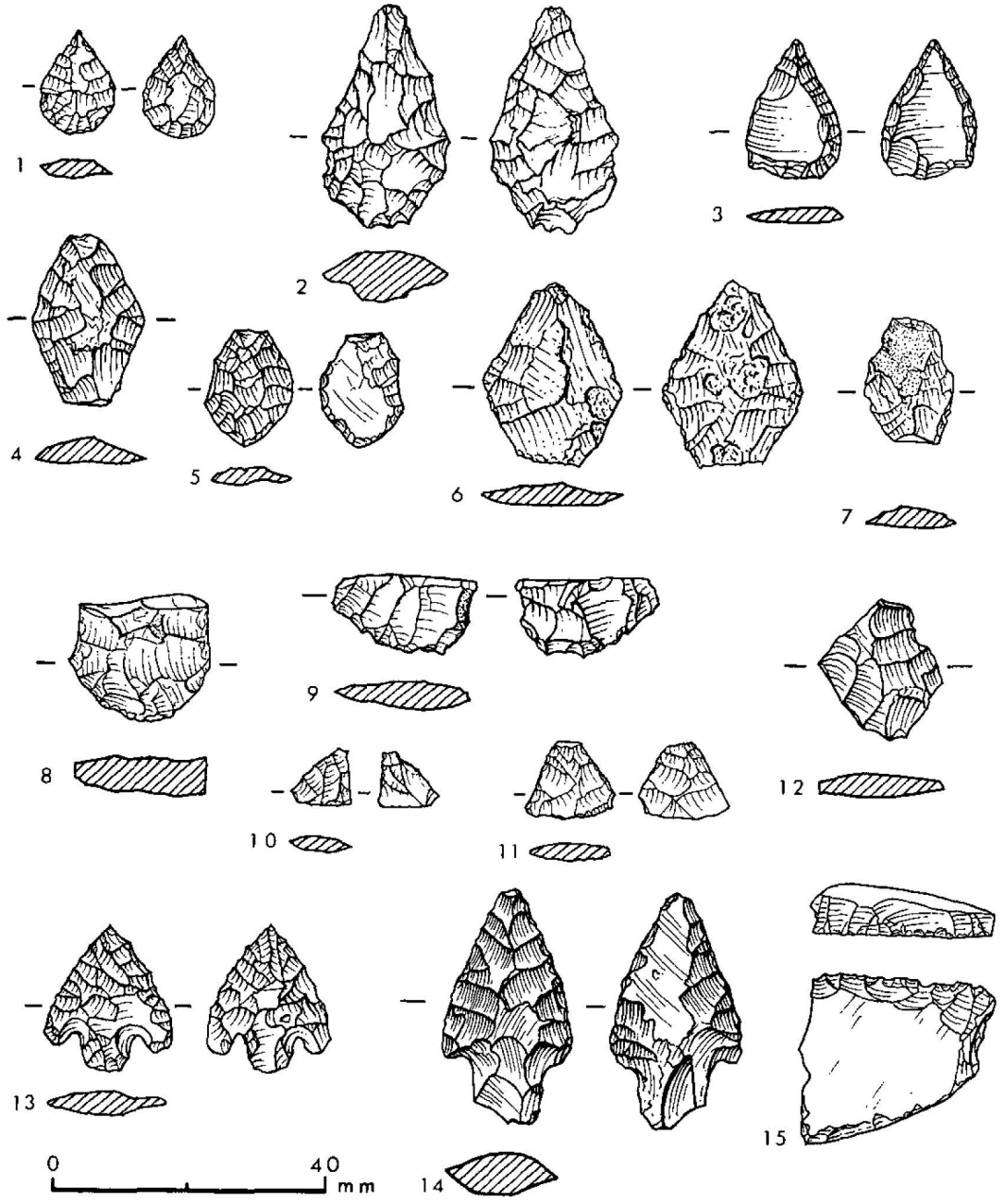


ILL 58: The lithic assemblage, modified artifacts: 1-12 borers: 13 burin spall: 14 burin: 6, 8, 10-14 bloodstone: 1-3, 7, 9, flint: 4-5 abraded. (Image by Marion O'Neil)

BORERS (Ill 58. 1–12)

Borers have a point created by the modification of one or more edges.

56 borers were identified. The majority are of blade-like proportions (*Ill* 53) and this is reflected in the selection of blanks. Inner blades and inner regular flakes were preferred, and flint was the usual raw material. The majority of the points are long and fine (Ill 58. 1–5), they are enhanced by microlithic retouch on at least one side and they often have inverse retouch on the other. The retouch frequently extends the length of the blank, serving both to form the point and to modify the overall shape of the artifact. A few borers, on chunky blanks, have thicker points (Ill 58. 6–8). Many of the points are blunt and, on a number, the extreme tips have sheared off, possibly as a result of use. Others have snapped further away from the tip, and for one snapped borer the two halves could be



ILL 59: The lithic assemblage, modified artifacts: 1-14 invasive flaked points: 15 gunflint. 5, 8, 11. 13 bloodstone: 1-4, 7, 9-10, 15 flint: 6 & 12 abraded. NB 14 recovered from near to the summit of Hallival in 1982. (Image by Marion O'Neil)

joined (Ill 58. 1; both halves came from the same grid square in the ploughsoil). Six borers stand out from the rest: each is made on a wide, short flake blank, and the points are small and insubstantial, isolated by short indentations of tiny retouch (Ill 58. 11–12).

BURINS (Ill 58. 13–14)

One possible burin and one burin spall were identified. The burin is on a blade of bloodstone, and has a long facet running the length of the left side. The spall is also of bloodstone.

INVASIVE FLAKED POINTS (Ill 59. 1–13)

Invasive flaked points have modification to the original shape of the blank to form a pointed or 'arrowhead' shape.

The assemblage contained a total of 19 invasive flaked points. There are four complete invasive flaked points: three leaf-shaped points (Ill 59. 1–3) and one barbed-and-tanged point (Ill 59. 13). In addition, there are four leaf-shaped points with the tips and bases missing (Ill 59. 4–7), and six fragments apparently from similar points (three rounded bases, Ill 59. 8–9; two tips, Ill 59. 10–11; and one side, Ill 59. 12). Also included within this classification are two tiny fragments, each with invasive flaking over one face.

Both bloodstone and flint were used for the invasive flaked points, although more are of flint (Ill 53). There is great variation in size and shape amongst the more complete pieces, which range from a tiny, slightly ogival point to a large kite-shaped point. The retouch was used to thin the blanks as well as to shape them, and it is fine and regular, although on one point an area of dense, intractable material was left as a bad irregularity (Ill 59. 2). One of the leaf-shaped points was formed on a suitably thin flake with the use of edge retouch only (Ill 59. 3). This piece is idiosyncratic in shape, and it might be related to the small borers on flakes; it has, however, been considered as a point as none of the borers have retouch right around the periphery of the blank and all are smaller in size. The barbed-and-tanged point (Ill 59. 13) is of bloodstone; it is finely flaked. There has been no attempt to fit the points in to the classification devised by Green (1980) as his work did not examine Scottish points in detail. Metrical analysis of the type proposed by Green would be difficult as so few of the Kinloch points are complete.

MISCELLANEOUS

Miscellaneous pieces are those with some edge modification, but this modification does not allow the artifact to be placed into any of the previously defined categories. 15 artifacts fell into this category. A wide range of sizes and blanks of both bloodstone and flint are represented but the modification on each is usually minimal.

BROKEN MISCELLANEOUS PIECES

Broken miscellaneous pieces have some modification to an edge, but the artifact is broken to the extent that no formal artifact type may be assigned; there are a total of 31.

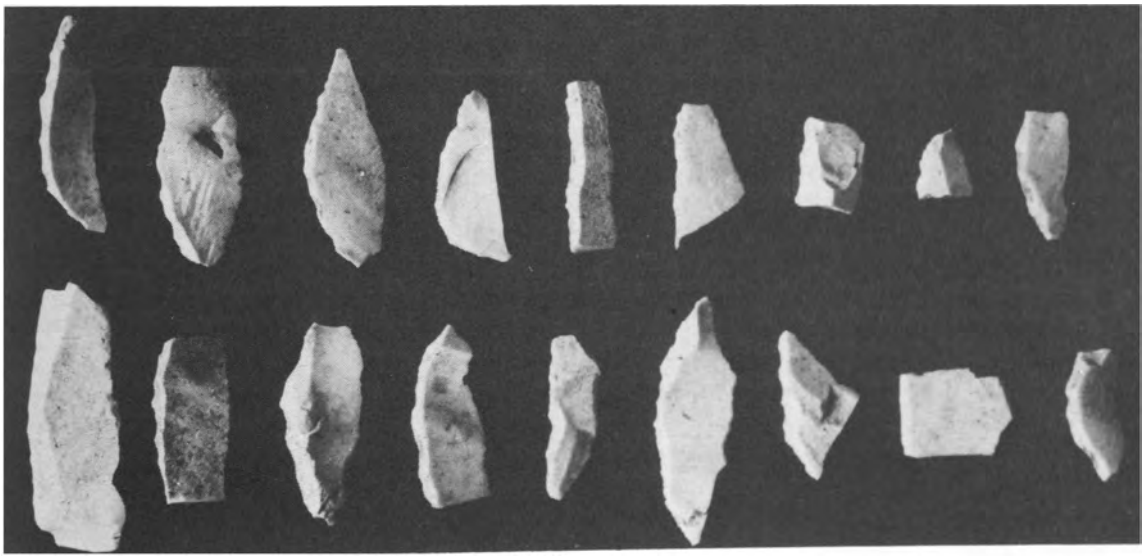
GUNFLINT (Ill 59. 15)

One gunflint was recovered, from the ploughsoil. It is made of a dark brown flint quite unlike that used for the rest of the assemblage, and it was presumably imported. The gunflint is broken, but it was not of the double backed varieties more common in recent times (Skertchly 1879, 46–64). The retouch, which is very abrupt, deep and irregular, is quite unlike that on the prehistoric artifacts.

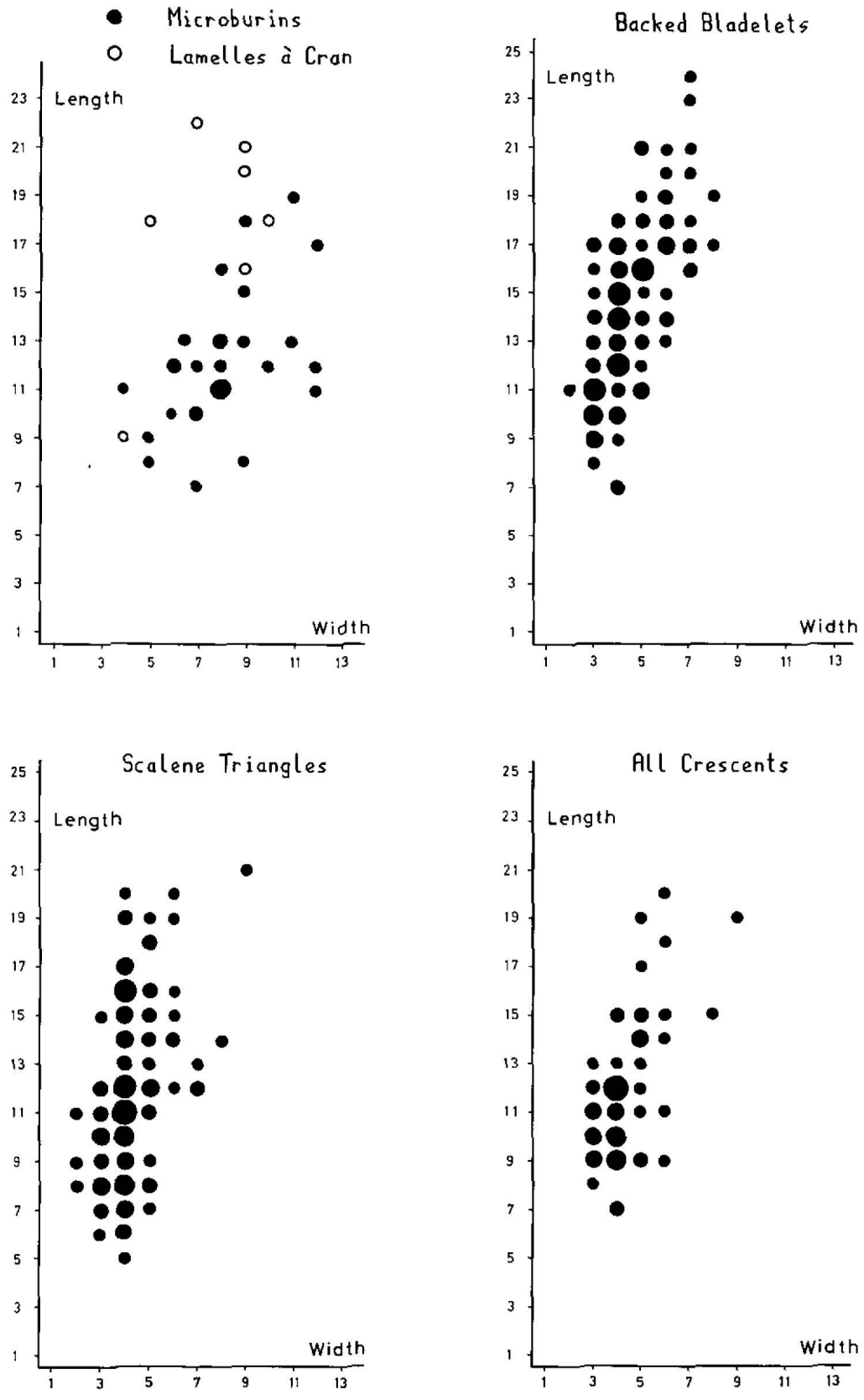
MICROLITHS (Ills. 60–64)

Microliths are blades that have been modified by short, abrupt retouch in order to alter the shape of the original blank and to blunt the edges.

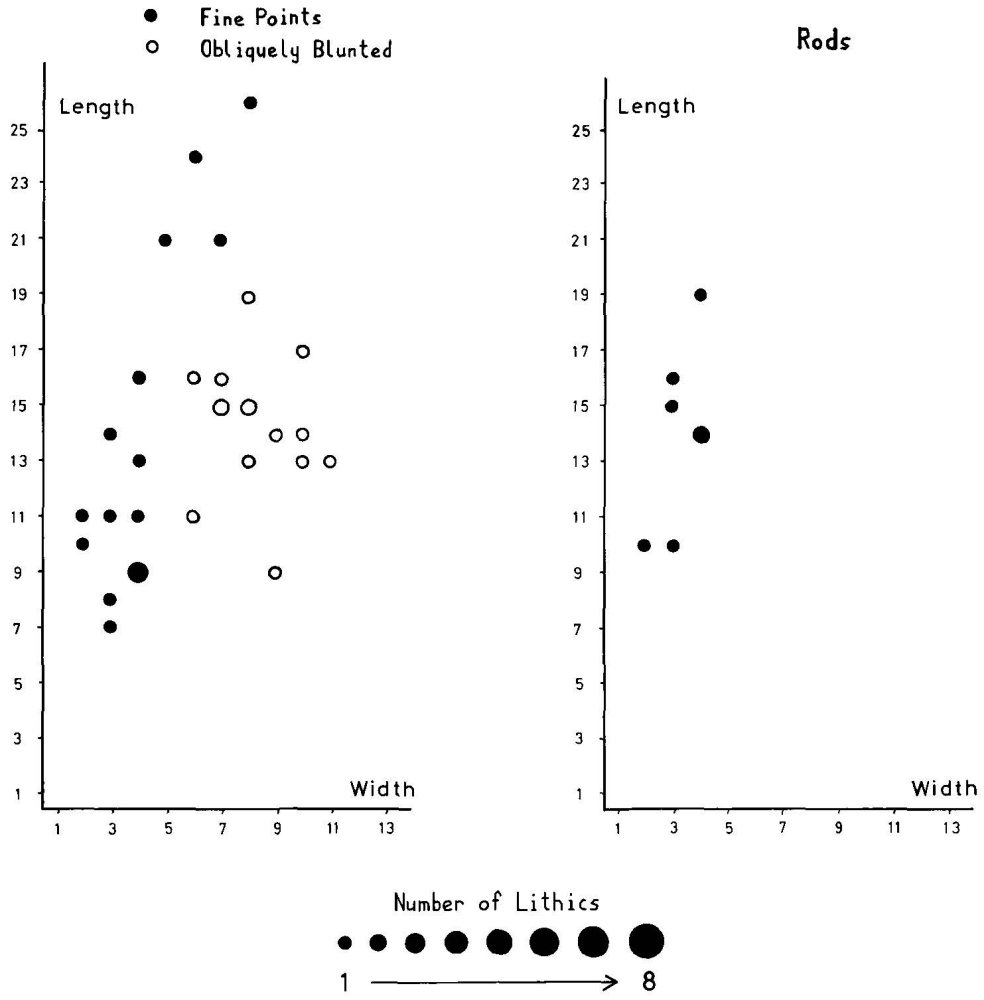
The assemblage contained 1,155 microliths. They were



ILL 60: The lithic assemblage; microliths; scale 2:1 (Photograph - I Larner).



ILL 61: The lithic assemblage, microlith types: dimensions (mm).



ILL 62: The lithic assemblage, microlith types: dimensions (mm).

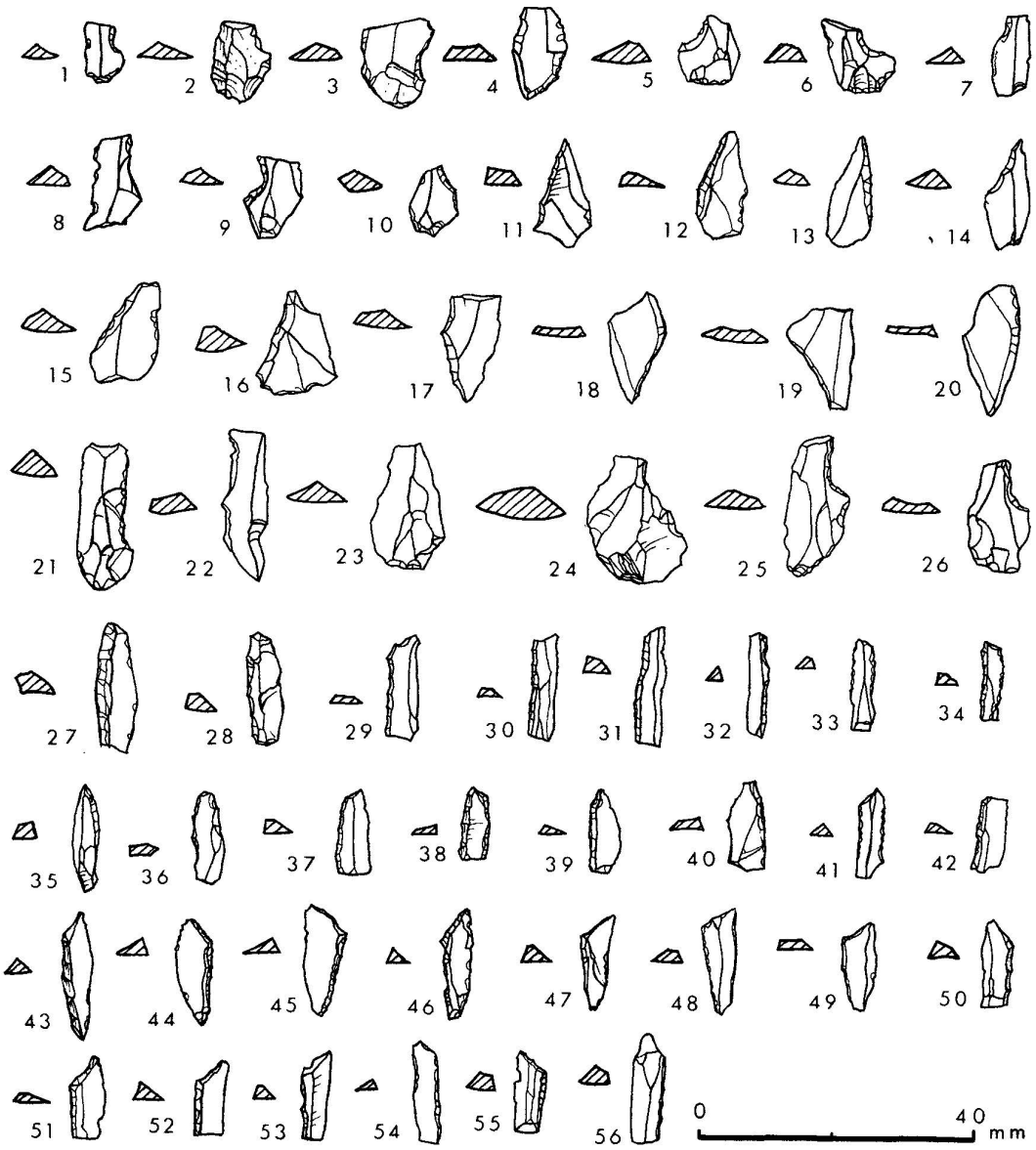
manufactured on blades of distinctive size (narrow blades; Chapter 6) in both bloodstone and flint. Many were abraded and their surfaces were altered to the extent that it was difficult to distinguish the material of which they were made, but flint was apparently preferred (as with all artifacts based on blades). Both the tips (distal) and the butts (proximal) of the blades were removed for the majority of microliths. This truncation is often associated with the manufacture of microburin waste (Bordaz 1970), but there are few microburins from Kinloch and it is likely that truncation was also accomplished by straightforward retouching (although it is possible that deposits containing microburins were not excavated). The retouch used for microlith modification is quite different to that used for the other modified pieces (except for the tips of the borers), and it is termed 'microlithic retouch'. With the exception of two artifacts (the invasive points, Ill 64. 24–5), the retouch scars are extremely short and abrupt, and they are confined to the very edge of each blade. The microlithic retouch has produced very blunt edges, from 75°–90°; the easiest way to achieve this abrupt modification on such small blanks is to rest the blank on an anvil and apply light percussion. Although this technique may well have been used at Kinloch, it has not always resulted in the characteristic *enclume* retouch that is often associated with work on an anvil, when scars are detached simultaneously from both faces of the blank. Some examples of *enclume* retouch do exist at Kinloch, but it seems likely that the formation of *enclume* scars depends on the shape of the blank: a blank with pronounced central ridges will rest on the anvil in such a way that the dorsal face of the blade is not in contact with the anvil.

There are eleven sub-types of microlith, in general each corresponds to a traditional microlith type, but detailed definitions are given below.

1 Microburins
2 Lamelles à Cran
3 Obliquely Blunted Blades
4 Backed Bladelets
5 Scalene Triangles
6 Crescents
7 Double Edged Crescents
8 Rods
9 Fine Points
10 Invasive Points
11 Fragments

MICROBURINS (Ills 61; 63. 1–10)

Microburins are the snapped ends of blades, and are characterised by a notch produced by microlithic retouch



ILL 63: The Lithic assemblage, modified artifacts: microliths. 1-10 microburins: 11-20 obliquely blunted blades: 21-26 lamelles à cran; 27-42 backed bladelets: 43-56 scalene triangles. (Image by Marion O'Neil)

on one side of the blade in order to generate the snap. The notch is usually truncated by the snap.

There are 33 microburins. Microburins are recognised to be waste material from the manufacture of microliths, in particular from scalene triangles (Brinch-Petersen 1966). The majority at Kinloch are proximal ends, most of which have been notched on the right-hand side; there are also a few distal ends (all but one with a left-hand side notch), as well as a few segments of uncertain orientation.

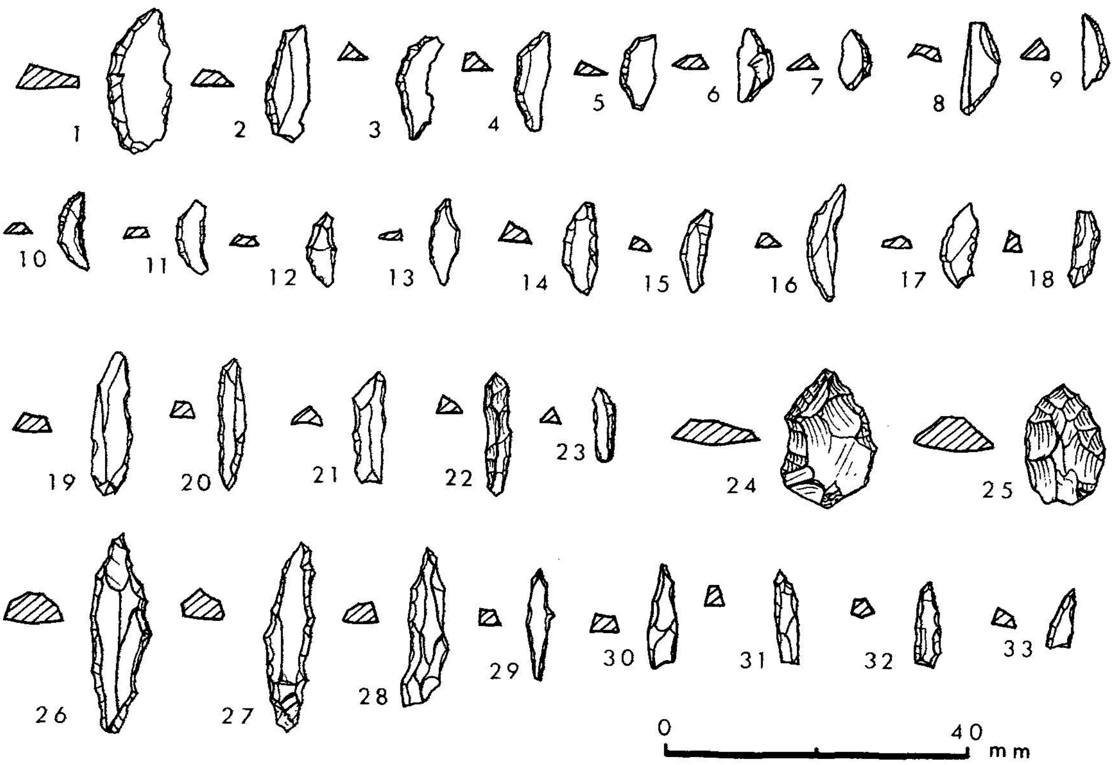
LAMELLES À CRAN (Ills 61; 63. 21–26)

Lamelles à cran are the proximal ends of blades with microlithic retouch along one side (sometimes both sides). Like microburins, Lamelles à cran have a characteristic notch, presumed to be associated with the snapping process.

Lamelles à cran may be a long form of microburin, but they are apparently deliberately shaped by microlithic retouch, there were a total of 6 in the assemblage. Like microburins, they have been associated elsewhere with the production of scalene triangles (Brinch-Petersen 1966).

OBLIQUELY BLUNTED BLADES (Ills 62; 63. 11–20)

Obliquely blunted blades are snapped blades with microlithic retouch across the snap, which runs obliquely across the piece.



ILL 64: The lithic assemblage, modified artifacts: microliths. 1-9 crescents: 10--18 double edged crescents: 19-23 rods: 24-25 invasive points:26-33 fine points. (Image by Marion O'Neil)

There are 16 obliquely blunted blades; unlike the other microliths, they preserve a short length of both of the original sides. Some have fresh and acute edges, others have blunt edges, and a few have been deliberately blunted by microlithic retouch. Although they are of a standard length (c.14mm), the obliquely blunted blades are wider than the other microlith types, and it is possible that they represent a type of distal microburin.

BACKED BLADELETS (Ills 61; 63. 27–42)

Backed bladelets have been blunted by microlithic retouch down one side, and all have a triangular cross-section and they are rectangular in plan.

There are 144 backed bladelets; a few have retouch along both sides, but even these still have the characteristic triangular cross section which differentiates them from rods.

SCALENE TRIANGLES (Ills 61; 63. 43–56)

Scalene triangles are blades that are both backed and obliquely blunted by microlithic retouch. They are triangular in plan and in cross-section.

There are 158 scalene triangles, with a variety in both size and shape, but in general they are shorter than the other microlith forms, and they are always of a distinctive triangular shape with a short oblique edge. The majority of the scalene triangles have a straight oblique edge but a few have a concave oblique edge.

CRESCENTS (Ills 61; 64. 1–9)

Crescents are blades that have been blunted by microlithic retouch down one side. The retouched side is convex in outline, so that the piece is crescentic in plan with a triangular cross-section.

There are 53 crescents.

DOUBLE EDGED CRESCENTS (Ills 61; 64. 10–18)

Double edged crescents are blades that have been retouched by microlithic retouch on all sides to produce a crescentic shape. These pieces lack the acute, unmodified edge of the crescents and they have a more rectangular cross-section.

There are 11 double edged crescents; the similarities of shape with the crescents would suggest that they may be related to the crescents, but they lack the sharp edge of the latter so that this may be a false assumption. Double edged crescents tend to be smaller than crescents, and they are the shortest of the microlith types, doubtless because of the greater amount of modification involved in their manufacture.

RODS (Ills 62; 64. 19–23)

Rods are blades with microlithic retouch down one or both sides, and they have a rectangular cross-section.

There are 8 rods; they differ from the backed bladelets in that they do not have the acute edge of the backed bladelet. Although of a similar length to the backed bladelets, rods tend to be narrower, no doubt as a result of modification on both sides.

FINE POINTS (Ills 62; 64. 26–33)

Fine points are blades with modification by microlithic retouch along one or both sides to form a narrow single point at one end.

There are 18 fine points; all are long and thin, and many have a very sharp point. The blunt end is formed by a lateral snap across the piece. They are shorter and finer than the borers, but of a similar pointed morphology, and it is possible that they are merely the snapped tips of freshly made borers.

INVASIVE POINTS (Ill 64. 24–25)

Invasive points are small flakes or blades modified into the shape of a point by invasive retouch over the dorsal face.

Two invasive points were recovered, both from the same spot within the ploughsoil. They differ from the bifacial points in that they are unifacial, and they are much smaller than all but one of these points (the mesolithic piece Ill 59. 1).

FRAGMENTS

Fragments are broken pieces with microlithic retouch.

706 pieces were identified as fragments; all are so broken that the original microlith type cannot be identified. With the exception of eight pieces, all the fragments are laterally broken, as might be expected for artifacts of this shape; 35% are proximal fragments, 17% are distal fragments, and 48% are segments.

DISCUSSION

With the exception of the two anomalous invasive points, the microlith assemblage is based on the modification of narrow blades. Evidence for the manufacture of these blades was noted during the technological examination of the assemblage (Chapter 6). Broadly similar blades were selected for the different microlith types, even though there is some differentiation in size between the different types of finished piece (Ills 61, 62). This is presumably related to the different amounts of modification necessary. Although the microburin technique was used, there are so few microburins of any type that microburin technique cannot have been essential to the production of any microliths, whether scalene triangles or others.

It is generally accepted that microliths are the lithic components of composite tools which used several lithic elements set into a haft, usually surmised to be of wood. At Kinloch a number of specifically different morphological types were recovered, but the relationship of these different types one to another must be questioned. In the past, different functions have been ascribed to the different microlith types but, as Woodman notes, composite tools combine different microlith types when they are preserved (Woodman 1985a, 47). An examination of the locations of the different microlith groups at Kinloch revealed neither recurrent combinations nor mutually exclusive distributions that might have shed light on the associations of the original tools.

CONCLUSIONS: SECONDARY TECHNOLOGY AND THE MODIFICATION OF ARTIFACTS

Only a small proportion of the blades and flakes that were manufactured were modified. Although it is likely that modified artifacts were removed from the immediate areas of manufacture, there is evidence for both the use, as well as, manufacture of stone tools amongst the assemblage, so that the proportions of the different types of material recovered are likely to be representative of the original assemblage. Once modified, the finished tools fall into a number of distinct morphological types, and it would seem that the prehistoric knappers had a variety of templates to which they manufactured pieces. There is certainly evidence for the careful selection of different blanks according to the requirements of the different artifact types: in some cases inner blades or regular flakes were preferred (eg for the borers); in others a more chunky irregular flake was suitable (eg for the angled scrapers); or a narrow blade (eg for the microliths). Although both main raw materials were used for all modified artifact types, those reliant upon a more regular blank were made more frequently on flint. This may reflect the deliberate selection of flint, but it may also reflect the fact that regular blanks were less easily made of bloodstone.

Finally, the classifications presented here do not necessarily equate with any prehistoric tool types. Research has shown that the relationships between archaeological tool types, actual tool functions, and indigenous tool types are extremely complex (Knutsson 1988a; and see Wright 1977, especially the papers by Clegg; Crosby; Hayden; and White *et al*). Not only may a tool be used for more than one purpose, but it may also be altered in shape throughout its life to suit various functions; moreover, the ways in which tool users classify their tools do not always correspond to the uses to which they are put. Compare the modern classifications of a fountain pen, ball point, felt tip, and roller ball, all of which serve the same function, while a penknife may serve many functions but is rarely associated with writing.