A PRELIMINARY ANALYSIS OF THE CHIPPED STONE FROM THE 1985 EXCAVATIONS AT TELL ESH-SHUNA NORTH

by
Douglas Baird

This preliminary report is an account of an initial internal comparison of variation between the relatively wide analytical categories of conventional stone tool typology, utilising a broad contextual breakdown to provide controls on chronological and spatial variation. A brief consideration is also included of the significance of such variation in terms of interpretations of evidence from other sites and of comparative typology. The nature of the methods used to retrieve the sample is obviously the basic control on the quality and validity of such an analysis. Sieving was employed only in $1m^2$ control soundings on the northern edge of the main trenches; these samples thus cut deposits, on the whole, very closely related to those excavated in the latter (Gustavson-Gaube 1986, p. 69 and Fig. 1). In the main trenches, however, recovery was effected only by the excavators, local workmen and their archaeological supervisors, who were distributed evenly over the area excavated; methods of excavation were similar in each trench. Because the substantial proportion of the material was recovered by workmen, previously archaeologically untrained, but to whom the importance of all chert was emphasized, it is not felt particular typological classes were favoured over others except those related to size. Smaller tools and smaller elements of debitage are therefore likely to be under represented, but that collection was not unduly discriminatory is emphasized by the relatively large quantity of natural cherts which were collected with the lithics. Because of this, comparison of variation in the proportion of the different classes of material from one area of the site to another and between deposits is still felt to be viable when only large groups of contextually coherent deposits are dealt with, except in cases where recovery circumstances were optimum, e.g. EI 78.1. The fact that debitage as a whole may be under represented, especially its smaller components, is not enough to vitiate the intra-site comparative analyses carried out when it is also considered both that there is evidence to suggest that debitage is still not insignificantly represented, even its smaller categories. For example, exactly where recovery circumstances were optimum, EI 78.1, a small self-contained body of knapping debris (see below), bladelets form a smaller proportion of the total group than they do of the more widespread material from the major context groups (Table 1, Category 11). There is no reason to believe that disproportionate 'samples' were retrieved from particular groups of contexts exactly because context grouping may be expected to diminish the problem of sample bias arising through pecularities of personnel and individual circumstances of excavation. Context grouping was further expected to alleviate problems arising from a lack of strictly controlled sampling procedures in relation to limited sample sizes, which must obviously hinder the inference of dependable conclusions from variation in the relative presence of often limited types (particularly tools), by the creation of large groups with internal homogeneity in terms of context 'type', of similar 'size' in terms of volume of deposit which they represent and of intra-site comparative 'significance' because they consist of the most meaningful chronological and spatial units possible. In these circumstances it was considered that substantial proportional variation in related and meaningful typological classes between such significant groups would gain some validity.

Much depends on the nature of the context groups; an outline is presented below. Material from all structural entities, e.g. mud brick walls, was excluded from

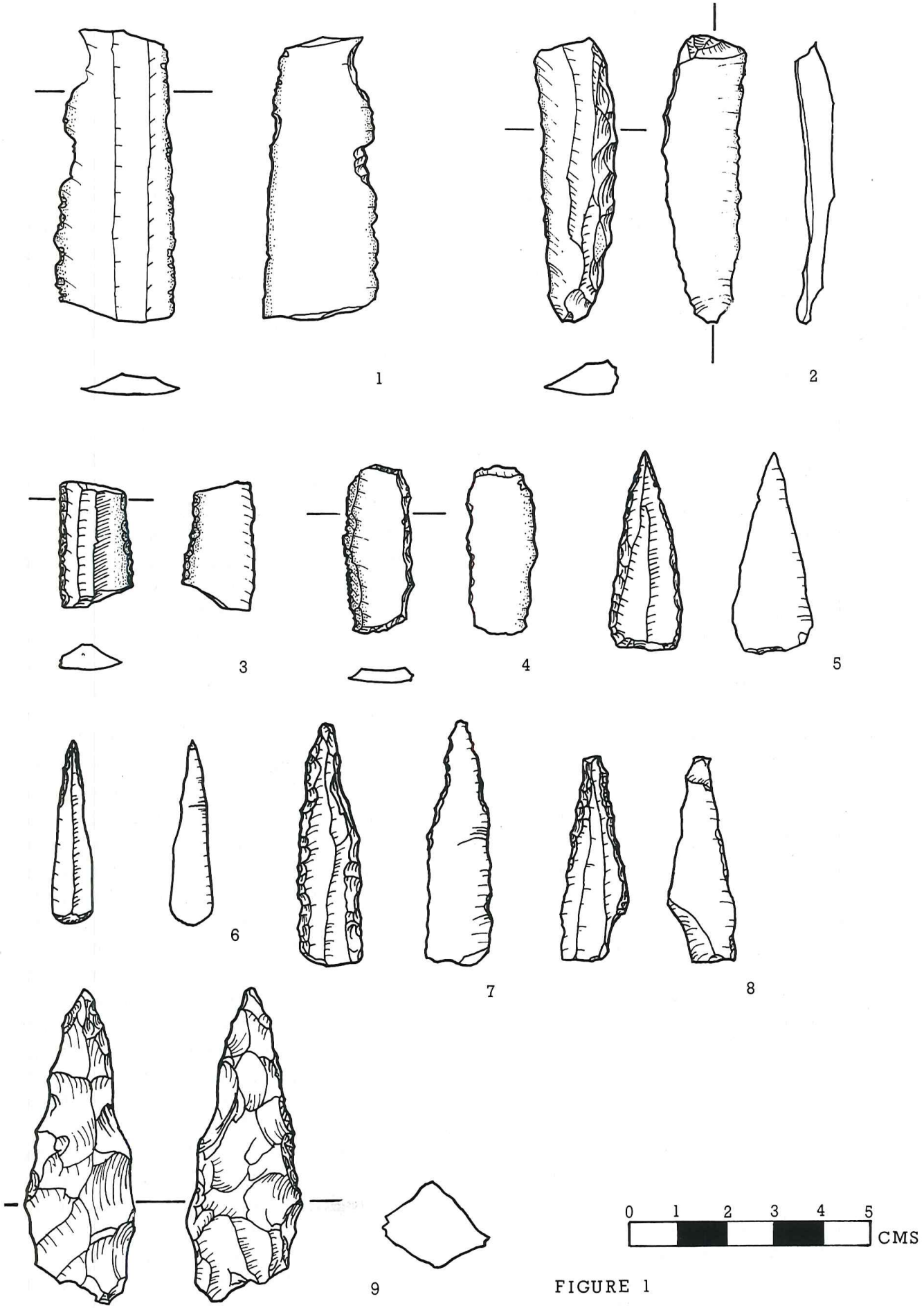

FIGURE 1

the analysis based on these context groups. E I, E II and E III are separate, adjacent 5x5m. max. trenches and their numerical suffixes indicate the steps of the site-wide phases (Strata) established by the Director C. Gustavson-Gaube (1986, p. 73 and Fig. 4) as a result of the analysis of the 1984 and 1985 stratigraphies. Appended is a brief description of these context groups, with information about the presence or absence of particular concentrations of lithic material and the place of these groups in the major chronological phases constructed by C. Gustavson-Gaube on the basis of the pottery (see Gustavson-Gaube 1986, p. 82-83). In contrast to the site-wide phase groups indicated by a numerical sequence such as EI 81-72, individual loci are indicated by individual context numbers, independent of this sequence and without correspondence to other loci out with the trench to which they refer.

Context Group	*Description*
EI 114-88/82	Consists almost entirely of a series of thin, exterior courtyard surfaces and occupation lenses running up against/contemporary with the sequence of structures in EII 109-82. No evidence in excavated area of entrance connecting EI to EII during these phases. Indications are that deposits represented by this group may have been rapidly accumulating with no reason to suspect large scale derivation of deposited material. Lithics distributed relatively evenly through all deposits of context group. The earliest part of the 'Early Phase' characterised by painted pottery in the PNB tradition as outlined by Gustavson-Gaube (1986, p. 82-87).
EII 109-82	The floors, primary occupation and secondary fills of a sequence of rebuilt rooms of a multicellular structure and an area of adjoining and clearly interconnecting exterior courtyard (in contrast to those of EI). Formation of deposits broadly contemporaneous with that of those in EI 114-88/82. Concentrations of material specifically in the fills of the latest building phase of this sequence of structures (but deposits largest in volume), most particularly in the sequence of fills in Room III in the S.W. quarter of EII (see Gustavson-Gaube 1986, p. 77, 78 and Fig. 7). The early part of the 'Early Phase'.
EI 78.1	A single locus. The primary fill of a small bell-shaped pit. Contained a notably large, dense concentration of knapping debris. In the N.W. corner of EI, cut down from a level in the EI 81-72 context group i.e. from a level in the middle of the 'Early Phase'.
EI 81-72	Series of external surfaces and installations with thick intervening fills and a notable quantity of often bell-shaped pits. Directly overlies EI 114-88/82 stratigraphic sequence, contemporary with EII 81-71 sequence. A small proportion of the deposits are the fill of a small part of a sunken floored structure, the rest are from areas of fill neither bounded within the area of excavation nor separated from contemporary EII fills by any features of significant extent. There is thus very little control on the nature of depositional factors outwith specific pits and installations. No concentration of material except in EI 78.1, noted above and dealt with as a separate context group. The 'middle' part of the stratigraphic sequence making up the Director's 'Early Phase' at Shuna.
EII 81-71	A series of deposits with the same characteristics as those outlined above for EI 81-72 and contemporary with them. Directly overlying EII 109-82. No notable concentrations of material. From the middle part of the 'Early Phase' sequence.
EIII 54-16	A sequence of courtyard and room fills, occupation surfaces, floors and more general fills, i.e. a very diverse sequence of context types, grouped together because they were a sequence representative of all the material later than the other context groups. Lithic concentrations include parts of larger caches excavated in EIII 15.1-15.3, mainly points (probably projectile),

(Erskine in Gustavson Gaube 1985). The depositional status of the rest of the material as a group remains problematic and must thus be regarded as mixed. This is even more the case when it is appreciated that this stratigraphic sequence covers all the Director's 'Middle Phase' characterised by the presence of the 'Esdraelon wares' and a substantial part of the 'Late Phase' characterised by the presence of 'band-slipped wares', although occupation was considered to be continuous. It is equally clear that this context group represents material later than, but not immediately succeeding that from other context groups; deposits from the final part of the Early Phase sequence, i.e. 70-55, were all excavated in 1984 and this material was not directly considered as part of this analysis.

Categories and Definitional Criteria (Table 1)

1. Primary decortification flakes.
2. Secondary decortification flakes.
3. Blades with substantial amounts of cortex (most of which could be termed 'naturally backed').
4. Chunks and battered pieces.
5. Flakes.
6. Flakes which by their ridges and scars and other morphological features could be related to blade production, either as by-products or rejuvenation and preparation elements.
7. Overshot blades.
8. Complete blades.
9. Broken blades. (Impossible to distinguish in every case between accidental and intentional breaks.)
10. Large, thick, heavy, 'rectangular'/'square' flakes, sometimes with blade scars, assumed, at least on occasion, to be the deliberate end product of knapping because of their close similarity to a number of tools on such blanks, (Fig. 2).
11. Bladelet. Less than 2.5 cms. long and with a length:width ratio at least 2.5:1.
12. Complete retouched blades.
13. Broken retouched blades.
14. Category 10 flake with retouch (Fig. 2.2).
15. Retouched flakes.
16. Core tools/bifacially retouched pieces (Fig. 2.3).
17. Cores.
18. Core rejuvenation elements.

Table 1 presents, in terms of the above categories established for preliminary analysis, all material from the 1985 excavations that was positively identified, excluding only material from the earliest levels in EII and EIII.

The Tell esh-Shuna North industries are characterised by blade production; that such was, predominantly, the desired end of knapping is indicated by the tool types, the high percentage occurrence of blades, the presence of many typical blade by-products and preparation elements, the core rejuvenation pieces and some cores. However, particularly in the Early Phase, a distinctive type of flake was retouched (Fig. 2.2, Table 1 Category 10) and the number of examples of such and of similar pieces lacking retouch suggest that such flakes were also a specific product of the reduction sequence. The technology of production appears to change little through the sequence as it is revealed by cores, although such absence of variation may be more apparant than real, a possibility indicated by a preliminary inspection of platforms; this disparity may result from the limited number of cores retrieved from the Middle and Late Phases, and because of the limited nature of the raw material (in terms of size and quality) the cores resulted from throughout this sequence. This raw material consisted almost entirely of fist-sized or smaller rolled nodules retaining enough cortex, even after knapping, to indicate their limited size. The material from EI 78.1, as indicated by the decortification flakes and blades, the number of conjoinable elements and the core rejuvenation pieces, must have consisted of larger more elongated nodules, but not substantially larger. Reduction strategies appear to have been very flexible, perhaps because of the variation in and irregular shape of much of the raw material, but, as indicated by the cores, two broad groups of strategies were included. One group involved sets of unipolar strikes from broad single or double striking platforms producing 'pyramidal' cores. A second group encompassed bi-polar strategies often enhanced by a series of transverse blows from several striking platforms. The strategies employed in the production of the material from EI 78.1 conform closely to this second

Table 1: Percentage of each element of the industries, presented by context.

	PERCENTAGES					
Context Groups	EI 114-88/82	EI 81-72	EI 78.1	EII 109-82	EII 81-71	EIII 54-16
Number of pieces	N = 1013	N = 240	N = 348	N = 951	N = 393	N = 1143
Categories						
1.	2.60%	2.00%	4.70%	2.73%	4.58%	3.20%
2.	13.70%	10.00%	7.80%	13.14%	9.41%	15.40%
3.	3.10%	2.90%	24.60%	2.94%	2.29%	2.50%
4.	0.20%	1.25%	0%	5.36%	7.12%	1.30%
5.	42.20%	41.60%	15.90%	24.81%	30.02%	51.50%
6.	18.10%	17.00%	26.10%	19.03%	17.04%	13.40%
7.	0.70%	0.80%	2.50%	1.36%	1.78%	0.30%
8.	1.97%	4.60%	1.80%	1.99%	5.59%	1.10%
9.	3.55%	3.75%	1.00%	6.41%	5.85%	2.40%
10.	0%	0%	0%	1.36%	1.27%	0.20%
11.	6.10%	7.50%	5.90%	6.83%	2.29%	2.30%
12.	0.30%	0%	0.30%	2.52%	1.27%	1.30%
13.	1.59%	1.25%	3.90%	5.67%	5.85%	2.30%
14.	0%	0.41%	0%	0.52%	0.76%	0.30%
15.	0.09%	0%	0%	1.15%	0.50%	0.20%
16.	0.09%	0.41%	0%	0.10%	0%	0%
17.	3.55%	2.08%	0.50%	0.94%	1.78%	1.00%
18.	1.40%	2.08%	4.60%	3.00%	2.54%	0.80%

group.

As already pointed out above, such direct evidence does not allow any confidence in assigning variation through time to technological change. It may still be significant, however, that almost all cores in the Middle and Late Phases belong to the first group outlined, whereas in the Early Phase, particularly its earliest part (Strata 114-82), cores represent diverse manifestations of both types. Further, the cores recovered from the area of Shuna excavated certainly account for only a proportion of the blank types produced, and possibly only a proportion of those actually produced at Shuna. Circumstantial evidence supports this particularly clearly from the later part of the Early Phase onwards (Strata 82-) in the form of Canaanean blades and tabular scrapers, relating to the production of which not one piece of debitage of any kind has been found at Shuna. The presence of large caches of points on small, regularly sized distal segments of truncated convergent blades and 'blanks' for such in loci EIII 12 and 15 (Erskine 1985, 87) indicate some 'large scale' production involving careful preparation of cores and specific reduction sequences, to achieve such standardized products, for which there is no direct evidence in the form of cores, debitage or rejuvenation elements. Furthermore there are indications that these clear-cut cases represent only the most obvious examples of similar disparities between the products of the lithic industries and actual evidence from production elements even in the earliest part of the Early Phase (Strata 114-82), where some production elements are well represented (See below).

EI 78.1 (see context group descriptions) may provide some control on the significance of variation in the proportions of the different elements of debitage through the various context groups, if it can fairly be suggested that it is a representative cross-section of knapping debris and within the limits dictated by the potential variation in factors relating to

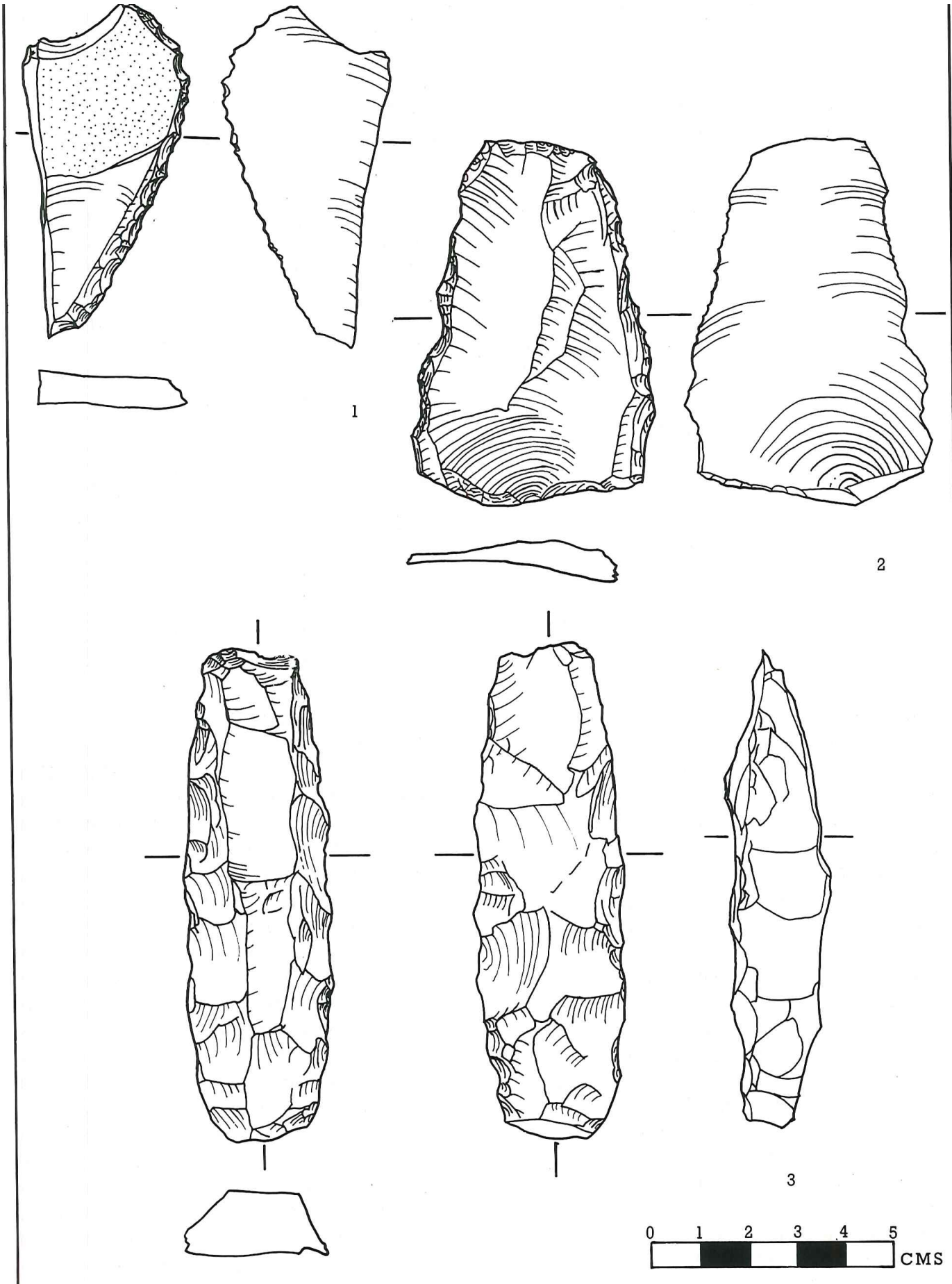

FIGURE 2 SCALE 1:1

production outlined above. EI 78.1 (see C. Gustavson-Gaube 1986, p. 71, Fig. 2) contained, in its lowest fill, a large quantity of knapping debris, densely packed in approx. 0.1m^3 of deposit, in itself representing only the excavated third of this lowest fill. The material ranged over the entire reduction sequence and the number of conjoinable pieces from sequences of blows and the number of elements from similar pieces of chert makes it clear that this material was produced over a short space of time from a very few nodules of chert. Indications from the more diversely represented range of elements in other deposits are that this coherent body consists of the direct by-products of the complete knapping process and that production methods were completely in line with at least a substantial proportion of those of the Early Phase (Strata 114-82).

The fact that two cores were found that the complete reduction process is represented by a large number of pieces from all categories makes it likely that the knapping process was substantially complete and is well represented by this 'sample' of the deposit. A further more speculative argument can be adduced about the nature of this material which is that it represents almost entirely the by-products of knapping and tool production, not the actual material desired for use. This is suggested because of the very low percentage of blades, both complete and broken (Table 1, Categories 8 and 9) compared to other context groups. The high proportions of complete to broken blades are encountered in other contemporary contexts — but in this particular instance it may be indicative of a lack of preparation of blades for use given the number of segmented/broken blades and blade tools encountered in other context groups (Table 1, Categories 9 and 13). Equally pertinent in this regard may be the context of the material itself — apparently disposed of in a 'deep' narrow pit. It is clear that some blades would have been considered unutiliseable and since many in EI 78.1 had high dorsal ridges and were twisted in longitudinal and cross-section, it might be suggested, if the hypotheses about EI 78.1 held true, that these were undesirable features, factors that may partly reflect hafting needs. If such arguments hold good it may be suggested that the blades most suitable for use had been selected before the EI 78.1 material was deposited.

A high proportion of the flat parallel-sided blades in EI 78.1 were secondary decortification elements (Table 1 Category 3). If what we are left with in this context are those elements rejected as undesirable by the knapper(s)/toolmaker(s) it can be suggested that 'naturally-backed' blades were not a particularly favoured product of the knapping process, at least in this instance or phase. Such blades occur occasionally as clear instances of tools in other phases but the significance of such occurrences is not clear. Another prominent group of debitage products in this context was a series of overshot blades (Table 1 Category 7). It seems possible given their number and character that it was the deliberate intention of the knapper to produce such removals as blows of rejuvenation. From this group of debitage it is also clear that Category 6 (Table 1) consists of elements produced as both deliberate preparation blows and more generalized by-products of the knapping process. At least 10% of the material in this context and assigned to Category 6 (Table 1) were very distinctive removals with high 'crests' and ridges on their dorsal faces and the negatives of hinge fractures, clear rejuvenation blows.

There are retouched pieces from EI 78.1, sixteen altogether, which might bring into question the interpretation so far offered on the nature of this deposit. However, only one retouched piece was unbroken, a heavy-duty point on an end-scraper or convex truncation. Because of the nature of the context — a well preserved cache at the bottom of a pit — and the fact that remarkably few other elements were broken, it seems unlikely that so many tools were broken in deposition without at least some joining pieces being recovered. It seems much more plausible that these tools were broken during use or manufacture and that is why they were deposited with this debitage. There is some

evidence that some tools were broken specifically during manufacture, suggested because all the broken pieces were of the same cherts as the debitage and because of the nature and degree of retouch on the broken pieces which indicated that they were both the by-products and accidents of manufacture as much as broken tools. Four small distal and proximal segments of blades with irregular fractures and complex scars were truncated by an abrupt retouch which produced a deep, elongated notch on which the blade was snapped leaving an elongated half-notch. The necessary notch was produced from the dorsal as well as ventral surfaces and one element truncated in this manner was the proximal segment of a blade that had already been backed. Other pieces were also clearly backed before segmentation; seven such pieces, small irregular proximal and distal blade segments with other retouch as well, were all apparently snapped, with three showing evidence of very slight 'notching' on the break, perhaps indications of a method by which the break was guided; such vestigial notching on breaks was noted by Cauvin at Late Neolithic Byblos (Cauvin 1968, p. 129). The evidence from these pieces relates specifically to the production of backed blades. Three other items certainly, and perhaps two others, suggest the production of points, represented by pieces probably broken in manufacture. One abruptly, bilaterally retouched tip of a point had been broken. Another tool with a high, triangular cross-section and abrupt, invasive retouch along most of the length of one edge has a break on a minimal amount of similar retouch on the opposite edge; such retouch was obviously incomplete by the standards of the other points of the assemblage. Two more broken tools with similar continuous retouch — such as that encountered classically on typical 'light-duty' points — along only one edge appeared to be incomplete points. It may well be then that this group represents the residue of tool manufacture rather than simply 'blank' production, the latter perhaps unlikely to be an isolated process anyway.

If, as can be strongly suggested, EI 78.1 is a complete and undisrupted cross-section of debitage, it is very useful to compare the relative frequency of the particular elements within it with those in the most generalised groups in E I-E III. It can be seen (Table 1) that in all the other groups of contexts, the ratio of primary decortification flakes (Category 1) to secondary (Category 2) is usually considerably lower and that the percentage presence of secondary decortification blades, 'naturally-backed', (Category 3) is much lower than EI 78.1. In EI 78.1 the percentage of flakes (Category 5) is much lower than in the groups of other contexts. The percentage of Category 6 and Category 7 is higher in EI 78.1 than other context groups. The possibility that differences in raw materials account for the variation, for example, in the ratio of Category 1 to 2 (i.e. substantially more cortex on the EI 78.1 material than in all the rest of the assemblage) must be rejected, not simply on *a priori* grounds, but exactly because of the higher percentage of secondary decortification flakes in other contexts; it must then be that in the other groups of contexts 'disturbance' factors are at work. It is also unlikely that the consistent degree of variation in Category 5 and the percentage of Category 6 and 7 is to be accounted for merely by variation in the technology of production, particularly the proportion of overshots, or the 10% of material from EI 78.1 that was peculiar 'crested' rejuvenation elements. Core rejuvenation elements (Category 18, Table 1) are also a notably greater proportion of the EI 78.1 assemblage.

This may suggest that the groups of debitage we are on the whole presented with in all the context groups, with their functionally and chronologically varied natures, have very considerably derived from any coherent assemblage resulting from knapping. The depositional processes in the more general fills could well result in much mixing, of course, but the fact that we are dealing with groups of contexts formed by both functionally and chronologically varied units and that this remains a common phenomenon may suggest the selective and continuous loss of particular

elements that have a relatively high proportional presence in a 'typical' cross-section of knapping debris. EI 78.1 itself certainly suggests one process by which this may have occurred.

Given this there is a paradoxically high percentage of cores in EI 114-88/82 (Table 1, Category 17). One might expect a high percentage of cores in an assemblage from a coherent, closely related group of contexts of a relatively unmixed and non-derived nature (see above) to indicate the occurence of knapping within that general area of site. It is certainly likely to indicate that a relatively large amount of production of chipped stone tools actually occurred on the site in the early part of the 'Early Phase', just as the percentages of cores and the presence of EI 78.1 indicate some production during a later part of this 'Early Phase', (EI and EII, 81-71). As we have seen in a relatively undisturbed cross-section of knapping debris, cores form a low percentage of the sample, but it has already been indicated that the relative proportions of different debitage classes are such to suggest that the assemblages are not significantly indicative of undisturbed knapping debris. Selective disposal clearly took place on occasion, which means a disproportionately high presence of cores within an area may still be indicative of knapping within that broad locality and indeed would be one possible interpretation. But the fact that cores may have remained within such broad areas of activity has to be specifically accounted for. If cores were used as tools the argument that their proportionately greater presence was indicative of production would be nullified; but most cores in EI 114-88/82 would have made unlikely tools of any kind. The fact that numbers of the cores from these EI deposits were among the few in the assemblages as a whole that were not reduced to the point where no more useful elements could be safely detached may indicate that certain factors of production rather than disposal were responsible for the relatively high percentage of cores, as a repetitive phenomenon, in a sequence of these EI courtyards. The particular nature of the raw material represented by these cores may also indicate a specific kind of production not necessarily representative of the complete range.

Two further points reinforce, in contextual terms, the potential significance of this concentration of cores. It is not a function of the disproportionate occurrence in one or two deposits within the context group of a very large number of cores. It is a product of the relatively frequent, scattered recurrences of cores throughout the whole sequence of thin courtyard occupation fills whose material content is unlikely to have been the result of large scale depositional derivation. At the same time there is evidence, within individual deposits, of small, localized groups of cores which may further suggest that some of this material is relatively *in situ*. For example, 5 cores were found close together in the localized occupation-like fill of a shallow scoop surrounding a small brick bin or platform EI 48.1, apparently somehow associated with this latter feature. The broad context for the occurrence of high proportions of cores throughout the EI 114-88/82 sequence of contexts must be taken to be indicative of recurring patterns of activity in this area, patterns which, the second contextual point makes it clear, are to be contrasted with those occurring in the contemporary area represented by EII 109-82.

The relative significance of the greater proportional presence of cores throughout this EI 114-88/82 context sequence is particularly enhanced by the fact that the greatest differential in percentage occurrence exists exactly between contemporaneous context groups. Cores form over three and a half times a greater proportion of material from EI 114-88/82 than they do of material from EII 109-82 (Table 1, Category 17). In the simple numerical terms in which we will deal with tool types an even greater disparity is noted between these two context groups which had closely related volume of deposit; there are 36 cores from EI 114-88/82 compared with 8 from EII 109-82, four and a half times as many in EI as EII. The point is that this variation is only part of a wider disparity in the frequency of occurrence of other clas-

ses of the lithic assemblages, particularly tools, between the broadly contemporary but contextually differing deposits of EI 114-88/82 and EII 109-82 (see above).

It seems likely then that lithic production occurred specifically in the EI courtyard area (if disparities in type distribution between EI and EII in Strata 114-82 discussed below are significant) in the early part of the Early Phase and that if the proportions of cores in the different groups have validity as indicators of relative production intensity, then its occurrence was not uncommon in the early part of the Early Phase in general. Similarly the proportions of cores in the middle part of the Early Phase, Strata 81-71, 2.08% in EI and 1.78% in EII (Table 1), suggest general production in and around the open areas represented, with knapping and tool manufacture within the immediate area indicated by EI 78.1. 1% of the material from EIII 54-16, the 1985 Middle and Late Phase sample, was cores suggesting some production. To investigate changes in the relative amount/intensity of production from Early to Middle and Late Phases, it was necessary to increase sample size and to consider a more precise stratigraphic breakdown by including material and information from 1984. When this was achieved it became apparent that almost all cores from the 1985 season were located in a series of courtyard occupation fills associated with and immediately overlying the curvilinear structure EIII W65/W66 (C. Gustavson-Gaube 1986, p. 76, Fig. 6), loci EIII 69, 67, 62, 60, 61, 54 and 51 (C. Gustavson-Gaube 1986, p. 71, Fig. 2) belonging to the earliest part of the Middle Phase. In these loci cores form a much higher proportion of the chipped stone than they do of material from the rest of the Middle and Late Phases; thus in EIII loci 67 and 69 cores form 1.68% (N=119), in EII loci 60 and 62 cores are 1.8% (N=327) and in EIII loci 51,54 and 61 cores are 1.17% (N=255) of chipped stone from these contexts. Cores average 1.56% in these courtyards (N=701). If these proportions can be compared with the two parts of the Early Phase where there is evidence for knapping within the immediate area of the site, it seems safe to hypothesize at least some generalized production during the earlier part of the Middle Phase. In marked contrast, however, when material from the rest of the Middle and Late Phases from 1984 and 1985 is grouped, cores form only 0.16% (N=1225). No cores were recovered in the Late Phase at all. Without placing decisive reliance on cores as indicators, especially in a production environment where removal of waste is likely (see discussion relating to EI 78.1 above), it is possible that production declined significantly during these phases in this general area of the site, although obviously a larger sample would be required to demonstrate this positively. An interpretation of the general significance of such a decline would be dependent on the status of the area excavated; the diversity of context type during these phases and the depth of deposit and architectural changes witnessed suggest that such a phenomenon would not merely be a function of the recurrence of specific exclusive activities in this area of the site. It suggests either that the location of production areas would have been more circumscribed — whether within or between sites is beyond the scope of this analysis — or that production of chipped stone tools would have undergone an absolute decline. Such conclusions would have to be set alongside the positive circumstantial evidence for relatively large scale production of certain specialized types, the EIII loci 12 and 15 points (see above and Erskine 1986, 85-87).

At certain points in the Shuna sequence, contextual evidence related to the contrasting distributions of certain potentially related types suggest that disturbed patterns of prehistoric activity are preserved. The evidence for production of lithics *per se* has been examined in such terms in the earliest phase at Shuna, Strata 114-82, in relation to what has been represented as significant variation in the distribution of types related to other activities. The evidence for this is now presented. In Strata 114-82 complete and broken unretouched blades form 5.52% of the EI material and 8.40% of the EII context group. (Table I, Categories 8 and

9). In terms of 'raw' counts, 56 blades in EI compared to 76 in EII. Category 10 flakes form 1.36% of the material from EII — they do not occur in E.I. In terms of retouched pieces differences are even greater; 8.19% of EII 109-82 lithics are retouched blades, in EI only 1.80%. Other tools are represented by 1.77% of the material from EII compared to only 0.27% from EI (See Table 1). Taken together retouched pieces form over four and three-quarters times a greater proportion of the lithics from EII than from EI. There is substantial variation in the proportions of different types between EI and EII in which deposits of EII 109-82 are dominated by types reflecting tool use and those of EI 114-88/82 by a type reflecting lithic production. There are over ten times as many tools as cores in E II and over one and a half times as many cores as tools in EI.

A cross-cutting dichotomy in the spatial distribution of types between these EI and EII context groups is both reinforced and refined by an analysis of the distribution of specific tool types between these context groups. It may be difficult to adduce significance for variations in the distributions only of specific tool types when dealing with such a relatively small sample, 76 tools in total from EI 114-88/82 and EII 109-82. Any validity in this case is to be derived from the carrying out of such comparisons in direct conjunction with controls on the nature of context type and depositional circumstances and with wider analysis in the variation of broader types within the assemblages. Table 2 presents a broad breakdown of tool 'types' by context group.

It can be seen from Table 2 that there are almost the same number of backed pieces in EI and EII, 114-82, 9 and 10 respectively. The total number of sickles is similar, 3 in the relevant EI and and 4 in the relevant EII context groups. The morphologically specialised tool types of axes, adzes, chisels and points (non-projectile types) total 5 in E I and only 3 in E II. In sharp contrast to this balanced distribution of types between EI and EII, 114-82 other tool types are concentrated, often exclusively, in EII. Thus there are 4 end scrapers in EII, 1 in EI; there are 9 retouched flakes (mostly Category 10 types) in EII, none in EI, and there are 29 retouched blades and bladelets without backing compared to 5 in EI. The figures for the latter three groups of tool types reflect and emphasize the notable difference in the relative proportions of tools in EI 114-88/82 and EII 109-82. In contrast, however, backed blades, sickles and morphologically specialised group of types clearly cut across this pattern thereby assuming disproportionate significance in EI.

Given these tool type disparities the significance of substantial variation in the presence of some of the other categories of the assemblage between EI and EII might be further examined. 6.41% of the flints from EII 109-82 were broken, unretouched blades (Table 1, Category 9), only 3.55% of the material from EI 114-88/82 fell into this category. At many Chalcolithic and Early Bronze Age sites in the southern Levant there is considerable evidence to indicate that blades were deliberately broken into segments, Jericho (Crowfoot Payne 1983, p. 716-723), Arad (Schick, 1978, p. 60, Figs. 81-90) and Byblos (Cauvin 1968, p. 129). At Shuna, as at these other sites, the evidence exists in the form of regularities in the lengths of blades and the occasional presence of negative bulbs and other indications of deliberate segmentation; at Shuna as at Byblos this may imply the use of more than one method of segmentation (Cauvin, 1968, p. 129). At Shuna the evidence is found on retouched and unretouched examples. It proved impossible during initial processing of the material to consistently affirm or deny the possibility of segmentation of particular broken blades; all broken blades were recorded together. However, the *a priori* likelihood that some unretouched blades were used or intended for use, that deliberate segmentation of blades appeared relatively frequently and might indicate such use, that breakage of blades will have occurred with use as well as deposition, all suggest that the relatively greater presence of broken blades in EII

Table 2: Tool types by context group.

Tool Types	*Number of Pieces per Context* EI 114-88/82	EI 81-72	EI 78.1	EII 109-82	EII 81-71	EIII 54-16
Backed blade	1	2	—	2	—	—
Backed blade with edge damage	1	—	—	1	—	—
Backed blade with other retouch	3	2	—	2	1	2
Backed and truncated blade	1	1	—	2	3	3
Backed sickle blade	1	—	—	—	—	—
Backed sickle with edge damage	—	—	—	—	—	—
Backed sickle with other retouch	1	1	—	—	—	—
Backed and truncated sickle	1	1	—	3	—	1
Sickle blade	—	—	—	—	—	—
Truncated sickle blade	—	—	—	1	1	2
Scraper	—	1	—	—	—	—
End scraper	1	2	½	3½	1	1
Tabular scraper	—	—	—	—	1	2
Adze	—	—	—	1	—	2
Chisel	1	1	—	—	—	—
Heavy-duty point/awl/perforator	2	2	2½	2	2	2
Fine point/perforator/drill	2	1	—	—	—	2
Other points (mainly 'projectile')	—	—	1	—	—	13
Alternatively retouched blade	2	1	—	1	2½	1
Burin	—	1	—	1	2	1
Retouched bladelet	1	1	1	2	—	1
Truncated blade	—	—	2	4½	1½	5
Blade with other retouch	2	1	3	22	6	9
Retouched flake	—	—	—	2	2	1
Retouched Category 10 flake	—	—	—	7	1	1
Total of Tools	**20**	**18**	**10**	**57**	**23**	**47**

N.B. where a '½' indicated in Table 2 it represents one typological facet of a multiple tool.

may have some significance when juxtaposed with the comparative concentration of tools in EII. We may be able to infer more significance from the deduction of some relationship between the higher proportion of unretouched broken blades and the greater importance of tools in EII, by specifically adducing the morphological similarities between these blades and the non-backed retouched blades which predominate in EII in contrast to EI. These pieces have retouches of various types, variously disposed on the blades. However, the dominating feature of these blades is the limited nature of the retouch, both in terms of type, fine and/or simple or occasional notches, and disposition, often occurring on limited sections of one edge, the notches occurring singly or very occasionally in pairs.

This argument links a correlation (degree unknown) between morphological characteristics and functional attributes of pieces to their distributions. Support for both facets of this argument are to be found in the confirmation of the, to some extent, already expounded existence of the asymmetric distribution of other 'functionally'-related types and classes (e.g. cores), and must include a specific corollary to the above juxtaposition of unretouched broken blades and non-backed retouched blades in EII 109-82, in the exclusive presence in EII during this phase (114-82) of both Category 10 flakes and retouched examples of such pieces (Category 14, Table 1). In itself this might be considered further evidence of the

validity of the isolation of these pieces as a 'type', further supporting a degree of correlation between morphological and functional attributes.

Such a correlation in the case of axes, adzes, chisels, various types of points and sickles is clear if not precise. However, in this case such an hypothesis must rest on the possibility of inferring a broad functional dichotomy between backed blades and other blades with retouches more generally limited in scope. Such a division would be unlikely to be exclusive. This is suggested *a priori* but is particularly likely to be true in the case of Shuna. Analysis is at a preliminary stage, specific aspects of retouches have not been looked at in detail. A group that includes all retouched blades lacking backing or a few other specific typological attributes, e.g. end scrapers, is likely to be inclusive rather than exclusive. However, in as much as such observations are valid, the limited nature of retouches in this group is notable, and if edge angles are broad guides to 'working' edges, such retouches broadly represent minimal modification to working edges. Backing, however, is most likely to represent specific 'hafting' requirements. Sickles in this early part of the 'Early Phase', 114-82 clearly had such requirements; 6 out of the 7 sickles in EI and EII 114-82 are backed. Here a peculiar functional type appears to also have definition in other terms, such as 'hafting' requirements, that found reflection in specific morphological characteristics not patently related to the primary aspects of its function. The possibility that the significance of the contrasting distributions of these types relates to their functional roles may therefore be allowed. Such an hypothesis might ultimately only be testable by wear studies.

If a functional interpretation of the contrasting distribution of different types is to have further validity, part of the argument must rest upon the significance of any contextual variation involved. As partially indicated earlier, the contrast between EI 114-88/82 and EII 109-82 rests not merely in the difference between parts of a series of probably rapidly accumulating fills of an exterior area and the fills of the same continuously reconstructed building complex, but also in terms of the concentrations within these of the majority of the pieces recovered. Whilst material was evenly distributed through the series of EI fills and might thus, if it were considered to reflect any patterns of prehistoric activity at all, represent the accumulation of certain classes of lithics as a by-product of the relatively constant repetition of a series of dominant activities over a length of time, this is not the case with EII. In E II the vast majority of the material was recovered from the final fills of the final reconstruction of the series of buildings. Its status is not precisely defined; it may represent any one or combination of a series of processes including deliberate back-fill, gradual decay of the structure, occasional rubbish disposal, secondary usage and/or storage, or even include the final primary occupation. The degree of the derivation of most of the material may be considerable, particularly in comparison with the material from EI. Its deposition is certainly not precisely contemporary with the whole of the EI material and on an exact definition not necessarily with any. In EI, depositional circumstances of the material appear more likely to reflect local activity patterns, in the EII fills this is not at all the case. In themselves these factors might very well be enough to explain and/or substantiate the contrasting distributions of different classes and types of the assemblage between EI and EII, 114-82 as being a reflection of different patterns of activity, one set localised and the other not.

If, however, it is accepted that a large proportion of the material in EII would be considered to be derived, then this may still reinforce the significance of the disparities in the distribution of cores between EI and EII, as being a reflection of variation in patterns of local activity. If the high proportion of cores in EI do reflect knapping in the locality, this would not be surprising when it is considered that EI represents mostly exterior areas and approximately three-quarters of EII represents room interiors. In this regard the distribution of cores from all the fills in EII

(not just the latest) is interesting; only one core was found within the EII interior fills, another six were found in the fills of an exterior area that formed approximately only one quarter of the area of EII.

If the majority of the material in EII is derived, such a skewed distribution of cores may seem odd. Such a lop-sided distribution pattern is not confined to cores. *Ca.* 75% of the total lithics and *ca.* 80% of the tools were recovered from the final fills of Room III of the EII building complex (see C. Gustavson-Gaube 1986, p. 78 and Fig. 7), a small cell-like 'room' taking up only a quarter of the area of EII. This is a disproportionate concentration, even when it is appreciated that a small proportion of contemporary fills were excavated in 1984.

An interpretation of the variation in the contrasting distribution of types between EI and EII, 114-82, as reflecting different patterns of activity seems to be in order. However, the more precise question of the degree of derivation from the area(s) of those activities remains open and the variation must be considered as primarily a function of different patterns of disposal and orders of time of such disposal. At the very least it seems likely that, in this case, disposal patterns reflect activity sets to some distorted and ambiguous degree. The EI material is more likely to reflect a locally repetitive and recurrent pattern of activities; the EII material may also do this, in which case this variation would reflect differences in the broad sets of activities, including storage, between exterior courtyards and a complex of room interiors with associated courtyard. It may be equally the case that the EII material contrasts with that from EI exactly because it is an accumulation of material to some degree derived from a diverse group of activities and/or from a series of more diverse localities. Some of these issues might be resolved by microwear studies.

EI and EII, 82-71 are both characterised by particularly high proportions of complete blades (Table 1, Category 8), 4.60% and 5.59% of each context group respectively, in contrast to the other earlier and later context groups. This category is distinguished in this 'phase', not only by its relatively high proportional presence in both these context groups, but by the high ratio of complete to broken blades compared to earlier and later context groups. Factors of production and/or use that might produce such a notably high percentage of complete blades are complex and it is not clear whether they might be 'chronologically significant'. The relationship of such factors to the high ratio of complete to broken blades in the 'contemporary' knapping assemblage from EI 78.1 is unclear in this regard.

The proportional importance of other 'types' and certain more specific morphological characteristics do appear to change through time. There are notably lower percentages of Category 10 flakes and tools on such flakes (Category 14) (Fig. 2.2) in EIII 54-16, i.e. in the Middle and Late Phase samples from 1985, than in the Early Phase context groups (Table 1). The question of potential residuals must make the exact status of low numbers of these types in small Middle and Late Phase samples problematic. Moreover, the absence of both such flakes and tools on such flakes from EI 114-88/82 during the period of their greatest percentage and numerical occurrence, in the adjacent, similarly sized and broadly contemporaneous context group, should indicate care in dealing with the presence/absence and relative frequencies of such rare type fossils. The apparent continuity in the currency of these types between the earlier, 114-82, and later, 81-71, parts of the Early Phase is suggested by their presence in EII 81-71, although their absence from contemporary, completely contiguous deposits, EI 81-71, is more difficult to account for; given the number of pits cutting from 81-71 into the immediately underlying context groups EI and EII, 114-82, such marked mirroring of the distributions of the same types in completely different contextual circumstances may indicate the derived nature of the types as much as continuity in occupation.

The proportion of backed blades remains relatively constant between earlier and later parts of the Early Phase, but

declines notably into the Middle and Late Phases. Thus in EI and EII, 114-82 backed blades (Fig. 1.2-.4) form 32.2% of all tools on blades excluding gouges and points; in EI and EII, 81-71 they consist of 35.4% of all such tools, but in EIII, 54-16 they make up only 23% of such pieces. Sickle blades as an independent functional class might also be taken to document such change. Sickles remain relatively constant as a proportion of total tool types through earlier and later parts of the Early Phase, Strata 114-82 11.86%, Strata 81-71 9.67% and the Middle and Late Phases, Strata 54-16 11.53%. Although the sample is very small and therefore inconclusive, the trend indicates a decline in the proportion of sickles that were backed; 6 out of 7 sickles in Strata 114-82 were backed, (to increase sample size from later strata sickles recovered in 1984 are included) 7 out of 9 in Strata 81-70 were backed and only 2 out of 4 in Strata 54-7 were backed. To examine in more detail such indications of a decline in backing from Early to Middle and Late Phases, 1984 pieces are included in an analysis on a comparable basis. When totals for the Middle Phase are considered, Strata 54-24, backed blades form only 23% of such blade tools (N=13) and for the Late Phase, Strata 23-7, backed blades form 11.76% (N=17). There seems positive evidence of a decline in backing from the beginning of EBI, although the presence of residuals may complicate the issue with such small samples, in this case it is more likely to mask developments. In short the status of backed blades in the EBI levels remains problematic.

The inference of a decline in backing as a method of retouching certain sorts of blade tools may reflect the local impact of the Canaanean blade and related entities. The former is a 'type' without rigorous or exclusive, practical typological definition but is most often described (Crowfoot Payne 1983, p. 716-723; Rosen 1983a, p. 15-29; Schick 1978, p. 58-63) as a distinctively 'flat' (in both longitudinal and cross-section), most often trapezoidal, almost never abruptly retouched/backed blade segment; they show distinct regularities in length and width, have exceptionally straight, parallel edges and dorsal ridges. They have, potentially, two working edges often both showing evidence of 'use' in the form of sickle gloss, minimal retouch taken as evidence of "resharpening", which contrasts with the evidence for only very occasional and restricted primary retouch, and also possible use in the form of 'edge damage'. Production techniques were distinctive, but as cores, rejuvenation elements and even proximal blade segments with bulbs are very rare the evidence for specific preparation techniques is absent from many assemblages. To have consistently produced such regular blades with such straight, parallel edges and scars, it seems likely a sophisticated method of indirect percussion/pressure was involved, perhaps using a crutch and holding the core in a 'vice', Barnes (1947) details some potential methods from historical ethnography. It is clear that such an entity relies partly for its definition on qualitative assessments which can rarely be totally exclusive when processing limited material from a range of types of sites. It is presumeably representative of the growing integration and dominance of several elements in a package of new developments in technologies of production and use and systems of distribution and raw material selection (Rosen 1983a, p. 15-29). At Shuna several non-backed trapezoidal blade segments share some of these characteristics, particularly in the Middle and Late Phases; as the decline in backing partly indicates, the proportion of such pieces appears to increase from the Early to Middle and Late Phases as far as our evidence allows. However, some blades share some of these traits even in the earlier part of the Early Phase, Strata 114-82. There are very few pieces that stand out in qualitative terms and share all the attributes of the classic Canaanean blade, most lack the regularity, size and finer raw material of the latter. One was recovered in 1985, a classically regular, truncated sickle blade segment (Fig. 1.1) in a very fine dark brown chert, very rare in other categories of the assemblage, indeed absent from debitage categories, with continuous opposite sickle gloss on each edge,

the form of fine, nibbling irregular denticulation on the dorsal face and the other with very irregular fine retouch/edge damage. Both edges were also 'resharpened', one by a invasive double notch on the ventral face. According to Rosen (1983a) such pieces with opposite sickle gloss do not occur until EBI. Here at Shuna this piece was well stratified in a deposit which was part of the EII 81-71 context group, i.e. part of the later part of the Early Phase preceding the introduction of the Esdraelon, Line Painted and 'band-slipped' wares at Shuna. Furthermore this example is not an isolated occurrence; in one of the very earliest deposits in Strata 81-71 another classic Canaanean sickle blade, in a very similar very fine chert was recovered in 1984 (Erskine 1986, p. 87, Fig. 17). This approach stresses the multiple-attribute-state definition of this phenomenon; Hanbury-Tenison (1986, p. 147-148) has pointed out that trapezoid sectioned blades, perhaps with indications of use on two edges, are known from the 'Late' Chalcolithic, such a phenomenon is perhaps not unsurprising in any blade industry, the key question is the presence of the classic Canaanean type with all its attributes. At Shuna these are indubitably present in the 'Late' Chalcolithic, from early in the sequence, although the precise chrono-regional status of this 'Late' Chalcolithic, for example, in terms of the Ghassulian or "Post-Ghassulian" Chalcolithics, remains to be defined.

Another classic type makes its appearance at Shuna in Strata 81-71, the tabular scraper (Rosen 1983b); 3 fragments were recovered in 1985, all relatively small, the largest only max. 7.1 cms. long and max. 3.4 cms. wide (Fig. 2. 1). Rosen (1983b) has suggested a model for the long distance distribution of the type, whatever its precise merits their low percentage presence at Shuna, 2.43% in Strata 81-71 and 4.25% in Strata 54-16 (Table 2), accords well with the evidence for their low frequency of occurrence at other north Palestinian sites. Equally significant is the first appearance of this clearly imported type alongside classic Canaanean blades on-site production at Shuna. Although small sample size makes conclusions based on the absence of rare type fossils equally tenuous, it may be significant that both these types are completely absent from the earlier part of the Early Phase, Strata 114-82, yet the number of tools recovered from these strata in 1985 is almost the same as the other context groups put together (Table 2). This may indicate an important division between the assemblages associated with this early building complex and later ones.

Such a conclusion is supported by an analysis of the material recovered by de Contenson in his earlier sounding at Shuna (de Contenson 1960). Classic Canaanean blades do not appear in the earliest stratum, 18, but in the immediately overlying deposit, stratum 17 and in a bell-shaped pit cutting down from the 'sterile' deposit immediately overlying this (de Contenson, 1960, Fig. 16,3 and Fig. 15,1 respectively). This 'sterile' deposit immediately precedes the stratum in which Esdraelon wares appear and which, with its bell-shaped pit, is directly analogous to the position of Strata 81-55 in the 1984 and 1985 Shuna sequence with their several similar pits. There is thus a direct parallel between both sequences in the appearance at the beginnings of a second, similarly characterised, phase, of the Canaanean blade; the tabular scraper also only appears in de Contenson's sounding in stratum 19, the bell-shaped pit, i.e. in this second 'phase'. This with the character of the change in the stratigraphy may suggest a possible break in continuity of occupation at this point; however, other types appear and disappear through the sequence so this is not enough in itself to define a break; the character of the stratigraphy, other artifact categories, and relevant to the lithics, the comparative status of the various typological categories out with Shuna are all relevant. The latter is discussed below.

Category 10 flakes and retouched examples thereof (Fig. 2) are most numerous and a greater proportion of their respective non-retouched and retouched categories in Strata 114-82 (Tables 1 and

2). They are a significant component of the tool assemblage from the earlier part of the Early Phase; of tools from this 'phase' excavated in 1985 they form 14.28% (Table 2). They form only 1.96% of Strata 81-71 tools and 2.12% of Middle and Late Phase tools (Table 2). Such low numbers amidst small sample size make the status of examples post-Stratum 82 problematic; at the very least this tool type clearly becomes less important through time but its use may not have extended into the time periods of the later phases. Related unretouched flake types are almost as important proportionately in the Strata 81-71 as in 114-82 but not numerically; in this category elements of production and utilization cannot be separated, however, and the factor of residuals makes interpretation even more problematic.

A scraper consistently made on a small, round flake, a specific type forming a notable contrast to Category 10 and 14 blanks and tools, makes its appearance in the Middle Phase and occurs also in the Late Phase.

One other very specific type appears in the Middle Phase but typifies and dominates the Late Phase. This is a small fine point (Fig. 1.5 and .6) whose characteristics suggest it would have made a suitable projectile point, and with its manner of occurrence in large numbers provides important circumstantial evidence as to the character of production of lithics. Such points were produced on the truncated, distal tips of small, regularly sized, convergent blades which through a combination of initial preparation, careful knapping procedure and retouch modification all fall within their closely restricted size and shape range (Erskine 1985). Some of these were retouched on their dorsal face with semi-abrupt, proximal to fine, distal, continuous retouch producing typologically classic points. For a majority of morphologically closely related examples, however, retouch was restricted to limited areas of the edge and tip of the points; the only area regularly retouched was the 'squared' butt produced by an abrupt truncation with rounded shoulders. This produced flat, squat sub-triangular points whose morphology, in relation to other points from contemporary and earlier levels, especially their minimally retouched sharp tips, may suggest their potential use as projectile points rather than manufacturing tools. A few from these caches with steeper more regular bilaterial invasive retouch on higher cross-sections (Fig. 1.6) can fall into either category. These large caches are an interesting phenomenon in themselves, their contents and contextual circumstances allow no specific inference as to whether their formation relates to production or use. As well as the large number of points there are a large number of blades and there are other tools in these caches, e.g. EIII 12 in 1984 yielded 55 'projectile' type points, 100 blades, and other tool types. In EIII 15.3/.4 were the further elements of another cache recovered in the 1985 season,[12] 'projectile' type points, 1 possible fine drill-like perforator, 7 blades and a retouched flake. Their character and the fact that they are all made on closely related raw material indicates restricted, relatively large scale production episodes. It has been suggested (above) that there may be a fall off in the intensity of production into the Late Phase. Certainly within the area of the site excavated, a more restricted range of types appears to have been in use; alongside such evidence must be set the inference of the large scale production of very specific types which may suggest a change in the character of the production industry itself.

The status of several retouched bladelets recovered without the aid of sieving from Early Phase deposits (Table 2), including several classic backed bladelets, which would not look out of place in certain Epipalaeolithic industries, remained problematic. The significance of such pieces in Late Neolithic and Chalcolithic industries may have been underestimated outside the Negev where microliths are well attested (Gilead, 1984, p. 3-10) perhaps because of superior recovery methods. At Shuna the $1m^2$ sieved control samples from the floors of the EII Early Phase building complex have produced several backed bladelets; this type now seems much more likely to be a component

of these Early Phase industries.

There is also variation between broader typological tool categories through the sequence. The high numbers of complete unretouched blades from Strata 81-71 has already been mentioned. Including tools recovered in 1984, these strata and the later part of the Early Phase in general are also distinguished by the very high proportion of burins recovered. They are 7.14% of tools from this phase, only 2.29% of the preceding phase and reaching only 1.25% of later phases' tools (excluding 'projectile' point caches from tool totals). The Middle Phase forms the sharpest contrast with preceding and succeeding phases; burins and end scrapers are completely absent, the latter ranging from 6.9%-5.35% in the two parts of the Early Phase. Other tool classes associated with manufacture are, however, proportionately much more significant; non-'projectile' type points are 13.5% of Middle Phase tool types, approximately twice as important as in the Early Phase and much more than in the Late Phase. Chisels/axes/adzes are 8.1% of tools from this Phase compared to 2.29%-0.89% from the Early Phase and 1.25% of the Late Phase. Flake tools, scrapers and tabular scrapers form 16.2% of the Middle Phase tools compared to 12.6%-8.9% of Early Phase tools and 1.25% of Late Phase tools. Since these categories may be functionally specific this variation may well relate to the character of activities carried out in this part of the site in the Middle Phase, in which case the importance of flint tools for manufacture in the EBI period is clear.

The backed blades of the Early Phase are typical of Wadi Rabah (Pottery Neolithic B) and Ghassulian industries. The Canaanean blades that appear alongside them have hitherto been considered typical of EBI (Rosen 1983a, p. 18), at Shuna they clearly occur earlier than the appearance of Esdraelon or Line Painted wares; this may also indicate the fact that the later part of the Early Phase, Strata 81-56, falls late in the Chalcolithic. The coexistence of backed and Canaanean blades is clearly indicated at the site of Saida-Dakerman. If the later part of the Early Phase is late in the Chalcolithic this must bring into question the chronological status of the early part of the Early Phase, with its Pottery Neolithic B related ceramics and the nature of the relationship of these two groups of Strata. The significance of Category 10 flakes and retouched examples thereof in Strata 114-82 is clear (Fig. 2.2); close parallels are found at Newe Yam in a series of retouched flakes from this Wadi Raba period site on the Palestinian coast (Wreschner, 1977, Fig. 3,25-29 and Fig. 5,30-37). If these parallels were to have chronological significance this would place the earliest strata at Shuna considerably earlier than any proposed late Chalcolithic. If such a hypothesis were to hold true, however, it would have to be demonstrated that the admittedly small number of such tools post-Stratum 82 were indeed residuals. In these circumstances the conjecture remains problematic.

The bifacially retouched axes and chisels lack the classic scars perpendicular to the cutting edge that typifies Ghassulian types. They are most similar to types documented at Byblos (Cauvin 1968). One point from Byblos (Cauvin 1968, Fig. 65,9) provides the only potential parallel for the 'projectile' points (Fig. 1.5 and .6) of the Late Phase. At Byblos it was recovered from a *Neolithique Recent* context.

In conclusion, analysis of tool and other type distributions in Strata 114-82 have suggested that certain facets of prehistoric activity are preserved in the contextual circumstances of this phase. Important differences between an earlier and later part of the Early Phase have been outlined, which must be considered alongside other categories of evidence from the site in considering their respective chronological status. Some correlation between morphological and functional classes has been indicated by distributions in Strata 114-82 and on internal typological grounds; variability of these and other more specific classes can be documented through the sequence and set clearly alongside the development in ceramic types. Significantly for the periods concerned, evidence relating to lithic production was relatively

plentiful. Several technologies were documented, and when circumstantial evidence was considered, an overall decline in generalised production, well attested in the Early Phase, has been hypothesized; a decline in such production would have to be contrasted with the evidence for the large scale production of very specific types, at the very least, outside the area excavated. Even in the Early Phase several levels of production are indicated, only some represented in the excavated sample.

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Douglas Baird
Department of Archaeology
University of Edinburgh
19 George Square
Edinburgh EH8 9JZ
U.K.

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