8 June, 2001, Friday

Dale R. Henning
Illinois State Museum
Springfield IL 62706

Dear Dale:

When I retire, I'm gonna learn how to do "E-mail."

After we chatted, I checked back over what I had actually done on King Hill, and what I had etc., and am convinced I have copies of everything I ever gave you. In looking over the re-typing I did on the text descriptions, I found I had not finished, so today I tidied it up a bit and am enclosing. Some of the tables and figures alluded to exist, some not. When I get another little chunk of time I'll look those (tables) over and send copies to you; the figures are enclosed (copies).

(& all I ever got done?

Hello to all in Illinois from all in Nebraska!

John

John

Not really — just my own compulsion — tho Mike'd be pleased

**

Stone Tools from The King Hill Site, 23BN1, St. Joseph, Missouri.

Introduction.

This paper was written in the early 1970s and is being revised in April, 1996-1997, at the request of Mr. Mike Fisher of the St. Joseph Museum.

Proveniencing within King Hill.

Horizontal proveniencing at King Hill is (almost) worthless --totally uninformative. Vertical proveniencing is only slightly more useful, due to recent disturbances which have "inverted" the stratigraphy -- at least for the upper .75 meters (2-3 feet).

Tool Typology.

Stone tools from the King Hill site were divided first into broad technological / raw material categories: chipped stone versus 'ground stone.' The chipped stone tools were further subdivided on the basis of 'secondary' technological features such as bifacial versus unifacial finishing. Further subdivision proceeded along morphological lines with strong implicit functional overtones.

Ground stone tools were sorted by material, and morphology according to presumed function. Abraders, for instance could have been divided into a wide variety of discrete classes; such fine subdivision on formal / morphological grounds might be of use to the study of possible tool function. All tool categories were kept as discrete as possible. The resulting classification is broadly comparable with that employed in other studies of Oneota stone tools. Where discrepancies occur, it is usually the case that several categories employed here have to be lumped to compare with categories in the other report.

Lithic Raw Materials.

The stone from which the King Hill tools were made fall into "local" versus "non-local" categories. Ground stone materials -- sandstones, pipestones, cobbles/pebbles etc. -- are also local versus non-local --even exotic. Chipped stone was divided into somewhat "ad hoc" groups: 1.> "Local Gray" chert (Pennsylvanian), 2.> "Gray - Banded chert (Permian, from the 'Flint Hills'), 3.> Miscellaneous Gray chert (any gray chert not attributable to the first two), 4.> White chert (probably Mississippian cherts from Missouri), and 5.> "Other" or "Miscellaneous" cherts. Many of the latter would probably be identifiable today (tho not in the 1970s), and even then I recognized two knives made from Republican River Jasper (Niobrara fm., Cretaceous), and one flake of Bijou Hills Quartzite (Oglalla fm., _ _ _ _ _ _ _). **Table X** summarizes lithic raw materials represented at King Hill as they exist in available notes today. I am mortified that I did not create sufficiently complete notes on End Scraper raw materials.

Chipped Stone Tools.

Tools made by the process of skillfully chipping and/or flaking cherts etc. . . . . .

. . . . . .

Projectile Points.

Projectile points from King Hill --as are almost all Oneota projectile points-- are small, thin, symmetrical isoseles triangles of chert lacking notches of any description. In general they conform to the named projectile type ***Madison points*** (_ _ _ _ _ _ _ _ _ _). Lateral edges are straight to slightly

convex, though sometimes possessing a slight "waist" near the base (**Figure X**). A very few projectile points are slightly wider approximately 10 mm above the base, suggesting lanceolate form. Fine retouch emanates from the lateral edges of one or both faces to trim the piece to its final form. Some larger, cruder specimens may be projectile point ***preforms*** but given the simple triangular character of the King Hill points they could not be separated consistently from transitional specimens and were, therefore, grouped into their appropriate descriptive category.

There are hundreds of projectile points and fragments in the King Hill collection. It was decided to deal only with complete specimens or base or 'haft' fragments (n = 584); tips and mid-sections of projectile points were ignored. A "complete" point is 90%+ to 100% complete. Finer subdivision proceeded along the dimensions of bifacial *versus* flake production technology, and details of base morphology or shape. Points were first divided on the basis of the presence or absence of ventral surface flaking (the dorsal surface was almost always fully flaked), i.e. whether the point was bifacially finished, or finished wholly or principally on one face only (almost always the dorsal face of the flake blank). Bifacial specimens normally have thin lenticular cross-sections in both longitudinal and transverse planes. Specimens trimmed on one face only are markedly plano-convex in transverse section, and are sometimes curved in longitudinal section [as was the original flake]. There is a gray area between obvious examples of each category: complete examples of the "flake" variety are often bifacially trimmed near the tip or show slight bifacial trimming along the edges or base. The subjective rule - of - thumb used to separate such transitional pieces was that if 30% or more of the ventral face of the original flake blank was present it was classed as "non-bifacial."

To characterize base morphology or shape, the points were placed on a straight edge for reference, and a division was made based on whether the base was concave, straight, or convex. The six-fold division which results from this procedure is somewhat subjective, but actually systematizes a great mass of data, much of it fragmentary.

1. Projectile Points with Complete Bifacial Retouch (Figure ___).

Sample:

172 specimens, 59 complete, 113 basal fragments with CONCAVE BASES
205 specimens, 69 complete, 136 basal fragments with STRAIGHT BASES
18 specimens, 13 complete, 5 basal fragments with CONVEX BASES

395 specimens, 141 complete, 254 basal fragments with ANY/ALL BASES

Description: Projectile points are fully bifacial (or possess a ventral scar of less than 30% of that surface), and possess thin lenticular cross-sections. Blade edges are straight, outcurving ('convex'), or "incurving" or "waisted." Points possess concave bases (43.5%), straight bases (51.9%), or convex bases (4.6%).

2. Projectile Points with Unifacial Trimming, Concave Bases (Figure ___).

Sample:

67 specimens, 18 complete, 49 basal fragments with CONCAVE BASES
106 specimens, 22 complete, 84 basal fragments with STRAIGHT BASES
16 specimens, o8 complete, o8 basal fragments with CONVEX BASES

189 specimens, 48 complete, 141 basal fragments with ANY/ALL BASES

Description: Projectile points in this category are normally well finished on one face (usually the dorsal face), but this varys widely. The ventral face has no more than 30% of the surface trimmed, and usually far less. Points are markedly plano-convex in cross section. Straight, outcurving, and incurving ("waisted") blade contours are present. Points possess concave bases (35.5%), straight bases (56.1%), or convex bases (8.5%).

3. Projectile Point Tips and Segments.

Sample: Hundreds of relatively undiagnostic projectile point tips and segments were recovered from the King Hill site.

Description: For the present study projectile point fragments have been left undescribed. The 1966 excavations yielded 150 tip fragments and 37 midsection segments (compared with 498 complete or base fragments). The $^{1}/_{16}$-inch water-screen recovery employed during 1972 excavations produced enormous numbers of broken pieces. **N.B. 1996: I wish I had at least tabulated these by count/weight x square x level; maybe by raw material ?**

Drills.

Drills have been separated from similar tools (gravers) on the basis of bifacial, or alternate dorsal/ventral retouch on the working element (termed the 'bit'). Drills are recognized in three varieties: 44-or-45 double-pointed or "fusiform" drills, 11 expanding base drills, and 15 drills made on flakes. Drills, being small, usually bifacial tools, have an affinity with projectile points and so are treated in proximity.

4. Fusiform Drills (Figure _ _ _).

Sample: 44 specimens; 39 complete, 5 tips or midsections.

Description: These drills are double-pointed, wider and thicker in the middle and tapering towards the ends, a shape Wedel termed "fusiform" (1959: 154-55). Drills are either fully bifacially finished (n=32), or have some of the dorsal or ventral flake surface remaining (n=12). There is thus a continuum between the unifacial variety recognized at the Leary site (Wedel and Hill 1935: _ _ _ - _ _ _), and the bifacial variety from the Fanning site (Wedel 1959: __-__).

THESE MIGHT BE " Nodena " POINTS

5. Expanding Base Drills (Figure _ _ _).

Sample: 11 specimens; 8 complete, 3 tips or midsections.

Description: Each of these drills is bifacially retouched along the narrow lateral margins of the tool with the bit of the drill expanding away from the tip. Two specimens have no distinct point of juncture between haft and bit and expand at a uniform rate (**Figure _**). Eight more are irregularly expanding with a definite break between bit and haft (**Figure _**); one has a delicate flange at the extreme proximal end (**Figure _**). A segment of a drill bit is placed in this category since it seems to be nearly uniform dimensions (in cross section) and resembles the flanged drill described. One of these drills appears to be a re-worked *thin lenticular biface*, and one has three bits arranged so that one may be in use while the other two form a haft (**Figure _**).

6. Drills Made on Flakes (Figure _ _ _).

Sample: 15 specimens; 11 complete or nearly complete, 4 tip fragments.

Description: These might, strictly, be considered flake tools modified for use as perforators. Each tool is a ***flake*** which has been trimmed ***bifacially*** into a drill bit. Specimens either expand uniformly from bit to haft or have distinct flanges separating the bit from the haft.

Bifaces.

Tools which have been made by deliberate bifacial reduction and trimming (as opposed to merely edge-margin bifacial retouch on a flake tool) are treated here. Bifaces with relatively thin transverse cross-sections have been separated from those with thick cross-sections. . Further subdivision was made based on tool shape: triangular, ovate or diamond-shaped with beveled edges.

7. Thin Triangular Bifaces (Figure _ _ _).

Sample: 19 specimens, 7 complete, 12 basal fragments.

Description: These tools are basically triangular in shape with bifacial finishing ranging from fine to "rough." They are quite distinct from the tools in Category 8 and 9, but do resemble large, sometimes "crude" projectile points. One basal fragment is characterized by diagonal flaking and may be a lanceolate projectile point fragment from an earlier (Archaic? Woodland?) occupation in the locality.

8. Thin Ovate Bifaces with Lenticular Cross - section (Figure _ _ _).

Sample: 13 specimens; 2 complete or nearly so, 6 ends or 'tips', 5 midsection segments.

Description: Specimens are almost all fragmentary. More complete examples suggest that long ovate and/or lanceolate bifaces --both narrow and broad-- are represented. These bifaces are lenticular (lens-shaped) in transverse cross-section.

9. Thin "Diamond-shaped" Bifaces with Alternate-Beveled Cross-section (Figure _).

Sample: 27 specimens; 17 ends or 'tips', 8 midsection segments, plus 1 tip and 1 midsection which are partly lenticular and partly beveled.

Description: These specimens resemble those in the last category, but are characterized by straight, beveled retouch or resharpening on alternate edges. Some have suggested that these knives are lenticular in section which reach the alternate beveled cross-section after a few re-sharpenings (Sollberger 19 _ _ : _ - _). One notable specimen (Fig. _ _ _) is characterized by a shallow, broad, "notch" in each edge; it is of Republican River Jasper.

10. Thin Biface Tips and Segments.

Sample:

Several tips, midsections, and lateral edges of bifacial tools which could not be included into a more diagnostic category were placed into this residual class and they have not been further studied.

Description: THAT WAS A MISTAKE ! ! !

11. Thick Bifaces (Figure _ _ _).

Sample: 8 specimens; 6 complete, 1 tip, 1 edge.

Description: Specimens are crudely shaped by heavy percussion bifacial technology. These tools closely

approach the distinction of being "core" tools although most are small enough to have been made from a thick flake blank. One specimen, the largest in the collection (# _ _ _), is "hatchet-shaped" (Figure _ _), the others are roughly ovoid, or "celt"-shaped. Thick bifaces were rare in the King Hill assemblage, because they are more massive tools, however, 75% were "complete."

12. "Pillow-Shaped" Bifacial Tools (Figure _).

Sample: 2 complete specimens.

Description: Two rectangular objects have been bifacially flaked into a diamond-shaped cross-section, somewhat resembling a pillow. The bifacial flaking emanates from all four edges. The use of these items is unknown; the suggestion that they were "native gun-flints" seems unlikely. Both are of "other" cherts.

Flake Tools.

Tools made by edge-margin retouch, but retaining much of the morphology of the original flake, were described as if the striking platform was held toward the observer ("proximal"), the flatter surface bearing the bulb of percussion (the ventral surface) being the "bottom." Right and left edges as well as proximal and distal ends and dorsal and ventral surfaces are defined with reference to this orientation.

Edge retouch on flake tools was termed *dorsal* if the flake scar negatives appeared on the dorsal surface (as if pushed off from the ventral face), or *ventral* if the flake scars were on the flatter ventral face, or *bifacial* if regular flake scars appeared in regular fashion on both surfaces of a given edge. Irregular removal of small flakes -- as if by mere tool use (as opposed to intentional retouch) -- were sorted out and left undescribed. **N.B. 1996: I wish I had at least tabulated these by count/weight x square x level; maybe by raw material ?** Highly patterned or special-purpose flake tools --end scrapers, gravers, denticulates and notched tools -- were segregated for detail description.

End scrapers are specialized flake tools, characterized by a rounded distal working edge with steep dorsal retouch. Complete end scrapers only were used for the following descriptions; this was to be consistent in only counting platform flakes among the retouched flakes generally: since it is the distal end which identifies a tool as an "end scraper" it is illogical to have a category of "proximal fragments of end scrapers." Still it is possible to identify "proximal fragments" of end scrapers, and probably _ _ _ platform flake fragments are in reality proximal scraper fragments. There were about 184 distal ends of end scrapers; large fragments could often be placed with confidence into one of the descriptive categories established, but the decisions became increasingly subjective with decreasing completeness, so for the sake of over-all consistency no fragments were dealt with. Scraper divisions broadly follow Waldo Wedel (1959: 156-7) for the Fanning site.

13. Patterned Gravers (Figure _ _ _).

Sample: 15 specimens; 10 'complete,' 5 fragmentary.

Description: These tools are characterized by long, narrow, tapering edges with (usually) dorsal-surface unifacial retouch, which converges to a point. These tools are separable from flake drills on the basis of: the absence of bifacial finish, and from random gravers (below), on the basis of better workmanship. (LocGray: 3; GrayBanded: 3; white chert: 1; other

cherts: 8.)

14. Random Flake Gravers (Figure _ _ _).

Sample: 13 specimens

Description: These tools are characterized by 'tips' or 'points' fortuitously (?) produced during manufacture or breakage. The natural, sharp tip of a flake, or a tip produced by the breaking of a flake at an obtuse angle (on purpose?) was utilized as a graver spur. These tools are less highly patterned that the previous category. Examples are made of LocalGray (4), GrayBanded (7), white chert (1), other cherts(1).

15. "Micro-" Gravers and/or Drills (Figure __).

Sample: 15 specimens

Description: These are smaller flake tools than those in the last 'group,' and which are characterized by a tiny sharp tip, produced through either bifacial or unifacial retouch. These may be termed "micro-drills" as a realistically as micro-gravers, for the precise function is open to doubt. Tools are made from LOCAL GRAY (3), GRAYBANDED (3), WHITE Chert (5), and other CHERTS (4).

16. End Scrapers with Full or Nearly Full Dorsal Surface Finish-Flaking (Figure _ _).

Sample: 4 specimens.

Description: These four specimens are characterized by dorsal retouch emanating from the lateral edges and reaching to a crest along the centerline of the tool. All specimens are made from ***unidentified chert.***

17. End Scrapers on Secondary Decortication Flakes, Cortex Forming One Edge (Figure _ _).

Sample: 60 specimens; 19 have dorsal retouch on edge opposite to cortex, 41 have no marginal retouch.

Description: Specimens are characterized by a triangular (n = _ _) to rectangular (n = _ _) cross-section with at least one lateral edge formed by the original limestone cortex. Tool blanks may have been specially chosen or even specially prepared because of a desire to "back" the scraper with a cortex edge. One specimen (# _ _ _) is heavily encrusted with red hematite along the cherty lateral edge demonstrating these tools had other functions than skin-working. Nineteen specimens in this category have dorsal surface retouch one or both lateral edges.

Total without edge retouch = 41: Gray-banded=35; 6 = Oth. Cherts.

Total with edge retouch = 19: Gray-banded=15; 3 = Other Cherts; 1 = White Chert.

18. End Scrapers with Flat Rectangular Cross-sections (Figure _ _ _).

Sample: 24 specimens; 11 have lateral edge retouch, 13 have none.

Description: These end scrapers are rather broad and thin; the dorsal surface is formed by at least three negative flake scars which imparts a roughly rectangular transverse cross-section. Eleven (11) specimens in this category have dorsal surface retouch on one or both lateral edges, though incidental edge utilization may occur on any.

19. Shorter End Scrapers with Triangular Cross-sections (Figure _ _ _).

Sample: 38 specimens; 23 lack lateral edge finish, 15 possess this characteristic.

Description: These scrapers have a length-to-width

ratio approaching 1:1. Since the working edge is about the same width as in the other end scraper categories, this means a relatively shorter tool. Fifteen specimens in this category have dorsal surface edge retouch one or both lateral edges.

20. Larger End Scrapers with Triangular Cross-sections (Figure ___).

Sample: 74 specimens; 40 lack lateral edge finish, 34 possess this characteristic.

Description: These end scrapers are similar to those in the last category in most respects, except that they are relatively longer in proportion to width. Thirty-four specimens in this category have dorsal surface retouch one or both lateral edges.

xx. Double-Ended End Scrapers (Figure ___).

Sample: I KNOW that there were one or two.

Description: These end scrapers . . . . . .

. . . . . .

21. Flakes with Serrated or Denticulated Edges (Figure ___).

Sample: 14 specimens; 4 platform flakes, 10 flake fragments.

Description: These tools and fragments are characterized by at least one serrated edge, with denticulate ("toothed") retouch. A shredding or sawing function is generally ascribed to such pieces. In general these tools are rather thick and heavy, as if intended for heavy work. Pieces are made of local gray chert (2), gray-banded chert (5), white chert (4), and other cherts (3).

22. Flake Tools with Notches ("Spoke-shaves") (Figure ___).

Sample: 11 specimens; 1 platform flake, 10 flake fragments.

Description: Tools of this description have at least one semicircular notch flaked into an edge. The angle of this edge is usually very steep suggesting a scraping function; tools of this description are often termed "spoke-shaves" (e.g. _ _ _ _ _ _ _ _ _ _ _). They seem to be multipurpose tools in most cases in the present sample, with other edges bearing 'normal' unifacial retouch. Tools are fashioned from local gray chert (n=3), gray-banded chert (4), white chert (1), and other cherts (3).

23. Heavy Flake Scraping Tools with Dorsal Finish Retouch (Figure ___).

Sample: 2 specimens, both complete.

Description: These two 'flakes' are rectangular in shape, plano-convex in longitudinal and transverse cross-section, and are characterized by full dorsal finish. These are large, heavy tools and may be tentatively ascribed the functions of "adzing," "planing," or "splitting." Both exhibit heavy battering along the edges, especially on the ventral surface. Both specimens are of local gray chert.

24. Well-Finished, Triangular Objects of Unknown Function (Figure ___).

Sample: 4 specimens; 3 complete, 1 broken.

Description: The three complete specimens are roughly triangular (one is actually four-edged) with fine dorsal or bifacial finish flaking. Identification of these highly patterned tools escapes me. LocChert (1), gray-banded (3).

"25." Retouched Flakes (Figure ___).

Sample: ___ specimens; ___ complete, ___ broken.

Description: Retouched flakes were **[to have been]** categorized on the basis of **decortication stage**, the number of retouched edges, placement of the retouched edges in relationship to one another (in cases of two or more retouched edges), and the nature of the retouch (dorsal, ventral, bifacial) where it seemed relevant.

Complete flakes and proximal flake fragments only were examined to guard against counting the proximal and distal ends of a single tools twice. SO WHY NOT RE-FIT THEM ? ? Further, the amount of useful observable data on flake fragments is limited.

Ground Stone Tools.

Tools, implements and ornaments made by the process of grinding and or abrading . . . . . .

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Abraders.

__. *Sandstone Shaft Smoothers (Figure ___).*

Sample: 8 specimens, all apparently are fragments.

Description: Each specimen is a carefully shaped rectangular - to - loaf - shaped block of yellow to orange sandstone. There is but one prominent longitudinal "U"-shaped groove in the dorsal surface.

__. *Shaped Sandstone Abraders, Multiple Grooves (Figure ___).*

Sample: 6 specimens.

Description: These white or yellow sandstone tools exhibit fairly careful attention to shaping into a roughly rectangular block. This basic cross-section shape is altered by the multiple "U"- and "V"- shaped longitudinal grooves in two or more sides.

__. *Unshaped Sandstone Abraders, Multiple Grooves (Figure ___).*

Sample: 36 specimens.

Description: These tools are transitional between shaped, multiple-grooved abraders, and abrader fragments. It is suggested a single abrader may pass through the stages represented by: 1) shaft-smoothers, 2) shaped, grooved abraders, to 3) unshaped grooved abraders, and finally to 4) abrader fragment(s), as the tool wore and progressively broke.

__. *Grooved Sandstone Abrader Fragments (Figure ___).*

Sample: 48 fragmentary pieces (approx.)

Description: Broken fragments too far degraded to be characterized or categorized.

__. *Sharpening Stones (Figure ___).*

Sample: 7 specimens.

Description: Flat sandstone abraders with shallow "V" - shaped grooves in the surface. (# 270, # 276, # 292, # 295, # 328, # 330)

__. *Miscellaneous Sandstone Abraders (Figure ___).*

Sample: 8 specimens.

Description: Five of the King Hill specimens are flat,

ungrooved abraders resembling 'whetstones.' The other three are flat or grooved abraders which do not fit well into other categories.

_ _. ***Clinker Abraders (Figure _ _ _).***

Sample: 11 specimens, plus 10 smaller fragments of clinker which are probably abrader fragments.

Description: These are amorphous tools, pieces of unshaped natural 'clinker' (Porter 1962), which have been utilized as abraders. Working surfaces exhibit flats, "V" - shaped, and "U" - shaped grooves.

Tobacco Pipes, Related Categories:

_ _. ***Clinker Smoking Pipe (Figure _ _ _).***

Sample: 1 fragmentary specimen.

Description: This specimen is about one-half of a door - knob - shaped pipe bowl. It is made from natural clinker. It is well fashioned and exhibits a conical tobacco bowl and stem-hole. It is decorated with an _ _ - pointed star incised on the top of the bowl centered on the tobacco hole, and by a series of "zig-zags" within two parallel lines running around the exterior of the pipe [near the top<?>].

Remarks: A pretty unique specimen.

_ _. ***Catlinite Smoking Pipes (Figure _ _ _).***

Sample: 11 specimens; 7 bowl fragments, 1 elbow fragment, 3 other fragments.

Description: These are fragments of pipe bowls representing at least seven (7) pipes. All appear to be elbow pipes, but the small size of the fragments precludes further description.

_ _. ***Other Catlinite (Figure _ _ _).***

Sample: 3 specimens.

Description: These include a large block with half of a conical hole drilled into it; it apparently split during the drilling. Another piece has a narrow shallow groove carefully scribed into two faces. A third piece is amorphous.

_ _. ***Sandstone Bowl (Figure _ _ _).***

Sample: 4 large fragments, and several smaller pieces.

Description: A fragmented, badly burned bowl (or possibly a pipe), is represented by these pieces. Judging by the thickness of the walls of the various pieces, two specimens might be represented. If the specimens are from (a) bowl(s) the orifice must be about 60 mm (diameter ?), rather large for a pipe. There is a sort of stem hole in one fragment which might argue for identification of the pieces as a pipe.

_ _. ***Slate Pendant (Figure _ _ _).***

Sample: 1 complete specimen.

Description: This is a small, roughly circular in cross section, ground roughly to shape, and has a groove encircling the piece at one end. A function as an ornament is suggested.

Heavy Percussion - Shaped Tools:

_ _. ***Diorite Ax-like Tools (Figure _ _ _).***

Sample: 10 specimens; 1 complete, 1 possibly complete, 4 mid-sized to large fragments, 4 smaller fragments.

Description: Specimens have been percusion flaked to rough shape, then pecked, smoothed, and even polished to final form. One is but slightly smoothed after initial shaping, five more smaller fragments are much better finished. One very well executed larger fragment has a groove pecked around its midsection. All specimens are relatively thin, and an "ax-like" or

"celt-like" function is suggested.

_ _. ***Maul-like Cobble Hammerstone (Figure _).***

Sample: 1 fragmentary specimen.

Description: This specimen is a glacial till cobble distinguished by a prominent, smoothed facet on one end. The presence of smoothing on a lateral face might suggest some alternative functional interpretation.

_ _. ***Peripherally-facetted Hammerstones (Figure _ _ _).***

Sample: 2 specimens; 1 complete, 1 broken.

Description: These are cobbles characterized by a continuous facet formed by constant battering, which completely encircles a circular cobble. These may be related to heavy stone-working, or may be a type of hammer used in processing vegetal materials.

_ _. ***Pecking Stone (Figure _ _ _).***

Sample: 1 complete specimen.

Description: A small thin, circular stream pebble exhibits signs of light battering around its entire periphery. Usage has not been severe enough to form a distinct facet.

_ _. ***Cobble/Pebble Hammerstones (Figure _ _).***

Sample: 2 fragmentary specimens.

Description: These two stones exhibit irregular facetting and are designated as hammerstones.

Miscellaneous Shaped Tools:

_ _. ***Carefully Shaped Tool Fragment (Figure _).***

Sample: 1 specimen.

Description: This specimen is represented by two fragments which re-fit. It is "loaf-shaped" in cross-section, exhibits careful shaping and smoothing on the end remaining, and has the remnants of a groove in the flattened upper surface. The function of this well - finished tool, however, cannot be suggested. It does not appear to be a grooved abrader since it is made from a hard (till-derived) stone.

_ _. ***Sinew Stone [?] (Figure _ _ _).***

Sample: 1 (broken ?) specimen.

Description: This is a piece of a fractured till cobble which has shallow grooves along the edge of the fracture, and exhibits other usage as well. Waldo Wedel designated a similar specimen from the Fanning site a "sinew stone" (1959: 160), though he does not explain how he suspects such a tool was used. The usage is continued here despite the vague term.

_ _. ***Rubbed and Facetted Hematite (Figure _ _).***

Sample: About 98 pieces, from small fragments to very large blocks.

Description: Red and orange paintstone with rubbed and facetted surfaces are present. The stone ranges from very dense and heavy, to appreciably less so. The great majority must be hematite, but other red oxides of iron are also doubtless included.

_ _. ***Rubbed and Scraped Limonite [?] (Figure _ _ _).***

Sample: 1 complete specimen.

Description: HAVE I LOST THE TEXT ???

XX. Blank _ _ _ _ (Figure _ _ _).

Sample: _ complete specimen.

Description: . . . . . .

END & DISCUSSION:

Very Drafty

Table . List of Stone Tool Categories from the King Hill Site, 23BN1, St. Joseph Missouri.

Tool Category	Technology	Dimension	Whole	Fragments	Total
1a. Projectile Point	Bifacial	concave base	59	113	172
1b. Projectile Point	Bifacial	straight base	69	136	205
1c. Projectile Point	Bifacial	convex base	13	5	18
2a. Projectile Point	Unifacial	concave base	18	49	67
2b. Projectile Point	Unifacial	straight base	22	84	106
2c. Projectile Point	Unifacial	convex base	8	8	16
Projectile Points	Total	All base	189	395	584
3. Fusiform Drills	Bi/Uni-face	- - - - - - -	39	5	44
4. Expanding Base Drills	Bi/Uni-face	- - - - - - -	8	3	11
5. Drills Made on Flakes	Bi/Uni-face	- - - - - - -	11	4	15
Drills	Total	- - - - - - -	58	12	70
6. Thin Triangular Bifaces	Bifacial	- - - - - - -	7	12	19
7. Thin Ovate Bifaces Lenticular	Bifacial	- - - - - - -	_(2)	__(40)	__(42)
8. Thin Diamond-shaped Bifaces with Alternate Beveled edges	Bifacial	- - - - - - -	_(2)	__(40)	__(42)
9. Thin Biface Tips & Segments	Bifacial	- - - - - - -			
10. Thick Bifaces	Bifacial	- - - - - - -	6	2	8
11. Bifacial 'Pillow-shaped'	Bifacial	- - - - - - -	2	-	2
Bifaces	Total	- - - - - - -	17+	54+	71+
12. Gravers: Patterned	Unifacial	- - - - - - -	10	5	15
13. Gravers: Random	Unifacial	- - - - - - -	13	-	13
14. Gravers: "Micro"	Unifacial	- - - - - - -	15	-	15
Gravers	Total	- - - - - - -	38	5	43
15. End Scrapers (DORS)	Unifacial	- - - - - - -	4	-	4
16a. End Scrapers (SECON)(-)	Unifacial	- - - - - - -	41	-	41
16b. End Scrapers (SECON)(+)	Unifacial	- - - - - - -	19	-	19
17a. End Scrapers (FLAT) (-)	Unifacial	- - - - - - -	13	-	13
17b. End Scrapers (FLAT) (+)	Unifacial	- - - - - - -	11	-	11
18a. End Scrapers (Short)	Unifacial	- - - - - - -	23	-	11
18b. End Scrapers (Short)	Unifacial	- - - - - - -	15	-	15
17a. End Scrapers (Large)	Unifacial	- - - - - - -	40	-	40
17b. End Scrapers (Large)	Unifacial	- - - - - - -	34	-	34
--. End Scrapers (Distal ends)	Unifacial	- - - - - - -	-	184	184
End Scrapers	Total	- - - - - - -	200	-	200+184=384
28. Flakes with Denticulate Edge	Unifacial	- - - - - - -	4	10	14
29. Flakes with Notches	Unifacial	- - - - - - -	1	10	11
30. Flake Heavy Scraper (DORS)	Unifacial	- - - - - - -	2	-	2
31. Flake Triangular Objects (?)	Unifacial	- - - - - - -	3	1	4
Other Flake Tools	Total	- - - - - - -	10	21	31
All Flaked Stone Tools	Total	- - - - - - -	--	--	--
__. Abraders: S.S. Shaft Smoother		- - - - - - -	-	8	8
__. Abraders: S.S. Shaped MultiGroove		- - - - - - -	-	6	6
__. Abraders: S.S. UN-Shaped MultiGroove		- - - - - - -	-	36	36
__. Abraders: Sandstone Fragments		- - - - - - -	-	48	48
__. Abraders: "Sharpening Stones"		- - - - - - -	-	7	7
__. Abraders: S.S. Flat, Ungrooved		- - - - - - -	-	8	8
__. Abraders: Clinker		- - - - - - -	11	10	21
__. Clinker "Door-Knob" Pipe		- - - - - - -	-	1	1
__. Catlinite Pipes		- - - - - - -	-	11	11
__. Other Catlinite		- - - - - - -	-	3	3
__. Shaped Sandstone 'Bowl'(?)		- - - - - - -	-	4+	4+
__. Slate Pendant or plummet		- - - - - - -	1	-	1
__. Diorite Ax-like Tools		- - - - - - -	1-2	8	10
__. Maul-like Cobble Hammer		- - - - - - -	-	1	1
__. Peripherally Facetted Hammer-stone		- - - - - - -	1	1	2
__. Pecking Stone		- - - - - - -	1	-	1
__. Pebble / Cobble Hammerstone		- - - - - - -	-	2	2
__. Unknown Shaped Tool Fragment		- - - - - - -	-	1	1
__. "Sinew Stone"		- - - - - - -	-	1	1
__. Facetted Rubbed Hematite		- - - - - - -	"+"	98	98
__. Rubbed Limonite (?)		- - - - - - -	--	--	--
Ground Stone Tools	Total	- - - - - - -	--	--	--

King Hill Site, 23BN1, St. Joseph, Missouri.

Figure Key:

1. Knives:
   - a. Test Trench west of EE-FF (other chert)
   - b. Sq. GG, 12 - 18 inches (_ _ _ _ _ _ _)
   - c. Sq. HHH, 12 - 18 inches (white chert)
   - d. Sq. FF, 12 - 18 inches (_ _ _ _ _ _ _)
   - e. Test Trench west of Sq. GG (gray chert, unid.)
   - f. Sq. 13, "Recent Fill" (_ _ _ _ _ _ _) [# 708]
   - g. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 535]

2. Drills:
   - a. Sq. _ _ , " _ _ _ _ _ _ " (local gray) [# 1330]
   - b. Sq. _ _ , " _ _ _ _ _ _ " (local gray) [# 1071]
   - c. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# _ _ _]
   - d. Sq. _ _ , " _ _ _ _ _ _ " (other gray) [# 1313]
   - e. Sq. _ _ , " _ _ _ _ _ _ " (white chert) [# 1333]
   - f. Sq. _ _ , " _ _ _ _ _ _ " (gray-banded) [# 1337]
   - g. Sq. _ _ , " _ _ _ _ _ _ " (white chert) [# 1344]
   - h. Sq. _ _ , " _ _ _ _ _ _ " (local gray) [# 1340]
   - i. Sq. _ _ , " _ _ _ _ _ _ " (local gray) [# 1045]
   - j. Sq. _ _ , " _ _ _ _ _ _ " (white chert) [# 1310_]
   - k. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# _ _ _]
   - l. Sq. _ _ , " _ _ _ _ _ _ " (white chert) [# 1341]
   - m. Sq. _ _ , " _ _ _ _ _ _ " (other chert) [# 1372]
   - n. Sq. _ _ , " _ _ _ _ _ _ " (burned gray-banded) [# 1348]
   - o. Sq. _ _ , " _ _ _ _ _ _ " (gray-banded) [# 1011 or 1101 ?]
   - p. Sq. GGG , 42 - 48 inches (local gray) [# _ _ _]
   - q. Sq. FF , 24 - 30 inches (gray-banded) [# 1322]
   - r. Sq. EE , 12 - 18 inches (local gray) [# _ _ _]

3. Sandstone Shaft-smoothers:
   - a. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 240]
   - b. Sq. 2 , 54 - 57 inches (_ _ _ _ _ _ _) [# 574]
   - c. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 310]
   - d. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 171]
   - e. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 744]
   - f. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 200]

4. Sandstone Shaft-smoothers and multi-grooved abraders:
   - a. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 644]
   - b. Sq. _ _ , _ _ _ _ _ _ _ (_ _ _ _ _ _ _) [# _ _ _]
   - c. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 200]
   - d. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 310]
   - e. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 315]
   - f. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 122 <?>]

5. Multi-grooved abraders and Flat abrader: NO FINISHED COPY
   - a. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 515]
   - b. Sq. _ _ , _ _ _ _ _ _ _ (_ _ _ _ _ _ _) [# 279_]
   - c. Sq. _ _ , " _ _ _ _ _ _ " (_ _ _ _ _ _ _) [# 328]

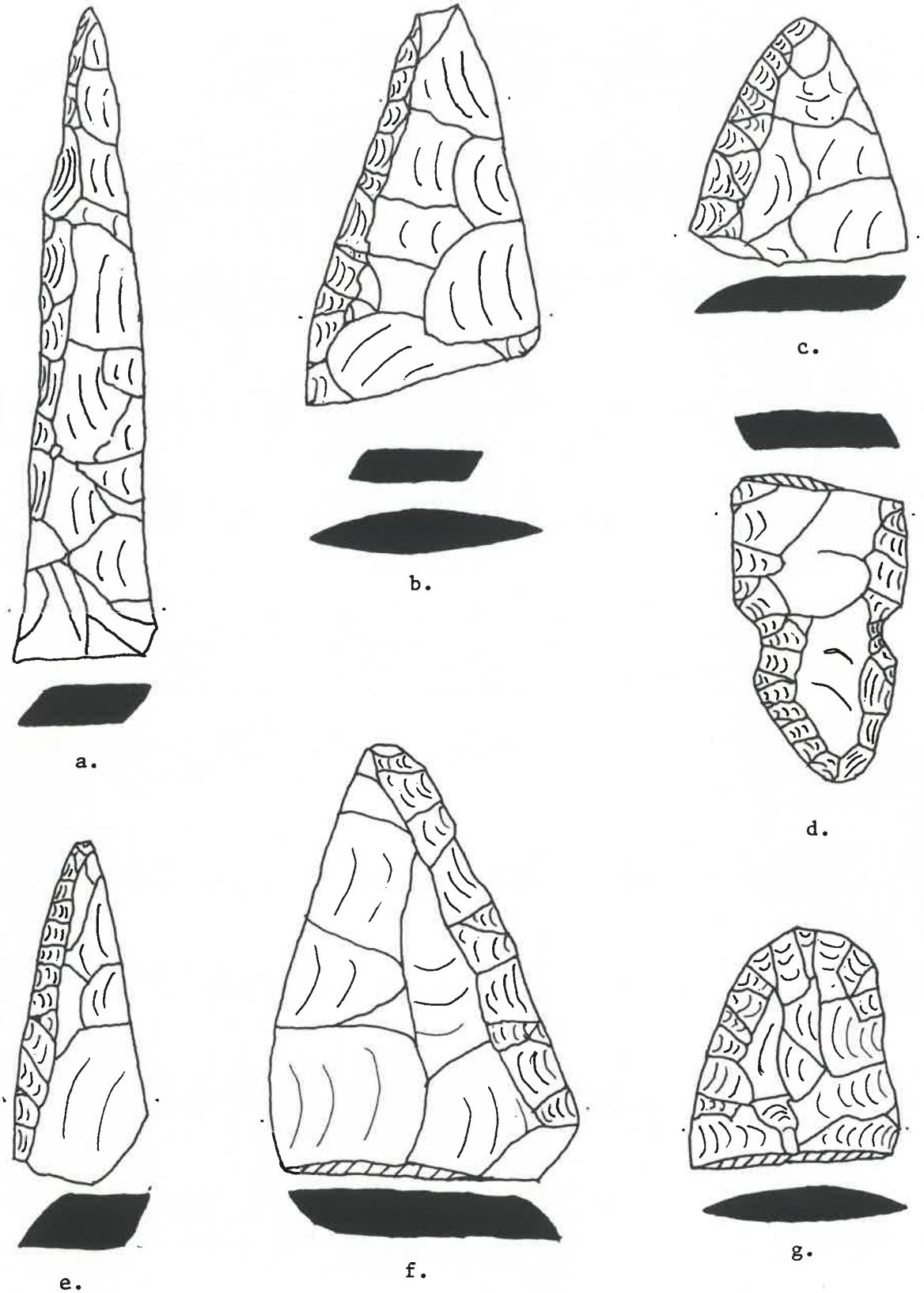
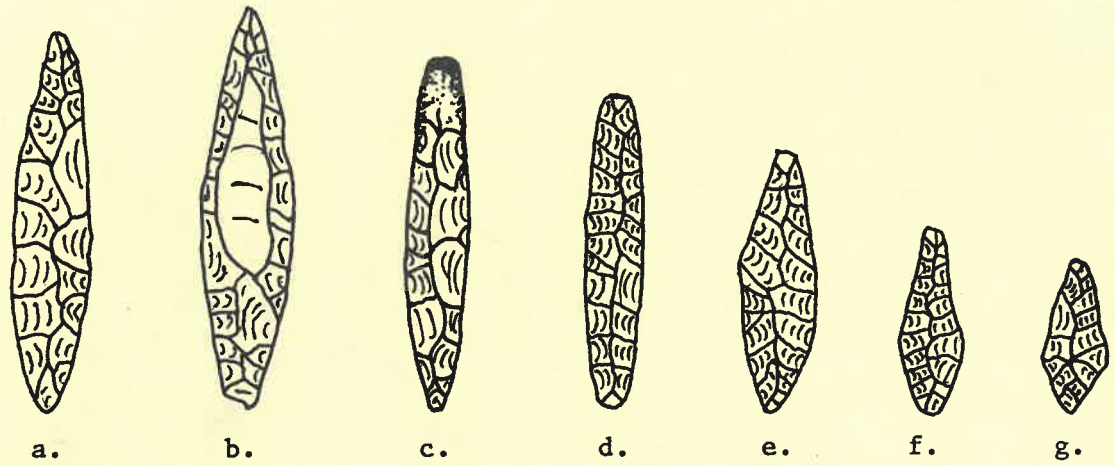
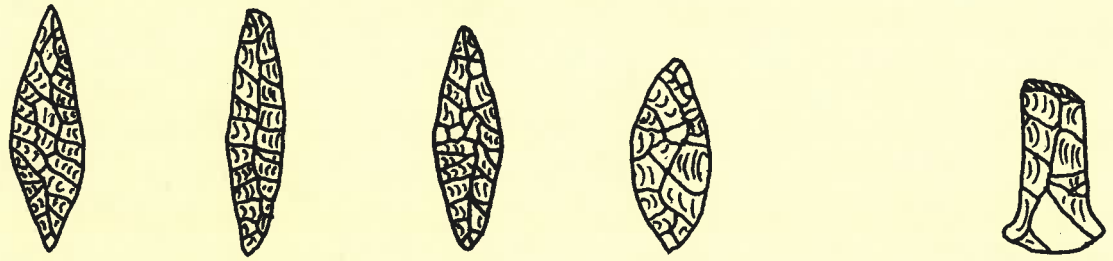


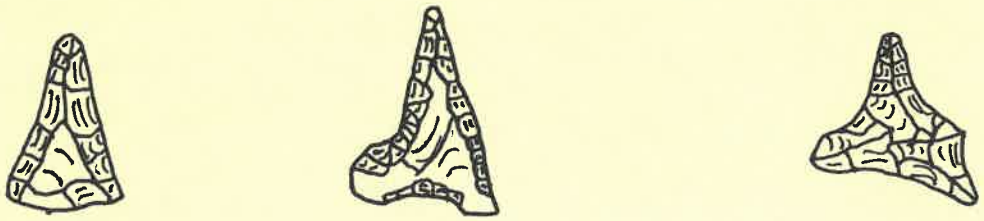
Fig. 1



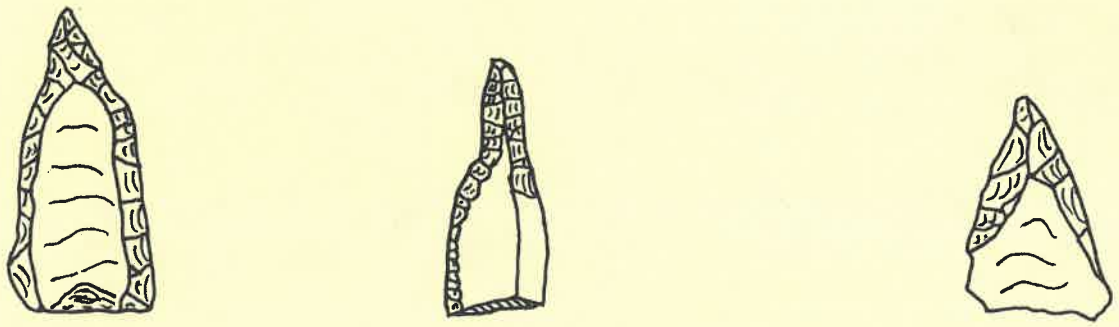
a. b. c. d. e. f. g.



h. i. j. k. l.

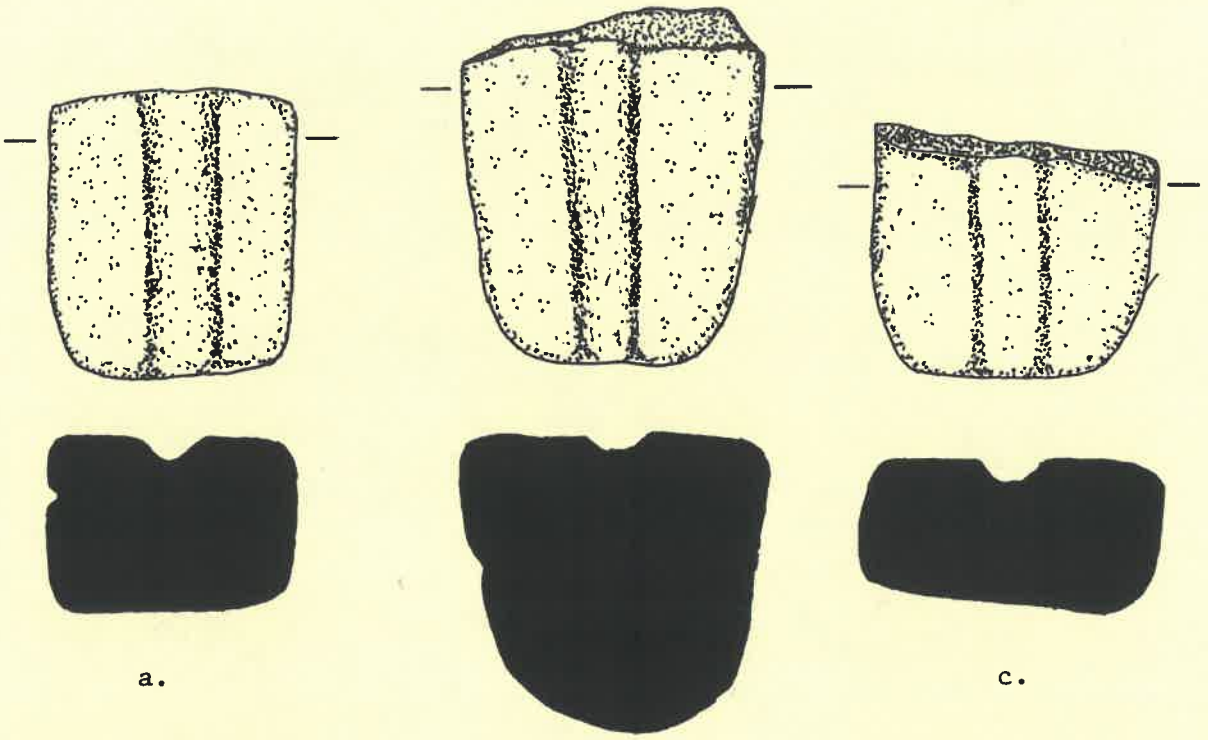


m. n. o.



p. q. r.

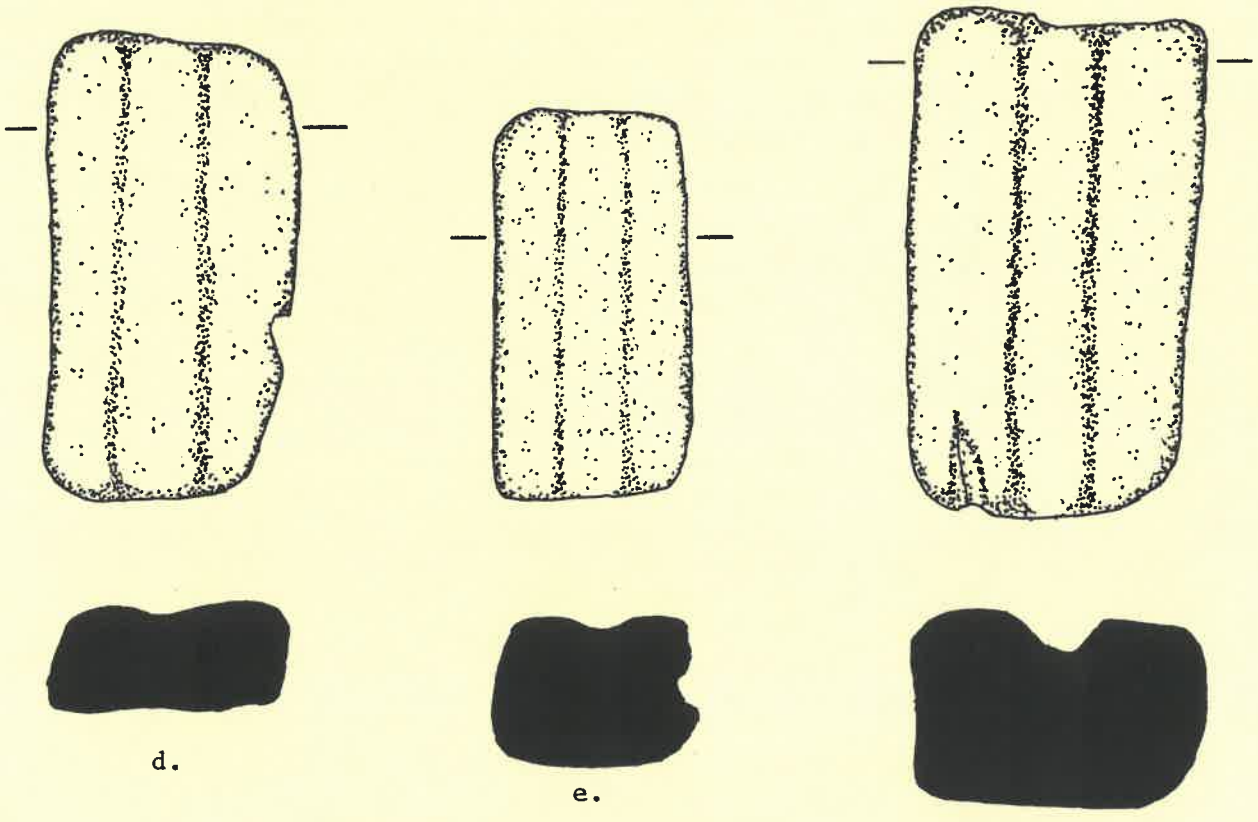
Fig. 2



a.

b.

c.



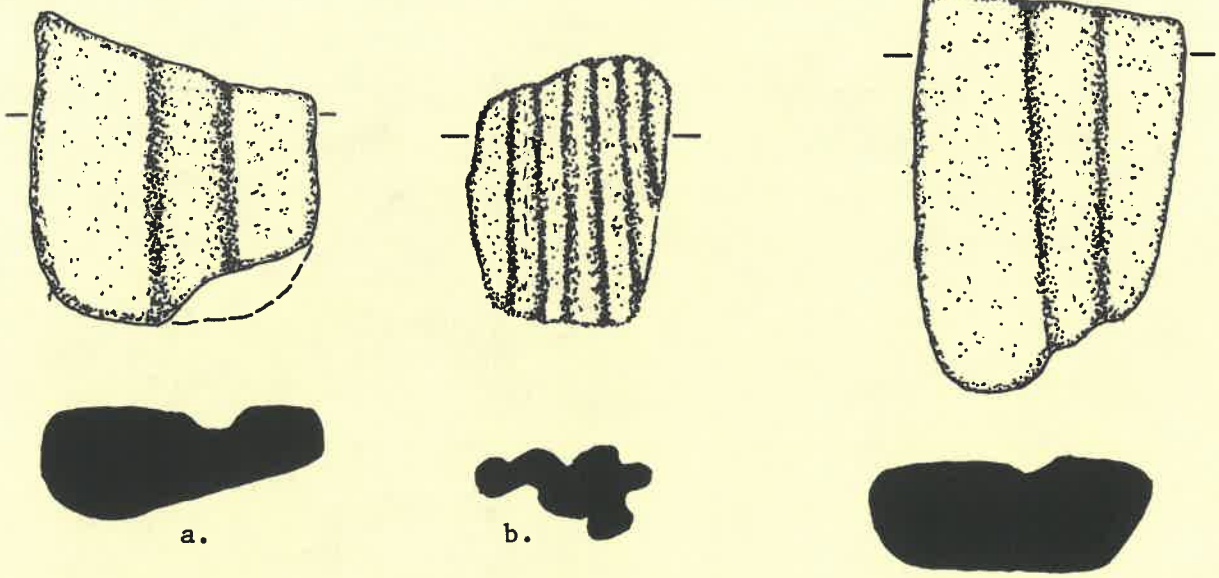
d.

e.

f.

Fig. 3

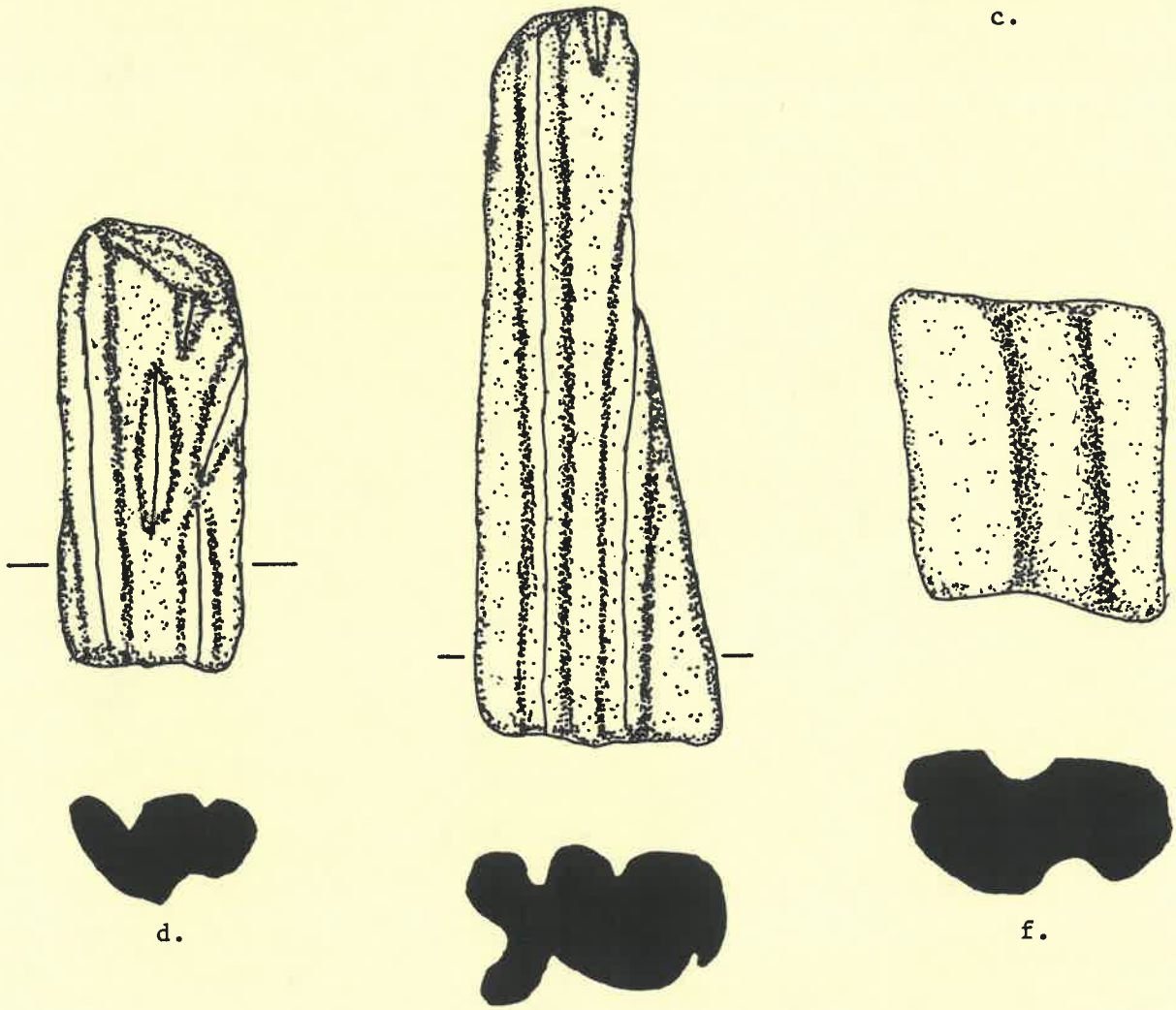
fix



a.

b.

c.



d.

e.

f.

Fig. 4

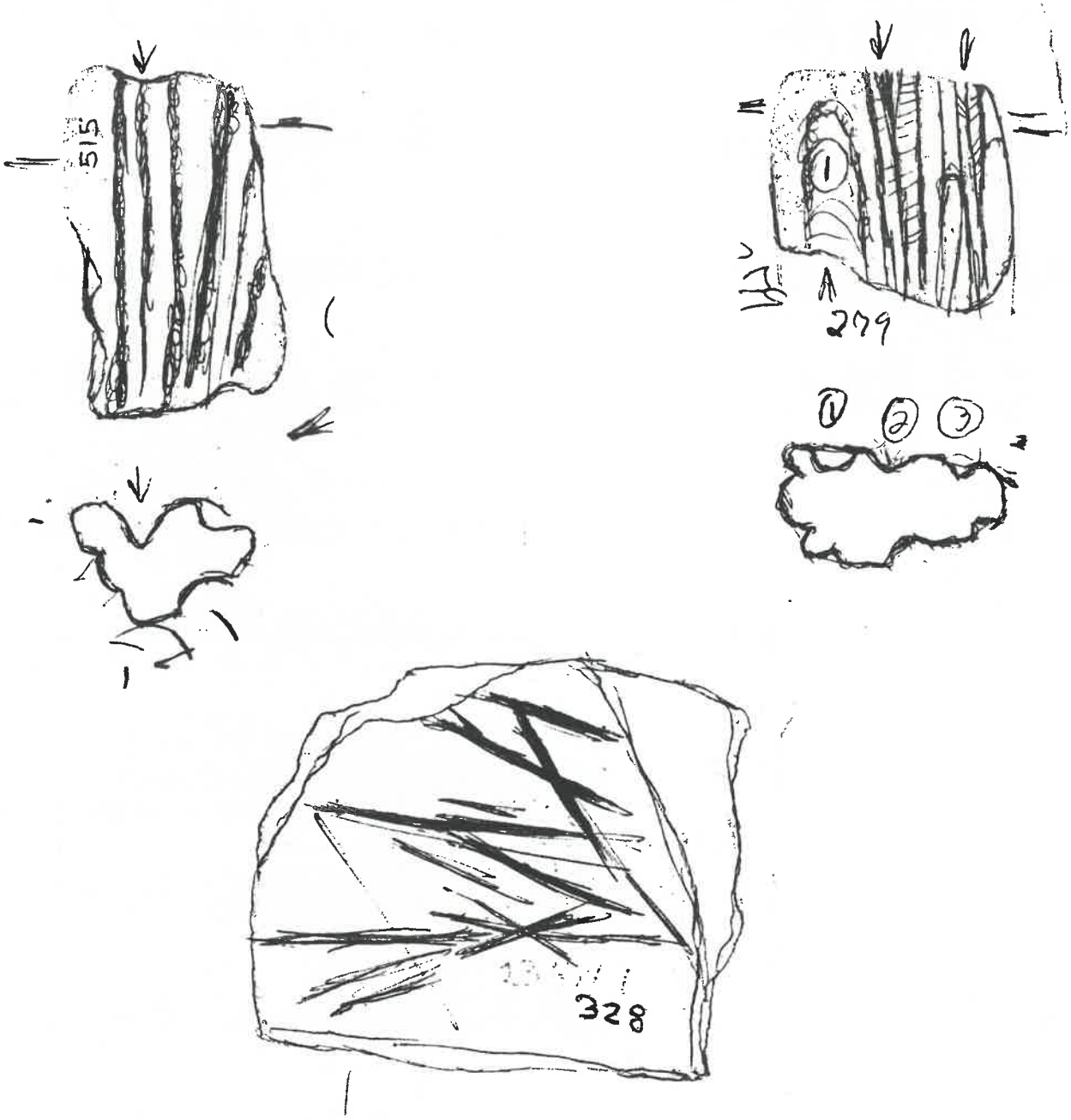


Fig. 5