I. ARCHAEOLOGY OF SOUTH FORK SHELTER (NV-E1-11) ELKO COUNTY, NEVADA

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The South Fork Shelter site (listed as site NV-E1-11 in the University of California Archaeological Research Facility files) was discovered by a survey party, consisting of M. A. Baumhoff, A. B. Elsasser, R. F. Heizer, and E. R. Prince, that carried out a wide-ranging reconnaissance in central Nevada during the period June 20 to July 31, 1958, as part of a research project on the prehistory of the western Great Basin under National Science Foundation grant No. G-3917.[1] The 1958 summer trip had as its aim the securing of data on kinds and numbers of sites in those parts of north-central Nevada for which few or no archaeological data were available. It was hoped that the survey would lead to the discovery of sites with trash deposits, and that these deposits would show stratigraphic differences. Wagon Jack Shelter at Eastgate, Churchill County, was the first such site (Heizer and Baumhoff 1961), and the South Fork Shelter, near Elko, was the second.

Steward (1938:155) makes the statement that there was a native village at or near the mouth of the South Fork of the Humboldt River where – probably in historic times when the horse was used for transportation – as many as a thousand Indians had gathered. If this were the case, there should be an extensive site area at the location, and refuse deposits which would repay excavation. We did, in fact, locate the site of the historic South Fork village (Pungodüngahngivain, "place where the house is"), and interpreted it as two adjacent occupation areas which we refer to as sites NV-E1-21 and NV-E1-22 (map 1). A few artifacts were collected from these two sites, and it is our impression that these were places where brief congregations of Indians occurred in the historic period, and that they were not ancient occupation spots.

Where the South Fork flows out of its narrow canyon and enters the floodplain of the Humboldt River, which is here about four miles wide, there

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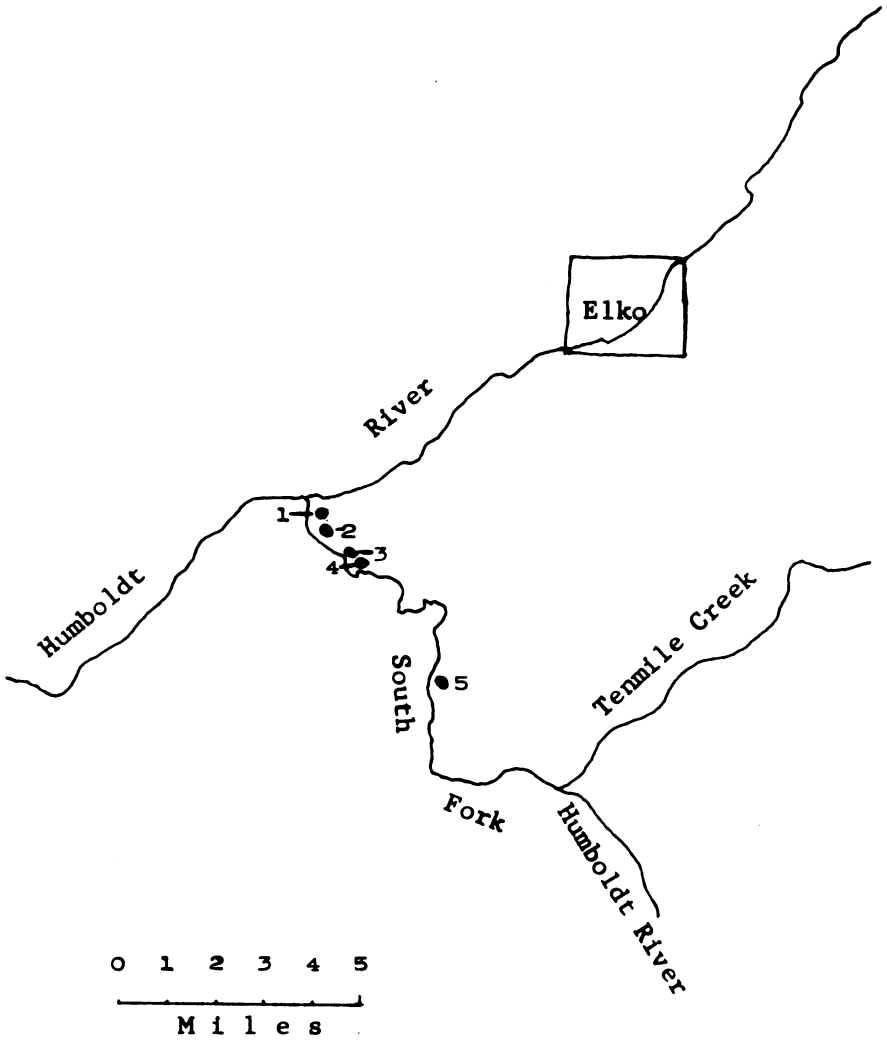
[1] This National Science Foundation grant permitted research to be carried out which has resulted in about thirty published papers. In addition to these direct results, the impetus generated has continued and the papers published in University of California Archaeological Survey Reports Nos. 65, 66, and 70 may be considered as secondary fruits of the original grant.

Key

1. NV-E1-22
2. NV-E1-21
3. NV-E1-11
4. NV-E1-42
5. NV-E1-12



Map 1. Sites in the vicinity of Elko, Nevada

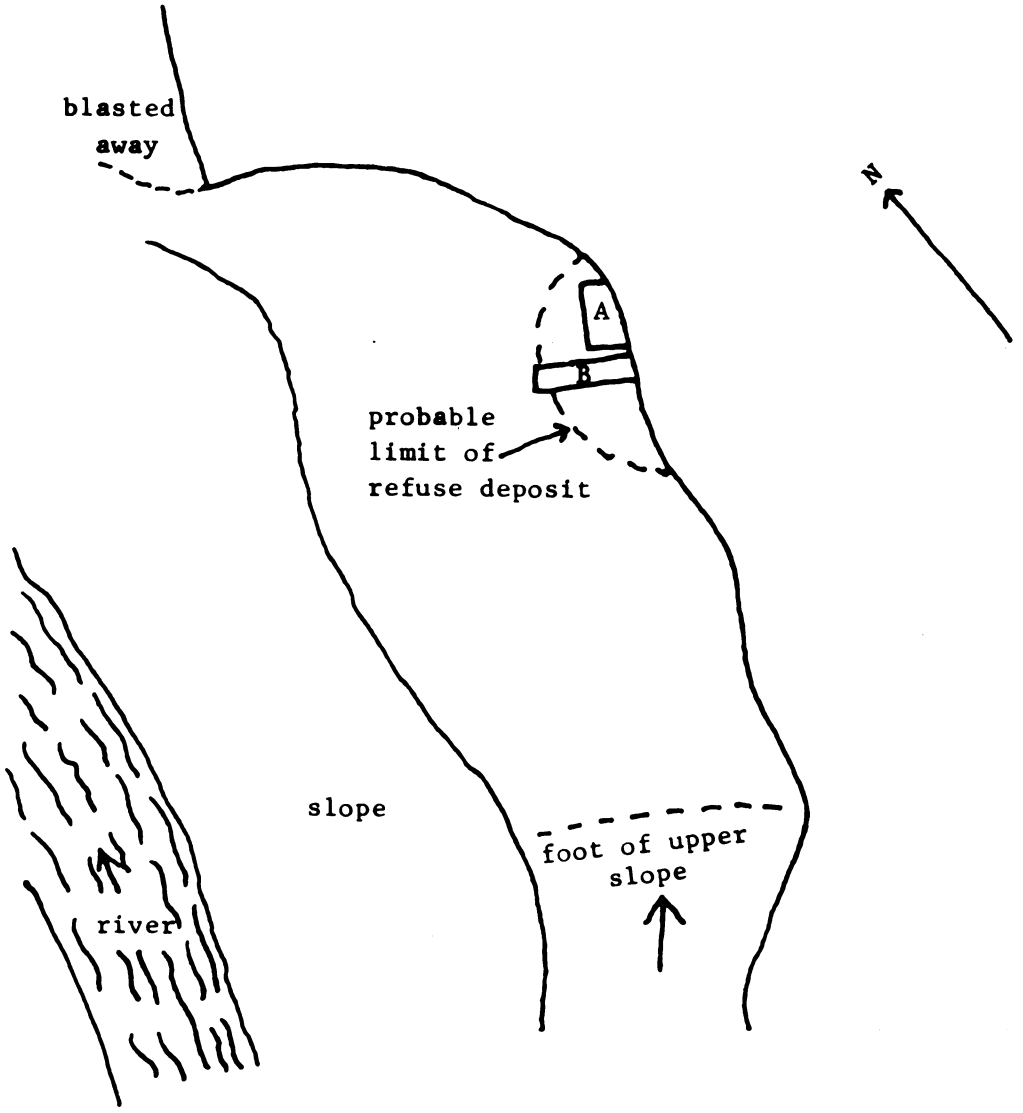
is a vertical limestone cliff rising about 50 feet high on the right bank. At first glance, the talus surface beneath the cliff did not appear to show much promise as an ancient campsite. The only possible sign of aboriginal occupation was some smoke-blackening of the cliff wall just above the present ground surface which lay at an elevation of some 16 feet above the water level of the river. There was no surface litter of camp debris indicating Indian occupation. However, the protected position of the base of the cliff and the possibility that earlier deposits might lie beneath the present surface led us to excavate a small test pit (2 x 5 ft.), and we shortly encountered a layer of charcoal-bearing soil mixed with rockfall from the cliff face, animal food, bone refuse, and a few flaked stone projectile points. The original test pit was then expanded to cover an area 5 feet in width and 8 feet in length, and as it was excavated the surface of the cliff cut back at a sharp angle. This recession of the cliff face was not apparent at the time of discovery, so that the small area of the pit at the surface was considerably enlarged as the digging proceeded (map 2).

All of the deposit excavated was passed through a No. 4 (¼ in.) mesh rocker screen, and all animal bones, flint chips, artifacts, and freshwater clam shells were saved by arbitrary 6 inch levels. The excavation of this first test pit was carried out during July, 1958. At the time, it was planned to fully excavate the deposit during the summer of 1959, but we were unable to reach a satisfactory agreement with the property owners (A. B. McKinley and sons) until September, 1959, by which time we were short of funds and time, and were able only to excavate a trench 5 feet wide by 10 feet long.

The Elko area centers about the grassy, willow-thicket floor of the floodplain of the Humboldt River. The elevation is slightly over 5000 feet above sea level. Summers are hot and winters are very cold, with snow. The annual rainfall is approximately 12 to 15 inches. The area lies in the Lower Sonoran life zone, the characteristic vegetation being sagebrush (Artemisia), shad scale (Atriplex), and willow, with juniper appearing in the hills bordering the valley. The piñon tree (Pinus monophylla) occurs some 20 to 30 miles to the east, on the western slopes of the Ruby Mountains. As Steward (1938, fig. 11) indicates, antelope, deer, seeds, pine nuts and small seeds were available within fairly short distances from Elko, and the mammalian bones from NV-El-11 refuse deposits attest to a fairly extensive prehistoric exploitation of both small and large animals for food. While no fish bones were recovered from the site's deposits, the Humboldt River a few miles away, as well as the South Fork stream immediately at hand, must have been the source of some fish, since Steward 1938:159) notes an abundance of fish taken and a variety of catching methods employed in the Elko area.

Key

A. 1958 trench
B. 1959 trench



Map 2. Plan of South Fork Shelter

One of the first, if not the earliest, Caucasian explorers to visit the Elko area was Peter Skene Ogden, who in 1827-28 traversed the Humboldt River (named by him Mary's River). Zenas Leonard, a member of the Walker expedition of 1831-36, called the Humboldt the "Barren River," and briefly described the local people along its banks as "of the most poor and dejected kind, being entirely naked and very filthy" (Leonard 1904:157). Fremont (1887: I:438), on his third expedition in 1845, described the Great Basin Indians as follows:

"In this region the condition of the Indian is nearly akin to that of the lower animals. Here they are really wild men. In his wild state the Indian lives to get food. This is his business. The superfluous part of his life, that portion which can be otherwise employed, is devoted to some kind of warfare. From this lowest condition, where he is found as the simplest element of existence, up to the highest in which he is found on this continent, it is the same thing. In the Great Basin, where nearly naked he traveled on foot and lived in the sage-brush, I found him in the most elementary form; the men living alone, the women living alone, but all after food. Sometimes one man cooking by his solitary fire in the sage-brush which was his home, his bow and arrows and a bunch of squirrels by his side; sometimes on the shore of a lake or river where food was more abundant a little band of men might be found occupied in fishing; miles away a few women would be met gathering seeds and insects or huddled up in a shelter of sage-brush to keep off the snow. And the same on mountains or prairies where the wild Indians were found in their highest condition, where they had horses and lived in lodges. The labor of their lives was to get something to eat."

Fremont (1887: I:435) also gives an account of the use of pottery by Shoshoni near Elko:

"Travelling along the foot of a mountain on one of these trails we discovered a light smoke rising from a ravine, and riding quietly up, found a single Indian standing before a little sage-brush fire over which was hanging a small earthern pot filled with sage-brush squirrels. Another bunch of squirrels lay near it and close by were his bow and arrows. He was deep in a brown study, thinking perhaps of some game trail which he had seen and did not see or hear us until we were directly upon him, his absorbed thoughts and the sides of the ravine cutting off sounds. Escape for him was not possible and he tried to seem pleased, but his convulsive start and wild look around showed that he thought his end had come.... I reassured him with a friendly shake of the hand and a trifling gift. He was a good-looking young man, well made, as these Indians usually are, and naked as a worm."

South Fork Shelter lies at the western end of the narrow canyon of the South Fork of the Humboldt River (see map 1). The canyon was known as the "Hastings Cutoff" and was used on occasion by wagon trains in the late 1840's (Paden 1949, chap. 9). No evidence of mid-nineteenth century debris was found at the site, so we conclude it was abandoned by that time.

Projectile Points

Just as we believed that the projectile points from Wagon Jack Shelter were the most important specimens recovered there (Heizer and Baumhoff 1961), we are also of the opinion that the projectile points are the most informative part of the collection from South Fork Shelter. It is by means of these objects that prehistoric time relationships of cultural deposits will be worked out in the Great Basin. A total of 69 whole points or basal portions were recovered at the South Fork site. Of these, 67 may be categorized into 12 projectile point types (two of the points are not classifiable). The provenience of the types is given in Table 1, and the specimens are illustrated in Figures 1 through 4.

Elko Side-notched (fig. 1a-h). This point may be best described as a simple leaf-shaped, round-based point with wide notches placed well down toward the base. All eight specimens of this type are of chert.

The Elko Side-notched points have weights and forms similar to those of the Elko Corner-notched points, and it is therefore likely that the two forms are related. Elko Side-notched points occur stratigraphically above the Elko Corner-notched points; hence it is reasonable to suppose that a developmental sequence is evidenced. If such is the case, then we have the corner or basal notches of the Elko Corner-notched type changing to become the side notches of the Elko Side-notched type.

Eastgate Expanding Stem (figs. 1i-k, 3l-n). The term Eastgate Expanding Stem may seem to be a misnomer as applied to the specimens from South Fork Shelter because the stems of these specimens do not expand but are, rather, parallel-sided. It is quite clear, however, that the present specimens form part of the same series as the Eastgate Expanding Stem points from Wagon Jack Shelter. Compare, for example, the six specimens from South Fork Shelter with the specimens from Wagon Jack Shelter (Heizer and Baumhoff 1961, fig. 2h-v). Stems aside, the present specimens conform well to the type with their barb-like shoulders and relatively light weight. All six of the South Fork specimens are made of cream colored to tan chert.

Elko Eared (figs. 1l-q, 3j,k). These specimens from South Fork Shelter are rather similar to the Elko Corner-notched points. Both types are corner-notched and have barb-like shoulders. The Elko Eared specimens differ in having a notched stem which gives them a split-stem or eared appearance. None of the points from South Fork Shelter have such pronounced ears as certain of the Wagon Jack Shelter pieces (e.g. those shown in Heizer and Baumhoff

TABLE 1

Depth Distribution of Projectile Points from South Fork Shelter

Levels (inches)	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60	60-66	66-72	72-78	78-84	84-90	102-108
Elko Side-notched		2	5		1									
Eastgate Expanding Stem		3	1	1	1									
Elko Eared		1			3			3	1					
Elko Corner-notched	1	2		7	7	5	4	2	2					
Humboldt Concave Base A								1					1	
Pinto Sloping Shoulder				1										1
Humboldt Basal Notch												1		
Desert Side-notched		2												
Cottonwood Triangular		1												
Type B	1													
Type I (no location)														
Large Square stem		1	1			2		1						
Unclassified											1		1	
Totals	2	12	7	9	12	7	4	7	3		1	1	2	1

1961, fig. 4). The eight South Fork Elko Eared specimens are made of chert.

Here again, as at Wagon Jack Shelter, we see that Elko Eared points and Elko Corner-notched points have a marked similarity of form and (as shown below) are stratigraphically indistinguishable. These facts give additional weight to our earlier suggestion (Heizer and Baumhoff 1961:128) that the two forms are variants of a single basic type (cf. O'Connell 1967).

Elko Corner-notched (figs. 2a-t; 3a-i; 4a). This type of point was the best made and most abundant of the pieces recovered from South Fork Shelter. They conform nicely to the type as revealed at Wagon Jack Shelter in being large points with acute shoulders and expanding stems. There are 30 of these specimens - 28 of chert and 2 of obsidian. We have noted above the possible relationships between these points and Elko Side-notched points, as well as Elko Eared points.

Humboldt Concave Base A (figs. 3s; 4g). Only two specimens of this type were recovered at South Fork Shelter. The edges are slightly convex and the bases have shallow indentations. The pieces are keeled on one face and nearly flat on the other. Both are of black quartzite. Although the sample is small, the relatively early stratigraphic position of both specimens suggests that they are early in time. This tendency is also apparent when the points appear in the Humboldt and Carson sinks (Clewlow 1967:144) and at the Rose Spring site (Lanning 1963:254).

Pinto Sloping Shoulder (figs. 3v; 4h). Two specimens of this type occur; one is of obsidian, the other of chert. The diamond shape of this point is evidenced in its rounded shoulders projecting laterally. The sides of the lower part of the diamond (the "stem") are slightly concave, and the basal sides of the point are markedly so. As the illustrated specimens demonstrate, this type bears certain formal similarities to the Humboldt Concave Base A point. Their stratigraphic positioning supports the suggestion that they may be developmental variants of the same form.

Humboldt Basal Notch (fig. 3u). One specimen of this type, a long, thin, somewhat triangular point characterized by finely executed, parallel or diagonal ripple flaking, was collected at South Fork Shelter. The piece is made of chert.

Desert Side-notched (figs. 3w; 4i). Two specimens of this type were found. One, of white chert (fig. 3w), is a representative example of this late point type. The second specimen, of gray chert, is not wholly typical for two reasons. First, Desert Side-notched specimens observed in this part of Nevada all display a basal notch (cf. Steward 1941, figs. 2c, 3q;

Heizer and Baumhoff 1961, fig. 3a-h) whereas the piece shown in Figure 4i has a base which is gently concave. Second, this specimen, if whole, would weigh more than 2 g. whereas Desert Side-notched specimens observed in Nevada seldom attain a weight greater than 1 g. Nevertheless, in that it still bears formal similarities to the type mode, and since it was found in the upper levels at South Fork Shelter, we feel our classification to be reasonably correct.

Cottonwood Triangular (fig. 3r). One specimen of white chert was recovered. It is a small, light, thin, imperfectly triangular point.

Type B (fig. 3t). One specimen made of white chert was found. It is a large point, relatively broad and flat, with imposing corner notches which give a shouldered appearance, and a flat base.

Type I (fig. 3q). One specimen of white chert was recovered. It is a small point with a broad stem and rounded base.

Large, square-stemmed points (fig. 4b-f). This group of specimens is, in both size and form, the most heterogeneous of any of the types of projectile points recovered from South Fork Shelter. The heterogeneity makes it likely that the type does not conform to any cultural reality. Since the pieces do not conform to any of the other types, they are best kept separate at this time.

The specimens in this group are moderately heavy. They appear to show predominantly parallel-sided, straight-based stems, and have shoulders which are either square or rounded. Of five specimens, four are made of chert and one of obsidian.

Stratigraphic Relationships of Projectile Points

The stratigraphic occurrence of the projectile points at South Fork Shelter is shown in Table 1. The following relationships displayed by the data seem clear. The lower midden is dominated by the Elko Eared and Elko Corner-notched points. At a depth of about 30 inches, these two types abruptly decline and are replaced by Elko Side-notched and Eastgate Expanding Stem points. As between Elko Side-notched and Eastgate Expanding Stem points, the former may be slightly earlier.

Only two exceptions appear in the sequence. One Elko Corner-notched specimen appears in the upper level and one Elko Side-notched point appears in a lower level. Stratigraphic relationships are probably poorly preserved in the deposit laid up against the wall of the shelter (diagrams 1-3) so

TABLE 2

South Fork Shelter Projectile Point Dimensions and Weights

	Length (mm.)			Width (mm.)			Weight (g.)			
	max.	min.	av.	max.	min.	av.	max.	min.	av.	Total No.
Elko Side-notched	48	27	36.0	25	19	22.0	5.3	1.9	3.3	8
Eastgate Expanding Stem	33	25	30.1	22	17	19.8	1.8	0.6	1.3	6
Elko Eared	47	25	36.4	32	19	27.4	6.0	2.5	4.4	8
Elko Corner-notched	64	25	41.3	30	16	23.8	8.1	2.0	4.1	30
Humboldt Concave Base A	53	47	50.0	13	17	15.0	6.0	5.1	5.5	2
Pinto Sloping Shoulder	39	35	37.0	19	12	15.0	6.6	1.9	4.2	2
Humboldt Basal Notch	49			17			3.9			1
Desert Side-notched				19	11	15.0				2
Cottonwood Triangular	22			17			0.9			1
Type B	68			25						1
Type I	18			14			1.1			1
Large Square Stem	49	21	35.0	26	17	21.0	4.0	0.6	3.4	5

TABLE 3

Frequency and Distribution by Level of Obsidian and Chert Projectile Points

Levels (inches)	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60	60-66	66-72	72-78	78-84	84-90	90-96	96-102	102-108
Obsidian	1			1		1		1					1			
Chert points and point tips	2	16	8	10	15	7	4	5	3		1	1				1

that one or two exceptional occurrences are not surprising. On the whole, the stratigraphy works out neatly.

The Humboldt Concave Base A, Pinto Sloping Shoulder, and Humboldt Basal Notch points, although represented by a small sample, would seem to fall into relatively inferior stratigraphic positions. The Desert Side-notched and Cottonwood Triangular points, already established for late prehistoric and protohistoric times, are found in the uppermost layers at South Fork. Large square-stem points occur in both upper and lower levels, making the chronological significance or typological reality of this group somewhat suspect. Since there is only one specimen each of Type B and Type I, not much can be said about their place in the sequence.

The material used for projectile points by the people of South Fork Shelter was primarily chert. Obsidian is rarely present. The chert used is quite glossy, and in color is brown, gray, or off-white. None of the projectile points found here are of silicified volcanic rock, although such material is present at the site in the form of scrapers and large blades. Table 3 tabulates by level the frequency of obsidian vs. chert points. Eleven untypable point tip fragments, all of chert, are also included. These were recovered in the levels between 18 and 48 inches, rather evenly distributed. Two quartzite points recovered at depths of 54-60 and 84-90 inches are not included.

It will be noted in Table 3 that most of the obsidian pieces were recovered below depths of 30 inches from the surface. This is the level at which a change in projectile point types occurs, and suggests that obsidian was used mainly during the earlier period. The suggestion is quite tentative since the sample size for obsidian is very small.

Knives (figs. 5-7, 10a)

A total of 110 specimens which may be classified as knives was recovered from South Fork Shelter. Most of the pieces show extensive bifacial flaking. In form these pieces vary from triangular to leaf-shaped. In size they are quite variable, ranging in length from 4.0 to 8.0 cm., and in width from 2.5 to 4.5 cm. An average specimen would be approximately 7.0 cm. long and 3.5 cm. wide. Most of the specimens recovered are made of chert, dull gray to brown in color. There are two specimens of a silicified volcanic material, and three pieces made of quartzite.

Due largely to the fact that a great majority of the specimens are fragmentary, we are unable to subdivide the knives into types having stratigraphic significance. In Table 4, therefore, we present merely frequencies of knives

TABLE 4

Frequency by Level of Knives and Knife Fragments
(inches)

6-12	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60	60-66	66-72	72-78	78-84	84-90	90-96
4	4	15	7	37	17	13	3	4	1		1		3	1

TABLE 5

Frequency by Level of Scrapers
(inches)

0-12	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60	72-78	78-84	84-90
4	5	7		8	8	3	4	5	2	3	2

TABLE 6

Frequency by Level of Gores
(inches)

6-12	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60
1	1	2	1		5	6	2	3

and knife fragments by level. These data indicate that the frequency of knives declines above the 30 inch level, at the same point at which the Elko Eared and Elko Corner-notched projectile points are replaced by Elko Side-notched and Eastgate Expanding Stem projectile points. Thus, in knives we note additional evidence that a major cultural change occurred when the deposit attained this level. It will also be noted that the frequency of knives decreases at greater depths.

Blades or Blanks (figs. 8a-c; 10b)

One rather unusual group of five specimens recovered from South Fork Shelter consists of heavy cores trimmed so that they are roughly the shape of blades. One of the illustrated specimens (fig. 8a) has been carefully chipped to its present shape, and one tip fragment (not illustrated) shows comparable workmanship. Three specimens (figs. 8b, c, 10b) are only crudely trimmed. All five specimens are of material seemingly from a single deposit—a light gray, silicified volcanic rock with thin seams of gray chert included. The dimensions of four of the specimens are: 16.0 by 7.0 cm.; 11.5 by 5.5 cm.; 13.5 by 6.0 cm.; and 10.5 by 5.0 cm. The fifth specimen is fragmentary, but appears to have been about the same size as the largest of the complete pieces.

It is possible that these pieces are blanks or lumps of material traded or obtained directly from a quarry, then crudely trimmed and intended for remanufacture into knives or projectile points. This possibility seems not to be very strong, however, for two reasons. First, two of the specimens display better workmanship than one would expect on blanks; and second, very few, if any, of the knives or projectile points are made of exactly the same material as these blanks or blades. If these objects are not blanks, then they probably functioned as heavy-duty cutting or chopping tools.

Three of these specimens were recovered in the 12-18 inch level and a fourth in the 18-24 inch level. The fifth piece is of unrecorded provenience. Our limited sample indicates clearly that these objects were used only during the later occupation of the shelter.

Drills (fig. 4l-n)

Four drills were recovered during excavation at South Fork Shelter, and these will be described individually.

Figure 4l is of white chert and is a flake trimmed to its present shape at the base. The stem is diamond-shaped in cross section. It weighs 4.6 g. and comes from the 30-36 inch level.

Figure 4m is made of red chert, and the entire surface of the base has been chipped to achieve its present shape. The stem is diamond-shaped to oval in cross section. This piece was found in the 18-24 inch level and weighs 2.1 g.

Figure 4n is made of obsidian, evidently from a triangular flake, with the tip being trimmed to form a wide, flat stem and with notches put in just behind the stem. The flake is not otherwise trimmed and shows some cortex. This specimen weighs 4.5 g. and was recovered in the 18-24 inch level.

The fourth specimen (not illustrated) is made of yellow chert, and is triangular in cross section and roughly trimmed on the edges. It weighs 11.3 g. and was found at a depth of 14 inches.

With such a limited number of specimens, it is not feasible to posit a sequence of types.

Scrapers

Forty-six simple flakes, having an edge retouched either by deliberate flaking or through use as a cutting or scraping tool, were recovered from South Fork Shelter. Five specimens of the "snub-nose" variety were recovered from levels 6-12 (2), 18-24 (2), and 36-42 (1) inches, bringing the total number of scrapers to fifty-one. The snub-nose, or "thumb-nail" scrapers show very smoothly-rounded forward edges, probably a result of considerable utilization. Twenty-one of the specimens are made of gray chert, seven are of red and brown chert, six of gray chalcedony, and the remaining seventeen are of silicified volcanic material. The frequency of these objects is shown in Table 5. As would be expected from the nondescript charater of these specimens, there are no significant differences of frequency in the various levels. One of the distinctive snub-nose scrapers is illustrated in Figure 10c.

Cores

Twenty-one cores in the form of blocks of stone with large flakes struck from them were recovered at South Fork Shelter. There pieces are all much the same size – about 8.0 cm. in diameter and 2.5 cm. thick. Four of the pieces are made of dark gray chert, eight are of gray chalcedony, and the remaining nine are made of dark gray quartzite. The provenience of these specimens is given in Table 6. As will be noted, the cores were found predominantly in the deeper levels. However, a sufficient number were present in the later levels so that there does not seem to be a strong indication of change through time. No particular material shows a signifi-

cant predominance in either early or later levels. None of the specimens appear to have been used as choppers or hammerstones, as no battering or wear around the edges is exhibited.

Grinding Implements

The grinding implements found at South Fork Shelter consist of nine complete and thirteen fragmentary manos, three metate fragments, and one possible pestle fragment.

Of the manos, nine are made of granite. Eight of the specimens appear to have been shaped. One of these is subrectangular in shape and cross section, and was utilized unifacially. Two of the shaped specimens are "wedge-shaped" in cross section and show bifacial utilization. The remaining five pieces appear more or less ovoid in shape, elliptical in cross section, and are all bifacially ground. The shaped manos are 14.2 to 5.7 cm. in length, 9.6 to 4.9 cm. in width, and 5.6 to 2.7 cm. in thickness. All the specimens show battering on one or more edges, indicating their secondary use as hammerstones. The unshaped mano is a small, polyhedral granite piece showing evidence of pecking or battering on all sides and grinding on two faces.

Eleven of the mano fragments give indication of having been shaped. Nine of these specimens show evidence of use as hammerstones. Twelve of the fragments are of granite and one is of porphyry. Distribution of manos and mano fragments by depth is shown in Table 7.

The metate fragments are small and incomplete. One specimen of gray porphyritic basalt is a rim fragment of a metate, 2 cm. thick and with an untrimmed edge. It was used on both surfaces, and has a shelf 5 cm. wide between the edge and the grinding surface. It was found at a depth of 42-48 inches. A second piece, found at a depth of 24-30 inches, is also made of porphyry. It is a rim fragment about 4 cm. thick, is ground on only one face, and has a shelf 3 cm. wide between the edge and grinding surface. The last specimen, also found at a depth of 24-30 inches, is not a rim fragment. It is made of granite, is 4 cm. thick, and is ground on only one surface.

The pestle fragment is an elongate cobble of gray porphyry, with square cross section (5.5 cm. on a side) which was broken off on one end and ground on the other. It was recovered at a depth of 48-54 inches.

The frequency of the complete and fragmentary manos is shown in Table 7.

TABLE 7

Frequency by Level of Manos at South Fork Shelter
(inches)

12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60	60-66	66-72
2	2	2	2	6	4	1			1

TABLE 8

Frequency by Level of Bone Awls
(inches)

	18-24	24-30	30-36	36-42	42-48	48-54	54-60	78-84
Type 1			3	1	2			
Type 2			4	3				1

TABLE 9

Frequency by Level of Potsherds
(inches)

	6-12	12-18	36-42	60-66
Oxidized	8	2		
Unoxidized			1	1

Other Ground Stone Objects

Three badly weathered fragments showing some grinding were found at South Fork Shelter. Due to their state of deterioration, it was not possible to determine their use. One specimen is of sandstone and was found in the 42-48 inch level; the remaining two are made of granite and were recovered at depths of 36-42 and 42-48 inches.

Bone Awls

A total of fifteen pointed bone objects, probably used as awls or punches in the making of basketry or the puncturing of animal hides, were recovered at South Fork Shelter. They may be classified into two types.

Type 1. Specimens in this group are made of long bones of artiodactyls. They are trimmed and polished in such a way that the taper from butt to tip is smooth and continuous. The only complete specimen is 18 cm. long. Six specimens of this type were recovered.

Type 2. This type of awl differs in that only the first 1-2 cm. of the tip is smoothly tapered. Just behind this tapered portion, the piece expands abruptly, giving it a rather well-defined shoulder. There are nine of these specimens, six of which are made from the long bones of artiodactyls. One is is made from an ulna of a rather large bird, perhaps a duck, and the two remaining specimens are tip fragments of large mammal bone.

Table 8 shows the provenience of the two awl types. These data suggest that both types were in use during the same period, perhaps in the performance of different tasks. It is notable that all of the bone awls, with the exception of one Type 2 example for which there is no location, were found below the 30 inch level. They may, therefore, be associated with the earlier types of projectile points, but not with the later types. Bone awls from both Humboldt Cave (Heizer and Krieger 1956:19) and Wagon Jack Shelter (Heizer and Baumhoff 1961:134) are also primarily associated with earlier levels.

Bone Tubes

Six bone tubes, probably used for personal ornamentation as beads, were recovered from South Fork Shelter. Four are made of bird bone, while two are probably made from the long bones of mammals. The bird bone pieces range in length from 7.5 to 2.2 cm. The mammal bone pieces are both fragmentary, being 3.2 and 5.3 cm. in length. None of the pieces show decoration. At least two of the specimens exhibit circumferential scoring, indicating that they were produced by incising around the outside of the piece and then

snapped or broken off at the point of incision. All the pieces were found below the 24 inch level.

Pottery

Twelve potsherds were recovered in the course of excavations at South Fork Shelter, and they have been roughly divided into two categories: (1) oxidized, and (2) unoxidized.

Oxidized. Ten of the specimens appear to have undergone oxidation during the firing process. All of these pieces show evidence of being scraped or wiped on both surfaces. No coils are visible, although the relative crudeness and small size of the sherds rule out any certainty in this matter. Three small sherds, from the 6 to 12 inch level, show in their cross section that a construction process of modeling rather than coiling may have been employed. The sherds appear to have been fired in an uncontrolled atmosphere with oxidation predominating, but not uniform, in all ten specimens. The core texture is very coarse, with the core color ranging from a reddish to a dark brown. Large, angular quartz grains predominate as temper. The grains average about 1 mm. in size, although grains 2-5 mm. in diameter are not uncommon. Mica is present in moderate amounts.

Fracture is sharp in one sherd, while the remaining nine are very crumbly. One sherd has a smooth but unpolished surface finish. The others are rough and uneven, due partly to the scraping or wiping process. The coarse temper shows through in varying degrees. Surface luster is dull, with surface color ranging from a reddish to a dark brown. No rim or basal sherds were recovered, hence vessel size could not be established. Vessel forms cannot be established due to the fact that the sherds are too small to permit reconstruction.

None of the sherds are conventionally decorated. One sherd has three deeply incised parallel lines on the exterior surface. However, the specimen is too small to tell whether the lines are decorative or the result of scraping with a stick or fingernail. Four sherds exhibit such a heavily striated surface that it may be construed as decoration, but again the sample is too fragmentary for us to be certain. The largest sherd is approximately 7.0 by 4.5 cm. in size. The smallest is 1.2 by 1.9 cm. Most are roughly 3.0 by 4.2 cm. Wall thickness ranges from 5 to 7 mm. All the sherds are soot blackened on the interior, and several are crusted with charcoal. One sherd has a hole 5 mm. in diameter bored through it, presumably to mend an old break or possibly for carrying (cf. Heizer 1954:6) or hanging (Fremont 1887:435). This specimen is illustrated in Figure 4k. A

similar specimen is reported from Deer Creek Cave in northern Elko County (Shutler and Shutler 1963:49).

Unoxidized. Two sherds appear to have been fired in an unoxidizing atmosphere. The color of the core is black in one sherd and dark gray in the other, with the core texture being fine in both. Fine angular quartz grains, 0.5 mm. and under in diameter, make the bulk of the temper. Feldspar occurs in small amounts. Mica is present in small amounts in one sherd, while it is so abundant in the other that both surfaces and core present a glittering appearance. Fracture is sharp in one piece and flaky in the other.

In both sherds the surface luster is dull and the surface color gray. Both are smoothed, but not polished on the surface. The interiors are slightly rougher than the exteriors. The two specimens have fine scraping or wiping marks on both surfaces. Traces of coils are faintly apparent only on the interior surfaces of the sherds. One piece is a rim sherd, showing a slightly everted lip which may suggest a small, round-bottomed bowl. The pieces, which are 1.1 by 2.1 cm. and 4.3 by 2.1 cm. in size, are too small to enable an accurate reconstruction of vessel form or size. One sherd has a wall thickness of 4 mm., the other is 5 mm. The rim sherd has vertical fingernail incising in a single band immediately below the lip.

The actual depth at which these sherds were recovered is in some doubt. They were screened from the soil, and it is quite possible that due to the dry and friable nature of the midden, they fell from the side wall nearer the surface.

The depths of both oxidized and unoxidized sherds is shown in Table 9.

On the basis of the relatively superficial description given above, it would appear that the pottery from South Fork Shelter conforms to that which has generally been referred to as Shoshoni ware (Touhy 1956). This Shoshoni ware is nearly indistinguishable from Southern Paiute Utility Ware as described by Baldwin (1950:53-55). It is also remarkably similar to the ware which is generally referred to as Owens Valley Brown Ware (H. S. Riddell 1951). It would seem evident, then, that in all three cases we are dealing with a similar pottery tradition which is generally characteristic of the Great Basin (see Baldwin 1950:59; also Steward 1937:43).

It has been pointed out (Shepard 1965:216-222) that a great deal in the way of technology is implied by some of the categories of description which we have employed above. In the opinion of the authors, the time has come for a detailed study, employing recently developed chemical and technological

methods, to be conducted on the pottery which has been collected from the Great Basin area. Such a study would serve to validate the three divisions of wares mentioned above, or, if they proved invalid, to abolish these classifications in favor of a more culturally relevant category.

The sherds described above bear a great similarity to earthenware vessels which are found in the western Great Plains (cf. Wedel 1954). It becomes increasingly more tempting to regard Shoshoni ware in the Great Basin as a possible westward diffusion of a trait whose immediate origin lies in the Plains area northeast of the Snake River plateau (cf. Magee 1966).

Basketry (fig. 4j)

One fragment of basketry was recovered from South Fork Shelter. It was found in screening the 18-24 inch level, and most probably came from a large rat nest which was in a crevice in the rock wall of the shelter. The specimen is undoubtedly of fairly recent origin, since no other perishable materials were preserved in the deposit.

The piece is a small fragment of openwork, diagonal-twined basketry, measuring 3 cm. in length and 1 cm. in width. The warps are twigs, probably willow, slightly more than 1 mm. in diameter. The wefts are split strand, also probably willow, paper thin and about 2 mm. wide. As noted, construction technique is diagonal twining; that is, each loop of twining encloses two warps with the pairing being alternate on successive courses. At the midpoint of the specimen there is a gap about 0.5 cm. in size between the courses of twining, so that we must conclude the original basket was moderately open, rather than closely twined all the way.

Unmodified Animal Bone

A total of 2298 unmodified animal bones were recovered at South Fork Shelter. Of these, 792 are unidentifiable fragments, while 976 are classified only as artiodactyls. The species which were identified are listed below.

Canis latrans	coyote
Marmota flaviventris	marmot
Citellus beecheyi	Beechey ground squirrel
Castor canadensis	beaver
Ondatra zibethica	muskrat
Lepus californicus	black-tailed jack rabbit
Sylvilagus nuttalli	Nuttall cottontail

Cervus canadensis	wapiti, elk
Odocoileus hemionus	mule deer
Antilocapra americana	prong-horned antelope
Ovis canadensis	mountain sheep

Inspection of the lists of identified skeletal elements indicates that whole bodies of smaller mammals were brought to the site for consumption. Mandibles of elk, deer, and mountain sheep, skull fragments of deer and mountain sheep, plus a wide representation of many postcranial skeletal parts, clearly indicate that the entire carcass of larger mammals was frequently brought ot the site. Selective butchering, which is wasteful of food, may not have been practiced, since the area is one in which food was frequently in short supply and a survival requirement was that no food be wasted.

We had some anticipation that the range of skeletal elements present for each of the larger mammal species might provide some hint as to the distance away from the site that the animals were killed. That is, an animal killed some miles away might not be represented by osseous remains of what would usually be considered the inferior parts of the animal. However, in view of the fact that whole carcasses appear to have been brought to the living site, we are unable to suggest whether this indicates only local hunting in the immediate vicinity or that long-range packing of carcasses was practiced. We assume that the elk lived in the grassy floodplain of the Humboldt River, and that deer (as today) lived in the willow thickets along the river bottom and in the surrounding hills. Mule deer, weighing perhaps 200 pounds, and elk, about 700 pounds, were probably taken by several men hunting together, and if the cleaned carcass was divided at the kill spot, the entire animal could easily have been brought back to camp piecemeal by six to eight men. Whether mountain sheep lived in the local ranges we cannot say (cf. Hall 1946, fig. 473), but their bones are sufficiently abundant in the South Fork Shelter deposits to permit the suggestion that they were fairly common and readily accessible.

We assume that the bones of coyote indicate its occasional use as a dietary item, although in general this animal is avoided for food by recent Great Basin peoples. Since coyotes tend to take shelter under rock overhangs, and because pack rats will often carry animal bones for some distance (Heizer and Brooks 1965:160), the few bones of coyote in the deposit do not prove beyond a doubt that this animal was hunted and eaten. Bones of the black-tailed jack rabbit are sufficiently common to support the idea that this animal was eaten. Judging from the quantity of the bones, the same may be inferred for the mountain sheep, mule deer, and Nuttall cottontail. Less common, and of doubtful significance as dietary elements, are osseous

remains of beaver, marmot, and muskrat. A single bone of the Beechey ground squirrel may or may not be due to human agency, although on the basis of the one antelope bone recovered, we presume it to be evidence of an animal killed by Indians. Some of the unidentified artiodactyl bones (mostly fragments) may include those of antelope, as well as mountain sheep, mule deer, and elk.

The elk or wapiti (Cervus canadensis) is not reported from the Elko vicinity by zoologists or early travelers, and the scant evidence of its presence at the site may support the conclusion that it was never very abundant and that its local extinction was due to Indian hunting. No elk bones were found in the uppermost 30 inches of midden accumulation. Captain J. H. Simpson (1859) observed two elk in eastern White Pine County, and Hall (1946:620) says of the Nevada elk, "Whatever original stock was there is thought to have been exterminated before the recent introductions by sportsmen were made."

Hall (1946, fig. 468) maps the present occurrence of antelope as lying north of the Humboldt River in Elko County, but since the present range is known to be more restricted than in pre-contact times, there is little doubt that this animal was locally available to the South Fork Shelter occupants. Table 10 shows the depth and frequency of various species recovered.

Flint Debitage and Shell

During the course of the excavations at South Fork Shelter, all chippage and shell refuse were saved from the main trench as it was dug by arbitrary levels. Due to deficiencies in our data, the exact cubic volume of fill per level cannot be ascertained. Nevertheless, the total amount of chippage and shell per level may be of significance since, as the profiles (diagrams 1-3) reveal, the amount of fill per level did not vary by large degrees. Table 11 indicates the amount of chipping refuse by weight for each 6 inch level.

It is apparent that some knapping was done in the shelter throughout most of the history of its occupation, although there is a wide fluctuation between levels. The general trend, however, seems to indicate that more chipping was done during periods of occupation which are represented by refuse lying above the 54 inch level. It is of interest to note that more projectile points, as well as grinding implements, were found in the upper half (0-50 in.) of the deposit. It is tempting to suggest that a greater variety of activities, or a greater intensity of occupation, occurred during these periods (see tables 1, 7).

TABLE 10

Frequency and Depth of Unmodified Animal Bone
(inches)

	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-80	Total
Canis latrans	2	5			2	4	2	3	18
Lepus californicus	2	1	2	7	6	18	1	3	40
Ovis canadensis	1	10	2	22	23	9	6	8	81
Citellus beecheyi		1							1
Castor canadensis		1			2		5		8
Sylvilagus nuttalli		15	4	16	17	4	1	2	59
Odocoileus hemionus		4	2	8	13	7		4	38
Marmota flaviventris			4	2			30	1	37
Ondatra zibethica				5	3	1		1	10
Cervus canadensis				3			1	6	10
Antilocapra americana				1					1
Artiodactyls	122	99	113	219	98	123	85	127	986
Unidentified frags.	70	131	80	186	79	113	76	77	812
Totals	197	267	207	469	243	279	207	232	2101

Shell was also collected, and its occurrence is tabulated in Table 12. When possible, identification of species has been made. As indicated, Magaritifera margaritifera was the most common type of shell fish recovered from the deposits at South Fork Shelter, denoting its preference (perhaps ecologically imposed) among the shellfish as a dietary element by the ancient inhabitants. Note that, as in the case with chippage, the upper half of the deposit yielded more shell refuse than the lower.

M. margaritifera is a far northern holarctic mussel which is still present to some extent in the Lahontan Basin. As Table 12 indicates, the oldest identifiable remains of this species are from the 90-96 inch level, with a second large occurrence at the 54-60 inch level, and a fairly steady presence from the 42 inch level to the top of the midden. The occurrence of this

TABLE 11

Chipping Refuse by Weight
(grams)

0-6	6-12	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60	60-66	72-78	78-84	84-90	90-96	96-102
14.0	292.0	441.0	1731.5	570.0	336.0	898.0	175.0	366.0	46.6	43.7	130.0	95.0	809.0	3.5	9.0

TABLE 12

Occurrence of Shell at South Fork Shelter

Levels (inches)	0-6	6-12	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60	60-66	66-72	72-78	78-84	84-90	90-96
Margaritifera margaritifera		279	433	362	190	110	39			414						89
M. anodonta		3	4	7												
Unidentified shell				174			28					3				

mussel suggests that at a time quite early in the site's occupation, at another time just after 3320 years ago (see Dating below), and during the deposition of the upper 42 inches of midden, there was ample flow in the nearby river to support the species (Carl L. Hubbs, personal communication). It would be of interest to know if the absence of the species in other occupation levels was a result of cultural or climatic factors. Our present data afford no clue. The presence of Margaritifera sp. provides no grounds for inferences regarding water temperatures.

Dating

Three radiocarbon dates have been secured from charcoal collected at various depths in the midden deposit at the South Fork Shelter. The first sample was taken from the 72 inch level and has been dated at 3320 ± 200 years B.P. (LJ-212). If we assume that the midden accumulated at a steady rate, then it would follow that each 12 inches of deposit was laid down at intervals of approximately 550 years (i.e. 516-583 years). If such was the case, then the earliest occupation of the site, that is, the top of the 108-120 inch level, could be calculated to be 4950 years old.

A second radiocarbon-dated sample, from the 120 inch level, would seem to dispute this calculation in that it has an age of 4360 ± 300 years B.P. (UCLA-295). In the profiles (diagrams 1-3) evidence may be noted that could indicate differential deposition units through time. First, the upper 12 inches of deposit are almost devoid of artifactual content and betray no sign of intensive occupation. This level may have been deposited at a different rate than the cultural layers underlying it and would tend to distort our calculations. Second, the dark brown midden contains a decomposed rat nest layer approximately 2 inches thick at the 18 inch level, a burned organic layer (perhaps guano) 3 inches thick at the 57 inch level, and a yellow silt layer approximately 2 inches thick at the 78 inch level. These three layers are only faintly detectable, but may indicate compression and special non-culturally induced accumulations within the dark brown midden deposit.

A third sample, with an age of 4310 ± 400 years B.P. (UCLA-296), from the 94-100 inch level, is more consistent with the 72 inch sample date.

Even though some discrepancies may be present, they are not significant in view of the relatively long occupation of the site. If we accept as correct the radiocarbon dates, the earliest occupation of the site occurred earlier than 2410 B.C., and may date back to about 3000 B.C.

Radiocarbon dates for charcoal from South Fork Shelter are as follows:

Sample No.	Location (depth in.)	Age (Years B.P.)	B.C. Date
LJ-212	72	3320 ± 200	1370
UCLA-296	94-100	4310 ± 400	2360
UCLA-295	120	4360 ± 300	2410

CONCLUSIONS

The archaeological evidence from South Fork Shelter indicates that during the occupation of the site the inhabitants shared a number of specific artifact types with other Great Basin prehistoric peoples; that is, the projectile point categories, the bone awl types, etc., are like those found at many other excavated Basin sites. More important than these formal similarities is the fact that changes of artifacts through time follow the same succession pattern at South Fork Shelter as they do at other stratified sites such as Wagon Jack Shelter and the Rose Spring site. Projectile points, for example, follow the same formal progression in the stratigraphic sequences as at Wagon Jack Shelter (Heizer and Baumhoff 1961:129) and Rose Spring (Lanning 1963:254) site. Similarly, the points from South Fork Shelter show a tendency to decrease in weight in later levels, a situation akin to that at Wagon Jack Shelter and Rose Spring. Bowl awls tend to be more abundant in earlier levels at South Fork Shelter as well as at Humboldt Cave (Heizer and Krieger 1956:19) and Wagon Jack Shelter (Heizer and Baumhoff 1961:134). These similarities are generally thought to reflect similar ecological adaptations by the various populations to the grosser environmental and/or technological changes believed to have occurred in the Basin in the past four to five thousand years.

There are some unique aspects of the artifact inventory from South Fork Shelter. The most obvious of these is the presence of a large number of flaked knives of white chert. In historic times the people of the Humboldt River north of Battle Mountain were referred to as the "White Knives," due largely to the fact that they manufactured and traded large quantities of the implements (Steward 1938:162, 248). Local occurrence of this excellent chipping material made such activity possible. At South Fork Shelter we are apparently dealing with an archaeological manifestation of a documented ethnographic situation.

A more subtle and far more puzzling peculiarity in the data from the South Fork Shelter centers around the obvious cultural change that took place at approximately the time of the 30 inch level. From the radiocarbon dates discussed above, we have arrived at a flexible estimate of 550 years elapsed time for the accumulation of each 12 inches of deposit. If this

figure is assumed to be relatively correct, then the 30 inch level would date to roughly 1375 years B.P., or 575 A.D. The projectile point sequence at South Fork Shelter tends to corroborate this estimate.

At the 30 inch level the Elko Eared and Elko Corner-notched points were replaced by Elko Side-notched and Eastgate Expanding Stem points. O'Connell (1967:133) notes that Elko Eared and Elko Corner-notched points declined in importance after the period 200-600 A.D.. At the Rose Spring site Corner-notched points, which are temporally and probably typologically similar to Eastgate Expanding Stem points (Clewlow 1967:144), predominate in the period 500-1300 A.D. (Lanning 1963:268, 281). Therefore the date 575 A.D. for the 30 inch level at South Fork Shelter would appear to be substantiated by the point sequence from above and below this level.

Occurrence of knives and bone awls decreases markedly above the 30 inch level, and cores, though they do not disappear, show a marked decline. Shell and chippage, on the other hand, follow a tendency to increase above the 54 inch level and are found in abundance above a depth of 30 inches. In addition, there is a discontinuity in the distribution of several faunal species centering around the 30 inch level.

It is from a closer scrutiny of the changes in fauna through time and from a comparison of faunal remains from other Great Basin sites that we may perhaps gain insights into the sequence of events at South Fork Shelter. Table 13 lists faunal remains present at South Fork Shelter, Wagon Jack Shelter, Humboldt Cave, and Rose Spring.

The faunal species shown in Table 13 show a marked diversity with regard to the ecological niche or micro-environment in which each usually has its place, and represent forms differing greatly in size. Several of the species are riverine (beaver, muskrat), at least one is mountain-dwelling (mountain sheep), and still others are wide-ranging over a series of eco-zones. At Humboldt Cave, mountain sheep were the predominant large mammal (Brooks 1956:108), and a similar situation prevailed at Wagon Jack Shelter (Heizer and Baumhoff 1961:135). At Rose Spring site, rabbits were the principal dietary item (Krantz 1963:286-287), and predominance of rabbit remains has been noted at the Karlo site in Lassen County, California (F. A. Riddell 1960:77-78).

It would seem to be accurate, therefore, to say that the ancient inhabitants of the Great Basin were not exploiting a generalized Basin environment, but were actually exploiting what could be viewed as a <u>series</u> of micro-environments. Also, it would seem to be tentatively plausible to state that the heaviest cultural reliance was probably placed upon that particular micro-environment which was capable of the highest relative food yield at

TABLE 13

Occurrence of Faunal Species in Four Great Basin Sites

	South Fork	Humboldt Cave	Wagon Jack	Rose Spring
Canis latrans (coyote)	x	x	x	x
Lepus californicus (jack rabbit)	x	x	x	x
Ovis canadensis (mountain sheep)	x	x	x	x
Odocoileus hemionus (mule deer)	x	x	x	x
Citellus sp. (ground squirrel)	x	-	x	-
Sylvilagus nuttalli (cottontail)	x	-	x	-
Marmota flaviventris (marmot)	x	x	x	-
Antilocapra americana (prong-horned antelope)	x	-	x	x
Ondatra zibethica (muskrat)	x	x	-	-
Castor canadensis (beaver)	x	-	-	-
Cervus canadensis (wapiti)	x	-	-	-
Vulpes sp. (fox)	-	x	-	x
Taxidea taxus (badger)	-	x	-	-
Lynx rufus (bobcat)	-	x	-	-
Dipodomys sp. (kangaroo rat)	-	x	-	-
Thomomys bottae (gopher)	-	x	-	-
Neotoma lepida (wood rat)	-	x	-	-
Microtus sp. (mouse)	-	x	-	-
Eutamias sp. (chipmunk)	-	-	-	x
Sciurus sp. (squirrel)	-	-	-	x

x = present - = absent

any given time. Recent analysis of coprolite remains from Lovelock Cave presents definite evidence of a specialized environmental exploitation of lacustrine resources in prehistoric and protohistoric times (cf. Cowan 1967; Heizer 1967; Ambro 1967; Follett 1967).

It will be noted in Table 10 that all mammal remains at South Fork Shelter, with the exception of cottontail, decrease sharply in the level lying immediately above 30 inches. In addition, we find that at this point the beaver (with the exception of one bone in the 18-24 in. level) and the muskrat, two riverine species, and the wapiti, a river valley dweller, disappear abruptly from the record. These three species share the attribute of being dependent upon the river and surrounding floodplain for existence. None of the other species present at South Fork Shelter needs a riverine micro-environment to survive, although several are at ease within such an eco-zone and are normally found therein.

What happened at South Fork Shelter, then, was that at the time period equivalent to the 30 inch level, one of the micro-environments which had previously been exploited for food ceased to be utilized. This was accompanied by a general decrease in mammal hunting, a change which may be directly or indirectly linked with the decrease in occurrence of bone awls, chert knives, and cores above 30 inches. Perhaps a significant lessening of the river flow caused the elimination of the mammalian population of the riverine micro-environment. This is unlikely, however, since the continued abundance of shellfish remains would argue against total desiccation of the stream. Also, disappearance of elk, beaver, and muskrat would not result in a decline in the hunting of other species less dependent upon water. Since utilization of shellfish began to increase before the disappearance of riverine mammals, it would seem that some sort of cultural preference was operative. That is, the people simply relied less upon the mammals of the area as they found it increasingly advantageous to exploit the shellfish resources. Interestingly enough, as the projectile points show, it was at this level that the transition from use of the atlatl to the bow and arrow began. It seems apparent that there was some connection between the several changes which occurred at the time the 30 inch refuse level was being laid down. To speculate further at present on the nature of such connections would be unwise.

UPPER SHELTER (NV-E1-42)

Approximately 200 feet to the southeast of the main South Fork Shelter (map 1) is a rock overhang which also served as a shelter for the ancient inhabitants of the area. This site is listed in the files of the University of California Archaeological Research Facility as NV-E1-42. In the summer

TABLE 14

Dimensions and Weights of Projectile Points at Upper Shelter

	Length (mm.)			Width (mm.)			Weight (g.)			Total No.
	max.	min.	av.	max.	min.	av.	max.	min.	av.	
Elko Corner-notched	70					18.0				1
Eastgate Expanding Stem	39	31	35.7	23	17	19.5	1.8	1.6	1.7	4
Elko Eared	70	44	57.0	25	18	21.5			3.1	2
Cottonwood Triangular			22.0			15.0			1.0	1
Pinto Square Shoulder			37.0			22.0			3.9	1

TABLE 15

Distribution by Level of Projectile Points

Levels (inches	18-24	24-30	30-36	36-42	42-48	48-54	54-60	60-66	66-72	73-	Total
Elko Corner-notched			1								1
Eastgate Expanding Stem		1		1	1	1					4
Elko Eared									2		2
Cottonwood Triangular	1										1
Pinto Square Shoulder										1	1

of 1959, a 10 by 5 foot trench was sunk into the deposit beneath the overhang. Artifact returns, which were relatively small, are described below.

Projectile Points (fig. 9)

Nine projectile points were recovered in the small excavation at Upper Shelter. Following the typology utilized for points in the main South Fork Shelter, they may be divided into five types. Although the sample is limited, it will be noted that the types appear to fall into roughly the same stratigraphic sequence as in the main shelter (Table 1). The Pinto form, in this case the Square Shoulder variety which exhibits more angular shoulders than the Sloping Shoulder type, was found in the lowermost level of the deposit. Elko Eared points were also found in the lower levels, while Eastgate Expanding Stem points were found in a relatively intermediate stratigraphic position. One Elko Corner-notched point was found in the 30-36 inch level, and from the size of the fragment (fig. 9c) would appear smaller than most Elko Corner-notched specimens. The Cottonwood Triangular point, as would be expected, comes from the upper level of the midden. Table 14 gives dimensions and weights of the Upper Shelter points, and Table 15 gives their distribution by depth.

Occurrence of chert and obsidian points by level is shown in Table 16. Four point fragments of chert – two basal and two tips – are also included. As in the main shelter, obsidian occurrence seems to be well restricted to the lower levels.

TABLE 16

Occurrence of Chert and Obsidian Points and Fragments

Depth (inches)	Chert	Obsidian	Chert Tip Fragments	Chert Basal Fragments
18-24	1			1
24-30	1			
30-36	1		1	
36-42	1		1	
42-48	1			
48-54	1			
66	2			1
73		1		

Other Chipped Stone Artifacts

Knives. One complete knife, conforming to the description of knives from the main shelter, and three fragments were found in the Upper Shelter deposit. The complete specimen is made of gray chert and is triangular in shape. It weighs 13.1 g. and was recovered from the 30-36 inch level. The three fragments were found at levels of 36-42, 54-60, and at 84 inches. The uppermost two fragments are made of chert, the specimen from the 84 inch level is of micro-porous obsidian.

Drill. The tip of a drill was recovered from the 18-24 inch level. It is 4.3 cm. in length and 0.9 cm. across at the fracture. The piece is triangular in cross section and is made of brown chert.

Scrapers. Six scrapers were recovered from the Upper Shelter. Five are nondescript flakes which probably saw some service as scrapers and thus exhibit use-retouch. One is made of basalt, two are of brown chert, and two are of silicified volcanic material. The sixth specimen, of agate, shows little utility, but may have been fashioned for use as a "snub-nosed" scraper as it shows the characteristic shaping of such implements. It was found in the 60-66 inch level. Depth occurrence of the scrapers is shown in Table 17.

TABLE 17

Occurrence by Level of Upper Shelter Scrapers
(inches)

24-30	36-42	48-54	54-60	60-66	84	Total
1	1	1	1	1	1	6

Blades or Blanks. One complete specimen and one fragment were recovered. The complete piece, bearing great similarity to the main shelter specimens, may be a heavy core crudely trimmed to the shape of a blade. It is of reddish brown chert, weighs 38 g., and is 7.1 cm. in length, 3.4 cm. in width, and 1.4 cm. thick. It was found in the 30-36 inch level. The fragment, of gray chert, was found in the 36-42 inch level.

Other Stone Artifacts

Mano. One untypable fragment of a mano was found at the 42-48 inch level. It is of poor quality granite and weighs 209.2 g.

Core. One high-backed core, triangular in cross section and made of chert, was found in the 42-48 inch level. It is 5.7 cm. long, 4.9 cm. wide, and 3.8 cm. thick. The piece weighs 122.5 g.

Grooved Pebble. A round granite pebble, weighing 96 g. and being roughly 4.5 cm. in diameter, with a notch or groove running 3 cm. around the circumference at one end of the specimen, was found at a depth of 42-48 inches.

Artifacts of Vegetal Materials

Three pieces of cordage were recovered from the Upper Shelter and are described below.

The first is a small peeled stick, probably sagebrush, tied in a half-hitch. It is about 2 cm. long, and was found in the 12-18 inch level.

A second stick, partially carbonized and about 5 cm. in length, is S-twist, 2-ply cordage, tied in a half-hitch. It was found at a depth of 6-12 inches

One piece of heavy 2-ply rope of sagebrush bark was found. It is fragmentary, about 4 cm. long, and was found at a depth of 42-48 inches.

Basketry

One small fragment of coiled basketry was found. Two rows are present. One bundle is a split whole rod and a small rod. The other bundle consists of one whole rod and two split rods. The stitches are split. This specimen was found at the 18-24 inch level.

One possible basketry bundle was recovered at a depth of 42-48 inches. It consists of three sticks and a piece of heavy cordage bound together by wrapping in thin willow-rod cordage. The cordage is 2-ply S-twist and is knotted around the sticks at one end in a half-hitch.

Another piece of possible basketry consists of two pieces of Phragmites approximately 8.5 cm. long, wrapped loosely in what is probably a strip of sage bark tied in a half-hitch. It was found at a depth of 18-24 inches.

Bone

At a depth of 30-36 inches, one small unworked bone splinter, probably mammalian, and a deer tooth were recovered.

One mammal bone splinter, with polishing exhibited on one edge, was recovered at the 42-48 inch level. The piece is 5.5 cm. in length.

Miscellaneous

One fragment of a cactus plant, possibly Opuntia basilaris (prickly pear), was found at the 36-42 inch level.

One tip of a pointed stick, possibly a digging stick, was recovered at a depth of 30-36 inches. The specimen is 6.3 cm. in length and weighs 8.7 g. It is 1.9 cm. wide at the broadest point and tapers to a width of 0.9 cm.

DISCUSSION

In considering the relation between sites NV-E1-11 and NV-E1-42, there are several factors which must be noted. First, the NV-E1-42 deposit is not what would be termed a heavy midden deposit. Most of it may well have been washed or blown in, rather than having been built up through cultural activity at the shelter. Second, probably in part due to the nature of the deposit, few of the changes in cultural emphasis which were noted for South Fork Shelter appear in the record of Upper Shelter. For example, the heavy accumulation of shell and chippage above the 30 inch level in South Fork Shelter does not occur at all in Upper Shelter. In fact, the latter site exhibited a startling lack of chippage and shell, and in general seems to have been occupied on a low level of intensity.

Judging from the point types present, the chronological values of which have been discussed above, one may safely state that NV-E1-42 came into use at a later date than South Fork Shelter. It is tempting to see the whole site as another of the changes that took place in the culture of the South Fork Shelter inhabitants around 575 A.D., the probable time of deposition of the 30 inch level, since most of the point types at the Upper Shelter are like those of South Fork Shelter above 30 inches. Although the available evidence scarcely warrants it, on intuition alone it does not seem unreasonable to postulate that Upper Shelter may have served as a cache cave or occasional shelter for population overflow from South Fork Shelter below.

MATERIALS COLLECTED FROM SITES NV-El-21 AND NV-El-22

At site NV-El-21, three projectile points were found on the surface. One is a single-notched basalt point. The other two pieces are Elko Corner-notched points, one made of chert and the other of quartzite. Dimensions of these specimens are given in Table 18. Three projectile point tip fragments and one basal fragment, all made of chert, were also found.

A total of 16 pieces of chert chippage, weighing 189.8 g., was recovered at the site.

Two knives, one triangular, the other leaf-shaped, were found on the surface. Both pieces are made of chert. Three knife fragments were also recovered.

A triangular mano fragment, weighing 275.5 g. and measuring 8.1 cm. in length, were found. The piece is ground on all three sides and was apparently also used as a pestle, as the end shows considerable blunting from wear. The sides measure 6.8, 5.1, and 4.4 cm., respectively. The specimen is made of granite.

One small chalcedony core, 7.5 by 3.9 cm. in measurement and weighing 33.5 g. was also recovered.

At site NV-El-22, two Elko Corner-notched projectile points, both made of chert, were found. Dimensions of the points are given in Table 18. Five chalcedony tip fragments were also found.

Two leaf-shaped knives, one broken, were picked up from the surface. The complete specimen is made of basalt, the other is of chert. Three knife fragments were also found.

Three nondescript small chert cores were recovered, as well as 15 small chert chips.

Two badly weathered sherds of apparently unoxidized pottery, gray in surface and core color and showing no decoration, were found on the surface.

TABLE 18

Dimensions and Weights of Projectile Points from NV-E1-21 and NV-E1-22

Site	Type	Length (mm.)			Width (mm.)			Weight (g.)			Total
		max.	min.	av.	max.	min.	av.	max.	min.	av.	
NV-E1-21	Elko Corner-notched	65	44	54.5	28	28	28	5.9	5.6	5.7	2
NV-E1-21	Single-notched			29.0			22			2.5	1
NV-E1-22	Elko Corner-notched	55	40	47.5	25	25	25	44.2	3.2	3.7	2

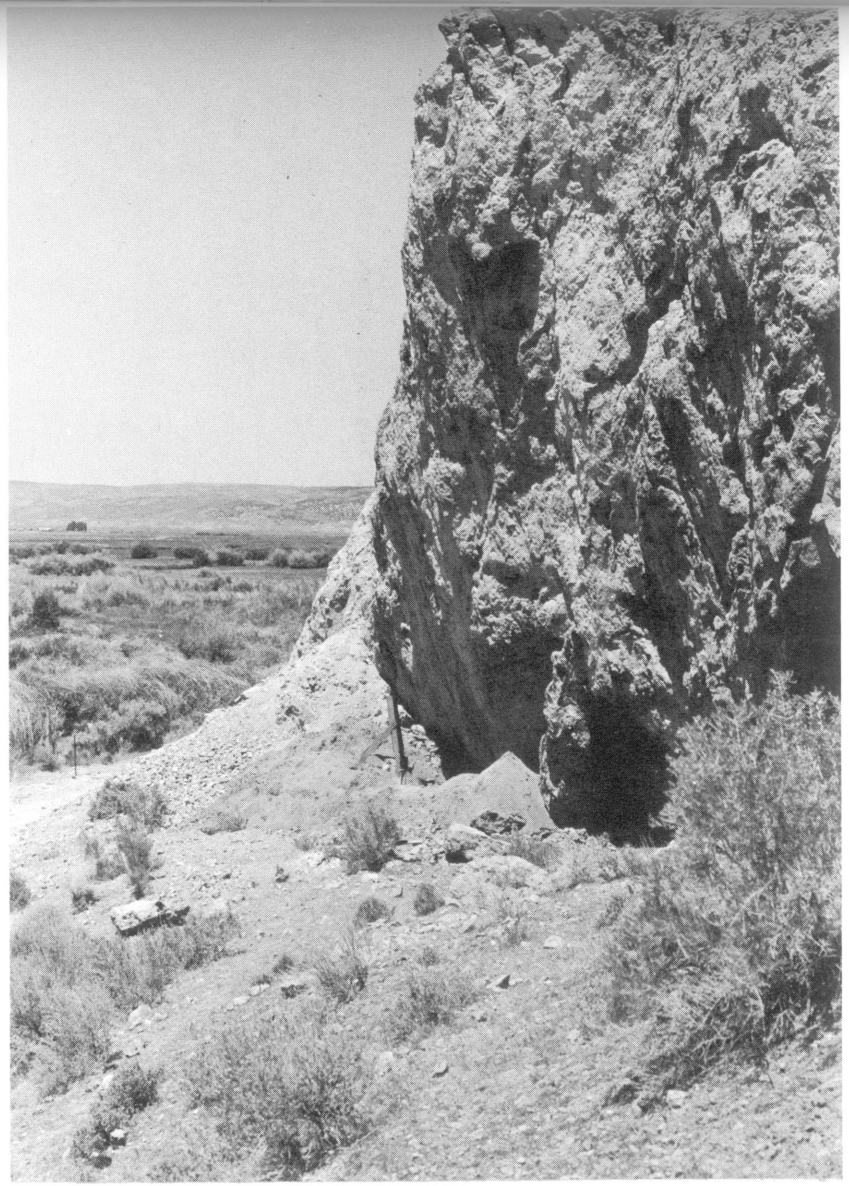


Plate 2. South Fork Shelter, view to north.

Plate 3. South Fork Shelter area, view to west along left bank of South Fork Humboldt River.

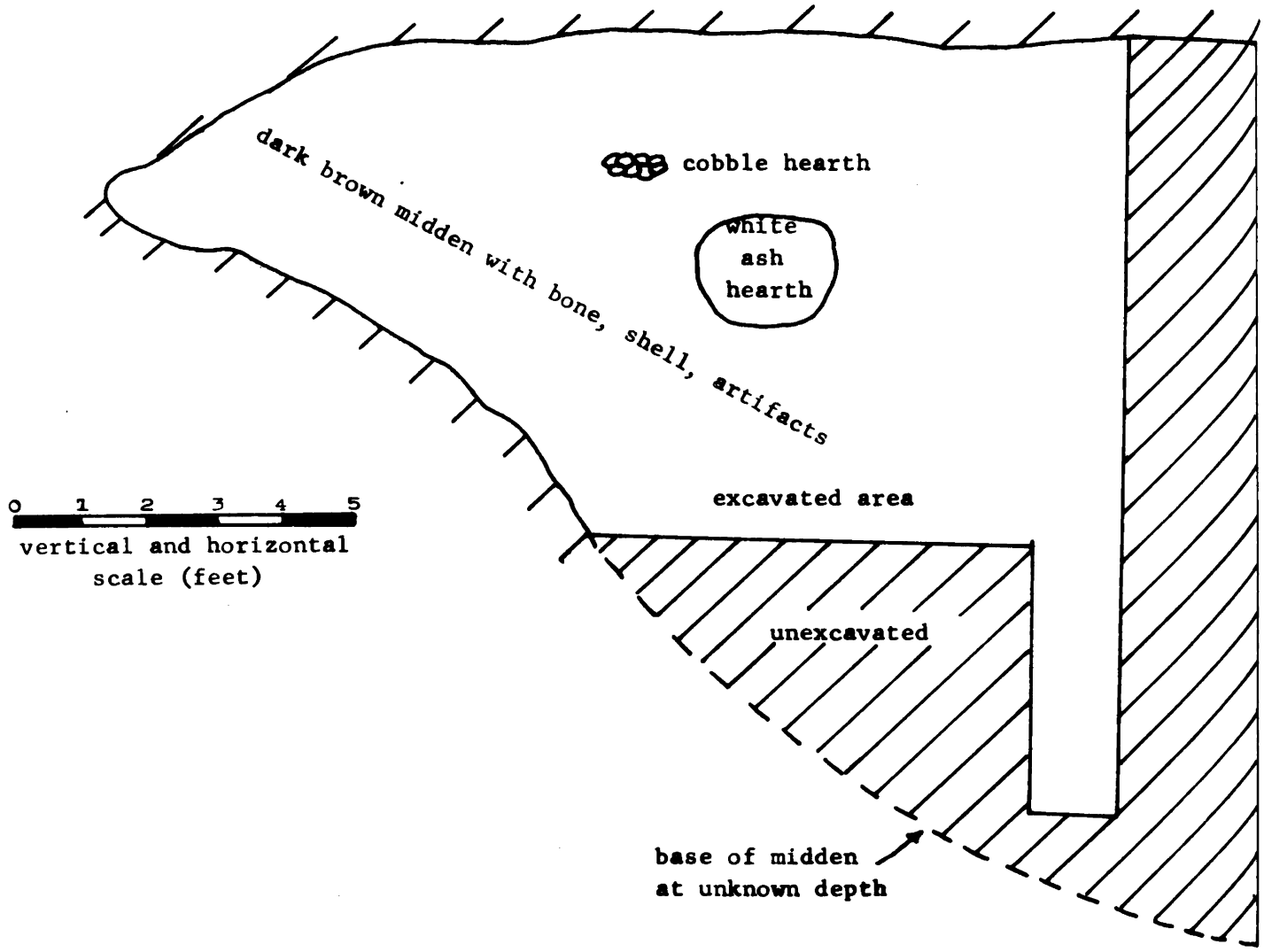


Diagram 1

East-west profile of South Fork Shelter pit No. 1, excavated 1958

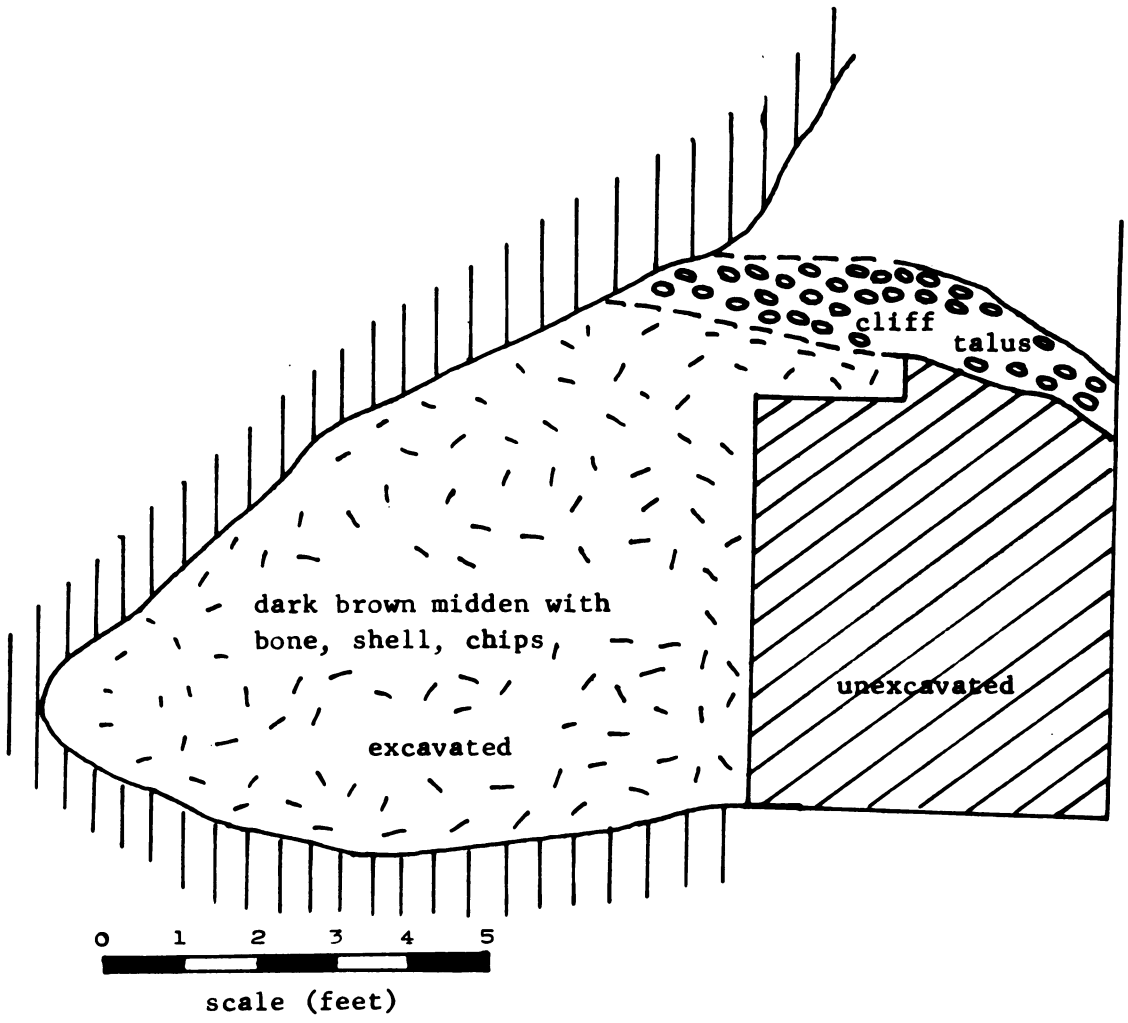


Diagram 2

North-south section of South Fork Shelter pit No. 1, excavated 1958

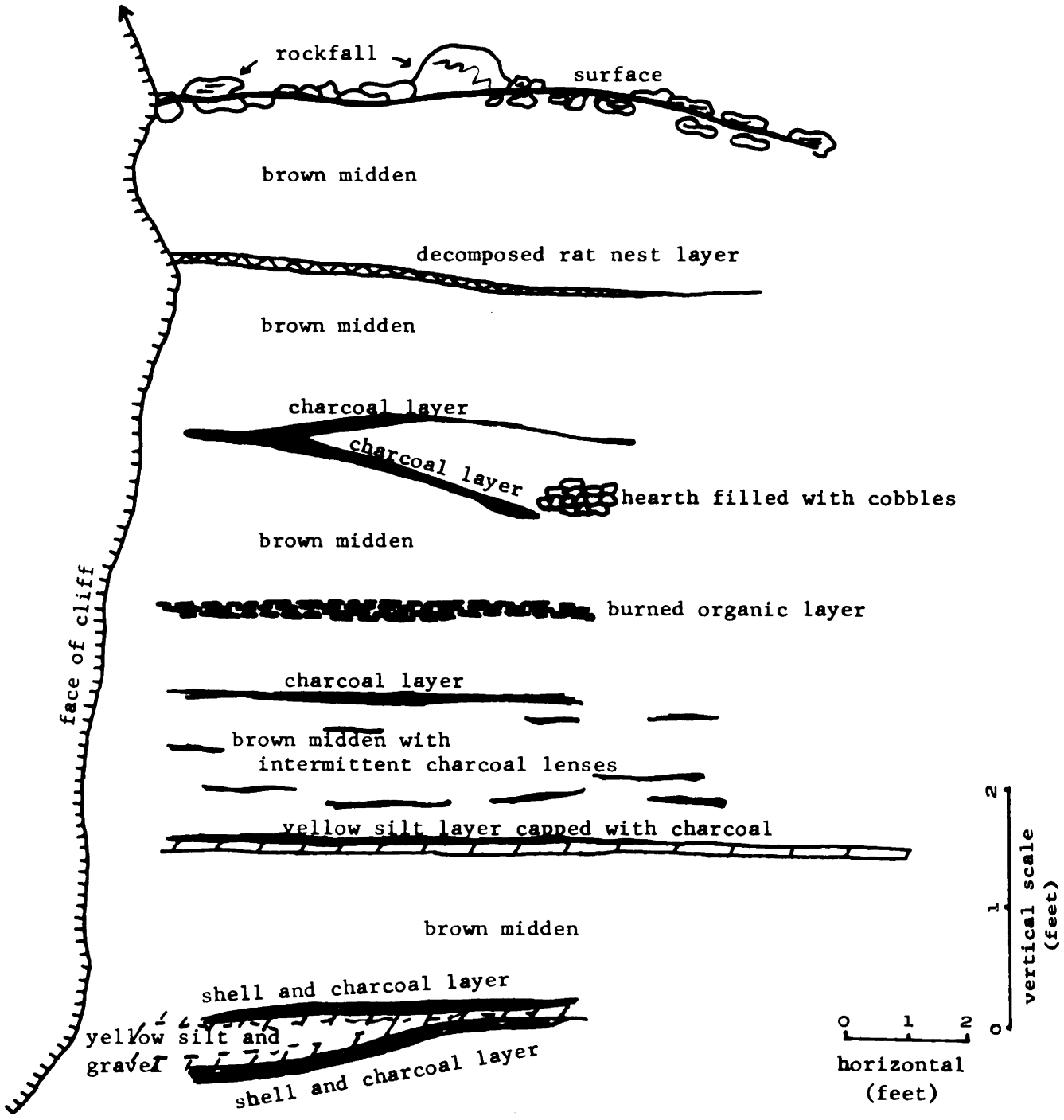


Diagram 3

Profile of east wall of South Fork Shelter trench B, 1959 excavations

Explanation of Figures

All figures are actual size. Field catalogue specimen numbers are given unless otherwise noted. Depths are indicated in inches, weights, in grams.

Figure 1

Type	Depth	Weight	Material
Elko Side-notched points			
a. S-126	24-30	5.3	Brown chert
b. S-129	24-30	3.4	Brown chert
c. S-128	24-30	3.2	White chert
d. S- 44	36-42	3.4	Tan chert
e. S-143	18-24	2.9	Gray chert
f. S-199	24-30	1.9	Brown chert
g. S-130	24-30	?	White chert
h. S- 98	18-24	3.0	Tan chert
Eastgate Expanding Stem			
i. S- 99	18-24	1.8	Tan chert
j. S-125	24-30	1.4	White chert
k. S-100	18-24	1.3	Tan chert
Elko Eared points			
l. S-187	54-60	4.2	Brown chert
m. S- 39	36-42	6.0	Pink chert
n. S- 42	36-42	2.5	White chert
o. S- 41	36-42	5.0	White chert
p. S-137	60-66	?	White chert
q. S-189	54-60	?	Gray chert

Figure 2

Elko Corner-notched points			
a. S- 29	30-36	5.2	White chert
b. S- 38	36-42	4.3	Black chert
c. S- 28	30-36	6.7	Tan chert
d. S-163	30-36	4.8	White chert
e. S- 27	30-36	4.8	White chert
f. S-147	42-48	6.5	Obsidian
g. S- 40	36-42	8.1	Tan chert
h. S-151	42-48	5.1	Brown chert
i. S-210	36-42	3.6	White chert
j. S- 83	48-54	3.1	Tan chert

Figure 2

Type	Depth	Weight	Material
Elko Corner-notched (cont'd.)			
k. S-150	42-48	4.4	Tan chert
m. S- 30	30-36	3.8	Gray chert
n. S- 61	30-36	2.3	Gray chert
o. S- 81	60-66	3.4	White chert
p. S-142	18-24	3.0	White chert
q. S- 87	48-54	4.2	Gray chert
r. S-212	36-42	4.2	White chert
s. S-211	36-42	4.0	Tan chert
t. S- 82	48-54	2.0	Tan chert

Figure 3

Elko Corner-notched points			
a. 197	12-18	1.1	Obsidian
b. 16	30-36	1.1	Dark gray chert
c. 70	36-42	1.8	Rose chert
d. 146	36-42	3.1	Tan chert
e. 23	18-24	3.9	White chert
f. 71	48-54	3.1	Green chert
g. 169	42-48	6.0	Dark gray chert
h. 186	54-60	3.6	Tan banded chert
i. 198	60-66	3.2	Brown banded chert
Elko Eared points			
j. 185	54-60	3.0	Cream chert
k. 50	18-24	3.5	White chert
Eastgate Expanding Stem			
l. 106	18-24	1.5	Gray chert
m. 135	30-36	0.6	White chert
n. 119	36-42	1.5	Gray chert
Untyped points			
o. 223	84-90	1.5	Obsidian
p. 206	72-78	1.0	Red chert
Type I point			
q. 119	36-42	1.5	White chert
Cottonwood Triangular point			
r. 106	18-24	0.9	White chert

Figure 3

Type	Depth	Weight	Material
Humboldt Concave Base A point			
s.	84-90	5.1	Dark quartzite
Type B point			
t. 34	12-18	6.0	Variegated pink chert
Humboldt Basal Notch point			
u. 210	79	3.9	Cream chert
Pinto Sloping Shoulder point			
v. 235	102-108	1.9	Variegated rose chert
Desert Side-notched point			
w. 63	18-24	1.1	White chert

Figure 4

Elko Corner-notched point			
a. S- 95	42-48	4.0	Gray chert
Large Square Stem points			
b. S-148	42-48	5.2	White chert
c. S-190	54-60	1.9	Obsidian
d. S-192	18-24	4.0	White chert
e. S-127	24-30	4.5	Gray chert
f. S-149	42-48	0.6	White chert
Humboldt Concave Base A point			
g. S-191	54-60	6.0	Black quartzite
Pinto Sloping Shoulder point			
h. S-162	30-36	6.6	Obsidian
Desert Side-notched point			
i. S-101	18-24	?	White chert
Basketry			
j. S- 96	18-24		
Potsherd			
k. S- 1	18-24		
Drills			
l. S- 25	30-36		White chert
m. S- 97	18-24		Red chert
n. S-104	18-24		Obsidian

Figure 5

		Depth			Depth
Knives					
a.	189	54-60	d.	22	18-24
b.	214	76	e.	116	30-36
c.	148	36-42			

Figure 6

Knives					
a.	S- 21	30-36	g.	2-33789*	42-48
b.	S- 22	30-36	h.	S- 19	42-48
c.	S-184	30-36	i.	S-158	42-48
d.	S-135	30-36	j.		36-42(?)
e.	S-132	30-36	k.	S-180	54-60
f.	S-156	42-48			

Figure 7

Knives					
a.	S-218	18-24	d.	S- 71	30-36
b.	S-197	24-30	e.	S-217	30-36
c.	S- 72	30-36	f.	S- 50	36-42

Figure 8

Blades or Blanks		
a.	S-116	12-18
b.	S-120	12-18
c.	S-118	12-18

Figure 9

Projectile Points from Upper Shelter

a.	286	Elko Eared
b.	289	Elko Eared
c.	254	Elko Corner-notched
d.	247	Cottonwood Triangular
e.	288	Pinto Square Shoulder
f.	244	Eastgate Expanding Stem
g.	251	Eastgate Expanding Stem
h.	261	Eastgate Expanding Stem
i.	270	Eastgate Expanding Stem
j.	275	Eastgate Expanding Stem

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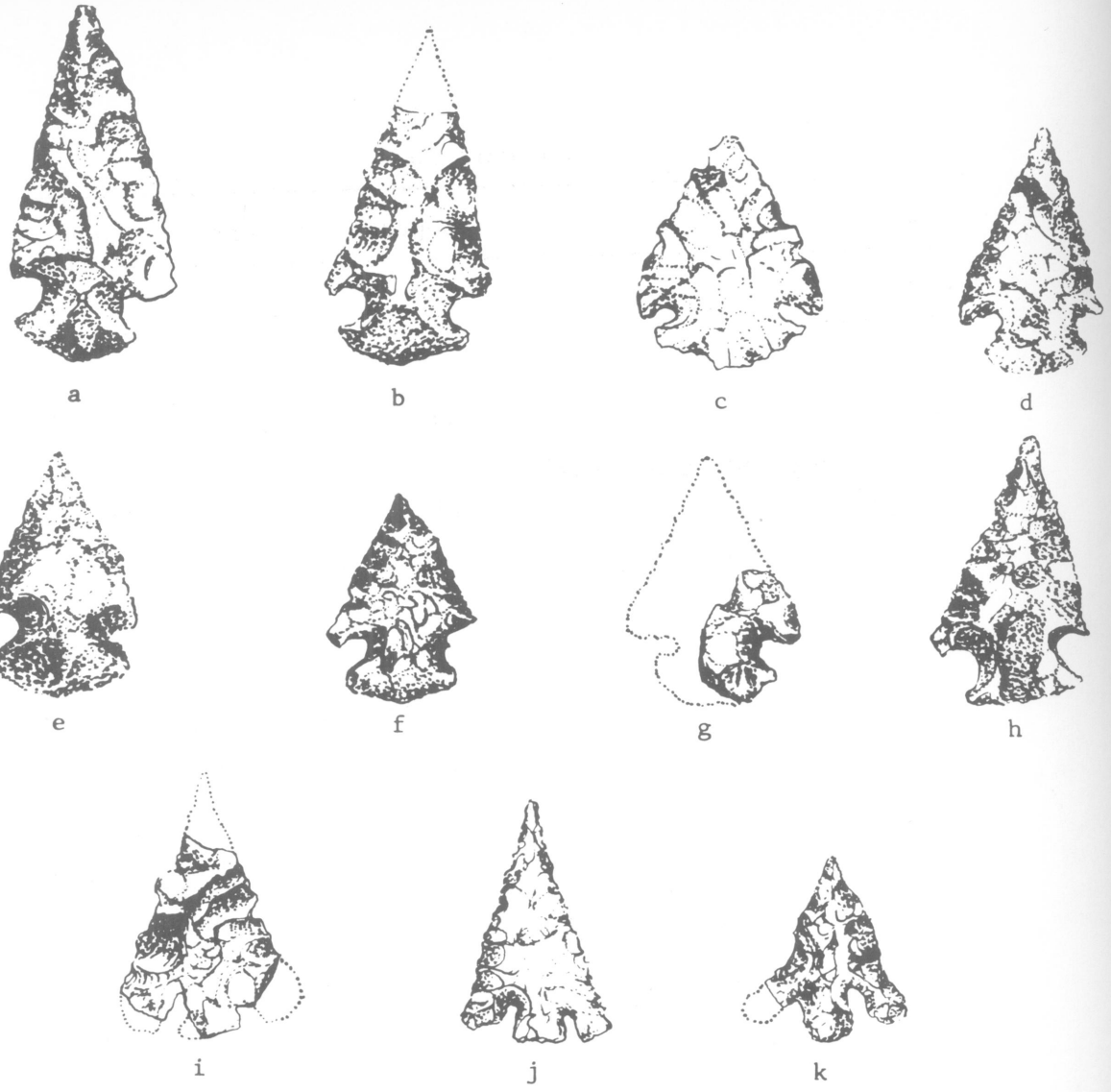
* Lowie Museum of Anthropology accession number

Figure 10

Type	Depth	Weight	Material
Knife			
a. 260	30-36	13.1	Gray chert
Blade			
b. 253	30-36	38.0	Reddish chert
Scraper (top and side views)			
c. 105	18-24	10.7	White chert



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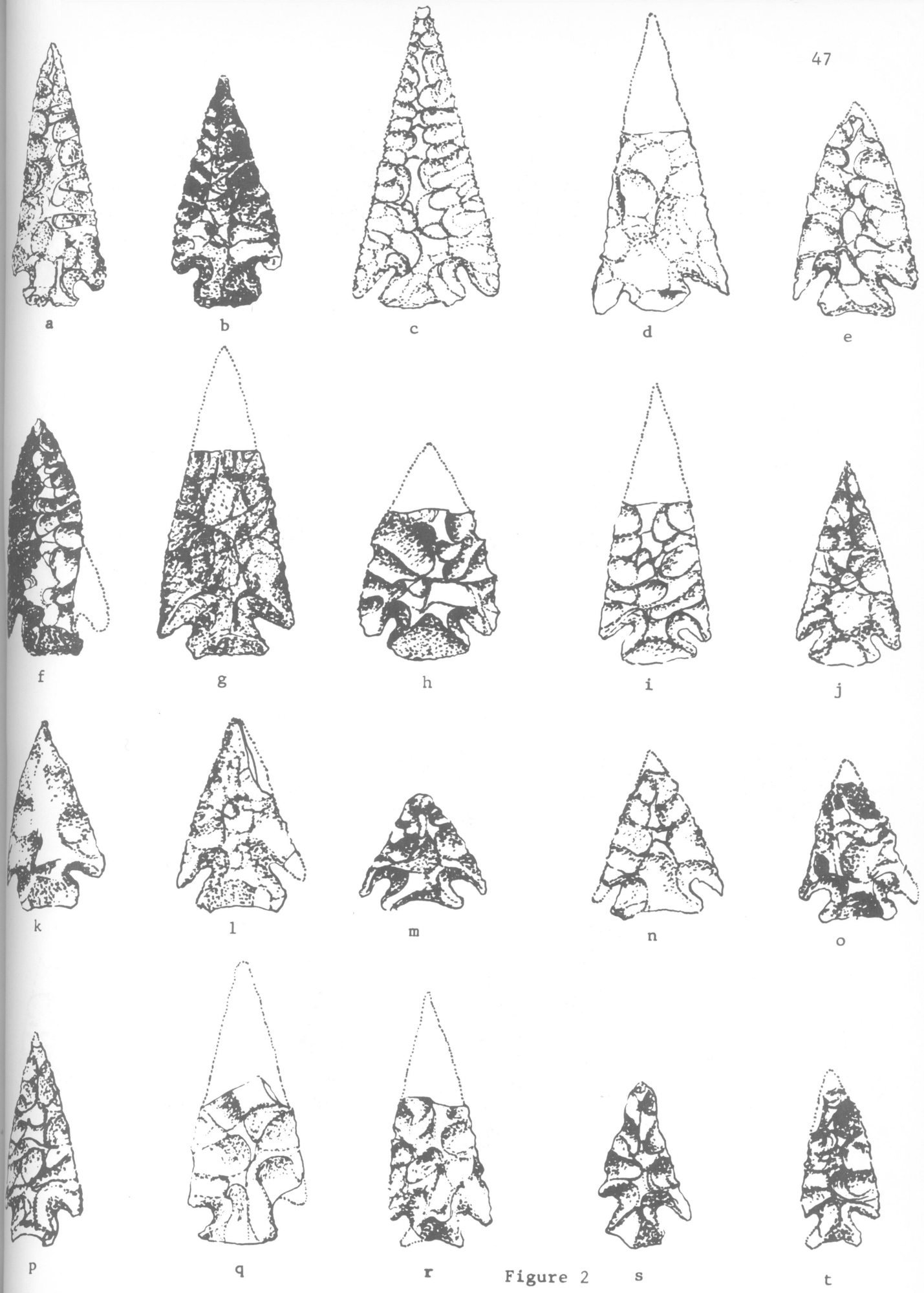

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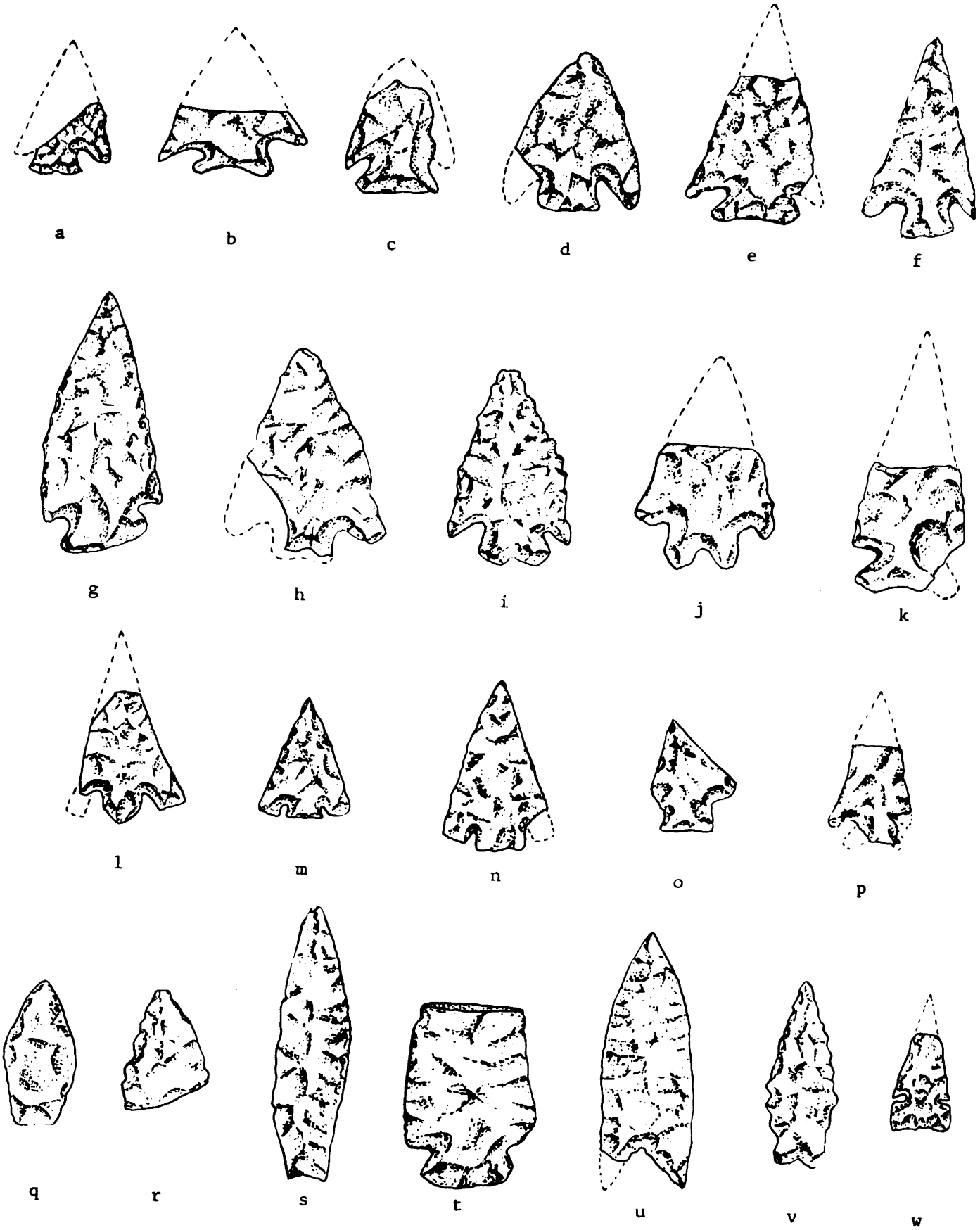

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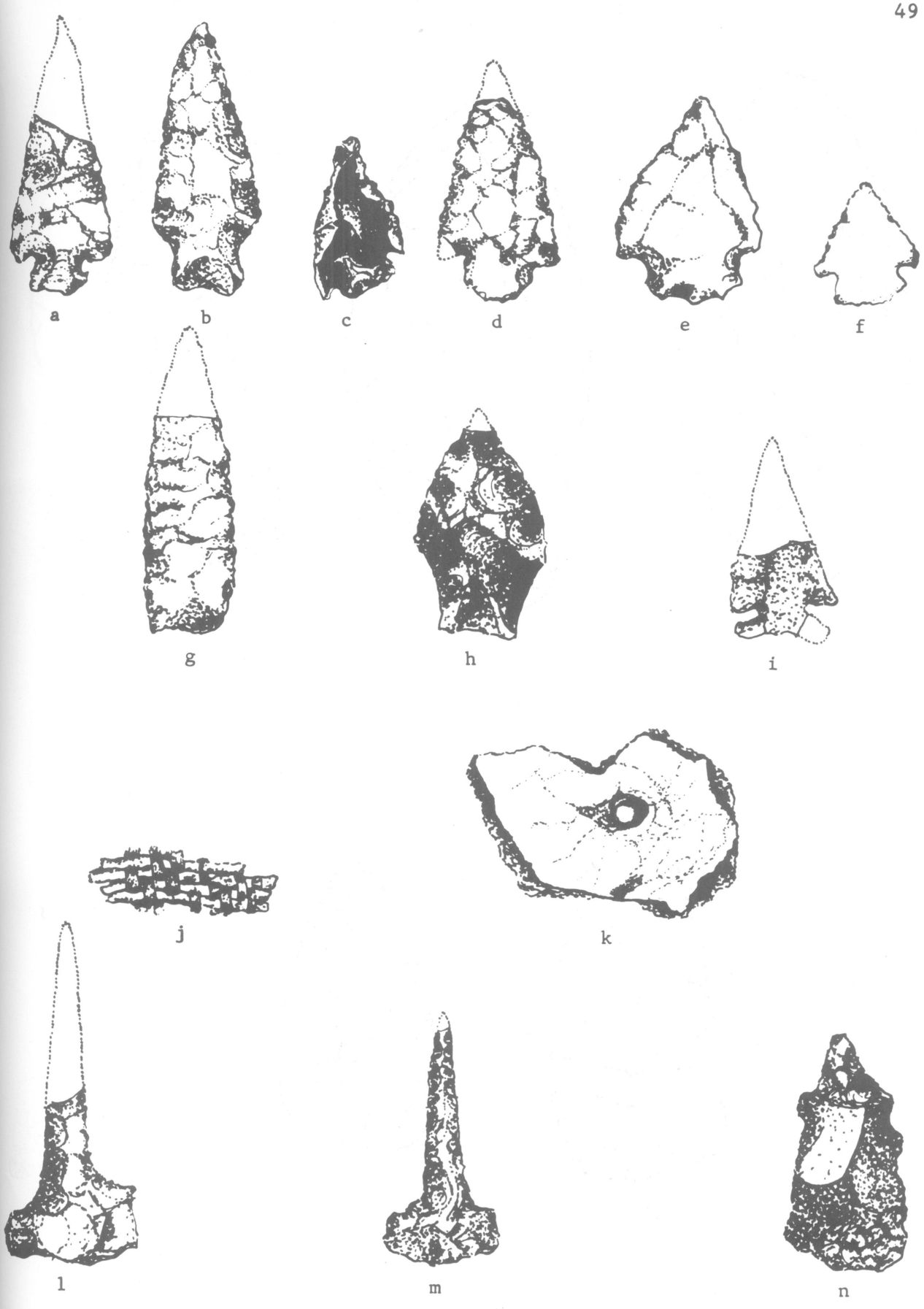

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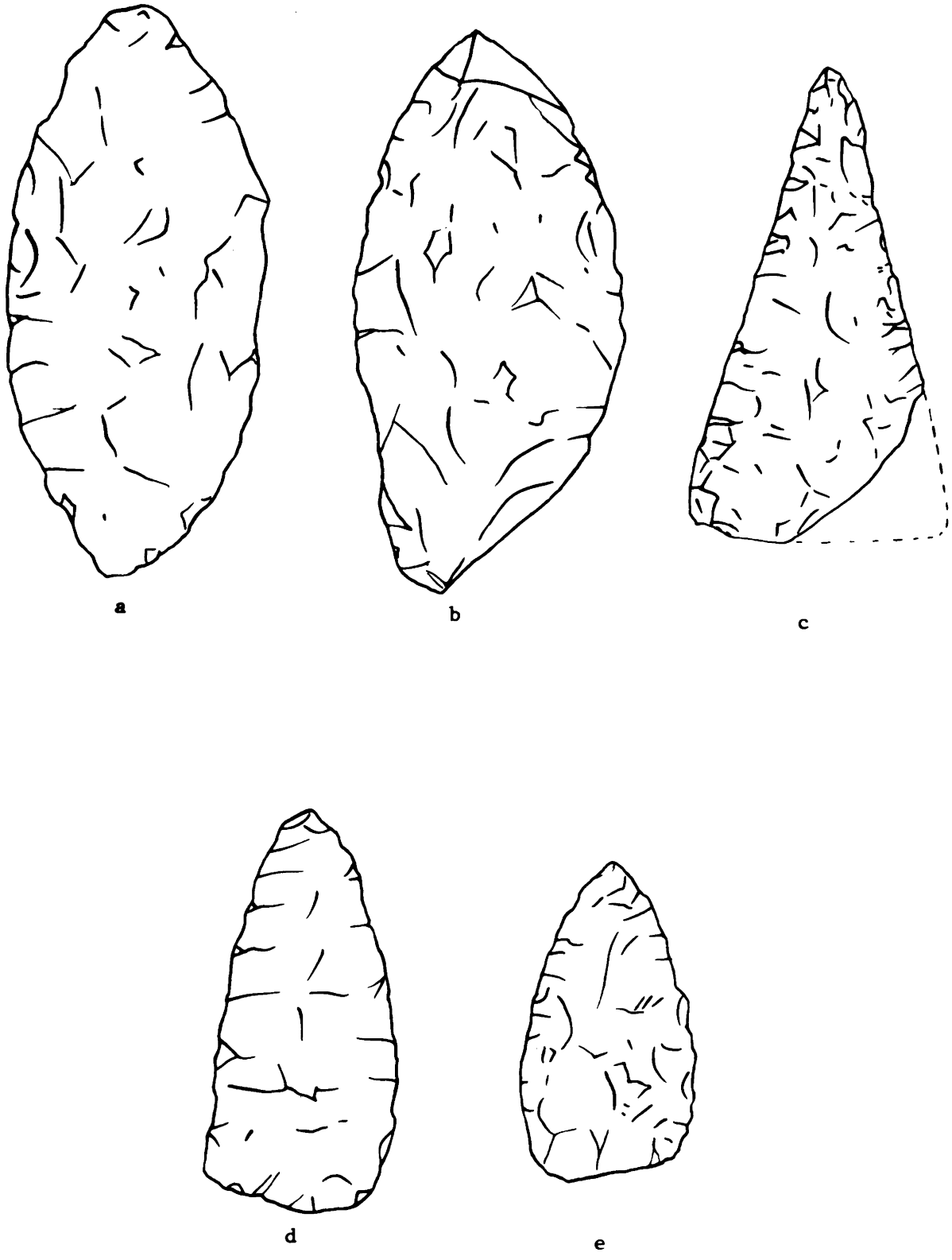

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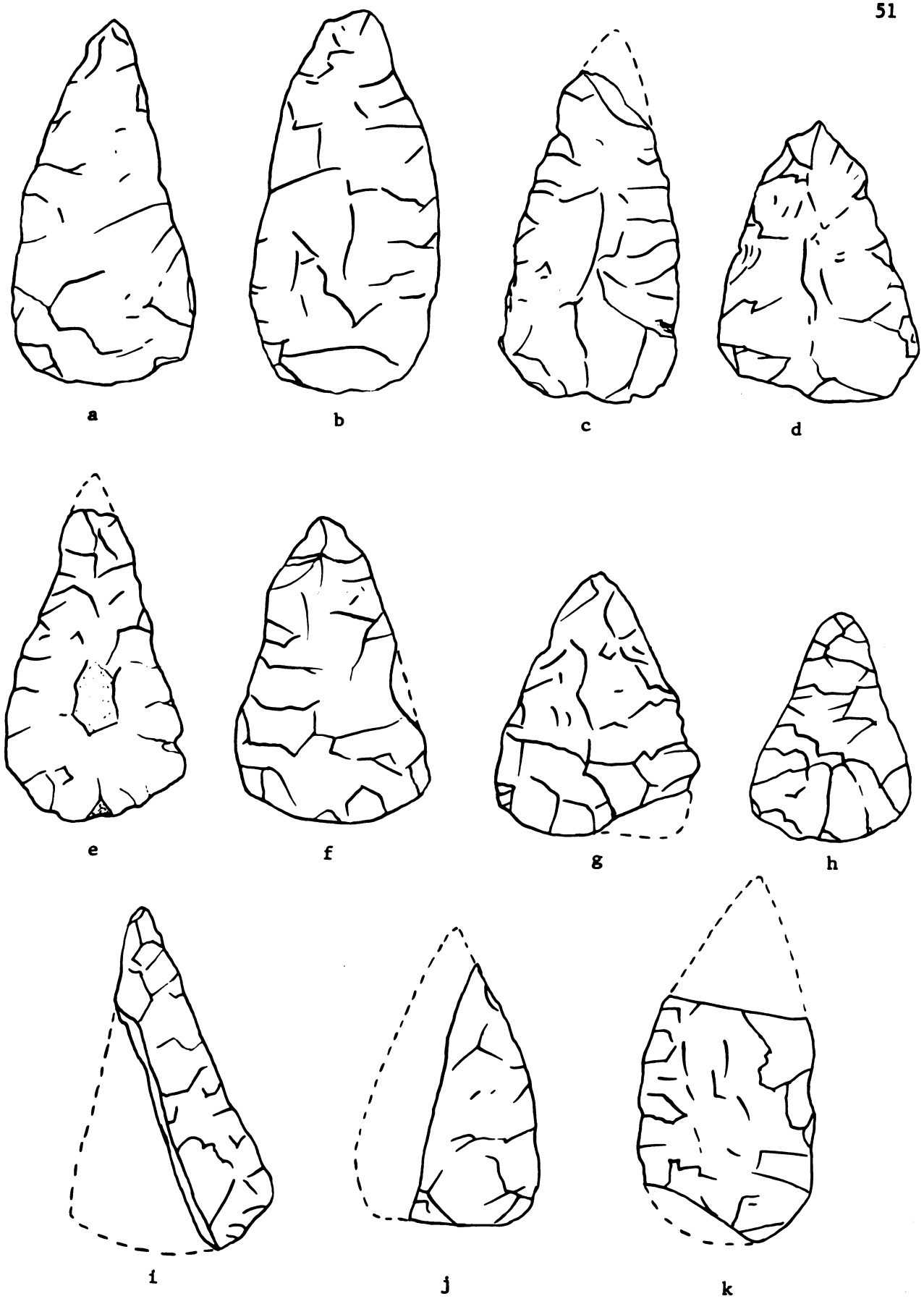

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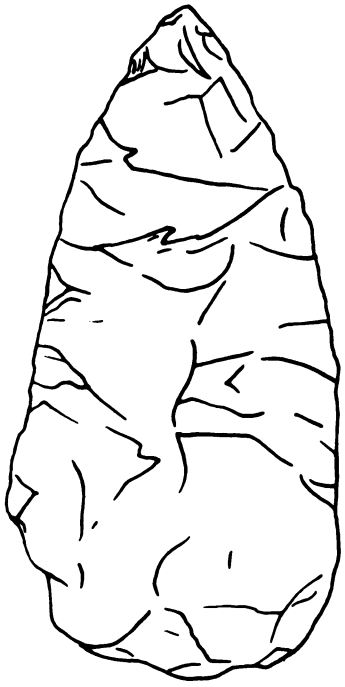

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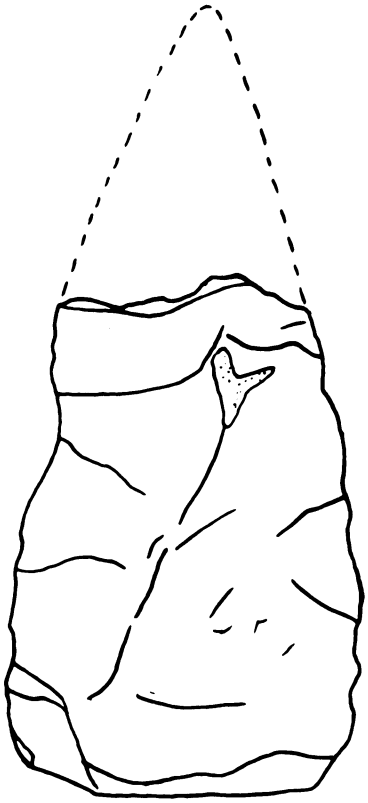

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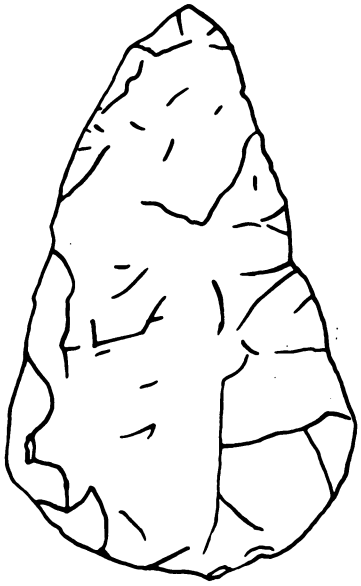

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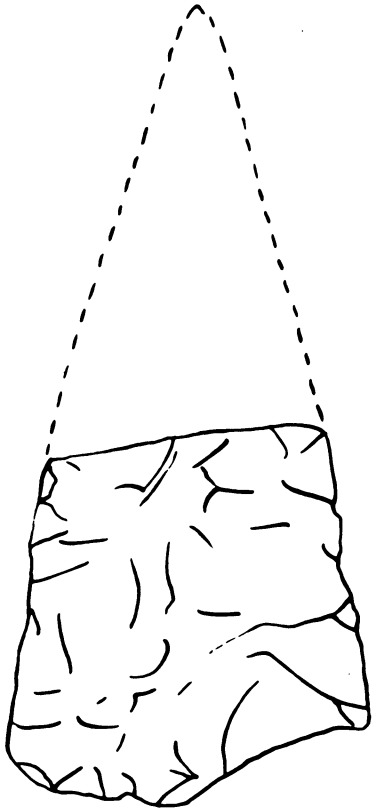

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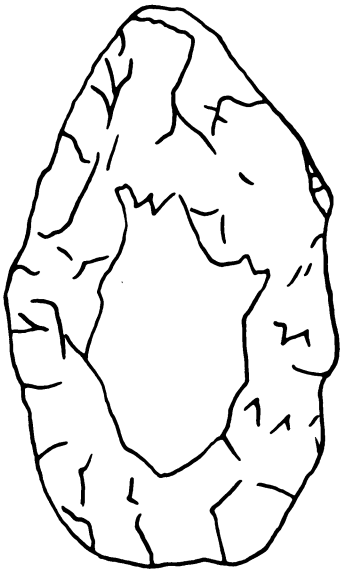

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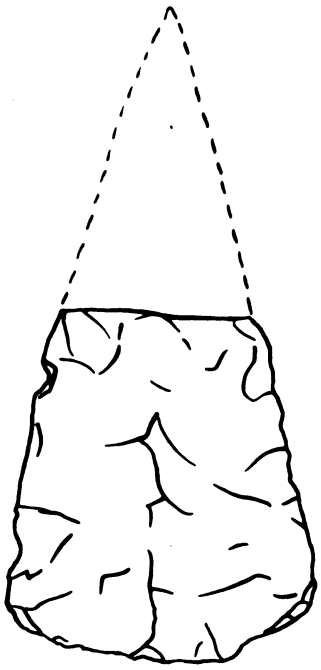

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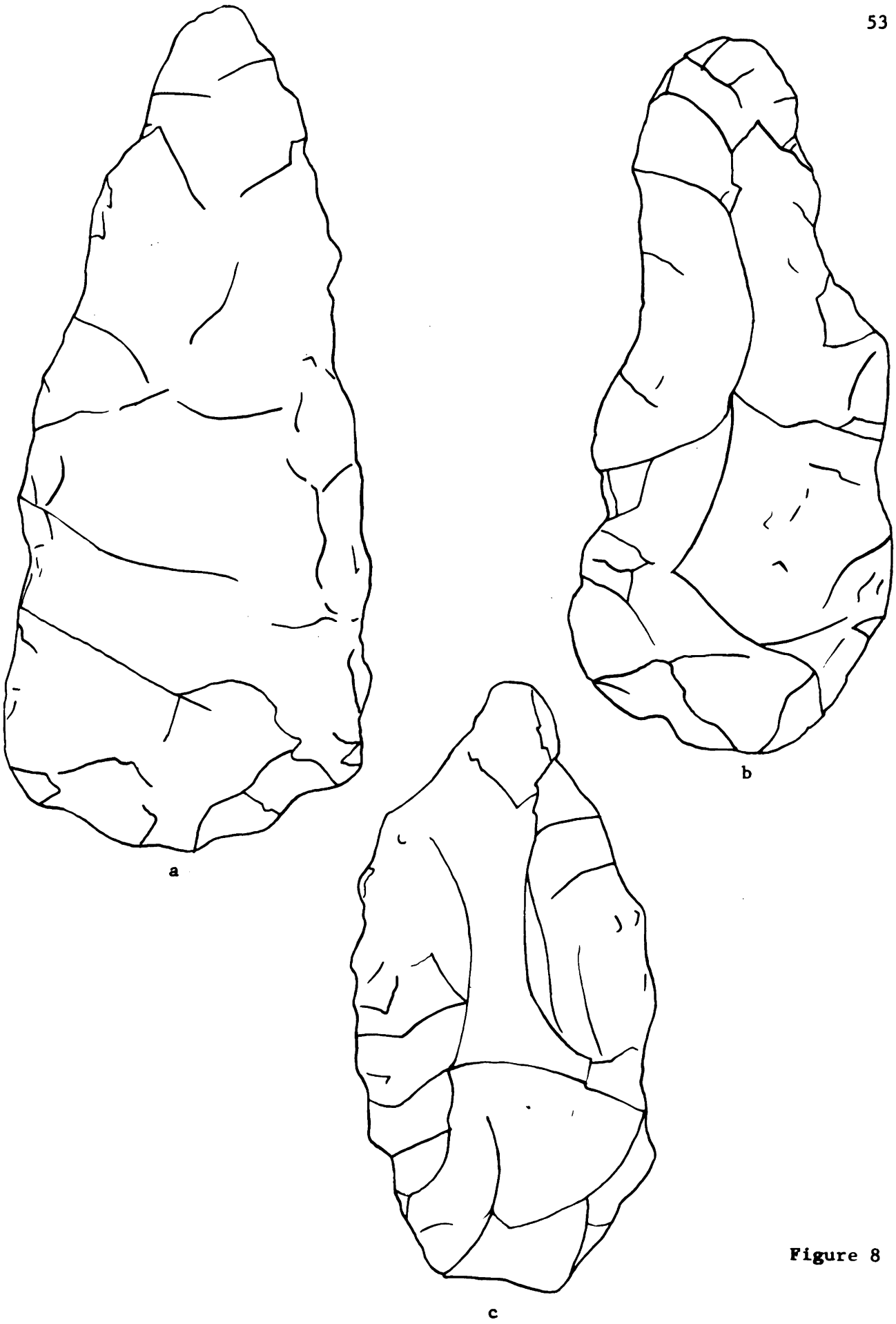
Figure 7



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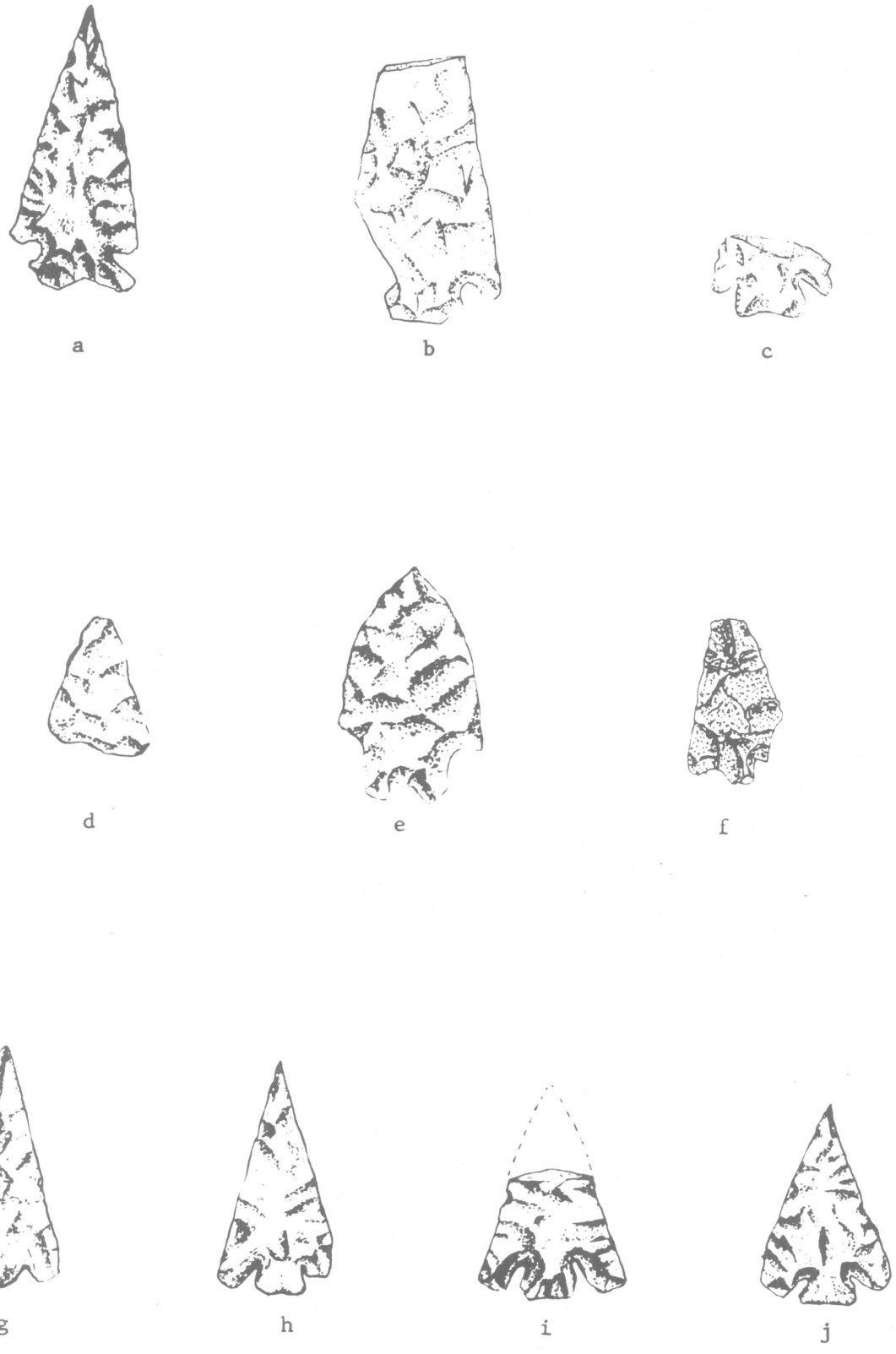

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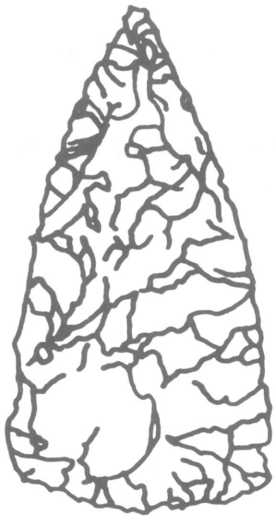

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Figure 10

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