

THE ARCHAEOLOGICAL POTENTIAL OF THE COAST YUKI

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## INTRODUCTION

The homeland of the Coast Yuki stretches for a distance of about twenty miles along the bleak and windswept Mendocino coast of California. Here sandy beaches are broken by towering cliffs, and mountains on whose upper slopes grow the redwood forests which cover the greater part of their territory. In this inhospitable region lived a people of whom there are no known survivors, and whose very language exists today only in the notebooks of ethnographers.

Dialectically the Coast Yuki were a subgroup of the Yuki, an enigmatic people who spoke a language representing a small, isolated speech family (Kroeber 1925:159). Anatomically the Northern Yuki are reported as being of a markedly distinctive physical type. Powers (1872:306; 1877:127) described the "yukas" as being short-bodied, with disproportionately large heads; Boas (1905:356), commenting on anthropometrical measurements made on Yuki residents of the Round Valley Reservation during the 1890's, concluded that the Yuki differed in type from all of the neighboring tribes in their shortness of stature and elongated, narrow heads. Divergent physical types among the Yukian-speaking peoples will be discussed in Appendix I. The Coast Yuki are described as manifesting a very simple and ancient form of central Californian culture, over which had been imposed certain traits from northwestern California, although minor elements of Pomo tradition are reflected in their recounted customs (Kroeber 1925; Klimek 1935; Gifford 1928; Driver 1939).

Kroeber (1925:212) estimated that the population of the Coast Yuki group had been perhaps five hundred persons in 1859. Cook (1956), following demographic practice, arrived at a figure of seven hundred and fifty for the aboriginal population. In 1910 the Federal census showed a population of fifteen (Kroeber 1957). A critical examination of the disparity in population figures accepted by earlier students is found in Baumhoff (1963). When Gifford (1928, 1939) did his field work in the late 1920's, he had four informants, three of whom were over seventy years of age. The fourth, a comparative youngster of fifty-five, was only one-quarter Coast Yuki and apparently was not extensively interviewed.

It would seem that any further light on the linguistic relationships of the Yukian family will come only through analysis of already collected data. Fairly extensive vocabularies of the several Yukian

dialects were assembled by Kroeber (1906, 1911), Dixon and Kroeber (1903, 1907), Barrett (1908), Radin (1929), Gifford (1939), Foster (1944), and Shipley (1957). Of the references cited, only Gifford dealt solely with the Coast Yuki dialect. An excellent summary of the literature dealing with the linguistic studies may be found in Elmendorf (1963). The question of divergences in dialects is discussed briefly in Appendix I.

Gifford (1926a) defined three physical types among California Indians, and in a report and analysis of physical measurements which he made on Yuki residents of the Round Valley region (the so-called Yuki proper) and in which he corroborated Boas' findings, Gifford (1926b:224) stated that the figures showed the Yuki type to be even more distinctive than Boas had supposed. Treganza, Smith and Weymouth (1950:118) reported the excavation of nine burials in the Round Valley reservation area which agree with Gifford's measurements. Eleven Round Valley Yuki crania were examined, measured, and described, and comparisons were made with four crania from the Wappo area (Miller 1953:277-281), but no skeletal material is known that can be identified with the Coast Yuki. Thus we know little more of Coast Yuki physique than the few lines devoted to them by Kroeber (1925).

Most observations concerning the physical distinctiveness of the Yuki have been by way of comparison with their neighbors—the Athabaskan, the Pomo, the Wintun. Boas (1905:356), however, advanced a view which, if verified, would relate the Yuki to the southern island peoples of the Santa Barbara region. Gifford (1926b:245) differed in detail and degree from Boas, stating that "a suggestion of the Yuki type of Mendocino County...is found in the northern islands and on the Santa Barbara mainland rather than in the southern islands." The only recent study (McKern n.d.) compares data on skeletal material from Santa Cruz Island with that of Central California Early Horizon and Eastern Archaic. A recovery of authentic Coast Yuki burials would make possible useful comparisons with the data from the Santa Barbara mainland and from the various Channel Islands.

Culturally, the outlook is hopeful. There seems little likelihood that our information concerning the customs, myths, and habits of the Coast Yuki can be advanced beyond the impressive collection of data provided mainly by the efforts of Gifford (1928, 1937, 1939); there is no one left to sing the old songs. But the possibility exists of corroborating a great amount of the material culture described by Kroeber and Gifford. Time is running out, but with work, luck, and dispatch those material effects which have withstood the ravages of time may still be recovered from archaeological sites. Some physical evidence of habitation

sites is still to be seen despite the ever accelerating inroads of agriculture, road-building, and urbanization.

The boundaries of the Coast Yuki territory are not precisely delineated. Powers (1877:155) lumped the "bands" on the coast and along Usal Creek together, under the name of Yú-sâi Pó-mo or Kam-a-lei Pó-mo (Ocean People). Powell (1891:135), in his 1885-86 report, gave the geographic distribution of the Yuki as centered in Round Valley, California, and adds that "they also extended across the mountains to the coast." Kroeber and Barrett went into the matter of boundaries with a number of informants and agreed on limits, with the reservation that the northern boundary was indefinitely located in the stretch between Westport and Usal. Gifford (1939:296) placed the northern boundary approximately three miles north of the mouth of Cottaneva Creek, which would put the line about two-thirds of the way between Rockport and Usal. All three of the last named investigators accepted the southern boundary as including Cleone, well below Ten Mile River. Barrett defined the easterly boundary rather vaguely as running along the ridge separating the drainage of the South Fork of the Eel River and Ten Mile River; Kroeber pushed this line slightly more to the east, making it coterminous with the west bank of the South Fork of the Eel. Stewart (1943:32) took exception to both the southern and eastern boundaries as outlined both by Barrett and by Gifford and Kroeber. Relying on Northern Pomo informants, Stewart established the southern boundary of the Coast Yuki (i.e. the northern boundary of the Northern Pomo) as being about fourteen miles north of Fort Bragg, a mile north of Kalkabemina (Mussel Rock), and marked by Chadbourne Gulch.

The most probable interpretation of the conflicting claims is that the line was not sharply defined, that at one time or another each of the groups had claimed and held the area about Ten Mile River. In support of the claim that the Coast Yuki had occupied the land around the river is a comment of Barrett's (1908:262) that "Near the beach just south of the mouth of the De Haven Creek there are living at present a few Indians speaking the Coast Yuki dialect.... These people are mostly former inhabitants of the old village near the mouth of Ten-Mile River." On the other hand, although no excavations have been made at Men-455, the village site just north of Ten Mile River (which may be the hamlet "Kasolak" mentioned by Gifford, 1939:302), the house (hen) and assembly house (hepin) pits are very much in Pomo style. Gifford (1939:330) states positively that the Coast Yuki made no excavation for the house.<sup>1</sup> He is not explicit as to

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<sup>1</sup>This statement is contradicted on p. 299, site of Onbit; p. 300, site of Pol'u; and p. 301, site of Shipoi; each of these is described as having either house pits or assembly house pits.

whether any excavation was made for the assembly house, with the exception of mention of the pit at the back of the hepin, opposite the entrance, over which the foot drum was installed.

The first obvious step in the recovery of archaeological evidence which may add to our knowledge of the Coast Yuki would be a reconnaissance to establish the locations of villages, hamlets, and camp sites reported in the literature. Barrett (1908:262) listed the location of four old village sites and one old camp site, all north of Ten Mile River. Since he was working on Pomo ethnography, he has given the names of these inhabited places in Northern Pomo dialect, although three of them are well north of the line claimed by Stewart as the southern boundary of the Coast Yuki. Kroeber (1925:212) listed names of twelve sites, including Lalim, near Cleone. Gifford (1939:296-303) recorded quite detailed information from his informants—information that included landmarks, names of white ranchers, and identifying terms for the eleven Coast Yuki groups. He wrote, "Up the ridges ran the trails (mish) from the coast camps to the inland camps of which I probably have record of only a fraction."

According to the annual cycle reported by Gifford (1939:329), the Coast Yuki followed the practice of living at inland sites during part of the year. These sites seem to have been chosen for shelter, for nearness to fresh water, and for proximity to the hunting and gathering localities exploited for their simple economy. The time spent at the beach sites may have equaled the "winter" or hill sojourns, but the beach dwellings were apparently less sturdily built since there was no good wood supply for construction purposes. Anciently driftwood was a great rarity, and wood had to be brought from the hills to the beach sites for both building and for cooking fires. No site appears to have been occupied the year round. No specific term for village or camp is recorded, but their designation for habitation sites was henhoten (houses many) or henhotenyo (houses many standing).

The beach sites would probably be more difficult to identify since less substantial living quarters were constructed and the sites, by their very location, would be subject to extreme erosion from the action of wind and waves. Also, since they must have been near the mouths of rivers and creeks, they would have been subject to flooding and overflow at some seasons of the year.

The inland camps, however, should yield evidence of occupation through evidence of construction and in the usual kitchen midden deposits of shell, bone, and other detritus, with the resultant changes in soil and divergent vegetation cover. One must not be too optimistic about the

possibility of recovery of much in the way of organic materials at the higher sites since favorable conditions for preservation of such materials is seldom present. Nor should one be certain that sites will be divulged by the pits which are so helpful in the identification of many California habitation sites since, as mentioned above, Gifford gives contradictory reports on whether the Coast Yuki differed from the neighboring Pomo in house construction practices so that it is not certain whether or not an excavation was made for the house. Neither Gifford's nor Kroeber's descriptions of dwelling construction mention postholes, but Kroeber (1925:213-214) says that the dance house "had not only a large center post but a peripheral row of forks, from whose connecting beams rafters sloped up to the middle. The pitch of the roof is said to have been steeper than among the Yuki." It seems improbable that such a framework, covered with redwood bark and lashed with hazel twig withes, could have withstood the winter gales unless the side and center posts were set into the ground. Hence, at a minimum, Coast Yuki inland camps should disclose clearings of the appropriate size and shape, possible posthole evidence, and, in the assembly house area, a foot-drum pit, as archaeological evidence of occupation. The disputed "Kasolak" site, just north of Ten Mile River, which may be Pomo and not Coast Yuki, is easily distinguishable at some times of the year by the concentrated iris growth in the pit areas. Earth around the circled pits contains shell fragments. At a higher site, above Chadbourne Gulch, the evidence of occupation is found in a large shell midden, approximately 100 by 120 feet, stretching across a saddle about 600 feet above sea level. No excavation has been carried out at this site (Men-458), but fragments of chert abound on the surface and a fine collection of chert points has been accumulated in the surrounding areas. In the spring the outline of the site can be ascertained from the almost impenetrable growth of thistle, whereas in the fall the usual nettle-thistle-horehound association is more evident. If the usual pattern were followed, a systematic reconnaissance should disclose a year-round spring or other source of fresh water.

#### ARCHAEOLOGY

A brief discussion of the material objects which one might hope to recover from the habitation sites of the Coast Yuki, together with lists made up from published reports, follows. All page numbers shown are from Gifford (1939) unless otherwise noted. Specimen numbers are those of the University of California Museum of Anthropology, Berkeley.

Artifacts RecoveredWooden objects

The redwood, tanbark oak, and other woods used in the construction of Coast Yuki dwellings will in most instances have disintegrated through the years. Wooden objects reported used by the Coast Yuki which under very favorable conditions may have survived are listed below.

<u>Coast Yuki name</u>		<u>Specimen number</u>
<u>alpat</u>	Message sticks (p. 304)	UCMA 1-26736
<u>kolki</u>	Salmon and surf net frames (p. 311)	
<u>kosbish</u>	Mush paddle (p. 312)	UCMA 1-26733 (model)
<u>altal</u>	Drying frame for meat (p. 314) Mussel-drying twigs tied in radiating pattern (p. 315)	
<u>alshi</u>	Fire drill, preferably buckeye ( <u>simta</u> ) (p. 338)	
<u>onbelmen</u>	Digging stick, rhododendron or cascara ( <u>sika</u> ) (p. 337)	
<u>ents</u>	Walking stick from wood called <u>alhotsom</u> , imported from interior, or of <u>Garrya elliptica</u> (fire-hardened) (p. 337)	
<u>emp</u>	Abalone spatula, rhododendron or <u>G.</u> <u>elliptica</u> (pp. 337-38)	
<u>oilchoyem</u>	Long fish trap of hazel stems for salmon (p. 321)	
<u>woimillel</u>	Tubular smoking pipe of wood called "tobacco stone" (p. 350)	
<u>tinim</u>	Foot-drum, hollowed segment of redwood (p. 331)	
<u>altate</u>	Split elderwood rattle (p. 348)	
<u>bime</u>	Elderwood flute (p. 348)	
<u>liwets</u>	Bow, hazel or yew, sinew-wrapped, not backed (p. 332)	
<u>weshele</u>	Arrow foreshaft, hollow light wood (p. 333) War club of tanbark oak (p. 335) Special war arrow with bull pine foreshaft (p. 334)	

<u>Coast Yuki name</u>	<u>Specimen number</u>
<u>buituk</u>	War javelin, 5 ft. stick with flint point, lashed with iris fiber string (p. 334)
<u>henchi</u>	Sea lion harpoon, 6 ft. shaft of alder, wrapped with iris string for entire length (p. 335)
<u>lamachen</u>	Double-pointed salmon harpoon, two wooden foreshafts, fastened to pole ( <u>choxmit</u> ), usually of huckleberry (pp. 335-36)
<u>melmal nehe</u>	Stick used as mesh measure, rectangular, made of any wood but never of elkhorn (p. 344)
	UCMA 1-26738 (model)
<u>hewakik</u>	Netting needle (p. 344)

Not included in the foregoing list of wooden objects is the bullroarer, ehlaume1 (thunderer). Gifford (1939:349) states positively that the bullroarer was not used by the Coast Yuki. However, information obtained by other investigators (Loeb 1932:55; Driver 1939:337, 398) permits the inference that it was known and used in Coast Yuki territory. The bullroarer in most reported cases is made of wood, although the Kato, whose territory adjoins that of the Coast Yuki, are reported to have had a bullroarer made of the shoulder blades of two deer (Loeb 1932:30). In view of the lack of agreement among those investigators most intimately in contact with the Coast Yuki, it would appear that archaeological evidence is needed to resolve the discrepant reports.

#### Bone and Shell Objects

Equally susceptible to deterioration are most of the foods—mammal, fish, vegetable—utilized by the Coast Yuki in their daily life, but less destructible remains, such as bone and shell, should appear in forms still identifiable, and by-products of these foods could persist.

#### Coast Yuki name

<u>chula kix</u>	Bone awl (literally coiled-basket bone) for sewing coiled baskets (p. 344)
<u>milnosha</u>	Man's elk antler spoon (p. 338) Sea lion harpoon head, of flint or elk bone, fitted into bone foreshaft, obtained by trade from the north (p. 335)



<u>Coast Yuki name</u>	<u>Specimen number</u>
<u>milnasha</u> [cont'd.]	Salmon harpoon with double barbs or toggle heads or gigs made of elk or deer antler, mounted on deer bone centerpiece (p. 335) UCMA 1-27125
<u>nokshunhia</u>	Mussel shell spoon (p. 338) Eel gaff bone hook (p. 312)
<u>hi'a pema</u>	Elk antler wedge (pp. 317, 330, 337) Bone fish gigs (p. 315) Bone dagger, bear bone, about a foot long (p. 336) Deer head decoy (p. 316)
<u>kixepen</u>	Gorge, deer bone pointed at both ends (p. 322)
<u>kiusha</u>	Quiver of untanned deerskin (p. 334) Clamshell disc money (p. 340)
<u>u'kist</u>	Clamshell disc beads (p. 340) <u>Olivella biplicata</u> beads—whole shell with tip of spire removed (p. 340) Bangles, pendants, etc., of abalone ( <u>Haliotis rufescens</u> ) (p. 340)
<u>shikguki</u>	Beads from <u>Himnites giganteus</u> ( <u>ukishil</u> ) (p. 342)
<u>chiwasumil nokshil</u>	Mussel shell "thumbnail" (p. 342) Bone whistles from chicken hawk leg (in dispute) (p. 348) Bones and salmon vertebrae used in games (p. 349) Bag made of deer leg skin (p. 368)

#### Seeds, Fiber

The Coast Yuki used a variety of seeds in their diet: grass (wehil); wild oats (chiplits); and the commonly used nuts of acorn (shok), buckeye (simt), and "pepperwood" (bokum). Remains of these and other seeds have been found in archaeological sites and should be kept for

identification when they occur in site strata. Many uses were made of the fiber of Iris macrosiphon (chiwas), and it was reputedly the only fiber used by the Coast Yuki (Kroeber 1922:281; Gifford 1939:342). Tobacco (woimil) was commonly used but was said not to grow in Coast Yuki territory, being obtained by trade from the inland tribes.

### Basketry

The art of basket-making has been an important trait in the evaluation of aboriginal cultures, but in the case of the Coast Yuki we must rely on written descriptions since only one basket in the Museum of Anthropology collection (UCMA 1-26734) is attributed to this area—a man's burden basket (olo). This specimen, in very poor condition, is a fragment of a twined, conical, openwork basket of split hazel stems. Kroeber (1925:214) stated that the Coast Yuki basketry was "like that of the Kato and Yuki...though no examples have been preserved." Gifford (1939:344) reported that he was unable to observe basketry manufacture since the only surviving Coast Yuki woman was no longer making baskets. It is all the more surprising, therefore, that Gifford's informants made so many references to different types of baskets, most of which had names in the Coast Yuki dialect.

### Coast Yuki name

<u>kol</u>	Basket hopper (p. 338)
<u>olo</u>	Man's conical burden basket, packstrap of split hazel stems (p. 347)
<u>choxt</u>	Woman's burden basket, more closely woven than the <u>olo</u> , packstrap of buckskin (p. 347)
<u>alwil</u>	Slender branch sewed around rim of both man's and woman's burden basket for strength and rigidity (p. 347)
	Special storage basket (p. 312)
	Openwork basket (p. 312)
	Openwork hazel twig basket tray (p. 314)
	Small coiled baskets (p. 314)
<u>kyuwut</u>	Basketry seedbeater (p. 314)
<u>yechem</u>	Coiled parching basket (p. 314)
	Winnower (also called <u>yechem?</u> ) (p. 314)
<u>opech</u>	Twined openwork basket tray (same as openwork hazel twig basket tray? No materials given) (p. 314)

Coast Yuki name

<u>wenme</u>	Flat coiled basket plate (p. 314) Openwork twined winnowing basket for shaking "potatoes" after cooking (p. 314)
<u>chulmen</u>	Small eating basket, coiled foundation was of poison oak stems, wrapping material of alder root; also used as a drinking cup (p. 314)
<u>kilbek</u>	Pigeon and quail trap, large openwork basket with door in side hinged with string or withes (p. 321)
<u>hepinkoch</u>	Basket plaque of hazel used for door-closing (p. 330)
<u>wanchul</u>	Imported redbud baskets (p. 346)
<u>lawiyo</u>	Coiled cooking basket (p. 346) Rim for above, <u>alwil</u>
<u>shik</u>	Cradle, sitting type (p. 347)
<u>schiste hunchimnum</u>	Hoop on cradle for attachment of ornaments (p. 347)
<u>wenma</u>	Sunshade for cradle (p. 347)
<u>olokshil</u>	Redwood bark, shredded, for bed of cradle (p. 347)

A study of Yuki basketry by Kelly (1930) apparently covered only articles attributed to the Yuki proper, with the exception of several specimens attributed to the Huchnom. In view of the previous reference to a possible link between Yuki culture and that of the Santa Barbara area, it is interesting to note that Kelly (1930:435) cites a basket "identical in design" found in a rock shelter near Santa Barbara, and attributed by Rogers (1929, pl. 70) to the Canaliño culture. As Kelly suggests, this may strengthen the case for diffusion; however, it would not seem to offer proof of a shared trait since the supposed relationship of Yuki and Channel Island peoples, if it existed, would have long preceded the Canaliño. The latter group, a round-headed people, arrived fairly late in the Santa Barbara and Channel Island region.

Nets

In addition to baskets, a variety of kinds of nets is reported by Coast Yuki informants: fish nets, fish traps, hair nets. These were made of iris fiber string (Iris macrosiphon) in various meshes. Netting bags of various sizes and mesh were used to carry acorns, smaller bags were used to carry salmon toggles, and the larger ones were used by women to carry baskets and other big objects.

### Stone Objects

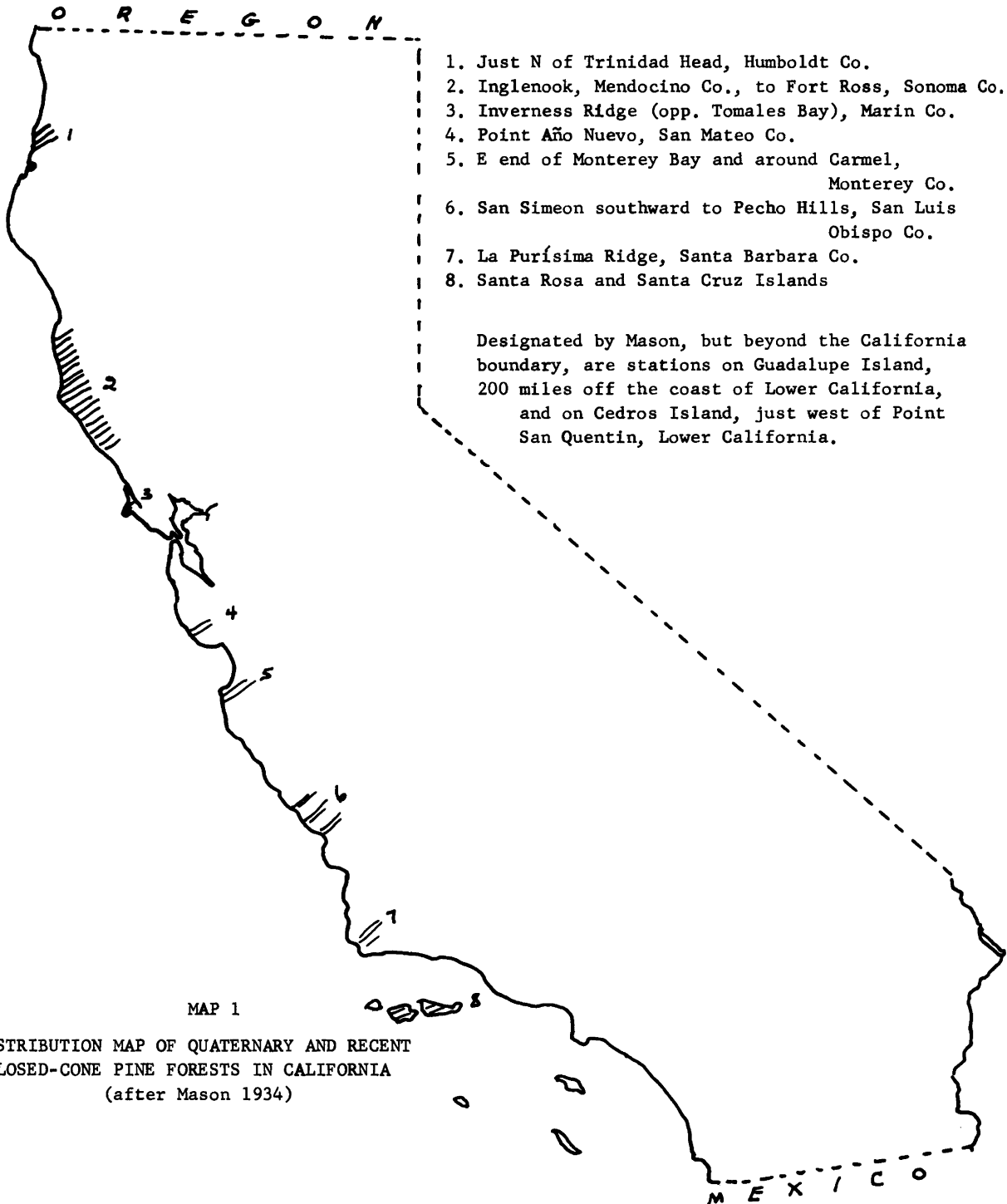
In the less perishable category are objects of stone which should be expected to survive virtually unharmed.

<u>Coast Yuki name</u>		<u>Specimen number</u>
<u>lilpa'n</u>	Flint knife, double edged, with iris fiber string wound around base to serve as handle (p. 337)	
<u>kutim</u>	Stone mortars, large cobbles with shallow indentations (p. 338)	UCMA 1-26731, 1-26732
<u>kolimp</u>	Pestle, slender, flared at distal end (p. 338)	UCMA 1-26730
<u>kicha</u>	Arrow points: flint ( <u>kicha lil</u> ); obsidian ( <u>waikie</u> ); chert (p. 334) Javelin points, chert and flint (p. 334)	UCMA 1-26740, 1-26742 UCMA 1-26741, 1-26744
<u>lilshe</u>	Grooved stone arrow straightener (p. 334) Red magnesite cylinders (imported) for decoration (p. 339) Man's nose stick, white, probably <u>dentalium</u> (p. 339)	
<u>Mata</u> or <u>mana</u>	Good luck objects of stone ( <u>heche</u> ) (p. 368)	
<u>lilbechi</u>	Stone maul (p. 337)	

The buckskin sling (humat), with its iris string (humatduxi) and buckskin string (humuthem) may not have survived the years, but the slingstones (humatlil) should appear among the residues of the campsites. They are reported to have been beach pebbles chosen for their desirable size and shape. Specimen UCMA 1-26755 is a variety of polished stones collected by Gifford in a test dig, which may very well have been put to such use.

### Dress and Regalia

The reported costumes of the Coast Yuki men and women are not such as to give much hope for their survival; however, their burial customs may have militated to preserve some material wealth. Their invariable custom was interment whenever possible; only if a man died or was slain



MAP 1  
 DISTRIBUTION MAP OF QUATERNARY AND RECENT  
 CLOSED-CONE PINE FORESTS IN CALIFORNIA  
 (after Mason 1934)

while away from his home area was his body burned and the ashes brought back to his people. The burial sites or cemeteries were chosen at some distance from the village, and it appears that each group had its special, chosen ground. The burial is described (Gifford 1939:352) as being at full length, on the back or side, with the head toward the north; the body was decorated with beads and wrapped in deer, elk, or bear skins. Some of the dead man's property and gifts of baskets or other goods from friends and relatives were placed in the grave, which was dug to a considerable depth. Reconnaissance of the habitation sites should include attempts to locate the cemeteries appertaining thereto.

Gifford (1939:365) reported on the dance ornaments and regalia used by the Coast Yuki. Since these articles were mainly of feathers, quills, and down it seems unlikely that many would survive in the ground. Among accessories of the shamans were cocoon rattles (shipbot).

Recovery of all or any part of these artifacts would advance our knowledge of the Coast Yuki and form a basis for the interpretation of their relationship to other prehistoric inhabitants of this hemisphere.

#### VEGETATION, A POSSIBLE INDICATOR OF ORIGINS

One tool of great potential value in the assessment of archaeological prehistory which has been too little utilized is that of vegetation. Although there is a growing understanding of the role of divergent vegetation as a site indicator, and first steps have been taken in the establishment of chronological relationships through the use of pollen analysis, very little attention has been given to the possible evaluation of relict vegetation.

Western Mendocino County is the locale of an unusual and very limited forest association, that of the closed-cone pine forests which, as described by Mason (1934:139), are "today confined to lands that were islands throughout most of the Tertiary and particularly in the Pliocene" (see Map 1). Chaney and Mason's study (1930) of the Pleistocene flora of Santa Cruz Island, off the coast of Santa Barbara, reveals a fossil assemblage of species which find their modern equivalent on the California coast near Fort Bragg, Mendocino County, 440 miles to the north-northwest. In other words, the Coast Yuki lived in an environment that had been relatively stable for many centuries, probably for millenia. Heusser's data (1960:179) for the Late Pleistocene vegetation in the Fort Bragg area, although based on admittedly meager pollen sampling, indicates that

there have been only minor changes in vegetation since at least 4000 B.C.

Klimek (1935), using a statistical method, concluded that the Yuki had reached the Mendocino area a very long time ago, probably in an advance along the coast from the north. On the other hand, mention has already been made of the fact that Boas and Gifford both advanced evidence of a physical similarity between the ancient peoples of the Santa Barbara area and the living Yuki. Rogers believed (1929:342 ff.), mainly on the basis of climatic evidence, that the earliest inhabitants of the Channel Islands and adjacent coastal areas, whom he called "Oak Grove People" due to their preference for forested, non-beach sites, had come to the area so early that their environment was still dominated by the heavy post-Pleistocene rainfall. He went so far in his thinking (1929:344) as to consider that these "Oak Grove" people may have been the first immigrants from the Asian mainland: "there was probably no other race in the vicinity and possibly none within the present boundaries of the United States." This view of the extreme antiquity of the Oak Grove people does not appear to be universally accepted; Martin, Quimby and Collier (1950:440) place the Oak Grove people in the Archaic, that is about 1000 B.C., on their chart of "Chronology in the California Area." Whatever the absolute chronology may be, the paleontological evidence shows that the Pleistocene climate of that area was not unlike the climate of the Mendocino coast today, and it was certainly capable of supporting man had he been there.

According to Gifford (1939:332), the Coast Yuki made no boats, although boats are mentioned in their mythology (ibid., 1937:147, 167). Curiously, there is a refrain running through most of the literature about the Yuki, a recurrent refrain of "coastal," "maritime," and the like. Speculation that the Yuki may have been one of a number of islanded peoples separated from continental influences for long periods raises more questions than it answers, but it is a starting point from which the various branches of science may achieve a joint answer.

Very little work has been done on the geology and paleontology of the Yuki area, but Mason (1934:139) states that in all regions where the closed-cone pines now grow and in which the geology is known, the land masses have been fluctuating. Heusser (1960:19 ff.) has an able discussion of land-sea level variations. He believes that some credence can be attached to the early coastal migration theory, but is of the opinion that site reconnaissance would be fruitless without recourse to location of plant refugia and must be carried out with knowledge of eustatic, isostatic, and tectonic changes. He says, "If he [man] had been able to establish himself as part of the biota, his remains should date at least

as old as 10,000 B.P." (Heusser 1960:210). Bradley (1956) reported a carbon-14 age of more than 39,000 years for mollusk shells from the 100 foot marine terrace at Santa Cruz, and concluded that emergence of the terrace began at some time prior to 39,000 years ago.

The latest technique described in the literature, which might be of great value in dating archaeological materials, is that of amino acid deterioration which is applied to shell in an attempt to establish age. Langenheim and Durham (1963:36) disclose, in a report based on tests made by Simmonds, that fossil specimens from the travertine terrace at Little Sur, Monterey County, California, definitely predate historic times, and in all probability are more than 10,000 years old. The tests were made on shells of fossil Helminthoglypta dupetithouarsi from the Pleistocene deposits; the flora of the deposit is a typical assemblage of closed-cone pine forest association.

Time periods in these last cited references are getting within range of a probable age magnitude for the presence of man.

#### CONCLUSION

The recovery of archaeological material belonging to a recently vanished but little known people would be a contribution to knowledge; in the case of the Coast Yuki such material, corroborating the observations of ethnologists, could be an end in itself.

It appears, however, that more could be accomplished than this relatively uncomplicated end. Not revealed by the meager literature dealing with the Coast Yuki are environmental data contributed by the disciplines of botany and paleontology. It is postulated by experts in those fields that the discontinuous distribution of the closed-cone pine forest association represents coastal areas that were, at least in the Pliocene and probably still in the Pleistocene, islands separated from the mainland. The Coast Yuki have been recorded as different from their neighbors in physical attributes and in language; the question of why they were different has been given little serious consideration.

It should be emphasized that no proof is offered that they may have been islanded; that is, at some time in the dim past have been spatially separated from the main body of continental aborigines. It is suggested, however, that reexamination of the Yuki languages might prove useful in indicating their relationship to other aboriginal people; that the more



sophisticated methods of present-day physical anthropology should be applied to any skeletal material recovered, especially in comparison with the existing data on the Santa Barbara region; and that any remains of their material culture should be classified with the view that the Coast Yuki may have represented a relict people, surviving in a relict environment.

#### ACKNOWLEDGMENTS

It is fitting that acknowledgment be made of the help given by numerous residents of the Fort Bragg area in securing field data during the preparation of this paper. This help took the form of suggestions for site locations, personal accounts of family contacts, loans of collections for cataloguing, and other assistance. It is not possible to list all of the individuals who gave their unstinted aid, but among others, particular thanks are due to Mr. James Dempsey and family; Mr. and Mrs. Andrew Grass of Hale's Grove; Mr. and Mrs. Robert Josephson and Mr. and Mrs. Lance Letner of Fort Bragg; Mr. and Mrs. Horace Thompson of Santa Rosa; Mr. and Mrs. Robert Thompson of De Haven Creek, Westport; Mr. Irving Roberts of Ten-Mile; and Mr. and Mrs. Leon Williamson of Little Valley.

Above all, most sincere thanks to Mrs. Kenneth Tallman of Fort Bragg, who did yeoman service in every phase of the investigation, giving untiringly of her energy and her knowledge of local conditions. Her sincere conviction that her community would be served through the salvage of information regarding the prehistoric inhabitants of Mendocino County inspired most of the assistance which we received.

## APPENDIX I

## THE YUKIAN FAMILY

Kroeber (1925:159), basing his conclusion on the study of their speech and anatomy, advanced the opinion that the Yuki came nearer to being autochthonous Californians than any of the other modern natives of the state. Schmidt (1936:229 ff.) attempted, through the study of their religious concepts, to support the view that ethnologically "das alte Yuki"—that is, before their splintering and admixture by neighboring groups—appeared to be the most ancient of the north-central California tribes. Gifford (1928:115) was of the opinion that the Yuki manifested a very simple and ancient form of Central California culture with a recent and superficial overlay of northwestern traits. Klimek (1935:31, 61), on the basis of physical characteristics and cultural traits, stated his belief that the Yuki came from the north, advancing along the coast "at a very remote time."

To these opinions must be opposed that of Swadesh (1954:324) who, on linguistic evidence, observed that the Yukian language did not tie in closely with immediately neighboring Hokan languages, but was most closely linked with southern Hokan languages, with Coahuiltecan, and with Chitimacha, inferring that the present location of Yukian may be due to a relatively recent migration from an area where it was in contact with its nearest linguistic congeners.

Such opposing views can hardly be reconciled in the light of our present knowledge. However, an examination will be made here of the commonly-held concepts of the Yukian family with the hope that at least a better understanding of the relationships within the family will emerge.

Powell's report (1891) was not the first to classify the Yukian family, but his dry, astringent style contrasted favorably with the gossipy prose of Powers (1872, 1877), Bancroft (1875), and Gatschet (1877). Powers (1877) had given the Yuki dialect names for three tribes: those "in the valley" (Yuki proper); those "outside the valley" (Huchnom); and those "on the ocean" (Coast Yuki). Powers did not include Wappo in the family, although in an earlier paper (1872) he had remarked that their language was singularly closely related to that of the Ashochemies (Wappo).

Powell (1891:135) listed as the principal tribes of the Yukian family the Ashochimi (near Healdsburg), Chumaya (Middle Eel River), Napa (upper Napa Valley), Tatu (Potter Valley), and Yuki (Round Valley). He apparently did not differentiate the Coast Yuki from the Yuki proper and the Huchnom, saying merely that Round Valley had been the chief seat of the tribes of the family, but that they also extended across the mountains to the coast.

Kroeber, in a discussion (1903) of the Powers and Powell classifications, set forth that the Yuki occupied three detached territories: (1) the area in and around Round Valley, including the territory of the Huchnom—called "Tatu" by Powers; (2) the territory of the Coast Yuki to the west; and (3) the small area occupied by the so-called Wappo. This classification established a pattern which attained the effect of an axiom; it was repeated by each commentator up to and including Elmendorf (1963).

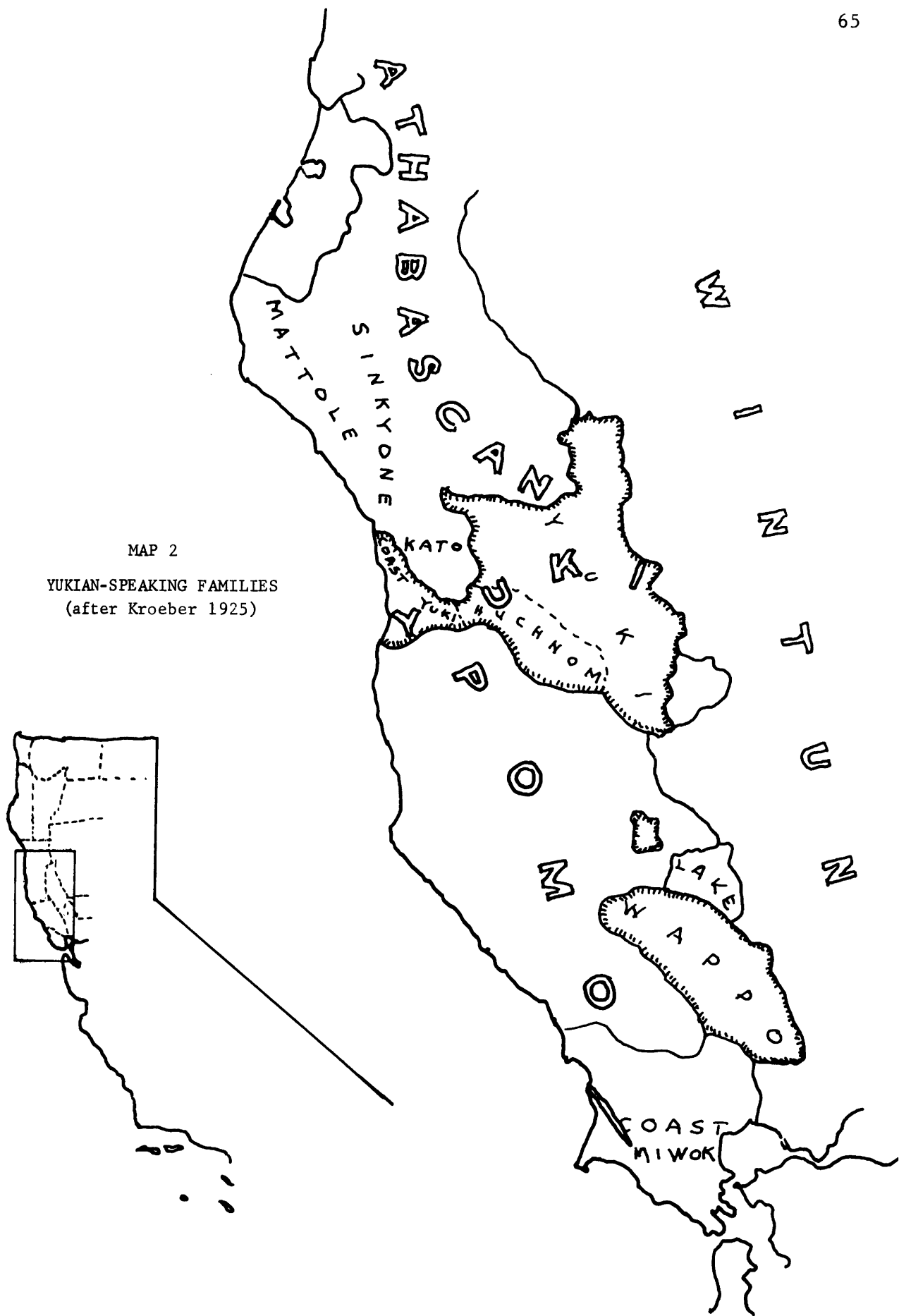
A small counterpoint to this theme appeared very early as one investigator after another pointed out that the Yuki and the Wappo showed considerable variation from each other in their physical aspect. Powers (1877), given to subjective judgments, compared the Wappo to the Yuki to the advantage of the former, but the work of Boas (1905) and Gifford (1926a,b) confirmed the observation that the northern Yuki differed from most north-central Californian tribes in various physical characteristics, particularly in stature and head and face form. Kroeber stated (1910:1009) that measurements gave an average height for men of 162 cm.<sup>2</sup> and that the Yuki showed a considerably longer head form than any of their northern, eastern, or southern neighbors. At this point Kroeber apparently did not indicate any physical differentiation of the Wappo from the rest of the tribes of other members of the language family, but by 1925 (p. 217) he was of the opinion that so far as their physical type was concerned, the Wappo and perhaps the Huchnom showed more similarity to the broad-headed Pomo, and that the northern tribes of the Yuki family possessed probably the longest heads in California and were unusually short in stature.

In 1953 excavations in the Napa area, the main territory of the Wappo, provided an opportunity for a comparison of skeletal material. Eleven Yuki crania were measured and comparisons made with four prehistoric skulls from the Wappo area, indicating (Miller 1953:279) a genuinely significant difference in physical type. The discussion of the anthro-

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<sup>2</sup> Gifford (1926a) gives 157 cm. average height for males of the Yuki type.

MAP 2  
YUKIAN-SPEAKING FAMILIES  
(after Kroeber 1925)



pometry concluded (Miller 1953:281) with the statement: "How the Wappo could have had the Yuki in their ancestral background is difficult to comprehend." Granted that these are not large series and that more extensive comparisons of the physical anthropology are needed, one is left with the impression that the inclusion of the Wappo in the Yukian family could not have been made on the basis of physical appearance.

Were the Wappo, then, included in the Yukian family on a basis of cultural traits? Barrett (1908) stated that not only the Wappo but also the Huchnom had well-marked cultural affinities with the Pomo. In discussing the tribes of the North Coast Ranges he said that the northerly group—the Coast Yuki, the Athapascans, the Yuki proper and the northerly Wintun areas—had well-marked differences in culture from the southerly groups, which included the Pomo, Yukian Huchnom, Yukian Wappo, Southern Wintun, and Moquelumnan (i.e. Miwok) areas.

Detailed ethnographic studies have been made of the Yuki proper (Foster 1944) and of the two Yukian groups most widely separated geographically: the Coast Yuki (Gifford 1928, 1937, 1939) and the Wappo (Driver 1936). Gifford (1928:115), after analyzing and evaluating cultural traits among the Coast Yuki, came to the conclusion that "the Coast Yuki manifest a very simple and ancient form of central Californian culture, over which have been imposed certain traits from northwestern California." He listed a number of traits derived from the northwestern California cultures and concluded that they were ascribable to recent influences from that direction. Driver (1936:183), in his study of the ethnography of the Wappo, concluded that the Wappo culture most closely resembled that of the Pomo but was definitely a hinterland variety or pale counterpart, and again, (1936:218) states, "It is true that the northern Yukians and the Wappo had many traits in common, but almost all of these were to be found among the intervening Pomo and other neighboring groups." Driver continues, "No traits shared exclusively by the Wappo and the northern Yukians have been reported.... Common traits of the Wappo and Pomo which were not shared by the northern Yukians or at least have not been reported for them are too numerous to mention." It should be pointed out that Kroeber, in discussing (1925:217) the degree of divergence between the Wappo and Yuki languages, estimated that the two groups may have been separated from each other for five hundred years or more.

Thus, from opinions expressed earlier in the published literature, it is seen that the Wappo differ markedly from the northern Yuki both in physical appearance and in cultural practices. Before turning to the accounts of their linguistic relationships, it would be well to point out that areas of linguistics, cultures, and physical characteristics are not necessarily

identical. There are statements enough to this effect in the literature: Boas (1896:269), in his study of living Mission Indians, observed that they belonged to one and the same physical type, but belonged to three distinct linguistic stocks; Gifford (1926a:253) and Klimek (1935:31-32) reported that the Athabascan-speaking Kato and Wailaki were of the Yuki physical type; and Sapir notes (1952) that linguistic classifications do not correspond at all closely to racial lines drawn for North America nor to culture areas which have been grouped ethnographically. Sapir gives as an example (1952:139) the Athabascan stock which he states counts among its tribes representatives of four of the major culture areas of the continent: Plateau-Mackenzie area; southern outlier of West Coast area; Plains area; and Southwestern area.

One of the earliest accounts of the Yukian language is found in Powers (1872:306), who said that their language was like none other in the vicinity, but singularly was closely related to that of the Ashochemies (Wappo) whose former habitat was in the mountains. This statement, with slight variations, has been repeated by every investigator down to Elmendorf (1963), whose very comprehensive paper starts with the sentence: "The small Yukian linguistic family of California comprises four languages in two divisions, one consisting of Wappo which is territorily separated from the remaining division (Yuki, Coast Yuki, Huchnom)." Powers, in his 1877 paper, reproduced a vocabulary of some fourteen words, offering them as proof of resemblance and manifest relationship. In 1907, Dixon and Kroeber brought out their paper "The Numeral Systems of the Languages of California." In the four Yuki dialects, with one exception, the numerals up to three were derived from the same radicals, but from four on they differed completely. The exception to the rule in numeral three is the Wappo.

By 1910 most authorities were pointing out that among the four dialects, Wappo was the most divergent (Kroeber 1910:1008; 1911:348, 381; 1925:159, 217; Dixon and Kroeber 1919:115; Foster 1944:155; Shipley 1957:269). Without further belaboring the case, there seems general agreement that of the four, Wappo was the language which was least like the other three. The papers which have appeared attempting to place the Yukian linguistic family in its relationship to other American Indian languages (Radin 1919; Kroeber 1955; Sapir 1952; Shipley 1957; Swadesh 1954; Elmendorf 1963) have differed quite widely in assigning relationships; the language has been attributed variously to Penutian, Hokan, Siouan, and Hokan-Siouan. Both Radin and Elmendorf relied largely on Wappo vocabularies for their comparisons; Elmendorf said that he extended his comparisons to include Kroeber's 1911 material but found it relatively meager and unhelpful. Since the Wappo language is considered that which is the

most divergent from Yuki, the relevance of these comparisons in establishing relationships within the Yuki speech dialects, as well as external relationships, is not clear.

In canvassing the literature on the Yukian linguistic family, one fact seems striking—discussions of dialects in the Yuki family tend to be of a negative kind; that is, frequent comments appear on the divergence of Wappo from the other Yuki dialects. We can only assume that Wappo was grouped with the other Yukian dialects because of certain similarities, but there is little discernible evidence offered to support these likenesses. No extensive comparison of Yuki and Wappo word lists beyond that secured by Barrett (1908) seems to have been published, although most papers dealing with the subject contain some words of one or the other or both. Kroeber's paper (1911:348-383) is concerned with structure primarily; in his analysis of one of the Yuki dialects (Yuki proper) he includes a good many words and a short text. The short account of Wappo contains a very few words of the dialects, and they are used merely as structure examples. In an early report Dixon and Kroeber (1903:2) stated that they had attempted through field investigation to secure information concerning the grammatical structure of all Californian Indian languages; in a later paper (1919) they reported that they had selected certain data from sixty-seven dialects of twenty-one stocks for purposes of comparison. The dialects were not specified, but at least one dialect of both Wappo and Yuki was certainly included since the final section of the paper discussed the Yukian family in its possible relationships to Hokan and Penutian. Again, the comparisons are not internal, but are analyzed with an eye to the external relationships. Out of thirty-three stems only four appear to have been common to Yuki, Wappo, and alien stocks, but there is no suggestion made that Yuki and Wappo are anything but "two branches which are geographically discrete and linguistically quite divergent" (Dixon and Kroeber 1919:115).

One cannot believe that scholars would have gone on repeating the Yuki-Coast Yuki-Huchnom-Wappo connection without a good deal of evidence that the four dialects were related. Are there lists and vocabularies among the unpublished notes of linguistic experts that would shed light on this question? If so, it would appear to be of utmost importance that such material be made available. Support for this view comes from Elmendorf (1963:307) who says, "In any case, the method of comparison is defective because of its concentration on one particular Yukian and one particular Siouan language... As it is, the present comparative list gives me courage to propose that it may be worth while to institute a systematic internal comparison of Yukian, followed by a systematic comparison with Siouan."

Analysis of the various Yukian dialects might well reveal not only their relationships to each other, but might also provide clues to early relationships with other parts of the hemisphere.

## APPENDIX II

SPECIMENS ATTRIBUTED TO THE COAST YUKI  
ON DEPOSIT IN THE UNIVERSITY OF CALIFORNIA LOWIE MUSEUM OF ANTHROPOLOGY

<u>Catalogue Number</u>	<u>Description</u>	<u>Collected by</u>	<u>Date</u>
1-2268	Salmon harpoon head	Kroeber	1902
1-26730	Short stone pestle	Gifford	1926
1-26731, 2	Flat mortar stones (2) used with basket hopper	Gifford	1926
1-26733	Model of mush paddle (made by Tony Bell)	Gifford	1926
1-26734	Man's openwork carrying basket of hazel twigs, poor condition	Gifford	1926
1-26735	Stick and string, showing method of attaching bow string (made by Tony Bell)	Gifford	1926
1-26736	Message stick; each of six little sticks stands for a desired food product (made by Tony Bell)	Gifford	1926
1-26737	Netting bag of commercial string (made by Tony Bell)	Gifford	1926
1-26738	Stick used as mesh measure in making bag, 1-26737	Gifford	1926
1-26739	Model of netting shuttle (made by Tony Bell)	Gifford	1926

Archaeological Material Collected by Gifford

<u>Number</u>	<u>Description</u>	<u>Location</u>
1-26740	Obsidian point, tip broken	Site 1, N side Wages Creek, elevation, 1500-2000 ft.
1-26741	Flint point or stabbing pike	Site 2, McPherson Ranch, on hilltop between Wages Cr. and Gordon Cr., Westport, elevation, 600-700 ft.



<u>Number</u>	<u>Description</u>	<u>Location</u>
1-26742	Flint point, concave base	Site 2, McPherson Ranch, on hilltop between Wages Cr. and Gordon Cr., Westport, elevation 600-700 ft.
1-26743	Flint knife blade, distal end	Same as 1-26742
1-26744	Long flint blade, tip broken	Same as 1-26742
1-26745	Flint fragment	Site 3, sand dunes on S side of Wages Cr., Westport
1-26746	Pebbles, small, nearly globular	Same as 1-26745
1-26747	<u>Olivella</u> shell with spire ground off	Same as 1-26745
1-26748	Rubbing stone(?), elongate, rather flat on one side	Site 4 ( <u>Lilim</u> ), Bruhles Pt., McRay Ranch above Mussel Rock, 3 mi. S of Westport Surface find
1-26749	<u>Olivella</u> shells (16) with spires knocked off	Site 4, Pit 1, 0-5 ft. deep
1-26750	Pebble; charcoal; <u>Acmaea mitra</u> purpura	Same as 1-26749
1-26751	<u>Epiphragmophora</u> (4)	Same as 1-26749
1-26752	<u>Himnites giganteus</u> fragment; barnacle fragments (4)	Same as 1-26749
1-26754	Distal fragment, brown flint point	Site 4, Pit 1, 2 ft. deep
1-26755	Fragment of mammal bone	Same as 1-26754
1-26756	Fragment of mammal bone	Site 4, Pit 1, 3 ft. 4 in. deep
1-26757	Fragment of mammal bone	Site 4, Pit 1, 4 ft. deep
1-26758	Flint flake	Site 4, Pit 1, 2 ft. deep
1-26759	Stone fragment	Site 4, Pit 1, 3 ft. 6 in. deep
1-26760	Stone fragment	Site 4, Pit 1, 4 ft. deep
1-26761	Stone fragment	Site 4, Pit 1, 4 ft. 6 in. deep
1-26762	Distal end flint knife (?)	Site 4, Pit 1, surface find
1-26763	Flint flake	Site 4, Pit 2, surface find
1-26764	Mammal bone fragment	Site 4, Pit 2, 1 ft. deep
1-26765	Mammal bone fragment	Site 4, Pit 2, 1-1/2 ft. deep
1-26766	<u>Olivella</u> shell without spire; fragment <u>Haliotis rufescens</u>	Site 4, Pit 2, 2 ft. deep
1-26767	Bone fragments	Site 4, Pit 2, 2-1/2 ft. deep
1-26768	<u>Himnites giganteus</u> fragment	Site 4, Pit 2, 3 ft. deep
1-26769	Valve of large chiton	Site 4, Pit 2, 3-1/2 ft. deep
1-26770	<u>Olivella</u> shell without spires; bone fragments	Site 4, Pit 2, 4 ft. deep
1-26771	Fragments of <u>Haliotis</u> shell, flaking badly	Site 4, Pit 2, 4-1/2 ft. deep

<u>Number</u>	<u>Description</u>	<u>Location</u>
1-26772	Chiton valve; bird bone	Site 4, Pit 2, 5 ft. deep
1-26773	Flint flake	Site 4, Pit 2, 6 in. deep
1-26774	Flint fragments	Site 4, Pit 3, 6 in. deep
1-26775	Bone fragments; <u>Olivella</u> shells without spires; chiton valves	Site 4, Pit 3, 1 ft. 6 in. deep
1-26776	Foot bone; chiton valves; <u>Chlorostoma</u> shell	Site 4 ( <u>Lilim</u> ), Bruhles Pt., McRay Ranch above Mussel Rock, 3 mi. S of Westport. Pit ?, 2 ft. deep
1-26777	<u>Olivella</u> shell; chiton valves; bone fragments	Site 4, Pit ?, 3 ft. deep
1-26778	Fragment of rib bone	Site 4, Pit ?, 3 ft. deep
1-26779- 1-26797	Samples of mound material taken at different pits and depths	
1-27125	Toggles (made by Tony Bell)	Collected by Gifford, July 1929

Specimens in Museum Collection Indefinitely Ascribed

1-2962	Small coiled basket, vertical design of red right-angle triangles	"Yuki type"
1-2964	Small coiled basket, winding zigzag pattern of quail plume design in red	"Yuki type"
1-22423	Globose basket with brown decoration height 6-1/2 in., dia. 11 in.	"Yuki type"
1-22424	Flattish round basket, coiled, with brown decoration; height 3 in., dia. 23 in.	"Yuki type"
1-24074	Coiled globose basket with 13 encircling bands of dark reddish material; dia. 12 in. Collected by W. A. Setchell; "Purchased from Carl Purdy, Ukiah 1899"	"Yuki(?)"
1-28447	Coiled basket bowl, brown design; dia. 15-1/2 in., height 4 in. Collected by Mrs. W. Plummer, "vicinity of Fort Bragg or Ukiah, Mendocino County"	"Yuki(?)"
1-28448	Coiled basket, flaring brown design, dia. 20 in., height 11-1/2 in. Collected by Mrs. W. Plummer, "vicinity of Fort Bragg or Ukiah, Mendocino County"	"Yuki(?)"
1-67801, 1-67802	Baskets, coiled, bowl shape, dia. 10 in., height 6 in. Collected by Mr. and Mrs. H. B. Hickey, Sr.	"Yuki type"

<u>Number</u>	<u>Description</u>	
1-67803	Coiled bowl-shape basket, height 5 in., dia. 9 in. Collected by Mr. and Mrs. H. B. Hickey, Sr.	"Yuki type"
1-67804, 1-67805	Two baskets, same as above, height 4 in., dia. 8 in.	"Yuki type"
1-67806	Same as 1-67803, height 4 in., dia. 7 in.	"Yuki type"
1-67807- 1-67849	A collection of similar baskets of various styles and sizes, by same collectors	"Yuki type"
1-72955	Coiled basket, incurved, coarse weave; height 5-1/2 in., dia. of opening 8 in. Collected by Dr. David Shoemaker before 1915	"Yuki type"
1-67934	Fishing creel, coiled. Collected by Mr. and Mrs. H. B. Hickey, Sr.	"Yuki type"
1-71816, 1-71817	Ashwood pipe. Given by Blair Memorial Collection in memory of the parents of Mrs. Grace Blair DePue. "Made by Johnny"	"Yuki"

## EXPLANATION OF FIGURES

Figure 1. Flaked implements recovered in vicinity of site Men-458

- a. Light tan and red dull chert, wt. 20 g.
- b. Dark jade-green chert, wt. 21 g.
- c. Red chert, wt. 10 g.
- d. Light gray-green glassy chert, wt. 6 g.
- e. Light gray-green glassy chert, wt. 8 g.
- f. Light green chert, wt. 6 g.
- g. Light green glassy chert, wt. 5 g.
- h. Red and green chert, wt. 4 g.
- i. Dark green chert, wt. 11 g.
- j. Red and green chert, wt. 19 g.

Figure 2 Flaked implements recovered in vicinity of site Men-458

- a. White flint, present wt. 6 g.; original wt. ca. 9 g.(?)
- b. Gray and green chert, wt. 13 g.
- c. Red jasper or chert, wt. 18 g.
- d. Dark green chert, wt. 8 g.
- e. Dark red chert, wt. 8 g.
- f. Whitish chert, wt. 8 g.
- g. Surface find from Smith Ridge (between Middle and South Fork Ten Mile River); gray-green chert, very thin, wt. 3/4 oz.

Figure 3 Surface finds recovered in vicinity of site Men-572

- a. Steatite pipe (cavity indicated by dotted lines)
  - a-1: Diameter of bowl
  - a-2: Diameter of mouthpiece
- b. Fragment of incised steatite, slightly concave
- c. Chertstone of andesite or sandstone (cross section indicated by dotted line)

Figure 4 Chipped flint implements from Patsy Creek area (between North and Middle Fork Ten Mile River)

- a. Glassy tan chert streaked with blue, wt. 1-1/4 oz.
- b. Rough dark stone, chert streaked, wt. 1 oz.
- c. Rough dark stone, approx. 5/8 in. thick in cross section, wt. 1 oz.
- d. Dark reddish-brown chert, wt. 3/4 oz.
  - d-1: Concave face
  - d-2: Side view, showing curvature
  - d-3: Convex face
- e. Grayish chert, wt. 1-1/8 oz.

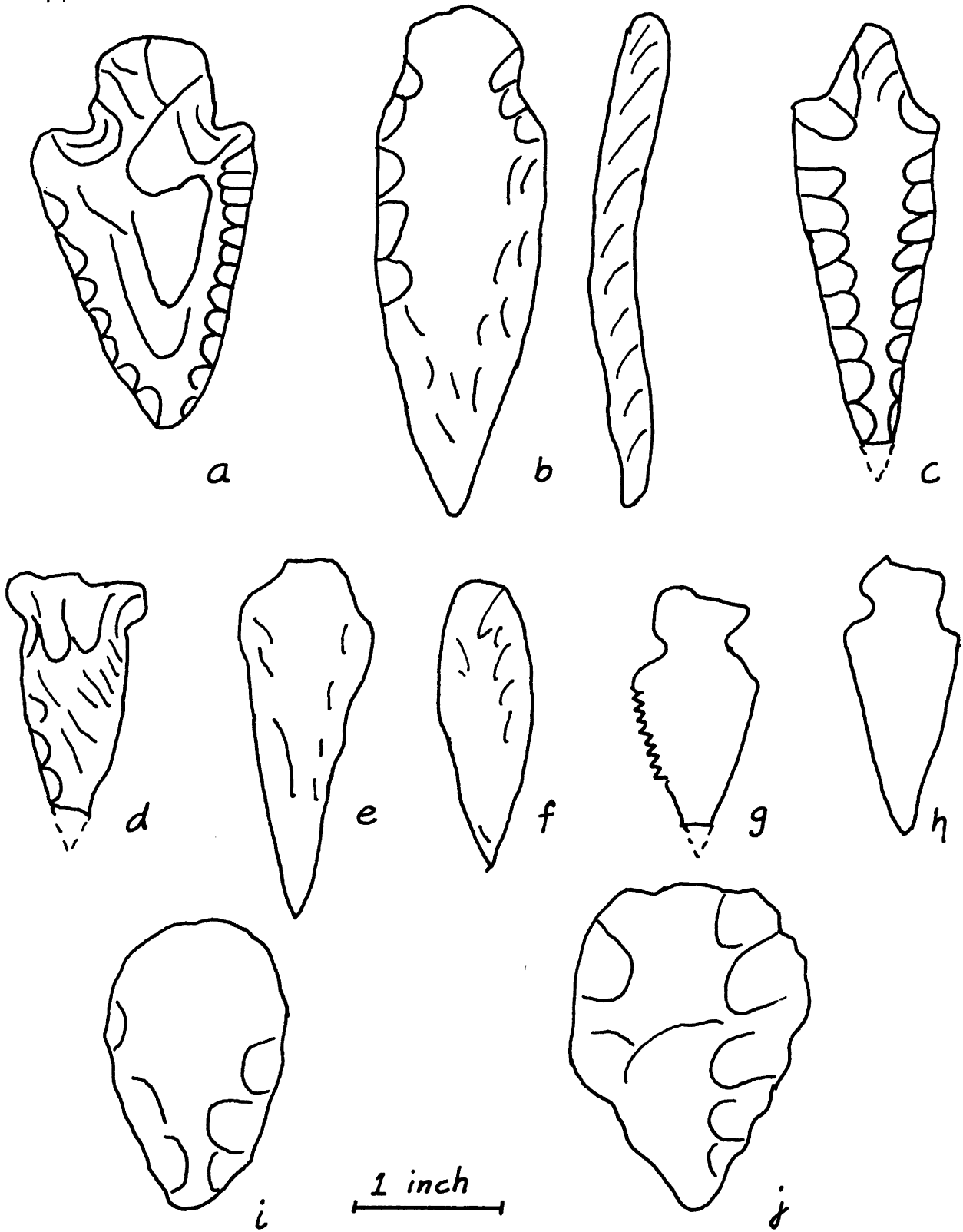


Figure 1.

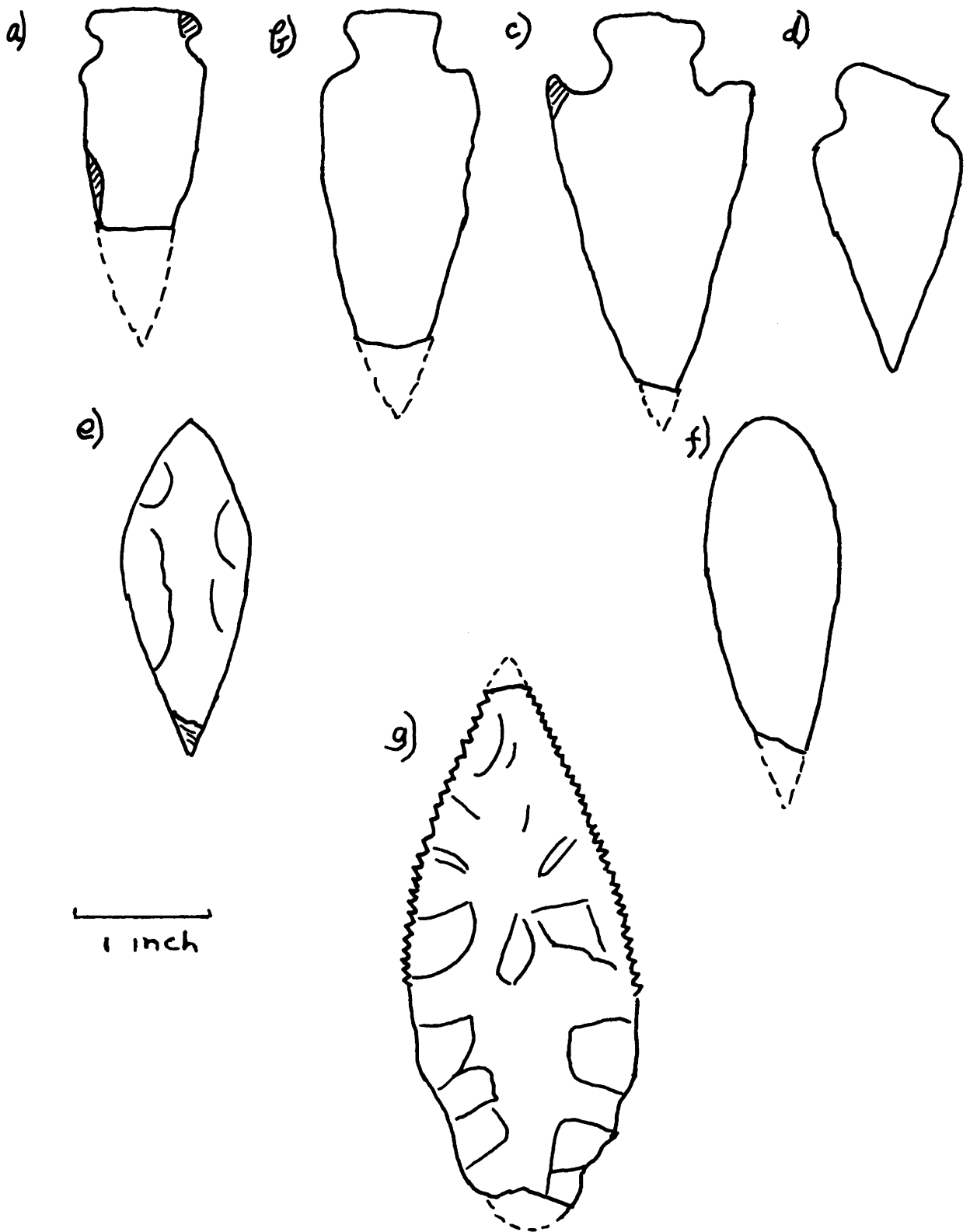


Figure 2.

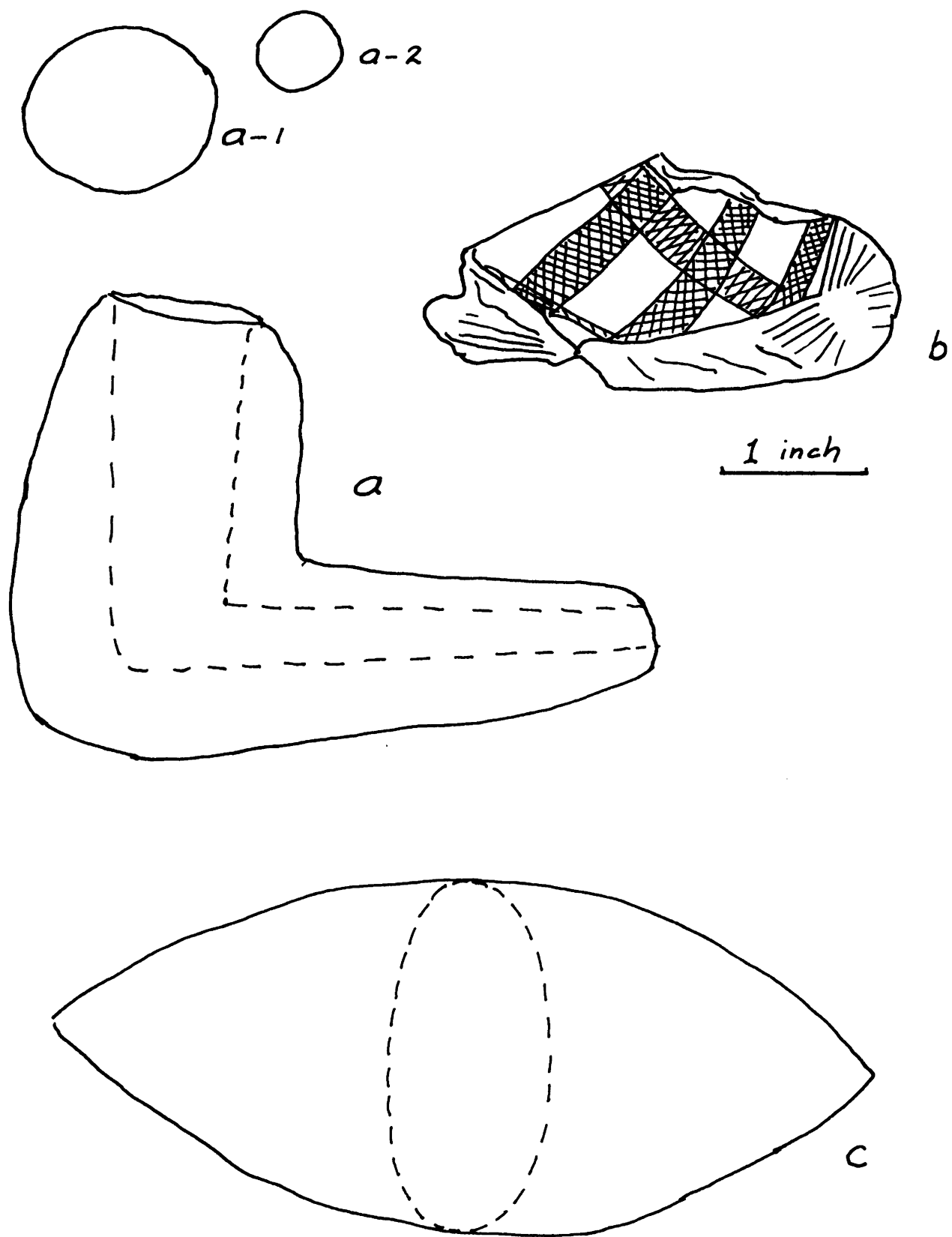


Figure 3

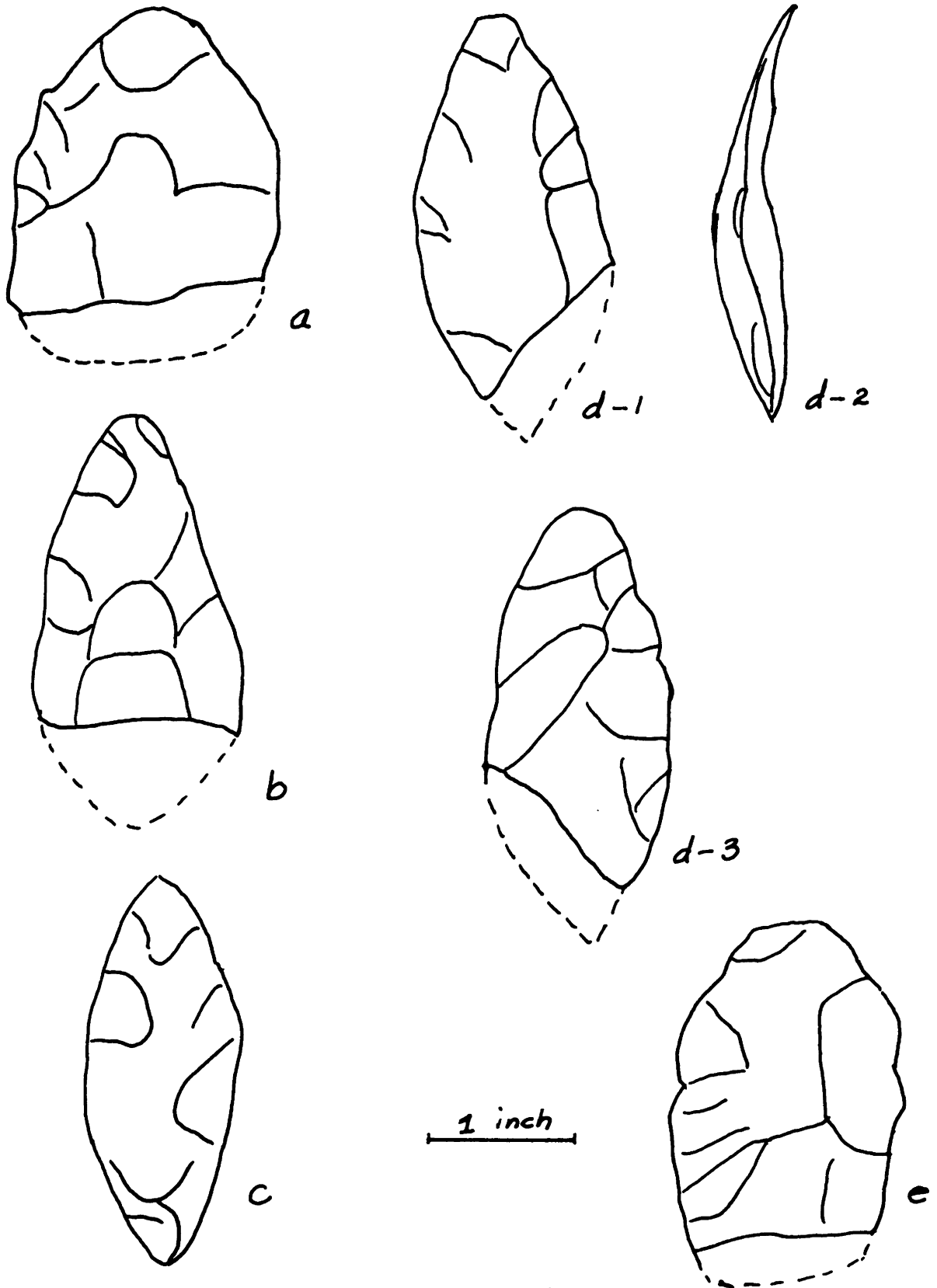


Figure 4.



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