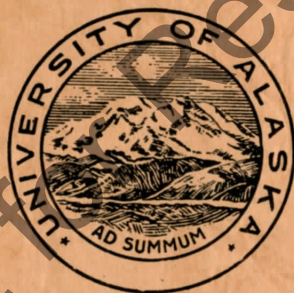


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*Anthropological Papers  
of the  
University of Alaska*

Volume 4

Number 1



*College, Alaska*

December

**1955**

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# CHANGING SOCIAL ORGANIZATION AND KINSHIP AMONG THE ALASKAN HAIDAS

ROSEMARY A. ALLEN

The Alaskan Haidas, concentrated in the town of Hydaburg on Prince of Wales Island, are the least known sub-division of this tribe. What information we have concerning the Haidas relates mostly to the British Columbia groups.

Hydaburg is today a community of some 350 individuals, with usually less than a dozen white inhabitants exclusive of those few married to members of the tribe. The one remaining Alaskan Haida town since 1911, it has taken on many features of the American rural community—commercial fishing and a co-operative cannery as the economic base, an elected town council and mayor, government-supervised school, a Presbyterian church organization, a material culture based upon the Sears Roebuck catalogue, and frame houses occupied by a single conjugal family and perhaps one parent. This family is economically independent of nearly everything but the fish runs. English has replaced Haida almost entirely among the younger people, and Haida is retained by their elders only in conversations with contemporaries and in public prayers.

Despite the generally high degree of acculturation apparent in the social organization of the community today, there is a general awareness of a non-English kinship system employing aboriginal terms, applied in a more or less systematic and aboriginal manner. The older people are not otherwise much less acculturated than their children and grandchildren who speak and use only English, but among the elders the kinship knowledge is still active.<sup>1</sup>

## ABORIGINAL SOCIAL ORGANIZATION AND KINSHIP STRUCTURE

The evidence concerning the aboriginal Haida kinship system indicates that it was of Crow-type, with bifurcate terminology in the first ascending generation, matrilineal descent, and identification of the father's sister's daughter with the father's sister. This was associated with matrilans within exogamous moities. Within the clans, in turn, were a series of smaller kin units identified with named community houses whose membership included a group of brothers with their families and sister's sons, who inherited through their affiliation with the house group. The children of the male members were affiliated with their mothers' (brothers') houses and returned to them.

The largest local unit was the village, minimally composed of men of one house of one clan, and their wives and children of the various

<sup>1</sup> This is substantially the same paper as presented at the American Anthropological Association meetings, Philadelphia, December, 1952. The fieldwork was conducted in the spring and summer of 1952.



clans and houses of the other moiety.<sup>2</sup> Where there were several houses and clans, and both moities, there was no one recognized overall village head. Most important ultimately was the individual house head who supervised economic activities for his brothers and nephews; all wealth and produce was disposed of by the house head, and his ceremonial distributions enhanced the prestige of his entire group. The household group of "uncles" instructed their uterine nephews in the traditions and techniques of the culture.

The economic base of the society was fishing, particularly for the salmon which came up the various streams to spawn. The winter village was thus seasonally deserted and the smaller clan or house groupings of families exploited the resources of streams, beaches, and berry patches, the produce of which was recognized as theirs to use.

Our information concerning the aboriginal kinship system comes from Swanton and Murdock primarily. Murdock points out that the system Swanton presents based upon field-work in 1902 among the Canadian Haidas<sup>3</sup> is classificatory in the extreme. Murdock's information<sup>4</sup> (from extensive Canadian genealogies plus lists of terms gathered in a few days in Alaska in 1932) indicates that this classificatory and regular system is less pronounced in the employment of terms in the singular. The system of affinity is equally well developed and in general kept distinct from the system of consanguinity. Terms for collateral relatives in both patri- and matri-lines tend to be applied to at least two generations. Murdock considers the development of the clan to have contributed to this tendency to override generation, perhaps in other cases by analogy to the father's sister who is significant throughout crises situations in the entire life-span of the individual, and therefore would be a series of different individuals.

Murdock presents the kinship behavior, referring back to the aboriginal culture, and suggests that loss of significance of various relatives has led to changes and confusions in the application and extension of the different terms.

The data upon which I base the following analysis is founded upon a series of genealogies collected from the older inhabitants of Hydaburg and kinship usages from most of the adults of all ages, and I have used here data from those informants employing a significant amount of Haida terminology.<sup>5</sup> I shall attempt to relate the changes in certain

<sup>2</sup> DeLaguna (SWJA, 1952, p. 3) refers to northern Tlingit villages as composed of "the localized divisions of several sibs, representing both moities," and suggests a regional variation among southern Tlingit and Haida, as Murdock points out that the village is one clan, with married-in wives, and Swanton claims the same or the Haida. But actual historical evidence on this point is inconclusive; both moities form a minimal ceremonial unit, but the well-developed practice of inviting another group does away with the necessity for having both moities resident in the same manner (i.e., their own community houses) in any one village.

<sup>3</sup> Swanton, J. R., 1909.

<sup>4</sup> Murdock, G. P., 1934.

<sup>5</sup> I have depended here mainly upon information from some 27 genealogies; 20 of the informants being over 55. The youngest, aged 31, used an unusual amount of Haida for his age.

aspects of social organization to changes in terminological usage, and point out factors affecting the modification of terms, the adoption of new ones, and the retention of old ones, and to suggest a hypothesis which appears significant in the latter situation, which has been generally neglected in the past.

## CONTEMPORARY SOCIAL ORGANIZATION AND KINSHIP STRUCTURE

Those changes in social organization which have affected the importance, functions, and form of the family will be most closely related to changes in kinship terminology and usage.

There has been a progressive diminution in the number of Alaskan Haida villages from first contact to the present, and with mill-cut lumber, "white man's houses" were built, and the community houses eventually deserted. English came to be more and more important, and the remaining villages were more permanently occupied as the need became felt for the children to remain in school for several months of the year. As the white man's way of life spread through southeast Alaska, education for life in a white man's world came to be more important than the traditional training given by the uncles.

The conjugal family became more important in the life of its members, isolated now in single family units. The men fished as individuals for the salteries and canneries, and the women processed the fish. So the extended family, household, and especially the mother's brother lost much authority, much economic and educational significance. And as the people became Christianized, the father's sister lost her ceremonial import.

The town council became the governing agency—inspired in organization by the teachers, and the village as a result is a political unit.

In the contemporary use of Haida kinship terms (see Charts I and II), several tendencies may be noted. The loss of special importance of the mother's brother and father's sister may be noted indirectly in the confusion of terms for their children, and more directly in the extension of these special terms in several cases to replace the descriptive terms for father's sister's husband and mother's brother's wife respectively. They are so employed by individuals who speak fluent English and use the Haida language only in conversations with elderly members of the community. It appears thus to be a translation of, or analogy from, the English bilaterally extended terms.

Again, confusion is apparent with regard to the father's brother, Murdock recognizing twenty years ago that the appropriate term appeared to be losing ground in Hydaburg. Today it is not found there, and the paternal uncle is called either father (analogous to the still strictly maintained terminological identity of the mother's sister with the mother), or uncle (again, the English model), or he is descriptively identified as "father's younger brother", for example, or called by the term for father's sister's son (which is more consistent than the earlier usage, in fact, wherein there were separate terms for father and father's

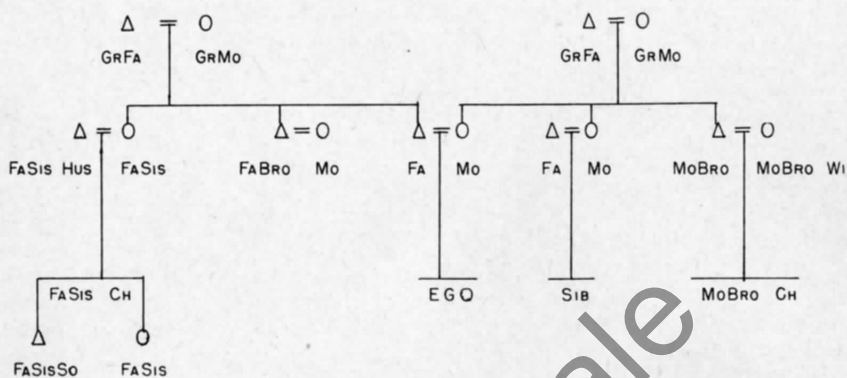
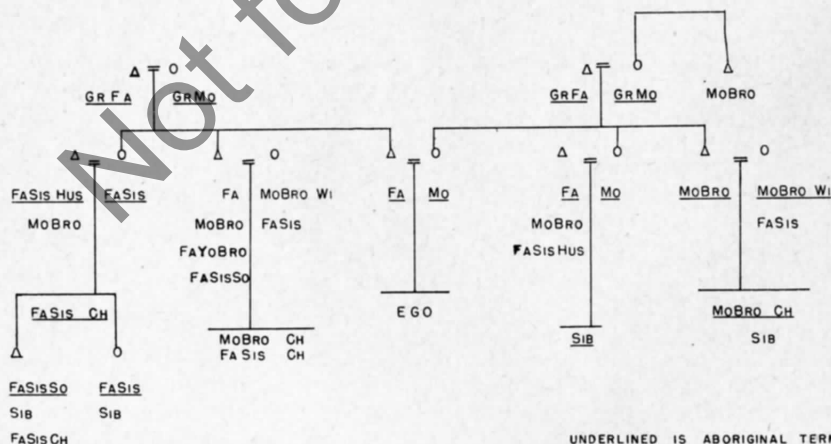


CHART I. ABORIGINAL HAIDA TERMINOLOGICAL SYSTEM

(AFTER MURDOCK)



UNDERLINED IS ABORIGINAL TERM  
ALTERNATIVES IN ORDER OF USE

CHART II. CHANGING HAIDA TERMINOLOGICAL SYSTEM

sister's son, and identical terms for father's sister and father's sister's daughter).

Descriptive terms appear to be replacing the specific terms for the father's sister's children, which is to be expected in view of the diminished importance of relatives outside of the immediate family, regardless of the patrilineal orientation fostered by the English model of familial organization and surnames. This also demonstrates that there is no systematic trend toward a more descriptive or a more classificatory system.

The mother's brother is still recognized as the family head, but this is in general lip service.<sup>6</sup> The older people are aware of clansmen to whom they extend kinship terms, but there is little evidence of actual clan solidarity either in working together or special friendship. The older people still note the father's clan, and there is a special feeling between the "children of the same clan," i.e., those whose fathers were clansmen. In the old days this took the form of joking relationship, and today people profess hurt feelings if those standing in this relation to them are not friendly.

Membership in the same moiety seems to be of little importance today; it is not exclusive enough to give special we-feelings with no reinforcing functions left. The divisions of the members of the community today, beyond those based on age, sex or interests, refer mostly to disputes among older women, expressed in terms of relative status according to earlier customs.

The young people are not interested in clan affiliation, frequently are unaware of their own, and there are a few examples today of marriage within moiety and even clan.

Even today there is a form of matrilocal residence, though not avunculocal; i.e., the daughters' houses frequently are close to those of their mother, or they live in the same house. Women may call their own mothers or mothers-in-law by the term for grandmother when speaking to their own children, and the grandparental terms are those most frequently heard on the lips even of exclusive speakers of English, and even from pre-school children.

#### FACTORS AFFECTING CONTEMPORARY KINSHIP USAGES

There has not been an orderly or harmonious change in the kinship system. With the breakdown in the matrilineal and avunculocal house-clan-moiety system which operated with the terminological structure, several models have been followed, all contributing to the confusion in the terminology—analogy to other parts of the Haida kinship system,

<sup>6</sup> In talking with me, some of the people suggested first interviewing their uncle—"he can tell all about our family, because he is head of it" his knowledge in fact was, of course, not equal to this position.

and the growing influence of the English language and family model are especially to be noted.

Education and opportunities for assimilation into white communities, growing ease of travel to schools and elsewhere, and increased marriage outside the community, tribe and race have all contributed to making the younger people dependent upon the English language and a new familial model.

The eagerness to become a "progressive, Christian community" has made the older folks as well, glad to adapt themselves to the new ways, and the community folk-lore stresses the voluntary choice of the new and rejection of the old.

Despite all this, and the appearance of a typical American rural community, one is struck by the degree of retention of something approaching the aboriginal kinship system even among individuals very much Christianized and very progressive. To the understanding of this aspect of current Haida practice, which is also of general theoretical interest but quite neglected, a recent comment by Raymond Firth appears significant: "It may be put forward as a hypothesis indeed that as culture changes the technological, economic and religious system becomes intensified, there is a strong tendency to adhere more consciously to the system of kinship grouping, *in part as a symbolic representation of cultural individuation.*"<sup>7</sup>

Among the Alaskan Haidas, the maintenance and application of knowledge of clan and kinship appears to satisfy the desires of the elders for prestige. Certain features of the old status system, i.e., slavery and slave-holding, may no longer be employed to rank one among contemporaries. The "Americanized" younger generation has other models, and is not interested in the prestige of their uncles in the past. But this knowledge is kept by the older ones—both men and women—and sooner or later is made known when they are talking about other members of the community and tribe. The prestige of the family, and of the Haida tribe, is pointed out in this manner, and one's envy or disapproval of the ways of others is expressed by recounting the skeletons in their family closets and their ignorance of, or indifference to, the proper terms and behaviors after the old style.

Because the community's picture of itself is one of freely choosing the new ways and rejecting the old, the elders are placed in the position of pioneers in this process of conscious acculturation. Thus they may not really permit themselves to be guardians of the earlier traditions. Only the realm of kinship is left in any systematic fashion and its lone position may indeed lead the older people to emphasize it the more strongly, because it encounters no competing interest in other traditions. It is the symbolic representation of the Indian ways, and it is allowed to be retained because it does not actively interfere with the present acculturation that the whole community values.

<sup>7</sup> Firth, Raymond. "Notes on the Social Structure of Some South-Eastern New Guinea Communities. Part II: Koita." *Man*, June, 1952, Vol. LII, Art. 123, Pp. 86-88.

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Alaska Historical Museum  
Juneau, Alaska

Not for Resale



# THE FAMILY AMONG THE WESTERN ESKIMO<sup>1</sup>

BARBARA HARRIS MICKEY

Anthropologists have long disagreed about the relative importance in human society of the family and larger kin groups. As early as 1877 Morgan recognized that the type of marriage plan in force—more specifically, whether or not sexual unions included a lasting contractual relationship and what this relationship involved—is a key element in the development of family organization. The highest level of development in his evolutionary scheme was monogamous marriage, which gives rise to a family unit composed of a man, his wife, and their offspring: "The idea of the family has been a growth through successive stages of development, the monogamian being the last in a series of forms" (Morgan, 1877, p. 393). To reach this highest form the family has to evolve through four other family types, based upon various marriage plans: promiscuity, sisters with joint husbands, pairs without exclusive cohabitation, and polygyny. Besides hypothesizing an evolutionary scheme for the family, Morgan set up five family types coincident with five forms of marriage, each of which gave rise to a system of consanguinity: "Nothing can be plainer than that this (the monogamian) form of marriage made this form of family, and that the latter created this system of consanguinity. The three are necessary parts of a whole where the descriptive system is exclusive . . . Any of these three parts being given, the existence of the other two with it, at some one time may be deduced with certainty" (Morgan, 1877, pp. 497-498). While Morgan, with his evolutionary approach, did not discuss the functioning of the "monogamic" unit of man, wife, and children in his four other family types, he suggested that this unit, if it exists at all, is, for all practical purposes, obscured, and that it is not clearly recognizable except in a monogamous system.

In 1920 Lowie contradicted this thesis: "It does not matter whether marital relations are permanent or temporary; whether there is polygyny or polyandry or sexual license; whether conditions are complicated by the addition of members not included in *our* family circle: the one fact stands out beyond all others that everywhere the husband, wife, and immature children constitute a unit apart from the remainder of the community" (Lowie, 1920, pp. 66-67). He was still of the same opinion in 1948 when he wrote that on the basis of present knowledge "virtually all recent scholars—Swanton, Malinowski, Radcliffe-Brown, Wilhelm Schmidt, to take a few examples—agree that the family occurs everywhere. And, going beyond contemporary indications, many infer

<sup>1</sup> This paper is based, in part, on the writer's M.A. thesis, "Comparative Social Organization of the Western Eskimo and Aleut," Indiana University, 1953. The author wishes to express thanks to Dr. Harold E. Driver who directed the thesis, and to Drs. Margaret Lantis and Frederica de Laguna for helpful comments on the manuscript in thesis form.

that it antedated other units of larger extent, being found in clear-cut form precisely among the tribes that represent materially and otherwise the simplest level of culture" (Lowie, 1948, p. 217).

Murdock, in line with Lowie on this point, took an even stronger view: "Among the majority of the peoples of the earth, however, nuclear families are combined, like atoms in a molecule, into larger aggregates . . . The nuclear family is a universal human social grouping. Either as the sole prevailing form of the family or as the basic unit from which more complex familial forms are compounded, it exists as a distinct and strongly functional group in every known society" (Murdock, 1949, pp. 1-2).

Linton, on the other hand, concluded that the unit formed by a man, his wife, and their children is not important in all societies: "It is hard for Europeans to realize the sharp disjunction which exists in many social systems between the reproductive unit composed of mates and their offspring and the authentic, institutional family. It happens that in our own society these two units coincide much more closely than in most. As a result, European students have shown a strong tendency to assume that any grouping composed of father, mother, and children must constitute the social equivalent of the family among ourselves. Actually, such groupings play an insignificant role in the lives of many societies, while at least one society refuses to give them any formal recognition" (Linton, 1936, p. 153).

In each instance cited above, the unit under discussion is the same. Morgan termed it the "monogamian family;" Murdock, the "nuclear family." In the following discussion of the Western Eskimo family, it will be shown that, for the area under consideration, the nuclear family is a distinct structural unit, although it shares functions with larger structural units such as the extended family, polygamous family, and multi-family household. Further, while it stands as a clear-cut structural unit, its membership is in flux.

Murdock's terminology will be used because it provides labels for all of the distinct family types occurring among the Western Eskimo. The term *nuclear family* will be used to mean "a married man and woman and their offspring." An *extended family* consists of "two or more nuclear families affiliated through an extension of the parent-child relationship." A *polygamous family* is made up of "two or more nuclear families . . . having one married parent in common." The *polygamous member-family*, a term not used by Murdock, but useful for the Western Eskimo system, will be used to indicate a wife of a polygynous man, and her offspring. A polygamous member-family has the same relationship to the polygamous family as the nuclear family has to the extended family.

Ethnological accounts of the Western Eskimo are sparse,<sup>2</sup> but a

<sup>2</sup> There is only one full monograph on the social culture of a tribe in this area: Margaret Lantis, **The Social Culture of the Nunivak Eskimo**. Kaj Birket-Smith, **The Chugach Eskimo**, contains a chapter entitled "Social Life," which treats marriage rules, kinship, life crises, the village community, and customary law.

number of references to family make-up can be gleaned from early accounts written by untrained observers in the area. A survey of the literature shows that, as residence units, three major family types—extended, polygamous, and nuclear—occur in the area.

*The Polygamous Family.* Reports of polygyny and polyandry are frequent in the early literature. A careful survey, however, indicates that except for the Aleuts and the Kanyaghs both forms of plural marriage were restricted to "chiefs" and a few wealthy individuals. Although polygyny correlates with prestige and wealth factors, and so may be considered a "preferred" form, monogamy is much more prevalent. The polygamous family as a dominant type occurs only in the Aleutians and among the Kanyaghs.

There is considerable indication that the *polygynous member-family*, the equivalent under polygyny of the nuclear family, maintains itself as a distinct residence and functioning group within the larger unit. Drawing on the report of Krenitzin and Levashef (1768-69) concerning the Aleut, Coxe described each wife and her children as a separate unit: "The wives do not all live together, but, like the Kamtchadals, in different yourts" (Coxe, 1787, p. 217). It is probable that these were summer dwellings, and that multiple family structures were used in winter. Even then the member-family retained its identity, for every woman occupied a distinct walled-off division (Sarytchev, 1806, p. 8). Lisiansky reported that polygyny existed among both the Toyons (chiefs) and "private persons" among the natives of Kodiak Island (Lisiansky, 1814, p. 198), but he did not say whether or not member-families functioned as separate units. Since the most frequent house-type was a multiple-family barabara, similar to that of the Aleuts, it seems likely that these polygynous units occupied a single house structure, in a manner similar to that of the Aleuts.

Plural marriages occurred less often among other Alaskan Eskimo groups. While there are many references to their existence, few throw any light upon the problem of the position of the member-family with respect to the larger group. Among the Chugach polyandry was said to be unknown, and only a few, rich men practiced polygyny (Birket-Smith, 1953, p. 81). Lantis reported that both polygyny and polyandry were practiced, but were rare, among the Nuniwagmiut (Lantis, 1946, p. 198). Polygyny among the Kaviagmiut was restricted to those who could afford to support more wives. When it occurred, it was often sororal (Dall, 1870, p. 138). A similar arrangement existed in the Norton Sound and the Lower Yukon region (Nelson, 1899, p. 282). Thornton, who reported that "polygamy is practiced by some of the rich men" among the Kinugumiut, explained polygyny there on a purely economic basis: "The custom probably arose from the fact that it was found more convenient, and perhaps cheaper, to have a number of wives than one wife and several servants—a cause which may have produced much of the polygamy that has thus far existed; though it is quite possible that among these Eskimos the desire for male offspring has had its effect in certain cases." Kinugumiut polygynous families lived in

one house and were sometimes bilocal extended families as well (Thornton, 1931, pp. 63, 220). There is no indication here of separate divisions for the member-families in the larger household, but there is a suggestion that some status differences did prevail. A similar situation has been described for the Point Barrow region: "They [secondary wives] are taken into the family more as assistants to the first wife, as she rules over them, treating them as servants . . ." (Ray, 1885, p. 44). However, both Murdoch (1892, p. 411) and Ray reported that polygyny was rare at Point Barrow, and confined to "wealthy" and "influential" men. Maguire's report corroborates their statements (1854, pp. 376, 385).

Polygyny and polyandry were exceptions rather than the rule among the Mackenzie Eskimo. Stefansson reported that: "A day was devoted to inquiry into plural marriages where I recorded names and relationships of all persons concerned and available facts about their lives. I found that polygamy and polyandry seem to have been about equally common before the coming of white men and both together doubtless made up less than five per cent of all marriages" (Stefansson, 1921, p. 466).

Statements on the Siberian Eskimo conflict. Moore, writing about the St. Lawrence Island Eskimo, whom he considered immigrants from the Siberian groups, stated that "formerly when there was less disproportion between the sexes, polygamy was common, as it is today among their close kin who live across the channel at Indian Point, Siberia—one man there being the possessor of six wives" (Moore, 1923, p. 367). On the other hand, Bogoras reported that monogamy was the rule, and gave as the reason that it was almost impossible for a man to support more than one wife (Bogoras, 1909, p. 611). Perhaps Moore has confused the practice of the few with that of the many.

Plural marriage, then, is the predominant form only among the Aleuts and Kanyags, but a small percentage of the people in each Western Eskimo "tribe" practice it. The available evidence suggests that more often than not the wives of one man lived together in the same multi-family house structure; and where clear-cut descriptions are available, they indicate that the member-families of the polygynous family maintained separate quarters within the house.

*The Extended Family.* Only a few definite statements concerning the extended relationship of nuclear families living within a single house structure are found in the literature. Census data showing the composition of households is available for only one locality. Lantis lists thirty households. Of these, fourteen are nuclear families, seven are matri-extended families, five are patri-extended families, one is a bilateral extended family, two include a joint family made up of a brother and a sister and the nuclear family of each: and one is a joint family composed of two unrelated nuclear families (Lantis, 1946, appendix 1, p. 317). Garber described a bilocal extended family as often found among the "western Eskimo": "In this small room may often be found living a father and mother, three to six children, possibly an older son or daughter, who is married, and likely the grandparents"

(Garber, 1935, p. 216.) Both Curtis (1930, p. 48) and Lantis (1946, p. 159) found a matri-extended family among the Nuniwagmiut of Nunivak Island. The following statement from Lantis' report makes clear the composition of the Nuniwagmiut family: "A son-in-law came to live with the bride's parents; hence the two or more families occupying one house were related. Besides the parents and children, there was often an old great-aunt or a foster-grandfather, a widowed sister who had not yet found a new husband, or some other single person in the household" (1946, p. 159). But, in view of the fact that frequently matrilocal residence was only temporary, the extended family must needs be temporary also, or it must have contained a fluctuating membership. Under these circumstances, it is obvious that the nuclear family retained enough of its identity to detach itself from the larger extended family group.

The Chugach of Prince William Sound had no strict residence rule, although there was a tendency toward a temporary matrilocal residence. Birket-Smith has recorded the situation as follows: "It seems that as a rule the couple would live in the bride's village first and then in that of the husband, so that the parents would not feel lonesome in the beginning." However, the young people could set up a separate residence if they chose (1953, p. 81). He also described a collateral extended family: "Two or more brothers might marry two or more sisters and would then sometimes live in the same house . . ." (1953, p. 80).

Thornton found that the extended family is one of a number of types among the Cape Prince of Wales Kinugumiut: "The other rooms, which connect with the anteroom, are occupied by different families; or, in the case of a chief with several wives and a large family, by his supernumerary wives and their families. Some igloos, however, are occupied by only one family, and some by only two" (Thornton, 1931, p. 220). The multi-family house was divided into "rooms" for nuclear or member-families.

There are numerous references to this condition everywhere in the area. Aleut dwellings were divided into *pologs* by rude partitions of deerskin or straw mats. Each *polog* was occupied by a separate family (Coxe, 1787, p. 119, 175, 214; Sarytchev, 1806, p. 72; Langsdorff, 1814, p. 32; Schwatka, 1900, p. 112; Muir, 1917, p. 42). Schwatka stated that 200 or more people lived in each dwelling; and Muir said three or four families. Dall's report that such houses were often occupied by as many as 100 families is probably erroneous (Dall, 1870, p. 6). As stated above, these were frequently polygynous families, but it is quite possible that here, as elsewhere in Alaska, unrelated families occupied a single house structure. Nuclear families were separated within the structure, but there is no information concerning their economic independence or interdependence.

Nelson's account of King Island and East Cape, Siberia, Eskimo houses is similar to those for the Aleuts. Both had multiple-family structures, with separate *pologs* for each family (Nelson, 1899, pp. 225,

258). Each structure usually contained two families, but whether or not they were related is not known.

The Ikogmiut of St. Michael had a one-room dwelling for three families. Each family had a separate bed platform on one of the three sides of the room. Each family had its own clay lamp, but all used a common central fireplace for cooking (Nelson, 1899, pp. 243-244). A similar arrangement is reported for the Bering Strait and Kotzebue Sound region (Nelson, 1899, pp. 288-289; Curtis, 1930, p. 162). Nelson also reported separate family rooms connected by passages to a central community cooking room at Cape Nome (1899, pp. 253-254).

The Nuwakmiut of Point Barrow (Jenness, 1918, p. 95) and the Mackenzie Eskimo (Stefansson, 1914, p. 135) had one structure for two or three families. They may or may not have been related. Each nuclear unit functioned separately, but the practice of hospitality and obligatory gift giving made them somewhat economically interdependent.

The multiple-family house type predominates throughout the Western Eskimo area. However, no definite statement on the distribution of the extended family can be made. It seems probable that some relationship did exist between the families in a given structure; but data indicating what these relationships are and the frequency of each are not available. It is fairly evident, however, that the nuclear or member-family retained to a large extent its identity as a residence unit, either by occupying a separate room, a separate platform, or a separate area in the multi-family dwelling.

*The Nuclear Family.* The nuclear family unit, consisting of parents and their children, is important everywhere in the area whether or not it is attached to a larger family unit. It functions as an economic and household group, and as a reproductive unit. However, everywhere in the area, the nuclear family shares each of these responsibilities with a larger social group.

The nuclear family rarely exists as a separate residential unit in the area. Only on Little Diomed Island are separate winter dwellings reported for each nuclear group (Curtis, 1930, p. 111). The nuclear family sometimes resides alone in a tent or temporary structure in summer camps and while traveling.

But even within multiple-family structures, there is a tendency for the nuclear family to retain its individuality. As already stated, in the Aleut, Kanyagh, and Siberian and St. Lawrence Island Eskimo house, each family had a walled-off sleeping section, while the Ikogmiut provided separate bed-platforms for each family. The following quotation from Nelson's account of the Norton Sound and Lower Yukon region shows the degree of independence of each nuclear family there: "Each woman who is the head of a family has an oil lamp beside her sleeping bench where she sews or carries on her household work. Her own cooking utensils and wooden dishes for food, together with the stock of seal oil, dried salmon, and other articles of domestic economy, are kept at one side of the platform or in a corner of the room devoted to

this purpose" (Nelson, 1899, p. 288). Each nuclear group at Cape Nome (Nelson, 1899, p. 253) and St. Michael (Nelson, 1899, p. 243) had its own assigned side of the structure. "In perhaps a greater number of cases housemates consisted of two or more families independent of the other" (Stefansson, 1914, p. 135) among the Mackenzie Eskimo.

From the economic aspect, however, the nuclear families were not quite so distinct. In the important matter of food-getting, the responsibility for, and the ownership of, foodstuffs was divided. Provision of much of the family's food supply was the responsibility of the nuclear family head, and he owned his catch. At Point Barrow, a caribou belonged to the hunter who killed it (Stefansson, 1913, p. 65), and in the Aleutians, fish belonged to the fisherman who caught them (Langsdorff, 1814, p. 45). The King Islanders cached the winter's meat supply in a village-owned cache, but each piece was marked to indicate the individual owner (Weyer, 1932, p. 184). However, among the Chugach "the meat was always common property, being divided equally between the villagers, and just as the inhabitants of a house hunted together so they ate their meals in common. There were no special cuts or sections, and neither chiefs nor whale killers received a greater share than anybody else. At present all persons who come down to the beach in Chenega when a sea lion has been caught will get their share, but no others" (Birket-Smith, 1953, p. 96). In some cases, especially with whale and walrus, the first catch of the year, or a young man's first catch, the game was owned by the village and distributed according to pattern (Birket-Smith, 1953, p. 110; Lantis, 1946, p. 258; Langsdorff, 1814, p. 45; Weyer, 1932, p. 183).

Food was either cooked jointly by families living in a given structure, or a single fireplace served each in turn. Nelson reported that at Bering Strait "when the time approaches for the preparation of a meal, a fire is built in the middle of the room and the food made ready, after which each woman places a quantity in one or more wooden dishes, takes it to the *kashim* [men's house], and sets it beside her husband, father, or whomever she has provided for" (Nelson, 1899, p. 289). At Kotzebue Sound the same lamps and cooking utensils were used in turn by each family (Curtis, 1930, p. 162). If a young Chugach couple lived with either the bride's or the groom's parents, the newly wedded wife would use her mother or her mother-in-law's cooking basket until she got one of her own (Birket-Smith, 1953, p. 81).

Even the factor of reproduction, usually reserved to the nuclear family unit, is shared by the custom of wife lending, which occurred in almost every group in the area. The sources for the Aleut (Coxe, 1787, pp. 200; 217-218; Sarytchev, 1806, pp. 76-77; Landgsdorff, 1814, p. 47; Schwatka, 1900, p. 112), the Eskimo of the Yukon and Kuskokwin Delta (Garbor, 1935, pp. 225-226), the Nuwukmiut of the northern coast and Point Barrow (Andrews, 1939, p. 102; Murdoch, 1892, p. 413), and the Siberian Eskimo (Bogoras, 1909, p. 606) describe wife lending and place no limitations upon it. The institution was limited to an exchange between brothers and close friends among the Nuniwagmiut,



the Malemiut of Kotzebue Sound (Curtis, 1930, pp. 49, 244), and at the Mackenzie Delta (Stefánsson, 1914, p. 164). Among the Chugach, a man might sleep with his female cross-cousin while her husband was away without arousing the anger of the husband, and brothers married to sisters and living in a joint household were permitted to exchange mates (Birket-Smith, 1953, p. 80). Children belonged to the recognized husband of the mother even though paternity was obscured. Adoption also occurred throughout the area, and adopted children were identified with own children within the nuclear family.

The high frequency of divorce tended to further obscure the consanguineal ties of the nuclear family. In every group in the area except the Aleut, divorce was accomplished by mutual agreement to separate. Among the Aleut a man could send a wife back to her family, thus accomplishing the divorce. New marriages were usually made by both members of the divorced couple. Nuclear family memberships were constantly being realigned. In some areas there was simply a sibling identification of half-siblings residing together. The Nuniwagmiut, however, used different terms for true siblings, for siblings with the same father but different mothers, and for siblings with the same mother but different fathers (Lantis, 1946, p. 236). Although this terminological distinction may be an adaptation to a predominantly polygamous society (Lantis reports this as rare in 1946, but the terminology may date back to a period in which its frequency was significant), the terms may have been usefully extended to cover the situation in cases of divorce and remarriage. Similar distinctions may have been made in other areas, but unfortunately kinship terminologies are wholly or partially unknown.

Western Eskimo social organization has a definite structure of nuclear family, multi-family household of lineally, collaterally, or polygynously extended, or unrelated families, and villages. This structuring is not controlled by strict residence and/or descent rules, or by strong kin group affiliations. The literature yields very few references to any type of kin group larger than the extended family. Lantis (1946, pp. 239-240) has reported patrilineages on Nunivak Island, Nelson (1899, pp. 322-326) imputed patrilineages to the Eskimos of the Kuskokwim River northward, and there is evidence that either an incipient or a disintegrating system of matrilineages existed among the Aleut at the time of contact. Although Nelson tried to establish "gentes" (patri-sibs) in the area from the Kuskokwim River to Point Hope on the basis of patrilineally descending "totem marks" it is doubtful that these were true gentes. Dall (1870, p. 145) stated that no totemic system was to be found around Norton Sound, and Murdoch (1892, p. 42) found patri-sibs absent at Point Barrow.

Each individual is always a member of three units: 1. a nuclear family; 2. a larger dwelling unit in which some functions, such as cooking, are communal; and 3. a village group. Any or all of these affiliations may be changed at any time because of economic factors or simply a desire to shift. At any given point of time, an individual can

be affiliated residentially, economically, and procreatively with one unit of each kind. His residential tie is strong with all three. His economic responsibility is primarily to his nuclear family unit and to his village through game distribution, and secondarily to his dwelling mates by reciprocal and obligatory gift giving. His part in procreation, when he becomes an adult, is within his new nuclear family, but it becomes village-wide through wife lending, divorce, and adoption practices. He may change his membership in these units at any time, but the intergroup functions and the individual's responsibilities within each type of unit remain the same.

With reference to the existence of a nuclear family and its relationship to other family types and larger kinship groups, the Western Eskimo system is a substantiation of the views of Murdock and Lowie. Everywhere in the area under consideration, "husband, wife, and immature children" do "constitute a unit apart from the remainder of the community," and this unit does exist here among tribes that represent a simple socio-political structure. Further, the nuclear families do seem to combine "like atoms in a molecule" into the larger aggregates of multi-family households and village groups.

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## PREHISTORIC SEA MAMMAL HUNTERS AT KAFLIA, ALASKA

The research program in anthropology undertaken by the University of Alaska at Katmai National Monument under the auspices of a National Park Service contract was oriented toward rounding out a two season field study initiated during the previous year (1953) by the University of Oregon. The first year's program was archaeologically oriented and specifically designed to sample adequately the recorded sites in the Monument. Such a program was highly desirable and produced positive results under the field direction of Mr. W. A. Davis (1954). The plan of the second season's work was formulated by the writer, National Park Service advisors, and members of the Department of Anthropology at the University of Alaska, with the aid of the report from the previous season.

The author is grateful to the National Park Service personnel concerned for their full cooperation during the arrangement and tenure of the field study. The field logistics of the Katmai Project, of which this study was a part, were maintained in a most efficient manner by Robert Luntley. The writer is also grateful to Neal Hosley, Ivar Skarland, and James Van Stone, all of the University of Alaska, for their aid in working out the over-all and detailed plans of the field study. The writer appreciates the suggestions and comments made on sections of this study by E. H. Spicer, Terah Smiley, and E. W. Haury, of the University of Arizona; James Van Stone of the University of Alaska; J. L. Giddings, Jr., of the University of Pennsylvania; and T. N. V. Karlstrom, D. H. Hopkins, and T. L. Péwé of the United States Geological Survey. However, for the ideas expressed in this study the writer is alone responsible.

The general aim of the program was to define the sequence of prehistoric developments at a single site in the Katmai National Monument and to illuminate the prehistoric cultural stability and change. This was to be linked with an ethnographic study of the former inhabitants of the locality. A search for previously unrecorded coastal habitation areas led to the discovery and excavation of the Kafia site, the details of which constitute the body of the report to follow. To obtain ethnographic information on the residents of the area a trip was made to Perryville, a village where the people who left the Katmai area after the eruption in 1912 had settled. Unfortunately it was learned upon arrival at Perryville that all of the elderly people had died. The persons still alive who were in their teens when the Katmai area was abandoned were at sea fishing for the canneries at Chignik, but a trip to Chignik could not be arranged. At the village during the writer's stay were only three adult men, one of whom was not from Katmai; the others were relatively young and singularly uninterested in the past. Additionally Perryville is far from a "dry" village, which com-

plicated the situation further; however, some ethnographic data was obtained, and this has been incorporated into the body of the report.

## METHODOLOGY

Interpreting the subject matter of any study necessitates an understanding of the methods of approach to the raw data. Thus a statement on method has been introduced in order to help clarify the aims and techniques embodied in this report as they were formulated during the Kafia study.

The general problem is conceived to be one of historical reconstruction and identification of cultural processes in the framework of prehistory. More specifically, it includes delimiting the prehistoric sequence in an unknown area of Alaska's north Pacific coast and relating the findings to previous archaeological and ethnographic studies in this locality, as well as defining the cultural processes which become apparent when the collection of artifacts is dealt with as an integrated segment of a cultural tradition.

With the focus on this specific field problem, it was hoped that a prehistoric village consisting mainly of an extensive midden deposit could be located in order to obtain the greatest possible occupational depth. The coastal area of the Katmai National Monument was selected and surveyed from the air, and a site of the type desired was chosen. An enumeration of the sites considered and the methods of location are presented in Appendix I. A small preliminary test pit was excavated in the selected site and the depth of the kitchen midden in one area of the deposit established. Following this a larger area, selected on the basis of an estimated depth of the cultural debris, was chosen and a grid pattern set up. The horizontal area intended for excavation measured 18 by 18 feet and was partitioned into 6 foot squares, which were divided into 6 inch vertical levels in order that the sequence of recovered items could be partially reconstructed later. The field notes taken during the course of the excavation included data on the digging techniques, conjectures regarding the cultural and non-cultural remains in the locality, and any other observations which were thought pertinent to reconstructing the cultural situation during the period of occupancy.

In the general classification of the midden debris from the Kafia site no rigid distinction was made between artifacts and non-artifacts since it was felt that both were significant in the totality. This recognizes that artifacts are only part of the site picture and that the associated bones and unworked stones, while not manufactured, still cannot be ignored in reconstructing culture.

Items recovered from Kafia and their depth in the midden debris are recorded in Table 1; an R indicates a random find from along the beach. Artifacts and seemingly significant non-artifacts have been arranged on the basis of material used and secondarily by manufacturing process if the item is an artifact. This scheme proposes that individual artifacts are reducible to a series of technological components

and that an understanding of the manufacturing technique aids in understanding the finished form.

Similarly, emphasis was placed upon the technology of artifact manufacture by Van Riet Lowe (1945) in his attempt to resolve some of the classification problems arising in tracing the evolution of Levalloisian tools from South Africa. Watson (1950) suggested that similar finished forms might be created by different techniques, such as by the adaptation of a new blade shape from an alien group without learning the alien industrial technology. However, Watson (1950, p. 151) and Movis (1953, p. 165) express the real difficulty in such reconstructions when they note that the archaeologist rarely has the skill to reproduce the tool experimentally. In the list of Kafia items presented by the writer steps in the manufacturing process are recognized and noted. These steps have been recreated partially by experimentation and partially by analysis of unfinished artifacts.

The headings in Table 1 show the gross material used, while the first sub-heading includes the present surface finish or finishes. The second sub-heading includes gross diagnostic features of the item, and from the next step, a, in descending order to the end of the scale more specific features are considered. No attempt was made to rigidly equate the categories, and each artifact was considered primarily in its class according to the material used and method of manufacture. An attempt was made to create categories which would be realities to most technicians. The alternatives of technique open to a manufacturer would be resolved culturally and by the physical availability of the resources (chipping or grinding, slate or flint, etc.). Thus individuals with a similar technology to draw upon and in a nearly similar geographical situation would have the same alternatives or reactions. By considering each artifact as embodying numerous individual steps in the manufacturing process and cross-comparing different forms created in a similar manner or similar forms created in a different manner, considerable insight may be gained into the processes of artifact manufacture. It was found in synthesizing the data of the item list that interpretations were most meaningful when related to those forms which were abundantly represented. It was assumed that the abundance of closely similar forms represented recurrent behavior responses which were of the cultural mode or most common prevailing form.

The physical descriptions of items from the Kafia site, along with a series of plates illustrating the range of types, should enable the reader to visualize the form of finds, and whenever possible subjective identifications with alternatives are given in parentheses at the end of the individual item descriptions. The raw data presented in the item list is interpreted in a section devoted to forms, which is intended to define the technological range of types. Following this is a section on time placement, and then interpretations of the synthesized data are introduced. Finally the entire collection is integrated into the local culture area.

### THE SETTING

Kaflia Bay is located along the central coastal strip of the Katmai National Monument, and the bay proper is divisible into three distinct sections: the funnel-shaped outer bay, bordered on either side by low cliffs; the squared intermediate bay, bordered by rocky beaches and numerous small streams draining the surrounding low basins; and the oblong inner bay, again with rocky beaches and small streams, the largest of which drains a lake to the southwest (see the map in Figure 2). The prevailing ground-cover is grass, willows or alder thickets, with the latter dominating. There are no spruce growing along the shores of Kaflia Bay. A peninsula jutting from the south separates the intermediate and inner bays, and it is here that the site is located. The remains of semi-subterranean houses are visible from the air, which, along with the general setting, made it a choice for landing and further investigation. The site itself is approximately 100 yards long and from 20 to 30 yards wide. The visible surface house pits were of post-contact dwellings, with or without a tunnel; tunnel floors were at the same level as the floors of the small, square to rectangular dwelling rooms. These houses had sections of planks still visible, and round-headed nails were noted in some of the boards. It seems probable that persons from the village of Katmai were living in these houses while temporarily fishing in Kaflia Bay when Mt. Katmai erupted in A. D. 1912. A letter written by one of these fishermen is quoted below from Griggs (1922, p. 19).

Kaflia Bay, June 9, 1912

My dear Wife Tania:

First of all I will let you know of our unlucky voyage. I do not know whether we shall be either alive or well. We are awaiting death at any moment. Of course do not be alarmed. A mountain has burst near here, so that we are covered with ashes, in some places 10 feet and 6 feet deep. All this began on the 6th of June. Night and day we light lamps. We cannot see the daylight. In a word it is terrible, and we are expecting death at any moment, and we have no water. All the rivers are covered with ashes. Just ashes mixed with water. Here are darkness and hell, thunder and noise. I do not know whether it is day or night. Vanka will tell you all about it. So kissing and blessing you both, good-bye. Forgive me. Perhaps we shall see each other again. God is merciful. Pray for us.

Your husband  
IVAN ORLOFF

The houses appear to have been abandoned soon after the eruption. On another section of the site are the burnt-out remains of a small house which belonged to the Bureau of Fisheries and served as a "stream watcher" station (to prevent commercial fishermen from poaching salmon from the bay). The midden debris is presently cutting out of the bank on the inland side of the site, but to seaward storms have driven beach pebbles onto the deposit.

This locality today seems ideal for year-round habitation; there are excellent high or low tide beaches quite suitable for landing small boats on the inland and coastal sides of the peninsula. There is a large accumulation of driftwood on the seaward side of the beach, and approximately 60 and 80 yards to the south are two small, clear fresh water



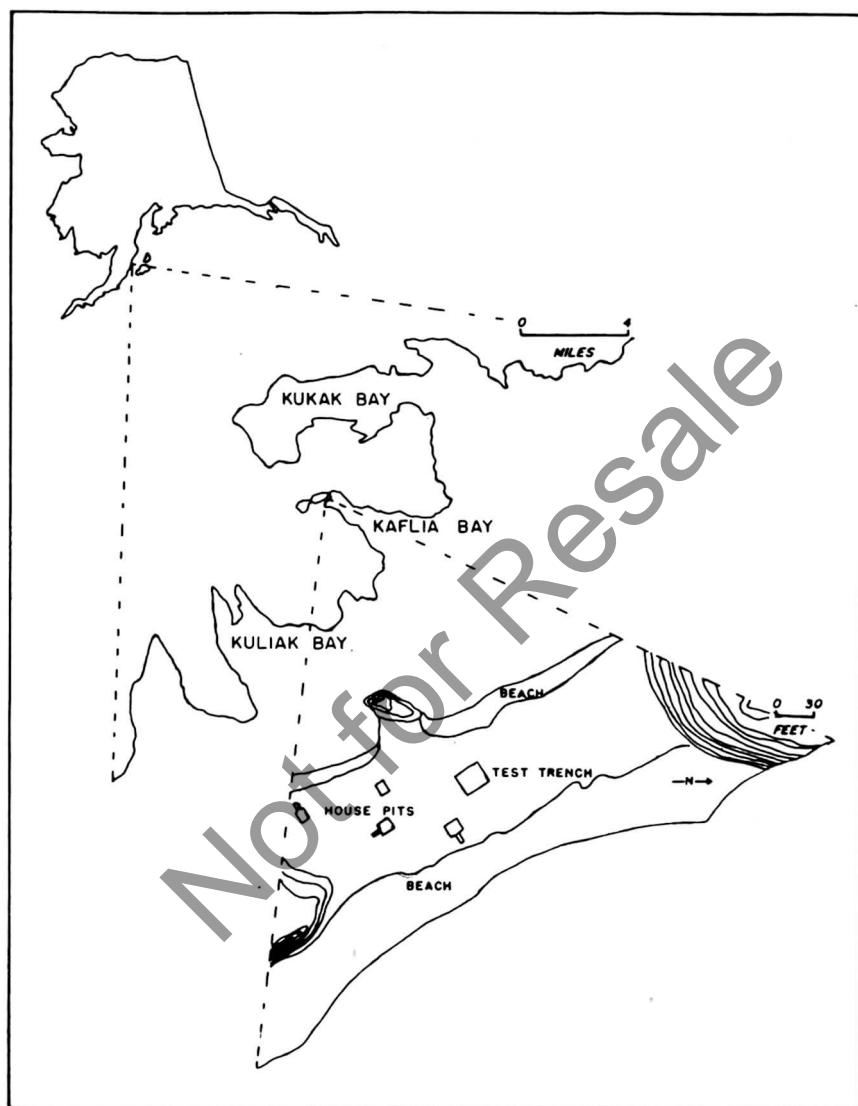


FIGURE 2. The Kaflia site and its geographical position in Alaska.  
Only the site map is directionally oriented.

streams. The site proper is relatively low and yet sufficiently elevated to be above the highest tides in the area today. Rocky prominences to either side of the site make fine vantage points. At the present time seals abound in all sections of the bay, and periodically salmon and

smelt by the thousands migrate into the bay. Other forms of sea life include clams of many varieties and crabs. At the present time the only land mammal of any numerical significance is the Alaskan Brown Bear, which is quite common in the area of the site.

## THE STRATIGRAPHY

Covering all of the site not disturbed in recent years by fishermen is a dense growth of tall grass. Beneath this uniform cover in the area of the test cut (see cross section in Figure 3) was a thick layer of white ash undoubtedly deposited during the eruption of Mount Katmai in A. D. 1912. Underlying the ash was a uniform, thin organic level interpreted as the sod layer at the time of the Katmai eruption. The next discernible layer contained a mixture of complete or crushed shells and fine silt particles, as well as a few scattered small rocks of the same form as that of the nearby outcroppings. This particular level was not uniform in thickness throughout the test trench and ranged from nearly 2½ to 4 feet in depth from the present ground surface. Entering from one side of the mixed shell, silt, and stone layer was a 6 inch lens of concentrated silt, and this type of soil was the dominant form of fill from the 3½ to the 3¾ foot depth. Within the latter deposit were many large stones from nearby outcroppings. Beneath this layer a narrow uniform lens of small beach pebbles covered the bulk of the deposit except for scattered areas on the seaward side. A layer of silt was then present along with the usual bedrock fragments, and intruding into this strata was a broken thin line of wood charcoal. Beneath the lower silt was the eroded bedrock surface marking the bottom of the cultural debris. The six inch levels were measured from the highest point at the rear of the test cut, and the depths of the recovered items are given in the Table 1 listings.

The meaning of the strata was clear in parts of the Kafliia test cut and obscure in others. There was no evidence of general human occupation in the section above the uppermost shell layer, an exception being one ceramic fragment of English Willow ware present in the sod layer. Nor was there any reason to surmise that this area of the site was occupied at the time of the Mt. Katmai eruption. It does appear, however, that the period of occupancy was continuous from the time of the first settlement. The over-all continuity of the strata is broken by the thin line of beach pebbles, but since there was no visible organic layer associated with it, it is interpreted as having been deposited quickly, such as during a severe storm which could have driven the gravel high into the deposit but not necessarily interrupted the occupancy. There is a break at approximately the 4½ foot level, beneath which there were no shells, but this may be correlated with a similar absence of any organic, artifacts, shells, or bones beneath this level, suggesting that the organic materials had decayed. This site is not perennially frozen, which in part accounts for the relatively poor preservation.



FIGURE 1. The Kafia site, Kafia Bay, Katmai National Monument.

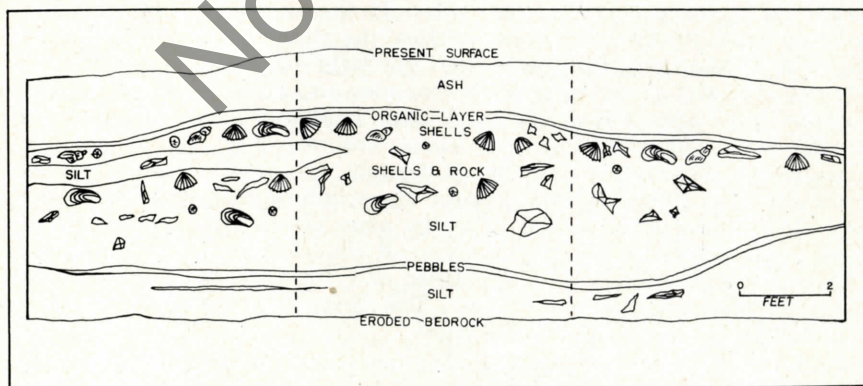


FIGURE 3. The strata at the rear of the Kafia test cut.  
(The shells are not drawn to scale.)

To summarize, in the area of the large test cut the original inhabitants occupied a strata six feet lower than the present ground level, and the occupation was not broken until the final abandonment prior to the eruption of Katmai in A. D. 1912. While it is presumed that the site was continuously occupied, there is no reason to believe that the time period extended over more than a few hundred years. This conclusion was reached primarily by cross comparing the Kafia artifacts with a longer and more detailed sequence from Kachemak Bay. The similarities will be more fully elaborated upon in the comparative study, as will the possibility that the site was deserted before the earliest historic contacts.

### THE FINDS

If the interpretations made thus far are correct, we may assume that all the materials in the cultural debris above the bedrock except the wind-laid silt, some organic materials and the layer of beach pebbles were deposited by the former inhabitants. This would include fragments of local stone outcroppings, beach-worn stones, animal bones, and shells, as well as organic and inorganic artifacts; together these finds represent the virtual totality available for analysis.

Table I contains a physical description of each artifact under a number of sub-headings (see the statement on method), along with identifications, and these are to be correlated with the series of plates illustrating the range in forms. The broadest comparative grouping in the item list is the slate work. The total of recovered inorganic artifacts was 255, and of this number 128 were made from slate.

The following steps have been reconstructed as the most probable in the production sequence of a slate blade. The raw material was percussion chipped with a hammerstone striker into a gross outline of the potential implement if the implement was to have bilateral cutting edges with sharply converging sides. If the implement was to have cutting edges with nearly parallel sides, the slate was percussion flaked to form a relatively thin slab, then partially sawed with a stone saw on one face and sawed in a similar manner and position on the opposite surface until only a thin bridge of slate held the pieces together; this bridge was snapped to form two parts. The next step was to grind the parallel or converging sided blade against a coarse abrasive material as a grinding stone; in this process the grinding was often parallel to the blade in the form of lines. Finally, after wearing away the surfaces to a close representation of the over-all shape, the tang was probably chipped and ground into form; finer and finer grinding stones were used to obtain a finished surface. The final grinding was habitually at an acute angle to the cutting edge.

The first category of slate blades, those with finely ground surfaces, a piercing point and bilateral cutting edges, consists of either knife or lance blades, with two types represented. One has flattened or ovoid cross sections and a technologically unfinished appearance. This type in finished form has large and coarse abrasion scratches, and at least

one section of the completed surface usually shows fractures or saw marks produced in an earlier stage of manufacture. The second type, with the blade diamond-shaped in cross section and with uniformly well-ground surfaces, gives an impression of technological perfection for the medium and form involved. A further perfection of the surface grinding appears on the blades of the second type; this is the "hollow-ground" groove running at right angles to the length and cutting edge of the blade. It should be noted that the diamond cross sectional blades were recovered from the upper levels of the midden debris, while the technologically more unfinished form with a flat to ovoid cross section was scattered throughout the deposit. It is also seemingly significant that in this general category of slate blades with bilateral cutting edges and a piercing point, the blade is relatively constant in shape, but tangs have a considerable range of variation. The coarsely ground and chipped slate blades with bilateral cutting edges interpreted as uncompleted products all fall within the range of the same forms as those with finely ground surfaces.

A number of assumptions may be drawn from the analysis of ground slate blades. First, the slate was probably derived from a primary source, rarely from beach worn pebbles and never from recognizable reworked artifacts. After the broad outline of an artifact had been created, a considerable number of those with converging lateral edges were never finished, while the ones with nearly parallel lateral edges were almost always completed. From the fact that artifacts of this type were recovered in all stages of manufacture, along with hundreds of slate chips, it is inferred that they were shaped completely on the site rather than having been manufactured in a rough or completed form elsewhere and transported to the Kafia site for completion and/or use.

The slate blades with finely ground surfaces and a unilateral cutting edge probably went through the same manufacturing stages as those previously described. Perhaps an exception is the absence of the line striated step on the ulu blades and the complete absence of line striations on the adze blades. Another characteristic of the adze blades is that they were usually ground only along the cutting edge and chipped elsewhere.

The several ulu blade features which stand out above all others are the wide variety of tang forms, blade symmetry, thin cross sections, and the great range of blade size. The remarkable size range of the blades suggests a use specialization like that occurring in metal blades which was pointed out to the author by an Eskimo living along the Kuskokwim River near Aniak. Extremely large blades are preferred for cutting salmon, while the smaller ones are more useful for household tasks. Partially limiting the size of the Kuskokwim metal blades today is the size of the saw blades from which they are usually made, while it seems possible that at Kafia the difficulty in manufacturing a large thin blade from slate would be one factor limiting size; the unwieldiness of extremely large blades would be a factor in either case.



The narrow, symmetrical adze blades are usually coarsely chipped but have a well-polished blade. One of the items in this category is made from porous sandstone and may be a scraper. Incomplete adze and ulu blades both fall within the size range of their completed counterparts.

The next category includes flint objects, which number 32 in a total of 255 inorganic artifacts. Items made from flint (this designation includes all materials producing a concoidal fracture and being processed in a like manner) are not common in the collection, but the types represented are distinctive. It is probable that the forms recovered were shaped originally by coarse percussion techniques and then in a few cases pressure flaked for a more finished edge. There are indications that beach worn pebbles were used as raw material in the manufacture of at least some flint artifacts, but the paucity of rejected flint flakes suggests that manufacturing was not done on the site of the test trench. As with the slate blades, we cannot determine the possible sources of the raw material since the area is a virtual geological blank.

The flint blades with bilateral cutting edges tend as a group to have edges which converge considerably and cross sections that are most commonly either ovate or diamond-shaped. Tang styles vary widely in proportion to the number of samples recovered. Flint objects occur sporadically throughout the levels but seem to be concentrated in the lower levels of the cultural debris.

Exclusive of the scrapers made from rough flakes, chipped knives or scrapers with a unilateral cutting edge are not common (three items). The form with an asymmetrical blade is particularly note-worthy since it represents the only purposely shaped cutting implement with an asymmetrical cutting surface in the entire collection of blades.

An artifact type which probably should be equated with the knives is the relatively large flake with a well-defined cutting edge, which may be a substitution for the unilateral blades which are so few.

Choppers, the main form of artifact percussion flaked from beach worn cobbles, were recovered from most levels and are quite uniform in shape and appearance. All but one is unilaterally bladed. The next artifact type, the boulder chip, was, as the name implies, struck from the side of a small beach boulder with a single sharp blow. The range of individual variation in this type indicates that a variety of stone shapes and sizes were employed and considered adequate.

Pecking beach worn stones or raw sandstone is not a common technological feature of the Kafia material. The pecked items are from the uppermost levels or the random collection with the exception of one from the 54-inch level. The technique was probably known throughout the occupancy of the site, but tools processed in this manner were not numerous. Reconstruction of the manufacturing techniques of pecked stone objects indicates that oblong beach worn stones were used as hammer stones, and from the appearance of two such hammer stones it is obvious that one end was used for coarse pecking and the other

for finer work. It is also possible that the same or similar hammer stones were employed in chipping flint or slate.

Hammer stones must have played an important part in tool manufacture and in general utilitarian use; their uniformity in size and shape denotes careful selection. Surprisingly few broken specimens were recovered. It is likely that they were used for many diverse purposes, such as driving wedges, chipping flint or slate, pecking stone, and fracturing bones. The short oblong beach worn stones employed as hammer stones are uniform in general outline but not in the area of the stone used as a working surface. The ends were preferred as battering surfaces, but sides were sometimes used.

The artifacts identified as grinding stones fall into two types. The first, whetstones, are those presumably used to sharpen previously existing blade edges, while grinding stones in general are those artifacts employed in the abrasion process during tool manufacture. All items of the latter type were small and fragmentary and do not appear to have been used as they now stand, since the sharp, angular outer edges indicate fracture and breakage after the forms were completed.

The unworked beach pebbles constitute an intriguing category. These pebbles show no signs of human alteration, but their presence in the site would seem to indicate that they must have been handled by the people. It seems possible that the oblong unworked beach pebbles may have been a form of whetstone, whereas the round to oval ones were possibly used for juggling stones, much as the Bering Sea Eskimos employ them today. Similar stones were used in the Aleutians (Jochelson, 1925, Pl. 17, 27, 29) for a game in which a number of such stones were thrown into the air and an attempt was made to catch them all with one hand.

There is a diversity in the other inorganic materials recovered, but few were made into artifacts. The labret made from coal is one of the exceptions; this is an extremely well-made specimen in an unusual and brittle medium. The fragments of bedrock recovered among the debris in the site numbered into the thousands from every level beneath the ash layer. Why they were brought into the site is not known since they are of all shapes and sizes and were seemingly placed at random. Some of the larger rocks were arranged into groups of either oval clusters or lines, but these could not be identified with any form of structure. In the third level a thin flat stone nearly a foot across was found covered with a thick layer of wood ash, but no associations or implications could be derived from it. Not in the test cut proper but to the east central area of the site was a large pile of stones, and a like pile was found on the inland beach cutting into the bay. The latter cluster of stones contained 40 pieces, from one to three feet in diameter, arranged in an oblong pile three feet in length and nearly three feet high. No artifacts were found in direct association with either pile of stones, nor was it possible to draw any further inferences concerning them.

The organic artifacts number 27, and as previously noted they are from only the upper levels of the midden deposit. The antler items num-

ber 19 and compose the largest group. Antler artifacts in various stages of manufacture are conspicuously absent, but the few worked fragments present indicate the manufacturing techniques. Raw antler was cut lengthwise on opposite sides with an abrading tool, perhaps a stone the antler was split and adzed into the over-all desired shape, after saw or burin-like implement, neither of which was recovered. Then which it was shaped with a stone knife and finally ground, polished, or smoothed with a knife into finished form.

The antler products most abundantly represented are the various forms of weapon points, with the harpoon dart the most numerous. The antler weapon points are comparable in the quality of workmanship; none give the appearance of extremely careful or careless finished workmanship. All antler weapon points are unilaterally barbed, and there is little range in hafting methods. The harpoon dart heads have a limited range in their over-all size and outline along with a very apparent uniformity in hafting technique; tangs have either squared or rounded bases and drilled or sometimes gouged line holes.

Other artifacts made from antler, bone, or whalebone, while few in number, are significant in light of the relatively few organic materials recovered, but since it is difficult to determine the variability or range, they will be considered only in the comparative section.

An attempt was made at Kafia to record systematically the number of animal bones recovered from the excavation. The presence or absence of bones from a particular species is of course significant, but it is much more meaningful, especially where there is a hunting economy, to determine the abundance of the represented species. Rather than count every bone, only the long bones, scapula, pelvis, and mandibles were entered into the list. This avoids undue importance being attached to the occurrence of a complete set of bones such as seal ribs or vertebrae, which would greatly weight the importance of one animal in proportion to the others from which only a few bones remain.

The heavy reliance of the Kafia people on hair seal and clams as the basis for their economy is obvious. Other animals are virtually absent in the region today and consequently have no importance as a source of food. Not entered in Table 2 are dog, bear, walrus, bearded seal and porcupine bones, of which too few were found to be considered significant.

#### TIME PLACEMENT

To place the Kafia material in time several possible approaches have been considered—dating by historical association, by a relative archaeological chronology and by geochronological techniques.

The first recorded contact of the aborigines in this general area with Europeans was on Kodiak Island in A.D. 1761 (Hrdlicka, 1944, p. 9), but there is nothing to indicate whether or not the Kafia site was then occupied. This is significant in light of the absence in the test cut of European trade goods beneath the Mount Katmai ash layer at Kafia.



The difficulties of fitting the Kafia material into the existing archaeological framework are complex. The material can be related to the short sequence Davis has at Kukak Bay, a few miles to the north, but this site too covers a comparatively short time span and is as difficult to place as Kafia. Davis (1954, pp. 91-92) attempts to relate his material to the archaeological sequence on the Kobuk River in northern Alaska, which has been associated with dated wood, but to suggest as Davis has done that the dates for sites over 600 miles to the north can be applied to the Katmai area is tenuous. The areas compared are dissimilar ecologically, and we have little data concerning the nature and extent of the relationships between the Katmai and Kobuk regions; this is not to deny certain similarities in artifact form between the two localities. The only long archaeological sequence to which the Kafia material can be related is that of Kachemak Bay, and, as will be pointed out in the comparative section, the greatest similarities to this material are in de Laguna's Kachemak Bay Period II through the middle of Period III.

It was suggested by Davis (1954, p. 93) that using tree-ring methods of dating wood in this general locality is likely:

An increment core from a nine-inch spruce tree at the Fish and Wildlife station at Brooks Lake had a count of 92 rings. The stand of spruce at Hallo Bay contains many trees over 60 inches in diameter. Hence one would expect to obtain a chronological sequence of over 600 years.

This statement is not entirely consistent with our knowledge of tree-ring growth for Alaska. That a living tree with a six inch diameter contains 92 rings may or may not be significant for tree-ring dating, depending upon the quality of the rings, but to suppose that trees with sixty inch diameters would contain over 600 rings is inconsistent with present findings. Spruce sampled in northern Alaska over a period of eighteen years (Giddings, 1942, 1947) have yet to produce a living tree of the age proposed for those in the Hallo Bay stand (Giddings, 1942, pp. 14, 16; 1947, p. 26). However, assuming that living spruce were obtained with long ring sequences (one hundred rings or preferably more), this by no means assures tree-ring dating, since the tree must record one dominant climatic factor affording considerable annual variation in ring growth which may be plotted through time. Furthermore, the probability of wood suitable for dating being preserved in archaeological sites in the Kafia area is yet to be demonstrated. At the Kafia site only two spongy cottonwood planks and a fragment of spruce charcoal with six rings were recovered in the entire test trench; none had any ring-dating potential. The writer sampled living spruce with a Swedish increment borer in the general region of the Katmai National Monument, but a preliminary analysis of this collection indicates that the trees do not have the sensitivity required for successful and con-

sistent regional cross dating and none of the trees represented, including those at Hallo Bay, contain over 300 rings.

Geochronological dating techniques, aside from tree-rings which have already been considered, include the dating of a charcoal fragment by radio-carbon methods. One piece of wood from near the bottom of the midden deposit at Kaflia was saved, but analysis has not as yet been possible. It is fully anticipated that the charcoal sample would date in the Christian era, but even were it successfully processed, one date can contribute very little to any understanding of a chronological picture.

Another possible geochronological dating technique, a correlation between strand lines and site occupancy, was not attempted since the writer was unaware that geologically recent strands in Cook Inlet had been dated and that these dates could be projected to the Kaflia area strands. A difference in sea level exists at Kaflia between the present time and the time of original site occupation, but that this had local dating potential was not realized.

#### A RECONSTRUCTION OF KAFLIA CULTURE

The relative smallness of the artifact collection available necessarily limits the scope and probability of the conclusions which may be drawn. Nonetheless, with the aid of ethnographic data from the north Pacific region of Alaska, an attempt has been made toward a reconstruction.

The physical size of the site indicates that not more than a few families occupied it at any one time. At present there are surface remains of four aboriginal style houses on the site, and this would seem to be a reasonable number to postulate for the prehistoric period of occupancy. Ethnographic sources (Jochelson, 1925, p. 119; Hrdlicka, 1944, p. 20) suggest that in this general area the nuclear or extended family would reside in each dwelling.

That the site was inhabited only periodically is a supposition finding strength in the fact that no dwellings contemporaneous with the midden debris were discovered and that at the time of the Mount Katmai eruption the people residing there were only in temporary residence. However, were the earlier inhabitants of Kaflia semi-nomadic, a greater range of recovered artifact forms would be anticipated. A seasonal movement of the people would be motivated most likely by a search for additional or supplementary food, but the artifacts and bones at Kaflia do not support this assumption. There are only two arrowheads of the type used in land hunting, a single side spear prong for birds or fish, one reworked harpoon head and very few fish net sinkers, suggesting a limited utility of these implements. Judging from the number and identity of bones, the people were specialized seal hunters. There are hundreds of hair seal bones but few caribou, whale, or bear bones, which leaves little doubt of their primary food supply. The repeated occurrence of two items in the hunting complex is also important; the harpoon dart head and the large lance blade are both more plentiful than any other weapon types. From historic sources it is known that these weapons were important in killing seals. It is difficult to judge

how much the people relied upon clams for food, but it should be noted that the shells were extremely thick in small section of the test trench and scattered in most of the deposit where organic materials were preserved.

It is possible that when the site was occupied large whales, caribou and bears were not generally available in the locality and thus could not be utilized, but whether the people became specialized seal hunters out of necessity or preference or even whether it is possible to reduce the specialization suggested to such categories of casuality is not known. However, we do know that historic Eskimos and Aleuts utilized the products of their environment extensively, which suggests that the dominance of seal hunting at Kafilia was through necessity. Another factor favoring the hypothesis of specialization for survival is the geographical situation along this particular coastal region. The seashore is rugged, with few areas suitable for prehistoric villages. This contrasts conspicuously with the more favorable localities having tremendous midden deposits such as adjacent Kodiak Island, sections of Kachemak Bay, sections of the Alaska Peninsula, and the Aleutian Islands.

A few remarks may be made concerning the religious and ceremonial lives of the people as suggested by the archaeology and supplementary ethnography. It is probable that the seal had a significance beyond that of providing food, sinew, and skin. This is inferred from the conspicuous absence of seal skulls in the site, whereas most other bones of this animal were recovered in large numbers. It is known that along the Pacific Ocean and Bering Sea coasts of Alaska, people at the time of historic contact often used the nose, skull, bladder or bones of animals in propagation ceremonies (Weyer, 1932, pp. 367-370; Jochelson, 1925, p. 118); these items were often saved and then returned to the sea. In the same context it is considered more than accidental that very few seal penis bones were recovered. This, along with the occurrence of a phallic symbol, is taken to indicate a fertility complex which was most probably on the family level if our prior reconstructions are correct. The total inference is that the dominant subsistence item assumed a ceremonial significance in prehistoric times, a characteristic which has been suggested for a number of marginal societies.

Surprisingly enough, the people did not fish to any extent although the area teems with salmon today. In this general region of the north Pacific coast net sinkers are commonly the most plentiful items recovered from a site; very few were found at Kafilia, but fishing with nets was probably known to the people since sinkers of the form recovered have been found in much older sites both to the east and west. That the people did some fishing is evidenced, but the number of bones and sinkers recovered indicates that fishing was not very important.

#### TECHNOLOGICAL RECONSTRUCTION

With the recovered artifacts considered as an integrated segment of a technological tradition, an attempt has been made to postulate how well the tools actually served the users.

The knife and lance blade forms, including both flint and slate products, are comparatively constant, but there is a variety in the hafting methods employed. This is taken to mean that the general shape of the blade was well established and most probably quite successful for its purposes, while the hafting techniques varied at any one time as well as through time. If from variety we may assume instability in this artifact feature, it is probable that the various forms did not satisfactorily fulfill the purpose for which they were intended. Possibly there was a desire for variety seemingly for its sake alone, as Laughlin (1952, p. 32) has noted in the Aleutians, which would manifest itself in such a manner. There is a variation in ulu blade tangs, again interpreted as an unstable feature. Contrasting with the preceding variations is the similarity in shape of the large harpoon dart heads, particularly in the tang.

Collectively this seems to mean that the blade of the harpoon dart heads, lances and knives sufficiently met the needs of the individual users, while the tangs of the ulu, knife, and lance were unstable and perhaps inadequate. The latter is in contrast with the stable hafting methods of the harpoon dart heads.

Carrying the postulation of form utility forward in time to the period of early historic contact on adjacent Kodiak Island, we find that the forms of ulu hafting adopted there, to cite the clearest example, differed from the earlier types at Kafia. The type which prevailed had a tang which was a continuation of the blade body. There was a hole drilled through the blade, and a piece of lashing attached the blade to the handle (Birket-Smith, 1941, Fig. 31, a,b,j,k). This would seem to be superior to any of the previous ulu hafting techniques. The hafting method for the principal form of dart heads at Kafia survived unchanged into the historic period (Birket-Smith, 1941, Fig. 14, f), and it is common from the earliest finds in the Aleutian Islands (Laughlin, 1952, Pl. 2, e).

The standards for a finished slate blade changed at Kafia during the span of occupancy. Finished blades with coarse abrasion marks and fracture scars occur during the entire period, but in the latter part of the occupation a fine surface finish was in part vogue. This seems to have been accompanied by the diamond-shaped cross sectional blade, suggesting a new complex of ideas.

The dichotomy between flint and slate work is superficially great, but more careful evaluation makes apparent many similarities in finished forms. Blade outlines are essentially alike, and flattened and diamond cross sections occur in both as do the slightly shouldered or unshouldered tangs. The great divergence in form between these two blade traditions is attributable to a technological feature of slate manufacture. The parallel sided slate blades find no counterpart in flint; the blades were formed by sawing the lateral edges parallel, a technique not applied to flint.

The transference of a functional feature in one medium to a non-functioning role in another is observable in the Kafia collection. The


large whalebone lance head has broken but originally large bilateral barbs, while the large slate lance blades have similarly placed barbs in an extremely vestigial form. Since no multiple pairs of functional barbs in slate precede this form in the area, it is assumed that the transfer was from whalebone to slate.

#### SITE TO SITE COMPARISON

The site of Kafia is assumed to have been inhabited by an Eskimo-speaking group since there is little or no reason to believe that the boundaries in late prehistoric times, when the site was inhabited, were significantly different from the boundaries at historic contact. Davis (1954) has considered the tribal affinities of the Katmai area people, and there is little reason to restate the situation at this time.

The artifacts from Kafia have been compared to stylistically similar finds in the north Pacific region, and an attempt has been made to restrict the comparisons to materials from those sites which were occupied for a relatively long period and where the inhabitants had an economy similar to that of the people of Kafia. The main body of comparative material is from excavations at Kachemak Bay (de Laguna, 1934), in the Aleutians (Jochelson, 1925; Hrdlicka, 1945) and on Kodiak Island (Hrdlicka, 1944). The best comparative material is from Kachemak Bay, since the span of time represented there is relatively long and clear. In the Aleutians Jochelson's collection appears to be mainly from more recent sites, and Hrdlicka's collections are from both early and late sites. It is currently popular to scoff at the work of Hrdlicka in the Aleutians and on Kodiak Island. Certainly it is unfortunate that he did not conform to more orthodox archaeological methods of excavation and presentation; however, neither of his volumes has been supplemented as yet by any more definitive or better study. In addition, the diverse, generally unavailable ethnographic data which Hrdlicka has gathered together for these areas is a valuable compilation. In more recent years a considerable amount of archaeology has been done in the Aleutians by Helge Larsen, T. P. Bank and his associates, and William Laughlin and his associates. The many current ill-defined areas of Aleut prehistory will undoubtedly be clarified when their completed analyses are available. Laughlin's paper (Laughlin, 1952) "The Eskimo-Aleut Community" is the most stimulating and integrative approach to Aleut prehistory to date and is a good foundation for the more intensive analysis which should be forthcoming. Aleut prehistory in the present discussion has been considered as representative of a single time level since most of the comparative material is from Jochelson's excavation of recent sites. Comparisons with the artifacts recovered by Davis in 1953 are considered separately.

Slate grinding, which is so important at Kafia, assumes much the same significance at Kachemak Bay in Period III and is also recorded from both the Koniag and Pre-Koniag stages on Kodiak Island. Contrastingly apparent is the late and relatively unimportant position of ground slate in the Aleutians, where it was introduced in trade items

from Kodiak to Umnak (Bank, 1953, p. 43). The types most similar to the KafLIA slate blades with bilateral cutting edges are from Kachemak Bay Period III (de Laguna, 1934, Pl. 31), and as at KafLIA the Kachemak Bay specimens with diamond cross sections are later in sequence. At Kachemak Bay a pair of large distinct lateral barbs frequently occur near the base of the blade, but these are not found at KafLIA. Ground slate blades with curved unilateral cutting edges, ulu blades, are also common from the later Kachemak Bay and Aleutian periods (de Laguna, 1934, Pl. 33; Jochelson, 1925, Pl. 16, 1-9, 12, 13). They are less variable than the KafLIA specimens and do not combine the  shaped and shouldered tang types but otherwise are similar.

Chipped stone blades are dominant in the earliest period of Kachemak Bay, throughout the Aleut sequence and probably in the Pre-Koniag material. Large, oblong lance blades with bilateral cutting edges and tangs which are an unbroken continuation of the blade body are unusual at Kachemak Bay during any period; they are not specifically illustrated from the Kodiak Island sequence but are common in the Aleutian material (Jochelson, 1925, Pl. 15, 1-5, Fig. 10; Hrdlicka, 1945, Fig. 192). The arrow points from KafLIA with slight shoulders and flattened cross sections compare with finds from Umnak Island (Jochelson, 1925, Fig. 14,29) and Kachemak Bay II (de Laguna, 1934, Pl. 30,4), but at no site in the region is this type common. The unshouldered arrowpoints with flattened cross sections and square bottomed tangs are comparable to some in the early Kachemak Bay periods (de Laguna, 1934, Pl. 30,3,20,21), while the shouldered diamond cross sectioned points are uncommon in the Aleutian Islands (Jochelson, 1925, Fig. 16,e) and are not found at Kachemak Bay. It is possible that the latter type came from the Bering Strait region, where it occurs sporadically during the recent prehistoric period. The KafLIA chipped drill is similar to a Kachemak Bay III drill (de Laguna, 1934, Pl. 36,9); both vary from the reported Aleut type with a rectangular butt (Jochelson, 1925, Fig. 37).

Chipped semi-lunar blades are uncommon at KafLIA but occur on Kodiak Island and in the Aleutians (Jochelson, 1925, Pl. 15,15, Fig. 10,11; Hrdlicka, 1944, Fig. 111; Hrdlicka, 1945, Fig. 186,187) as well as in the Kachemak Bay sequence (de Laguna, 1934, Pl. 35).

Asymmetrical chipped knife blades with a unilateral cutting edge occur frequently in the Aleutian series (Jochelson, 1925, Pl. 15,23,24,28, 31,36,37; Hrdlicka, 1945, Pl. 118 bottom), but they usually have a distinctive tang and were probably hafted at the end rather than opposite the blade, as has been postulated for the KafLIA knives of this type. At Kachemak Bay this form is seemingly absent.

Purposefully formed chipped scrapers are not frequent at KafLIA; the one oblong end scraper is like a combination of the Kachemak Bay scraper forms (de Laguna, 1934, Pl. 30,24,25).

All adze blades at KafLIA seem to be of the same socketed variety, paralleling like finds from Kachemak Bay (de Laguna, 1934, Pl. 19, 9-12) and the Aleutians (Jochelson, 1925, Pl. 15,19,20,41).

Percussion chipped choppers, common at Kafilja, are recorded by de Laguna (1934, Pl.20,5,6) in the boulder chip category. It is possible that the "cleavers" noted by Hrdlicka (1944, pp. 333,344) for the Koniag levels on Kodiak Island are the same form. Boulder chips *per se* (de Laguna, 1934, pp. 60-61) are common at Kafilja and Kachemak Bay but are not specifically mentioned from the Aleutians or Kodiak.

Used flakes are cited from Kachemak Bay (de Laguna, 1934, Pl.30, 37) but rarely in the other areas although it seems probable that they were usually recovered.

The flat beach worn stones with opposite lateral notches identified variously as fish line or net sinkers are reported from the Koniag and Pre-Koniag levels on Kodiak Island (Hrdlicka, 1944, pp. 333,344), the Aleutians (Jochelson, 1925, Pl. 17,5,6,12), and Kachemak Bay (de Laguna, 1934, Pl. 16). At most well-sampled sites this form is plentiful. Many uses have been suggested for the grooved oblong stones. Among these are that they were club heads, line sinkers, or net sinkers, and the author has seen them used as the bottom weight for a funnel-shaped crab net in the Bering Sea. A stone fish line sinker with a medial groove is illustrated by Heizer (1952, Pl. 24) from a Kodiak Island ethnographic collection, and there is also a flat laterally notched sinker from a collection of Chugach Eskimo material culture (Birket-Smith, 1953, Fig. 17,a). One rock with a hole in the center, possibly a sinker, was recovered at Kafilja, and similar finds are recorded from the Aleutians (Jochelson, 1925, Fig. 36, Pl. 17,3,4) and Kachemak Bay II-III (de Laguna, 1934, p. 56).

Oblong beach stones used as hammers are common from all periods at Kachemak Bay (de Laguna, 1934, pp. 56-60). In the Aleutians Jochelson (1925, pp.68-69) comments on the common occurrence of the ball-shaped hammer stones, and his statements on workmanship indicate that the other type, the oblong form, was also recovered.

Grinding stones and whetstones occur almost universally in southwestern Alaska; the hexangular surfaced variety which was found at Kafilja is common in Kachemak Bay III (de Laguna, 1934, p.62), and the rectangular form is found on Kodiak Island (Hrdlicka, 1944, Fig. 141).

The oblong, round-bottomed, pecked stone lamps are one of the types from Kachemak Bay (de Laguna, 1934, pp.63-67) as well as from the Aleutians (Jochelson, 1925, Pl.20,5,9); at Kafilja they are the only form present.

A large slate labret almost identical to the coal labret at Kafilja is illustrated by Birket-Smith (1941, Fig. 11,b) from Kodiak Island. A lignite labret of roughly similar shape is also reported by Hrdlicka (1945, Fig. 205) from the Aleutians. A smaller labret from Kafilja is of the form designated by de Laguna (1934, pp. 109-112) as the broad base and low stud type which is mainly from Kachemak Bay III. The Kafilja specimens are somewhat smaller than two Aleutian labrets illustrated by Jochelson (1925, Figs. 85,87) of the same shape.



Round unworked gaming stones, which are plentiful at Kafilja, are also recorded from Kachemak Bay III and the Aleutians (de Laguna, 1934, p. 104; Jochelson, 1925, Pl. 17,27,29).

Harpoon dart heads with a single barb, a line hole, and a squared to rounded tang are common throughout the Kachemak Bay sequence and plentiful in Kachemak Bay III (de Laguna, 1934, Pl. 39). Specimens with more than one unilateral barb, a line hole and a squared tange are also found throughout the same sequence but are less common, and the single dart head from Kafilja with a unilateral bard, a gouged line socket on one side of the base and a lashing groove on the opposite side is virtually identical to one from the Kachemak Bay area (de Laguna, 1934, F'g. 2). Harpoon dart heads like those listed above are rare or absent in the Aleutians, where there is a tendency to have opposite barbed dart heads and any one of many tang or line attachment methods.

Leister prongs or bird spear side prongs, of which there is only one from Kafilja, are absent from the Kachemak Bay series (de Laguna, 1934, p. 92) but common in the Aleutians (Jochelson, 1925, Pl. 24,1-6, 35,42) although none of the Aleut forms are closely similar to the one from Kafilja.

The one reworked harpoon head from Kafilja is so incomplete as to defy classification. Harpoon heads *per se* in the Aleutians are relatively uncommon since their function is fulfilled by a wide range of harpoon dart heads, but there are crude harpoon heads in the Kachemak Bay sequence (de Laguna, 1934, Pl.38).

The large bilaterally barbed whalebone lance blade from Kafilja is similar in function and over-all shape to one from late Kachemak Bay but diverges from it in barb placement. The Aleut lance heads are elaborate (Jochelson, 1925, Pl. 23, 1-9; Figs. 54, b, 56; Hrdlicka, 1945, Fig. 200; Laughlin, 1952, Pl. 2, b), and none appear to be similar to the Kafilja specimen.

The two large, unilaterally barbed arrow points, one of bone and the other of antler, are grossly similar to some from Kachemak Bay (de Laguna, 1934, Pl. 42, 10, 22). These two points from Kafilja are like the hunting arrowheads from the late Bering Sea sites but have no close parallels in the illustrated Kodiak or Aleutian comparative material.

Awls with points at opposite ends are recorded from the Aleutians (Jochelson, 1925, Pl. 28, 15-20); these differ from the Kafilja example in being made from bone rather than antler.

When the finds from Kafilja are compared with those of Davis (1954) at Kukak, a site on the next bay to the north, it is apparent that there are many typological similarities in artifacts. Items recovered from both sites are as follow: barbed harpoon dart head; ground slate lance blade with flattened cross section, slight shoulders and a rectangular tang; harpoon blade; hollow ground slate work; ulu blade with tang that is a continuation of the blade body; socketed adze blade; grindstone; whetstone; oval lamp; arrow point with squared base and



flaring sides; chipped ulu blade; lance and knife blade; chopper; end scraper; and laterally notched flat pebbles.

The work of Davis indicates that the Kukak site was occupied for a shorter and, on the whole, later period than Kafilja. Supporting this is the presence at Kukak of certain forms considered technologically late, such as pottery, a drilled hole in a ground slate ulu blade, and the hollow grinding of slate. The latter appears at Kafilja but only in the upper levels of the deposit. While it is felt that the Kafilja site is older than Kukak, the upper layers at Kafilja may correspond with part of the period of occupancy at Kukak. The over-all differences in time which may exist between the two sites are probably relatively slight.

### COMPARATIVE SUMMARY

The closest similarities to the Kafilja material as a whole are found in the Kachemak Bay sequence. There are more individual items of like character from Kachemak Bay sub III through middle III than from any other available collections. Certain forms appear at Kachemak Bay and Kafilja but not in the Aleutians, while fewer are found in the Aleutians and at Kafilja but not Kachemak Bay. Without more extensive excavations in the Kafilja area and the publication of more comprehensive reports on Aleutian and Kodiak prehistory, the nature and full extent of meaningful relationships must remain vague and tentative.

### CONCLUSIONS

The Kafilja site was occupied by Eskimos for a few hundred years shortly before the first historical contact in this general area at A.D. 1761. The inhabitants of the site were few, and it is possible but not considered probable that they were seasonal occupants. The principal sources of food were the hair seal and clams; there are good indications that the most plentiful weapon forms from the site were used in seal hunting, and there is also reason to believe that the seal had ceremonial associations for the people. The priority of seal hunting over all other forms of food quest is indicated not only by the abundance of seal bones and seal hunting equipment but also by the absence of any significant number of weapons or bones from which it could be implied that other forms of game were important. This area of the coast is very inhospitable and contains no known large midden sites such as are found to the north and south and on adjacent Kodiak Island. It would seem that these people became almost exclusively seal hunters because of the general paucity of game in the area rather than from failure to utilize the available resources.

The tool types of Kafilja find their closest parallels in forms from the middle to late Kachemak Bay sequence, although some closely parallel Aleutian forms. An important over-all characteristic tying the Kafilja material to the Kachemak Bay developments is the importance

of ground slate work at Kafia and Kachemak Bay as contrasted to the dominance of chipped implements and very late entry of ground slate in the Aleutians.

When ground slate and flint industries are viewed as a whole in southwestern Alaska, it appears that there has been a transformation from one medium to the other, most probably from flint to slate. This idea of transference and convergence agrees with the suggestion by Laughlin (1952) that the trends in Chaluka artifacts from the Aleutians manifest a seemingly uninterrupted and smoothly blending continuum. The writer would not agree that the development is as uniform and linear as Laughlin has suggested, but would consider it more probable that ideas introduced from without became rapidly integrated into the continuum, obscuring outside relationships in the process of assimilation, unless items were introduced too recently for integration to have fully taken place.

Table 1. ITEMS FROM THE KAFIA SITE

Six-inch levels from the  
midden surface

1 2 3 4 5 6 7 8 9 10 R

SLATE

A. finely ground surfaces

I. piercing point and bilateral cutting surfaces

a. symmetrical and slightly converging lateral edges

1. ovoid to flattened cross section (c.s.)  
(lance blade) Plate 1, No. 1

a. tang absent..... — — — 2 3 4 2 7 3 1 2

b. tang, sharp shoulders, rect. outline (knife or lance blade) Pl. 1, No. 4..... — — 1 — — — 1 1 — —

c. tang, faint sloping shoulders, rect. outline (lance blade) Pl. 1, No. 6, 7..... — — — — — 1 — 1 — — —

d. tang, sharp shouldered with medial basal groove and rect. outline (knife or lance blade) Pl. 1, No. 8..... — — — — — — — 1 — — —

e. tang, sharp shouldered, rect. outline, vestigial barbs (lance blade) PL. 1, No. 2, 3..... — — 1 1 — — — — — —

2. flattened c.s with single longitudinally medial apex on each face (knife or lance blade) Pl. 1, No. 9

a. tang absent..... — 1 — — 1 — 1 1 — — —

b. tang, unshouldered, incomplete.... — — — — 1 — — — — — —

3. flattened c.s with single longitudinally medial apex on one face only

a. tang absent..... — 1 — — — — — 2 1 — 3

b. tang, sharp shouldered, rect. outline..... — — — — 1 — — — — — —

4. flattened c.s with single longitudinally medial apex on each face

Prehistoric Sea Mammal Hunters at Kafia, Alaska

	1	2	3	4	5	6	7	8	9	10	R
dividing proximally into two low lateral ridges (harpoon blade) Pl. 1, No. 5											
a. tang absent	—	—	—	—	1	—	—	—	—	—	—
5. diamond-shaped c.s., and "hollow ground" with paired lateral barbs											
a. tang absent	—	—	—	—	—	—	—	—	—	—	—
b. tang, rect. outline (lance blade) Pl. 1, No. 10.	1	1	—	—	—	—	—	—	—	—	—
6. diamond-shaped c.s and paired lateral barbs											
a. tang absent	—	—	—	—	—	—	—	—	—	—	—
b. tang, rect. outline and unshouldered	—	—	—	1	—	1	—	—	—	—	—
II. tang, rect. outline, and unshouldered	—	1	—	—	—	—	—	1	—	—	2
III. irregular frag. non-diagnostic shape (rejected frag.)	x	x	x	x	x	x	x	x	x	x	x
IV. unilateral cutting surface (ulu or woman's knife blade)											
a. rect. outline with slightly convex cutting surface											
1. flattened c.s (frag.)											
a. tang absent	4	5	1	1	—	1	—	3	—	—	3
b. tang, flattened rect. with lateral shoulders, Pl. 1, No. 12, 13.	2	2	1	—	—	—	—	—	—	—	—
c. tang, with lateral shoulders and an inverted V-shaped medial stem Pl. 2, No. 2	—	—	—	—	1	—	—	—	—	—	—
d. tang, with an inverted V-shaped medial stem	—	—	—	—	—	—	—	—	—	—	—
e. tang, rect. without a shoulder, Pl. 2, No. 1	1	—	1	1	1	—	—	—	—	—	—
B. coarsely ground surfaces (unfinished blade)											
I. piercing point and bilateral cutting edges											
a. symmetrical and usually converging lateral edges											
1. flattened c.s. (lance or knife blade)											
a. tang absent	—	—	—	—	—	—	1	2	3	—	1
b. tang, shouldered and rect. outline	—	—	—	—	—	—	—	1	—	—	—
C. chipped and ground surfaces											
I. piercing point and bilateral cutting surfaces											
a. convex cutting edge and converging symmetrical lateral edges											
1. flattened c.s. (lance blade blank) Pl. 2, No. 3											
a. tang absent	1	—	—	1	2	—	—	—	1	—	1
II. narrow, unilateral cutting edge											
a. rect. outline and slightly convex cutting edge											
1. nearly square c.s. (adze blade) Pl. 3, No. 8	1	3	—	—	1	—	—	—	—	—	—
D. chipped surfaces											
I. unilateral cutting surface											
a. rect. with slightly convex cutting edge											
1. broad V-shaped c.s.											
a. tang absent	—	—	—	—	—	—	—	—	—	—	—

	1	2	3	4	5	6	7	8	9	10	R
b. tang, unshouldered continuation of blade body (ulu or woman's knife blade blank)	—	—	—	—	2	—	—	—	—	—	—
II. narrow, unilateral cutting surface											
a. rect. with slightly convex cutting edge											
1. flattened c.s. (adze blade blank)	—	—	—	—	—	—	—	1	1	1	—
III. piercing point and bilateral cutting surfaces											
a. symmetrical and converging lateral edges											
1. flattened c.s.											
a. tang absent	—	—	—	—	—	—	—	—	—	—	—
b. tang, unshouldered continuation of blade body (unfinished knife or lance blade sections)	—	1	—	—	2	1	—	—	—	1	—
IV. irregular shapes (possibly rejected frag.)	x	x	x	x	x	x	x	x	x	x	x
E. sawed and fractured											
I. bilateral sawed surfaces											
a. symmetrical with parallel sides											
1. flattened c.s. (incomplete lance or knife blade) Pl. 1, No. 11											
a. tang absent	—	1	—	—	—	—	—	7	7	1	—
II. irregular non-diagnostic shapes (probably rejected frag.)	x	x	x	x	x	x	x	x	x	x	x
<b>FLINT</b>											
A. surfaces pressure and percussion flaked or percussion flaked alone											
I. piercing point and bilateral cutting surfaces											
a. symmetrical with converging lateral edges											
1. ovate c.s. (lance or knife blade frag.)											
a. tang absent	—	—	—	—	—	—	—	1	—	—	—
b. tang, unshouldered continuation of blade body (lance blade) Pl. 2, Nos. 4, 5	—	—	—	—	2	—	—	1	1	—	1
c. tang, unshouldered with a squared base and flaring body (arrow point) Pl. 2, Nos. 7, 8	—	—	—	—	2	—	—	—	—	—	—
d. tang, moderately shouldered, long and rect. (arrow or lance point) Pl. 2, No. 6	—	—	—	—	—	—	—	1	—	—	—
2. diamond-shaped c.s.											
a. tang absent	—	—	—	—	—	—	—	—	—	—	—
b. tang, faintly shouldered with basal flattening (arrow point) Pl. 2, No. 9	—	—	—	—	—	—	—	1	—	—	—
c. tang, sharp shouldered and diamond shaped (arrow point) Pl. 2, No. 10	—	—	—	—	—	—	—	1	—	—	—
3. flat ventrally and with a dorsal medial ridge											
a. tang absent	—	—	—	—	—	—	—	—	—	—	—
b. tang, oval (hand drill) Pl. 2, No. 11	—	—	—	—	—	—	—	1	—	—	—
b. asymmetrical lateral edges, irregular											
1. irregular c.s. (side scraper) Pl. 2, Nos. 12, 13	—	—	—	—	—	—	—	—	—	—	—

Prehistoric Sea Mammal Hunters at Kafilia, Alaska

	1	2	3	4	5	6	7	8	9	10	R
c. symmetrical with converging lateral edges											
1. ovate c.s. (blade blank)	—	—	—	—	2	—	—	—	—	—	2
II. unilateral cutting surface and roughly rect. outline											
a. roughly semi-lunar cutting edge											
1. flattened c.s. (ulu or woman's knife blade) Pl. 3, No. 1											
a. tang absent	—	—	—	—	—	—	—	—	—	—	1
b. tang, unshouldered continuation blade body	—	—	—	—	—	—	—	—	—	—	1
b. symmetrical convex cutting edge											
1. flattened c.s. man's knife blade) Pl. 3, No. 2, 4											
a. tang absent	—	—	—	—	—	—	—	—	—	—	1
b. tang, unshouldered continuation of blade body	—	—	—	—	1	—	—	1	—	—	—
c. semi-lunar cutting edge	—	—	—	—	—	—	—	—	—	—	1
2. irregular c.s.											
a. trianguloid outline (end scraper) Pl. 3, No. 5											1
b. rect. outline (snub nose scraper) Pl. 3, No. 3	1	—	—	—	—	—	—	—	—	—	—
B. percussion flaked and use retouch											
I. bilateral cutting surfaces											
a. irregular cutting surfaces											
1. irregular, flat c.s. (used flake) Pl. 3, No. 6	—	—	3	—	—	—	—	3	—	—	—
II. unilateral cutting surface											
a. irregular shaped cutting edges											
1. Irregular c.s. (used flake) Pl. 3, No. 7	—	—	—	—	—	—	—	1	—	—	—
b. semi-lunar cutting edge											
1. irregular c.s. (used flake)	—	—	—	—	2	—	—	—	—	—	—
III. no recognized cutting surfaces											
a. irregular edges											
1. irregular c.s. (flake)	—	—	2	1	6	6	5	9	2	3	1
<b>BEACH WORN STONE</b>											
A. percussion chipped											
I. rect. outline with unilateral cutting surface											
a. slightly convex cutting surface											
1. flattened c.s. (chopper) Pl. 3, No. 9, Pl. 4, Nos. 1, 2	—	—	2	3	—	2	1	1	—	—	—
II. ovoid outline and bilateral cutting surfaces											
a. slightly convex cutting edge											
1. flattened c.s. (double edged chopper) Pl. 4, No. 3	—	—	—	—	—	—	—	1	—	—	—
III. oval to round outline, cutting edge continuous around lateral edge											
a. continuous outer working edge											
1. flattened c.s. boulder chip scraper) Pl. 4, Nos. 4, 6	—	1	1	1	6	1	—	1	3	2	—
IV. oblong stone											
a. opposite lateral notches											
1. flattened c.s. (fish line or net sinker) Pl. 4, Nos. 5, 7	—	—	—	1	—	—	2	—	—	—	—
b. with a hole in the center an inch across, six-inch diameter											

	1	2	3	4	5	6	7	8	9	10	R
1. flattened c.s. (unidentified)	—	—	—	—	—	—	—	—	—	—	1
B. pecked											
I. oblong beach stone											
a. encircling medial groove around short axis											
1. oval c.s. (maul head, fish line sinker or net sinker) Pl 5, No. 1	—	—	1	—	—	—	—	—	—	—	—
II. round beach stone											
a. encircling medial groove around long axis (maul head, fish line or net sinker) Pl. 5, No. 2	—	—	—	—	—	—	—	—	1	—	1
III. curved oblong stone											
a. groove across narrow end											
1. oval c.s. (phallic symbol) Pl. 6, No. 5	—	—	—	—	—	—	—	—	—	—	1
IV. oblong stone, incomplete											
a. two small pits on one side and one on the opposite near the proximal end											
1. oval c.s. (hammerstone with finger (?) holds) Pl. 5, No. 4	—	—	—	—	—	—	—	—	—	—	1
C. natural surfaces											
I. oblong and ranging in length from two to twelve inches, flattened battering surfaces (hammerstone)											
a. battered at one end from repeated blows											
1. oval c.s., Pl. 6, No. 7	—	—	—	—	2	—	—	—	—	—	—
b. battered at one end and one side											
1. oval c.s., Pl. 6, No. 6	—	—	1	—	1	—	—	—	—	—	—
c. battered at one side											
1. oval c.s.	—	—	—	2	—	—	1	—	—	—	1
d. battered at opposite ends											
1. flattened c.s.	—	—	—	—	—	—	—	—	—	—	—
2. oval c.s.											
a. red stains on one surface (hammerstone and/or palette)	—	—	—	—	—	—	—	—	—	1	—
3. oval c.s.	—	2	—	1	—	—	—	—	—	1	—
e. battered at opposite ends and one side											
1. flattened c.s.	1	1	1	—	—	—	—	—	—	—	1
2. squared c.s.	—	—	—	1	—	—	—	—	—	—	—
3. oval c.s.											
a. finger holds (?) on two faces	—	—	—	—	—	—	—	1	—	—	—
II. irregular size, frag., flattened battering surfaces											
a. battered on one or more surfaces											
1. oval to flat c.s. (hammerstone frag.)	—	—	2	—	2	3	2	1	—	1	2

# SANDSTONE

A. pecked											
I. oblong outline											
a. pecked central basin area											
1. rounded base continuing into the sides (lamp) Pl. 5, No. 5	—	—	—	—	—	—	—	—	—	—	1
2. small flattened area at the base and convex sides											
a. pecked line encircling the outside of the rim (lamp) Pl. 5, No. 3	—	—	—	—	—	—	—	—	—	—	1
B. finely ground surfaces											
I. rect. or irregular edges											

Prehistoric Sea Mammal Hunters at Kafilia, Alaska

	1	2	3	4	5	6	7	8	9	10	R
a. one grinding surface											
1. thin, flat c.s. (grinding or whetstone, Pl. 6, Nos. 1, 2)	1	—	1	—	—	2	1	2	1	1	1
b. opposite grinding surfaces											
1. thin, flat c.s. (whetstone)	—	1	—	—	1	—	1	2	—	—	—
c. four grinding surfaces, two narrow, two wide											
1. flat rect. c.s. (whetstone) Pl. 6, No. 3	—	—	1	—	—	—	—	—	—	—	—
d. hexangular grinding surfaces											
1. hexagon (whetstone) Pl. 6, No. 4	—	—	1	—	—	—	—	—	—	—	—
e. one grinding surface											
1. raised and lowered grinding area, irregular c.s. (centerhump grinding stone(?) )	—	—	—	—	—	—	—	1	—	—	—
<b>BEACH PEBBLE</b>											
A. natural surfaces											
I. small oblong stone											
a. no signs visible of human use											
1. oval c.s. (use unknown) Pl. 6, Nos. 8, 9	—	1	2	3	7	6	8	6	1	—	1
II. small, nearly round stone											
a. no signs visible of human use											
1. round c.s. (game stone) Pl. 6, Nos. 10, 11	—	—	—	5	—	5	2	5	—	4	—
<b>QUARTZ CRYSTAL</b>											
A. natural surfaces											
I. irregular shape, small											
a. no visible signs of human use											
1. irregular c.s.	—	—	—	—	—	—	—	—	—	—	1
<b>COAL</b>											
A. natural surfaces											
irregular shape, small frag.											
a. no visible signs of human use	—	—	—	—	—	—	2	—	—	—	—
B. finely ground surfaces											
I. rect. shape, small											
a. rect. c.s. (ground frag.)	—	—	—	—	—	—	2	—	—	—	—
II. oval outline and medial groove											
a. ventral surface fractured and broken											
1. flat c.s. (labret) Pl. 7, No. 1	—	—	—	—	—	—	—	—	—	—	1
<b>PUMICE</b>											
A. natural (?) surfaces											
I. oblong shape											
a. no visible signs of human use											
1. irregular c.s. (abrading (?) stone)	—	—	2	—	—	—	—	—	—	—	—
<b>CHINA</b>											
A. glazed											
I. English Willow Ware											in sod layer
<b>WHALEBONE</b>											
A. surfaces natural, adzed and/or ground											
I. irregular shapes (rejected frag.)	—	1	4	4	5	2	3	—	—	—	—
II. parallel sides and working surface at right angles to the straight lateral edges, three to six inches long											
a. end opposite working surface battered											
1. half-circle c.s. (wedge)	—	—	2	1	—	—	—	1	—	—	—
III. piercing point and bilateral cutting surfaces as well as two unilateral barbs											
a. converging lateral edges											

	1	2	3	4	5	6	7	8	9	10	R
1. triangular c.s. (arrowhead) Pl. 7, No. 6.....	—	—	1	—	—	—	—	—	—	—	—
IV. piercing point, bilateral cutting surfaces and four sets of irregularly paired barbs											
a. parallel lateral edges											
1. ovoid c.s. with medial ridge on each face											
a. tang, laterally notched and rect. (lance head) Pl. 7, No. 7.....	—	—	—	1	—	—	—	—	—	—	—
V. rect. section of bone with short lateral projections at one side											
a. curving parallel edges											
1. dome-shaped c.s. (labret) Pl. 7, No. 8.....	—	1	—	—	—	—	—	—	—	—	—
<b>ANTLER</b>											
A. unworked frag. ....	—	—	—	1	—	1	—	—	—	—	—
B. sawed, adzed, and/or ground or natural sur- faces, frag. ....	1	8	7	4	5	2	1	1	—	—	—
C. sawed, adzed, natural, and/or ground surfaces											
I. slightly converging sides and working surface at approximately right angles to the straight lateral edges, three to five inches long											
a. end opposite working surface battered											
1. flat c.s. (wedge).....	1	—	—	1	—	—	—	—	—	—	—
II. piercing point, bilateral edges smooth and a single unilateral barb											
a. roughly parallel lateral edges											
1. oval c.s.											
(a) gouged line hole											
(1) tang, wedge shaped with rounded butt (harpoon dart head) Pl. 7, No. 2.....	—	—	—	—	1	—	—	—	—	—	—
(b) drilled line hole											
(1) tang, rect. with squared butt (harpoon dart head) Pl. 7, No. 3.....	—	—	—	—	—	—	1	1	—	—	—
III. piercing point, bilateral cutting edges, and two unilateral barbs											
a. converging lateral edges											
1. roughly diamond-shaped c.s.											
(a) drilled line hole											
(1) tang, rect. with square butt (harpoon dart head) Pl. 7, Nos. 4, 5.....	1	1	—	—	—	—	—	—	—	—	—
(2) tang, converging lateral edges with rounded base (harpoon dart head) Pl. 7, No. 9.....	—	—	1	—	—	—	—	—	—	—	—
IV. piercing point, bilateral surfaces smooth, and four unilateral barbs											
a. nearly parallel lateral edges											
1. oval c.s.											
(a) drilled line hole											
(1) tang, rect. (harpoon dart head) Pl. 7, No. 10.....	1	—	—	—	—	—	—	—	—	—	—
V. piercing point, bilateral surfaces smooth, and a single unilateral barb											
a. nearly parallel lateral edges											



*Prehistoric Sea Mammal Hunters at Kafilja, Alaska*

	1	2	3	4	5	6	7	8	9	10	R
1. oval c.s.											
(a) lashing slot on one side and a ridged groove on the opposite											
(1) tang, squared (harpoon dart head) Pl. 7, No. 11.....	—	—	—	—	1	—	—	—	—	—	—
VI. piercing point, bilateral edges smooth, and two unilateral barbs											
a. slightly converging lateral edges											
1. round c.s.											
(a) proximal end incomplete (incomplete harpoon dart head) .....	—	—	—	1	—	—	—	—	—	—	—
VII. reworked blunted piercing point, bilater- al edges smooth, and four unilateral barbs											
a. slightly converging lateral edges											
1. rounded c.s.											
(a) lashing groove near butt											
(1) tang, conical (side prong) Pl. 7, No. 12.....	1	—	—	—	—	—	—	—	—	—	—
VIII. piercing point, bilateral edges weathered and a single unilateral barb											
a. probably parallel lateral edges											
1. round c.s.											
(a) tang, approximately conical but incomplete (leister prong).....	—	—	1	—	—	—	—	—	—	—	—
IX. thin rounded working point and con- ing lateral edges also thin											
a. incomplete but converging lateral edges											
1. dome-shaped c.s. (barking tool point?) Pl. 7, No. 13.....	—	—	1	—	—	—	—	—	—	—	—
X. piercing points at opposite ends and rounded lateral edges											
a. roughly parallel lateral edges											
1. broad dome-shaped c.s. (double- endedawl) Pl. 7, No. 14.....	—	—	—	—	1	—	—	—	—	—	—
XI. rect. section of antler with an appended oval shaft											
a. roughly parallel lateral edges											
1. oval c.s. of shaft and rect. c.s. of the shaft body (fish hook shank?) Pl. 7, No. 16.....	—	—	—	—	—	—	—	—	—	—	1
XII. rect. section of antler with a blunted conical point at one end and a split end at the opposite end											
a. irregular lateral edges											
1. flat c.s.											
(a) medial drilled hole (reworked harpoon head) Pl. 7, No. 15.....	—	—	—	—	1	—	—	—	—	—	—
XIII. split section of antler											
a. slightly converging lateral edges											
1. dome-shaped c.s.											
(a) burnt drill holes at irregular in- tervals (drill bearing).....	—	—	—	—	—	—	—	—	—	—	1
XIV. round, flat section of antler											
a. with ventral rect. projection at right angles to the body and a drilled hole through the projection											
1. flat c.s.											

	1	2	3	4	5	6	7	8	9	10	R
(a) compass drawn circles on dorsal surface (button?) Pl. 7, No. 17.....	—	—	—	—	—	1	—	—	—	—	—

# BONE

## A. ground and natural surfaces

### I. piercing point and bilateral edges sharpened

#### a. converging lateral surfaces

##### 1. irregular dome-shaped c.s.

##### (a) tang, conical with a slight knob on one side (arrowhead)

Pl. 7, No. 18.....	—	—	—	—	—	1	—	—	—	—	—
--------------------	---	---	---	---	---	---	---	---	---	---	---

Table 2. SELECTED BONE COUNT

	Six inch levels from the midden surfaces											
	1	2	3	4	5	6	7	8	9	10	R	
Seal long bones (humerus, radius, ulna, femur, tibia, fibula) .....	33	70	79	26	32	7	—	—	—	—	—	—
Seal scapula .....	6	—	14	7	10	2	3	—	—	—	—	—
Seal pelvis .....	28	6	24	9	11	3	—	—	—	—	—	—
Seal jaw .....	—	2	6	—	3	2	1	—	—	—	—	—
Whale bone fragments .....	—	—	1	—	1	—	1	—	—	—	—	—
Caribou long bone .....	1	—	—	—	2	—	—	—	—	—	—	—
Clam shells .....	X	X	X	X	X	X	—	—	—	—	—	—

Table 3. ARTIFACT TOTALS EXCLUSIVE OF FLAKES AND FRAGMENTS

## INORGANIC MATERIAL

### Slate

A. finely ground.....	83
B. coarsely ground.....	8
C. chipped and ground.....	11
D. chipped.....	10
E. sawed and then fractured.....	16

### Flint

A. pressure and/or percussion flaked.....	23
B. percussion flaked and use retouch.....	9

### Beach worn stone

A. percussion chipped.....	30
B. pecked.....	5
C. natural surfaces.....	32

### Sandstone

A. pecked.....	2
B. finely ground surface.....	18

### Quartz, coal, pumice

A. ground.....	3
B. natural surfaces.....	5

## ORGANIC MATERIAL

### Whalebone

A. sawed, adzed, ground and natural surfaces.....	7
---	---

### Antler

A. Sawed, adzed, ground and/or natural surfaces.....	19
--	----

### Bone

A. ground and natural surfaces.....	1
-------------------------------------	---

## APPENDIX I

Fortunately it was possible to make an aerial survey of the entire coastal region of the Monument from Cape Douglas west to Cape Kubugakli during almost ideal flying weather. Each cove and bay was carefully observed, but water conditions sometimes made it impossible to land. Locating unreported sites from the air necessitates considering a number of factors. These include the presence of a gentle beach to permit the landing of small boats even in rough water, shelter from high waters and strong winds, an accessible supply of nearby fresh water, and a supply of driftwood in the vicinity.

Beginning at Cape Douglas and working westward the sites observed and the general coastal conditions with reference to habitations will be enumerated.

Near the northeastern tip of Cape Douglas where a clear stream enters a small cove on the sea artifacts were found just behind the beach and cutting out of a caving bank. The artifacts include a chipped knife blade, a scraper and numerous flakes but no organic materials. These specimens appeared to have been from a thin organic soil layer just beneath the present ground surfaces. The site was not extensive; there were no indications of dwellings nor was there anything to suggest more than a brief occupation.

South of Cape Douglas to Swikshak Bay all the streams are glacier-fed, and no point or river mouth area was noted which seemed suitable for habitation. The next locality investigated was approximately four miles south of Swikshak Bay at the mouth of a clear river. A site had been reported in this general area, but none was found either by aerial survey or by walking along the most promising sections of beaches.

Along the next bay, which is unnamed, were low cliffs abruptly fronting the sea at the upper end and a long barren sandspit to the west, neither of which appeared suitable for settlement. Just to the south is the abandoned historic village of Kaguyak. This was inspected from the ground, but no more was noted than had previously been reported by Davis (1954, pp. 45-56). In the area of Hallo Bay north of Ninagiak Island a single house pit was observed, and a number of cleared areas appeared to have been occupied; however, water conditions did not permit landing to investigate.

The next site observed was that of Kuliak, which was partially excavated by Davis. The site is extensive, perhaps the most extensive along the coastal area of the Monument. A few miles to the west of the Kukak site a number (five) of house pits were observed, and a probable pit was noted at the mouth of a small stream entering the bay. The next site located was that of Kafilia, the description of which appears in the text. An attempt was made to locate further sites in this area, but none were found nor were any spots that seemed adequate for habitation. South of Cape Gull a small site was observed at the mouth of a stream entering the bay from the west, but no suitable locations were observed in Kuliak, Missiak, or Kinak bays, probably because steep cliffs front the sea along most of this area. The site on Takli Island

reported by Hrdlicka (1944, pp. 131-133) was flown over, but again landing was prohibited by poor sea conditions.

The low cliffs of Dakavak Bay and Amalik Bay again make these areas uninhabitable. The abandoned Katmai Village is described by Davis, and no effort was made to locate it. The only other possible site located was in a clearing at the innermost point of Kashvik Bay near an old log cabin.

In summary, it seems probable that the Monument coastline was inhabited by relatively few people at any one time, and it seems likely that the sites of Kukak, Kafliia, and possibly Takli are the most significant along the entire coast.

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PLATE 1

- |                        |                                    |
|------------------------|------------------------------------|
| 1 lance blade          | 8 knife or lance blade             |
| 2 lance blade          | 9 knife or lance blade             |
| 3 lance blade          | 10 lance blade                     |
| 4 knife or lance blade | 11 incomplete knife or lance blade |
| 5 harpoon blade        | 12 ulu knife blade                 |
| 6 lance blade          | 13 ulu knife blade                 |
| 7 lance blade          |                                    |





PLATE 2

- |   |                      |    |              |
|---|----------------------|----|--------------|
| 1 | ulu knife blade      | 8  | arrow point  |
| 2 | ulu knife blade      | 9  | arrow point  |
| 3 | lance blade blank    | 10 | arrow point  |
| 4 | lance blade          | 11 | hand drill   |
| 5 | lance blade          | 12 | side scraper |
| 6 | arrow or lance point | 13 | side scraper |
| 7 | arrow point          |    |              |

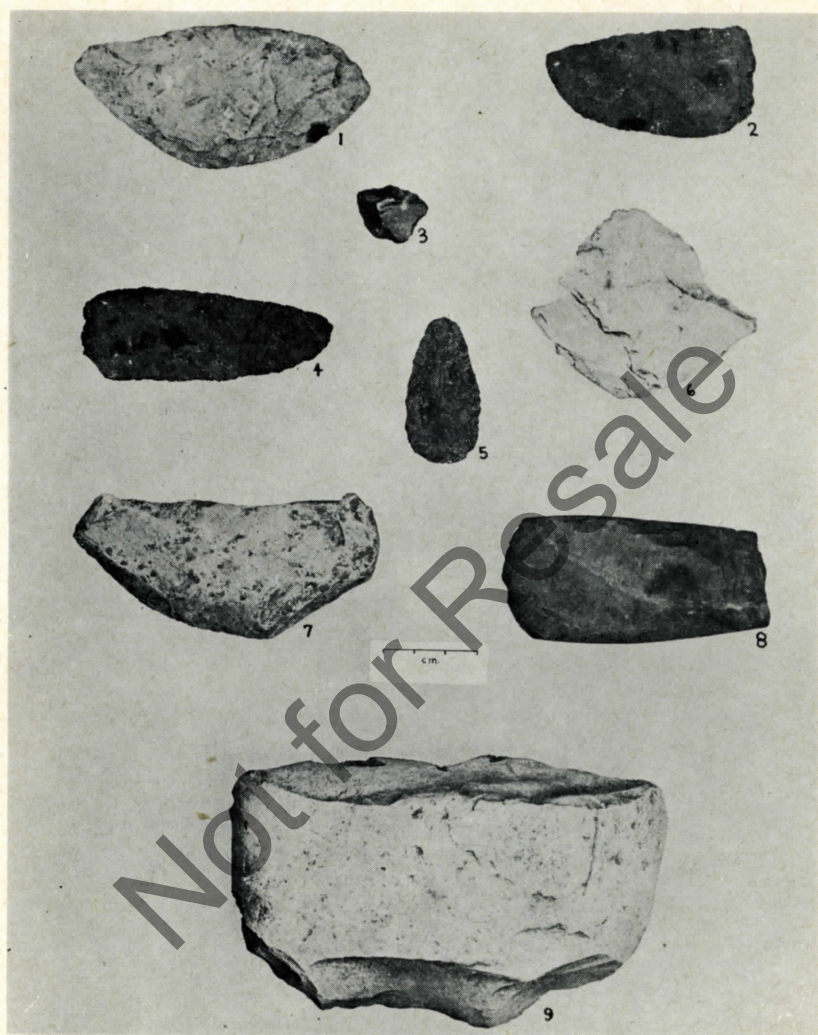


PLATE 3

- 1 ulu knife blade
- 2 man's knife blade
- 3 snub nose scraper
- 4 man's knife blade
- 5 end scraper

- 6 used flake
- 7 used flake
- 8 adze blade
- 9 chopper



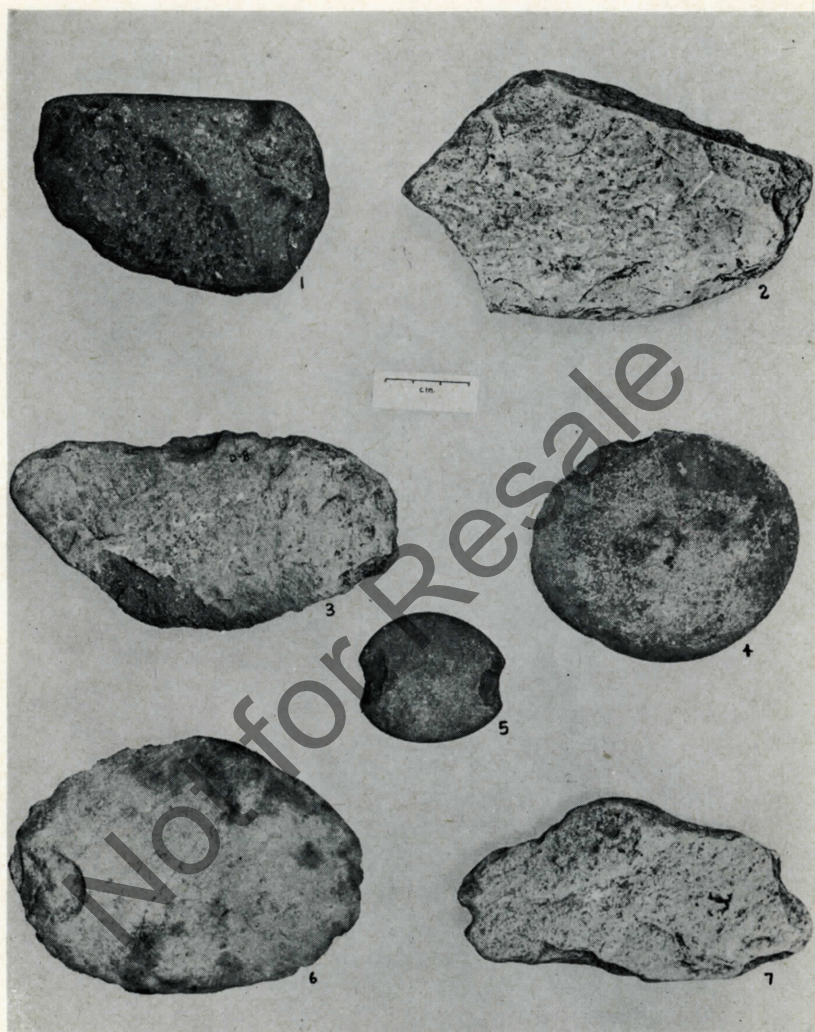


PLATE 4

- |   |                      |   |                         |
|---|----------------------|---|-------------------------|
| 1 | chopper              | 5 | fish line or net sinker |
| 2 | chopper              | 6 | boulder chip scraper    |
| 3 | double edged chopper | 7 | fish line or net sinker |
| 4 | boulder chip scraper |   |                         |



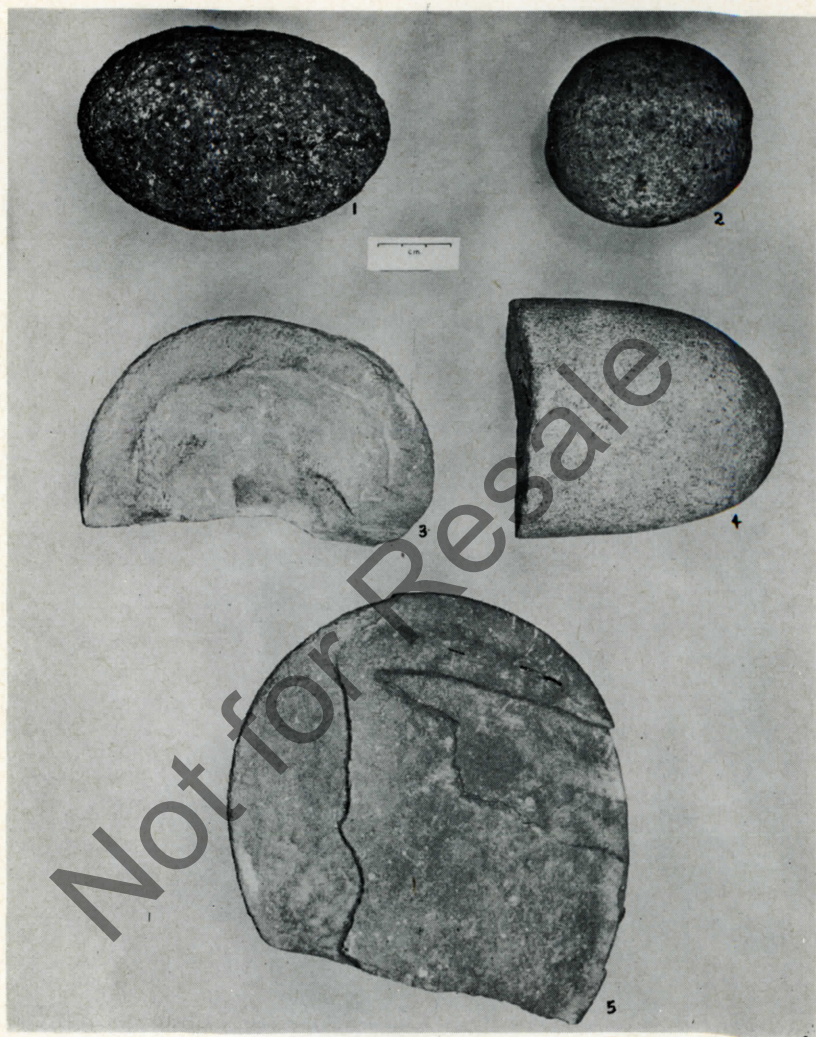


PLATE 5

- |  |               |
|--|---------------|
| 1 maul head, fish line sinker or net<br>sinker | 3 lamp        |
| 2 maul head, fish line sinker or net<br>sinker | 4 hammerstone |
|  | 5 lamp        |

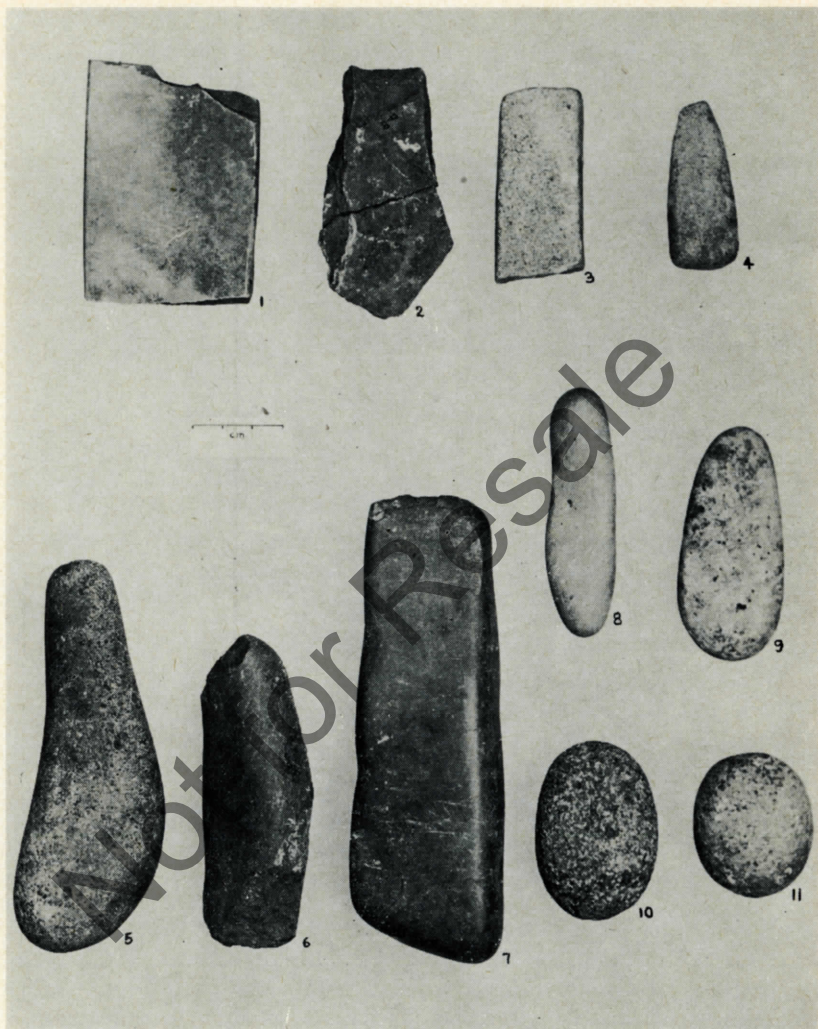


PLATE 6

- 1 grinding or whetstone
- 2 grinding or whetstone
- 3 whetstone
- 4 whetstone
- 5 phallic symbol
- 6 hammerstone

- 7 hammerstone
- 8 oblong stone, use unknown
- 8 oblong stone, use unknown
- 10 oblong stone, use unknown
- 11 oblong stone, use unknown



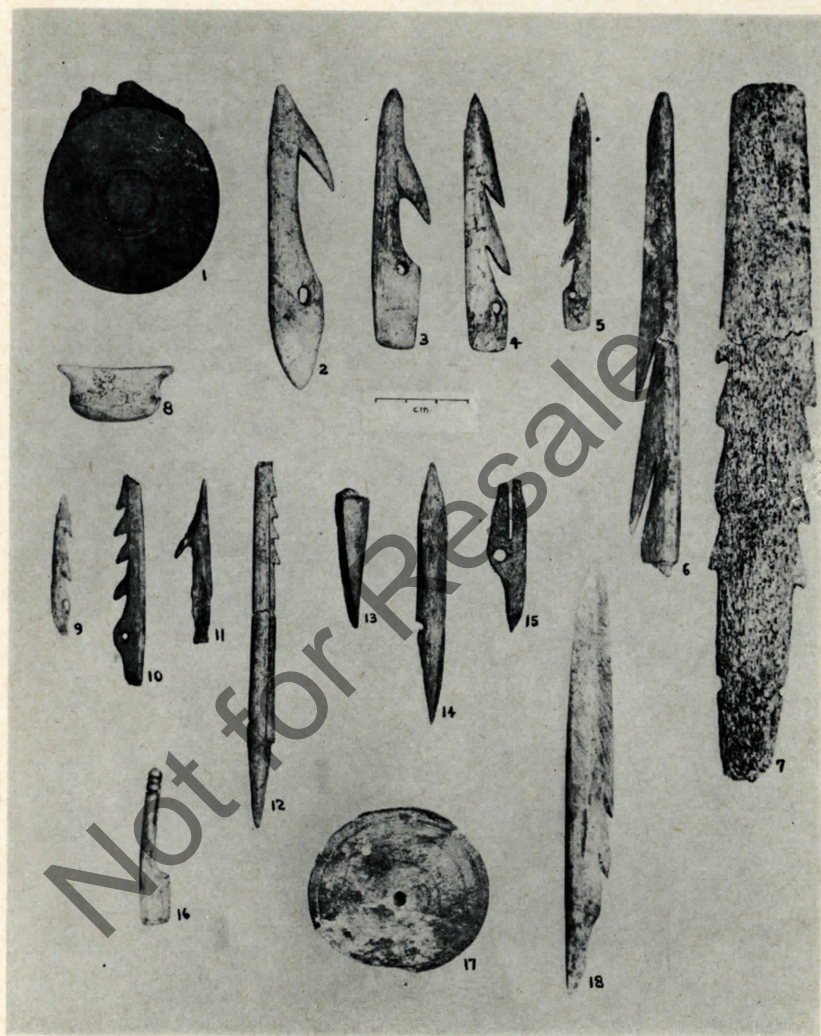


PLATE 7

- |                     |                          |
|---------------------|--------------------------|
| 1 labret            | 10 harpoon dart head     |
| 2 harpoon dart head | 11 harpoon dart head     |
| 3 harpoon dart head | 12 side prong            |
| 4 harpoon dart head | 13 barking tool point    |
| 5 harpoon dart head | 14 double ended awl      |
| 6 arrowhead         | 15 reworked harpoon head |
| 7 lance head        | 16 fish hook shank       |
| 8 labret            | 17 button                |
| 9 harpoon dart head | 18 arrowhead             |

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