

The Kogruk Complex of Anaktuvuk Pass, Alaska

BY JOHN M. CAMPBELL

Late in the summer of 1959 my companions and I recovered a small homogeneous series of stone artifacts from among glacial gravels at the summit of Anaktuvuk Pass in the central Brooks Range of arctic Alaska.¹ These "Kogruk" flints represent one of a number of distinctive Anaktuvuk archaeological complexes which together span several thousand years of Brooks Range prehistory. The few hundred Kogruk artifacts, most of which are rude bulbar flakes of chert, do not readily lend themselves to neat comparisons with archaeological materials from either North America or Eurasia, but the general characteristics of the implements, and the nature of the site from which they came, indicate considerable antiquity, as well as wide-ranging cultural connections between this complex and other flint industries on both continents. The following discussion describes the Kogruk site and complex, and, within the frame of what is presently known of northern prehistory, explores the meaning of this tantalizing collection.

Anaktuvuk Pass is a glacial valley which transects the Brooks Range divide at 68°8' N., 151°43' W. It is perhaps the lowest and broadest of the several north-south trending passes which cut those massive mountains and, as such, is a direct and easily accessible route through the centre of the range. The summit of Anaktuvuk lies at an elevation of 2,100 feet. Two

¹ Archaeological studies at Anaktuvuk in 1959 were supported by the Arctic Institute of North America, and the Arctic Research Laboratory of the Office of Naval Research, United States Navy. My capable associates during the summer were Mr. Thomas Follingstad of the University of New Mexico, Mr. Nicholas Gubser of Yale University, and Messrs. Simon and Raymond Paneak of Anaktuvuk Pass. Mr. Edwin Hall of Yale University also provided valuable assistance during the Kogruk excavation.

rivers head near the summit: the Anaktuvuk drains north to the Colville; and the John River flows generally south to the Koyukuk, a large tributary of the Yukon River. About the summit, the tundra-covered valley floor, which ranges from two to six miles in width, is bounded on either side by mountains rising to maximum elevations of slightly more than 6,000 feet. Small remnant mountain glaciers occur high among the peaks east and west of the pass, the nearest being about nine air miles to the west. The nearest spruce timber presently grows on the head of Savioyok Creek, between 15 and 20 air miles south-southeast of the summit, and near the confluence of Yenituk Creek and the John River, about the same distance south-southwest.

Recent and prehistoric habitation sites in the pass occur typically on well-drained moraines, kames, and kame terraces, which are the most prominent terrain features on the valley floor. Old dwelling areas, as well as surrounding land surfaces, are usually covered with a thin carpet of tundra sod, two to four inches thick, which effectively protects archaeological remains. Earth staining, well-preserved hearths, and concentrations of camp refuse in early Anaktuvuk habitation sites testify to the absence of disturbance by wind or water for long time periods. In fact, the archaeology quite directly implies that, except for stream-cutting, there has been very little surface erosion in Anaktuvuk Pass since shortly after the melting of the last valley glacier.

THE SITE

The Kogrük flints were found a few yards beyond the western boundary of the Kayuk site which occupies a kame terrace beside "Kayuk" or Contact Creek, less than half a mile south of the summit of Anaktuvuk Pass. Since a reconstruction of the life and times of Kogrük is, to some extent, dependent upon a knowledge of the Kayuk site, a brief outline of that ancient camp and its contents is in order.

The Kayuk site, discovered in 1956, extends discontinuously for more than one-fourth of a mile along a part of the top of the terrace whose north-eastern margin roughly parallels the

course of the stream. In the Kayuk site area, the ground surface, with the characteristic dense but thin sod layer, varies in height from 20 to 40 feet above the present bed of the creek. Two separate and distinctive archaeological components occurred within the originally mapped boundaries of the site. The Kayuk complex (Campbell 1959) is characterized by several stone implement types, the most diagnostic of which is a lanceolate, obliquely flaked projectile point. Kayuk shows marked affinity to those early, big game hunting complexes of the western United States and the interior of Canada which contain lanceolate, parallel flaked points, and therefore, probably has an age of six to eight thousand years. A small series of stone, bone, and antler artifacts from two small areas of the Kayuk site is unlike the rest of the Kayuk collection, and is strikingly similar to material from the Ipiutak site at Point Hope, Alaska (Larsen and Rainey 1948). Because of the lack of vertical stratigraphy in the shallow site (typical Kayuk complex artifacts were found in direct or nearly direct association with the Ipiutak remains), I was first inclined to consider all, or nearly all, of the Kayuk site finds as representative of one complex (Campbell 1959: 104). On the basis of subsequent investigations, however, I now recognize both the early Kayuk complex and an Ipiutak manifestation which is very likely 1,500 or 2,000 years old.

It is important to note that all or most of the Kayuk site contained the typical earth staining that one finds associated with old hunters' camps in the Anaktuvuk region. Flecks of charcoal, lenses of ash, decomposed bone and antler, and oil - or grease - stained humus were present in varying degrees in the artifact bearing level, which extended from the rootlets of the tundra sod to a maximum depth of 12 inches below the present ground surface. That distinctive earth colouring occurred in those portions of the site which contained only Kayuk artifacts as well as in the two restricted areas from which were collected the Ipiutak implements. In short, the soil colour alone, exclusive of artifacts stood witness for early human occupation of the Kayuk site.

Following the 1956 and 1957 seasons, I largely abandoned excavations at the Kayuk site and worked elsewhere in the region.

In August, 1959, while based just north of the summit, I returned to Kayuk to dig additional test pits along its perimeter. The first Kogruk implements were thus discovered approximately 250 feet south of Contact Creek, 40 feet above the stream bed, and about 90 feet southwest of one portion of the Kayuk site. In the little time available at the new site, we excavated a total area of 125 square feet, which consisted of five grids crossed at right angles, each of which measured five feet on each side. Kogruk artifacts occurred from two inches below the ground surface to a maximum depth of 12 inches. The majority were found six inches or more below the surface. Topographically and geologically, the Kogruk site was nearly identical to Kayuk, which lay a few yards away. The nearly level surface of Kogruk was covered with a dense layer of sod, about two inches thick, which overlay the gravels of the kame terrace. But a striking characteristic of the ground from which the Kogruk artifacts were recovered, the manner in which they were distributed in the site, and certain physical characteristics of some of the artifacts, were quite different from anything encountered at the Kayuk site.

Perhaps the most noticeable physiographic difference between the two sites was the complete absence of organic materials or earth staining at Kogruk. Kogruk artifacts were found directly among clean gravels, and neither the implements nor the glacial drift with which they were associated bore any trace of the dirt of human occupation present in the artifact bearing level of the Kayuk site, which in depth approximated that of Kogruk. Since the Kogruk artifact types imply settlement, the absence of organic staining may indicate that the site was actively eroded by wind or water subsequent to the original deposition of the cultural remains, or that the Kogruk site is of sufficient antiquity to explain the gradual loss of organic materials through time. In either instance, relatively great age is indicated, since the nearby Kayuk site, which contained organic materials and which lay at the same elevation on the same kame terrace, is almost certainly several thousand years old.

The distribution of artifacts in the Kogruk site is also noteworthy. While flints were recovered from each of the five grids,

they were concentrated among the gravels. About sixty percent of the total Kogruk collection was found in one area of five square feet. In two instances, 25 or more artifacts occurred in a single cubic foot, and in all the grids many of the flints were found on end, tightly wedged between glacial cobbles. There was no indication of any purposeful caching of the artifacts in the site. On the contrary, the evidence directly suggests a significant, if slight, redistribution by fluvial waters.

Finally, in regard to the physical properties of the artifacts, a small percentage of the specimens are eroded and worn along the edges of flake scars. There is no sign of any intentional grinding, and, although it is possible that wear resulted from use, I think it unlikely. Instead, wind or water-borne abrasives quite probably explain this particular quality of a few of the Kogruk flints.

While any but the most marginal or restricted stream action would have widely dispersed the flints, I think that these several characteristics of the Kogruk site and its artifacts are primarily the result of very limited alluvial erosion. Wind may have been a secondary factor, and wind scouring may partially account for the absence of organic staining and for the abraded quality of certain implements, but not, of course, for the peculiar distribution of the Kogruk artifacts, which most strongly implies the agency of running water.

THE ARTIFACTS

Most of the 572 Kogruk artifacts are of chert. Bedrock in the region is primarily sedimentary, and chert occurs commonly in Anaktuvuk Pass and other localities in the mountains as well as at various places along the nearby northern front of the range. Old men among the band of Nunamiut Eskimos presently encamped at Anaktuvuk still recall the locations of widely scattered quarry sites, each of which was formerly known to the Nunamiut by the colour or other characteristics of the particular chert, or chalcedony, it contained. Most Kogruk chert is uniformly light gray in colour, and is probably from a single

deposit somewhere in the area. Leeching, or an infiltration of pigment, has caused a slight but noticeable difference in colour between the exterior flaked surface and inner portions of many of the Kogruk chert specimens. Besides chert, there are several artifacts of indurated shale in the collection, a single flake of chalcedony, and another of obsidian.² Shale, chalcedony, and obsidian are relatively common in some Anaktuvuk archaeological sites. Shale is abundant locally and, as mentioned above, chalcedony deposits also occur in the region. Obsidian, in pebble form, was carried prehistorically to several local sites from presently unknown sources. There is relatively little exposed igneous rock, and there are not reported occurrences of obsidian in the Brooks Range.

All artifacts encountered in the Kogruk site were collected, including unretouched spalls. The series consisted almost entirely of rather large, thin, angular flakes which were probably struck from irregularly shaped, roughly prepared cores, with batons of wood or antler. Nearly half of the total number of artifacts retain well-defined bulbs of percussion or bulb remnants. Primary percussion flake scars are present on every specimen, but in most instances occur on one face only, or on one face and along one or more edges. Secondary flaking, and flaking which resulted from use rather than from intentional retouching, is generally restricted to the edges of the implements. Resolved retouching, probably done with hammerstones, occurs on some of the artifacts.³

Since there are relatively few easily identified artifacts in the Kogruk complex, dividing the collection according to tool types has been a speculative task. Tentative categories include unretouched, unused flakes, retouched or used flakes (knifelike tools), flake-cores, flake-core implements (perhaps choppers), blades, bifaces, graters, scrapers, and saws. There are several additional artifacts that deserve descriptions, but which I have not assigned to any of the above categories.

² For these observations I am indebted to Dr. E.P. Henderson, Division of Mineralogy, The United States National Museum.

³ I Thank Prof. Ralph S. Solecki of Columbia University for his suggestions relative to Kogruk manufacturing techniques.

Unretouched, unused flakes. Two hundred and seventy eight specimens, 99 of which have well-defined bulbs of percussion or bulb remnants, belong in this category. In greatest dimension they range from nearly one-half inch to three and one-fourth inches, and a large majority are one-fourth inch or less in maximum thickness. These thin, angular flakes represent bi-products of implement manufacture, and show no signs of retouch or use.

Retouched or used flakes. There are 250 artifacts of this type, 149 of which retain bulbs of percussion or bulb remnants. In many respects they are similar to flakes in the category above, but they are on the average slightly larger, and all have been either deliberately retouched, or scarred from use. In nearly all instances the fine retouch or use scars occur only along the edges of the flakes. Sixty implements of this type are scarred along one or more edges on the bulbar, or ventral, surface only (Fig. I a). One hundred and twenty-five are similarly scarred but on the non-bulbar, or dorsal, surfaces only (Fig. I b), and 65 are scarred along one or more edges on both surfaces. These implements probably served primarily as knives or similar cutting tools. Although at least one, sharp, thin edge was essential to their purpose, apparently no effort was made in striking the flakes to achieve any very particular shape or style. Within this category there is wide variation in dimension and outline, and most Kogruk artifacts of this type may be fairly characterized as "tools of the moment".

A series of very small, thin flakes have been removed from the dorsal surfaces of two flake artifacts of this type. At least seven parallel flake scars occur together on the specimen illustrated (Fig. I a). They are somewhat similar to those resulting from the removal of microblades from polyhedral cores, and are also reminiscent of certain flint thinning techniques. Their meaning in this instance is, however, obscure.

Flake-cores. I have applied this term to 10 relatively thick, heavy flints which in greatest dimension range from one and three-fourths inches to slightly more than three inches, and in maximum thickness from five-eighths inch to one inch. Three examples are roughly pyramidal in shape; one is nearly tabular;

and the rest resemble closely the angular flakes of the two preceding categories except that they are proportionately more massive. One or more large flake scars occur typically on all surfaces of each specimen. I think they represent the remnants of massive flakes from which smaller flakes were rather haphazardly struck, and in this sense may be considered as cores, but not cores of any formally recognized type in the literature of arctic prehistory.

Flake-core implements. The three, thick, angular artifacts in this category are similar to the flake-cores described above except that extensive edge scarring occurs on each specimen. On one example heavy scarring is present along two edges. It is restricted to parts of a single edge on each of the other two implements. This scarring apparently resulted from use rather than any controlled flaking technique, although in two instances it is accompanied by extensive, unifacial percussion flaking. These implements served perhaps as chopping tools. Two of the specimens appear to be remnant flake-cores which were subsequently used for chopping or similar purposes. The double-edged specimen was rather carefully prepared, and may not represent a used flake-core fragment.

Blades and microblades. There are 21 blades or blade-like artifacts, nearly all of which show evidence of use. This is a difficult category to evaluate, for while some of these flints are characteristically true blades in all respects, others may be flakes which fortuitously conform to the definition. Complete specimens range in length from seven-eighths of an inch to two and seven-eighths inches, but pieces of both smaller and larger blades were collected. Eight examples may be classed as microblades. Ten blades and blade fragments, and seven microblades, are scarred along the edges from use (Fig. I c), or have been deliberately retouched. More than half retain readily identified striking platform remnants. One blade artifact (Fig. II e), possibly represents a point or endblade. There are a few small flake scars along the edges on both surfaces, and a broad medial flake has been removed from the dorsal side. The pointed shape was achieved by hammering one of the forward edges.

Bifaces. Two, similar, fragmentary, bifacially chipped, flake tools were recovered, the largest of which is illustrated (Fig. I d). The other fragment quite possibly represents the basal portion of an implement of the same type as the example shown. On both specimens large percussion flake scars extend across the faces from edge to edge. There is almost no evidence of retouching. Slight edge abrasion may represent wear or intentional grinding. These implements were probably hand-held, and could have served a variety of uses.

Gravers. There are three flake graters in the collection. In two instances naturally pointed flakes have been reworked along one edge only in order to narrow and sharpen the tips. The graver illustrated in Figure I e is of this type, as is a very similar specimen not shown. Retouch scars on the graver depicted in Figure I e occur along one edge of the dorsal surface, while on the other similar example small flakes have been removed from one edge of the bulbar side. In both instances use scars are also present at the tips. Figure I f illustrates a small, very sharply pointed graver. In this instance an angular flake has been intentionally, and rather extensively, worked along one edge of the bulbar face. The necessary tip was formed by removing in addition one or two very small flakes from the opposing edge of the same face.

Scrapers. A single oval scraper (Fig. II a) is perhaps the most carefully fashioned implement in the collection, and appears to conform to a specific, formal implement type. The bulbar side is unworked, but abundant secondary flake scars are present all around the edge on the dorsal surface. While the broad end has been worked, and also shows signs of use, retouch scars are much more extensive along the rather steep sides. The tool was probably used primarily as a double-edged side scraper.

Saws. A deeply serrated flake artifact (Fig. II b) is quite unlike anything else in the collection, and for want of a more descriptive term I have called it a saw, although it could well have served a variety of purposes including the removal of hide membranes or fish scales. Large flake scars occur on one edge of the dorsal face, and a few smaller, similar scars are present

on the opposing edge of the same surface. The bulbar side is unworked.

Other artifact types. Three Kogruk implements possibly do not belong in any of the categories described above. Figure II c depicts a narrow, pointed flake, roughly triangular in cross-section. Two, long, medial flakes have been removed from the dorsal side, and retouch or use scars are also present along the edges of that surface. There is some evidence of edge grinding near the larger end. Another smaller flake artifact is much like the one illustrated. It is triangular in cross-section, and a single, long, medial flake has been removed from the dorsal surface. It lacks edge scarring or grinding however. A broad, rather flat flake, broken at one end, is scarred along one edge on the dorsal surface, and similarly along the opposing edge on the bulbar side (Fig. II d). The edges of the larger end are also rather extensively scarred on the bulbar face. Perhaps this flake was deliberately retouched in order to achieve a pointed, leaf-shaped implement. Although there is much variety among these three artifacts it is possible that they, as well as the previously noted blade implement (Fig. II e), represent rude projectile points or endblades.

The above inventory of Kogruk tool types permits little more than a glimpse of an old arctic culture in which there was a heavy emphasis on the use of primary, nearly unmodified flakes. In addition the few true blades indicate a knowledge of the techniques of manufacturing that artifact type, but Kogruk was fundamentally a used flake industry. Although it is not possible to say how much of the total stone tool inventory of the "Kogruk culture" is represented in this series the large percentage of retouched or used implements, and the several implement types, indicate that the Kogruk site was primarily a place of habitation rather than a flint station or work shop. The collection may accordingly represent a fair sample of the types of stone implements belonging to a particular economic or seasonal activity. The artifact types, consisting almost entirely of cutting tools, as well as what may be reconstructed of the ecology of Anaktuvuk Pass during Kogruk times, imply that the Kogruk site was a hunters' camp. Kogruk then, is a relatively

impoverished flint complex, probably oriented toward hunting, and distinguished primarily by crude flake tools, but also incorporating a blade tradition.

ANTIQUITY AND CULTURAL RELATIONSHIPS

Certain characteristics of the Kogruk site, exclusive of the types of artifacts it contained, perhaps point most directly toward an accurate estimate of the maximum age of the complex. As I have previously noted, the absence of organic staining in the site, the peculiar occurrence and distribution of the artifacts, and the abraded quality of certain of them quite definitely imply erosion. Any erosion of the Kogruk site, whether by water or wind, or both, must certainly have taken place at a time when the surface of the terrace was not stabilized by the tundra sod which has, for several millennia, so well protected the contents of the old Kayuk site, lying close beside Kogruk. Since there is no evidence for the removal of sod from the Kogruk site by stream-cutting subsequent to the original deposition of the artifacts, and since extensive stream channeling through the site would have destroyed or widely scattered its cultural remains, another explanation is required for the early absence of tundra at Kogruk. Deglaciation might reasonably be held accountable, and I think it quite probable that the Kogruk site was inhabited by man in that comparatively short period of time following the final formation of the kame terrace, but before the establishment of sod on the terrace surface. During that period, which probably persisted for several centuries while glacier ice still occupied portions of the pass, I think the exposed surface of the Kogruk site was slightly, but significantly, eroded by snow melt water and perhaps by glacial melt as well. This conclusion, of course, poses the question of the age of the last glacier in Anaktuvuk Pass.

Of five glaciations, dating from pre-Wisconsin to recent age, which have been identified in the Anaktuvuk area, the youngest, the Fan Mountain, and the second youngest, the Alapah Mountain, were largely confined to tributary valleys. The Echooka glaciation, originally assigned a minimum age of

8,000 years, was the last of three major ice masses which occupied the floor of Anaktuvuk Pass (Detterman, Bowsher, and Dutro 1958: 48, 60). S.C. Porter, who, in connection with geological studies at Anaktuvuk, examined the Kayuk site area shortly before the discovery of Kogruk, concluded that "The Kayuk site lies on an Echooka kame terrace that has been dissected by Contact Creek to form a lower terrace. The terracing is believed correlative with dissection and terracing of an outwash fan extending downstream from the Contact Creek end moraine of probable Alapah Mountain age." He was of the opinion, on the basis of the geological evidence, that the site could probably be "...not older than 8,000 to 10,000 years" (Porter 1959: 5).

More recently, a radiocarbon date of 6260 B.P. has been obtained from a willow sample collected from ice-margin lacustrine sediments on the shore of Eleanor or "Summit" Lake, a kettle one-half mile northeast of the Kogruk site (S.C. Porter, personal communication). If that date is accurate, it implies that an ice block remnant of the Echooka glacier stood at the present site of Eleanor Lake about 6,000 years ago. It is difficult to determine just how long such isolated glacier remnants survive in that region, but as recently as 1901 a block of glacier ice 300 feet in diameter at the base, and 60 feet high, was discovered on the floodplain of the John River about 20 air miles south-southwest of the summit of Anaktuvuk Pass (Schrader 1904: 86, Pl. XVA). It therefore seems inadvisable to correlate the existence of glacier ice on, or alongside, the kame terrace occupied by Kogruk with the Eleanor Lake radiocarbon date. On the other hand, on the basis of the known geological record, it seems highly unlikely that the Kogruk site can be older than about 10,000 years.

A comparison of the Kogruk artifacts with those from other American and Eurasian sites leads one far afield, and while some cultural connections may be postulated, the Kogruk complex can not be very precisely equated with any other presently known industry. Among North American components the old British Mountain complex of the Yukon Territory (MacNeish 1956: 95) is the only one that resembles Kogruk in any substantial respect. That complex, which has tentatively been assigned an age of 9,000 years (MacNeish 1959a: chart), contains

approximately 200 stone artifacts from the oldest culture-bearing levels of the Engigstciak site on the Firth River near the Yukon arctic coast. British Mountain materials stratigraphically underlay eight other archaeological phases, and were associated with the remains of bison, as well as caribou. On the basis of pollen analysis the complex has been correlated with a relatively warm climate period (MacNeish 1959b: 44).

A very large percentage of British Mountain artifacts are flake tools consisting of knifelike implements, burins, crescentic graters, unifacially flaked projectile points, lanceolate or laurel leaf in outline, with slightly concave bases and side scrapers including spokeshaves. All or nearly all of the flake tools are unifacially worked or retouched along the edges only. There are also large scraper planes in British Mountain, and several bifaces, including fluted or basally thinned projectile points or end-blades, pebble choppers, and multi-burins. Finally, that collection contains three artifacts which are "possibly" blades, including an end-of-the-blade scraper (MacNeish 1956: 95; 1959b: 44, 46, Pl. I). There are very close similarities between Kogruk and British Mountain flake implements and one finds nearly identical primary flake, cutting tools, only slightly scarred along one or more edges, in both collections. Also, while Kogruk contains more blades than British Mountain, large blades appear to be of the same general type in both complexes.

There are, however, several differences between the two collections. Kogruk totally lacks the burins, large scraper planes, pebble choppers, and bifacially flaked projectile points or end-blades of British Mountain. In fact, while it is possible that the Kogruk complex contains projectile points or endblades (Fig. II c-e), no Kogruk artifact even remotely resembles the well-shaped, unifacial British Mountain points (MacNeish 1959b: Pl. 1). Kogruk also lacks basally thinned or fluted implements. On the other hand, Kogruk flake-core implements and microblades are absent from the British Mountain complex. Further variations between the two collections occur among such flake tool types as scrapers and graters, but it is not presently practical to evaluate these probably minor differences, since in both small complexes several of the types themselves are tenuous,

and especially since I have seen only photographs of the British Mountain collection.

In spite of the differences listed above, the close similarities in the stone working techniques, and implement types, of both complexes almost certainly testify to mutual membership in one cultural continuum. The presence in one of the complexes of traits absent, or nearly absent, in the other expresses the varying influences of different tool-making traditions, but both Kogruk and British Mountain are part and parcel of the same flake tool genre. Within that genre their relative temporal positions are obscure. The absence of burins and bifacially flaked, fluted or thinned points in Kogruk possibly indicates greater age for that industry, but Kogruk and British Mountain artifact types are admittedly too few in number and, in many instances, too indistinct in nature, to permit a clear ordering of the complexes according to temporal succession. Nor does the presently known glacial chronology of northern Alaska and Yukon Territory shed light on the respective ages of the two industries, for a warm climate along the Yukon arctic coast quite possibly coincided with the deglaciation of Anaktuvuk Pass. Nevertheless, it is quite clear that the Kogruk Complex of Anaktuvuk, and the British Mountain Complex of Firth River are related, and, at present, they appear to represent the only known American components of an early cultural configuration.

Turning toward Eurasia, one is impressed with the Old World Paleolithic flavour of Kogruk. A number of artifacts in the collection are strongly reminiscent of Mousterian. The re-touched flake tool (Fig. II d) for instance, could almost masquerade as a Mousterian "point", and, in fact, several Kogruk specimens, including two that are illustrated (Fig. II c, e), startlingly resemble "points" from the Levallois-Mousterian level in Et-Tabun Cave at Mount Carmel (Garrod and Bate 1937: 83. Pl. XXXV 1-3; Pl. XXXVII 4, 8). I do not wish to imply any very close connection between Kogruk and the European Paleolithic, but I am not surprised that this early Alaskan complex reflects some of the very old, European traditions from whence were derived many traits of the Siberian Paleolithic.

Moving eastward across Asia, and reducing the distance in both time and space, Kogruk implements somewhat resemble points, perforators, scrapers, and blades from the earliest levels of the Malta site northwest of Lake Baikal (Bonch-Osmolovsky and Gromov 1936: Pl. 17, Nos. 1-4, 6-8, 12, 13), which perhaps have an age of 12,000 to 17,000 years (Griffin 1960: 802). Far to the north and east of Lake Baikal, Siberian Paleolithic sites in the Lena River valley have produced artifacts quite closely akin to Kogruk flakes-cores and blades (Okladnikov 1953: 242, Fig. II), although the tortoise cores and pebble choppers of the Lena sites are absent from Kogruk, as are several early, Malta site tool types. There are, apparently, even closer connections between the British Mountain complex and these Asian collections, especially in the categories of flake burins and bifaces (MacNeish 1959b: 46). Thus, it appears that these two related American stone industries are, in turn, allied with the earliest known cultural remains of east central Siberia. And, while there are still many blanks to be filled, these far-flung intercontinental relationships provide a more accurate reckoning of the origins and antiquity of the flake and blade traditions in the American arctic.

The George Washington University

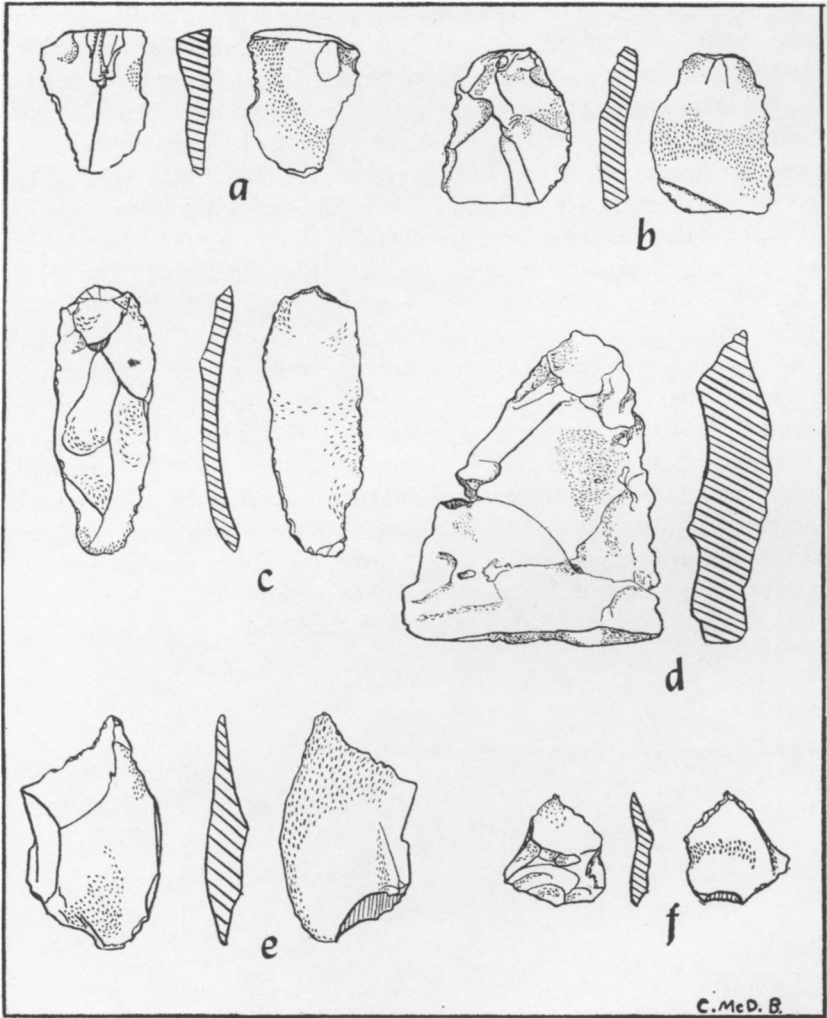


FIGURE I.

Kogruk chert artifacts, a, b, retouched or used flakes; c, retouched blade; d, biface; e, f, flake graters. To scale, length of a, $1\frac{1}{4}$ in.

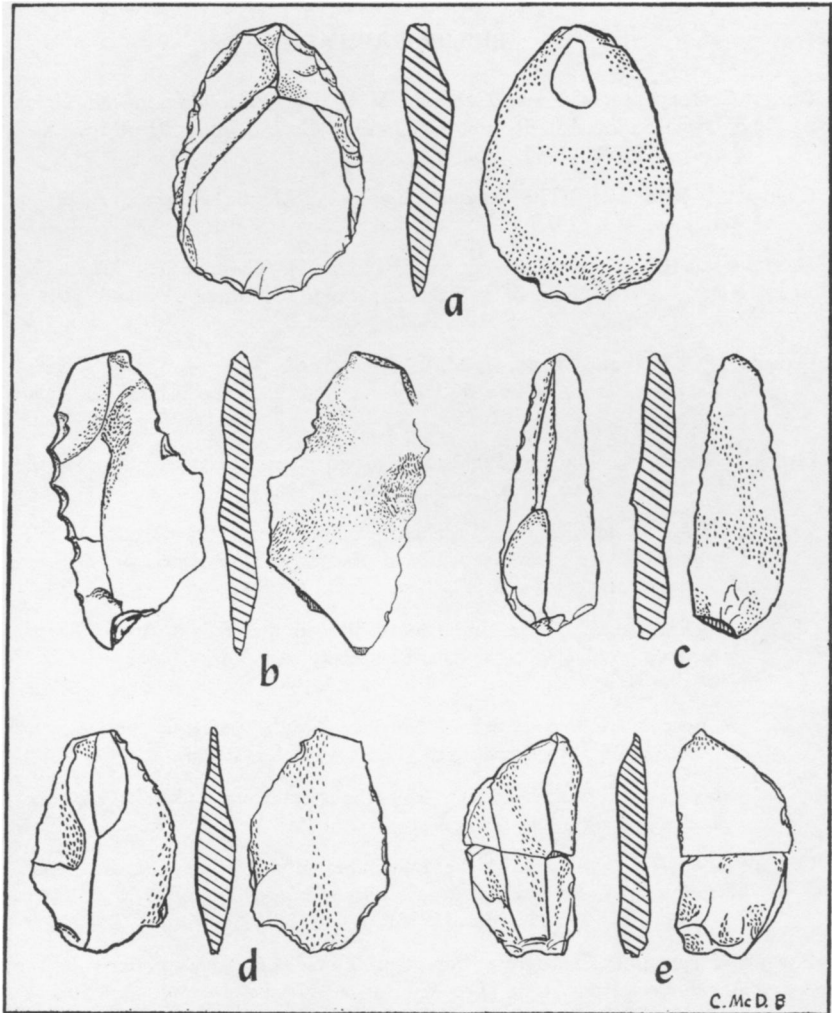


FIGURE II.

Kogruk chert artifacts. a, flake double-edged side scraper; b, flake "saw"; c, d, retouched flakes, possibly points or end blades; e, retouched blade, possibly point or end blade. To scale, length of a, $2\frac{1}{2}$ in.

BIBLIOGRAPHY

- BONCH-OSMOLOVSKY, G., and GROMOV, V., "The Paleolithic in the Union of Soviet Socialist Republics", *Intern. Geol. Congr. Rept. of XVI Session, U.S.A., 1933, Vol. 2*, (1936).
- CAMPBELL, John M., "The Kayuk Complex of Arctic Alaska", *American Antiquity*, Vol. 25, No. 1, Salt Lake City (1959).
- DETTERTMAN, R.L., BOWSHER, A.L., and DUTRO, J. Thomas, Jr., "Glaciation on the Arctic Slope of the Brooks Range, Northern Alaska", *Arctic*, Vol. 11, No. 1, Montréal (1958).
- GARROD, D.A.E., and BATE, D.M.A., *The Stone Age of Mount Carmel, Excavations at the Wady El-Mughara*, Vol. I, Oxford: The Clarendon Press (1937).
- GRIFFIN, James B., "Some Prehistoric Connections between Siberia and America", *Science*, Vol. 131, No. 3403 (1960).
- LARSEN, Helge, and RAINEY, Froelich, "Ipiutak and the Arctic Whale-Hunting Culture", *Anthropological Papers of the American Museum of Natural History*, Vol. 42, New York (1948).
- MACNEISH, Richard S., "The Engigstciak Site on the Yukon Arctic Coast", *Anthropological Papers of the University of Alaska*, Vol. 4, No. 2 (1956).
- "A Speculative Framework of Northern North American Prehistory as of April 1959", *Anthropologica*, N.S., Vol. 1, (1959a).
- "Men Out of Asia; As Seen from the Northwest Yukon", *Anthropological Papers of the University of Alaska*, Vol. 7, No. 2 (1959b).
- OKLADNIKOV, A.P., "Traces of the Paleolithic in the Valley of the Lena", *Materials and Researches in the Archaeology of the U.S.S.R.* (in Russian) Vol. 39, Moscow (1953).
- PORTER, Stephen, C., *Progress Report of Geological Investigations in the Anaktuvuk Pass Area, Brooks Range, Alaska During the Summer of 1959*, ONR Project No. 240 (Mimeographed) 1959.
- SCHRADER, Frank C., *A Reconnaissance in Northern Alaska*, United States Geological Survey, Professional Paper No. 20, Washington (1904).