Anthropological Papers of the University of Alaska

Volume 1 Number 2

College, Alaska

May

1953

ANTHROPOLOGICAL PAPERS OF THE UNIVERSITY OF ALASKA

Volume 1 Number 2

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This publication will appear at irregular intervals.

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Price of this issue—$1.50

STRAY NOTES ON THE ESKIMO OF ARCTIC ALASKA

DIAMOND JENNESS

The following notes were collected by the author between December 1913 and June 1914, in the course of linguistic and archaeological studies along the coast from Point Barrow to the Alaska-Canada Boundary.

1. STORIES ABOUT SHAMANS

(a) From a Nome Eskimo.

About the end of the 19th century a shaman living in Nome went through the ceremony of being burned alive. He sat quietly on the ground while the people built a small wooden hut around him and set it on fire. House and man alike seemed to be burned; nothing remained except a pile of ashes. The people went about their usual occupations during the next three days, as the shaman had instructed them, and on the evening of the fourth day assembled with their dogs in the village dance-house. Suddenly they heard a loud noise on the roof, and a few minutes afterward the shaman entered the room through the doorway, as though nothing had happened. Some years later, however, after he was dead, the people found a little house or den under the spot where he had seemingly been burned, and recalled that he had never been willing to repeat the performance except in this one place.

Some Colville River Eskimos credited their shamans with a similar feat.

(b) From Wales.

Many years ago when seals were very scarce and the people in danger of starvation someone said to the shaman Umialiksraq, "You are a shaman. Why don't you make the seals come? Soon we shall all be dead." Umialiksraq hung his head a moment, then quietly answered "Very well." Two or three evenings later the people gathered in the dance-house where Umialiksraq was beating his drum. At his command they dimmed the lamps, bound him securely with lashings of bearded-seal hide, and tied around his ankles an extra cord, the end of which they placed in the hands of a strong hunter. Behind the shaman, too, they arranged a number of stones, his tail, as he called them, to prevent anything from harming him as he traveled through the sea. As they sat, waiting in the semi-darkness, they heard a shrill whistle and saw Umialiksraq vanish like a flash of light along the cord that the hunter was holding. He reappeared in the same way after a short absence, told them that he had descended through a certain hole in the ice where the people had been trying to catch tom-cod, and prophesied that after three days the seals would come in large numbers. On the fourth day the hunters did actually capture a few seals, and thereafter they caught as many as they needed.

On another occasion the same shaman sat down in the middle of the dance-house, beat his drum and ordered the people to extinguish the lights and to tie him up. They lashed him with stout cords of bearded-seal hide, fastened a noose around his neck and drew him up towards a rafter until his feet were several inches above the floor and his head dropping on one side as though he were dead. After a few minutes they heard his drum beating again and his voice bidding them relight their lamps. When the lamps were relit he was sitting quietly on the floor beating his drum.

On another evening he balanced on his wrist the end of a stone that was as long as the distance between his elbow and his fingers; and the stone remained there without falling. Then he twisted it around his arm as though it were string, and, knotting the ends, told a hunter to pull the knot taut. When the man pulled, the stone seemed to cut right through the arm.

Another shaman could push a stick right through his head behind his ears without suffering any harm; and the same man could hold his drum in front of him, wave his arm, and cause the drum to disappear.

Still another shaman (the father of my informant) would drive a knife into his stomach and draw it out covered with blood, while blood issued also from his mouth. (A Point Hope native reported the same trick from his village also.)

A young woman who was a shaman sat on the floor gazing intently at the trap door while the people behind her watched and listened. Presently, in the passage-way leading to the house, they heard voices and laughter as though several people were about to enter. A man who was sitting on the sleeping-platform called out, "You people down there are making a noise as though you were coming in"; and a man's voice from below answered him, "Don't talk. You haven't big teeth."

(c) From Point Hope.

A shaman threaded a rawhide cord through a crevice between two large planks and apparently sawed with it right through one plank without marking either the wood or the cord.

Another shaman threw his knife on a caribou hide and, holding up the end of the hide with one hand, beckoned to the knife with the other. Slowly it crept up the hide towards him.

(d) From Point Barrow.

Occasionally a man, usually a shaman, killed someone and buried the body to use later for sorcery. In 1912 the Point Barrow Eskimos accidentally dug up a woman who had been killed for this purpose and buried, in a squatting position with all her clothes on, near the sorcerer's ice-house.

The Point Barrow Eskimos used charms extensively. Some they attached to their coats; others they set over the doors of their houses. Often charms were built into the boat-head of the *umiak* to give success in whaling.

(e) From Endicott Mountain Eskimos.

A shaman could fly through the air and reach distant places in a very short time. About 1904 two men who had the reputation of being

shamans went outside their tents for the avowed purpose of flying to a distant place and killing someone there. They returned in about half an hour, but their victim did not die.

Three or four men once attacked a shaman, cut his body into small pieces and threw them into a lake. The next morning the shaman reappeared at his home unharmed. His murderers fled.

Two men who were traveling together came to a narrow crack in the ground. One said to the other, "Let us stop here. I shall go down this crack and come out on the other side." The second man said, "I'll try to do it first." He squeezed himself down a little way, and when he could proceed no farther drew himself out again. Then the first man entered the crack and a moment later reappeared on the opposite bank. His companion said, "I'll try again"; and when the crack became very narrow he bored a tunnel and so emerged on the opposite bank. But the first man was a shaman.

In cases of sickness a shaman often predicted the issue by fastening a cord around the head or leg of a patient. According to the heaviness or lightness of the head or leg the patient would die or recover. Kanaura, an Eskimo living on Flaxman Island in 1914, was reported to make similar diagnoses by using a mitten instead of the patient's head or leg.

A shaman could use his powers to steal meat. At times, while the people inside a house were sleeping, a hand would come up through the floor, abstract the meat and return in the same way as it came. That is why meat seems to disappear very rapidly and mysteriously in times of scarcity.

Certain shamans would light their pipes, gaze into the smoke and see things that were far beyond the range of normal vision. Thus if a man had been lost on the ice the shaman might declare, "I see tracks leading zigzag over the hummocks, then they disappear"; and his audience, listening in profound silence, would know that the man was dead. Or he might say, "I see many tracks, all in one place," and would proceed to describe the place. The people then knew that the man was alive and would search for him.

Certain shamans knew one or more songs that helped them in caribou hunting. Caribou often ran away with the nooses and the sticks to which they were fastened, but these shamans by merely singing their songs could make the lines tangle around the animals' legs and bodies.

(f) From the Mackenzie River delta.

Apakkoq, a medicine man in the Mackenzie River delta, allowed his countrymen to lash his hands behind his back and to draw his head down between his knees with a stout thong. He then ordered the lamps to be extinguished and in the darkness flew through the air over their heads. When he ordered the lamps relit he was sitting on the floor, bound as before.

Another of his tricks was to permit himself to be trussed up and to consign one of the cords into the hands of three strong men. After the lamps were extinguished the cord would snap in the men's hands and Apakkoq would fly through the air. Several minutes later he would return and order the lamps to be relit. He would then appear bound as before, but the cord held by the men would be broken.

At other times he would go down through the earth after being trussed up and return through the wall of the dwelling; or he would remove his skin coat, his trousers and his boots. Even his wife could remove her coat after the people had bound her with strong cords.

At Kittigazuit, in the Mackenzie delta, a man swallowed a large bead and extracted it from the top of his head. Then he flung it outwards, followed its invisible course around the room by pointing with a drum, and suddenly caused it to drop on the membrane of the drum with a loud thud. On another occasion he made a weasel skin so hard that when he tried to cut it with a sharp knife, the knife was dulled and made not the slightest impression.

II. MISCELLANEOUS SUPERSTITIONS

At Wales, when her little child is crying, a mother will sometimes say: *u u qaqasuaruk pilyiaratin qakma* "Hush, hush. The loon outside there will carry you away."

Point Hope natives say that if the dogs howl during the night something important is going to happen. Thus if you are whaling at the time you will capture a big whale.

Mackenzie delta natives believe that if you scorch a bear skin a strong wind will arise from the south-west.

The Eskimos from Point Barrow eastward claim that they can tell the state of the weather when a ptarmigan was born by examining its breastbone. If it is almost transparent, but flecked by a few dark spots, the sky was nearly cloudless, but a little rain was falling.

Near Baillie Island (just east of the Mackenzie River delta) there is a small stone resting on a larger one. The latter was formerly a woman who ran away from her home to escape ill-treatment; and the smaller stone is the baby she was carrying on her back. The larger stone is now cracked, but formerly, when it was unbroken, part of it, the woman's teeth, became red when caribou were numerous in the district and white when they were scarce.

Mountain sheep often wander down to the sea and change into beluga. Hence when there are plenty of beluga off the Arctic coast mountain sheep are scarce; and when sheep are plentiful in the Brooks Range beluga are absent in the adjacent sea. A man once followed the tracks of a sheep far out on the sea ice until they suddenly disappeared, when he knew that the animal had changed to a beluga.

Behind Martin Point, on the Arctic coast of Alaska, is a small hill which the Eskimos generally avoid. Any man who does ascend it avoids sleeping there, knowing that his limbs would become like those of an old man and that he would never rise again. Sometimes a caribou falls asleep on its summit and never wakes.

In travelling overland from the Arctic coast to Kotzebue Sound the Eskimo ascend the Colville River to a point beyond the head of the Noatak River before they cross over to the latter stream. The crossing takes them three days, and the trail leads them past a high mountain whose summit is covered with perpetual ice. Any one who sleeps on the side of this mountain will die. A Point Barrow youth who slept there died within a few days of reaching his house. Soon afterwards two Colville River natives slept on it also and one of them failed

to waken; but his companion, who was a shaman, returned to the village they had left, recovered the dead man's soul and restored him to life. The Eskimo therefore make a forced march that will carry them past the mountain in one day.

From Wales to beyond Paint Barrow the Eskimo have many tales of two monsters, a ten-legged white bear, *qoqogaq* or *qoqogiaq*, and a walrus dog. A Wales native living near Point Barrow, who claimed to have seen the bear, said that the distance between its ears is the full stretch of a man's two arms. It is so big and heavy that it can break through ice as thick as a man is tall. Sometimes it lies on its back and waves its ten legs in the air so that from a distance they appear like men in motion; hence hunters are warned to be careful if they see anything that looks like a man on the ice. In the spring and summer it lies in wait to drag the hunter's kayak under the water. Whether there is only one of these animals, or more than one, the Eskimo cannot agree. A party travelling eastward from Point Barrow in the autumn of 1913 heard one swimming beneath their sleds, and when they coughed loudly and moved away from the trail, the monster poked its head through the ice, which was too thin to endure its weight. Afraid lest it should follow their footsteps and devour them, they hurried home by a long and circuitous route.

The monstrous dog that watches over some of the walrus herds is said to be larger than the largest bull walrus. When the animals are alone on the ice-floes they raise their heads every few minutes to guard against danger; but when their watchdog is near they sleep unconcernedly. It has a three-edged tail bristling with spikes with which it lashes the water if enemies are near, emitting at the same time a peculiar whistling noise. It never strikes a walrus unless one is refractory and will not obey its warning; for it feeds on seals and fish. In its ear dwells a tiny animal like a fox, which darts into the water when it sees a hunter in a kayak, springs at him from behind and kills him. A Point Barrow native who was hunting once saw this dog lash up the water and cause a herd of walrus to disappear in the foam. Another native who was going out on the ice to hunt seals heard it whistle, and, knowing it was dangerous, turned back home.

A few years ago a Point Barrow native who was sitting behind his wind-break on the ice, watching for seals, saw a mysterious monster raise its head out of the water in front of him. Its hair was black and closely cropped like a man's, and all that was visible of its face, from the nose upward, resembled a human being. The Eskimo ran away; but afterwards some old hunters in the village told him that if he had shot the creature he would have been able to kill any animal he wished.

When the Arctic Coast Eskimo throw away old clothes they cut them to shreds, and if they are leaving them behind in a cache they cut off tiny fragments. They believe that unless they do this some sorcerer may take a fragment to bury in a grave, which would cause the death of the owner. Caribou and reindeer hides they treat in the same way.

Graveyards they consider dangerous places, because they are haunted by the malignant spirits of the dead, *alioqtun*. Once when a

man was passing a graveyard near Wales an old woman sprang out of the earth and attacked him. She told him that if she threw him to the ground he would die; but after he had pulled out most of her hair, and lost most of his own, she disappeared, and he returned in safety to his house. Afterwards, when his kinsmen questioned the truth of his story, he said, "Go and look at all the hair that is scattered about."

In the same neighborhood two men had gone out with a sled while their youngest brother remained at home. After a time a pup ran into the house, whining and refusing all food that the youth offered it. Finally he became alarmed lest something had befallen his brothers and went to meet their sled. As he drew near the brother who was walking in front of the dogs stumbled and fell; and by the time the youth reached them both his brothers lay dead, one on the ground and the other on the sled. They had offended their grandfather by glancing at his grave, and he had killed them. The terror-stricken survivor tried to return to his house, but despite all his efforts his feet would not move, for his grandfather was bewitching him also. At last he managed to tear open the front of his skin shirt and release his soul. Immediately his feet became free again and he was able to reach his home in safety.

III. CHILDREN'S GAMES

1. Hide and Seek, irigaqtoq (Point Barrow)

Three or four children stand with their heads together and eyes fixed on the ground, singing the following song while one runs away and hides:

himo himo himo himo (repeated)
himotayuni haiyuni (repeated)
qoloqolognasi qoloqolognasi
kugaurum ilguanun taimaktoq taime
qingayayayanga qingayayayanga
kugaurum igluanun taimakoq taime
"Heads together, heads together,
Stand with your heads together.
Don't look, don't look,
On the other side of the creek he is lost.
I am looking for him, I am looking for him.
On the other side of the creek he is lost."

2. Blind Man's Bluff (Point Barrow)

A number of children stand inside a circle which they must not overstep. Two of them are taken out, blindfolded, and told to catch one of the children within the circle; whoever is caught takes the "blind man's" place. There is much chaffing whenever a boy catches a girl, or a girl a boy.

3. Break the Ring (Point Barrow)

A number of children join hands to form a ring, enclosing one child in the center. They circle round and round, chanting:

naukun naukun aningiaqpa	Where will he get out?
qangiralukun aningiaqpa	Through the corner he will get out.
auqohoi	Ho

At the shout *auqohoi* the ring stops circling while the child in the

center tries to break through. If he succeeds the others pursue him, and his captor pretends to scratch out and devour his eyes. The captor must then stand in the center of the circle.

4. *Kaputaq (Point Barrow, Point Hope)*

Four children arrange themselves as in tennis, but with the partners opposite each other. They have eight small sticks made of bone or ivory, four to use as counters and the others for throwing. Between each pair of adversaries a short peg is set up in the ground. The first child throws a stick as close as he can to the peg. His adversary then throws, trying to get nearer. Each in turn then throws his second stick. He whose stick lies closest to the peg wins a counter; if both sticks are closer than either of his adversary's he wins two counters. The pair on the other side then throw against each other. The game ends when one pair of partners has won the four counters twice in succession.

5. *Aqoaraq (Point Barrow, Point Hope)*

There are three stick games which go under this name. (a) Four children arrange themselves as in the preceding game, but instead of throwing towards a peg they throw to each other, striving to catch the sticks in their hands. The game is varied in many ways. Two sticks may be thrown at once, or the stick must be caught on the back of the hand instead of with the palm. Occasionally the players withdraw their arms from the sleeves of their coats and thrust them in again in time to catch the sticks with their hands. Failure to catch cleanly means the loss of a counter. (b) The child balances a number of small sticks on the nose, makes them fall off, one by one, and as they fall, protrudes the tongue and catches them in the mouth. (c) The player holds a number of small sticks upright on the ground and lets them fall in a heap. Taking a thin stick, or a knife, he moves to one side each stick in the heap without disturbing any of the remainder and counts how many he succeeds in moving.

6. *Juggling, igalukitaq (Point Barrow)*

Two stones, fox-paws, or other suitable objects are juggled in the air until the following song has been chanted:

vala vala a hi e
vala vala ha anga
yange i yahi nausagi
sumata napaqtulu
qingaluralu ayaniqaxluima
kavisingaxluima
utkusikluima
qorviqruluxi
nanuli nanuli iksuqakkin
oyaqakkin oyaga
kina yuli napaqtoqmiucat
nuluqtogayuarukkin taqtukkin

This chant is a rigmarole with only some of the words intelligible. The Eskimo of the Mackenzie delta play the same game but accompany it with a slightly different chant.

7. *(Endicott Mountain Eskimo)*
Clap the hands, chanting:
sama sama sama sama "down there"
With the right forefinger bore the palm of the left hand and chant:
tarunago putullago "make a hole through here."
With the left forefinger bore the palm of the right hand and chant:
taranugo putullago "make a hole through here."
Wipe down the cheeks with both hands and chant:
qauqpalurakin "your big forehead"
iqsraqpalurakin "your big cheeks"
Press the stomach with the hands and chant:
narraqpalurakin "your big stomach"
tahemma "finished"

8. *(Point Hope)*
Two children, A and B, squat on the ground opposite each other. A holds out his right fist, B places his on top. A places his left fist on top of B's right, and B adds his left fist. Both children now close their eyes. B removes his upper fist, flips his lip with the forefinger and lays the closed fist against his left cheek. Then, with the same hand, his eyes still closed, he raises B's left fist and lays it as nearly as he can on B's left cheek. He repeats the same movements with his right hand, ending up with both his fists against his cheeks. The two children now open their eyes and laugh at their ludicrous positions (There is clearly some error in this description).

9. *(Wales)*
A number of children pile their hands one on top of the other, palms downward, and press hard. The lowest hand is withdrawn with difficulty, on the assumption that it is cold and stiff. The second hand is withdrawn with greater difficulty—it is nearly frozen. The third hand is withdrawn after a long effort and pressed against the body as though it pained—it is frozen and the skin has been torn off.

10. *(Wales)*
Two little girls face each other, join hands, and move them in time with the following chant:
yu ka (each child pushes back her partner's arm, like a piston)
yu ka (each pushes back the other arm)
qapsugusugusu (the paired arms are crossed)
qapsugusugusu (the paired arms are crossed again, but the ones that previously passed over now pass under)

11. When a man drags home a bearded seal the children at *Point Barrow* chant:
uniaqtoaq samanga atektoaq kiluvaqtoaq
"He is dragging something from the sea, the sealer who is coming back."
Point Hope children have a different chant:
uniaqtoaq tamanga atektunga-a
puvakamik aize aiza
tingukamik
"He is dragging something from the sea, the sealer, a thing with old lungs and an old liver."

12. When the aurora is glowing *Point Barrow* children sometimes throw a piece of liver into the air to show they are not afraid of it and chant:

kogowiya ki kigowiya ki	Oh aurora, Oh aurora
angi yangi yangi ya	
tulimaq pigna	Oh rib up there
angi yangi yangi ya	
qallutaq pigna	Oh ladle up there
angi yangi yangi ya	

13. The following chant, which also comes from *Point Barrow,* was said to be used to drive an evil spirit, aliqoq "jaw", into a corner and out of the house:

agliwaruaqrukkin	Your old jaws
agliqukkin nivingarluik	Drop your jaws
kupkatallugit	Chatter your teeth
um um um	Um um um.

14. After setting a noose over a sparrow's nest a child will retire to one side and chant a song to make the bird enter the noose. The *Point Barrow, Point Hope* and *Nome* versions differ considerably, but the *Point Barrow* version is as follows:

uglure siqumilluit	Her little nest break it up
qitungaure siqumilluit	Her little children rend them
ugluiyaglugo	Take the nest away
qitunreyaglugo	Take the children away
ivalangi pillagit	Her nestlings snatch them
naaqtoaqtoaqtugluge-e	Break them up.

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THE SAUCER-SHAPED ESKIMO LAMP

WENDELL OSWALT

The saucer-shaped pottery lamp of the Eskimo has a limited distribution along the Bering Sea coast of Alaska, where it was the principal lamp type used during the late prehistoric period. The importance and general distribution of this form was recognized by Hough (1898) in his early study of Eskimo lamps, but the time periods during which the different styles dominated have not been previously defined. It is the purpose of this study to consider the saucer-shaped lamps in the University of Alaska Museum collections with reference to their origin, distribution, and the relative age of sub-types.

In the University Museum 19 complete, or nearly complete, saucer-shaped pottery lamps and 32 sherds comprise the series under consideration. These lamps form three units: those collected at random by the Museum during the past 25 years; specimens from an Eskimo burial ground on the Yukon River delta; and examples from the Hooper Bay Village archaeological collection[1]. The complete lamps and sherds in these three groups will be considered under the following headings: source, age, temper and remarks.

source Tanunak
age Ethnographic
temper Crushed stone
remarks This specimen has one encircling line outside the rim, five lines just inside the bowl, a spoke-like design, and four more lines near the center of the bowl (Pl. 1, 1).

source Tanunak
age Ethnographic
temper Pebbles
remarks This lamp has a distinctive ridged ring near the center of the vessel, and within this circle is a prominent central knob (Pl. 1, 2).

source Tanunak
age Ethnographic
temper Complete so that no temper is visible.
remarks Pl. 1, 3.

Examples from the random collections:

[1]Lamps in the random collection were presented to the University of Alaska Museum by Mr. Buzby of Fairbanks, Alaska; Mr. Otto Geist of College, Alaska; Mr. and Mrs. Misha Ivanoff, Nash Harbor, Alaska, and Mr. Frank Waskey of Dillingham, Alaska. The lamps from South Pastolik and Hooper Bay Village were collected by a University of Alaska field party under the direction of the writer. The trip was sponsored by the Arctic Institute of North America with funds from the United States Government as well as by the University of Alaska, the University of Pennsylvania, the Danish National Museum and the Wenner-Gren Foundation.

The writer wishes to thank Mr. and Mrs. Walter Arron for their field assistance and Dr. Ivar Skarland for making time available for this study while the writer was on the University of Alaska Museum staff.

source	Nelson or Nunivak Island, Acession 309
age	Recent-prehistoric (?)
temper	Complete so that there is no visible temper.
remarks	Pl. 1, 4.
source	Below Russion Mission M-4622 (no other data)
age	Recent-prehistoric
temper	Sand
remarks	Pl. 1, 7.
source	Anvik, M-1475 (Grayling Creek, probably the site investigated by de Laguna, 1947, pp. 65-7).
age	Recent-prehistoric
temper	Feathers and pebbles
remarks	Pl. 1, 10.
source	Mekoryak, Nunivak Island, M-5324
age	Ethnographic (?)
temper	Although a section of the lip of this lamp had been cut away with a knife before the lamp was received by the Museum, there is no recognizable temper visible.
remarks	A central cross decorates the bottom of the bowl and there is an irregular curved line at one side. This lamp is extremely hard and well made, with a slick original outer surface (Pl. 1, 11).
source	Nash Harbor, Nunivak Island
age	Ethnographic
temper	Sand ? complete vessel
remarks	This small undecorated lamp has a deep bowl which measures 38 mm. from the inside bottom of the bowl vertically to the level of the rim. The specimen is only 12 cm. across and therefore is classed with the small or "hunter's" lamps.
source	Tanunak, Nelson Island
age	Ethnographic
temper	Sand ? complete vessel
remarks	Measuring 15.2 cm. across and 4.1 cm. in height, this undecorated lamp is approximately midway between the large house lamp and the small hunter's lamp.
source	Tanunak, Nelson Island
age	Ethnographic
temper	Rather coarse sand, some of which protrudes through the outer surface.
remarks	This lamp measures 19 cm. across and has a relatively shallow bowl like Pl. 1, 2. A central knob, part of which has been broken away, also makes it similar to the illustrated lamp. In the bottom of the bowl are three small ridges spaced approximately 1.9 cm., 1.1 cm. and 1.2 cm. from the center of the bowl.
source	Tanunak, Nelson Island
age	Ethnographic
temper	Predominately sand with a little grass; an occasional piece of coarse sand protrudes through the surface.
remarks	This lamp is 19.8 cm. across and 4.6 cm. high (Fig. 1). It has five lines just below the rim lip on the inside of the bowl. Two concentric circles surround a raised knob in the center of the bowl; from these circles radiates a cross-like design represented by pairs of incised lines.
source	Nash Harbor, Nunivak Island

age — Archaeological ?
temper — Coarse sand protrudes through the bottom surface of the lamp.
remarks — This specimen is very heavily encrusted with burnt oil and has lichens on the upper bowl surface. There is an indication of concentric circles at the center of the bowl, but the heavy oil crust makes it impossible to determine the extent of the bowl decoration. Outside the vessel lip are two lines encircling the rim.

source — Bristol Bay-Hooper Bay region ?
age — ?
temper — Primarily sand, but also some grass
remarks — This small lamp is 8.6 across and approximately 3 cm. deep. It has three encircling lines near the inside rim of the bowl.

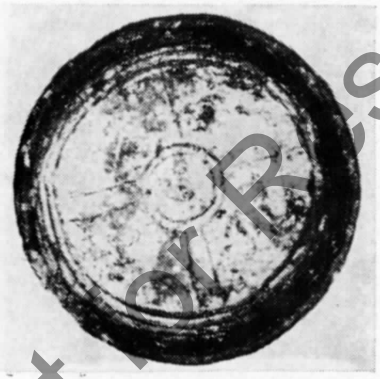

Figure 1. Saucer-shaped Eskimo lamp with a central knob and decoration. From Tanunak, Nelson Island.

The next group of saucer-shaped lamps is from a burial ground at the south mouth of the Yukon River delta near the former village of South Pastolik [local Eskimos insisted that the name of the village was Pastolik and that the group inhabiting this village was the one that had occupied the Pastolik located south of St. Michael (see Hrdlicka, 1930, p. 199); "South" is used to differentiate between the two localities]. The burials, which were primarily concentrated along an old beach line, were flexed, above-ground box burials which are common to the general locality. There were approximately 15 burials, all of which appeared to have been roughly contemporaneous. Most had some trade goods with the body, indicating that interment took place about the time of historic contact. Included among the trade items was

a small piece of cup identified as English Staffordshire ware dating after 1840.[2]

source — South Pastolik, Burial 5—female[3]
age — Early historic
temper — Grass and pebbles
remarks — This lamp has two lines around the outside of the rim lip and seven lines around the bowl of the vessel. One unusual feature of this lamp is that on the outside below the rim is a constricted area around the entire body of the vessel (Pl. 1, 6).

source — South Pastolik, Burial 15—female
age — Early historic
temper — Large crushed stone
remarks — There are two encircling lines outside the rim and five within the bowl. The lamp bottom appears to have been brushed with a wad of grass before the clay had hardened, with a somewhat streaked appearance resulting (Pl. 1, 8).

source — South Pastolik, Burial 14—child of 5 or 6
age — Early historic
temper — Feathers and pebbles
remarks — Like the two previous lamps from South Pastolik this example has two encircling lines outside the rim. There is a large central cross at the center of the bowl, and outside the cross are nine encircling lines (Pl. 1, 9).

source — South Pastolik, Burial 14—child of 5 or 6
age — Early historic
temper — Grass and leaves
remarks — This lamp is considerably smaller than the previous South Pastolik examples; it has a single line outside the rim lip and six lines within the lip. This example also has a double lined central cross (Pl. 1, 12).

source — South Pastolik, Burial 6—male
age — Early historic
temper — Grass and sand
remarks — Two lines are around the outside of the rim, and four encircling lines are just within the rim. The innermost line meets four radiating spoke-like lines with four lines on each arm. In the center of the cross are three more lines, and there is a double lined cross in the center (Pl. 1, 13).

source — South Pastolik, Burial 9—male
age — Early historic
temper — Crushed rock is the dominant tempering agent, but a few pieces of grass were noted along with a single leaf impression.
remarks — One line surrounds the outside of this small lamp, and two encircling lines are inside the rim, with a cross near the center (Pl. 1, 14).

The collection of lamps from Hooper Bay Village midden (Oswalt, 1952 b) includes 29 sherds and one nearly complete vessel. These sherds will be considered in two associated groups.

source — Hooper Bay Village
age — Archaeological, from the ground surface to 24 inches deep. The

[2]The Staffordshire ware was kindly identifed by Mr. Malcolm Watkins, Associate Curator of Ethnology, United States National Museum.
[3]Identifications by Dr. Ivar Skarland, University of Alaska.

associated artifacts include late Bering Sea Eskimo material culture along with beads and European trade goods.

temper — This group of 14 sherds has the following types of temper: crushed rock or sand (10 sherds), grass and pebbles (1), as well as grass and crushed rock or sand (3).

remarks — The collection from the upper two feet of the midden includes five decorated examples with one complete enough to reconstruct the entire lamp. The latter (Pl. 1, 5) has two encircling lines in the body of the bowl and two more lines near the center of the bowl. At the exact center is a raised knob similar to but less prominent than the center knob on the lamp in Pl. 1, 2. The four other decorated sherds are rim fragments with three, four, six, and thirteen encircling lines inside the bowl. The sherd with thirteen lines also has two encircling lines outside the vessel rim.

source — Hooper Bay Village

age — Archaeological, from 24 to 78 inches deep in the midden. These sherds are primarily associated with prehistoric Eskimo artifacts, the oldest of which date approximately 1600 A.D.

temper — The 19 sherds have the following tempering agents: crushed rock or sand (14), grass and sand or crushed rock (4), and pebbles (1).

remarks — Two sherds, both from the 54 inch level, are decorated. One has fragments of four encircling lines on the outside of the bowl and the second decorated lamp sherd has short horizontal striations in the shallow bowl. The latter type of decoration is common to cooking pots from the site and is found most often in the lower levels. It has been determined that this type of short striation was made with the back of a cockle shell while the vessel was still moist (Oswalt, 1952 a).

LAMP COMPARISONS

Pottery lamps are absent from only a few early Eskimo horizons of northern Alaska. The most conspicuous absence is at the Point Hope Ipiutak site (Larsen and Rainey, 1948, pp. 110-11), where no lamps at all were found prior to the appearance of stone lamps in the "Near" Ipiutak phase. The middle layers at the Iyatayet site on Cape Denbigh, which are Ipiutak related, contain only stone lamps (Giddings, 1952, p. 86), and again the Ipiutak related phase at Platinum Village site, Bristol Bay, also contains stone lamps (Larsen, 1950, p. 184). The oldest pottery lamps have conical bottoms and wide mouths; these are found in the Point Barrow Birnirk collection (de Laguna, 1947, pp. 249-58) and in Old Bering Sea sites on St. Lawrence Island (Collins, 1937, p. 342). This type is also reported in the more recent Punuk material from St. Lawrence Island (Collins, 1937, p. 342), from an old grave near Teller on Seward Peninsula (Collins, 1937, Pl. 53, 2), graves near East Cape, Siberia (de Laguna, 1947, p. 234) and from the Kobuk River village of Ahteut (Giddings, 1952, Pl. XXIV, 2).

The conical-bottomed clay lamp was largely replaced or modified, according to locality, during later phases of Eskimo prehistory. At Point Barrow the semilunar soapstone lamp (Murdoch, 1892, Figs. 20-1) from the eastern Arctic took its place. The same change occurred at Point Hope, where the soapstone lamp is also reported (Larsen and Rainey, 1948, pp. 35-6, Table 3), but here it is probable that the older form survived locally until recently, as evidenced by its presence in the Tigara burials (Larsen and Rainey, 1948, Pl. 91, 2, 3). Present in post-

Punuk remains on St. Lawrence Island are deep, round, conical-bottomed lamps with wick knobs near the rim, a form which links the Old Bering Sea-Early Punuk lamps and the late rectangular, flat-bottomed lamps with wick ledges (Oswalt, n.d.). Another transitional lamp form, from King Island (University of Alaska collection), has a conical bottom but rectangular outline. In the Kobuk River sites (Giddings, 1952, pp. 94-5) the conical-bottomed clay lamp from Ahteut[4] (1250 A.D.) became modified in the succeeding Ekseavik Village (1400 A.D.). Here were found two pottery lamps which "were . . . saucer-like, curving gradually and thinning to rounded rims". In the Kotzebue site (1500 A.D.) saucer-shaped lamps are described as "shallow, thick-walled bowls," one of which has a line decorated bowl (Giddings, 1952, pp. 94-5). It should be mentioned that two Ekseavik vessel fragments described as lamps by Giddings (1952, p. 95) "were almost flat, plate-like vessels with sharply upturned walls about 2 cm. high". These are similar to the specimen illustrated by Larsen and Rainey (1948, Pl. 91, 7) from a Tigara burial at Point Hope. They also resemble the "griddles" recorded from the upper levels of the Kukulik midden on St. Lawrence Island (Geist and Rainey, 1936, p. 165). It would seem likely that these pottery containers are plates or griddles, as Rainey suggests, rather than lamps. This form is highly suggestive of the stone bottomed frying pans with clay sides used in the Aleutians (Birket-Smith, 1929, II, p. 104) and on the northern coast of Alaska (William Irving verbal communication).

The earliest saucer-shaped clay lamps are from the Kobuk River site of Ekseavik (1400 A.D.), the Onion Portage site (roughly contemperaneous with Ekseavik; Giddings, 1952, pp. 93-103, 121-2), and from houses at Kotzebue, dating a hundred and fifty years later (Giddings, 1952, pp. 93-103). Further south in the general Bristol Bay-Norton Sound region, where saucer-shaped lamps were more fully developed, there is no evidence at present that the form is as early as in the Kotzebue-Kobuk region. In Bristol Bay sites the saucer-shaped clay lamp seems to be late; it replaces the oval stone lamp (Larsen, 1950) probably derived from the Aleutians, where there is a stone lamp tradition. At the present time the oldest saucer-shaped clay lamps in the Bristol Bay-Norton Sound region are from Hooper Bay Village where they were found at the bottom of an excavated layer dating approximately 1600 A.D.

The oldest decorated saucer-shaped lamp is from a Kotzebue house dating approximately 1550 A.D. (grooves on one end of an Onion Portage lamp dating approximately 1400 A.D. might have been for decoration; Giddings, 1952, pp. 121-2). The design on the Kotzebue lamp consists of six broad concentric circles that cover the bottom of the bowl (Giddings, 1952, p. 54). This type of decoration is found on later lamps from the lower Yukon and Innoko rivers, Hooper Bay Village and Bristol Bay (de Laguna, 1947, pp. 148-9; Hough, 1898, Pl.

[4]This site, as all others on the Kobuk River, was dated by a tree-ring chronology which gives for the first time, concrete dates for Eskimo remains.

18, 2, 3; Pl. 19, 3). The lamps in the lowest levels at Hooper Bay Village were plain with the exception of one striated and one concentric circle decorated sherd. Undecorated lamps at the site are the dominant type until the period of historic contact. The undecorated variety is also reported archaeologically from along the Yukon River (de Laguna, 1947, pp. 148-9) and in ethnographic collections from Bristol Bay to Nunivak Island (Hough, 1898, Pl. 18, 1, 4, p. 1053; see also descriptions of random collection). Concentric circle decorated lamp bowls at Hooper Bay Village appear in the upper 54 inches of the still-inhabited site.

The Innoko and part of the lower Yukon rivers are inhabited by Athabaskan Indians, and the lamps reflect, in addition to the usual concentric circles, such local variation in bowl decoration as a circle of dots within the lamp bowl (de Laguna, 1947, Fig. 32, 5, Fig. 33 and 34). Another Athabaskan type is the spoke wheel design on the lamp from Anvik (Pl. 1, 10); this motif is also reported from Bristol Bay (de Laguna, 1947, p. 228).

Trade goods accompanying lamps from South Pastolik preclude any date for the lamps earlier than about 100 years ago. These lamps, with their bowl decoration of concentric circles and a central cross, are like examples from Bristol Bay (Hough, 1898, p. 1053, Pl. 19, 2; Larsen, 1950, p. 183; see also random collection descriptions) and the lower Yukon River (Nelson, 1899, p. 65; de Laguna, 1947, Fig. 33, 5). The small Nunivak Island lamp (Pl. 1, 11) with a single cross in the bottom of the bowl and a crooked line halfway around the bowl is obviously the same type. In no case thus far reported may we say with impunity that the cross motif in the lamp bowl antedates historic contact, and it is quite possible that the design was introduced during the early historic period. It should be mentioned that some of the line decorated rim sherds from Hooper Bay Village may have been from bowls with a cross in the center.

One decorative feature not considered thus far is the central knob in the bottom of the bowl (Pl. 1, 2, 5; Fig. 1, and random collection). The only previously described saucer-shaped clay lamp with such a feature is thought to be from the Bristol Bay-Norton Sound region (de Laguna, 1947, p. 257). De Laguna suggests that these lamp knobs were ultimately derived from the picket lamp of Asia and were later added to Siberian and Eskimo lamps, as reflected in the central knob on Reindeer Chuckee lamps and the ridged and knobbed Thule Eskimo lamps. To these reported lamp knobs should be added the knobbed lamps from the relatively late prehistoric period on St. Lawrence Island (Oswalt, n.d.). The feature is also present in southern Alaska, where one or two knobs are found at the rear of stone lamps from Kachemak Bay (de Laguna, 1934, p. 24, 2). It has been suggested that these were "elaborated into human figures and whales" (de Laguna, 1947, p. 257) which appear in southern Alaskan stone lamp bowls.

In a summary of saucer-shaped clay lamps it may be stated that (1) they were derived from the conical bottomed, wide mouthed clay lamps common to northern Alaskan sites during early phases of Eskimo

prehistory (Old Bering Sea, Early Punuk, Birnirk, and Ahteut); (2) the earliest examples of the saucer-shaped clay lamp are from the Kotzebue-Kobuk region whence they apparently spread south to become the dominant type in the Bristol Bay-Norton Sound region; (3) along the central Bering Sea coast of Alaska the oldest examples of this lamp are from Hooper Bay Village; (4) the lamps are often plain but may be decorated with encircling lines in the bowl, a form which continues down to historic times; (5) about 1830 A.D. the central cross motif appears to have been innovated; (6) the central bowl knobs which occur rarely in saucer-shaped clay lamps are derived from an old Asiatic lamp feature which is found in northern Siberia, on St. Lawrence Island, in northern Alaska and at Kachemak Bay in southern Alaska. Their presence in the Bristol Bay-Norton Sound region seems to be a local survival of the southward spread of the trait.

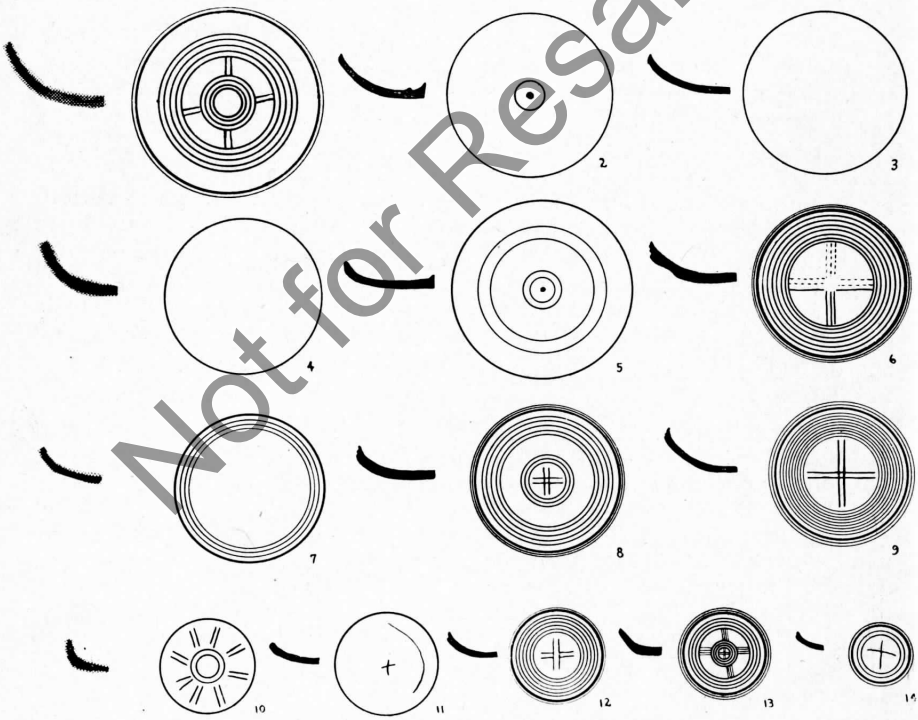

Plate 1. Schematic representations of saucer-shaped clay lamps from the lower Yukon River-Nelson Island area of Alaska. Number 1 measures 24.5 cm. across.

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CONTEMPORY PROBLEMS OF FOLKLORE COLLECTING AND STUDY

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Students of oral literature are becoming increasingly aware of the many-faceted possibilities for interpretation and insight furnished by body of myth or folk literature are of little value, except to further expression. As interests of scholars are focused on a greater variety of problems the responsibility of the recorder who furnishes the materials for study also increases.

For scholars whose principal interest is in basic psychological situations and ideas underlying all myth making, the available collections are probably adequate. They largely disregard cultural differences between peoples, assuming that these are relatively unimportant embroidery of basic and unconscious myth components. Therefore, details explaining the specific cultural orientation of a body of myth or folk literature are of little value, except to further corroborate the main thesis.

Comparative and distributional surveys emphasize areal similarities and differences in formal aspects of oral literature such as plots, motifs and characters, usually without regard to other aspects of culture or consideration of why and by what processes the similarities and differences have come about. More than anything else versions of tales from continuous geographic areas are required.

Scholars who need the sympathetic cooperation of tale collectors and detailed information are those interested in the dynamics of myth making and in oral literature as it is integrated into specific cultures. It is also in this field that folklorists are developing the greatest diversity of approach in methods and aims. The following are a few examples. Katharine Luomola's study of Maui bridges both major approaches (Luomola, 1949). She surveys Maui as one of the type heroes of world mythologies, and reviews interpretations of his character and role according to psychological premises of universals. She also analyzes tale types, plots and motifs, and notes their distribution in Oceania. However, her principal contribution is the analysis of varying ways in which Maui's character and role change to reflect local culture values, class differences, tension situations, etc., and the ways in which the tales are oriented to teach morals, support family histories or serve as vehicles for burlesqueing customs and people.

Melville Jacobs' analysis of a Chinook myth (Jacobs, 1952) points up anxieties, frustrations and antagonisms expressed in a single long and complex myth. Unfortunately, the interpretations cannot be checked with ethnographic data at this late date. Dorothea Demetracopoulou used the Loon Woman Myth (Demetracopoulou, 1933) in the same way to illustrate differences in incest attitudes of the Wintu and their neighbors.

Gladys Reichard noted psychological differences in tales told by Navaho narrators (Reichard, 1944). Robert Miller made similar comparisons of tales told by several Makah raconteurs. Selection of motifs and the development of plots reflect personalities and cultural backgrounds of the tellers and document one of the dynamic factors in myth making (Miller, 1952).

Another recent study (Snyder, n.d.) utilizes a short Haida Swan Maiden myth to demonstrate the application of many theoretic points of view and methods to the analysis of a single story. It is a successful demonstration of the interpretations of a widespread type of myth that are possible when text and ethnography are available, even though the latter is not as detailed as could be desired.

The few examples cited illustrate the range of interests of folklorists and emphasize the necessity for more detailed and comprehensive annotation of folklore collections. The inadequacy of published collections for scholarly use becomes increasingly apparent. Many volumes are merely raw material, of very limited value for serious study, though they may be interesting or amusing to read. Even then they lack the vitality of all cultural items removed from context. Such tales are suitable for comparative studies of tale types, themes and motifs or for distribution studies, but are of little value to the student interested in dynamics of myth composition and change. Many such volumes are printed with little more information than the name of the tribe or town where the tales were told, the date and, sometimes, the names of narrators and interpreters. Even for the purposes of distribution studies we often lack comparable stories from adjacent tribes. Possible historic connections, borrowings and diffusion cannot be traced adequately when there are geographic gaps in data.

A distribution study provides the visibly mapped and charted presence or absence of narrative materials and lays the foundation for further studies of various kinds. If a collector does not give adequate information future students have no way of knowing whether some tales, present in part of an area, are definitely absent or simply were not recorded in other sections.

Comparable or identical tales from neighboring tribes, and from different individuals in one group, can also aid in problems of style range, incident and motif selection and combinations, and of differences in orientation or emphasis. These will reflect both individual personality and group cultural differences.

Scholars are also often handicapped by lack of data on the cultural context of the literature. Even short, simply constructed folktales do not circulate freely in all cultural situations but are told on specific occasions or under particular circumstances. Myth and folktale collections from nonliterate peoples are often published without any guides whatever to the part these stories play in the lives of the people telling them. They are completely anonymous, and might as well have been collected by a layman interested only in literary oddities and strange people. Bronislaw Malinowski in *Myth in Primitive Psychology* (Malinowski, 1926) and in other publications on Trobriand Islanders,

cites many instances in daily life in which myths are referred to, reminding children of proper behavior, justifying individual actions, quoting precedents for individual and group behavior and verifying the status quo. Myth, he maintains, is a living, vital part of daily life, a guide to relationships between individuals and groups of people. This is an aspect of oral narrative sometimes neglected by American recorders of folk literature. Though collected and presented in quite a different theoretic framework from that of Malinowski, examples of American Indian folk literature that are grounded in the culture may be cited. Among them are Margaret Lantis's presentation of Nunivak Eskimo mythology (Lantis, 1946), Gladys Reichard's Coeur d'Alene myths, (Reichard, 1947) and Paul Radin's analysis of Winnebago Hero Cycles (Radin, 1948), to mention only a few. Each of these authors knows the culture well and therefore is able to give the reader an insight into the cultural background of the tales. Using a different approach Franz Boas extracted a great deal of the culture of the Tsimshian (Boas, 1916) and the Kwakiutl (Boas, 1935) from myths and tales.

Many recorders also fail to give the reader a clue to the cultural attitude toward tales—whether they are common property of all adults, told only by men or by women, told only at certain seasons, or only in certain settings, etc. Seldom does the reader know how tales are taught or learned, whether they are recited to a formal or an informal audience, or who takes the initiative to teach them to the younger generation.

A student wishing to study the range of variation of motifs and of story development within a tribe would be completely without information in most published collections. Versions of the same tale from different narrators are not recorded and no information is given on the degree of freedom or the artistic framework within which a raconteur must stay in order to be approved by his group. This can be done by recording versions from a number of raconteurs and by noting reactions and evaluations of them by other members of the community. The recorder's judgment of good stories is apt to be biased by his or her own literary background, hence is not entirely valid. Such judgments are of value if the author makes it clear that they are his own and not those of the natives.

For various reasons writers have neglected or hesitated to describe informants and interpreters. Yet narrators' personalities, sex, interests and experiences have an important influence on their selection of tales, how they select motifs and develop stories and how they are oriented. For example, one narrator may develop action, another descriptive detail and still another may elaborate on violence, family situations, etc. Not only do the narrator's personality, interest, age, sex and history affect incidents selected, and elaborated or omitted, but those of the recorder may also influence what is selected. Anthropologists are well aware of the tendency of narrators to omit incidents that they regard as derogatory to themselves or that will offend the sensibilities of the listener. Thus the recorder may be puzzled by a story that lacks motivation and consistency, but may not be able to discover the reason.

Nothing can be done except record the tale as told and be on the alert for further data that will explain it. Perhaps the teller has omitted significant parts of the tale for reasons best known to himself.

The recorder seldom gives the reader any information on how the stories were obtained. A direct request for a story may elicit quite a different response from that arising from other circumstances. A favored device is to cite a tale heard from a neighboring tribe to stimulate discussion and telling of the local version. Questions about local customs or discussion of them may bring forth tales. The methods of the field worker should certainly be described, or made clear by the form of presentation. Myths and folktales are frequently included as the final chapter of an ethnography, leaving the reader with the impression that stories that could not be fitted in anywhere else were added as a sort of appendix without any real relationship to the culture.

The physical and mechanical difficulties of recording should also be indicated. The recorder must usually rely on an interpreter or an informant with very limited control of English, which certainly affects spontaneity of expression and the final recording. A story teller used to an audience and to the stimulus of a familiar setting is apt to perform very differently seated across a bare table from a stranger with a poised pencil and notebook. Dictating is slow and laborious and many narrators lose interest and tend to omit repetitions and other stylistic devices of plot development. Dictating in a language foreign to the recorder is particularly slow, and certainly much of the narrative style of the freely told tale may be lost. Interpreting is also a special skill, and on the interpreter depends much of the style of the narrative as it appears in the recorder's notebook. Ideally, the recorder should include tales written down directly in English, a sampling of translations from text material and tape or phonograph recordings. The latter allow later notes on stylistic use of the voice, numbers of repetitions, formal phrasings, etc. to be made at leisure by the student, which he often cannot do in the immediate field situation. Notes on these details are essential to use of the material later, either by himself or others. By noting responses and attitudes of narrator and audience the recorder can also assist materially in evaluating the feeling of the group toward the characters, motives, themes and situations of the tales.

Complete ethnographies to accompany myths are certainly not required, but enough data should be given to provide a framework for the understanding of the tales and for use by future scholars. Many admirable studies have been made without adequate cultural data, but such data would have facilitated the studies and made conclusions more reliable. An example is Katharine Luomola's study of Maui, the Oceanic hero (Luomola, 1949). Maui tales are interpreted in terms of differing cultural emphases and needs that have affected development of myth elements and in terms of selection, elaboration and omission of motifs, and even of whole stories present in parts of the area. Maui's personality and relationships with his family and his role in the society differ from group to group. Excellent as it is, this study would have been even better if more adequate data on story tellers and relationship of the

cycle to the daily and ceremonial lives of the people had been available. On the other hand, a comparison of the Cinderella theme in folktales of Europe and the Northwest Coast of America, by Betty Randall (Randall, 1949), can be adequately done without reference to individual story tellers. An analysis of the variations in plot development of this theme shows significant differences in ideas of how prestige is defined, of attitudes toward spirit powers and their manifestations in Northwest Coast tribes that could not be revealed with greater clarity by direct ethnographic methods. However, ethnographic materials are needed to check the degree to which the interpretations coincide with standards and goals in daily life.

One of the interests in oral literature is in the dynamics of story telling and changes in tales historically, as well as from individual to individual and from group to group within a culture. Distribution studies either ignore historical depth or treat it as a formal aspect of the geographic extent of a tale and its variants (Reichard, 1921: Espinosa, 1930: Hatt, 1949). Such studies are valuable in indicating possible historical connections, borrowing and diffusion, but reveal very little of the processes involved. The collector should make every effort to document borrowing and diffusion, and remarks of the narrators on the sources, origins and relationships of their tales. The narrators' ideas may not be correct, but they will furnish clues that can be checked.

Analyses of the stylistic factors that mark myths and tales of one tribe as distinct from those of another have rarely been made and are entirely lacking from many of the older publications and too many of the recent ones. One aspect of style, the use of gestures, facial expressions and dramatic acting out of incidents can only be described by the recorder. They are usually not included in publication because they interrupt the reading and are too long to be included as footnotes. Gladys Reichard prefaces Coeur d'Alene mythology with a description of the story tellers and their mannerisms during the telling, illustrating with quotations from tales. Melville Jacobs adds footnotes and prefatory comments to Coos Bay and Kalapuya tales (Jacobs, 1940, 1945).

Studies of the structuring of tales require texts and accurate translations, including formal beginnings and endings, repetitions, songs interspersed in narrative and use of dialogue. They also require comparative versions as told by different persons, revealing individual differences in narrative style. Grammatical devices used for dramatic effect are very difficult to translate but should certainly be noted, as they are by Reichard and Jacobs for Mink and Coyote. Humor is most difficult of all to translate into a foreign language, but a recorder can note what situations amuse or are hilariously funny to the listeners and how a narrator enhances a humorous situation by gesture, voice or idiomatic expression.

Accurate translations are also required for an understanding of plot and theme development. If the recorder or narrator or both lose interest and transcribe mere skeletons of tales, they are useless for

analysis of how popular stock plots may be developed into quite different tales, and how a theme may be maintained as a constant with plot, characters and motifs varying. Translations occasionally take on more of the literary style of the person editing the tales for publication than of the original narrators. Tales interpreted or told by persons with a poor command of English present a special problem. The narrator would presumably not be ungrammatical in speaking his own language. Margaret Lantis comments that it is not fair to make him appear so in English (Lantis, 1946, p. 264). On the other hand, Eyak tales told in rather poor English were printed with very little editing (Birket-Smith and de Laguna, 1938). Much of their stylistic flavor would certainly have been lost by transposing into 'standard' English. Tales in text should be included with the English versions from the same narrator wherever possible. Thus, stylistic differences in the English and native language versions can be compared.

Even captioning of stories and the order in which they are arranged for publication may present problems. If natives do not have formal titles for tales that fact should be noted. If they distinguish between types of stories such as myths and tales, or if the nature of the literature determines the classification, the problem of grouping will be simplified. In the Winnebago Hero Cycles, Paul Radin comments that the separate cycles were written and translated by Winnebago raconteurs; hence the selection of tales and versions and their sequence is theirs, not his (Radin, 1948, pp. 17, 30, 38, 46). As editor he analyzes the literary reworking that has occurred, noting that it is not the product of the Winnebago who recorded the tales, but is the result of efforts of generations of unknown author-raconteurs. He believes that the Twin Cycle has had the most literary attention since it has the greatest inner consistency of plot and character development and few episodes that do not contribute, psychologically and motivationally, to the unity of the cycle. Out of diverse motifs, episodes, plots and themes from many sources within and without the tribe, the Winnebago have created long literary epics.

In the Northwest Coast area a similar process appears to have been in progress in a few tribes only. At least there is no clue to such a process in the Mink and Coyote tales of the southern Northwest Coast and the Plateau, nor in Raven tales of the interior Athapascan, other than noted below, or in the Eskimo. The episodes are free-floating, separate stories which have no connections with each other except that they are told about a single personage. Amorous exploits of Mink, for instance, are numerous and probably inspired story tellers to think up new ones with the same theme, but not to arrange tales in logical or chronological sequence.

There is evidence that a number of Northwest Coast tribes who told Raven tales thought of them, or at least a certain number of the transformer-creator incidents, as belonging in a regular sequence. Two Copper River Eyak informants recognized a proper order for the tales, though neither knew more than a fraction of the complete cycle. A third informant did not tell them in any order. Twenty-four Raven stories

were collected and arranged more or less arbitrarily for the Eyak (Birket-Smith and de Laguna, 1938, pp. 246-247). The list begins with tales of how Raven made the earth, rivers and other geographical features and ends with his retreat to islands when his adventures were at an end. Haida and Tlingit narrators also tend to arrange the tales in sequence, especially the creator-transformer incidents (Swanton, 1905: Swanton, 1909: Garfield, field notes). John R. Swanton recorded Raven tales of the Queen Charlotte Haida and the Tlingit at Wrangell. Informants were aware that the stories should be told in sequence, beginning with Raven's birth and endowment with supernatural qualities, and ending with his retirement signaling the dawn of present world conditions. Other than that they did not agree on order of incidents, or on tales to be included. No one of his informants knew all of the stories about Raven. The writer found the same feeling for sequence among Tlingits now living in Angoon, Klawak and Ketchikan. Frederica de Laguna and Catharine McClellan had the same experience with informants at Angoon and Yakutat (personal communication).

The largest number of Raven tales published as a unit were written in text by Henry Tate (Boas, 1916) who lived at Port Simpson. The cycle is probably representative only of versions of Raven tales popular with the coast Tsimshian. The cycle begins with the origin of Raven and ends with his transformation into stone on an island far out at sea. The tales show literary skill in arrangement, in transitions from story to story and in motivation and plot development. Creator-culture-hero exploits set the stage for Raven as the benefactor of mankind, but without any social consciousness of his role. He made land, rivers and sea, and brought daylight. However, his downfall from a noble role is forecast in the second episode when he is made voracious by eating scabs mixed with food by slaves. His foster father instructed him in ways of the world and sent him forth with a magic blanket. At the end of the tenth episode the recorder remarks, "This is the end of his works to fill the wants of new people he had made." (p. 67). His name was then changed from Giant to Txamsem, the equivalent of Raven.

A series of miscellaneous tales follow, the principal theme of which is Raven's hunger, his attempts to appease it and frustration in the attempt Two tales are parodies on chiefs and their proud pretentions, with an undercurrent of Raven's voraciousness to connect these with the preceding episodes. They are prefaced by a nightmarish experience in which his beautiful blanket turned to moss and left him naked, followed by the ignominious loss of his beak. Then, disguised as a woman he was disgraced, and in the next episode, humiliated by children. When he had sunk about as low as possible he married Salmon or Fog Woman and a tranquil tale of domestic bliss and affluency follows. It is too good to be true and Raven brought his domestic castle down in ruin when he cursed the salmon bone that caught in his hair. Divested of food, wife and slaves he sat and thought of the evil things he had done, but only for a moment did his conscience trouble him. He was then injured trying to steal food. In the next three tales he was befriended, betrayed and killed his hosts and either ate them

or their stores of food. Bungling Host tales follow the above, and the cycle returns to the theme of Raven's duplicity. He pretended to be a shaman and a canoe builder and was discovered. He posed as a successful hunter and offended the spirit that made his companion able to feed his family abundantly. From the last adventure he escaped the vengeance of the wolves by donning his feather blanket and flying out to sea. There he stayed a long time. Then he invited the sea monsters, presumably those dangerous to man, entertained them in a richly carved house and turned them and himself into rocks. Only then does he come to a peaceful relationship with the universe.

The above cycle of thirty-eight separate tales presents a rough life story of Raven, including the explanation of why he was so thoroughly occupied with food and tried such unorthodox ways of satisfying his hunger. It is a sort of justification for his cruelty, duplicity, vengeance and scheming. Only twice is there a hint of his awareness of responsibility for his acts. The first glimmering deters him very briefly. At the end he merely removes himself and monsters from active roles.

The Raven cycle outlined above was published in *Tsimshian Mythology* without documentation. It is impossible to determine whether this is the complete list of Raven tales known to the Coast Tsimshian or whether other narrators would arrange them in this order. Mr. Tate undoubtedly enlisted the cooperation of local narrators, but their contributions remain anonymous. The questions then arise, to what extent is the cycle as published the expression of the recorder's literary taste and to what extent does it reflect the feeling for order, sequence, versions and tales of Coast Tsimshian raconteurs generally? To what extent would formal stylistic features of introduction, ending and plot development be approved by expert narrators, and to what extent do they represent the literary reworking of the recorder? These questions also relate to the larger problem of relative stability and freedom of plots and motifs and their combinations. None of them can be answered from published material.

Though the idea of an orderly arrangement of Raven cycle tales is present in Northwest Coast oral literature, it is not well developed. Dr. Swanton was unable to get either the full series of tales or agreement on order in 1900 and 1902, and no such organization is apparent in collections of tales from tribes south of the Haida and Tsimshian. Tales from Bella Coola (Boas, 1898: McIlwraith, 1948) include only a few of the stories in the Tsimshian Raven cycle and no sequence is indicated for them. Raven tales recorded by Dr. McIlwraith are connected with legendary histories of families.

The question of a literary tendency toward organization of tales into the semblance of an epic cannot be answered on the basis of present data. Documentation of the sources utilized by Mr. Tate, and of the amount of editing of them by himself and Dr. Boas would have been of great assistance, but it is lacking.

The tendency to weave together incidents, motifs and plots from many sources into an integrated epic was not the only trend occurring

during the nineteenth century in Northwest Coast mythology. Again, lack of adequate documentation hampers an understanding of the process and of what brought it about. The writer became aware of the fact that Raven myths are not always regarded as tribal tales while collecting data on carved columns, especially totem poles, house and memorial posts in Tlingit and Kaigani Haida villages. Informants, asked about Raven figures on poles, professed not to know the stories and referred the questioner to members of the lineage owning the carvings. The versions related often proved to be identical with those published as tribal lore, where they are associated with the creation of mankind, physical features and customs in general, and not with any specific individual or lineage.

Tales associated with lineages are always localized, while others may not be. Events took place in territory lived in by ancestors, or ancestors were present when the incidents occurred or participated in them. Thus matrilineal descendants of the fisherman who caught Raven's beak on his hook have the right to the story and to illustrate it on columns and other possessions. Other Tlingits may tell the story since their fishermen ancestors were also present, but may not use it as a source of illustration and drama.

The association of Raven cycle episodes with lineage and clan legendary history occurs in all Tlingit coastal groups as far westward as Yakutat and in both Queen Charlotte and Alaska (Kaigani) Haida. Catharine McClellan also reports it for interior Tlingit of Carcross and Lake Teslin (personal communication).

Marius Barbeau, (Barbeau, 1944) discussing Haida slate carvings illustrating incidents from the Raven cycle, contends that Albert Edensaw " . . . was known to have made them (Raven's mythical adventures) his own to relate among the northern Haidas of Queen Charlotte Islands . . . " His nephew and successor, Charles Edensaw (1834?-1924), knew the story well for "to him it had become a family heritage" (p. 59). He is credited with being the first to illustrate Raven cycle episodes in slate carvings, which may be true in this restricted sense but is not true of sculpture generally. Two houseposts from Old Wrangell, carved about 1835 for a house belonging to Chief Shakes, have the Tide Woman carved on them. On one post Tide Woman holds a whale with a raven head carved below it. According to Tlingit owners of the posts, this illustrates two episodes belonging to the lineage. One is the story of Raven's ride in the whale and the second is the tale of how Raven forced the old woman to move from the cave entrance so that the tides could run in and out. Both are well-known and widespread episodes in the career of Raven, the culture hero. Most of the surviving poles illustrating Raven tales date from the 1880's and later, but there is evidence that such illustrations date at least as early as the first decade of the nineteenth century. Beyond that direct evidence is lacking.

The evidence for association of Raven cycle tales with matrilineal ancestors seems to have occurred relatively late, but certainly by the middle of the nineteenth century. It is now clear for both Queen Charlotte Island and Kaigani Haida and for all of the Tlingit speaking

groups for which we have information. It is also evident in Athapascan speaking groups in contact with, and influenced by, Tlingit peoples. The evidence is not at all clear for Tsimshian speaking groups. Franz Boas (Boas, 1902) collected Raven cycle tales from the Nass River Tsimshian but gives no indication that any of the stories were associated with specific clan or lineage legends. No data are available for the Gitksan, or interior, Tsimshian since no Raven cycle has been reported from that area. We do not know whether we are confronted with relatively recent literary and social trends in a circumscribed area, or whether inadequate reporting is responsible for the apparent areal limitations.

The very thorough analysis by Dr. Boas of the motifs, incidents and tales that make up the Raven cycle and cycles of other culture hero-tricksters in Northwest America also includes analysis of types of tales and their variations and distributions. In the whole analysis there is no suggestion that culture hero tales are associated with lineages. The anlysis does show that the Tsimshian or Tlingit, and possibly also the Haida, added tales that are not reported elsewhere, either independently or as part of a hero cycle. At least one of these, Raven and the Tides, is a Tlingit lineage myth, commemorated in sculpture.

The remark made by Dr. Giddings concerning the Eskimo could well be taken to heart by folktale collectors, professional and amateur. He says, "The term 'Eskimo' has long been used as though it were descriptive of a single cultural group in both the historical and ethnological sense . . . Those ethnic groups speaking an Eskimoan dialect . . . are by no means identical in . . . culture" (Giddings, 1952). The writer was recently sent a collection of Alaska Eskimo stories made by a government employee over a period of nearly thirty years. They were written and illustrated by school children and many of them were charming and entertaining. The collection could not be accepted by the professional journal to which it was sent because of the complete lack of provenience and other identification of the tales. With even a minimum of ethnographic information attached to each tale the collection would have been excellent from all points of view. Without such information the stories can only be printed as popular children's stories, devoid of cultural roots and meaning. It cannot be assumed that all Eskimo tell the same stories. Neither can it be assumed that, because a Tsimshian speaker tells a narrative in a particular form it is therefore a 'Tsimshian' story.

The collection, recording and publishing of myths and folktales demands certain responsibilities of the collector, whether trained or amateur. The responsibility of trained field workers is especially clear. Any data pertaining to the field situation are necessary. Story tellers' reactions to requests for tales, suggestions that are made to them and how they are received, what types of tales are told and what types withheld should all be noted. In this connection see Margaret Lantis's remark that she could get nothing about individual Nunivak Islanders'

hereditary spirits (Lantis, 1946). From her material it is evident that there are family tales relating ancestral contact with spirits, including Raven, that she was unable to obtain. Her remark greatly assists the reader in evaluating the tales that were told. Biographical data about narrators should be as detailed as possible. This is particularly important for story tellers whose parents belonged to different tribes, or who have learned their oral literature from different sources. In summary, the collector should keep in mind the requirements of scholars who may wish to use his materials and should provide data that can be applied to the solution of many different kinds of problems.

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NEW WORLD AFFINITIES OF CAPE DORSET CULTURE

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The historical development of general Dorset theory is too well known to require repetition here, but it may be reiterated that many of the uncertainties which still beset our knowledge of this extinct culture continue to be important issues in present-day archaeological literature, at least as far as northern areas are concerned. Now, in view of recent field work in Newfoundland which has led to clarification of that southernmost manifestation of Dorset culture (Harp, 1950, 1951, 1952), it may be of interest to see if any new light can be shed on the problem of Dorset's external relationships.*

The most recent hypothesis bearing on Dorset origins and development suggests that this culture did not derive from the north or northwest, but rather " . . . that it may represent an arctic tundra and glacial lake culture of considerable antiquity in eastern North America" (Hoffman, 1952). This interesting thought is based on a correlation of the geological events of the Mankato, the archaic cultural sequence of the northeast, and Carbon 14 dates. It is implied that eastern Dorset culture may have diffused from the Great Lakes area during Algonkian IV times, that it followed the glacial retreat northward into the Labrador peninsula, thence along the coasts, and finally came out to the islands of the Arctic archipelago and Greenland. This, it is suggested, would account for early Dorset-like manifestations in other cultures of the northeast and would also explain the lack of Dorset remains in Alaska.

It seems to me, however, that there are certain difficulties inherent in this idea, for it does not square with archaeological fact, as that appears today, and it assumes a far greater antiquity for Dorset in the northeast than anyone has ever allowed.

In the first place, present indications are that Dorset is more ancient in the northern than it is in the southern portions of its known realm, although that would hardly be the case if it had originated in the Great Lakes area. For instance, Collins (1953-a) has postulated an evolutionary sequence for burins and "boot creasers" of the Dorset culture: in this series the plausibly most recent stone forms, the polished nephrite gravers, are found in Newfoundland Dorset sites; an earlier intermediate form is recorded from Collins' Frobisher Bay site; and the true burins, presumed to be the oldest form, are to be found in west Greenland. From that point, the most direct linkage seems to be with the finds made in Anaktuvuk Pass, Alaska (Solecki and Hackman, 1951), and beyond to the Denbigh Flint Complex of Norton Bay, Alaska (Giddings, 1949, 1951). Also, as I shall mention again later on, there is evidence that the latest type of Dorset bone harpoon head has been observed in Newfoundland.

* The field work in Newfoundland during 1949 and 1950 was generously supported by The Arctic Institute of North America from funds supplied by The United States Government.

The archaeological discontinuity between Dorset and the early northeastern Indian cultures could be exemplified by a consideration of many traits. For instance, prismatic blades and polyhedral cores, and the techniques which they presuppose, were strongly characteristic of Dorset culture. On the other hand, among the archaic Indian cultures of the northeast, these traits do not appear to have attained any semblance of importance until the New York Focus of the Hopewellian Phase. Ritchie figures a number of prismatic blades from this level (1944: Plates 101: 7; 106: 8), but from the earlier Brewerton Focus of the Laurentian Aspect he shows only a single specimen (Ibid., Plate 237: 72), and this is much like the few coarse blades which I have from a non-Dorset context in southern Labrador (Harp, 1951, p. 208). There are many such basic deficiencies in the common character which has been purported to link Dorset with the archaic Indian cultures of the northeast.

From the standpoint of other archaeological evidence, Dorset culture appears to have derived from Alaska by means of a movement, or series of movements, which passed eastward across the northern fringes of the the continent, although it must be admitted that as of the present time this cannot be proved. The chief difficulty in tracing such a diffusion arises from our lack of data from the central arctic regions: the vast reach between Alaska and King William Island has so far been filled only with the remains of the Thule and later cultures. Yet, with regard to the archaeological traces along this central coast, Birket-Smith has suggested that work done there in the past has probably given us a most incomplete picture of the prehistory of the area (1930, pp. 609-610). And, in this same connection, one might recall the results obtained by Knuth in northern Greenland when he excavated tent rings of an unspectacular variety which has generally been accorded little or no attention by earlier archaeologists (Knuth, 1952, p. 25). In other words, it seems highly probable that Dorset remains will be found in the region of the central arctic coast whenever sufficient time is devoted to a purposeful search for them.

It is true that Dorset remains have not yet been discovered in Alaska, and it is possible that they may never be found there, at least in the pure form of what we are wont to call Dorset today. After all, our concept of this culture has been formed in the eastern Arctic, and we have no way of knowing how long this complex will be sustained as it is traced backward in time and space. Yet, in the past few years a considerable body of evidence has accumulated which suggests that Dorset was related to earlier Eskimo, or other, cultures in Alaska. Some time ago Collins pointed out a number of generalized resemblances (1940, p. 571): Dorset stone-working techniques were said to be like those of the Old Bering Sea, prehistoric Aleutian, and Cook Inlet cultures, and he also believed that Dorset art was similar to Style-1 of the Old Bering Sea manifestation. This early recognition of a link between Dorset and the northwest has since been further clarified by the discovery of the Ipiutak culture and the Denbigh Flint Complex.

Larsen and Rainey's analysis of Ipiutak shows that important similarities appear to have united this culture with Dorset (1948, p. 153). They note first of all that the two cultures were based on the same economic factors and lived by more or less equal dependence upon the seal, walrus, and caribou. Each had a highly developed flint industry which was responsible for a great majority of its tool and implement types. As for specific resemblances of traits one can point to the following: inset side and end blades of chipped stone; bone adz heads; chipped and ground adz blades; and ground and polished transverse chisels. The combination of chipping and grinding on flint, which occurs in Dorset, may also be noted in a unique Ipiutak specimen, a long, leaf-shaped point which has rubbed facets on both faces (Ibid., Pl. 35: 20). In addition to these positive correlations, there are certain negative parallels between the two cultures: the absence of whale hunting, the bow drill, traces of the dog sled, and pottery (Ibid., p. 153).

Meldgaard's appraisal of Sarqaq types from west Greenland similarly stresses several chipped stone forms which he believes tie this manifestation in with both Ipiutak and the Cape Denbigh Flint Complex (Meldgaard, 1952). Among these are side blades, narrow points with concave or straight base, lanceolate blades, thick concave side scrapers, and rhomboid flint blades or points. Yet, in thus relating Sarqaq to earlier Alaskan cultures, Meldgaard at the same time suggested that it was separate from both Dorset and the West Greenland Stone Age (Solberg, 1907) and had derived from a different source. Collins (1953-a) has disagreed with this view, and I concur with his opinion. Despite the fact that certain particularly characteristic Dorset types are lacking in the Sarqaq collection (and I think in all fairness it may be pointed out that the Sarqaq collection is relatively small and came from a tightly restricted area), yet there are demonstrable affinities between the two in the presence of a flat, oval stone lamp; chipped stone burins; a polyhedral core; small, chipped stone side blades; concave side scrapers; snub-nosed end scrapers; and even the dominant Sarqaq type, the rhomboid-lanceolate end blade, has also been found in a Dorset context in Peary Land, northern Greenland (Knuth, 1952, Fig. 10: 2). Further similarities of a secondary nature are to be noted in the probable absence of the bow drill, the predominance of chipped stone artifacts, the practice of unifacial chipping, and the combination of chipping and grinding techniques on flint-like substances (Meldgaard, 1952).

It seems to me that we are faced here not with a problem of separate origins and development, but rather with the probability of internal differentiation, both chronological and typological, within Dorset culture as a whole. Also, I think it is permissible to consider such an entity as "generalized" Dorset, realizing that future research will no doubt clarify any such internal differentiation, inasmuch as that does not seem to be practicable now on the basis of published information.

At any rate, taking Dorset culture as a whole, its measure of concurrence with Ipiutak led Larsen and Rainey to speak of it as an

" . . . eastern parallel to the Ipiutak culture . . . " (1948, p. 153). They also included Dorset in their formulation of a generalized Ipiutak Complex, and this latter was equated with the concept of Palaeo-Eskimo (Steensby, 1916) and distinguished from the later Arctic Whale Hunting Complex (Larsen and Rainey, 1948, pp. 37-40). The Ipiutak Complex is held to have derived from a proto-Eskimo source which had roots " . . . deep in the epipalaeolithic cultures of the Old World" (Ibid., p. 182), and it is believed to have reached the American shores early in the first half of the first millenium A.D. (Ibid., p. 155). Some time after this arrival in the New World a proliferation of Eskimo culture is thought to have begun, followed by the movement of some palaeo-Eskimo groups towards the east, and the subsequent evolution of these into what we recognize in the northeast as Dorset (Ibid., p. 184).

Despite the strong indications of close relationship, Dorset cannot have derived wholly from the Ipiutak Complex, for there are differences of important magnitude between the two. One of the most characteristic attributes of Dorset, for instance, was its technique of preparing flint cores and the ensuing removal of prismatic blades from these; yet this combination of traits is virtually unknown in Ipiutak. As Larsen and Rainey say, "It should be noted that not a single fluted core, and hardly any regular, oblong, thin flakes were found at Ipiutak" (Ibid., p. 92). Another discrepancy, in my opinion, is a decisive difference between the art styles of the two cultures: whereas the art forms of Ipiutak were superbly ornate, those of Dorset were extremely simple and primitive. Surely this bespeaks an earlier time level for Dorset, as Collins has suggested (1951, p. 428), or at least it denotes that Dorset had little or no contact with Ipiutak in the latter's flourishing stages. Then a more basic horizon must be sought, one from which both of these manifestations, and particularly Dorset, could have come.

I believe that such a basic horizon may be more nearly approached by the Denbigh Flint Complex which Giddings discovered on the north Bering Sea coast of Alaska (Giddings, 1949, 1951). At Cape Denbigh stratified remains showed three major levels, the uppermost of which contained evidence of several stages of recent Eskimo culture. Beneath this, in an intermediate zone, there may have been more than one phase of culture represented, but the striking feature of this zone was the predominance of stone types which seemed closely related to Ipiutak and Near Ipiutak; in addition, however, there was some pottery, a trait not found at Ipiutak. Giddings also observed that the intermediate levels contained a few flaked blades, points, and scrapers which suggested Dorset: these included thin end and side blades (Giddings, 1949, Fig. 2: b, c, f), and short knife blades with one broadly convex edge (Ibid., Fig. 2: d). At the lowest level, and separated from the upper horizons by a sterile layer, was found the microlithic culture which Giddings has named the Denbigh Flint Complex.

We are not concerned here with the Old World relationships of the Denbigh Flint Complex, but, on the other hand, I think there are definite indications that the Denbigh Complex may have been a source stream from which at least portions of Dorset culture were derived.

In the first place, this complex, as it is now known, is notably based on distinctive flint-working techniques, including the manufacture of prismatic blades from polyhedral cores, and the extremely fine diagonal flaking of implements made from such blades (Giddings, 1951, pp. 194-195). The presence of prismatic blades and polyhedral cores is equally characteristic of Dorset culture (see Plate 1-A), and, moreover, both Dorset and the Denbigh Complex shared the trait of flaking many of their smaller implements from such blades (Ibid., p. 195). Many instances of this practice are to be seen in the Dorset material from Newfoundland (also see Plate 1-B).

The occurrence of diagonal flaking which is so clearly distinctive in the Denbigh Complex, is less so in Dorset, yet I think something very close to this does exist in at least one case, a type of side-notched, serrated-edge blade which I found in Newfoundland. The largest specimen illustrated here in Plate 1-B: 1 best exemplifies a technique which seems comparable to that used on some of Giddings' specimens (Ibid., especially Fig. 63: b); in fact, there appears to be very little difference in the over-all perfection of these examples, even though they come from opposite sides of the continent. Surely, then, some of the Newfoundland Dorset specimens fall within the range of variation of diagonal flaking that characterizes the Denbigh Complex. Otherwise, it must be admitted, this particular technique can hardly be cited as a strong Dorset attribute, at least on the basis of present knowledge.

Many of the very small side and end blades which Giddings illustrates (Ibid., Fig. 61) find their almost exact counterpart in the Newfoundland Dorset inventory. Note especially Plate 2-A: 4-9. The Newfoundland specimens, however, do not have diagonal flaking.

A most significant element of the Denbigh Complex is the burin which was found in a considerable variety of size and types, and which Giddings shows to be related to Old World forms (Ibid., pp. 194-195). This implement, in its true, palaeolithic form, does not seem to have been widespread in Dorset, but it is a definite trait of that culture, at least in terms of derived forms. The closest affinity exists between the Denbigh specimens and those described by Meldgaard from west, and other parts of, Greenland (Meldgaard, 1952, pp. 225-228). Therefore, if Collins is correct in believing that the Sarqaq culture of west Greenland is basically related to Dorset, and I feel that he is, then we may affirm this type as another indication of kinship between the Denbigh Complex and Dorset.

One further type in the Denbigh Complex shows some resemblance to a Dorset form: this is the chipped stone triangular point which Giddings illustrates and classifies as a possible harpoon blade because of its similarity to Ipiutak forms (Giddings, 1951, Fig. 64 and p. 195; Larsen and Rainey, 1948, Fig. 20: 6). These blades are short, wide, and thin, and some of them have concave bases, and I believe that here again we may have coincidence of types within a mutually acceptable range of variation. Some of the typical Dorset triangular points are shown here in Plate 2-B.

The function of these points may have been the same in both cultures although in each case an element of doubt is involved. The Denbigh specimens are only suggested to be harpoon blades, and Wintemberg advanced the same thought with regard to the Newfoundland points which, as he observed, fitted into the slots of the Dorset bone harpoon heads (1940, p. 324). In this connection, it may also be recalled that the bow and arrow have never been positively identified as concomitants of Dorset culture.

Giddings states that the Denbigh type was found in a variety of sizes (1951, p. 195), but those which he illustrates seem to me to fit into the Dorset range. It appears that the Denbigh points have also been basally thinned, and this, too, is a characteristic of the Dorset specimens, whether concave- or straight-based. Presumably the Denbigh points are bifacially worked, whereas many of the Dorset specimens have mostly unifacial flaking.

I do not mean to imply exact similarity in these triangular points, but I do wish to emphasize whatever degree of likeness that does exist, for in discussing Dorset-Indian relationships later on we must note the suggestion, advanced by some authorities, that Dorset culture obtained its distinctive projectile point from a northeastern Indian source. Contrariwise, I would propose that the Denbigh type could just as well have been ancestral to the Dorset point.

On the level of secondary characteristics there are two other relatively minor instances of correspondence to be noted between the Denbigh Complex and Dorset. First, Giddings remarks on the conspicuous small size of all the Denbigh artifacts (Ibid., p. 194), and that is also the nature of Dorset implements. Secondly, although ground stone objects were only a small element in the Denbigh Complex, several artifacts of chert had been both chipped and ground, and Giddings suggested that these implements may have been creasers or "groovers" (Ibid., p. 195, and Fig. 59-b: 4). This is an interesting occurrence in view of the fact that the use of this combination of techniques has been definitely associated with Dorset culture in the eastern Arctic.

In retrospect, some of this evidence is weak, and some of it appears to be relatively strong, but in its totality I feel that it has considerable significance and lends support to the hypothesis of Denbigh-Dorset relationship already advanced by Collins (1953-b). We cannot, of course, attribute the genesis of Dorset entirely to the Denbigh Flint Complex, for they patently do not coincide at all points of reference; furthermore, there may be other manifestations, as yet undiscovered, in the general area of the Bering Strait bridgehead which might have been equally responsible for later developments in palaeo-Eskimo culture. It remains for future research to discover what other factors may have been involved and to plot out the various reacting forces, but I believe that in the meantime we have begun to discern the first tangible outlines of a prehistoric kinship between Denbigh and Dorset.

Reducing this proposition to conservative terms of least probability, then, it seems to me that incipient Dorset partook of the same impulses

that had been responsible for the Denbigh Complex; similarly, it held something in common with the earliest stage of the Old Bering Sea, early Aleutian, Cook Inlet, and the somewhat later Ipiutak manifestations. Subsequently, as it diffused eastward, Dorset assumed the character of a more or less substantive entity and became at last the distinctive expression of Eskimo culture which we recognize as the earliest in the eastern Arctic.

Concerning the problem of possible Dorset-Indian contact and relationship, the existence of "Eskimo-like" artifacts in northeastern Indian sites has long been recognized, and the derivation of these traits has occasioned considerable comment down through the years. I believe it was Jenness who first pinpointed this problem in terms of Dorset Eskimo-Beothuk Indian association, for evidence from Newfoundland led him to believe that some diffusion of culture had occurred there, or in Labrador, between these two groups (Jenness, 1928, 1929). More specifically, he suggested that Dorset had been in contact " . . . over many centuries . . . " with the Beothuk, and this before the arrival of the Thule culture in the eastern Arctic. He also believed that Dorset had obtained from the Indians such traits as the shape of their knives and arrowheads, and had contributed to the Indians bone harpoon heads, semi-lunar knives, and soapstone pots (1933, p. 395). De Laguna noted that the " . . . borrowed Eskimo traits . . . " appeared first in the Red Paint-Laurentian group of cultures, and she felt that the emergence of the Laurentian Aspect might be attributed to contact between Indian and Eskimo (1946, 1947). However, she presumed that these Eskimo traits had been received from Newfoundland Dorset after the latter had been subjected to indirect Thule influence (de Laguna, 1947, p. 17).

It is hardly necessary to review all the details that have been elaborated upon during the growth of this theory, for the advent of radiocarbon dating has threatened the entire structure of these beliefs. Ritchie has shown in a recent paper that " . . . Dorset Eskimo could not have been the donor of the ground slate industry to the Laurentian . . . because of the much greater antiquity of Laurentian in the northeastern area" (1951, p. 49). His hypothesis is based on the Carbon 14 dates for the late Archaic period in New York state, and, as he points out, these indicate that " . . . the Laurentian in central New York encompassed a temporal span of some 2000 years intervening between approximately 3000 and 1000 B.C." (Ibid., p. 48: quoting Arnold and Libby, 1950, p. 7). Then, using the broadest estimate of Dorset chronology, that of Martin, Quimby, and Collier (1947, p. 503) who establish this culture between 100 and 1000 A.D., Ritchie shows that at least 1000 years passed after the end of Laurentian and before the arrival of Dorset in the northeast. As far as the Newfoundland-Labrador area is concerned, and this I think was the most likely zone of contact between Dorset and Indian, I believe the above figure might actually be increased to almost 2000 years, for I would conjecture the arrival of Dorset in Newfoundland at a time closer to 1000 A.D.

However, it makes little difference if the postulated interval between these two manifestations was 1000 or 2000 years; in either

case Laurentian must then have been the autonomous possessor of those traits which had previously been thought of as Eskimo. And, by indirection, Ritchie's hypothesis eliminates the possibility of diffusion from Dorset to Laurentian of all traits that were held in common by the two manifestations.

If this proposition be accepted, there is a derivative which Ritchie also takes into cognizance: "But if it is now fairly certain that the very much older Laurentian and related cultures could not have obtained the ground slate and bone artifacts referred to from Eskimo neighbors, does present evidence justify the reverse of this situation? Can we assume that a delayed or tarriant Laurentian tradition in the isolated Gulf of St. Lawrence region served as an agent of diffusion of Laurentian traits among the Dorset and later Thule Eskimo?" (Ritchie, 1951, p. 49).

I should like to propose a negative answer to each of these questions. To begin with, if we assume that such contact and diffusion did occur, then it must have taken place during relatively recent times, long after the demise of true Laurentian, and within a period which would encompass Beothuk Indian culture as well as Dorset. In all likelihood, Dorset culture did not reach Newfoundland before 1000 A.D., and, quite possibly, several centuries later. One good indication of this is the generally solid condition of bone refuse and artifacts in the sites there; in the absence of any permanently frozen soil, the rigorous climate could be expected to disentegrate such material with some rapidity. The time of arrival of the Beothuk Indians, or their ancestors, is uncertain: all we know is that these people were the bearers of a taiga economy, and their material culture may thus have been ultimately related to the Laurentian tradition (Cf. Spaulding, 1946). Indeed, I think one might even believe that they were the " . . . delayed or tarriant Laurentian tradition in the isolated Gulf of St. Lawrence region . . . " of which Ritchie has spoken (1951, p. 49).

Jenness thought it probable that the Beothuk lived on the Labrador mainland prior to 1500 A.D. (1929, p. 38), and he also suggested that Dorset-Beothuk contact had occurred there before 1400 A.D. (1928, p. 179). There can be no reason to doubt this onetime occupation of Labrador by the Beothuk, and we also know that remains of the Laurentian tradition have been found there as far north as the Hopedale area (Strong, 1930). That would allow considerable geographical scope for the meeting of Dorset and Beothuk culture, and it also seems, on that basis, that the temporal scope available for their communion could have been a period of several hundred years. However, the mainland has not yielded any good archaeological evidence of such contact and diffusion, and the zone wherein it could have occurred is thus narrowed to Newfoundland.

Jenness believed that the following traits of Dorset culture also appeared among the Beothuk: harpoon heads with rectangular sockets; triangular arrow heads made of flint, quartz, and basalt; curved-edge knives of flint and quartz; and a style of art on Beothuk bone ornaments that resembles Dorset engraving (1928, p. 179). However, in a slightly

later reference (1929, p. 37), he averred that the majority of Beothuk specimens are closely similar to those from Algonkian sites in eastern Canada and the United States: for example, birchbark vessels, triangular arrow points, long adz blades, tanged points of rubbed slate, discoidal hammerstones with thumb and finer pits on each face, soapstone plummets, etc. I am sure that this latter comparison is perfectly valid, yet I do feel that it is necessary to review the probability of the first statement.

My field data indicate strongly that there was once an occupation of "pure" Dorset culture in northern Newfoundland. Eight sites there show a positive unity: their locations are similarly littoral, the individual soil profiles suggest at least an approximate contemporaneity for the group, and the cultural remains express complete mutual relationship. This material also exhibits a high level of correlation with the inventory of the parent Dorset complex, as that known from other sites in the eastern Arctic. Out of a total of 49 points used for comparison, there were 30 instances of complete agreement, and of 13 points which showed no concurrence it is noteworthy that 9 fell in the category of bone artifacts. Otherwise, there were 6 instances of peripheral relationship which were listed as possible or doubtful (Harp, 1952).

But this Dorset manifestation is only one aspect of a clear-cut dichotomy of prehistoric culture which is to be noted in Newfoundland. The other aspect is somewhat less positive, but I have a small amount of evidence from seven more sites which yielded only non-Dorset material. This I have attempted to characterize as Beothuk because it fits with the picture of these people which can be derived from Howley (1915); it also merges not only with our concept of taiga culture (Cooper, 1946) but with that of the Laurentian tradition (Ritchie, 1940). The main point is that these remains are unmistakably differentiated from those of Dorset culture in terms of artifact types, sizes, materials, and manufacturing techniques. Furthermore, each of these manifestations for the most part appears separately and uncontaminated. In the few instances where a site has yielded sporadic artifacts from both congeries I think we must infer sequent occupation by both cultures, although no stratigraphy is discernible in the generally shallow soil profiles. As I interpret this matter, then, we do not yet have good archaeological evidence in support of the view that culture diffused between Dorset and Beothuk.

There is another side to this problem, however. It appears to me that the concept of association between Dorset and Beothuk cultures has been colored to some extent by the disordered evidence set forth in Howley (1915), and yet there are certain observations in this work which might merit more careful analysis. It has been reported, for instance, that the Beothuk hunted seals on the northern Newfoundland coast and made use of retrieving harpoons, and that seems to be the major evidence of tangency between their culture and that of the Eskimo. Concerning this subject, Howley quotes from two sources which are presumably authentic, if not always primary.

The earliest mention of seals in connection with the Beothuk appears in Cartwright's narrative of his exploration of the Exploits River (which drains from one of the interior lake systems of Newfoundland into the Bay of Exploits and the larger Notre Dame Bay on the island's north coast). Cartwright made his journey in 1768, and as of that period the Beothuk were thought to be confined largely to the Exploits country. He says, "In summer they live altogether, as is supposed, on the seacoast . . . (where there are) . . . a vast multitude of islands abounding with sea-fowl, ptarmigan, hares and other game, besides seals in great numbers . . . Besides hunting all these, they used to kill . . . ", etc. (Howley, 1915, p. 33).

A detailed description of the harpoon which the Beothuk used is given by W. E. Cormack who is celebrated for his 1822 journey across the east-west breadth of Newfoundland. They had two kinds of spears, one for deer, and "The other was fourteen feet in length, and was used chiefly, if not wholly, in killing seals,—the head or point being easily separated from the shaft . . . The Esquimaux adopt a similar plan, the point of their harpoon or spear being somewhat different in form" (Ibid., pp. 212-213). To this Howley added a footnote, which follows in part: "I believe the Beothuks derived the idea of this harpoon from the Eskimo who are adepts in its use, are known to have possessed it a long time, and who, moreover, depend more on the seal and walrus for their livelihood than the former had any occasion to do" (Ibid., p. 213).

Further information concerning the harpoon is given by Howley as he interprets a sketch made by the Beothuk woman, Shanawdithit, in 1829: "It consists of a long straight wooden handle, to which is affixed at one end an iron point of triangular shape set in a bone socket. This socket is not permanently attached to the handle but is kept in place by a long string, one end of which passes through two holes bored through the bone and securely tied, while the other end is brought along the handle . . . The bone socket where it meets the handle is forked and has a groove cut in it, into which the end of the handle is inserted . . . " (Ibid., p. 247 and Sketch VIII).

In his end plates Howley illustrates another such specimen, without recording its provenience, and I quote from his account of it: "The stone or iron point was set into a slot at the small end and then securely bound around the narrow neck by sinew or thong. The two holes were not drilled through, only about half way and are connected one with the other. This was where the string for attachment to the handle was tied. In the swallow-tailed base is a fine groove for the point of the handle to be inserted" (Ibid., Plate XXIV: 32, and description on p. 339). Also see Howley's Plate XXII: 39 for a similar harpoon head which, however, is not described.

In other words, these harpoon heads which the Beothuk are said to have used seem to equate almost exactly with the variant B-2 which Collins thinks is the latest and most advanced of the Dorset harpoon series (1950, pp. 20-21). In the classification which he prepared on the basis of all known Dorset forms, this type B-2 is characterized by a bifurcated base, a closed rectangular shaft socket, a blade slot, and a

single line hole which is parallel to the socket. Collins further states that this latest Dorset type in turn " . . . gave rise to one of the most important modern harpoon types of the Central Regions and Greenland, the form which has a bifurcated spur, a thickened body, and a line hole with both openings on the same side—in short, which differs from its Dorset prototype only in having a round instead of a rectangular enclosed socket" (Ibid., p. 21).

Howley describes another similar specimen of bone harpoon head that came from what was undoubtedly a Dorset Eskimo burial in vicinity of Port au Choix, Newfoundland (1915, pp. 328-330; and Plate XXIV?), and it is interesting to note that bone foreshafts were also a part of these same grave furnishings. In contrast to this, however, no mention is made of a foreshaft in the description of Beothuk harpoons, nor is such a component indicated in the sketch done by Shanawdithit. Since one might reasonably expect that the Beothuk woman would have been just as accurate in her portrayal of this weapon as she was in others of her amazing sketches, the lack of a foreshaft here might suggest a highly selective adaptation of the harpoon complex into Beothuk culture.

One other aspect of postulated contact between Dorset and Beothuk requires clarification: this is the alleged occurrence of stone vessels in Beothuk culture. We know that several types of both lamps and cooking pots, all made of stone, were characteristic of Dorset culture, but this trait in general is not a typical element of the taiga complex, which the Beothuk evidently shared. Birchbark was the primary material for containers throughout the boreal zone (Cooper, 1946, pp. 288-289), and the earliest detailed reports of Beothuk culture specifically list the presence of this trait. For example, Lieut. Buchan, who traveled up the Exploits River during the winter of 1810-1811 in an attempt to make friendly contact with the Beothuk, came across some of their campsites in the vicinity of Red Indian Lake. His description of the cultural effects observed there includes the following statement: "Their household vessels were all made of birch or spruce bark . . . " and also " . . . there were two iron boilers which must have been plundered from our settlers" (Howley, 1915, p. 86).

Lloyd was told by a John Peyton that the Red Indians had used vessels of soapstone (1875-a, p. 229), but there is no documentation whatsoever for this report. Lloyd himself did find rectangular steatite pots at Conche, on the east coast of the northern peninsula of Newfoundland, but he described them as part of a collection which seems to me obviously a mixture of Dorset and Beothuk artifacts (1875-b, pp. 234-237). And this site, according to my interpretation, is apparently another of those which may be suspected as stratified, although there is no actual proof of this.

In Howley's book we note a statement which implies that "steatite utensils" were more or less characteristic of the furnishings in Beothuk burials (1915, p. 336), but only one specific occurrence is recorded. In this case, a cave burial was found which consisted of the skull and leg bones of an adult, some stone projectile points, "a stone dish"

(not described), and several iron implements of European manufacture (Ibid., p. 332). As far as I can tell, that constitutes the only evidence which indicates that the Beothuk had anything at all to do with stone vessels, and, therefore, I do not think that they were in the habit of manufacturing such articles. It seems more probable that here we have another instance of partial adoption from Dorset culture.

In view of the lack of pertinent archaeological evidence, that appears to sum up the case of Dorset-Beothuk contact. The only positive grounds for postulating diffusion of culture between these two peoples seems to be the use of the sealing harpoon by the Beothuk, and, if we can believe the accuracy of the reports that have come down to us, the bone head of this harpoon was the latest Dorset type. It is also possible that the Indians may have utilized this harpoon without benefit of a foreshaft. As for the matter of stone vessels, the evidence is perhaps even more tenuous, although I believe it must be added to the positive side of the balance in favor of contact and diffusion.

But if that much diffusion actually did occur, could there not have been more? In this connection we might consider briefly the case of Dorset's distinctive triangular projectile point with concave base. Mathiassen (1927, Pl. 2, p. 51) at first thought this type was a specialized form of the central Eskimo and connected with the Thule culture; he also stated that it was common among northern Indians and might have been adopted from them by the Eskimo. Later, of course, this was accepted as an unquestioned Dorset trait. With regard to the non-Dorset occurrence of this type, however, perhaps the closest resemblance to the isosceles Dorset form is to be noted in specimens which Ritchie figures as representative of the Brewerton Focus of the Laurentian Aspect (1944, Plate 111: 2, 10, 11-13, 20, 21). Otherwise, northeastern Indian triangular points, as Wintemberg observed (1939, p. 95), are noticeably broader of base and more nearly equilateral than the Dorset form.

In the case of the Laurentian points, if we may accept the validity of Carbon 14 dates, this triangular type must have resulted from a tradition that was entirely separate from the Dorset manifestation in the northeast. As for the Dorset form, there appears to have been a definite tradition for this type in early Alaskan culture levels (Jenness, 1940, p. 8), and I have already stated my belief that it could possibly have derived from such New World prototype as the triangular harpoon blades of the Denbigh Flint Complex. However, it is also important to note that Gjessing includes this same type as a characteristic of circumpolar boreal culture in both Old and New Worlds, and he writes that "Especially typical perhaps are arrowheads with serrated edges and a concave base . . . " (Gjessing, 1944, p. 38). It will further be recalled that this circumpolar complex has also been equated with the Laurentian Aspect (Spaulding, 1946). This could mean that the Dorset form was received originally from such circumpolar diffusion and that Dorset culture thus shared with Laurentian a certain degree of ancestry. It does not imply, however, that these two recipients of such a trait, and perhaps others, had to be contemporary.

Thus it seems that the bulk of evidence shows that Dorset can be related to early Alaskan cultures by a series of direct trait linkages. Some of these I have mentioned, and there are others which could be similarly checked back. In addition, of course, there are some elements which are less easy to trace from Dorset to palaeo-Eskimo traditions, but always the probabilities seem to be weighted in favor of that source. The conclusion is that we are faced with a rather striking reduction in our concept of the cultural exchanges that have long been thought to have occurred between the Dorset Eskimo and Beothuk Indians. If the above-mentioned clues point the way to prehistoric actuality, we can hardly build a substantial claim for long and continued contact between these two groups of aborigines on the basis of a possibly incomplete adaptation of the harpoon by the Beothuk, and, with somewhat less confirmation, the presence of stone vessels in their culture.

Viewed from another aspect, if we accept the presence of these traits in Beothuk culture, there is evidence here of cultural discontinuity and survival, for they must be the residue from days of onetime contact with the Dorset Eskimo. We know, of course, that the Beothuk still inhabited Newfoundland when the first Europeans arrived, but in all probability Dorset culture, by that time, no longer existed as a pure entity. On the Labrador coast Dorset had been superceded by Thule derivatives (Packard, 1885; Bird, 1945, p. 179), and these Eskimo groups are known to have frequented northern Newfoundland in the colonial period. We do not know if there once existed between Beothuk and Dorset the traditional enmity and distrust that has so often been reported to repel Indian and Eskimo, one from the other, but historically there seems to have been no friendship between Beothuk and the latter day Eskimo. Cartwright, in the narrative of his 1768 exploration, wrote that the Red Indians and Eskimo were "understood" to be enemies, and, he continued, "The Esquimaux in harrassing them kept to their own element the water; where their superior canoes and missile weapons, provided for killing whales, made them terrible enemies to encounter . . . " (Howley, 1915, p. 35). Another tradition maintains that "The Red Indians also knew the Esquimaux whom they despised and called 'four paws' " (Ibid., p. 270).

As far as I know there is no evidence that the Beothuk ever adopted any of this latter day Eskimo culture, and in this regard we might recall part of a quotation already mentioned above: W. E. Cormack, after describing the Beothuk harpoon, said, "The Esquimaux adopt a similar plan, the point of their harpoon or spear being somewhat different in form (Ibid., pp. 212-213). Presumably we may attribute this apparent fact to the warlike contact between Beothuk and recent Eskimo; however, such animosity, even though it were ancient and positive, might not have been the reason for the undeveloped cultural diffusion between Beothuk and Dorset. Birket-Smith has said, "Primitive peoples know their own interest just as well as we do. No groups have been more hostile to one another than the Mackenzie Eskimo and the Loucheux, nevertheless they had regular trading intercourse" (1930, p. 611). It will also be remembered that our

knowledge of the processes of diffusion is probably far from complete. We know that it is generally a most selective affair, and, in this instance, even though there may have been adequate opportunity for cultural exchange between Beothuk and Dorset, perhaps there were no stimuli for the interchange of ideas and material traits beyond those involved in the harpoon and seal hunting.

Also, it seems to me that it may logically be assumed, on the basis of the late type harpoon head, that whatever diffusion did occur came in the terminal stages of Dorset culture. Furthermore, if we may also assume that the Thule Eskimo were by that time pressing hard on Dorset from the west, and that the manifestation in Newfoundland was, in effect, the last pure appearance of Dorset culture, then it might follow that there would have been no opportunity for any Beothuk traits to pass northward into the former Dorset realm. Future archaeological research may provide a more complete answer to this complex of problems, but in the meantime I believe there was little cause for mutual cultural indebtedness on the part of either the Beothuk Indians or the Dorset Eskimo.

Yet somewhere and at some time level we must account for the similarities that apparently did exist between these two northeastern cultural end-products. Perhaps some of these arose from the compounding that took place as diverse cultural traditions ebbed and flowed through the relatively narrow confines of the Bering Strait passage to the New World, but it appears to me that the ultimate explanation lies in the action of circumpolar cultural drift, or population spread (Giddings, 1952), from an ancient horizon in the Old World.

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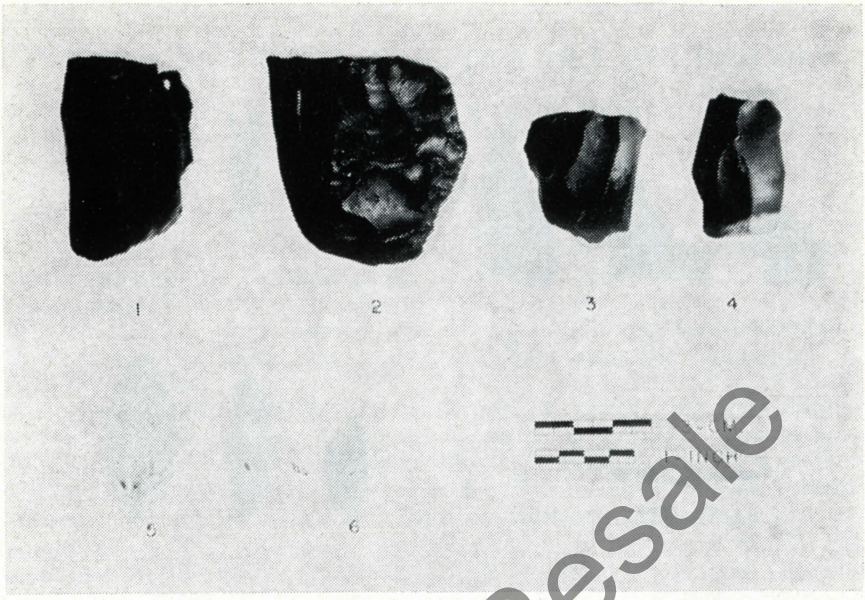
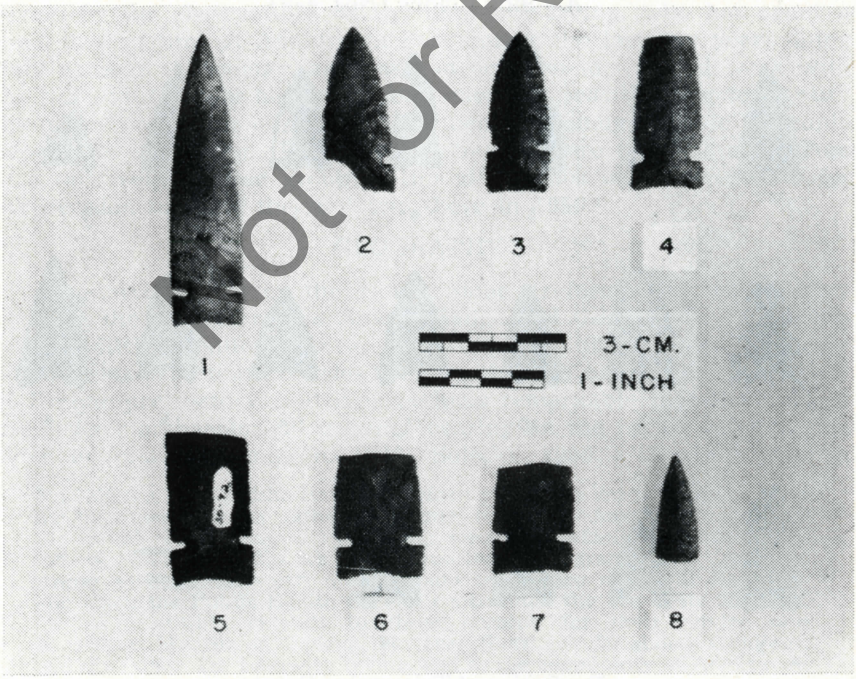
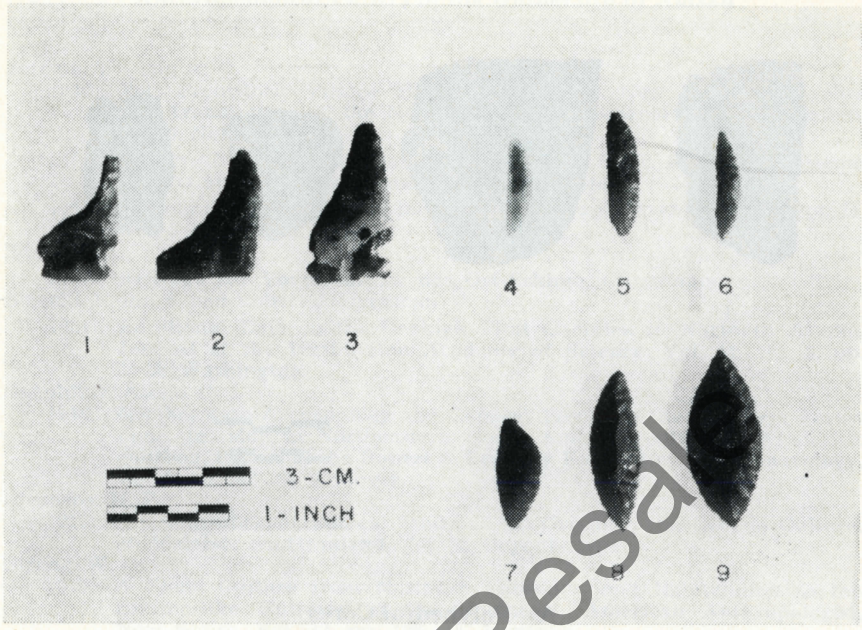


A—Polyhedral Cores

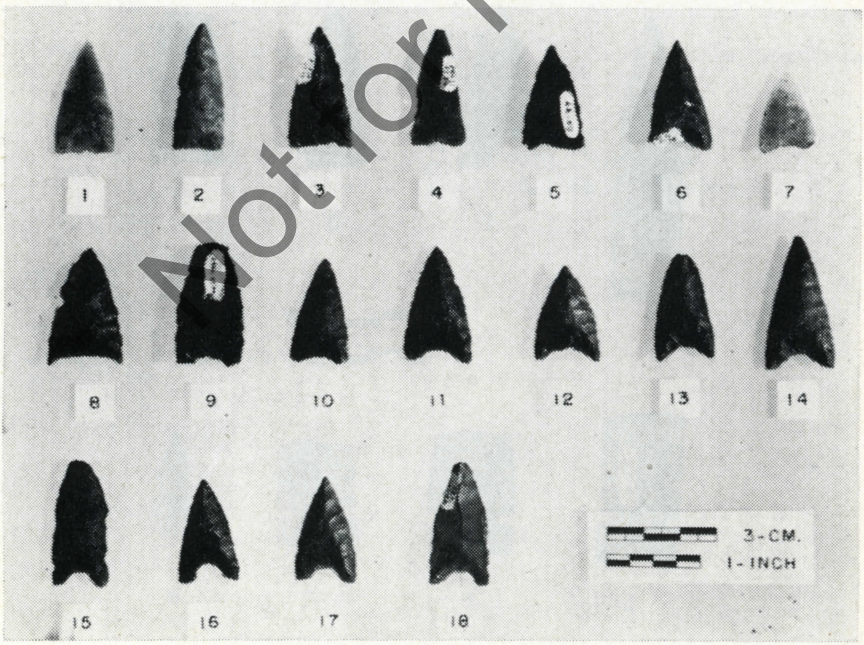


B—Side-notched, serrated-edge Points

Plate 1: Some Dorset Artifacts from Newfoundland



A—Side Blades (Nos. 4-9)



B—Series of Triangular Points

Plate 2: Some Dorset Artifacts from Newfoundland

EVIDENCE OF EARLY TUNDRA CULTURES IN NORTHERN ALASKA

WILLIAM IRVING

The material on which this report is based was collected by the writer during the summers of 1950 and 1951 while making a reconnaissance of the archaeology in parts of the Endicott Mountains. Prior to this, Dr. Helge Larsen of the Danish National Museum and the University of Alaska had visited briefly with the Nunamiut of Anaktuvuk Pass (68° 15′ N., 151° 30′ W.) and returned with ethnographic information that confirmed a belief that this region supports a population of Eskimos with a cultural background distinguishable in some ways from that of coastal groups. It appeared to him that these Nunamiut preserved elements of the earlier Ipiutak complex. He and Dr. Froelich Rainey had earlier hypothesized such an inland group, but supposed they were all now living on the Arctic coast and for the most part absorbed into the coast population (Larsen and Rainey, 1948).

Larsen's interest and that of the present writer were drawn to the region by the observations of Dr. Laurence Irving, who has spent a great deal of time at Anaktuvuk Pass during the last few years doing field work in physiology, and has had occasion to live and work with the Nunamiut. It was he who, among scientists, was the first to identify the mountain valleys of the Arctic as being uniquely suitable to people dependent on hunting. This fact and the presence in Anaktuvuk Pass of a relatively isolated group of Inland Eskimos were responsible for my decision to make the first trip there in 1950.[1]

GEOGRAPHY

The archaeology of the North Slope (referring to the country between the summit of the Brooks Range and the Coastal Plain) has received little attention thus far. We are at present concerned primarily with the material that precedes horizons that are considered the earliest of Eskimo pre-history, and it is perhaps remarkable that the bulk of the meager archaeological writings bearing on the region refer to this older material. (Thompson, 1948; Solecki, 1950 a, b; 1951; Irving,

[1]In 1950 the U. S. Public Health Service very kindly made it possible for me to accompany my father, Laurence Irving, to Anaktuvuk Pass for the initial reconnaissance by making some of its facilities available to me. In 1951 the field work was supported by a grant-in-aid from the Arctic Institute of North America and the Office of Naval Research, and again the Public Health Service contributed the use of its facilities.

My gratitude extends to these persons for their advice and assistance: Mr. Simon Paneak, Dr. Ivar Skarland, Dr. Louis Giddings, and my father, Dr. Laurence Irving, and to the community at Anaktuvuk Pass.

Work on the collections was done in the University of Alaska Museum.

1951; etc.). The observation that in Anaktuvuk Pass the old remains of a distinctive microlithic genre outnumber those that are more recent thus seems to be borne out in the bibliography of the whole area. The geography of a region that produces archaeology of this sort deserves analysis. It has already been given introductory treatment by Solecki (1950), and Rausch has given us a study of the faunal relationships with some pertinent data on the modern Eskimo inhabitants, the Nunamiut (1951). The writer now proposes to discuss the mountain valleys and certain of their peculiarities that are of importance to both ethnology and archaeology.

The locality with which we are immediately concerned lies between west longitudes 151° and 155°. To the north and south it is bounded approximately by the rather abrupt termination of the mountain range and the edge of the spruce forest. The northern limit of trees is in the neighborhood of 2,000 feet above sea level in the larger valleys and follows the mountains some fifteen to forty miles south of the divide. On the south slopes of smaller tributary valleys the spruce occasionally extend another thousand feet higher.

The area appears large on the map, but much of it is taken up with rugged mountains (to the north, block lifted dolomites and limestones; to the south, metamorphic rocks) unsuitable for any aboriginal activity but sheep hunting, and hence of limited concern to archaeologists. The habitable portions of the range are the glacial valleys, especially those that lead to passes between the Koyukuk and Colville watersheds. On the north side these are characteristically straight, level, and steep sided, with most of the relief provided by small glacial and aeolean surface features. Their length to the edge of the mountains varies from twenty to sixty miles, the distance increasing as one moves from east to west.

Those valleys reported to have been used frequently by the Nunamiut are Kanayut, Anaktuvuk, Chandler, Okogmilaga, Okpikruak, and Killik—names referring to the northward flowing streams. The writer has examined parts of the Anaktuvuk and Killik Valleys for sites, and has flown over a portion of the intervening country. The few southern valleys which the writer saw are marked by the presence of high terraces and dense growths of willows along their course within the mountains. Topographic relief is greater on the south side of the range than on the north, and the valleys here are often V-shaped and winding rather than straight and broad as they are to the north.

The weather may be rather severe in winter, with temperatures as low as -50° F. accompanied occasionally by high winds. Snowfall is light. (If it were not, there might well be active glaciers here, for snow fields often last throughout the summer on the valley floors). Ice in the lakes is usually gone by the second week in June and begins to form again late in September. Snow may fall during any month of the year, but it is uncommon in July. During a six or seven week period in June, July and August the weather is generally mild and occasionally quite warm (70° - 80° F.), although there is commonly a heavy frost in

shaded localities at "night". The time of greatest precipitation is probably August, when most of it takes the form of rain. Mosquitoes are not so troublesome as in the country to the north or south because of the dry conditions and fairly constant wind.

Rausch (1951) identifies three biotic divisions on the basis of their floral communities: a) The Arctic Slope Foothills (wet arctic tundra); b) Arctic Mountains (dry alpine tundra); and c) South Slope of Brooks Range (spruce forest). He remarks that, "The occurence of three main biotic divisions within a relatively short distance makes this region unusually interesting from a faunal standpoint". (Presumably he includes men in his fauna, the more since they are one of the few species that can effectively use the resources of all three divisions at the same time). It can be stated fairly that the dry alpine tundra between the tree-line and a point near the edge of the mountains is by far the most easily exploited of these divisions. For this reason it is the "home" of the modern Nunamiut. We can expect to find here if anywhere in the region, archaeological remains of some of the earliest inland hunters that ventured into North America.

The basic ecological difference between the spruce forest and the dry tundra affecting primitive hunting cultures is the presence of spruce trees in one division and their complete absence in the other. In addition, certain plants and particularly a few mammals, such as black bears, beaver, snowshoe rabbits, and a number of other small fur bearers, are found in the forest but not in the open country. On the other hand most of the types common to the dry tundra show up occasionally if not often in the forest. Thus, the variety among mammals may be greater in the wooded region than in the treeless zone, but as will be shown later, food is not as a rule so readily available in such quantities in the former as in the latter.

The fact that there are few major streams with salmon runs worth fishing north of the tree-line is also significant, although perhaps its inclusion as an ecological "principle" could be questioned. (The Kobuk and Noatak are notable exceptions in Alaska).

The points of distinction between the dry and the wet tundra are less clear. Probably the difference results from better drainage and occasional extremely localized climatic situations in the mountains. These conditions favor the growth of willows to a height of 10 or 15 feet, and various plant communities adapted to relatively dry localities (represented by *Ledum, Rhodedendron, Empetrum, Vaccinium,* and on the rocky slopes and some moraines, *Dryas*—Rausch, 1951). These plants occur sporadically in the foot hills, especially near river courses, but are in no sense representative of the division. The wet tundra penetrates the valleys, and hummocky grass and edge meadows cover large parts of the valley floor. It is the high incidence of dry areas and their characteristic plants that distinguishes the division, rather than the absence of wet tundra.

Included in the dry flora are plants useful for fuel (*Salix* and *Cassiope*) and as producers of berries (*Vaccinium*). But more important

than the mere presence of these plants is the fact that they permit a variety of small game (squirrels, ptarmigan, migratory birds) to exist in a concentration not to be found in the wet region.

However, small game plays a minor role in the diet of the Nunamiut (albeit, at times along with fish a critical one) and sufficient fuel can be found in many places outside the mountains. The cardinal advantage of the mountain valleys is good big game hunting, and this results from two facts: first, they are treeless, flat, and surrounded by good points of vantage so that virtually all the game passing through can be detected and pursued or driven; second, the rugged mountains tend to restrict passage between the spruce forest and the tundra to routes through the valleys. Caribou (*Rangifer arcticus stonei*) frequently, and perhaps as a rule, migrate north or south and therefore often pass through the main valleys in large numbers—often enough, that is, for the Nunamiut to make this semi-annual migration the basis of their economy. Thus, aboriginal hunters can resort to the course which, according to Giddings (1952 b), is their preference and the only sensible thing to do, that is, to wait for animals to come to them rather than to chase them aimlessly about the country.

In addition to the migrant caribou there are, of course, the relatively sedentary sheep (*Ovis dalli dalli*), which do not occur outside the mountains. Grizzly bears (*Ursus richardsoni*) are probably more plentiful here than to the north, and so are moose (*Alces americana gigas*). It is clear that the population density of game animals averages much higher in the mountain valleys than on the wet tundra and that the animals are more easily hunted here than in the spruce forest or in the open rolling country to the north.

Other factors contribute to the suitability of this region. Beyond the treeline the light snowfall is drifted and packed hard by the wind, and often patches of ground are swept bare. Travelling is much easier for men and animals in these conditions than in the deep, soft snow of the forest, and good grazing is easier to find and to reach.

The dry tundra, then, offers many of the resources and advantages of both the spruce forest and the wet tundra, and some of its own besides. It is treeless and thus provides good visibility for hunting, but shelter and fuel can readily be found. A variety of animals can be hunted within a relatively small radius, and when for some reason there is no game in an area, the hunters and even whole families and communities can range widely in search of food over the hard-packed snow and bare ground. Moreover, both the forest and the wet tundra are within a couple of days' travel from any point in this part of the mountains, so that many resources peculiar to them are also available. Finally, where herding animals provide the *piece de resistance* of the aboriginal menu, mass hunting techniques can be postulated as inevitable, and we can expect to find that the people customarily lived and hunted together in small communities rather than as single families.

In view of the foregoing, and also the fact that mineral soil deposition and ground cover make sites easy to find, it is not surprising that

there are a fairly large number and wide variety of archaeological remains in collections from the valleys of the Brooks Range. We find that where similar conditions prevail, as in parts of the country west of the Colville drainage, sites and chipping stations are similarly common (Thompson, 1948; Solecki, 1950).

Two further comments bear significantly on the archaeology that is to be presented here. First, the Arctic, and particularly those portions of it not adjacent to the coast or large lakes and rivers, affords a uniquely limited selection of food production methods. Virtually the only one feasible in the area with which we are concerned is the hunting of large grazing animals—currently, caribou, sheep and moose, supplemental at critical periods by fish and small game. Second, these conditions have probably held since glacial times. Thus, if suitable sites occur here, we have a chance to study practitioners of this essentially paleolithic economy in a number of stages of cultural development during a long period of time.

CHOROGRAPHY

Since the balance of this paper will be devoted to material that comes from around Anaktuvuk Pass, the principal features of this valley need describing. It is about 18 miles from the summit to the edge of the mountains, where the relief between the valley floor and adjacent heights changes from three thousand feet and more to less than a thousand. Within these limits there seem to be two centers of aboriginal, and contemporary, activity. One is around the confluence of Anaktuvuk and Kangomovik Creeks. At Kangomovik there is a dense growth of willows, some of which are 15 feet high. Two large valleys, one from Anaktuvuk Pass and the other from a pass at the head of the Anaktiktok, come together here; two smaller ones, Kangomovik and Anivik, debouch nearby and contribute to local zoological activity. Caribou and sheep hunting is often good here, and in times of summer scarcity there are enough nearby creeks with fish in them to feed a number of families. The fact that no sites comparable to those of the lower valley were found is perhaps merely because I spent less time here. (Contact Creek, which joins with Inukpasugaruk to form the John River, is another important modern campsite, but it is on the other side of the summit; the locality has so far produced no artifacts and hence is beyond the range of the present discussion).

Tuluak Lake is the other focal point. Since it is fed by a spring, part of it remains open throughout the winter, and provides an opportunity to catch lake trout and grayling. The surrounding topography makes it a suitable terminus for caribou drives. The lake is unique in the valley in being deep and relatively stable. Both conditions result from its having been formed by the filling of a depression in the moraine.

Willows grow in the vicinity of the spring and on Tuluak Creek at the lower end of the lake, and there is dry ground suitable for campsites all around the lake. (However, according to the Nunamiut, two generations ago the nearest source of wood was five miles away).

All things considered, the lake is one of the most favorable spots in the valley for summer or winter camps, a fact that is borne out by the number of relatively recent sites around its edges. Solifluction may have obliterated many older deposits. That such deposits were made seems more than likely when one considers the abundant flint chips and early implement types that have been found on the knolls immediately south of the lake. A somewhat questionable report attributes three old-looking implements to the recent houses at the lake's edge (Pl. 2, 13-15).

Imaigenik, a locality less than two miles away and on the other side of the river, deserves separate mention. The name is taken from a large lake that, according to legend, had been drained by a woman who cut out a channel to the river in order to attract grayling at its mouth. (This is a device still used occasionally with the same results.) A recent camp was located around the edge of the old lake and on a dry, fairly level plain nearby. It is an unusual situation since there is an unobstructed view to both sides of the valley from the campsite. However, there is otherwise nothing obviously advantageous about the location. It seems to be mainly no more than a pleasant place for a summer camp in a locality generally good for hunting and fishing.

The site designated as Imaigenik is just a few yards north of the location of the last tent of the 1950 summer camp.

IKAIGENIK

The site is located on an inactive sand dune 30 feet above the river and 10 feet above the adjacent level ground. The dune is covered mainly by the sparse *Dryas*-dominated vegetation characteristic of well-drained knolls and hill tops. Small wind-eroded pockets about a foot deep cover approximately half the surface area of the southern third of the knoll. A great deal of sloughing into the river is taking place, so the east side is largely bare and drops at an angle of 60° to the water.

The sand is unstratified except where a variable but thin layer of soil has begun to form. Particles range in size from the finest silt to moderately coarse grains of quartz. Permafrost was encountered at a depth of five feet during the second week in August; down to that level no other significant pedological features were noted in the one deep test pit.

All but three of the implements and a great majority of the flint chips were found on the surface in the hollows of the dune. Also exposed on the surface were bones and boiling rocks cracked by heat. These were often but not invariably found near chips and implements.

The site was first noticed by Suzie Paneak in 1937 or thereabouts and was brought to my attention in 1950, when it was discovered that I might be interested in such things.

In some places the rocks and bones are thickly concentrated a few inches below the surface. Although their areal distribution is approximately that of the flints and although a number of test pits were dug, in only one instance were flint implements or chips found with the bones below the surface. In this case, the polyhedral core and

two fragmentary side blades were found in a bone-rock-charcoal matrix eleven inches below an arbitrarily set ground level. The material of the matrix was formed in a number of connected lenses and was the undisturbed remainder of a hearth. A number of flint chips were found elsewhere in and near the hearth.

There is no question of the excavated implements having come from anywhere but the hearth. In all three cases the artifact came from the middle of a compact bed of charcoal and charred bone at least three inches thick. There is a possibility that the hearth material is more recent than the artifacts and was deposited on them while, during some alteration of the contour of the dune, the flints lay on the surface. This, however, seems unlikely.

The bones and boiling rocks are much the same throughout the site. The question of whether or not all of them were originally associated with the implements is not particularly important. The nagging doubt is the one that attaches to the association of the bone-bearing hearth and the three implements found in it. The following facts suggest contemporaneous deposition:

The bones that were ground for grease, both those in the hearth and those found elsewhere on the site, are in much larger fragments than those used by the modern Eskimo. Nowhere on the site were there found any cultural remains or features, except the bones and boiling rocks, which do not fit the specifications of the prevailing flint industry better than those of any other. In other words, if the Imaigenik flint knappers didn't leave these bones, rocks, and charcoal behind, who else did?

What it amounts to is that the two items in question were found associated *in situ,* and while there is nothing to indicate that they are not of contemporaneous deposition, there is a certain amount of evidence to the effect that they are. Still, since we are dealing with a sand dune, which is a notoriously unreliable piece of chorography, we must accept the association with reservations (or, if one prefer it, reserve acceptance until more reliable evidence is found).

DESCRIPTIONS

The implements found number seventy-six, and can be grouped in six categories:

1. Lamellar flakes and a core.
2. Small bifacially chipped side blades.
3. Burins and burin spalls.
4. Large bifacially chipped blades of uncertain form.
5. Flakes retouched for use, as knives or scrapers.
6. Scrapers of various types.

All are of cryptocrystalline quartz—black ,grey, or green chert, flint, or obsidian. There are no implements or flakes of other materials, except for the fragmentary cooking rocks or heaters, most of which are igneous stream-worn glacial boulders. Quite possibly these were selected on the basis of shape and material in the hope of getting the rocks least susceptible to heat-fracture.

A large number of chips were found. These are almost invariably quite small and probably were removed during the later stages of manufacture. Some of the materials represented were known to the Nunamiut only from sources far to the west between the Killik and the Etivluk. Others are found

locally. No source of obsidian was known to the local Eskimos, though they do have a name for the clear variety. It appears that a lot of flint working was done at this site but that much of the material came from some distance away.

Most of the implements with secondary chipping show only the scars of fine pressure flaking. Some of the larger broken blades of group 4 are not made with any great care, but there is no evidence of the rough work found at some of the other sites in the region. The only direct or indirect percussion flaking that has been identified is seen on the prepared core and its derivatives, on primary flakes, and on burins. Consistently excellent workmanship is one of the outstanding characteristics of the material.

GROUP 1

Implements that will be described in this group number 29. One is a prepared polyhedral core, (Pl. 1, 10) 23 are lamellar flakes, (Pl. 1, 9) and the remaining five were probably struck from prepared cores but are irregular in shape.

A group of 18 of the lamellar flakes conforms to Watanabe's specifications for Mongolian-type lames (Okada, 1951). The remaining five have been trimmed on one edge by the removal of a single longitudinal flake, in the manner of striking off a burin spall. Two others, included in the group measured, were also trimmed in this way, but since the spall removed failed to extend the full length of the blade, the original width could still be determined.

The measurements and derived figures given here are intended for a descriptive supplement. It is doubtful that they have much significance for comparison without extensive supporting observations.

TABLE 1

	Imaigenik I, 18 Specimens	U. of Alaska Campus Site, 19 Specimens[2]
width	5 to 14 mm.	4 to 9 mm.
average	7.5 mm.	5.8 mm.
thickness	1 to 3.5 mm.	1 to 2.5 mm.
average	2 mm.	1.7 mm.
w/t index	17 to 37	20 to 45
average	27	31
	Hokkaido, Obihiro, 18 Specimens	North China, Linnsi, Jehol Providence, 150 Specimens[3]
width	4 to 7 mm.	4 to 12 mm.
average	———	———
thickness	1 to 3 mm.	1 to 4 mm.
average	———	———
w/t index	———	———
average	31	28

[2]Measured at the University of Alaska Museum. The opportunity is used to present data on this material which have not hitherto been published. For fuller treatment see Nelson, 1937, and Rainey, 1939.

[3]From Watanabe's data presented in English by Okada, 1951. Figures from the North China group have been used by Watanabe as criteria fixing the limits of Mongolian-type lamellar flakes.

The close matrical similarity of all the groups listed may have some significance, but probably none that is not readily apparent without resorting to this device. As will be shown, the cores are more susceptible of analysis and comparison than are the flakes. In this case it should be noted, however, that the rather small difference between the Imaigenik and Campus Site figures might be attributed to differences in the types of core from which they came. The fluted surface of the Imaigenik core is much wider at the striking platform than either the average or the largest specimen from the Campus Site. The greater curvature of the surface from which the lamelles come, in the case of the Campus Site cores, accounts for the fact that many of them are narrower and relatively thicker than those from Imaigenik.

Many of the Imagenik flakes have had the section with the percussion bulb at the proximal end broken off, presumably to remove irregularities and facilitate hafting. Several of these broken ends have been included with the lamelles.

Most of the flakes show signs of wear on one or both edges. This may conceivably result from their having been eroded by wind-driven sand while they lay on the ground. The Campus Site specimens do not as a rule show this characteristic; all were recovered from below the surface of the ground. One small Imaigenik lamelle has very fine regular serrations made on the edge. Those that have had the backs trimmed might be regarded as micro-burins (Giddings, 1951).

In measurement and appearance the Imaigenik core is readily distinguishable from any of the Campus Site specimens. It is 18 mm. wide at the juncture of the striking platform and the fluted surface, which forms an angle slightly less than 90°[4]. The largest of the Campus Site cores is 15 mm. wide, and the average of 28 is 9 mm. The fluted surface of the Arctic specimen is 29 mm. long, whereas the average of the Campus Site is 21 mm. (One each of the Campus cores is 29, 28, and 27 mm. long, however).

It is apparent that there are marked differences between the prismatic flake technique of Imaigenik and that of the Campus Site. It may be that refinements in descriptive techniques will premit valid comparisons to be made throughout this wide-spread industry in North America, and that this will prove useful in identifying and correlating otherwise enigmatic finds. One hopes for such data particularly from the large blades and cores reported from the Aleutians (Laughlin, 1951) and North Slope (Solecki, 1950 a), and from Canadian and Greenland material.

GROUP 2

As in the case of the lamellar flakes, most of the thirteen microlithic bifacially chipped side blades have been broken (Pl. 1, 1-6). The two that are intact measure 24 x 8 x 2 mm. and 15 x 5.5 x 2.5 mm. Another, for which the length can be estimated, is 10 mm. wide, 2 mm. thick, and probably was 26 mm. long. The average maximum width of all thirteen is 7.8 mm., a figure that is certainly too small because probably half of the specimens are end fragments that do not exhibit the greatest width. The likely figure is between 8 and 8.5 mm., about that of the lamellar flakes. Probably none are over 30 mm. in length. The average thickness is 2.2 mm.; again the figure is a trifle low. The range is very small—1.5 to 3.5 mm.

It is possible that all the blades are derived from lamellar flakes, but there is no conclusive evidence of this in the specimens at hand. Five of them are somewhat plano-convex in cross section, and one of these has no secondary chipping on part of the plane surface.

[4]On first inspection the angle appeared to be much less, and thus brought to mind the small cores with angles of 30-45° mentioned by Meldgaard from West Greenland (1952). The marked convexity of the flake scars and striking platform gives the erroneous appearance of an acute angle between the two surfaces where they meet.

Seven specimens are tapered at the ends so that the cutting edge is convex whereas the back is straight. The rest are tapered but both edges curve evenly. Most of the cutting edges are slightly serrated, but generally less so than the back edges where the blades have been resharpened, showing that the serrations were probably not produced intentionally.

On eight of the nine blades and fragments large enough to permit examination the majority of the flaking scars extend from one edge to the other. The ninth piece is so narrow that the width-thickness index (curvature of the surface) may have made this style of flaking impossible. The four remaining fragments all have had long, narrow spalls removed.

In a few cases not all of the flake scars are parallel, but this is not the rule. The scars leave the edge from which they originate at an angle of 70° to 80°. Where supplementary flaking has been done on the same surface from the opposing edge, the scars are generally parallel to those made first. This technique will henceforth be referred to as "diagonal flaking".

GROUP 3

Seven burins (Pl. 1, 12-15), and thirteen burin spalls (Pl. 1, 7, 8) make up a significant portion of the collection. Six of the former are angle burins and one is of the chisel type. Three of the angle burins have been trimmed on both sides. One may have been salvaged from a broken point or blade; another is a double ended burin. The remaining four, including two very small ones, have had varying amounts of shaping done on a convex face. There is no evidence of grinding on any of the pieces of this group.

GROUP 4

Four implements have been placed in this category mainly because they are not susceptible of clear description. The remaining one is a knife blade (Pl. 1, 11) more closely related to these than to any others in method of manufacture.

The knife blade, made from a thin flake with only a minimum of retouching beyond what was needed to give it shape, is 25 x 18 mm. Several long scars regularly spaced give the strongly curved cutting edge a serrated appearance. The manner of hafting cannot be determined.

The rest of the pieces in this category serve mainly to show that blade and point types in this collection are not restricted to microliths. All show evidence of pressure flaking. One, a small fragment 14 mm. wide by 4 mm. thick, is markedly plano-convex in cross section. The flat side has some scars that extend from edge to edge.

GROUP 5

Several retouched flakes have been identified, but the number is rather smaller than one might expect; only five seem to have performed some scraping function.

GROUP 6

The six implements that have been shaped to serve as scrapers can be segregated into four distinct types. One is a relatively large flake (40 x 18 mm.), one edge of which has been trimmed to a bevel varying from 30° to 60° (Pl. 1, 19). Part of the edge is trimmed from one side and part from the other, so that the working edge of the slightly curved flake is in a single plane. This fact and the irregular outline of the edge suggest that it was used on skins. The single plane edge is more convenient for skin working, and the irregularity of the edge makes it unsuitable for working in bone or wood.

A second type of scraper, of which there are two, consists of a small thick flake (5 to 7 mm.) with several concave working surfaces produced by the removal of percussion flakes and pressure trimmed. It is similar to both the Aurignacian "spokeshaves" (Sollas, 1924, p. 354) and Ipiutak notched scrapers (Larsen and Rainey, 1948, Pl. 20).

Two thumbnail end scrapers, (Pl. 1, 16, 17) one of them 20 mm. x 20 mm., the other broken but about the same size, are pressure retouched on all adges. The angle between the planes of the beveled working edges is about 60° in both cases.

The final type (Pl. 1, 18) is taken to be a keeled scraper of the sort described by Giddings. It is chipped only on the strongly convex surface; where this surface meets the unworked face the angle is from 40° to 70°. The entire edge is divided into four sections by the ends and by two projections, one on either side. One of these edges, on the end from which the tip is broken off, has been sharpened several times. None of the other edges show evidence of other than the original shaping. This may indicate that the implement was end-hafted and used by a left-handed man (see plate).

DISCUSSION

In searching for closely related sites and material in current literature we can eliminate the great bulk of those reported from the American Arctic because they lack burins, lamellar flakes, and/or small diagonally flaked side-blades, types that are in the majority here. That leaves three well-described collections with which to make comparisons: the West Greenland Paleo-Eskimo (Meldgaard, 1952), the Pearyland Dorset (Knuth, 1952), and the Denbigh Flint Complex (Giddings, 1951). The first two can be disregarded for the present because the few side blades illustrated are quite unlike those from Anaktuvuk, so there remains only the Denbigh Flint Complex to consider. Here we find the resemblance to be remarkably close. The parallel, diagonal flaking of the microlithic side blades is of comparable excellence in both sites; the burins from Imaigenik can all be duplicated in the Denbigh collection; and the lamellar flakes and parent core from the Anaktuvuk site are of the same type as those in the Denbigh group. These facts establish a close relationship between Imaigenik and the Denbigh Flint Complex. With our present knowledge of the typology of these industries, it would be difficult, if not impossible, to distinguish and retrieve the Imaigenik specimens if they should accidentally get mixed with the Denbigh collection. For present purposes the two sites represent the same flint industry, though other aspects of culture may have been different.

It is noteworthy though not in any way improbable that we should find material belonging to the Denbigh Flint Complex four hundred miles inland from this type site on the coast at Iyatayet. The inland country is quite suitable for occupancy and has been used by bearers of related cultures as well. There is no question that the culture which produced these implements was well established here.

This is by no means an exhaustive examination of relationships. The plan is to orient this collection and then proceed to a description of additional material which will permit some extension of the boundaries of comparison. Industries that contain similar implements have been reported from many sites throughout the Arctic (Knuth, 1952; Collins, 1953; Harp, 1953). The fact of immediate significance is the identification of the Imaigenik tools with the Denbigh Flint Complex. It should also be noted that the site found by Robert Hackman not far from Imaigenik (Solecki and Hackman, 1951) produced cores, prismatic flakes, side blades and burins that bear a similarly close resemblance to implements of this complex.

TULUAK

1

This site is located almost directly across the river from Imaigenik. It consists of thin layers of culture material of several ages distributed along the northern edge of a bluff, 40 feet above the river, overlooking a series of low terraces. The bluff is of morainic material, and is probably an esker. There is a small pond at its base, the shore lines of which indicate that it was formerly twice as large and 10 feet deeper. Some time before the pond was formed the course of the river ran next to the bluff. It is the writer's opinion that an ice dam, effective during the recession of the glacier, caused the formation of a broad, shallow lake which covered the esker. That some of the sediments overlying the moraine are of lacustrine origin is quite evident, and an ice dam seems the most convenient explanation.

Tuluak Lake, currently favored by the Eskimos as the site of winter camps, is less than a mile to the northeast. The small knobs to the southeast along the edge of the esker have been used recently as places to wait for caribou moving north, and the quantity of flint chips found here indicates that they were so used in earlier times. The great majority of chips from this locality are of the sort that are characteristic of older sites in the area—small, weathered, and of a variety of fine materials.

The esker is covered by layers of mixed sand, silt, and clay to an undetermined depth, topped by a layer of sod and humus that rarely exceeds 3 inches in thickness. The vegetation is dominated by *Dryas* in the drier spots and tends toward grasses, sedges, and dwarf willows where the drainage is poorer. The floral community appears to be in an early stage of development. This fact is borne out by an examination of the soil profiles, which show the visible effects of leaching only to a depth of about 15 inches, suggesting that the present surface of the ground is of recent origin. The upper level of permafrost was found to be at depths of 25 to 35 inches in the middle of August.

A part of the recent sediments, probably all of the sandy upper stratum, are wind deposited. The effects of wind erosion are evident on the south sides of most of the knolls.

STRATIGRAPHY

Six test pits were dug in what seemed to be the most productive portion of the site. Only two of these were at all rewarding—in the rest there were culture deposits, but in most cases few artifacts or none at all were recovered.

The thin deposits of cultural material have been altered by frost action, and most of the organic matter has been decomposed. However, in test 5 and some others an easily discernible layer of sterile sand

separates the uppermost level, which is recent, from that below it which is apparently much older. On the basis of stratigraphy no finer distinctions can be made. Freezing and thawing have caused such distortion in the strata that in places they lie in recumbent folds, and occasional pieces of bone were found in a vertical position 20 inches below the nearest culture layer.

The sediments directly below the recent deposits consist of sand discolored by vegetable residue. They extend to an average depth of 10 inches below the surface. Below this, but not readily distinguishable from it, is darker colored sand, generally more compacted and ranging in thickness from 5 to 12 inches. There is considerable relief to the contact between this layer of sand and the grey sandy clay beneath it. The contact zone is often marked by discontinuous layers of variegated clay, the description and detailed explanation of which would require the attention of a micro-geologist. It is certain that at no time did the surface of the ground follow such an intricate pattern.

The layer of gray sandy clay extends to an unknown depth. Occasional banding was seen, and lobes of different colored clay were found at all depths. The writer believes these sediments to be water deposited but is not prepared to discuss the matter in greater detail. In any case, they overlie the till which is the basis for most of the topography in the valley, and are therefore unquestionably post-glacial. (In the case of test pit 1, at the edge of the bluff, erosion has removed all of the clay and part of the sand, so that the sand and culture material lie directly over the till).

RECENT MATERIAL

All of the test pits gave substantially the same results. The top layer, which extends from the surface to a maximum depth of 8 inches, is characterized by occasional gray flint chips, caribou bones cut with a saw, brass cartridge cases (WCF . . . 44), an oval stone net sinker with two opposing side notches, and, lying on the surface, several sled shoes of spruce. On the surface there were also the remains of Nunamiut spring and summer camps. It would seem that the period the layer represents does not extend very far backward in time, but it is impossible to set a limiting date.

The principal items of interest to come from the surface are the spruce sled shoes. I heard before finding any that the Nunamiut would use such shoes, generally made of green wood, when better ones were not available. Shoes of spruce are said to slide more easily on dry snow than those of bone or antler, but they wear out quickly. Most of the fragments found were a little more than 2.5 cm. wide and from 0.6 to 1.3 cm. in thickness. All were short, broken sections, and all had drilled holes 5 cm. in diameter at irregular intervals along the middle. They were probably attached to the runners by means of wooden pegs. The use of such perishable shoes might be adduced to help explain the absence of evidence of sleds in sites where it might be expected.

OLDER MATERIAL[5]

The culture level next below the one just described as recent is separated from it by the first layer of sand and part of the second. It consists of a dark line from ½ to 1 inch thick formed by bits of charcoal, bone fragments, flint chips, and other culture debris. It is the source of most of the artifacts recovered and is probably the layer in which all except the recent ones were deposited. It is discontinuous in places and has been sharply folded by frost action.

The total period of occupation must have been short. However, it cannot be said with absolute certainty that the artifacts represent a single period of occupation. Implements, chips and particularly bones were frequently found at some distance from the culture layer; since the samples are so small, homogeneity cannot be proved or disproved. Therefore, we must at the outset regard the collection as a unit that may possibly contain a mixture of cultural elements.

DESCRIPTIONS

The 28 implements from the lower stratum segregate into the following groups:

1. Artifacts of organic material.
2. Small bifacially chipped side blades.
3. Small bifacially chipped points.
4. Bifacially chipped "rare" types.
5. Implements with only a minimum of shaping and retouching.
6. A burin spall.
7. Scrapers.

GROUP 1

Two pieces of worked antler coming from test 5 are the only specimens of organic material. Both are fairly well preserved but fragmentary. One is 8.5 x 1.5 cm.; the other is 3.5 x 0.2 cm. There is no indication as to their probable use. With reference to preservation, it should be noted that organic matter (primarily bone) was recovered in much better condition from the lower levels than from near the surface. This may mean that soil deposition was relatively rapid at the time the older material was laid down.

GROUP 2

Numerically, the most important implements are bifacially chipped side blades, of which there are 11 (Plate, 3, 4, 6, 7, 9, 11-13). Their common features are their small size and the evidence of skill in their manufacture. Otherwise they are rather heterogeneous. All but 2 (9, 13) are fragmentary.

Two blades display fairly creditable diagonal flaking (11, 12), and one has diagonal flaking of a sort on one surface (4). It is possible that some of the fragments that were too small to be examined thoroughly also bore some diagonal flaking. Serrate edges occur rather frequently (5 specimens). Some (3) are plano-convex in cross section. Most of the blades were crescentic in form.

It is evident that a typology cannot be made for this series; the description of common features must suffice. The technique of manufacture seems to be consistent enough to dispel, in the case of the side blades, the likelihood of intrusives.

[5]It should be noted that, while this collection is very small, 28 artifacts, I think it is sufficiently distinctive to warrant analytical and comparative treatment. This results partly from there being an impressive lack of published material dealing with flint types of this genre, but also partly from the clearly definable nature of many of the types with which we have to deal. If a few of the observations anticipate some that are forthcoming from Dr. J. L. Giddings, it is largely because they were first suggested to me by him. This, of course, does not mean he is liable for all of them.

GROUP 3

Next among the bifacially chipped implements are the proximal fragments of two end blades—presumably arrow points (Pl. 1, 18). Both are diagonally flaked, although only on one side in the case of the smaller. Both have square bases. The sides of the smaller converge toward the base.

GROUP 4

Three other bifacially chipped implements complete the list in this category. One is a drill (Pl. 1, 14). In form it is quite similar to Ipiutak type I (Larsen and Rainey, 1948), with a broad base and slender point, the end of which has been broken off. However, it is but 2.2 cm. long, too short to have been used effectively without being hafted and much smaller than the Ipiutak specimens. Borers of a similar sort are encountered in Danish and other European Mesolithic collections (Mathiassen, 1948).

The next is a roughly oval piece of flint (Pl. 1, 15), the use of which has not been determined. Although all of the edges have been carefully retouched (on one face only), they don't show any sign of having been used. It resembles an Ipiutak rare form described as a "thick oval blade" (Larsen and Rainey, 1948, Pl. 20, 21).

The last is a square piece of flint (Pl. 1, 2), very thin and flaked on both sides, with some of the flakes on one side extending from one edge to the other. The slight concavity on one edge seems to have been produced intentionally. Its purpose is unknown. It may be related to the "scale-shaped piece of flint" figured by Meldgaard in his West Greenland Paleo-Eskimo material (1952, p. 223), which he compares with late Paleolithic and Neolithic specimens.

GROUP 5

This is a series of simply-made implements chipped usually on only one face and, in most cases, only at the edges.

One, a diminutive arrow point (Pl. 1, 10), is 2.15 cm. long. The distal end would be triangular. The broad stem, marked by small shoulders, converges slightly to a square base. Flaking scars are visible at the edges, but otherwise it retains the shape of the spall as it was taken from the core.

A pair of edged tools that may be regarded as knife blades are also quite simply made (Pl. 1, 16, 17). Both are broken, with only the distal portions remaining. One, more expertly made than the other, is symmetrical, with sides curving to a sharp point. One face is completely covered with flaking scars; the others show scars extending only a short distance in from the edges. The second conforms in type to the first but shows less care given to the flaking. On both, the edges are somewhat serrated, probably intentionally so.

The remainder of the artifacts in this class are two fragments with the edges slightly rounded by chipping. Their original form and use is purely a matter of conjecture.

Unifacially retouched implements occur frequently in Dorset material (Harp, 1953).

GROUP 6

One burin spall only was found during excavations (Pl. 1, 5). The fact that no burins were found in place, and no other spalls, does not require us to regard this as intrusive, in such a small collection. Both appear to be characteristic of the material found nearby on the surface.

GROUP 7

Several small scrapers complete the enumeration of artifacts, except for some doubtful fragmentary pieces. The majority of these are small retouched flakes, probably used for working in bone and wood. One (Pl. 1, 18) is an end scraper broken along the longitudinal axis, of which the right half was found. It is a thick flake nearly 4 cm. long, retouched only at the working edge. It would be suitable for hafting but has not been shaped for it.

DISCUSSION

It is immediately apparent that the Tuluak material is not to be compared with any of the Neo-Eskimo flint industries. The small size of the specimens and some specific characteristics such as diagonal flaking, probable evidence of burins, and the importance of side blades suggest some relationship with the early horizons represented by the Denbigh Flint Complex. However, certain notable differences distinguish this collection from the Imaigenik form of the Denbigh complex. The apparent absence of lamellar flakes if they are indeed lacking from the complex, is the most significant. If boiling rocks can be definitely associated with the Imaigenik flints, then the fact that there are none at Tuluak is also important. None of the peculiar 'old fashioned' scrapers found at Imaigenik (group 6) occur here either. Moreover, the general standard of workmanship of Tuluak is noticeably not so high as at Imaigenik.

The difference is not only in the traits missing from Tuluak, which are impressive *in toto* but individually open to some question. The Ipiutak-type drill (Pl. 2, 14), the square and the oval shaped pieces of flint (Pl. 2, 2, 15), both obviously finished implements, and the square-based small end blades with parallel and converging sides (Pl. 2, 1, 8) are distinguishing traits found in the Tuluak material that do not occur at Imagenik (or in the lowest levels at Cape Denbigh). Taken together they are sufficient to isolate the two sites. If the industries are both in the same autochthonous line of development, then the chronological gap between them may be presumed to be a long one. Nevertheless, there appear to be no industries closer in typology to Tuluak than the Denbigh Flint Complex—at least, none for which there are adequate descriptions.

An uncritical view of the facts might prompt one to call the Tuluak material a stage in the development from the Denbigh Flint Complex to Ipiutak, thereby implying a generic relationship and fixing on the map an inland phase of a "pre-Ipiutak" culture. There are enough parallels between Tuluak and Ipiutak to give this proposition a certain amount of support: the drill, square based blades, certain of the side blades and the two knife end blades; in fact, the majority of the traits that distinguish Tuluak from Imaigenik serve to align it with Ipiutak. (We are prevented by the similarities to Imaigenik from considering it anything but older than Ipiutak).

But, however convenient and temporarily useful it might be, such an identification would oversimplify the situation and perhaps prove misleading. There are nearly as many parallels with Knuth's Pearyland Dorset (1952) and Meldgaard's West Greenland Paleo-Eskimo Culture (1952) as there are with Ipiutak: the small side blades, the burins, end blades with sides converging to a square base, and serrated edges. The Ipiutak culture may have passed through a comparable stage during the course of its development, but we can not say that we have found the proto-Ipiutak phase at Tuluak. No more should we try to attach this Tuluak complex to the eclectic Dorset culture (though one is now

tempted more strongly than ever to seek western sources for Dorset elements). The connecting threads are still too tenuous to support the burden of proof or even to let us surmise with assurance the precise interrelationships of the Tuluak Flint Complex.

We are confronted, then, with a situation that can probably be explained best in the following way:

Elements, and perhaps most often groups of elements, of an old microlithic industry are found to occur in various combinations throughout the American Arctic (and beyond) with a distribution that in the New World seems to approximate that of the modern Eskimo. The culture matrix in which, according to present data, these microlithic elements usually appear, and which may well have been their principal vehicle, was adapted to both the littoral and the alpine tundra of the Arctic. This must therefore have been already a highly specialized culture with many basic similarities to that of the Eskimo. It was certainly not the culture of migrants passing through, or visitors, for we find a number of stages of it throughout the Arctic and vestiges among the succeeding Eskimo phases (Meldgaard, 1952, discussing the evolution of burins; notched scrapers in Ipiutak—Larsen and Rainey, 1948; lamellar flakes at Onion Portage—Giddings, 1952 a; Collins, 1953 b, dealing again with burins in the eastern Arctic).

In effect, there are indications in the stone typologies that remain to us of an extensive continuum through space and time. There is some evidence that in Greenland the continuum merges with the Dorset culture and ultimately with the modern Eskimo (Meldgaard, 1952; Collins, 1953 b). That such a continuum may be traceable in the west, marked notably by the Denbigh Flint Complex and by Ipiutak, is suggested by Giddings (1951, p. 200) and more recently by Collins (1953 a). The Tuluak complex serves as a referrent to support this contention. I believe we will see its validity demonstrated when Giddings' material from Iyatayet and Larsen's from the Trail Creek caves on the Seward Peninsula are fully analyzed.

The degree of unity or disunity in the "continuum" just dealt with is of relatively little importance at the present. The fact that one exists in the archaeological record means that there is a new basis on which to make an estimate of the manner in which the Eskimo culture developed. It may not be necessary after all to invade Asia in order to find whole cultures that will satisfy the requirements of parenthood. Those recently found in North America are old enough, and, so far as the present status of archaeology will permit us to judge, seem to offer more evidence of a direct relationship than do the Asiatic ones. This does not in any sense exclude influences from the west. But the fact is that in the region now occupied by Eskimos we have archaeological remains representing an impressive depth in time. So far as we can determine, it would be difficult for any hunting group to survive in the Arctic without certain techniques that are used by and are characteristic of the Eskimo.

Moreover, there is some evidence of a typological continuum in one element at least that can be traced throughout the archaeological

period. It would be unreasonable to suppose that only flint techniques were passed on. We must therefore regard Arctic America as a locus in which some, and perhaps many, important traits were developed for or transmitted to the Eskimo. The possibility exists that the agglomeration of traits that represent the Eskimo took place mainly where we find the Eskimo living today[6]. This, at any rate, is the view fostered by one segment of the body of evidence.

This hypothesis conforms rather well in some respects to the scheme proposed by Birket-Smith, largely on ethnographic evidence (condensed in 1937). Whether the basic industry of his "ice-fishing" phase was catching fish or caribou is a point of secondary importance. What is noteworthy and gratifying is that we now have archaeological evidence of men existing in the treeless part of the American Arctic and living inland at an early date. They probably used an economy comparable to that which Birket-Smith had in mind, but with more emphasis on hunting. There is a typological resemblance in the cores and burins of this archaeological complex to others of some antiquity from northerly parts of Europe and Asia. Thus, it looks as though we are approaching an archaeological demonstration of parts of Birket-Smith's theory.

We should not say, though, that Imaigenik is at the pre-ice hunting, pre-snowshoe stage. At the roughly contemporaneous (?) Cape Denbigh site it is likely that there was sea hunting (Giddings, 1951, Fig. 64—harpoon (?) blades), if not veritable ice-hunting, and some slight evidence from Interior Alaska (Skarland and Giddings, 1948) suggests comparable antiquity for hunting groups. But we can say that the finds at Imaigenik and Tulauk make it much easier for archaeologists to accept Birket-Smith's contention, both as to the importance of the "ice-fishing" stage in America, and its relationship to a circumpolar continuum. In other words, the primitive North Americans were on hand in time to take part in the specialization of arctic cultures from the ancient "paleolithic" economy of the alpine or dry tundra to the more elaborate forms adapted to the littoral, the large lakes and rivers, and the Boreal Forest.

In the east, the continuum in stonework seems to pass from an early stage with true burins, through a later "Dorset" phase and finally into the predecessor of the modern Eskimo. Whether or not these later developments in the east can be tied in with events in the west remains to be shown. The most that we can say of Tuluak is that it is an analogue to one of the stages in the flint continuum that can be followed through the Dorset culture.

[6]In using the term Eskimo somewhat promiscuously, I have intended to indicate a whole group of American Arctic and sub-Arctic cultures that can be most readily classed together on the basis of their language. In no sense do I mean to suggest a unity of origin by this use of the word. It is just a convenient way to refer to a large group of people with many traits in common who tend to restrict themselves to the northerly sea-coasts and treeless regions.

A consideration of some importance is that there is no material from the inland region to bridge the gap between Tuluak and the modern Eskimo. No sites to represent the paleo-Eskimo Ipiutak complex have been reported anywhere north of Point Hope or the Brooks Range. A number of implement types have been found there that are neither in the microlithic tradition nor part of the Eskimo sequence, but they do not fit well between the two. This is another reason why we should not say that Tuluak is in the line that produced Ipiutak. We can, however, say that at Tuluak there is a site representative of a local stage in an extensive Arctic culture continuum and that this stage shows specialization in the direction of the paleo-Eskimo.

Certain other aspects of the two sites can be dealt with briefly. First, there is no geological basis for estimating the age of either at the present time. Both are in a part of the valley that has been covered by glacier ice at least once. There is nothing to indicate, however, when the last glacier to cover the sites retreated.

Another fact that should be pointed out, though little use can be made of it at the present, is the virtual absence of macrolithic tools in both sites. Specifically, no large points or blades were found, i.e., nothing to suggest a relationship with early American complexes known from farther south. This needs an explanation, for points identified as Folsom, Oblique Yuma, Plainview, and Eden have all been reported from the lowest levels at Iyatayet. Folsom and 'Yuma-like' artifacts have also been reported from elsewhere in Alaska (Thompson, 1948; Skarland and Giddings, 1948).

Still another class of artifact is missing: axes, adzes, indeed anything but burins and microlithic blades that might be useful for working in wood. It would seem unlikely that the people cut their tent poles and weapon shafts with prismatic flakes, but there is no evidence of larger tools. It is possible that the missing implements were made of bone or antler rather than stone. (Such a precedent can be found in early cultures of northern Europe, Childe, 1937).

It will be interesting to discover the southern limit of some distinctive microlithic traits and to compare complexes of those found in the Boreal Forest with those from Arctic tundra and sea-coast. Also, the mechanism that fostered, among other specializations, the development of at least three types of cores for producing prismatic flakes deserves attention. These are the large, conical type found by Solecki (1951) north of the Brooks Range, and found also at Birch Lake near Fairbanks; the small roughly conical type from Anaktuvuk Pass and Cape Denbigh; and the small thin type from the University of Alaska Campus Site. This shows that we cannot assume the Denbigh Flint Complex to be the only medium through which prepared cores came to the New World. Refinements in descriptive technique will greatly enhance the significance of this sort of material.

We may expect further investigations to show that the Brooks Range is, and has been for some time, a peripheral region where innovations that served to elaborate the culture of coastal sea-hunting communities made little impression on the old pattern. Recently,

however, in spite of their archaic form of culture, its inhabitants have played an important role in the diffusion of many traits because of their position along trade routes between Kotzebue Sound and the northern coast. This may also have been the case in the past.

One can visualize a phase in the development of Arctic cultures when those of the alpine tundra were of greater importance, relative to contemporaneous coastal and river phases, than they are now. There may well have been a time, before technological innovations made the sea coast the richest food producing region in the Arctic, when the border between the forest and the tundra, and particularly those localities where the border follows a mountain range, were the important centers of population, and hence of cultural development and change.

Finally, it should be said that thorough and convincing treatment of many of the topics introduced here must await a great deal of additional field work. I submit them now as indications of what appear to be facts susceptible of proof and elaboration.

APPENDIX

I

Other Finds From the Anaktuvuk Valley

A

Near Nakaganik Springs, at the edge of Tuluak Lake, are a number of depressions, four of which we identified as the remains of houses. Elsewhere in the vicinity are some smaller pits, which are probably meat caches. It was found that the houses were used by post-contact Eskimos; they produced several beads and iron tools, in addition to some flint flakes and a flat stone lamp.

Three implements (Pl. 2, 13, 14, 15), which do not appear to be recent, were brought to me and attributed, somewhat doubtfully, to this location. The first is a thin, roughly made side blade which may have been broken at one end. Another is a smaller fragment of a side blade showing some evidence of diagonal flaking. The third appears to be the basal section of a weapon point. It is chipped only on one side, the one opposite being the flat bulbar surface, and has a strongly concave base. It resembles some points described as Dorset (Harp, 1951; Wintemberg, 1939).

The only conclusion to be drawn is that these houses were built on the site of a much older camp. However, no other material of this sort was found in the vicinity.

The houses conform to the pattern characteristic of the region, according to ethnographic information, and are similar to the later Kobuk houses (Giddings, 1952 a). The largest is 11 x 14 feet and has a 3 foot entrance passage extending from the middle of the short side toward the lake. The floors are less than a foot below the surface of the ground. Central fireplaces ringed with large stones were found in three of the houses. (The excavated floor and the entrance passage vary from the rule, but are occasionally used, according to the ethnographic account. The difference is too small to raise the question of foreign elements being present).

B

On the knolls east of Tuluak (and just south of the site described above) were found a great quantity of flint chips, and among them, some artifacts. These were probably left by hunters waiting for caribou to come from the south. They may be divided conveniently into three classes: those that appear to be fairly recent, those which are probably quite old, and those which cannot be placed chronologically. It is noteworthy that there are more specimens in the "old" category than in the other two taken together, and also that there is no distinguishable intermediate group.

Considered to be related to the sites at Imaigenik, and hence to represent the widespread Mesolithic tradition of Northern Alaska, are, first of all, a burin and a burin spall. The first is an angle burin, trimmed on one side only (Pl. 2, 10). The spall shows evidence of having come from a burin trimmed on both sides.

The square basal sections of two arrow points also belong in this group (Pl. 2, 6, 8). These resemble no. 8, plate 1, from Tuluak.

A number of small side blades, all fragmentary, were found; these display various degrees of perfection of the diagonal flaking technique. Of these, the one illustrated (Pl. 2, 5) is the smallest and also the finest, and therefore not altogether representative.

Two interesting end scrapers (Pl. 2, 16, 17) have also been placed in this category. No. 17 is fragmentary but appears to be of the same type as the other. They are distinguished from the Imaigenik form of this implement by earlike projections from the sides which may have facilitated hafting. Both are trimmed unifacially on all edges. Their small size and difference in form from later end scrapers are the principal reasons for classifying them with the old material. A small notched scraper (Pl. 2, 2) is included here because of its size, but it might be of relatively late manufacture.

Several lamellar flakes (not illustrated) probably belong here, as well as does a blade similar to no. 17, plate 1, from Tuluak.

The "recent" find was a cache of flint found under a small rock on top of a knoll. It is presumably the contents of a tool kit or work bag. Included were a number of large flakes, some of which have been retouched; a diamond shaped arrow point; and an implement tentatively called an adz. The arrow point, which lacks part of the base, resembles types found on the Kobuk River, particularly those of the Ekseavik phase (Giddings, 1952 a). The so-called adz is made of poor chert, much weathered. The broad end is slightly bevelled on one side. It is nowhere more than 1 cm. thick. It does not appear to be strong enough for wood-working, but no other use has been suggested for it.

The two problematical implements are arrow points (Pl. 2, 7, 9). Neither point resembles any known article of recent Eskimo manufacture. Both are well made but show no evidence of the flaking technique characteristic of older material in the region.

C

The site examined by Robert Hackman and reported by Solecki in 1950, which is situated some 15 miles northwest of Imaigenik and Tuluak, was visted and examined briefly. It is divided into two parts, one covering the end of a narrow point extending into Narivukararok Lake, and the other situated on a flat portion of the steep hillside next to the lake. On the point, where the cultural material extends over a large area, there were found a number of large core and flake tools chipped at the edges to form knives or scrapers (Pl. 3, 5, 6). Five lamellar flakes were found there as well. These implements came from the piles of flint chips unearthed by Hackman and therefore cannot be taken as representative of the site, which had been much disturbed.

The site of the hillside was marked by three tent rings formed by small boulders. They were circular, two of them being 9 feet in diameter, and a third, 7 feet. Found on the surface in one of them were two lamellar flakes and the distal portion of a blade chipped at the margins (Pl. 3, 7, 8, 9).

D

Near the summit of Anaktuvuk Pass on a high ground moraine were found two stone houses which probably had slab roofs. The first was roughly 8 by 11 feet and had an entrance passage 5 feet long extending from the short side. A few flint chips and a fragment of a point or scraper chipped only at the edge were all that was found during a brief examination. The second house was not investigated but was about the same size. A few feet away was a meat cache made of rocks. These houses are situated half a mile from the nearest water and a mile or more from the nearest wood that could be used for fuel. Moreover, they are exposed to very high winds. These facts and their peculiar construction made their presence there something of an enigma.

A few miles to the south, at the edge of a small pond that is now drying up, were found several house pits in which large rocks were an important element of construction. No artifacts were found, nor was anything else that might identify their builders.

E

A number of "rock shelters" of two kinds were found in the valley. These were easily distinguishable from the hunting blinds and wind-breaks of piled boulders that are made at the present time by the Eskimos. One type consists of rings of stone piled to form walls three feet or more high, over which were probably laid caribou skins supported by willow frames. Charcoal and bones, but no implements, were found inside them. They are generally situated on high ground near the base of a steep mountain slope. They occur at Kimignaktuk, near Akvalutak Creek, and in the vicinity of Kangomovik.

Two miles south of Tuluak Lake, along the high alluvial fan of Kimignaktuk Creek, are twenty-three walls of piled-up stones. Most of them are semicircular enclosures with the high part of the wall

(up to four feet) in the middle facing north or south along the axis of the valley. Some, however, are completely enclosed, except for a small entrance. Their maximum diameters are from 6 to 12 feet. These may be hunting blinds. Some may be walls over which caribou skins were stretched to make a tent. This would be one of the first spots to become snow-free and dry in the spring. It is also a good place to snare caribou as they move through the willows in the branching creek bed. The Nunamiut know nothing of their builders, although they evidently had rifles and other articles of western manufacture.

Implements that were found associated with the "stone rings" include a broken hammerstone (?); antler points that may have been used in caribou lances; an antler arrowhead with a modern type of tang (4 knobs); a feather toy; brass cartridge cases; pipes—one probably from a trader and a number made of hollowed-out willow sticks; snow shoe and sled parts; some pieces of bone shaped to scrape water out of fur clothing; a ladle for melting lead to make bullets, made out of a piece of scrap metal; and what is taken to be a hunter's visor made of wood. The last article has not, to my knowledge, been reported before from northern Alaska.

A second type of shelter is somewhat different from those just described. These were made in convenient cavities in the fractured outcrops of bed rock along the terraces cut by the glacier, and were, in some cases, roofed over completely with stone. Again, no implements were found. The local Eskimos connect these shelters with some former Indian neighbors, whom they refer to as "Uyagaamiut"—Rock People.

F

A cave on the south face of a mountain overlooking the Anaktiktok Valley, 5 miles above its confluence with the Anaktuvuk, was investigated with meager results. It is used by wolves, but it is not suitable for human occupancy, since there is only about 3 feet between the roof and the floor. The depth of the frozen detritus could not be determined.

Under the overhanging rocks at the entrance was a stone shelter similar to the type just described. Outside it, among the scattered caribou bones and charcoal, was found an antler arrow head (Pl. 2, 3). This does not resemble Eskimo arrow heads and may tentatively be called Indian, in view of the many fine barbs which may identify it with material from the interior of Alaska. The culture debris was sparse here and probably represents only a temporary camp.

G

The remaining implements from Anaktuvuk Pass are two flint pieces from a morainic knoll overlooking the river five miles south of Imaigenik. One appears to be a fragmentary knife or spear blade. It is symmetrical, with sides converging to a point which has been broken off. The other (Pl. 2, 4) is the diagonally flaked tail section of an arrow point with straight sides that converge slightly toward the base.

II

FINDS FROM THE KILLIK VALLEY

A

The valley of the Killik River, which is a hundred miles west of the Anaktuvuk, has peculiarities which distinguish it from some of the others in the region. First of all, it is larger—longer and broader—and the pass connecting it with the Alatna drainage to the south is somewhat lower. However, the most important feature is the weather. There appears to be more rainfall here than in the Anaktuvuk Valley, and high winds are reported to be much more frequent. The last two phenomena are directly responsible for a relatively luxurious growth of willow and large wind-formed features in the topography respectively. The willows and sand dunes combine to make sites hard to find, whereas in the Anaktuvuk Valley one might expect to find a chipping station on the top of every second knoll.

B

Nevertheless, while traveling along forty miles of the river from near the summit to the edge of the mountains, the writer found a few sites. The first is situated near the upper end of the valley on a high dune overlooking the river. Behind it is Maptigarok Lake, and a few miles away is a spot particularly well adapted to snaring sheep. The valley is somewhat narrower here than it is farther north and much flatter, which makes this a good locality for caribou hunting.

The characteristic implements are slate blades (both ulus and double edged knives), large unworked boulder chips ("tchi-thos"; Giddings, 1952 a) for working skins, and roughly made but serviceable edged tools of flint. A large adz blade of jade or nephrite was found. It was ground only at the cutting edge and was hafted directly to the handle without an antler socket. Implements of organic material were not found, although preservation seems to have been fairly good. The site appears to be not very old. However, excavation through five feet of drifted sand was not productive of sufficient artifacts for an analytical discussion. It is interesting to note that this is the only site I have found in the Brooks Range that contains ground tools.

Near by, but not definitely associated with the site, were found a dozen sherds from a large pot. They contain a coarse grit and feather temper, and the rim is scalloped. The pot had been mended by inserting small iron bands into holes in the sides. The original shape cannot be determined, but the pot appears to have been a large one.

Across the river from this site, protected from the wind by a grove of willows and a high bank overlooking the terrace of a creek, were the remains of several winter houses. They were found to contain caribou bones cut with saws and therefore are of recent construction. No implements were recovered. The floors were at ground level and were therefore marked only by the large rocks that formed the central fireplaces. In shape they were generally rectangular, but irregular shapes were also noted. Entrance passages could not be recognized.

It is presumed that the houses were made of moss laid over a frame of willow sticks. They fit the ethnographic description of an *ivrulik* much more closely than do those of Nakagnik in Anaktuvuk Pass, referred to above.

C

At the mouth of Akmallik Creek, near the edge of the mountains, there are many dunes and blowouts, and in the bottom of the latter are exposed large quantities of flint chips and some implements. There is no means of estimating the time of deposition. It is unlikely that they represent a single period. They are all of the same substance, black chert. One fragment was excavated from the side of a blowout some fifteen feet below the surface of the dune. It had not been worn by exposure to wind-blown sand, and may well have been *in situ*.

Characteristic of the artifacts are large core and flake tools, roughly chipped by percussion and similar to some reported by Solecki from Narivukarrok Lake and also to those from Kangomovik mentioned above. They appear to have been used as knives (Pl. 3, 1, 5) and scrapers (Pl. 3, 2, 4). They come in a variety of shapes and sizes, but none exhibits any degree of refinement in chipping technique. It is surprising, therefore, to find a well-made burin in this context (Pl. 3, 3). Speculation as to possible relationships is interesting but regrettably futile.

D

Three miles up the creek from its mouth are some high eminences of ground moraine, on top of which was found the fragment pictured in plate 3, 10. This appears to be either the proximal end of a hafted cutting tool or the working end of a type of scraper. The workmanship is careful and its shape is symmetrical.

E

On top of another high knoll 5 miles farther north were found two points. One (Pl. 3, 11) is asymmetrical and made of poor material. It resembles one figured by Rainey from the Campus Site at the University of Alaska (Rainey, 1940). The other is fragmentary (Pl. 3, 12). It is very well made, with regular flaking scars meeting in the middle.

F

Some fragmentary lamellar flakes and a few chips were found on a bare ridge half a mile from the river and a few miles outside the mountain line.

G

A rather unusual side blade (Pl. 2, 1) was found by an Eskimo in the valley of the Okogmilaga River, some 30 miles east of the Killik. The narrow projection at one end may have facilitated hafting, or it may have served as a point for the knife. It may be analogous to a similar projection occasionally found on slate ulu blades.

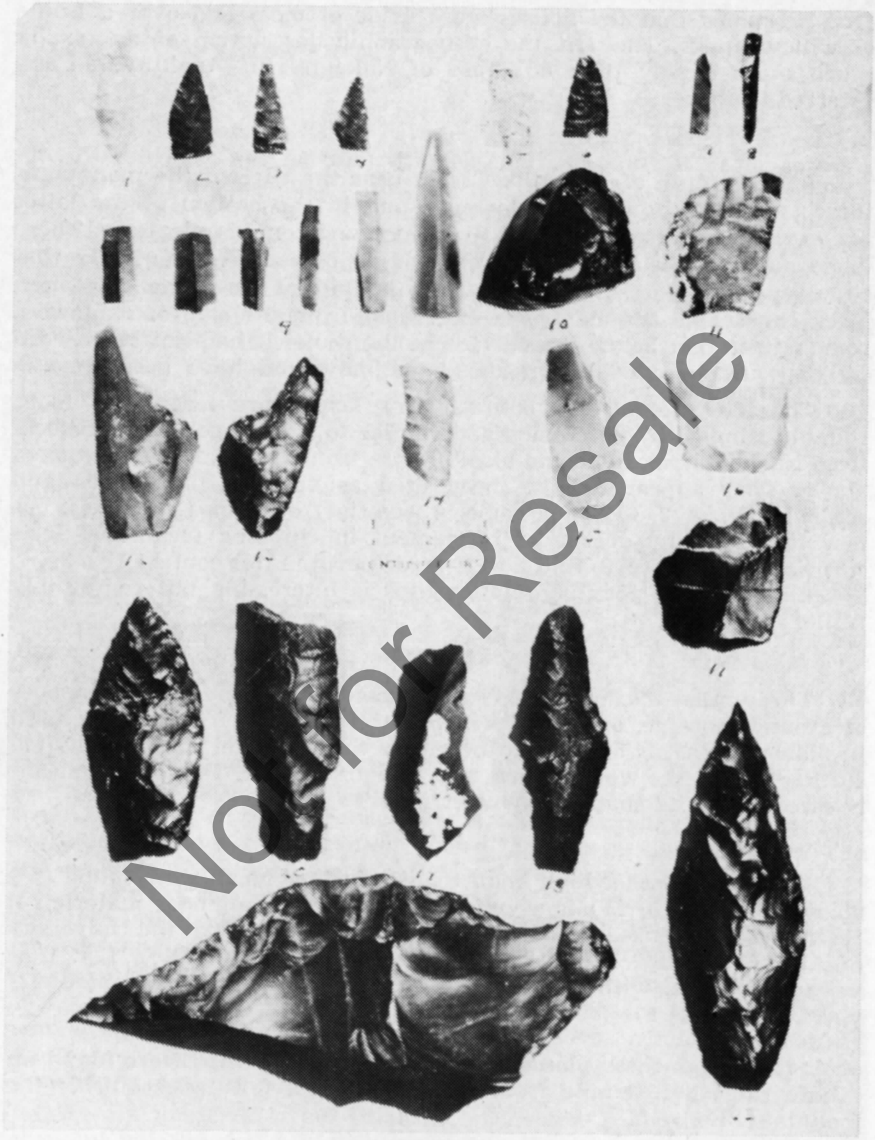


Plate No. 1

Nos. 1-19: Representative types from Imaigenik. Nos. 20-23: Selected types from the Killik River blowouts (Amallik Creek).

The second, third and fourth lamellar flakes from the left have been trimmed by the removal of spalls from one edge. Nos. 7 and 8 are burin spalls.

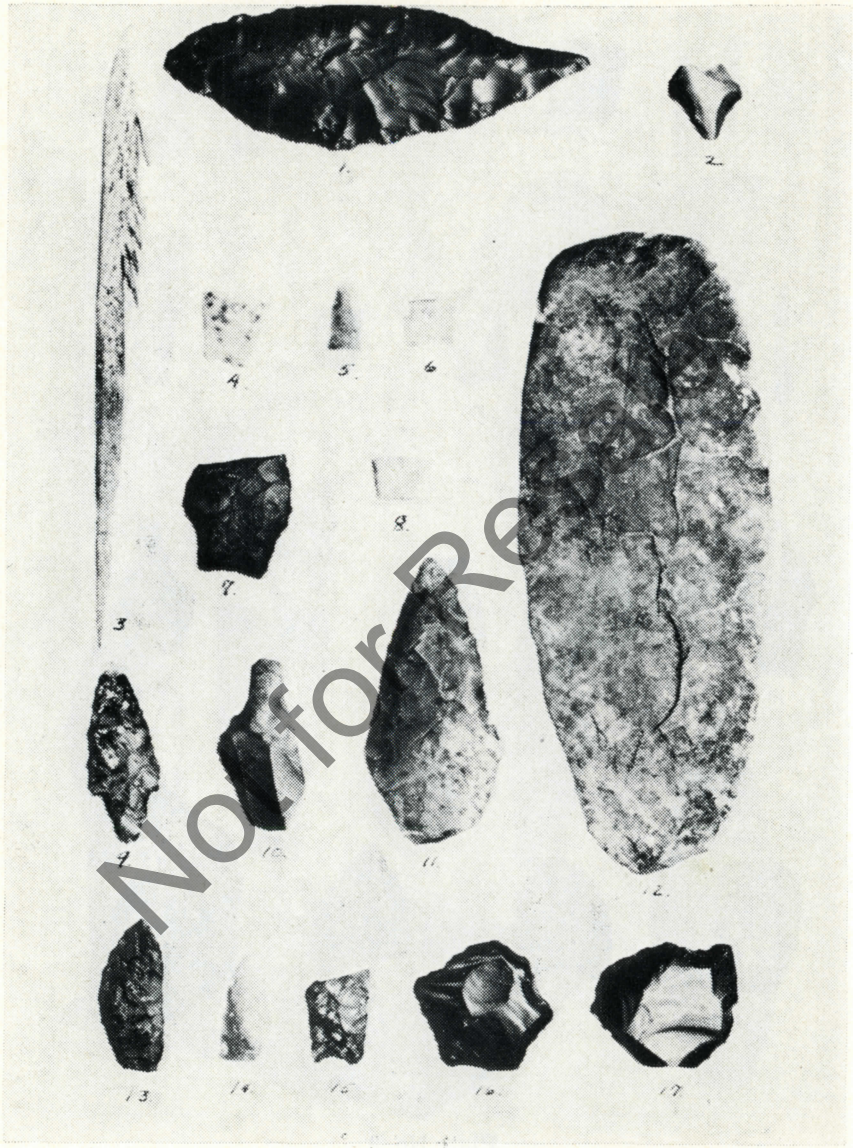


Plate No. 3

Miscellaneous Surface Finds. No. 1: Okognilaga Valley—side blade. Nos. 2, 4-10, 16, 17: knolls near Tuluak Site. No. 3: mouth of Anaktiktok cave. No. 11, 12: flint cache. Nos. 13-15: from house pits near Tuluak Lake.

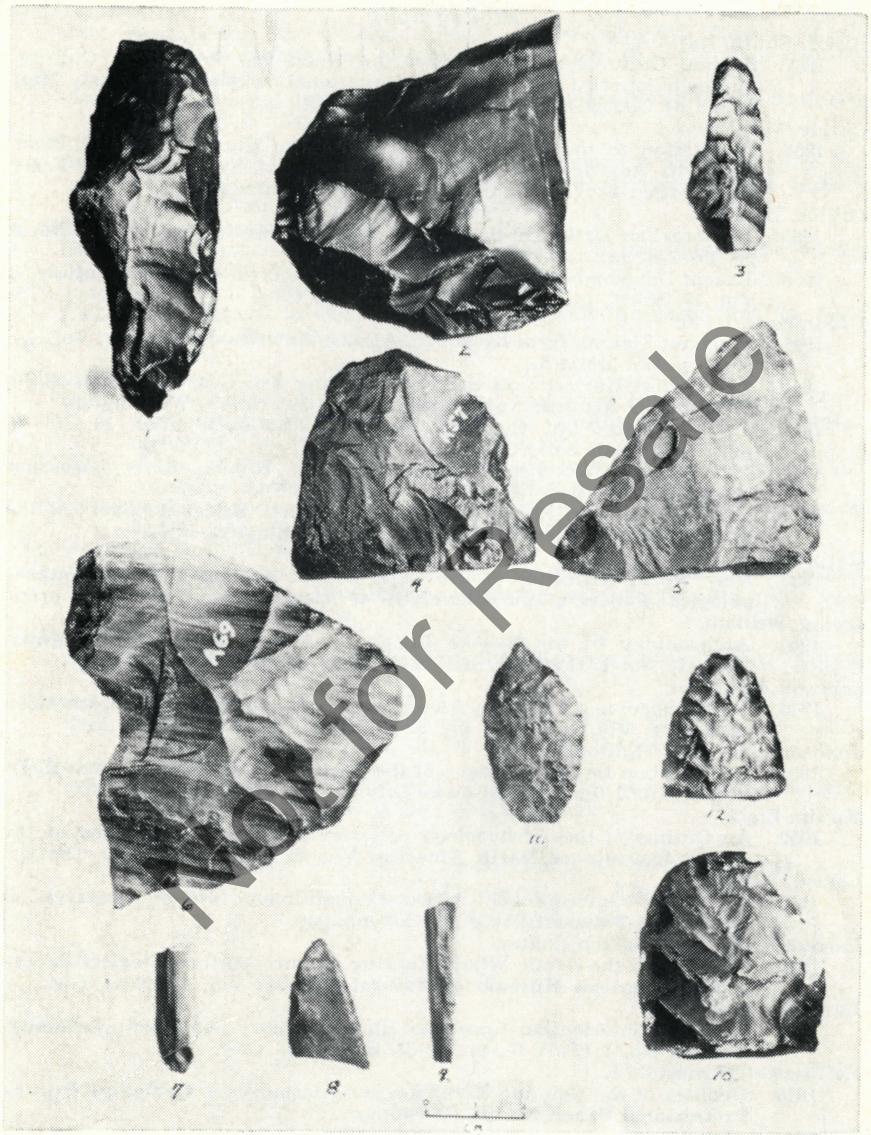


Plate No. 4

Miscellaneous Surface Finds. Nos. 1-3: Killik River blowouts (No. 3 is a true burin, trimmed on one face). Nos. 4-9: Narivukararok Lake (site previously visited by R. Hackman). Nos. 8 and 9 come from the tent rings. Nos. 10, 11: hilltops in the Killik Valley.

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ANTHROPOLOGY PAPERS OF THE UNIVERSITY
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