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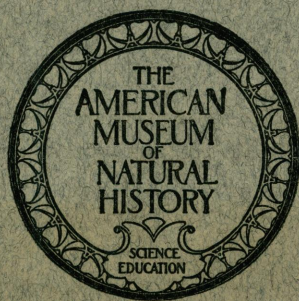
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VOLUME XXXI, PART VI

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THE ALASKAN ESKIMO  
A Study of the Relationship Between the Eskimo and  
the Chipewyan Indians of Central Canada

By H. L. SHAPIRO



By ORDER OF THE TRUSTEES  
OF  
THE AMERICAN MUSEUM OF NATURAL HISTORY  
NEW YORK CITY  
1931

## THE AMERICAN MUSEUM OF NATURAL HISTORY

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## INTRODUCTION

During the summer of 1928 the Stoll-McCracken Expedition of the American Museum of Natural History was engaged in scientific investigations in Alaskan waters. Accompanying the expedition as archaeologist was Mr. Edward M. Weyer, Jr., who before his departure received some instruction in anthropometry from the author. Fortunately, Mr. Weyer was able to measure and to take observations on a series of 87 Alaskan Eskimo in addition to carrying out his archaeological program.<sup>1</sup> It is my very pleasant duty to thank Mr. Weyer for his willing coöperation and for the arduous work involved in collecting the data, which he turned over to me for analysis and presentation. I also wish to thank Mrs. Clara Fisher Miller for her statistical assistance.

Of the total series recorded, 41 are males whose ages were twenty years or over and who were considered of unmixed Eskimo origin. The remainder of the group included 41 children (36 males, 5 females), 2 adult females, 2 adult males from Point Barrow, and 1 part white adult male. Only the series of 41 males is used in this paper. Geographically, they are partly from the Diomed Islands in Bering Straits, but mainly from Seward Peninsula, which projects into Bering Straits and forms the most westerly extension of the Alaskan mainland and the closest approach to Asia. The following table shows the distribution of this series by residence of subject and by place of parental origin.

Locality	Residence of Subject	Residence of Parents
Igloo	11	4
Wales	22	15
Shishmaref	2	1
Diomed Islands	1	2
Teller	4	
Golovin <sup>2</sup>	1	
Kawe-rok <sup>3</sup>		3
Cape Prince of Wales		3
Kotzebue		1
Unalakleet		1
Unrecorded		11
	41	41

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<sup>1</sup>Two papers dealing with the archaeological results of the Stoll-McCracken Expedition have already been published by Mr. Weyer. These are: *An Aleutian Burial* and *Archaeological Material from the Village Site at Hot Springs, Port Möller, Alaska* (This volume, parts III and IV).

<sup>2</sup>Probably Golovin.

<sup>3</sup>I have been unable to locate Kawe-rok.

The following measurements were recorded:—

Stature  
Maximum head length from glabella  
Maximum head width  
Maximum bizygomatic diameter  
Face height (nasion to menton)  
Nose height  
Nose width

From these the following indices were derived:—

Cephalic  
Facial  
Cephalo-facial  
Nasal

The technique employed is described by Sullivan<sup>1</sup>. In addition to the measurements, the skin colors of the inner side of the upper arm and of the cheek were observed and recorded in terms of von Luschan's *hautfarbentafel*. Hair color and form were noted in the field and checked by the author in the laboratory from hair samples. The color of the eye and the presence of epicanthus were also noted. Finally, thickness of lip and development of the beard were observed.

In the following sections I have compared our Alaskan Eskimo from Seward Peninsula with the living Eskimo type as we know it in its present distribution. Although there is considerable material on Eskimo crania, I have not attempted any extensive comparisons of living with skeletal data. Among a nomadic people, like the Eskimo, accustomed to long treks, there have been undoubtedly many radical displacements of population. Consequently, undated cranial material, such as is represented in practically all of the published series, gives no assurance that we are dealing with a cross-section of a contemporaneous population. In all probability series differing two or four hundred years or even more in age have been treated as coeval. Among sedentary populations this discrepancy might not be serious, but we can not assume that for the Eskimo.

In addition I have sought to account for the similarity between such widespread groups as the Smith Sound Eskimo, the Copper Eskimo of Coronation Gulf, and our series from Seward Peninsula. In this we are hindered by inadequate material, the bane of those who engage in such studies as these. However, there are certain indications of a pattern which I believe it is profitable to examine:

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<sup>1</sup>Sullivan, 1928.

## COMPARATIVE MATERIAL

Some comment on the comparative data used for this study seems warranted because of the question of admixture with non-Eskimo elements, white or Indian. Although we usually conceive the Eskimo as living in a remote section of the earth and far from contact with the rest of mankind, that is not quite true. Contact with Indians, although frequently hostile, is in some instances peaceful and friendly. Eskimo relations with Europeans, however, differ widely and are frequently difficult to assess for our purposes. Whalers, for example, are known to have been numerous in Alaskan waters, Greenland, and other points. Scandinavian settlers have been long established in Greenland, especially in the southwestern part, where there is a considerable hybrid population. In Labrador, also, there has been long continued intercourse with Europeans, through missions and settlers.

In the comparative tables accompanying the text I have gathered together all the published series I have been able to find. For some of these I had no means of estimating racial purity, but fortunately some information was given about the more important groups whose geographical locations are given in Fig. 1. Steensby<sup>1</sup> regards the Polar Eskimo from Smith Sound, Greenland, as unmixed in origin. He points to their remote habitat, surrounded by deserted wastes, and to the fact that they had no knowledge of their neighbors to the south. On the other hand, since their discovery in 1818 they have had spasmodic associations with white whalers and polar expeditions. The effects of these intermittent contacts are impossible to trace without more precise information than Steensby gives, but in his opinion they are, apparently, negligible. Hansen<sup>2</sup> admits the probability of Danish influence in the southwestern group of his Greenland series but considers the inhabitants of the northern part of the east coast as pure Eskimo. Although the Labrador Eskimo whom Duckworth<sup>3</sup> measured came from the Moravian Mission at Hebron, he says of them that they "have been less subject than any of the other branches to foreign influences and admixture." And in his paper<sup>4</sup> published in the *Journal of the Royal Anthropological Institute* he mentions, in a note furnished by Mr. Taber, that half breeds are uncommon. On the contrary, Boas<sup>5</sup> believes that the Labra-

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<sup>1</sup>Steensby, 1910.

<sup>2</sup>Hansen, 1914.

<sup>3</sup>Duckworth and Pain, 1900a.

<sup>4</sup>Duckworth and Pain, 1900b.

<sup>5</sup>Boas, 1895.



dor Eskimo have been much influenced by European admixture. Pittard<sup>1</sup> also studied a series of Eskimo from Labrador whom he found being exhibited in 1900 in Europe. It seems probable that they are the same Eskimo whom Duckworth measured in England somewhat earlier, except that the geographical origins of the two groups do not agree exactly. Pittard, unlike Duckworth, did not consider all his subjects pure Eskimo. Tocher<sup>2</sup> gives no information whatsoever on the racial purity of his Southampton Islanders. The Copper Eskimo from Coronation Gulf<sup>3</sup> have been the subjects of bitter controversy into which it would be futile to enter here. Some have regarded them as descendants of Eskimo mixed with Scandinavians, while Jenness is convinced of their undoubtedly straight Eskimo origin. The group of Nunatagmiut published by Boas<sup>4</sup> seems quite clearly to betray Indian admixture. A series of southwestern Alaskan Eskimo, measured by Collins and Stewart, has just appeared in Hrdlička's report on the Alaskan Eskimo.<sup>5</sup> Nothing, however, is stated on the racial purity of this group. Finally, our series of Alaskan Eskimo from Seward Peninsula was selected for purity of blood. Mr. Weyer, except in obvious instances, had necessarily to put trust in his informant. He reports, however, frequent intercourse between the Alaskan natives and Chukchi from northeastern Siberia.

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<sup>1</sup>Pittard, 1901.

<sup>2</sup>Tocher, 1902.

<sup>3</sup>Jenness, 1923.

<sup>4</sup>Boas, 1901.

<sup>5</sup>Hrdlička, 1930.

## OBSERVATIONS

In Table 1 are listed the characters observed, and the frequencies are recorded in numbers and percentages. The Alaskan Eskimo uniformly have black hair, which in five individuals had begun to turn gray. This hair color agrees with the observations of others on the Eskimo, although Hansen noted various shades of red-brown in the Greenlanders. The form of the hair is predominantly straight, with one individual in each of three remaining classifications: low waves, deep waves, and curly. A slight tendency to waviness has also been noted by Jenness among the Copper Eskimo from Coronation Gulf and by Steensby among the Smith Sound Eskimo. But Duckworth makes no mention of it among the Labrador Eskimo. The color of the skin of the Alaskan Eskimo is given in Table 1 in terms of von Luschan's scale. The unexposed skin is but little darker than in Europeans, although the face is distinctly brown. This is equally characteristic of other Eskimo. The color of the eye is invariably brown in our Alaskan sample, the darker shades predominating. Among the Copper Eskimo from Coronation Gulf Jenness found a higher percentage of lighter brown eyes and in fourteen men and two women a secondary coloration of gray or blue in the outer ring of the iris. He attributes this to age and snow blindness. It is not unusual among old people in other typically brown-eyed populations.

An epicanthic fold is absent in one-quarter of our cases. It is most frequently of medium development—35 per cent. Duckworth observed this character in six out of ten males and one out of five females. Steensby describes the eye of the Eskimo of Smith Sound as having the upper lid descending very far down at the inner corner, though not a distinct "Mongolian" eye. Jenness found it absent in 11 per cent of the Copper Eskimo, slight in 63 per cent, and pronounced in 21 per cent.

The lip of the Alaskan Eskimo is moderately thick in 70 per cent of the cases. Characteristically, the face hair is sparsely developed, becoming more pronounced with age. The moustache shows the heaviest growth of hair.

These observations on the non-measurable traits of our series of Alaskan Eskimo agree, in general, with the results of other investigators. Personal equations in the standards used, however, make it difficult to determine the significance of minor differences.

TABLE 1  
OBSERVATIONS ON THE SEWARD PENINSULA ESKIMO: MALES

	No.	Per cent.
Hair Color		
Black	33	86.84
Gray-black	5	13.16
	38	100.00
Hair Form		
Straight	35	92.11
Low waves	1	2.63
Deep waves	1	2.63
Curly	1	2.63
	38	100.00
Skin Color		
Inner side of upper arm, Von Luschan scale		
10	9	22.50
11	12	30.00
12	5	12.50
13	2	5.00
14	2	5.00
15	8	20.00
16	1	2.50
17	1	2.50
	40	100.00
Skin Color		
Cheek, Von Luschan scale		
20	3	7.50
21	7	17.50
22	15	37.50
23	4	10.00
24	10	25.00
25	1	2.50
	40	100.00
Eye Color		
Medium brown	5	12.50
Dark brown	35	87.50
	40	100.00
Epicanthic Fold		
Absent	10	25.00
Very slight	3	7.50
Slight	12	30.00
Medium	14	35.00
Marked	1	2.50
	40	100.00

TABLE 1—*Continued*

## OBSERVATIONS ON THE SEWARD PENINSULA ESKIMO: MALES

Lip Thickness	No.	Per cent.
Thin	1	2.70
Medium	26	70.27
Thick	10	27.03
	<hr/> 37	<hr/> 100.00
Beard		
Cheek		
Absent	33	89.19
Slight	4	10.81
	<hr/> 37	<hr/> 100.00
Chin		
Absent	20	52.63
Slight	4	10.53
Medium	12	31.58
Marked	2	5.26
	<hr/> 38	<hr/> 100.00
Moustache		
Absent	5	13.16
Slight	8	21.05
Medium	20	52.63
Marked	5	13.16
	<hr/> 38	<hr/> 100.00

## ANALYSES AND COMPARISONS

### STATURE

In Table 2, dealing with stature among the various Eskimo groups, and in all the succeeding tables, I have arranged the various series in geographical sequence from east to west. A glance at Table 2 reveals the fact that most of the groups, especially in the east, are sub-medium in height. The tallest are the Nunatagmiut, who live in the vicinity of the Noatak River in Alaska, and the Koukpagmiut, who dwell east of the Mackenzie River. The shortest stature, however, is found among the Greenland and Labrador Eskimo. In the five Labrador series there is a remarkable uniformity in means, ranging from 157.5 cm. to 159.6 cm. If there is any significant admixture of European blood among these Labrador Eskimo, it is rather difficult to reconcile that fact with the very short stature characteristic in this area. On the whole, the stature of the Eskimo definitely appears to increase from east to west. Our series of 39 Seward Peninsula Eskimo has an average stature of 165.4 cm., which represents a substantial increase over the stature of the eastern Eskimo.

A notable addition to our knowledge of the anthropometry of southwestern Alaska has been made in the publication by Hrdlička of a series of measurements taken by Stewart, Collins, and Moore.<sup>1</sup> The original material is divided into seven groups, but since several contain only four or six individuals, I have combined six of them for greater statistical validity. The mean stature of the Eskimo of St. Lawrence Island and the combined average of the six southwest Alaskan groups are smaller than our mean for Eskimo further north.

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<sup>1</sup>Hrdlička, 1930.

TABLE 2

## STATURE: MALES

Group	No.	Mean	
Smith Sound, Greenland	8	157.4	Steensby (1910)
Greenland, northeast coast	31	164.7	Hansen (1914)
Greenland, southeast coast	22	160.4	Hansen (1914)
Greenland, southwest coast	21	157.6	Hansen (1914)
Greenland	614	162.1	Deniker (1900)
Labrador	11	157.7	Duckworth and Pain (1900a)
Labrador	8	158.2	Pittard (1901)
Labrador	26	157.5	Boas (1895)
Labrador	5	159.6	Virchow (1880)
Cumberland Sound, Hudson Bay	9	162.0	Boas (1901)
Southampton Island, Hudson Bay	35	162.0	Tocher (1902)
Melville Peninsula	20	165.9	Parry (1824)
Coronation Gulf	82	164.8	Jenness (1923)
Koukpagmiut (east of Mackenzie)	12	167.5	Boas (1901)
Cape Smythe and Point Barrow	51	161.52	Ray (1885)
Point Hope	13	166.5	Jenness (1923)
Nunatagmiut (Noatak River)	11	167.9	Boas (1901)
Alaska	34	165.8	Boas (1895)
Alaska	85	163.0	Deniker (1900)
Seward Peninsula	39	165.4	Weyer
Southwest Alaska	61	162.4 <sup>1</sup>	Hrdlička (1930)
St. Lawrence Island	63	163.3	Hrdlička (1930)

<sup>1</sup>Combined mean of six small series from southwestern Alaska

Kulukak	8	Nunivak Island	19
Toziak	4	Hooper Bay	20
Nelson Island	4	Marshall	6

## HEAD LENGTH

The mean head lengths listed in Table 3 do not, on casual inspection, indicate any progressive change from east to west. On the contrary, the head length of the Seward Peninsula series is remarkably similar to that of the Copper Eskimo from Coronation Gulf and also resembles closely the average diameter of the few Smith Sound Eskimo whom Steensby measured. The Labrador averages are slightly lower than those of the three groups just mentioned, but in each case the mean is based on inadequate numbers. The aberrant Nunatagmiut Eskimo from Noatak River have the lowest mean head length, which Boas explains as the result of mixture with neighboring brachycephalic Indians. The relatively short head length of the Greenland Eskimo, published by Hansen, is often explained as the result of miscegenation with Danes, but since the average head length of the Danes, given by Hansen<sup>1</sup> is 193.6 mm., we must either dismiss race mixture as the cause of the short head length of these Greenlanders or else assume that genetically it is possible in certain cases for a hybrid to have an average head length shorter than either of the parent groups. With regard to the data as they stand, we must conclude that there is no progressive change in head length from east to west.

That head length in the living does not show a clear and regular gradation seems all the more noteworthy when we recall the statements of Hrdlička,<sup>2</sup> Montandon,<sup>3</sup> and others who discern a definite shortening in the length of the cranium in the western branch of the Eskimo.

Our series of Eskimo from Seward Peninsula is longer-headed than the St. Lawrence Island Eskimo or the combined southwestern Alaskan groups. But the six groups which are contained in the combined southwest Alaskan series show considerable variation. The 19 males from Nunivak Island have an average head length of 197 mm., which is greater than any of the means listed in Table 3. The neighboring Kalukak, Togiak, and Marshall Eskimo, however, average about 190 mm. for head length.

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<sup>1</sup>Quoted by Bardenfleth, 1929.

<sup>2</sup>Hrdlička, 1924.

<sup>3</sup>Montandon, 1928.

TABLE 3  
HEAD LENGTH: MALES

Group	No.	Mean	
Smith Sound, Greenland	8	196.25	Steensby
Greenland		192.0	Hansen
Labrador	11	191.15	Duckworth and Pain
Labrador	8	195.0	Pittard
Labrador	5	194.6	Virchow
Southampton Island, Hudson Bay	35	192.4	Tocher
Coronation Gulf	82	195.9	Jenness
Koukpagmiut (east of Mackenzie)	12	195.2	Boas
Point Hope	13	192.8	Jenness
Nunatagmiut (Noatak River)	11	189.0	Boas
Seward Peninsula	40	195.32	Weyer
Southwest Alaska <sup>1</sup>	61	192.9	Hrdlička
St. Lawrence Island	63	193.3	Hrdlička

## HEAD WIDTH

At first glance the mean head widths listed in Table 4 do not reveal any change regularly associated with locality. Indeed the Smith Sound Eskimo, at one extreme of the continent, agree very well with the Alaskan Eskimo of our series, at the other. Incidentally, it should be noted that Hansen's total series of Greenlanders with an average head width of 147 mm. is much narrower headed than the Danes, who, Hansen finds, have an average head width approximating 156 mm. Moving next to Labrador, there is a good agreement between the mean of Duckworth's and that of Pittard's series, both of which are but very little wider than Hansen's Greenlanders. Tocher's series from Southampton Island in Hudson Bay shows a further increase, very slight to be sure. Finally, the Copper Eskimo of Coronation Gulf, the Point Hope Eskimo, and our Alaskan group show increases to the point where they again are comparable with the Smith Sound series. Hrdlička's southwest Alaskan and St. Lawrence Island series give mean head widths which are not only larger than our series of Alaskans from Seward Peninsula but also exceed the Eskimo in general. Of these 4 Togiak and

<sup>1</sup>See Table 2.

6 Marshall Eskimo have the very high averages of 157 mm. and 158.5 mm. The broad heads of the Nunatagmiut series of Boas have been explained as the result of Indian admixture. Eliminating, therefore, the Smith Sound Eskimo and the narrow-headed Koukpagmiut for the moment, we are able to observe a progressive widening of the head from east to west among pure Eskimo. But returning again to the exceptions—Smith Sound and Koukpagmiut—this neat arrangement breaks down. Steensby asserts that the Smith Sound type is pure Eskimo, but he also mentions that they have migrated to their present home in relatively recent times. This supposition of a western origin for the Smith Sound Eskimo seems to be validated by comparisons of head width as well as of other measurements.

TABLE 4  
HEAD WIDTH: MALES

Group	No.	Mean	
Smith Sound, Greenland	8	152.75	Steensby
Greenland		147.0	Hansen
Labrador	11	147.65	Duckworth and Pain
Labrador	8	148.37	Pittard
Labrador	5	144.2	Virchow
Southampton Island, Hudson Bay	35	148.5	Tocher
Coronation Gulf	82	151.8	Jenness
Koukpagmiut (east of Mackenzie)	12	144.0	Boas
Point Hope	13	150.6	Jenness
Nunatagmiut (Noatak River)	11	154.5	Boas
Seward Peninsula	40	152.15	Weyer
Southwest Alaska	61	155.6	Hrdlička
St. Lawrence Island	63	154.0	Hrdlička

## CEPHALIC INDEX

From our discussion of the head length and head width, the distributions of cephalic indices given in Table 5 are clear. With the exception of the Koukpagmiut, who have a lower index than any other group, and the Nunatagmiut, who have a higher one as the result of Indian admixture, the cephalic indices are quite uniform from one extreme of the continent to the other, roughly averaging 76-80. It is interesting to note again the close similarity between the means of the Smith Sound Eskimo, the Copper Eskimo of Coronation Gulf, and the Seward Peninsula series. It may be significant that the Labrador groups both have an average index which is slightly lower than we find in the west, but statistically the difference between them and our series of Seward Peninsula Eskimo is negligible.

TABLE 5  
CEPHALIC INDEX: MALES

Group	No.	Mean	
Smith Sound, Greenland	8	78.06	Steensby
Greenland, northeast coast	31	76.9	Hansen
Greenland, southeast coast	22	75.7	Hansen
Greenland, southwest coast	21	78.1	Hansen
Greenland	614	76.8	Deniker
Labrador	11	77.0	Duckworth and Pain
Labrador	8	76.11	Pittard
Southampton Island, Hudson Bay	35	77.2	Tocher
Coronation Gulf	82	77.6	Jenness
Koukpagmiut (east of Mackenzie)	12	73.9	Boas
Point Hope	13	78.3	Jenness
Nunatagmiut (Noatak River)	11	81.6	Boas
Alaska	114	79.2	Boas
Seward Peninsula	40	77.96	Weyer
Southwest Alaska	61	80.7	Hrdlička
St. Lawrence Island	63	79.7	Hrdlička

## FACE HEIGHT

The measuring of face height is not only difficult but is open to a large personal equation even among experienced observers. Consequently the variations in mean face height given in Table 6 may be somewhat discounted, although, with the exception of the Koukpagmiut, the differences are not large. We have already noted on several occasions the divergence of this group from the rest of the Eskimo series. Unfortunately, our information is based on a small sample so that the significance of its deviation, although repeatedly emphasized, can not be relied upon. The mean face height, 126.88 mm., for the Seward Peninsula series is in good agreement with the face heights characteristic of Eskimo in general, so far as we know it from the accompanying figures.

TABLE 6  
FACE HEIGHT: MALES

Group	No.	Mean	
Smith Sound, Greenland	8	125.88	Steensby
Labrador	11	127.0	Duckworth and Pain
Coronation Gulf	82	126.9	Jenness
Koukpagmiut (east of Mackenzie)	12	131.5	Boas
Nunatagmiut (Noatak River)	11	128.4	Boas
Seward Peninsula	40	126.88	Weyer
Southwest Alaska	61	126.7	Hrdlička
St. Lawrence Island	63	126.8	Hrdlička

## FACE WIDTH

From Labrador to Alaska the width of the face increases, but again the Smith Sound group is more like its western congeners than its eastern neighbors in Labrador. Thus in the two width measurements considered—of face and of head—we may detect a similar geographic distribution, whereas in face height and head length we are unable to observe any such pattern of distribution. A striking development of the face width is evident among the Nunatagmiut of the Noatak River, who betray Indian influence in the great width of their faces as well as in their short and wide heads.

TABLE 7

## FACE WIDTH: MALES

Group	No.	Mean	
Smith Sound, Greenland	8	147.75	Steensby
Labrador	11	142.2	Duckworth and Pain
Labrador	8	144.62	Pittard
Coronation Gulf	82	145.7	Jenness
Koukpagmiut (east of Mackenzie)	12	147.8	Boas
Nunatagmiut (Noatak River)	11	155.7	Boas
Seward Peninsula	40	149.32	Weyer
Southwest Alaska	61	149.5	Hrdlička
St. Lawrence Island	63	147.3	Hrdlička

## FACIAL INDEX

We have assembled in Table 8 all the facial indices which we have been able to find in the literature on the living Eskimo. For Jenness' group from Coronation Gulf and Duckworth's and Pain's Labrador series the index of the means has been calculated, since these authors do not give the mean facial index. For Boas's small samples of Koukpagmiut and Nunatagmiut I calculated the mean facial index. As one would expect from the distribution of face width—increasing toward the west—the facial index appears to decrease slightly as one goes westward. But again the Smith Sound group has its closest affinities with the western Eskimo; its mean facial index of 85.29 is only .37 higher than the mean for the Seward Peninsula series.

TABLE 8  
FACIAL INDEX: MALES

Group	No.	Mean	
Smith Sound, Greenland	8	85.29	Steensby
Labrador	11	89.31 <sup>1</sup>	Duckworth and Pain
Coronation Gulf	82	87. <sup>1</sup>	Jenness
Koukpagmiut (east of Mackenzie)	12	88.92	Boas
Nunatagmiut (Noatak River)	12	82.53	Boas
Seward Peninsula	40	84.92	Weyer
Southwest Alaska	61	84.9	Hrdlička
St. Lawrence Island	63	86.7	Hrdlička

## CEPHALO-FACIAL INDEX

This index is frequently taken as a criterion upon which to distinguish Indian from European. Boas, for example, found that the higher ranges of the cephalo-facial index were characteristic of Indians as contrasted with Europeans. But Eskimo are said to have even higher cephalo-facial indices than Indians, the proportion often exceeding 100 in individuals. Although comparisons of this index without reference to the constituent measurements may be grossly misleading, it does serve as one means among others to differentiate the European from the Eskimo. Much of the discussion of the "Blond Eskimo" of Coronation Gulf and Prince Albert Sound<sup>2</sup> centered about this index. If we

<sup>1</sup>Index of the means.

<sup>2</sup>Sullivan, 1922, and Jenness, 1921.

take it as an index of the purity of Eskimo blood, then we must concede that the Copper Eskimo are as pure as the Smith Sound group and the Labrador series listed in Table 9. I know of no published comparison for this index, between living and cranial material of the same group, but it appears from the scanty evidence which Hrdlička<sup>1</sup> gives on Smith Sound Eskimo that the cephalo-facial index in the living Eskimo is slightly over one index unit lower than on the cranium of the same individual. Even making due allowances for the difference between living and cranial data, the cephalo-facial index of modern Eskimo is lower than that for published cranial series. Curiously enough, the Koukpagmiut have the highest index and the Nunatagmiut, who appear to be influenced by neighboring Indian tribes, come next. The Alaskan Eskimo from Seward Peninsula exhibit this characteristic proportion between face and head width in greater degree than we find among the modern Eskimo in southwest Alaska, in Labrador and Greenland, or even among the Copper Eskimo. If we accept the Smith Sound Eskimo as pure Eskimo, then the comparable reduction of this index among the Labrador and Coronation groups may not be facilely assigned to the effects of race mixture.

TABLE 9  
CEPHALO-FACIAL INDEX: MALES

Group	No.	Mean	
Smith Sound, Greenland	8	96.56	Steensby
Labrador	10	95.0	Boas
Labrador	11	96.3 <sup>2</sup>	Duckworth and Pain
Labrador	8	97.66	Pittard
Coronation Gulf	82	96.0	Jenness
Koukpagmiut (east of Mackenzie)	12	102.7	Boas
Nunatagmiut (Noatak River)	11	100.8	Boas
Seward Peninsula	40	98.15	Weyer
Southwest Alaska	61	96.1 <sup>2</sup>	Hrdlička
St. Lawrence Island	63	95.6 <sup>2</sup>	Hrdlička

<sup>1</sup>Hrdlička, 1910.

<sup>2</sup>Index of means.

## NOSE LENGTH

Our data for nasal length, detailed in Table 10, are unsatisfactory. The difficulty of locating nasion, with its attendant personal equation, and the scanty samples which we have at our disposal for this character, make it necessary to proceed with caution. Under the circumstances we cannot regard the differences which exist of great significance. Pittard's mean of 51.9 mm. for the nasal length of 8 Labrador Eskimo is the most striking deviation.

TABLE 10  
NOSE LENGTH: MALES

Group	No.	Mean	
Labrador	11	57.4	Duckworth and Pain
Labrador	8	51.9	Pittard
Coronation Gulf	82	55.7	Jenness
Koukpagmiut (east of Mackenzie)	12	57.0	Boas
Nunatagmiut (Noatak River)	11	56.3	Boas
Seward Peninsula	40	55.0	Weyer
Southwest Alaska	61	55.7	Hrdlička
St. Lawrence Island	63	54.7	Hrdlička

## NASAL WIDTH

Among the few samples of nose width which we have given in Table 11, the Labrador Eskimo have the narrowest and the Alaskan group the widest, but the difference is not statistically very significant.

TABLE 11  
NOSE WIDTH: MALES

Group	No.	Mean	
Labrador	11	36.8	Duckworth and Pain
Labrador	8	37.5	Pittard
Coronation Gulf	82	37.0	Jenness
Koukpagmiut (east of Mackenzie)	12	38.6	Boas
Nunatagmiut	11	37.6	Boas
Seward Peninsula	40	38.8	Weyer
Southwest Alaska	61	38.5	Hrdlička
St. Lawrence Island	63	39.3	Hrdlička

## NASAL INDEX

With the exception of Pittard's Labrador sample, the nasal index increases markedly in Alaska. There is some observational corroboration for this mensurable difference shown in Table 12.

TABLE 12  
NASAL INDEX: MALES

Group	No.	Mean	
Labrador	11	64.1	Duckworth and Pain
Labrador	8	72.28	Pittard
Coronation Gulf	82	66.8	Jenness
Koukpagmiut (east of Mackenzie)	12	67.7	Boas
Nunatagmiut (Noatak River)	11	66.8	Boas
Seward Peninsula	40	71.15	Weyer
Southwest Alaska	61	69.3	Hrdlička
St. Lawrence Island	63	71.9	Hrdlička

TABLE 13  
ANTHROPOMETRIC MEANS OF ALASKAN ESKIMO: MALES

Character	No.	Mean	Standard Deviation
Stature	39	165.4±.60 cm.	5.52±.42 cm.
Head Length	40	195.3±.63 mm.	5.95±.45 mm.
Head Width	40	152.2±.44 mm.	4.10±.31 mm.
Face Width	40	149.3±.58 mm.	5.43±.41 mm.
Face Height	40	126.9±.91 mm.	8.52±.64 mm.
Nose Height	40	55.0±.53 mm.	4.97±.37 mm.
Nose Width	40	38.8±.28 mm.	2.65±.20 mm.
Cephalic Index	40	77.96±.68	6.38±.48
Cephalo-Facial Index	40	98.15±.32	3.04±.23
Facial Index	40	84.92±.57	5.30±.40
Nasal Index	40	71.15±.92	8.58±.65

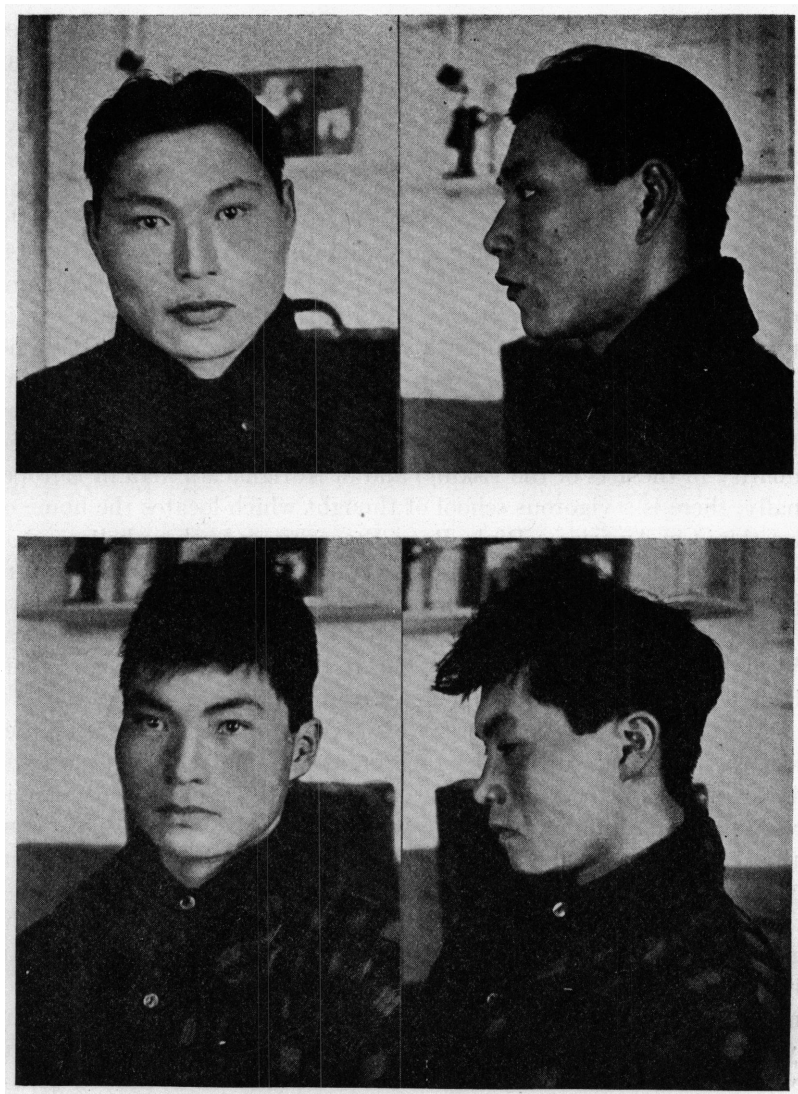


Fig. 2. Eskimo Types from Wales, Alaska.

## DISCUSSION

The origin of the Eskimo has been a moot question since 1770, when Cranz published an hypothesis which linked them with the Mongolian Kalmuck. But since then other theories have been proposed, too numerous to detail here. In general, all these conflicting opinions resolve themselves into three lines of reasoning. The oldest, and perhaps most widely accepted, is the Asiatic origin of the Eskimo. Scholars differ on the details, but the argument is that the Eskimo migrated from north-eastern Siberia across Bering Straits and finally deployed into their present position. Another theory, stemming mainly from Boyd Dawkins and maintained by Sollas, places the original home of the Eskimo in Europe during the upper Paleolithic. According to Sollas, the Eskimo followed the ice during the retreat of the glaciers, reached the Arctic, and then spread to America, still practising the mode of life to which they had long been accustomed. This hypothesis rests on the supposed similarity in the arts of the Eskimo and of Aurignacian man in Europe. Finally, there is a vigorous school of thought which locates the home of the Eskimo in America. Rink, Boas, Steensby and others believe that the Eskimo culture developed in this country among a people who were originally an inland group. Most of the defenders of the first and third of these theories would agree, I suppose, on the fundamental physical affiliations between the Eskimo and the Mongoloid groups. Their principal cleavage is on the immediate origin of the Eskimo.

Although a definitive answer to this perplexing question is neither desirable nor possible with the present inadequate data, nevertheless it is always useful to evaluate the material we do possess and to frame for future investigation an hypothesis which the facts suggest. My conclusions are based mainly on anthropometric data which, though meager, have the advantage of coming from one stratum of Eskimo history.

In the series of tables given in the preceding section, I have brought together all the anthropometric data which I was able to discover. In spite of important lacunae, sufficient evidence was presented to obtain a general approximation of the distribution and characteristics of the physical type of the living Eskimo. From a comparison of the various groups from Greenland to Alaska it was clear, in so far as the few measurements serve, that the Eskimo constitute a generalized type with well-defined characteristics: a sub-medium to medium stature, a strong tendency to dolichocephaly, a broad face especially in relation to head width, and a leptorrhine nose tending toward mesorrhiny. Aberrant groups such as the Nunatagmiut from Noatak River and perhaps some of the

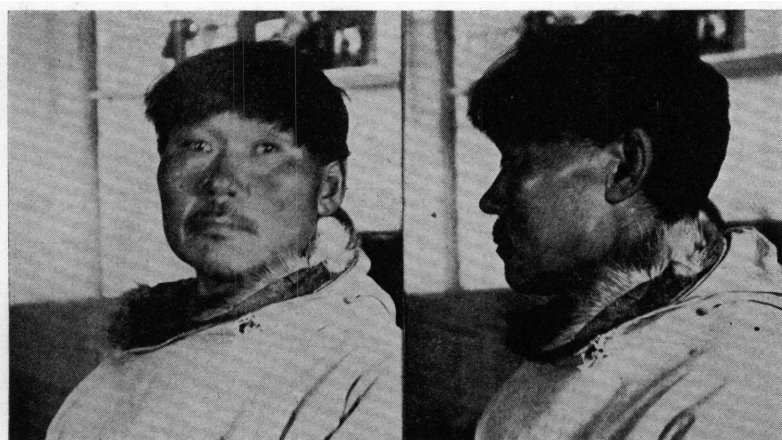


Fig. 3. Eskimo Types: Above, from Wales, Alaska; below, from Diomed Island.



Fig. 4. Eskimo Types from Igloo, Alaska.

southwestern Alaskans are the result of local influences. If we seek to discover in the variations of the means of each measurement a generalized geographic pattern, we are at first glance unsuccessful. For stature, to be sure, it is possible to discern a tendency for the mean height to increase toward the west. But in the remaining measurements there is no consistent east-west progression. In a comparison of the measurements the striking fact emerges that the Smith Sound Eskimo in the east and the Coronation Gulf and Seward Peninsula Eskimo in the center and west bear a close resemblance to each other. These three groups seem to form a unit which is spread from one extremity of the continent to the other. When this unit is eliminated the other groups fall into a more clearly marked sequence characterized by a decrease in head length and an increase in head and face widths as one approaches Alaska. This latter type of distribution has already been commented upon by Hrdlička, Montandon and others. Hrdlička<sup>1</sup>, for example, although recognizing an affinity between the various Eskimo groups strong enough to be designated a single type, nevertheless also pointed out that the cranial length and height decreased and that the cranial width increased in the west. Similarly, Montandon,<sup>2</sup> also basing his investigation on crania, arrived at comparable conclusions.

Before proceeding with this discussion on the significance of a two-fold distribution of the Eskimo type, it may be well to comment on the possibility of white or local Indian admixture.

The question of Indian admixture, at least in Labrador, is fortunately clearly solved for us by a recent paper of Hallowell<sup>3</sup> who made a study of the Indians of Labrador. He was unable to find Indian influence on the Eskimo physical type or the reverse. Instead he came to the conclusion that the Labrador Indians are clearly affiliated with the Indians to the west, representing an eastward extension of the Cree and Ojibway.

Local Indian admixture has also been suggested in Alaska. Here the studies by Boas on Nunatagmiut revealed evidence of such admixture with neighboring Indian tribes. But it may be remembered that this group deviated consistently from the other samples in our comparative Eskimo series. On the other hand, the Seward Peninsula Eskimo are unlike the Nunatagmiut and, so far as I am able to judge from the scanty data, are also distinct from living Indians of the Northwest Coast.

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<sup>1</sup>Hrdlička, 1924.

<sup>2</sup>Montandon, 1928.

<sup>3</sup>Hallowell, 1929.

The other possibility is, of course, white admixture. It is generally admitted that Danish influence has been extensive on the southwestern coast of Greenland. And in Labrador, too, the chances are quite good that considerable European blood has been added to the present day Eskimo. But there seems to be no doubt that the Smith Sound Eskimo are free of white admixture. For Steensby is corroborated both by Hoessly and by Fürst and Hansen<sup>1</sup> in his insistence on the purity of the Smith Sound Eskimo. Furthermore, a small series of Smith Sound Eskimo who were brought to New York by Peary were examined by Hrdlička, who concluded that their characteristics were plainly Eskimo. Both Hrdlička's and Steensby's data on these people are in excellent agreement. Similarly, Jenness vouches for the racial purity of the Copper Eskimo of Coronation Gulf. Certainly, if we accept the Smith Sound Eskimo as unmixed with European, we must also admit the Copper Eskimo to the same category, for they are remarkably alike.

If now we compare, in Table 14, the Smith Sound Eskimo with those from Coronation Gulf and with our sample of Alaskan Eskimo from Seward Peninsula, the resemblance between these three groups becomes clear and definite. They form a unit stretching from northwestern Greenland to Alaska, different in several respects from the Eskimo in the remainder of Greenland, Labrador, and in various central localities. It is interesting to read what Birket-Smith<sup>2</sup> has written on the Greenlanders and the Copper Eskimo from Coronation Gulf:—

Physically the Greenlanders present a unity, in so far as no distinction can be made between local types; but the unity is not confined to Greenland, for the anthropographic surveys undertaken by Jenness and the present author among the Central Eskimo tribes of Canada show exactly the same type, and although the material from Labrador is less extensive, there is no doubt that it also occurs there.

But even more striking is this quotation from Steensby:—

From the racial standpoint the first impression one obtains of the tribe (Smith Sound), when one comes from the more southerly West Greenland, is almost one of surprise. For it seems indeed to be quite a different race. In West Greenland we are accustomed to regard the Eskimo's racial character as distinctly 'Mongolian' and up here the Mongolian type is little in evidence in comparison with another type, which may provisionally be called 'Indian,' in spite of the fact that it also occurs in North Asia and that it is not so marked as in the traditional, extreme Indian type. It is a type which is much less separated from the European than the Mongolian is, and I have a very strong impression that the reason why the existence of this type in West Greenland is almost entirely overlooked is, not only that the Mongolian type is perhaps predominant, but also that these non-Mongolian individuals have been unintentionally considered as mixed-European more than they really are.

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<sup>1</sup>Fürst and Hansen, 1915.

<sup>2</sup>Birket-Smith, 1928.

TABLE 14  
COMPARISON OF ESKIMO WITH CHIPEWYAN

	Seward Peninsula	Coronation Gulf	Smith Sound	Pure Chipewyan
Number	40	82	8	44
Stature	165.4 cm.	164.8 cm.	157.4 cm.	166.4 cm.
Head Length	195.3 mm.	195.9 mm.	196.25 mm.	193.5 mm.
Head Width	152.2 mm.	151.8 mm.	152.75 mm.	153.7 mm.
Cephalic Index	77.96	77.6	78.06	79.3
Face Height	126.9 mm.	126.9 mm.	125.88 mm.	125.3 mm.
Face Width	149.3 mm.	145.7 mm.	147.75 mm.	149.6 mm.
Facial Index	84.92		85.29	83.8
Cephalo-Facial Index	98.15	96.0	96.56	97.6
Nose Height	55.0 mm.	55.7 mm.		55.1 mm.
Nose Width	38.8 mm.	37.0 mm.		39.7 mm.
Nasal Index	71.15	66.8		71.9

TABLE 15

DIFFERENCES OF CORONATION GULF, SMITH SOUND, AND CHIPEWYAN FROM SEWARD PENINSULA ESKIMO

	Seward Peninsula	Coronation Gulf	Smith Sound	Chipewyan
Stature	165.4 mm.	-.6	-8.0	+1.0
Head Length	195.3 mm.	+.6	+.95	-1.8
Head Width	152.2 mm.	-.4	+.55	+1.5
Cephalic Index	77.96	-.36	+.10	+1.34
Face Height	126.9 mm.	0	-1.02	-1.6
Face Width	149.3 mm.	-3.6	-1.55	+.3
Facial Index	84.92	—	+.37	-1.12
Cephalo-Facial Index	98.15	-2.15	-1.59	-.55
Nose Height	55.0 mm.	+.7	—	+1.10
Nose Width	38.8 mm.	-1.8	—	+.9
Nasal Index	71.15	-4.35	—	+.75
Sum of Differences		14.56	14.13	10.96
Average Difference		1.46	1.77	1.00

TABLE 16

	Chipewyan	Seward Peninsula	Coronation Gulf	Smith Sound
Chipewyan	0	1.00	2.31	2.36
Seward Peninsula	1.00	0	1.46	1.77
Coronation Gulf	2.31	1.46	0	1.83
Smith Sound	2.36	1.77	1.83	0

The Polar Eskimo resemble more the central Eskimo tribes on the mainland, for example the Netchillik Eskimo, than the West Greenlanders to the south.<sup>1</sup>

Thus both the actual measurements and the observations of men familiar with Eskimo confirm the existence between the Smith Sound Eskimo and the Central Eskimo from Coronation Gulf of a close relationship to which the Seward Peninsula Eskimo obviously belong. Fortunately the very recent and timely publication of Grant<sup>2</sup> on the Chipewyan from the Lake Athabaska region in Central Canada throws additional light on the ramifications of this type. In Table 14 I have compared a selected group of pure Chipewyan with the Smith Sound, Coronation Gulf, and Seward Peninsula Eskimo. The resemblance which this Indian group bears to our Eskimo series is truly striking. In Table 15, I have calculated for each measurement the absolute differences between the various groups and the Seward Peninsula Eskimo. The averages of these absolute differences, disregarding signs, are given at the foot of the table. On the basis of this statistical device, the differences between the pure Chipewyan and the Seward Peninsula Eskimo group appear to be smaller than they are between any of the three Eskimo groups themselves. Utilizing average differences again in Table 16, I have arranged the groups under discussion in the order of their similarity to each other. Thus we see clearly that the Chipewyan are closest to the Seward Peninsula Eskimo. Consequently, we may include in a chain of relationship this Indian group, located in central Canada west of the Hudson.

The similarity which I have just pointed out between the modern Eskimo from Smith Sound, Coronation Gulf, and Seward Peninsula, and the Chipewyan Indians from Lake Athabaska suggests that the immediate origin of these Eskimo must be placed in the interior of Canada west of the Hudson. From this area they probably migrated to the coast, where further expansion was necessarily lateral. The pursuit of the caribou or musk ox might well have been the original urge for this migration, for in Fig. 5 we may see that the distribution of the musk ox extends from the interior to the central coastal region. Although the musk ox does not at present roam in the western Alaskan area, it probably lived there formerly.<sup>3</sup> At any rate, once adaptation to a coastal life had been acquired in the central region, it would not demand unusual efforts to move westward.

The results of recent ethnological research offer a gratifying parallelism to the results indicated above. It would be outside my purpose in

<sup>1</sup>Stensby, 1910.

<sup>2</sup>Grant, 1930.

<sup>3</sup>Allen, 1901.

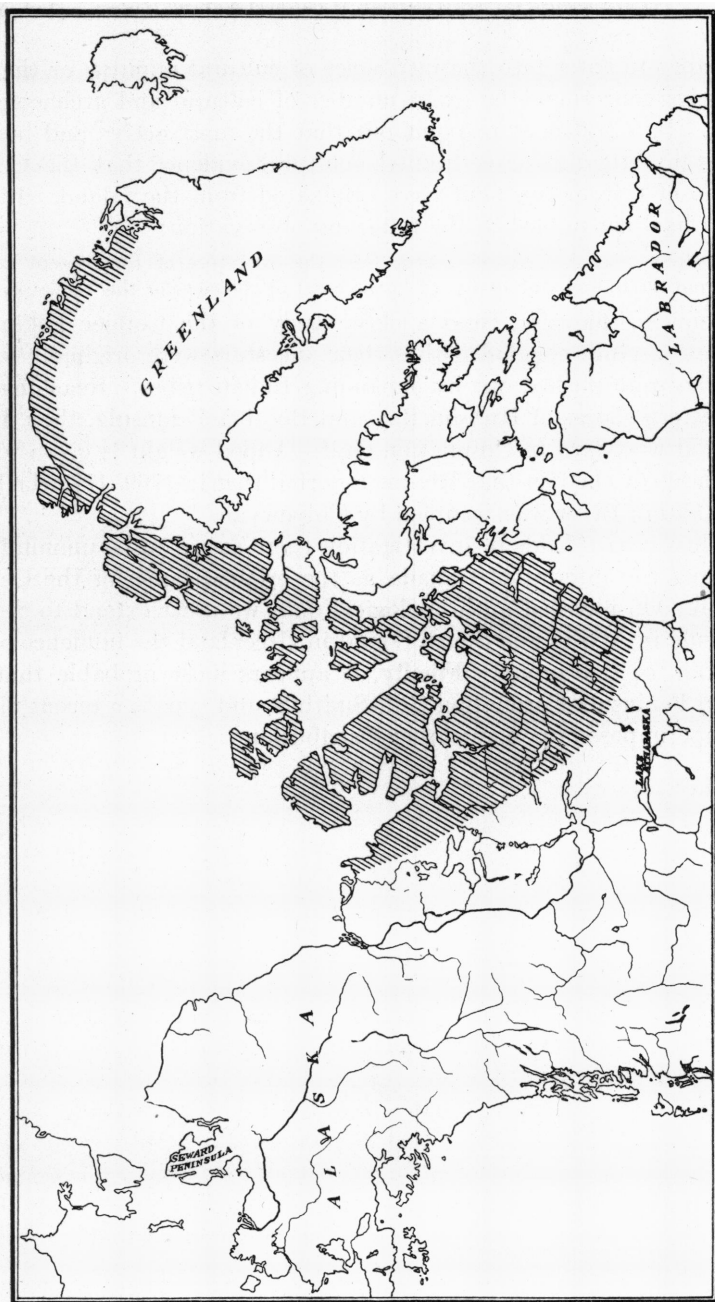


Fig. 5. Distribution of the Musk Ox.

this paper to enter into the intricacies of cultural minutiae or the controversies concerning the exact number of cultural and archaeological strata. It is sufficient to point out that the most active and best informed investigators agree from the cultural evidence that the Central Eskimo of Coronation Gulf have originated from the inland. Birket-Smith<sup>1</sup> has just published the following observation:—

Mathiassen and I entirely agree that the ancestors of the present Eskimo came from the inland and advanced to the coast at the close of the Thule period.

Jenness,<sup>2</sup> likewise, from a close study of the Copper Eskimo of Coronation Gulf, concluded that their ancestors were originally inland folk who were pushed out by expanding Indian tribes. Reaching first the western shores of Hudson Bay and Boothia Peninsula, they finally migrated westward to Coronation Gulf. Added weight is given to this hypothesis by the fact that Hearne reported that in 1769–1772 the basin of the Kazan River was occupied by Chipewyan.

Thus in two fields of investigation there seems to be unanimity in regarding the interior of Canada as the original home of the Central Eskimo. On physical anthropological data we must extend to Seward Peninsula in Alaska and Smith Sound in Greenland the influence of the migration of this group. Finally, it appears most probable that the Seward Peninsula-Coronation Gulf-Smith Sound type is a recent migration superimposed upon an earlier distribution.

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<sup>1</sup>Birket-Smith, 1930.

<sup>2</sup>Jenness, 1923.

## SUMMARY

A series of 41 male Eskimo from Seward Peninsula, Alaska, has been described and compared with the available anthropometric data on the Eskimo. It appears on analysis that we may recognize as one type the Smith Sound, Coronation Gulf, and Seward Peninsula Eskimo who are distributed from Greenland to Alaska. The unity of this type is further emphasized by the fact that in the remaining groups it is possible to observe an independently progressive increase in head width and face width and decrease in head length from east to west. The Smith Sound-Coronation Gulf-Seward Peninsula group shows a very close relationship with a series of pure Chipewyan Indians from Lake Athabaska. This connection between an interior Indian tribe and Eskimo groups is corroborated by ethnological evidence and suggests the hypothesis that the origin of the Smith Sound, Coronation Gulf, and Seward Peninsula Eskimo is to be found in the interior of Canada west of Hudson Bay. Most probably these present Eskimo groups are derived from an Indian stock which migrated northward to the coast and then moved north-eastward to Smith Sound and westward to Seward Peninsula. Finally, this migration seems to be recent and superimposed upon an earlier distribution of Eskimo.

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