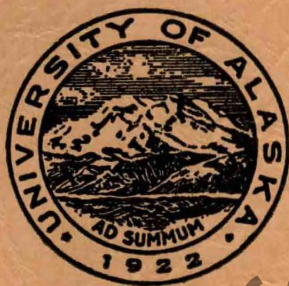


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CONTENTS

Historical Populations in Western Alaska
and Migration Theory WENDELL H. OSWALT 1

Lapp Racial Classifications as
Scientific Myths ROBERT T. ANDERSON 15

Symptom Formation and Patterns of Psychopathology
in a Rapidly Changing Alaskan Eskimo
Society NORMAN A. CHANCE AND DOROTHY A. FOSTER 32

HISTORICAL POPULATIONS IN WESTERN ALASKA AND MIGRATION THEORY

by

WENDELL H. OSWALT

Introduction. The purpose of this paper is to discuss the historical ethnic groups along the Kuskokwim River system of western Alaska and to view the population shifts in terms of migration theory. The empirical data and its interpretations should be considered as a reconstruction of shifting ethnic boundaries and as a step toward assembling a comprehensive ethnography of the Kuskokwim River peoples. It might be initially mentioned that there are several unique characteristics of Kuskokwim ethnic boundaries that are significant in the total analysis of Eskimo culture. For example, the upriver migration of the Eskimos is still taking place, and the Kuskowagmiut have penetrated farther inland than any other contemporary Alaskan Eskimos. These Eskimos also have had, in the recent past, more contact with diverse Athapaskan tribes than any other segment of the Yupik population. Furthermore, and in striking contrast with other areas of Eskimo-Indian contacts, the relationships between the two groups have been surprisingly amicable.

The Kuskokwim River system, draining some 50,000 square miles of western Alaska, was not penetrated by the Russians until 1830, and only three settlements of a permanent nature were occupied by the early Russian traders and missionaries. Following the purchase of Alaska by the United States in 1867 and until the early 1940's few outsiders occupied the region. Virtually the only persons of western European ancestry along the river were Bureau of Education (later Bureau of Indian Affairs) educators, hospital personnel or administrators; missionaries; and fur traders or trappers. The historically isolated position of the Kuskokwim River system has been due largely to the relative local scarcity of fur animals and precious metals, which have been the two most sought after products in this sector of Alaska.

The primary ethnographic account of the indigenous population was written by L. A. Zagoskin based upon his travels during the Russian period. Other ethnographic information may be found scattered through the writings of Glazunov, Elliott, Nelson, Gordon, Hrdlicka and Osgood, as well as in the published and unpublished accounts of missionaries. Additionally, I have spent a total of 17 months in the region since 1952 making anthropological studies.

Ethnic boundaries at the time of historic contact. The year A.D. 1830 has been selected as a date representative of aboriginal occupancy, for it

was during this year that the Vasilief party penetrated the main course of the Kuskokwim River. The Vasilief journals have never been published, but we do have the benefit of the published Glazunov account with observations from 1833 and 1834 (Van Stone, 1959). The slightly later ethnographic observations by Zagoskin from 1842 to 1844 describe essentially aboriginal conditions. In reconstructing the ethnic boundaries pertinent information from Glazunov and Zagoskin has been relied upon most heavily and then supplemented by later firsthand published observations or by informants' statements. It is assumed that present day informants interested in ethnic groupings are a reliable source of boundary information.

Identification of the Kuskokwim River ethnic groups will be based largely upon linguistic affinities. Linguistic rather than cultural criteria must be first considered for establishing these boundaries due to the heterogeneous nature of the socio-cultural milieu along much of the river. The four ethnic groups along the Kuskokwim River drainage represented Eskimoan and Nadene linguistic phyla. The Kuskowagmiut were Eskimoan speakers of the Yupik family, while the Nadene, Northern Athapaskan division, was represented by the Ingalik, Tanana and Tanaina. Considering the ethnic distributions at the time of contact we find that Indians, Eskimos and most white observers agree rather closely concerning the extent of the inland penetration of the Kuskowagmiut. These Eskimos clearly occupied the Kuskokwim River as far upstream as the vicinity of Kolmakoff Redoubt (Nelson, 1899, Plate II; Zagoskin, 1847; Petroff, 1884, p. 13; Elliott, 1886, p. 407; Explorations in Alaska, 1898, pp. 31-2; Spurr, ms, p. 71). The area of continuous occupancy was then broken along the Kuskokwim River proper, but Eskimos also occupied the Holitna River drainage. Likewise they probably had settled along the Hoholitna River although this river may have been jointly occupied by Eskimos and Tanaina.

Athapaskan distributions at the time of historic contact are generally more difficult to reconstruct. However, it is certain that Tanaina, originally from the Lake Clark region, lived along the Stony River and were the exclusive occupants of this drainage. It is also possible that the Tanaina ascended the main stream of the Kuskokwim above the Stony River junction, but since there is some uncertainty concerning who the occupants of the area were, it has been designated as Ingalik territory (Map 1). According to E. Hosely, who recently (1960) worked among the McGrath area Indians, the inhabitants of the upper Kuskokwim River from above the junction of the Stony River to slightly beyond the North Fork junction were related in traditions, language and material culture to Athapaskans of the Yukon River. These people may be most closely identified with the Ingalik from the vicinity of Holy Cross. Following Osgood (1936, p. 13) we will provisionally consider them as a distinct Ingalik sub-group, the McGrath Ingalik. The Athapaskans occupying the

extreme upper reaches of the Kuskokwim River, above the junction of the North Fork, were rather clearly Tanana (Hosley, 1961, p. 99).

A complex area of occupancy was along the central Kuskokwim River drainage, but two facts emerge from the partially conflicting reports. First, the area was jointly settled by Eskimos and Athapaskans, and secondly the Athapaskans were more closely akin to their Yukon River counterparts than to the Tanana or Tanaina. The Indians in this sector, from Kolmakoff Redoubt to Sleetmiut, are known to the surrounding Eskimos as Yohwalingoot or Yugelenut as recorded in the literature by Zagoskin (1847). The Kuskokwim segment of this population occupied mainly the George River system and adjacent areas of the Kuskokwim River and will be termed Georgetown or Yugelenut Ingalik. Their Kuskokwim settlements were scattered among those of Eskimos. The presence of mixed Eskimo and Indian settlements in this area was clearly noted by Zagoskin (1847) and has been confirmed by numerous white observers or informants for later periods (e.g., Report on Population and Resources of Alaska, 1893, p. 106).

The foregoing interpretations of the aboriginal boundaries are at variance with some previous analyses of the problem. Thus, it may be helpful to comment briefly upon the existing classifications. Zagoskin's general groupings seem highly accurate although it is sometimes difficult to identify particular sub-groups that he discusses. Dall (1870, p. 405; 1877, pp. 18-9) considered that the Eskimos extended only a short distance up the Kuskokwim River from the sea, while the Indians of the Kuskokwim, termed Kaiyuhkhotana, are lumped with those of the Yukon and much of the interior. Dall belabors Zagoskin for his proliferation of Indian groups, but I can only agree with Osgood (1940, p. 480) that these criticisms are not justified. I would thus set aside Dall's classification as being unduly simple. The ethnic divisions of Nelson (1899, Plate II) take only the Eskimo into account and agree with the findings of the present study.

The most recent systematic attempt to define the boundaries of the Kuskokwim peoples was made by Osgood (1936, 1940) and only with specific reference to the Athapaskan occupants. Osgood incorrectly excludes the Tanaina from the Stony River drainage while at the same time acknowledging Zagoskin's recognition of this as Tanaina country. Osgood (1936, p. 13) would hesitantly include the McGrath area Athapaskans as a distinct Ingalik sub-group; my own field work and that of Hosley would support this identification. The Georgetown Ingalik or Yugelenut are lumped with the Holy Cross Ingalik group by Osgood (1936, p. 13; 1940, p. 31). The only Yugelenut speaker of whom I know maintained that her language differed significantly from the Yukon drainage Ingalik. In a crude effort to test her assertion I asked the Yugelenut words for 69 items in the Anvik-Shageluk vocabulary assembled by Osgood (1940, pp. 459-76) and found that 38 words were the same and 31 differed

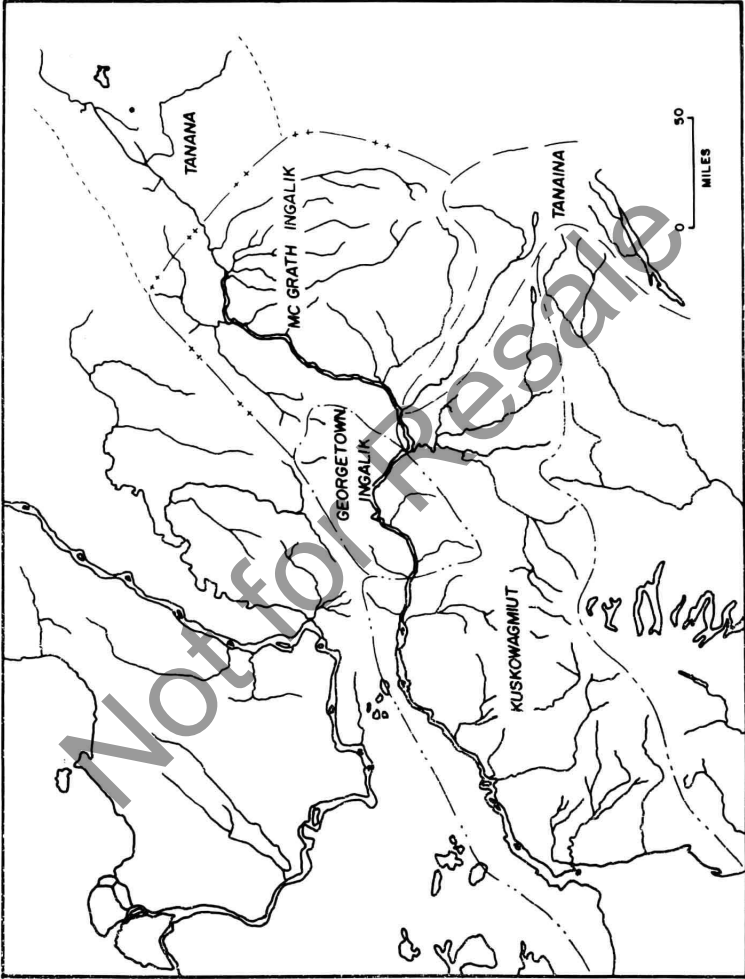
significantly from those on the list. Considering that all the competent informants along the central Kuskokwim consider the Yugelenut as a distinct people I would suggest that they be separated from the Holy Cross-Georgetown sub-group of Ingalik created by Osgood and be henceforth considered as a separate Ingalik group. The North and East Fork people are classed as Ingalik by Osgood, but they were more likely Tanana speakers according to Hosley. In essence the classification of Kuskokwim drainage Athapaskans by Osgood lacks precision, but final judgement must necessarily await further study of the problem.

Ethnic boundaries from 1830 to 1960. Summarily the major changes in ethnic distributions since historic contact are as follows: 1) the Kuskokwagmiut have continued to move inland, 2) the Georgetown Ingalik have become culturally extinct, 3) the McGrath Ingalik and Tanana have come to occupy more restricted areas, and 4) permanent alien settlers now include persons of Russian origins and Anglo-Americans.

The deep Eskimo penetration of the central Kuskokwim River valley has been frequently noted in diverse published accounts, and it is universally acknowledged by local informants. Gordon (1917, pp. 109-12) clearly records that Eskimos had penetrated the interior as far as Sleetmiut (Sikmiut) by 1907 and occupied this village with local Athapaskans. From his description it would appear that a new cultural tradition was emerging at this community. Today the Eskimos extend in a continuous line to just above the Stony River junction, but farther up the Kuskokwim there are numerous Eskimos at the town of McGrath and one at the village of Medfra.

The Georgetown Ingalik have ceased to exist as a distinct ethnic group. The culture survives in the memories of a few individuals, but aside from linguistic purposes it does not exist. The people have not become genetically extinct since they have married into the Eskimo population. The Tanaina on the other hand have retained possession of the Stony River system and their distinctive identity even though they too have upon occasion married Eskimos. The McGrath Ingalik range from the vicinity of the Stony River junction to the village of Nicholai; however, there are probably not six families below the town of McGrath. They exist at the latter community but are more abundantly represented at Medfra and Nicholai. The Tanana are represented solely by a few individuals at Lake Telida.

Individuals who include among their ancestors persons of mixed Russian and Eskimo or Indian blood are presently found along the Kuskokwim. Most of these people are socially and culturally identified as Eskimos or, less often, as Indians. The Anglo-American population is largely transient in nature. Individuals temporarily residing along the Kuskokwim River are most often attached to some American institution such as the Bureau of Indian Affairs, U.S. Public Health Service, a trading



company or state agency. Additionally, missionaries of various denominations are present, but some of these may be long-term or even life-long Kuskokwim residents. There are finally second and third generation Anglo-Eskimo families that are permanent Kuskokwim occupants. These individuals are usually the descendents of traders from the early American period.

Interpretations. Initially it may be asked whether or not any of the Kuskokwim people are migrant in a technical sense of the word. The anthropological definition of a migration proposed by Rouse (1958, p. 64) is accepted in its essence since it is clearly the best general statement upon the subject. Rouse suggests that a migration exists when one can:

“ . . . 1) Identify the migrating people as an intrusive unit in the region it has penetrated; 2) trace this unit back to its homeland; 3) determine that all occurrences of the unit are contemporaneous; 4) establish the existence of favorable conditions for migration; and 5) demonstrate that some other hypothesis, such as independent invention or diffusion of traits, does not better fit the facts of the situation.”

Applying these criteria for a migration to the Kuskokwim scene we find that the first two requirements can be met for all of the peoples involved. The Eskimos can clearly be identified as intrusive from the Bering Sea Coast; the Tanaina from the Lake Clark region; the Georgetown Ingalik from the Yukon River; the McGrath Ingalik from the Yukon drainage; and the Tanana from the Lake Minchumina area. Each of these ethnic groups or sub-groups is clearly identified as an off-shoot of another population in an adjacent river drainage. The requirements of intrusion and homeland seem clearly established.

The third requirement, that all occurrences of the units be contemporary, seems readily demonstrable. We assume, for example, that some Eskimo units of the Kuskowagmiut remained along the Bering Sea coast while other sub-cultural units of this group spread to the Kuskokwim River. The same assumption is made for segments of the Indian population. It might be argued that such a population spread is not a true migration since all representative units do not move; however, this would be to ignore an essential feature of population movements. It is not suggested that the movements of all known Kuskokwim groups were contemporaneous, but that at present they can best be analyzed within an historical framework. All of these people should be considered as essentially contemporary in their Kuskokwim basin intrusion until systematic archaeological excavations or ethnographic reconstructions lead to alternate interpretations.

The fourth point of Rouse, to establish the existence of conditions favorable for migration, poses a different kind of question than those that preceded it. I find it helpful to consider certain specific factors in determining whether or not conditions are favorable for a migration. These are

regional geography and ecology; the subsistence orientation of the socio-cultural units; the rigidity of the boundary maintaining mechanisms; and possible historical influences. Each of these factors will be discussed next to show its general bearing upon migration problems and the Kuskokwim situation in particular.

Geographically the Kuskokwim River system consists of two dominant provinces. From the sea to just below Kalskag the mainstream flows through a low alluvial plain with lakes, sloughs and sluggish streams abundant. Along the river estuary there is a tundra vegetation, but as one goes upstream alder and willow thickets are more and more luxuriant until scattered stands of spruce are encountered (see Williamson, 1957, for a general statement upon lower Kuskokwim River plant ecology). Above Kalskag the river is increasingly confined by hills and low mountains of the Kuskokwim Range. The up-river province is dominated by stands of spruce, and at elevations above 1000 feet there is an open lichen and moss tundra cover.

Along the main course of the river there are no natural barriers to travel; the river flow is gentle and without obstructions or fast water until the upper reaches of the tributaries are approached. In terms of accessibility for man into the river system there are three obvious entryways. The first is from the Bering Sea coast to the river proper. Physical movement to the river would be without difficulties for a riverine or coastal dwelling people. The river system is equally accessible to an inland population along the central course of the river which is nearest the Yukon River. Here on the northwestern and then the southeastern flanks of the Kuskokwim Mountains, from Kalskag to the vicinity of Telida, there are numerous low passes into the Yukon River drainage system. This entire sector of the Kuskokwim River could be penetrated by a people already adapted to conditions in the interior of Alaska. The passes leading to the Nushagak and Lake Clark drainages are rugged and more difficult but may be negotiated at favorable seasons. However, passage to the Susitna River drainage would be extremely difficult and was probably rarely utilized. The foregoing analysis of accessible routes to the Kuskokwim River assumes that the geographical configuration of the area has not changed in the last few hundred years. It further assumes that what is currently regarded by the Eskimos, Indians and whites as an easy or difficult route could be applied equally as well to the conditions confronting migrants in early historical or proto-historic times.

The animals upon which the Kuskokwim peoples depend for food are usually limited in distribution to one or the other of the two geographical provinces mentioned above. In the wooded interior were found moose, bear, marten, land otter and beaver, to mention the most important species for man. These were increasingly rare upon approaching the coastal tundra until, when the open tundra was reached, they occurred only as strays except

for the land otter. In early historical times caribou were common in the interior highlands as well as upon the open tundra and the country in between. Subsequent to historic contact there have been two major changes in the large game distributions. First of all, and of vast significance, is the complete disappearance of the caribou from the tundra country and their scarcity in the interior highlands. This depopulation occurred just before the turn of the present century. A second change in game distributions has been for the moose to extend its range into the tundra region, particularly within the past ten years.

In terms of human survival fish are of the utmost importance to the Kuskokwim peoples, occasionally to the virtual exclusion of land animals. During the summer various species of salmon may be taken along the main course of the river and in many of its tributaries. Likewise whitefish are an important subsistence item, both in the main river and streams or lakes depending upon the time of the year. Other fishes may be locally important such as pike and trout, but these are never the primary dietary items of any contemporary group.

The two geographical provinces, each with its distinctive biota, are meaningful cultural divisions for these hunters and fisherman. Summarily the river-wide subsistence activities were organized as follows: the people of the upper river, above Sleetmiut, were mainly hunters who further relied heavily upon catching whitefish; the lower people, from Kalskag to the estuary, fished for whitefish and salmon while supplementing their fare with caribou whenever possible; along the central course of the river, from Kalskag to Sleetmiut, there was a blending of the two economies. It is significant that the varying subsistence pursuits were not confined to particular groups but rather to broad ecological zones.

A combined view of the geography, ecology and known subsistence orientations at the time of historic contact make more meaningful the already recorded population shifts along with the how and why of their occurrence. On the basis of the reconstructions to this point we may suggest the following interpretations. The McGrath Ingalik, Tanaina and Tanana, at the time of their entry into the Kuskokwim River system, were oriented toward a life adapted to the sub-arctic coniferous forests and the highland tundras. Caribou and moose hunting were vital to their way of life. During their initial penetration of the stream heads leading to the Kuskokwim River they followed their traditional manner of living and spread down the main stream to the Kuskokwim, except for the Tanaina who probably remained confined to the Stony River and perhaps to the adjacent Hoholitna River.

Judging from proto-historical remains along the central sector of the Bering Sea coast (Oswalt, 1952) the coastal Eskimos were oriented toward both sea mammal and caribou hunting as well as toward fishing for

salmon. As they ranged toward the river mouths, both the Yukon and Kuskokwim, the former economic base became less diverse. The increased specialization is explainable by the fact that the low coasts adjacent to the Kuskokwim River mouth are not favorable environments for most sea mammals. Walrus are never found here and neither are the larger whales. Seals occur seasonally as do beluga, but they are not a wholly predictable source of food. Just how important caribou were to these people is impossible to say at this time, but it would seem likely that they were a significant item in the economy. The point I wish to make is that the unreliable nature of sea mammal hunting at the river estuary was crucial in redirecting the economic lives of these people. They were obliged to seek other foods in order to perpetuate the type of stable community life known to them in the more advantageously situated coastal villages. A basic assumption in this interpretation is that people will normally become more sedentary in residence with an increasingly reliable food supply (see Beardsley, *et. al.*, 1956). Along the estuary salmon came to supplement sea mammals, and the latter did not exist when the people moved up the river. The importance of salmon to the Eskimos living along the shallow portions of the central Bering Sea coast can not be underestimated. The salmon was a reliable source of food, the migrations were predictable within limits, and the runs rarely if ever failed. Salmon fishing would require technological skills already known to Eskimos that were sea mammal hunters. The nets, harpoon darts, arrow darts, etc. as well as the techniques for preserving salmon would be within the range of their existing skills. Salmon concentrate most heavily at the mouths of the rivers they ascend to spawn, and undoubtedly the Eskimos soon penetrated the river drainage proper. This generalization would most likely apply to the Yukon River as well as to the Kuskokwim. Salmon fishing is a safer and surer way of life than sea mammal hunting, and these advantages would certainly not go unrecognized by the Eskimos involved.

The Eskimo penetration of the Kuskokwim River system was unimpeded as far inland as the vicinity of Kalskag. Here the Eskimos encountered scattered settlements of Georgetown Ingalik who came from the Yukon River system. Contacts between the Eskimos and Indians were peaceful and even quite friendly. A possible explanation of the congenial atmosphere may be sought in the background of the Yugelenut. Along with some other segments of the Ingalik they had intensive contact with the lower Yukon River Eskimos before their spread southward. The Ingalik ethnography, of the Anvik area, by Osgood (1940, 1958, 1960) strikingly demonstrates how many of the lifeways of these people were more typically Eskimo than interior Athapaskan. With a background of amicable Eskimo-Indian borrowings on the Yukon River the same attitudes were carried to the Kuskokwim. By the time of historic contact we find Eskimo and Yugelenut settlements scattered along the central Kuskokwim River, and in at least one village there were clearly mixed populations.

This does not, however, explain why the Tanaina were also friendly with the Eskimos.

The unprecedented Eskimo-Indian harmony leads to another significant point in understanding the intrusion of a new people into an already settled area. The effectiveness with which ethnic barriers are developed and maintained is a key socio-cultural factor inhibiting population movements. Boundary maintaining mechanisms (Broom, *et. al.*, 1954) along the central sector of the Kuskokwim River are notably lax. Here, as we have seen, there were no distinct geographical or ecological provinces of exclusive occupancy, and the socio-cultural scene is marked with numerous instances of genuine friendly relationships. For example, there are few tales of warfare, raiding or long-term feuding between the Yugelenut and Eskimos. Hosely's inquiries among the McGrath Ingalik concerning their indirect Eskimo relationships support this generalization. Furthermore, there are numerous traditions of ceremonial gift exchanges and feasting between the Georgetown Ingalik and Eskimos. A few years ago many individuals spoke both Eskimo and some Athapaskan dialect, and instances of mixed marriages occur down to the present. These latter observations have been recorded only for the post-contact period, but there is geneological evidence that they existed earlier as well. It is highly significant that ethnographic reconstructions to date show rather clearly that the population spread in historic times was in terms of individuals. It seems that most often an individual Eskimo man married an Indian woman, and they lived in the vicinity of the wife's home.

Felt needs of an economic nature further bound these peoples together. Seal oil and seal skins were highly desired by the interior residents, and for these were exchanged beaver, martin and wolverine skins, spruce gum, caribou sinew and birchbark canoes. Still another indicator of the lack of ethnic exclusiveness was the failure to develop rigid rules against trespassers. Conversely, we find that individuals traveled widely, which would have been impossible in a hostile atmosphere.

The final ascendancy of the Eskimos over the Georgetown Ingalik to the cultural extinction of the latter people is most readily explainable on ecological and cultural grounds. With the virtual disappearance of caribou along the Kuskokwim River drainage the former lifeway of the Yugelenut had to be drastically redirected. Survival lay in more intensive salmon fishing, which in turn fostered more intimate Eskimo contacts since the Eskimos were already local salmon fishers. The Georgetown Ingalik married into Eskimo families with increasing frequency, and this marked their eventual cultural demise.

One critical interpretive problem in understanding the Kuskokwim and other migrations is the influence of indirect and direct historical contact upon the spread of previously aboriginal peoples. Precisely how

disruptive European influences are is difficult but obviously necessary to establish. References of indirect contact on the Kuskokwim are scanty but seemingly important in paving the way for future direct European intervention. Trade goods filtered into the Kuskokwim River system before the Russians. I would infer that the goods were desired by the people, which would in turn make them receptive to alien contacts. From the nature of the direct contact situation on the Kuskokwim River I am led to conclude that initial disruptions had serious repercussions. The Russian American Company pushed into the Kuskokwim drainage to extend their fur trading activities. Initially in the 1830's there were only itinerant missionaries and traders at the temporary trading stations. Their influences upon the lives of the people were probably not overly disruptive. However, the smallpox epidemic that swept into the Bering Sea area in 1838-39 may be indirectly attributable to the Russians. The disease apparently wiped out communities and seriously disrupted normal life in others (Zagoskin, 1847-48). This would be a very important influence upon the peoples. One would, judging from records of later epidemics in the area, expect that some villages would be abandoned temporarily or perhaps permanently. It is doubtful, however, that an epidemic would have had an immediate effect upon the changing ethnic boundaries since all groups would, in theory, be similarly afflicted. During the 1840's the Russians became more active and expanded their trading facilities to include a redoubt and two artels. By 1866 we find that the area was neglected by traders and missionaries alike. Throughout the Russian era direct sustained influence upon the people and their lives did not occur; trade goods, the Russian steambath, and the essence of the Greek Catholic Russian Orthodox faith were the major innovations. Contacts were of the direct type and materially oriented. The same would further apply to the first eighteen years of American occupancy. The arrival on the lower river of resident Moravian missionaries in 1885 and the generally renewed efforts of the Russian Orthodox missionaries shortly thereafter produced direct culture changes of increased intensity. These and later efforts by the federal government and other mission groups have culminated with the establishment of schools and churches in every village and in the systematic dissemination of American socio-cultural concepts.

Rouse's fourth point, to demonstrate that conditions favoring a migration do exist, seems clearly established in the earlier discussion and needs no further comment. The final criterion of a migration in this classification requires demonstration that some other hypothesis such as independent invention or diffusion does not better fit the particular situation. There is no question but that we are dealing with integrated ethnic groups which cannot be thought of simply in terms of independent invention and diffusion.

The evidence supporting migrations both for the Indians and Eskimos

into the Kuskokwim River drainage seem positive. Precisely what this means in the over-all procession of western Alaskan peoples is presently obscure. Nonetheless certain important interpretations are suggested. Initially it is impressive that in terms of geography there are well defined avenues of possible entry into the area; each was utilized by recent migrants. An analysis of the regional ecologies proved helpful in making the migration potential of each people understandable in terms of subsistence activities. It is particularly impressive in this regard to consider the way in which the presence or absence of one animal, the caribou, radically changed the ethnic distributions and seemingly foreshadowed the extinction of one people. Finally the ethnic diversity at the time of historic contact is a striking characteristic of the Kuskokwim River peoples, for each represented group was a satellite population from a more firmly established center in an adjacent area.

Bibliography

Beardsley, Richard, *et. al.*

1956. Functional and Evolutionary Implications of Community Patterning in Seminars in Archaeology: 1955, pp. 131-157. *Memoir No. 11 of the Society for American Archaeology*. Salt Lake City.

Broom, Leonard, *et. al.*

1954. Results of the SSRC Seminar on Acculturation. *American Anthropologist*, Vol. 56, No. 6, pp. 973-1000. Menasha.

Dall, William H.

1870. *Alaska and its Resources*. Boston.
 1877. On the Distribution and Nomenclature of the Native Tribes of Alaska and Adjacent Territory. *Contributions to North American Ethnology*. Vol. 1, pp. 7-40. Washington.

Elliott, Henry W.

1886. *Our Arctic Province*. New York.

Explorations in Alaska

1898. House Document 5, 56th Congress, 1st Session. Washington.

Gordon, George B.

1917. *In the Alaskan Wilderness*. Philadelphia.

Hosley, Edward

1961. The McGrath Ingalik, *Anthropological Papers of the University of Alaska*, Vol. 9, No. 2, pp. 93-113.

Hrdlicka, Alex

1930. Anthropological Survey in Alaska. *Bureau of American Ethnology, 46th Annual Report*. Washington.
 1933. The Eskimo of the Kuskokwim. *American Journal of Physical Anthropology*, Vol. 18, No. 1, pp. 93-146. Philadelphia.

Nelson, Edward W.

1899. The Eskimo about Bering Strait. *Bureau of American Ethnology, 18th Annual Report*, Pt. 1. Washington.

Osgood, Cornelius

1936. The Distribution of the Northern Athapaskan Indians. *Yale University Publications in Anthropology*, No. 7, pp. 1-23. New Haven.
1940. Ingalik Material Culture. *Yale University Publications in Anthropology*, No. 22. New Haven.
1958. Ingalik Social Culture. *Yale University Publications in Anthropology*, No. 53. New Haven.
1959. Ingalik Mental Culture. *Yale University Publications in Anthropology*, No. 56. New Haven.

Oswalt, Wendell

1952. The Archaeology of Hooper Bay Village, Alaska. *Anthropological Papers of the University of Alaska*, Vol. 1, No. 1, pp. 47-91. College.

Petroff, Ivan

1884. Report on the Population, Industries, and Resources of Alaska. Department of the Interior, Census Office. Washington.
1893. Report on Population and Resources of Alaska in the Eleventh Census. Washington.

Rouse, Irving

1958. The Inference of Migrations from Anthropological Evidence. Migrations in New World Culture History. *University of Arizona Social Science Bulletin* No. 27, pp. 63-68. Tucson.

Spurr, J. E.

- ms Log of the Kuskokwim [copy in the Arctic Health Research Center, Anchorage, Alaska].

Van Stone, James

1959. Russian Exploration in Interior Alaska. *Pacific Northwest Quarterly*, Vol. 50, No. 2, pp. 37-47. Seattle.

Williamson, Francis S. L.

1957. Ecological Distribution of Birds in the Napaskiak Area of the Kuskokwim River Delta, Alaska. *The Condor*, Vol. 59, pp. 317-38. Berkeley.

Zagoskin, L. A.

1847. Pedestrian Journeys in the Russian Possession of America in 1842, 1843 and 1844. St. Petersburg. [1938 Hotovitsky unpublished translation].

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LAPP RACIAL CLASSIFICATIONS AS SCIENTIFIC MYTHS

by

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INTRODUCTION¹

Since Blumenbach first presented his five-fold classification of the varieties of man in 1781, scores of theorists have applied themselves to the problem of arranging human physical varieties into an orderly typology. Of the many classifications devised, all have found their nemesis in certain peoples who defy placement, such as the Polynesians, the Australians, the Veddas, the Pigmies, and the Lapps. These problem types have been dealt with in various ways. Kroeber, for example, followed the safe course of simply putting them into doubtful categories, and Hooten did not even mention the Lapps in *Up From the Ape* (1946). In general, however, racial theorists have faced up to the problem and have applied their metrical and logical methods to its solution. Because of their amenability to speculation, and because so much attention has been paid to them, these racial types present interesting cases of the role of distortive subjectivity in the process of scientific inquiry. The following pages will be concerned with the Lapps as an illustrative example of persistent inaccuracies and misinterpretations that attained the level of scientific myths.

It is not the intent of this paper to present a comprehensive history of the racial classification of the Lapps, though the main trends of such a history will be evident. Recent genetic studies are completely beyond its scope. We have been content, rather, to show simply that non-objective factors have played their part, and that the part played has been disconcertingly influential. To this end, attention focuses upon the history of the two most influential interpretations of Lapp race biology. The first one has now been abandoned. It held that the Lapps were relatives of the Finns and that both were originally Asiatics or Mongoloids. The second holds that the Lapps represent a remnant of an ur-race that was the ancestor of both modern Mongoloids and modern Caucasoids.

AN ABANDONED INTERPRETATION

Writing in 1673, Johan Scheffer attributed the following characteristics to the Lapps: low stature, tawny (swarthy) complexion, extremely lean, thick heads and prominent foreheads, hollow and blare eyed, short, flat noses, wide mouths, flat faced, meagre cheeks, long chin, short, thin, straight, black hair, thin and short beard, very strong and active, stooped walk, superstitious, timerous and cowardly, and unfit for soldiery.

Concerning their racial status he wrote, "It is certain they don't deduce their Origin from the *Swedes*, there being no greater difference betwixt any thing on Earth . . ." (Scheffer, 1701, 37). He also noted that they differ as much from the Russians or Muscovites, and the Norwegians have the same origin as the Swedes.

At that time there was a certain district in Finland called *Lappio* and therefore Wexovious concluded that the Lapps were descended from the Finns. "What Wexovious would infer here from the District called *Lappio*, as if the Laplanders had from thence got their Name, is a bare Surmise, founded upon very slender Reasons. . . . But what he says in general of their being descended from the *Finlanders*, is more than probable . . ." (Scheffer, 1701, 38). The reasons for maintaining that the Lapps are descended from the Finlanders are:

1. Both nations retain to this time the same name. *Sapme* or *Same* means Lapp in Lappish and *Suomi* means Finn in Finnish.
2. Both peoples have an ancient tradition that *Jumi* was the founder of their nations.
3. Their languages have a great affinity.
4. Their bodies and habits are also very much the same. Both have the same well set limbs, black hair, broad faces, stern countenances, laziness, superstitions, sorcery, temper, and clothes.
5. Such authorities as Conring and Wexovious confirm this relationship.

Since the ancient *Finlanders* came so near to the modern *Laplanders*, in every respect, they are questionless descended from the same stock. . . . What small difference there is observed betwixt them, must be ascribed to their different diet and climate (Scheffer, 1701, 41, 39).

Impressed with the effects of a harsh environment, Scheffer wrote, concerning *stature*,

Vostius alledges, as a reason for their lowness of stature, the violence of the cold, and that with a great deal of probability: For considering that the natural Heat is in a continual conflict with the violent cold, and is forced to exert all its activity to combat that enemy, and it is not sufficient to give due aid to the Excretion and Alimentation, which renders their bodies both lean and short: Tho' in my opinion, their food, which contains little fit for nourishment, may also contribute in a great measure to it . . . (Scheffer, 1701, 24-5).

Concerning *skin color*,

What wonder is it, if those, who from their infancy are exposed to the smoak, should be of a tawny complexion? (Scheffer, 1701, 25).

Concerning their *posture*,

They seldom or never walk upright, but stoop continually, which is

attributed to their sitting on the Ground in their low cottages (Scheffer, 1701, 27).

Concerning *faintheartedness*,

The reason that they are thus fainthearted is, that the excessive cold and miserable dyet renders their blood destitute of a sufficient quantity of spirits (Scheffer, 1701, 28).

Finally, Scheffer followed Conring in the opinion that the Laplanders, Finlanders, and Samoyeds are all of the same race and have "come out of *Asia* into the northern parts of Europe (Scheffer, 1701, 38).

In the second edition of his famous dissertation, printed in 1781, J. F. Blumenbach presented for the first time his division of mankind into five varieties. Of these he wrote that the first variety is the largest and primeval one,

[it] embraces the whole of Europe, including the Lapps, whom I cannot in any way separate from the rest of the Europeans, when their appearance and their language bear such testimony to their Finnish origin . . . (Blumenbach, 1865, 99).

In the third edition, however, printed in 1795, he had a different opinion. "The Caucasian variety includes the inhabitants of Europe—except the Lapps and the remaining descendants of the Finns (Blumenbach, 1865, 265). Furthermore, the Mongolian variety comprehends the Finnish populations of the cold part of Europe, including the Lapps (Blumenbach, 1865, 265-6).

The reason for this change is not mentioned. Scheffer is not cited and the theory is not espoused by any of the authors referred to. Probably he changed his mind as a result of reconsidering the data—possibly because he came into the possession of some additional skulls. In a publication of 1808 he noted the resemblances between Lapp and Mongolian crania. Concerning primary characters:

the skull large in proportion to the stature of the body; the form and appearance altogether such as prevail in the Mongolian Variety; the shape almost spherical or globose; the zygomatic bones extending outwards; the malar fossa, plane; the forehead broad; the chin rather prominent and acuminated (Prichard, 1841, Vol. III, 301).

Like Scheffer, Blumenbach was also impressed by the influence of environment.

We see nations which are reputed to be but colonies of one and the same stock have contracted in different climates different racial faces. Thus the Hungarians are considered to be the same primitive stock as the Lapps. The latter living in the furthest North have acquired the face so peculiar to the most northern nations; whereas the former living in the temperate zone, in the neighbour-

hood of Greece and Turkey, have gained a more elegant form of face (Blumenbach, 1865, 231).

Writing in 1822 Sir William Lawrence attributed certain characteristics to the Mongolian Variety, all but one of which were cranial. These were: forehead low and slanting; head square in form; lateral projection of malars; glabella and ossa nasi flat and small and on the same plane as the malar bones; scarcely any superciliary ridges; narrow nasal entrance; malar fossa forms but a slight excavation; alveolar edge of jaws obtusely arched in front; chin rather prominent; and short stature (Lawrence, 1822, 305).

Lawrence found that the characters of the Mongolian Variety "are strongly expressed in the skull of a Lapland female, and prove unequivocally that this race belongs to the Mongolian Variety" (Lawrence, 1822, 309). In another place he noted that the "*Caucasian Variety* includes all the ancient and modern Europeans, except the Laplanders and the rest of the Finnish race . . ." (Lawrence, 1822, 477). The latter statement contains the sole reference to the Finns, but it is sufficient to show that Lawrence was following earlier writers in his classification of the Finns, Lapps, and Mongols. Indeed, his debt to Blumenbach is not only expressed in his eloquent dedication, but his evaluation of the Lapp skull is footnoted to Blumenbach and his terminology—even his phraseology—attest the magnitude of this influence.

But, though he was prone to borrow, he was also capable of dissent. In discussing environmental causation he contended that neither climate nor the state of society can be given as affecting the "conformation and color of the body," since most modern European nations were barbarians until relatively recently, yet they have not changed physically (Lawrence, 1822, 453-5).

Instead, therefore, of accounting fore the dark colour, peculiar features, and stature of the Greenlander, Laplander, and Samoides, from their smoke, the dirt, their food, or the coldness of the climate, we . . . ascribe it to their descent from a race marked by the same characters as distinguish themselves. These tribes owe their origin to the Mongols: and retain in the north those marks of their descent found in the Chinese (Lawrence, 1822, 455).

This quotation not only illustrates his repudiation of environmentalism, but it also indicates contact with Scheffer, for his wording is obviously lifted largely from the English translation of *Lapponia*. Incidentally, it is curious to note that his description of the jaw as prominent is similar to observations on the Lapp jaw made by both Blumenbach and Scheffer, and contrasts with the modern observation that it is extremely shallow.

J. C. Prichard, in 1836, noted that "travelors have been struck by the different aspects of the Finns and the Lapps, and they have accounted

for the phenomena in different ways. Some refuse to admit evidence of their consanguinity, though such evidence has been found sufficient to satisfy unprejudiced persons (Prichard, 1841, Vol. III, 297). In order to demonstrate this point he quoted at length from Scheffer and concluded in Scheffer's words: "their bodies and habits are very nearly the same . . ." (Prichard, 1841, Vol. III, 298).

But, though he clearly regards the Finns and the Lapps to be closely related, his view of their Mongoloid affinities is confused. For while he regards the Finns as having European features and complexion, many being handsome according to our ideas of beauty, he describes the Lapps as deviating from the usual characters of the European races and approximating to the Mongolian. Still, after quoting Blumenbach, he wrote, "that great physiologist was right in referring the Lapponic skull to the Mongolian type. We must admit that great diversity appears to have taken place in these two branches of one national stock" (Prichard, 1841, Vol. III, 308). It would appear, then, that he regards the Finns and the Lapps to have an Asiatic ancestry. He continues,

These observations and facts that tend to identify the Finns and the Lapps or to prove that they are originated from the same stock, are rendered the more interesting by the consideration that the physical diversity frequently, but not unusually, existing among them is very strongly marked" (Prichard, 1841, Vol. III, 300).

Furthermore, while admitting that the cause is difficult to discover, he feels that it is impossible to account for these diversities by reference to the hypothesis of intermixture with foreign nations. Neither can they be explained entirely as due to differences of climate or race (whatever he means by this!). He concludes,

It lies in the difference of external circumstances and agencies, which depends not on local but on moral conditions. The Finns are well fed and warmly clothed and sheltered from the inclemency of the winter cold, of which they further lessen the effect on their constitution by the frequent use of hot baths" (Prichard, 1841, Vol. III, 341).

The Laplander, on the other hand, never keeps himself in a degree of temperature sufficient for the full development of physical life.

Prichard has obviously leaned heavily on Scheffer and Blumenbach for he quoted from both of them *in extenso*. His results differ only to the extent of reinterpreting the mechanism of environmental causation. Although the conception of moral conditions as opposed to local conditions is attributed to Von Buch, one cannot help wondering if concern with this problem did not find its stimulus in the dissent of William Lawrence.

In 1859 Theodor Waitz stated that the Finns have short conical crania with flat temples and a globular occiput. The Lapps differ in that their skulls are smaller and thinner (Waitz, 1863, 76).

The Lapps and the Finns are held to be members of the same race. This conclusion is apparently based mainly on linguistic evidence. Indeed, language was considered important enough to permit the statement that, "We do not consider that the linguist is justified in conceding so much in this respect to the anatomist and zoologist as Pott has done, who assumes that intermixture has produced an essential change in physical formation along the Magyars, Osmanlis, Finns, and Samojeds, while they have preserved their language—that 'an exchange of body' with foreign tribes has taken place without an exchange of soul . . ." (Waitz, 1863, 76-7).

Waitz contended, "One is certainly inclined to doubt the theory of the absolute permanence of types, and to adopt rather an extensive change in the form of the crania by climate and intellectual pursuits" (Waitz, 1863, 76). The Finns were formerly free owners of the soil and their monuments and their poetry testify of a high culture in past times. The Lapps, on the other hand, have always been, and still are, "miserable nomads." "Might not the physical differences be considered as having gradually arisen?" According to Waitz, many consider shape of cranium an infallible criterion of race, yet experts admit that the individual differences in form of the cranium become greater in proportion to the higher intellectual development of a nation. He therefore concluded that the pretended constancy of physical type as a criterion of affinity of race results in absurdities (Waitz, 1863, 77, 226).

Waitz considered the Finns, the Lapps, and the Samoyeds members of the same race. He apparently also believed that they were related to the Mongolians for he held that large groups of Samoyed in the south indicates their origin from Central Asia (Waitz, 1863, 199).

According to Anders Retzius (1860) there are two great racial groups, (1) the Dolichocephalae, and (2) the Brachycephalae, which are subdivided into (a) the Orthognathous, and (b) the Prognathae (Retzius, 1860, 251).

Among the Brachycephalae-Orthognathic of Europe are the Ougriens and the Turks. The former include the Samoyeds, Laplanders, and Finns. Among the Brachycephalae-Orthognathic of Asia are the Ugrians and the Turks again (the difference in spelling has no apparent significance). The former includes specifically the Samoyeds and the Yakouts (Retzius, 1860, 257).

In this highly schematized outline based simply on a comparison of cephalic index and facial projection the old idea that the Lapps, Finns, and Asiatics are related is presented once again.

In 1886 A. H. Keane wrote twenty-two pages about the Lapps under the title, "The Lapps: Their Origin, Ethnical Affinities, Physical and Men-

tal Characteristics, Usages, Present Status, and Future Prospects.” From this article we learn,

notwithstanding many discrepancies due partly to long isolation in different surrounds, partly to intermixture, the Lapps would appear to be an offshoot of the great Finno-Tataric (Uralo-Altai) family. . . . To this widespread division of the Asiatic would they still belong in speech and in some prominent physical characteristics (Keane, 1886, 217-8).

The Lappish language is a near relation to Finnish, which is closely allied to the Turki and other members of the Mongolo-Tatar group (Keane, 1886, 218). In fact, the name *Finn* indicates the connection of the Lapps with the Finnish family, of which they are evidently an outlying branch, and it is moreover the Teutonic translation of the national name *Same*, e.g., literally, Fen Man (Keane, 1886, 215).

There is, however, more than purely linguistic evidence for the oriental extraction of the Lapps. In their national legends dim traditions still linger of their Eastern origin and their name connects them with Finland as the last stage in their long wanderings from the Altai and Baikal regions.

In their myths and folklore occur descriptions which can refer only to the Altai highlands, and Lake Baikal itself seems to be here indicated as a sort of point of dispersion for the Lapp race . . . (Keane, 1886, 217).

Physically, Keane felt that the Lapps are fundamentally, and in some respects even typically, Mongolic. They are not only brachycephalic, they are hyperbrachycephalic; they are not only short, they are extremely short. Yet, their hair is brown when it should be black; their complexion is florid when it should be yellowish; their eyes are brown when they should be black; and their nose is straight and regular when it should be short and concave (Keane, 1886, 219). These peculiarities are difficult to account for. They could be due to natural evolution of type gradually brought about during long seclusion in a changed environment. On the other hand, “we are warned by Linné not to attach too much weight to the element of color, which, amongst other races also is far from constant, and which appears to be peculiarly susceptible to climatic and dietary influences (Keane, 1886, 219). Other influences besides change of scene must have been at work, however, and the most important of these would have been intermingling of races (Keane, 1886, 220).

Keane has undoubtedly been both directly and indirectly influenced by the grand old man of Lappology, Scheffer. This is evident not only from some of the data used, especially the linguistic arguments, but also in his description of the Lapps as strong, of robust constitution, with good muscular development, but bandy-legged and ungainly walkers (Keane, 1886, 220).

The Races of Man written by J. Deniker in 1889 was based on the principle that race requires only a consideration of physical characters (Deniker, 1901, 280 f.). Under *Group F., Straight Hair* the following peoples were included (Deniker, 1901, 286).

warm yellow skin		{ N. American 22
		{ C. American 23
		{ Patagonian 24
brownish-yellow skin, etc.		{ Eskimo 25
yellowish white skin	{ a. turned-up nose, short stature, brachyceph.	{ Lapp 26
	{ b. St. or concave nose, short, meso- or dolicocephalic, projecting cheek bones.	{ Ugrian 27
	{ c. St. nose, med. stature, hyperbrachyceph.	{ Turko-tatar 28
pale yellow skin, etc.		{ Mongol 29

In this outline the Lapps are obviously related to the Mongols, as are also the Ugrians. But what is included under the term Ugrian? For Retzius, as we have seen, it comprised Samoyeds, Laplanders, and Finns. To de Quatrefages, on the other hand, it meant Samoyed but NOT Finns. (Quatrefages, 1867, 513). A hint as to Deniker's interpretation is gained from a later article (1897) where he speaks of the Finno-Ugrians as Eastern Finnish (Deniker, 1897, 298). Apparently Deniker recognized more than one kind of Finn and did not connect the Lapps promiscuously with the Finns as a whole.

In 1899 William Z. Ripley wrote,
 the Lapps . . . are among the broadest-headed of men. Their squat faces show it. In Stature they are among the shortest of the human species. . . . Their hair and eyes are very dark brown, often black. Could any type of human beings be further removed from this than the Finns? (Ripley, 1899, 359). (The underlining is mine.)

If Deniker adumbrated the collapse of a time-worn theory it became a reality with Ripley. In the final moments of the 19th century the belief that the Finns and the Lapps were racially related was delivered a blow from which it never was to recover.

With Ripley and the turn of the century, then, the theory was abandoned that the Lapps were related to the Finns and represented a European extension of the Mongoloid race. If the preceding pages have given the impression that this was the only theory current until the 20th century then let that impression be corrected now. As early as 1772 F. Bernier classified man into four races: (a) white, (2) yellow, (3) black, and (4) Laplanders, thus recognizing the Lapps as a distinct race (Cf. Topinard, 1890, 199). In 1826 Lehrberg maintained that the Lapps and Finns were entirely different races, based chiefly on the argument that there were

moral and physical diversities between them (Lehrberg, 1826). As early as 1850 Agassiz put the Lapps in a circum-polar race called hyperborean, (Cf. Nott and Gliddon, 1860, lxi) as did such later authors as Giuffrida-Ruggeri and de Lapouge, giving the group such respectable names as homo palaeoarcticus and homo hyperboreus (Manker, 1947, 39).

But, even though other theories existed, the fact still remains that in the 17th, 18th, and 19th centuries there was an interpretation of the racial history of the Lapps that was supported by most outstanding physical anthropologists. The interpretation postulated a relationship of Lapp, Finn, and Mongoloid that was in fact unproven. Evidence for this myth, as shown, included a variety of explanations by different authorities. Occasionally, investigators accepted a predecessor's version of the myth, but for contrary rather than simply different reasons. In all events, the theory survived this long period of time as a kind of tradition. Handed down from person to person and from generation to generation, it found its chief support in the prestige and stability that comes from association with great names and respectable age.

A MODERN INTERPRETATION

The theory of Lapp racial origins that became a 20th century tradition was first presented by C. H. Stratz in 1904. According to Stratz, the Lapps represent the last remains of a particular branch of a white-yellow ur-race. The Lapps are characterized by the presence of "individual protomorphic symptoms," e.g., long arms and short legs, a decided accentuation of the torus frontalis, and a decidedly high but wide nose (Kajava, 1927, 41). These "individual protomorphic symptoms," together with the lack of "outstandingly individual, one-sidedly progressive characteristics" of the yellow and white races indicate the possibility that the Lapps represent a "protomorphic remnant" of the "*weissgelben Urstamm*" (Cf. Kajava, 1927, 41).

The investigations of Lassila published in 1921 were taken to support this view, since he demonstrated additional primitive characteristics of the skull (especially on the orbits) and the teeth (Cf. Manker, 1947, 40).

Writing in 1927 the Finnish scientist Yrjö Kajava found that his researches also supported this hypothesis, since he too noted certain "protomorphic peculiarities," such as the proportions of the trunk and the extremities, the low cranial capacity, the width of the nose, and the narrowness (*Begrenzung*) of the Fissura orbitalis inferior (Kajava, 1927, 41).

A moment's reflection is sufficient to indicate that the evidence used by Stratz, Lassila, and Kajava is so inconclusive that it renders any historical deductions absurd. Even if we were to grant the tenuous proposition that relatively short legs are a primitive survival, it is difficult to agree that the cranial capacity of the Lapps (1398.9 cc.) compared to the aver-

age European figure (1450 cc.) is small, especially in view of their short stature, which these writers do not suggest is a primitive characteristic. Indeed, Kajava's figures show the average female Lapp to have a cranial capacity of 1300.87 as compared to an average female European capacity of 1300 (Kajava, 1927, 41). Neither can the width of the nose be taken as primitive, especially since it is, according to Stratz, combined with a decidedly high bridge, which must be regarded as a progressive trait. Indeed, of the three or four primitive characteristics cited by Stratz and Kajava, the nose is more than an unreasonable inclusion, it is detrimental to the whole hypothesis, for the nose of the Lapps, having considerable height, approaches the Caucasian, ergo progressive, type more closely than the extremely low, wide Mongoloid type. How then can it be held that the Lapps represent a remnant of the ur-race that developed into both the yellow and the white races! Surely not on the indefensible grounds that they lack the "individually outstanding, one-sidedly progressive characteristics" that are found in the Mongoloid and Caucasian races. Nor, again, because of the retention of dubious primitive characteristics. Yet, in the final analysis, this hypothesis rests precisely on the assumption, supposedly proven, that the Lapps are both primitive and unspecialized. Because they are primitive they represent a survival (protomorph) of an older racial type, and because they are simple, they represent the racial type from which the more specialized Mongoloids and Caucasoids developed. As we have seen, the evidence for simplicity and primitivity do not hold up even on the basis of their own data. Furthermore, even if they were primitive, Kajava's environmental deductions would suggest that it is the result of degeneration rather than survival. And even if they were simple, why should they represent the ur-race from which the white and the yellow races both developed?

The ur-race theory was the result of unwarranted interpretations of physical characteristics and unreasonable deductions on the basis of these unwarranted interpretations. Yet the tradition survived.

H. Bryn, a Norwegian, writing between 1920 and 1934, noted in a southern province of Norway (Møre) a population characterized by short stature. He felt that this group was so distinct from the typical Nordic type that it must originally have had approximately the same racial features as the Lapps, including marked brachycephaly, originally black hair and brown eyes. He found this element especially in the southern part of the province (Søndmøre) where the absence of mountain passes had hindered Nordic infiltration (Wiklund, 1947, 5-6). In a later report (1933-4) he referred to this group as "the dark, brachycephalic, high-headed type, which has its radial center in Sunnfjord" (5 or 6 miles south of Søndmøre) (Wiklund, 1947, 6). He noted again its geographical isolation and held that it belonged to the area of expansion of Fosna culture.

Bryn is of the opinion that this type, as well as the brachycephalic population of Jaeren (south of Stavanger in southern Norway), points towards the Alps in Central Europe. The high headedness of the Sunnfjord and Søndmøre population is due, in his opinion, to a later crossing of the Alpine type with the Nordic high-headed Trønder-type (Wiklund, 1947, 6).

He denied the existence of any Mongoloid characteristics in the Lapps and held that the contention of Stratz that the Lapps were a Mongoloid protomorph was "a completely untenable theory" (Schreiner, 1935, 286-7). This would appear, then, to be only a partial acceptance of the Stratz-Kajava hypothesis. Actually, he believed that the Lapps must have had their origin far back in antiquity, before the formation of the Central Asiatic differentiation. Bryn's theory, then, is only a modification necessitated by his belief that Mongoloid characters do not occur among the Lapps. Stated succinctly, he considered the Lapps to be a derivative of an ancient Alpine race that broke away before the differentiation of the Central Asiatic type.

J. Czekanowski, writing at about the same time as Bryn, presented the thesis that there were four basic white races and six sub-races or mixed types (Wiklund, 1947, 15-6). These four races were the Lapponoid, Nordic, Ibero-Insular, and Armenoid. Defining Lapponoid in such a way as to include the Alpine and the Lapp proper, Czekanowski's conclusions agree substantially with Bryn.

Von Eickstedt, following the lead of Bryn and Czekanowski, also identifies the Lapps with an old European racial type. According to von Eickstedt, an extra-primitive proto-Alpine type went to Denmark to associate itself with the Maglemose culture. Later, under pressure from the advancing Nordics, these brachycephals were forced back until they were allowed to rest at the termini of the two Nordic routes of invasion (Coon, 1939, 287). These peoples, called proto-Alpines, are regarded as pure descendents of the early racial type of the Alps, "and not as an alpinoid, short-headed variant in the north" (Cf. Schreiner, 1935, 278).

Now, it is clear that Bryn, Czekanowski, and von Eickstedt have only partially accepted the hypothesis of Stratz, Lassila, and Kajava. Insofar as the most tenuous contention of the earlier writers was the assumption that early Mongoloids and early Lapps stemmed from a common race, it would appear that the later writers have accepted only the more reasonable premises. Such, however, is not the case, for, while they all agree in joining the Lapps and the Alpines, the premises on which this is based are completely different. As we have noted above, the earlier writers based their conclusions on an assumed primitiveness and simplicity in the Lapp physical type. The later writers, on the other hand, ignore this completely, and ground their deductions on a comparison of gross physical features as well as geographical and historical observations. It is indeed striking

that this interpretation has had the same history as theories of preceding centuries: originally based on falacious data and reasoning, it has survived, through a process of reexamination and the support of different evidence and arguments. The belief that the proto-Mongoloids and proto-Lapps were related was dismissed by Bryn on the grounds that no Asiatic traits are observable in the Lapps, and by von Eickstedt on the grounds that such traits exist but are the result of later influences. The tradition, however, did not succumb. It was resurrected *in toto* by K. E. Schreiner in 1935.

Working with skeletal material, Schreiner observed that, "by combination and accentation of several of these characteristics the Lapps, especially the women and children, can present a very singular Mongolian-like appearance . . ." (Schreiner, 1935, 277). On the other hand, there are many individuals among the Lapps who are not markedly Mongolian in appearance, but resemble certain elements in the southern part of Norway. "These types belong to a round-headed population of dark complexion which, with Ripley, we are accustomed to regard as a branch of the Central European or Alpine race" (Schreiner, 1935, 277). Still others look like an Alpine-Nordic mixture; but this is obviously due to recent intermarriage.

Schreiner noted, from a comparison of the cranial characteristics of the Mongolians, Alpines, and Lapps, that in a large number of features, the Lapp skulls take a medium position between the other two, although there are also Lapp characters which are closer to either the one or the other and there are even some that typify the Lapps alone. His conclusion is, ". . . that the proto-Lapps, proto-Alpines, and proto-Mongolians, just as Stratz conjectured, represent differentiations of a common Ur-race . . ." (Schreiner, 1935, 287). While the proto-Alpines pressed to the west and the proto-Mongolians pressed to the east, the proto-Lapps moved into the area of the Urals, where they developed their specializations in isolation, before migrating to the Scandinavian peninsula (Schreiner, 1935, 287).

Although admittedly supporting the Stratz hypothesis completely, it should be noted that Schreiner found certain specializations in Lapp osteology which would render the Stratz argument nugatory. In basing the proto-Lapp, proto-Alpine connection instead mainly on an assumed connection between the Lapps and the southern Norwegian brachycephals, and hence the Alpines, he is clearly following Bryn, Czekanowski, and von Eickstedt in detail. He took issue with these men on the other half of the Stratz hypothesis. He demonstrated from his craniological research that Bryn's denial of the existence of Mongoloid characteristics in the Lapp racial type was incorrect. Von Eickstedt's contention that these Asiatic traits were due to recent admixture was countered mainly by the argument that the Lapps, who are in many ways less specialized than the

Mongoloids, take up a position craniologically between the Mongolians and the Alpines.

C. S. Coon (1939) presented his analysis with considerable detail and specificity; yet, from what we have seen of the tenacity of racial interpretations, it is hardly surprising that he ends up essentially with the Stratz hypothesis:

Lappish: A stunted, highly brachycephalized, largely brunet relative of the Ladogan, originally living to the east of the Ladogan type area, in the Urals and Western Siberia. Has probably assimilated some evolved Mongoloid, but owes its partly Mongoloid appearance more to the retention of an early intermediate evolutionary condition. In modern times much mixed with Ladogan and Nordic (Coon, 1939, 292).

Schreiner's position reappears in Coon's terminology. Thus, the original ancestral Lapps are accepted as representing a stage in the evolution of both the Upper Palaeolithic Europeans and the Mongoloids, and that while the Mongoloids have specialized in their own characteristic way, and while the Ice-Age European strain was modified by mixture with and virtual absorption by the encroaching post-Pleistocene food producers, the ancestral Lapps were modified largely by a general size reduction and an increasing infantilism (Coon, 1939, 305).

Concerning the more recent racial history of the Lapps, Coon referred to the effect of an hypothesized process of brachycephalization, and to "Some environmental mechanism working upon the mineral economy of this peripheral human group [which] has probably produced this size reduction and infantilism" (Coon, 1939, 305). It is interesting to note that in spite of its sophisticated phraseology and the fact that it may yet be proven correct, the latter is precisely the explanation of short stature used by many of the earlier writers discussed above, including Blumenbach in the 18th century and Scheffer in the 17th. Even when Scheffer applied this environmental argument it was blessed with authority, for he quoted Vostius and Paulus Jovius.

From anthropometrical data Coon concluded that peculiar specializations, including characteristics of the jaw and the bony orbit, indicate a divergence of the Lapps from the Upper Palaeolithic Whites and the Mongoloids as early as the Laufen glacial retreat (Coon, 1939, 305). The lack of specialization in a Mongoloid direction, evidenced by the soft and often fine head hair, the absence of the blue-black hair pigment shade, the infrequency of the Mongoloid eyefold, and the absence of an excessive lateral malar development or great facial width, indicate that the Mongoloid characters of the Lapps could not have resulted from recent crossings.

In 1947 K. B. Wiklund's *Lapperne* was published posthumously. According to this outstanding Swedish Lappologist, "the numerous primitive characteristics of the Lapps possibly find their explanation in that they represent a protomorph—a remnant preserved to this day of the root from which the white and the yellow races had their origin" (Wiklund, 1947, 4).

Wiklund's debt to Stratz is obvious, for he not only has a footnote reference to *Naturgeschichte des Menschen*, but for the first time since Kajava in 1925 the old argument based on primitive characteristics is used.

Following Bryn and Schreiner, Wiklund holds that the Lapps are related to the Søndmøre brachycephals of the south Norwegian coast and thus ultimately to the central European Alpines (Wiklund, 1947, 5-6).

Following Schreiner he believes that the specializations of the Lapps must have required a long separation from the ur-race. "The peculiar anthropological type of the Lapps must have developed within an isolated area that was a strong barrier to contact with other peoples" (Wiklund, 1947, 6). He considers it a possibility that the Stone Age cultures of Møre and Sunnfjord, where there are present day peoples strongly reminiscent of the Lapps, are related to Fosna and perhaps to Komsa, which he believes dates from the last interglacial. Thus, while he agrees with Coon that certain peculiarities of Lapp physical type necessitate the assumption of the lapse of a long period of time since their connection with the Alpines and Mongoloids, he regards Komsa as possible evidence of their isolation in northern Fennoscandia, while Coon ignores Komsa and believes them only recently pushed into the Arctic and hence, by his reasoning, a branch of the ur-race rather than local shrunken-palaeolithic-survivors.

CONCLUSION

In the preceding pages we have examined the two most prominent theories concerning the racial status of the Lapps in order to ascertain the extent to which subjective factors entered into interpretive analysis. It was demonstrated that the earlier theory was accepted by a considerable number of men during the course of three centuries, just as the later theory had had wide currency since the beginning of the 20th century. Since it was also clearly shown in both cases that different men attained the same theoretical results for completely different reasons—the reasons of predecessors often being ignored, denied, or contradicted—the conclusion is inescapable that subjective influences have been highly effective—even to the extent of overshadowing the influence of anthropometrical and logical analysis.

By the same token however, one of the main findings of this study is reassuring, for it appears that hardly any theorist (most of whom, it must

be remembered, were dealing with the Lapps only incidentally to much more comprehensive problems) accepted uncritically the conclusions of their predecessors in the way that the results of investigators are accepted categorically by the lay public. On the contrary, each one, though arriving at the same conclusion, did so as a rule on the basis of a restatement of the evidence, and even on the basis of completely different evidence.

This is reassuring, because notable progress is apparent in the acquisition and utilization of evidence. Thus, one of the main sources of error in older works was the confusion of cultural and physical phenomena. The earlier reliance on language for the determination of racial affinities is a classic example of this confusion, and the avoidance of this source of error by later racial biologists must be recognized as an important step forward. Another significant improvement in evidence is based on the improvement of descriptive techniques which has resulted in more reliable information and improved grounds for comparison.

Yet, although improvements in evidence are notable, they did not develop as fast as might have been hoped. Thus, seventeen years after the development by Retzius of the cephalic index, Waitz described the Lapp skull on the basis of unguided observation, and in the 1930's, although the cephalic index as a descriptive technique had been joined by additional measures, such as the height-length index, one might even then have wondered if in describing Lapp, Søndmøre, Alpine, and Mongoloid crania as brachycephalic one was actually dealing with truly comparable characters, or whether these are basically different kinds of brachycephaly; for it was clear then that the cephalic index is a gross descriptive device that ignores such important factors as the relation of the brain itself to the supraorbital ridges and the thickness of the occipital and parietal bones. Perhaps conscious effort to objectivity could reduce such lag.

This study of Lapp racial classifications, however, is not to be taken as an indictment of scientific procedure. Today, as physical anthropology has entered a new phase, gene pools and population dynamics are replacing races as foci of study. But these modern developments derived from dissatisfaction with older concepts, and thus owe their existence to them. Old theories—whether based upon intuition, common sense, authority, or inadequate research concepts and techniques—undoubtedly had to be explored before new ones could be developed. In this sense, scientific myths were useful. Usually, in fact, they were also recognized for what they were: tentative hypotheses. When they were not so recognized, they lulled theory-builders into wasteful speculation or diversion to other problems. A far more serious consequence threatens the unwary, however. In the search for guides to action, current tentative hypotheses may be utilized, especially by non-specialists, as bases for pragmatic decision. In this day when scientists are entering precipitously into world council chambers, the history of Lapp racial classification reminds us anew that

even venerable conclusions or the opinions of experts may be no more than scientific myths, perhaps useful in the development of ideas, but irresponsible bases for policy or administration.

Notes

I should like to express my appreciation to Professor T. D. McCown for earlier guidance in the physical anthropology of Lapland. Any shortcomings of the present paper, of course, are completely my own responsibility.

Bibliography

- Blumenbach, J. F.
1865. *The Anthropological Treatises of J. F. Blumenbach*. Thomas Bendyshe, ed. London: Longman, Green, Longman, Roberts, and Green.
- Coon, C. S.
1939. *The Races of Europe*. New York: Macmillan.
- Deniker, J.
1901. *The Races of Man*. London: Walter Scott.
1897. "Les Races Europeennes (2^e Communication Preliminaire)". *Bulletins de la d'Anthropologie de Paris*, Vol. 8, Series 4, pp. 291-301.
- Kajava, Yrjö
1925. "Beiträge zur Kenntnis der Rasseigenschaften der Lappen." *Suomalainen tiedeakatemis*, Ser. A, 25.
- Keane, A. H.
1886. "The Lapps: Their Origin, Ethnical Affinities, Physical and Mental Characteristics, Usages, Present Status, and Future Prospects." *R. J. A. I.*, Vol. XV, pp. 213-235.
- Lawrence, Sir William
1822. *Lectures on Physiology, Zoology, and the Natural History of Man*. London: Benbow.
- Manker, Ernst
1947. *De Svenska Fjälläpparna*. Stockholm: Svenska Turistföreningens Förlag.
- Nott, J. C., and G. R. Gliddon
1860. *Types of Mankind*. Philadelphia: J. G. Lippincott.
- Prichard, J. C.
1841. *Researches into the Physical History of Mankind*, Vol. III, 4th ed. London: Sherwood, Gilbert and Piper.
- Quatrefages, M. A. de
1867. *Rapport sur les Progres de l'Anthropologie*. Paris: Imprimerie Imperiale.
- Retzius, Anders
1860. "Present State of Ethnology in Relation to the Form of the Human Skull." Smithsonian Institution, *Annual Report*.
- Ripley, William Z.
1899. *The Races of Europe*. London: K. Paul, Trench, Trjbnner.
- Scheffer, J.
1701. *The History of Lapland*. London: T. Newborough.

Schreiner, K. E.

1935. "Zur Osteologie der Lappen." *Instituttet for Sammenlignende Kulturforskning*, Ser. B, Skrifter, XVIII, 1-2.

Topinard, Paul

1890. *Anthropology*. London: Library of Contemporary Science.

Waitz, Theodor

1863. *Introduction to Anthropology*. London: Longman, Green, Longman, and Roberts.

Wiklund, K. B.

1947. *Lapperne*. (Nordisk Kultur No. 10.) Stockholm: A. Bonnier.

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Not for Resale

SYMPTON FORMATION AND PATTERNS OF PSYCHOPATHOLOGY IN A RAPIDLY CHANGING ALASKAN ESKIMO SOCIETY

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In recent years increased attention has been given to studying the effects of rapid social and cultural change on mental health and illness. Many of these studies have suggested that rapid change is an important causal factor encouraging higher rates of mental disorder (13, 14, 15), although a few, such as the Massachusetts immigration study by Goldhamer and Marshall (11), have reached somewhat contradictory conclusions. In an attempt to gather further information on this complex question, one of the authors (NAC) began in 1958 a long-term study of the northeast Alaskan coastal village of Barter Island—a very isolated Eskimo community that has recently undergone extremely rapid changes as a result of extensive contact and employment with Whites at a nearby DEW Line radar warning installation.

In order to implement the psychiatric phase of the study (1960), it was necessary to find a survey instrument that would give a broad picture of the over-all health conditions of the village residents and at the same time give fairly detailed information on symptoms of Eskimo psychopathology. After discussing the problem with epidemiologists, survey researchers, and anthropologists familiar with cross-cultural health research, the Cornell Medical Index Health Questionnaire (CMI) was chosen as the main instrument to use in the study. The various conceptual and methodological problems involved in the cross-cultural use of a health questionnaire standardized in the United States, and a discussion of the effects of rapid change on community integration among the north Alaskan Eskimo are contained in separate articles (7, 8). This paper will discuss some of the findings of the psychiatric screening test and then compare these findings with those of other studies using the Cornell Medical Index.

DESCRIPTION OF THE QUESTIONNAIRE

The CMI is a battery of questions designed to elicit responses concerning the respondent's past and present physical condition and family health history, as well as indicate feelings of the individual's own perception of his state of mind and health. The questionnaire has been used in this country on various normal, psychiatric outpatient, hospital, and military groups (2, 3, 4, 5, 10, 12, 18). There have also been a few studies

using the CMI as a measure of physical and mental health in relation to cultural change in eastern United States (6), among the South African Zulus (17), and in Peru (16).

The original CMI has 195 questions, divided into 18 sections; 12 sections (A-L) of bodily orientation and 6 sections (M-R) concerning "moods and feelings." Each question must be answered "yes" or "no." For the purposes of the Barter Island Eskimo study, 38 questions were omitted before the test was administered. Most of these questions were inappropriate because the Eskimos would not have understood their meaning ("Have you ever had jaundice?"); had not had the experience or opportunity to reply logically to the question ("Has a doctor told you your blood pressure is too low?"); or, due to cultural differences, the questions would not be interpreted by the Eskimos in the way they were intended by the authors of the CMI. As an example of the latter problem, one question which was not omitted from the questionnaire but which had to be discarded later was: "Do you have to be careful what you say even with your friends?" (slightly revised from the original). This question was answered positively by almost all the Eskimos in the sample, not on the basis of suspicion, but with the thought of not hurting a friend's feelings!

The questions omitted were primarily taken from the physical section of the Index, particularly from the section on miscellaneous diseases from which 10 out of 18 questions were removed. Only two questions were excluded from the moods and feelings section. In most instances, it was felt that those questions which were omitted would have been responded to negatively by almost all of the subjects, due to lack of experience with the information requested. Thus, the scores are most likely not significantly lower due to the elimination of these questions.

The questionnaire was administered in the native language to 91 per cent of all the Barter Island Eskimos over the age of seventeen by three specially trained Eskimo interviewers under the direct supervision of the field investigator. A much more detailed statement of methods used in administering the questionnaire is contained in a separate article (8).

SEX DIFFERENCES IN TOTAL CMI SCORE

Most studies using the CMI questionnaire with both sexes have reported higher scores for women than for men (2, 3, 4). This is also the case with the Eskimos tested in this study. Table I gives a comparison of total CMI scores for men and women from three sample groups as well as the Barter Island Eskimos. The column on the left gives the cumulative number of positive responses in groups of ten, while the body of the table gives the percentage of each sample, male or female, attaining that high or a higher score.

Table I. *Percentage of Subjects Giving the Specified Number of "Yes" Responses on Total CMI Questionnaire*

Cumulative No. of yes responses	New York random (3)		N.Y. Hospital neurotic (3)		Psychiatric outpatient (2)		Barter Island Eskimo	
	M	F	M	F	M	F	M	F
10 or more	67	79	89	90	96	95	71	100
20 or more	37	51	68	83	82	89	29	91
30 or more	10	30	52	65	69	79	13	86
40 or more	5	16	34	49	58	59	3	50
50 or more	2	9	26	34	36	52	0	41
60 or more	1	5	16	21	27	45	0	23
70 or more	0	2	8	12	13	30	0	20
Number in sample	282	328	183	343	45	56	31	22

From the table it can be seen that 30 or more positive responses were given by 10 per cent of a random group of New York men, by 52 per cent of a group of New York hospital patients who had been diagnosed as neurotic, and by 69 per cent of a sample of men from a psychiatric outpatient clinic. Of the men in the sample of Barter Island Eskimos, 13 per cent gave 30 or more yes answers to the questionnaire. Comparison of all the different score values indicates that the Barter Island men are most similar to the New York random group of men. However, comparison of the cumulative percentages for the different women's groups shows that the Barter Island women appear to fall between the New York hospital patients who had been diagnosed as neurotic and the psychiatric outpatient females.

Further examination of the table shows that there is a greater difference in all score categories between the Barter Island men and women than between the men and women in the other samples. While it is possible that the emphasis Eskimo men place on self-reliance and ability to cope with their environment may cause them to minimize their feelings of physical complaint, consequently lowering their score on the CMI, a much more likely explanation is found in the differential psychological stress placed on the community residents by the very rapid introduction of Western technological and cultural life with the consequent loss of traditional Eskimo procedures for gaining status and recognition. The previous anthropological analysis of the community made it quite clear that this problem is becoming steadily more acute for the women than for the men. While the male Eskimo has numerous opportunities to gain recognition and prestige working in the White man's world, the traditional ways for women to gain prestige, i.e., skin-sewing, meat butchering, making traditional clothing, etc., have to a large extent been lost with little to take their place.

In addition, the women have had less contact with Western culture than have Eskimo men. Since the community is rapidly becoming Westernized, the women consequently have less understanding of the role they

are expected to play in this changed situation. Given this fact, the considerably higher scores of the women over the men may reflect real differences in individual adjustment to a rapidly changing cultural environment.*

OTHER INDICES FROM THE CMI AND THEIR CORRELATIONS

In addition to the total score, other indices of psychic disturbance are suggested by the authors of the CMI. These are the score on the six sections (M-R) making up the moods and feelings part of the questionnaire, the score in the two sections, I and J, concerned with fatigue and frequency of illness, and the extent of scattering of positive answers among the different sections of the questionnaire, which is measured by the number of sections with at least one positive answer. In the tables that follow, *Total CMI response* refers to the number of positive answers in the whole questionnaire; *A-L response* refers to the number of positive responses in the first 12 sections which are concerned with physical symptoms; *M-R response* refers to the number of positive responses in the last 6 sections which deal with moods and feelings; *I-J response* refers to the positive responses in sections I and J which are concerned with fatigability and frequency of illness. *A-L sections* refers to the number of sections within the A-L part of the questionnaire to which the subject gives at least one positive answer; *M-R sections* refers to the number of sections within the M-R part of the questionnaire in which the subject gives at least one positive answer; and *All sections* refers to the number of sections out of the total 18 in the questionnaire in which the subject gives at least one yes answer. It is evident that these indices are not independent. The Total CMI Response is made up of the A-L score plus the M-R score; and the I-J score is included in the A-L score and the total CMI score. Also, All Sections responded to is the sum of the sections A-L and sections M-R.

Table II gives the mean values for Barter Island men and women for these various indices.

TABLE II. *Means of Barter Island Men and Women for Total CMI Score and Other Indices from the CMI*

	Men	Women
Total CMI response	17.2	46.5
A-L response, "physical"	13.5	35.2
M-R response, "moods and feeling"	3.7	11.2
I-J response, fatigue and illness	1.0	5.0
A-L sections	6.5	10.2
M-R sections	1.9	3.7
All sections	8.5	13.9

It is evident from the table that in all cases the women score significantly higher than the men. For example the table shows that men gave 13.5 yes responses on the average in the A-L or organ system part of the

questionnaire, while women gave 35.2 yes responses on the average to these questions. This relationship also holds with respect to the number of sections in the questionnaire in which the subjects responded with at least one positive answer. The women on the average had at least one response in almost 14 sections out of the 18 sections of the test, while the men on the average gave at least one positive answer in only 8.5 of the sections. Arnhoff (2) found corresponding means of 13.3 for men and 14.2 for women for his psychiatric outpatient subjects.

Tables III and IV give the correlations between the various indices used in Table II. Table III gives the correlations obtained with the women's scores, while Table IV gives the correlations from the scores of the men.

TABLE III. *Correlation Coefficients Between Total CMI Score and Other CMI Indices for Scores of Barter Island Women*

	Total CMI response	A-L	M-R	I-J	All sections	A-L sections	M-R sections
Total CMI response98	.89	.79	.89	.84	.77
A-L response78	.79	.81	.81	.70
M-R response66	.91	.77	.90
I-J response79	.90	.53
All sections91	.80
A-L sections67
M-R sections

TABLE IV. *Correlation coefficients Between Total CMI Score and Other CMI Indices for Scores of Barter Island Men*

	A-L	M-R	I-J	All sections	A-L sections	M-R sections
Total CMI response	.94	.68	.79	.78	.80	.59
A-L response40	.75	.71	.83	.36
M-R response53	.60	.35	.79
I-J response68	.70	.49
All sections82	.65
A-L sections35
M-R sections

Several points particularly should be made concerning the correlations. First is the relatively high value of coefficient found for all indices used, especially for the women. All the correlations for the women are significant at at least the 5 per cent level of confidence.

The highest correlations for both men and women is that of the total score with the responses on the physical part of the questionnaire, sections A-L. The correlation is .98 for women and .94 for men. The correlation of the total score with the score in the sections concerning moods and feelings (M-R) is not quite so high, .89 for the women and .68 for the men. This indicates that in our sample high scores on the total CMI are more

likely to be associated with high scores in the physical sections than with high scores in the mental sections especially with respect to men.

Further examination of the correlations (Tables III and IV) shows that there is a higher correlation for the women than for the men between indices concerning moods and feelings and indices concerning physical symptoms. As an example, the correlation between the two main parts of the questionnaire, physical (A-L) and moods and feelings (M-R), is .78 for women, but only .40 for the men. This relationship holds for the other indices also.

It may be that for the women the questionnaire is measuring virtually the same thing throughout all the sections, whether they are labeled physical or mental; although it is also possible that the two function independently; or that the physical condition affects moods and feelings. In the case of the men, there appears to be more separation of answers; moods and feelings do not appear to carry over into the physical sections to the degree that seems to be the case with the women.

In this regard, it is interesting to examine more closely the scores in the I and J (fatigue and frequency of illness) sections. The authors of the questionnaire suggest grouping the positive responses here and further suggest that for the populations they have studied, cutting a score of three or more positive answers indicates some psychic disability.

An examination of the data obtained from this study shows that, while the women have more positive responses in both sections than the men, in relative frequency of response the women respond more in the fatigability section, while the men have more responses in the frequency of illness section. If we can lay aside for the moment the problem of anemia, this lends support to the view that the Eskimo men respond more to actual physical symptoms while the women respond primarily in terms of how they feel.

AGE AS A VARIABLE

Of key importance is the fact that no age differences were found with regard to any indices gathered by the CMI for the Barter Island Eskimos. This stands in contrast to other studies using the CMI where age has been an important variable in the analysis (4, 6, 17). Those studies that have had an age range in their sample population have generally noted increased scores in the physical health sections (A-L) of the questionnaire in association with increased age. Increased scores on the moods and feelings sections have not generally been associated with greater age.

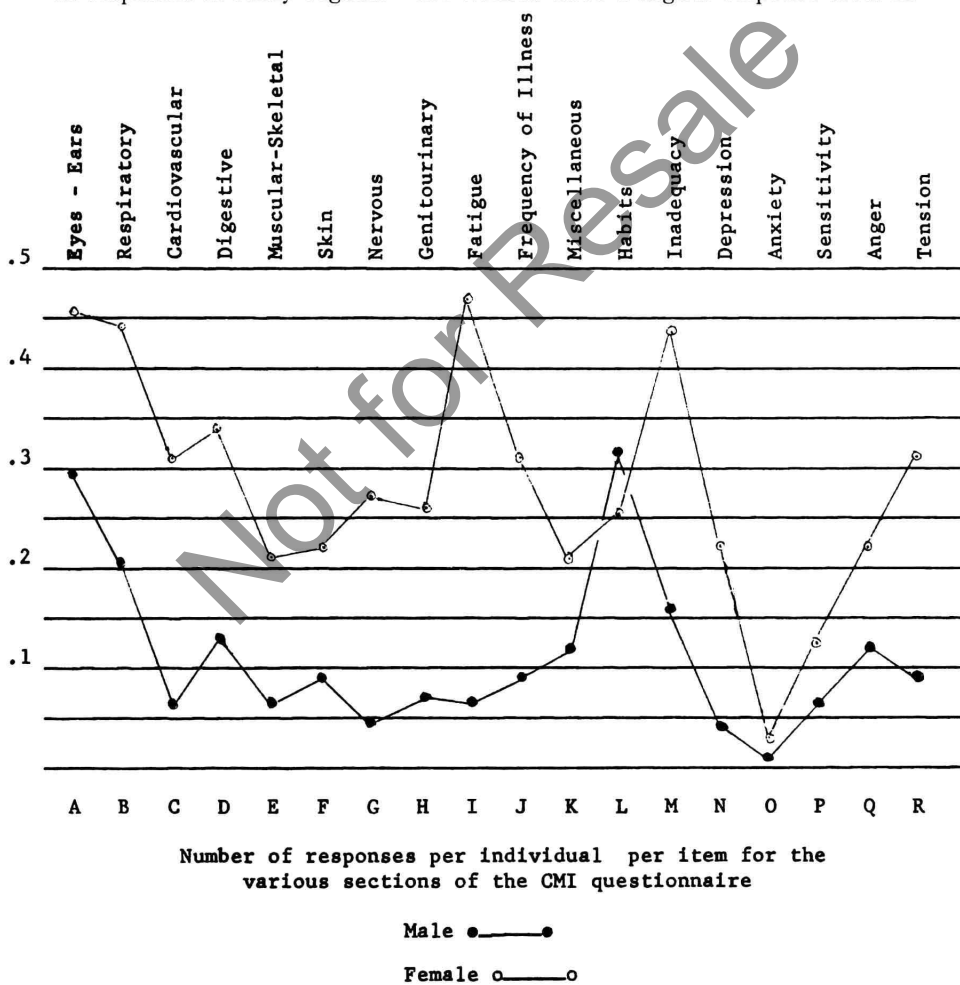
That the Barter Island Eskimos do not show significant differences in responses to the section on physical illness according to age can perhaps best be explained by the fact that this population is a strikingly young

one. The median age of the population of adults tested is 29, and only three respondents listed their age as over fifty. In addition, health facilities for common physical illnesses are fairly good, given the Eskimo's easy access to medical care at the nearby DEW Line installation.

FREQUENCY OF RESPONSE TO DIFFERENT SECTIONS

Figure I gives a comparison of the frequency of response within the different sections of the CMI for men and women. In order to equate the sections as to length, the figure is based on the number of responses per question per individual within each section.

It appears from Figure I that the difference between men and women in responses is fairly regular—the women have a higher response level in



Number of responses per individual per item for the various sections of the CMI questionnaire

Male ●—●

Female ○—○

the range of .15 to .25 responses per item per individual than men for 13 of the 18 scales. This relationship changes for the M section on habits in which men have a higher response level than the women. This has been found to be the case also in the American groups studied in this regard, probably due to the questions concerning smoking and drinking which are included in this section.

For the section on fatigue, the women have a response level .40 higher than the men. This is also indicated by the difference in mean number of responses in this area as shown in Table I.

For both men and women, the responses in the section concerning anxiety are extremely low compared with the other sections. However, this can be explained by the fact that in Eskimo society, anxiety is repressed in almost all forms. A discussion of this psychological response among the north Alaskan Eskimo is contained in a previous paper (8).

It is also interesting to note that the responses of the women in the section on sensitivity are again quite low. This is especially striking since almost all the women felt that they needed to be careful what they said to their friends so as not to hurt their feelings. This would indicate that sensitivity to the feelings of others is a major concern, yet the low level of response in the sensitivity section appears to indicate that sensitivity in oneself is not encouraged as a value in this society.

SUMMARY

The Cornell Medical Index Health Questionnaire (CMI) was given to over 90 per cent of the adult population of an isolated north Alaskan Eskimo village. It was found that the Eskimo women had significantly higher scores than the men in total CMI score, in moods and feelings (M-R) score, and in number of sections of the test responded to with at least one positive answer, and several tentative reasons were suggested for this difference. The difference between the Eskimo men and women tested was also found to be considerably greater than between men and women in other sample groups reported in the literature.

Correlations between the various CMI indices were also studied. Higher correlations were found for women than for men especially between indices which appear to be primarily physical and indices which are concerned with feelings. Age was not a significant variable affecting scores for either men or women.

Examination of the frequency of responses within the sections showed that women responded more in all sections of the questionnaire except the section concerned with habits. Men had the highest level of response in the section on eyes and ears, while women responded most in the section on fatigue. The section concerned with anxiety was least responded

to by both men and women although cultural repression of anxiety among the Eskimo certainly biased the responses to this section to a large degree.

In conclusion, it should be noted that the absence of detailed medical data on the Barter Island Eskimo apart from the CMI limits the interpretation of the CMI. It is certainly possible that organic ailments account for much of the higher women's scores on the "physical" and "fatigue" sections. For example, a number of recent studies, published (18) and unpublished, have demonstrated the prevalence of anemia among the Alaskan Eskimo—and particularly among women. However, this pattern also appears to vary considerably from one region or village to another. At Barter Island, the well-known affluence of the community has enabled its members to supplement their traditional diet with large quantities of western foods, thereby reducing the tendency toward anemia, found among other Eskimo groups. Nevertheless, other health factors may have gone unnoticed or unrecognized that strongly affect physical and mental health responses.

Finally, psychiatric screening tests such as the Cornell Medical Index have in themselves important limitations in providing a realistic picture of mental illness in a given population, and any results should always be viewed with these limitations in mind. Nevertheless, the symptomatic patterns which have emerged from the Barter Island Eskimo study do show important similarities with other studies using the CMI except where cultural factors strongly intervene.

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Bibliography

1. Abramson, J. H.: "Observations on the Health of Adolescent Girls in Relation to Cultural Change." *Psychosomatic Medicine*, 1961, 23, 156-165.
2. Arnhoff, Franklin N., Strough, La Verne, Seymour, Richard R.: "The Cornell Medical Index in a Psychiatric Outpatient Clinic." *Journal of Clinical Psychology*, 1956, 12, 263-268.
3. Brodman, Keeve, Erdmann, Albert J., Lorge, Irving, Gershenson, C., and Wolff, Harold G.: "The Cornell Medical Index-Health Questionnaire: III. The Evaluation of Emotional Disturbances." *Journal of Clinical Psychology*, 1952, 8, 119-124.
4. Brodman, Keeve, Erdmann, Albert J., Lorge, Irving, and Wolff, Harold G.: "The Cornell Medical Index-Health Questionnaire: VI. The Relation of Patients' Complaints to Age, Sex, Race, and Education." *Journal of Gerontology*, 1953, 8, 339-342.
5. Brodman, Keeve, Erdmann, Albert J., Lorge, Irving, Deutschberger, J., and Wolff, Harold G.: "The Cornell Medical Index-Health Questionnaire: VII. The Prediction of Psychosomatic and Psychiatric Disabilities in Army Training." *American Journal of Psychiatry*, 1954, 3, 37-40.
6. Cassel, John, and Tyroler, Herman A.: "Epidemiological Studies of Culture Change." *Archives of Environmental Health*, 1961, 3, 25-33.
7. Chance, Norman A.: "Culture Change and Integration: An Eskimo Example." *The American Anthropologist*, 1960, 62, 1028-1044.
8. Chance, Norman A.: "Conceptual and Methodological Problems in Cross-Cultural Health Research." *American Journal of Public Health*, 1962, 52, 410-417.
9. Chance, Norman A.: "Cross-cultural Contact, Identification, and Personality Adjustment among the north Alaskan Eskimo." Paper presented at the 1962 annual meetings of the American Anthropological Association, Mimeographed.
10. Croog, Sydney H.: "Ethnic Origins, Educational Level, and Responses to a Health Questionnaire." *Human Organization*, 1961, 20, 65-69.
11. Goldhamer, Herbert, and Marshall, Andrew: *Psychosis and Civilization*. Glencoe: The Free Press, 1953.
12. Lawton, M. Powell: "Screening Value of the Cornell Medical Index." *Journal of Consulting Psychology*, 1959, 23, 352-356.
13. Leighton, Alexander H.: "Mental Illness and Acculturation." *Medicine and Anthropology* (I. Galdston, Ed.) New York: International Universities Press, 1959, 108-128.
14. Murphy, H. B. M.: "Social Change and Mental Illness." *The Milbank Memorial Fund Quarterly*, 1961, 39, 385-434.
15. Raman, A. C.: "The Effect of Rapid Culture Change on Mental Health." *World Mental Health*, 1960, 12, 1-11.
16. Rotondo, Humberto, Mariategui, Javier, Aliaga, Pedro, and Garcia-Pacheco, Carlos: "Un Estudio De Salud Mental De La Colectividad Rural De Pachacamac." *Arch. de Criminologia Neuro-Psiquiatria y Disciplinas Conexas*, 1960, 8, 458-491.

17. Scotch, Norman A., and Geiger, H. Jack: "Symptom, Disease and Social Structure Among the Zulu." Paper presented at the 1961 Annual Meeting of the American Anthropological Association. Mimeographed.
18. Scott, E. M., Wright, Rita A., and Hanan, Barbara T.: "Anemia in Alaskan Eskimos." *The Journal of Nutrition*, 1955, 55, 137-149.
19. White, Colin, Reznikoff, Marvin, and Ewell, John W.: "Usefulness of the Cornell Medical Index-Health Questionnaire in a College Health Department." *Mental Hygiene*, 1958, 42, 94-105.

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*To test this hypothesis, all adult Eskimos were ranked on a scale of "contact" with Whites and a separate scale of Western "identification." Indices for the first variable included knowledge of English, hospitalization, employment, access to mass media, etc. The identification scale included such items as use of Western vs. native foods, use of Western clothing, participation in traditional hunting activities (primarily men) and skin sewing (women), etc.

When compared with the results of the CMI, those Eskimo men and women who ranked low on Western contact and identification also ranked low on the CMI (few symptoms); those who ranked high on contact and identification also ranked low on the CMI; but those Eskimos who ranked low on contact *and* high on identification showed the highest symptom rate on the CMI—and most of these were women. An extensive discussion of this finding and its implications will be contained in a forthcoming article (9).

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