An Interdisciplinary Approach to Mental Disorder among the Polar Eskimos of Northwest Greenland

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INTRODUCTION

Mental health, in both industrialized and underdeveloped societies, is coming to be recognized as one of the world's leading social problems. In order to bring more varied skills to bear on this challenging issue, scientific institutions are encouraging research in several fields other than those traditionally cultivated by psychologists and psychiatrists, particularly in chemical, biological, and social sciences. Hope is expressed that such interdisciplinary efforts may result in a break-through in the understanding of the nature of mental disorder (see WALLACE 1960 for anthropological review of the historical development of research). Unfortunately, however, many of the research projects in those new areas have been conducted in effect by single disciplines with little or no integration with their sister sciences, even where the representatives of the several disciplines sit together at a seminar table. Interdisciplinary investigations in the mental health area are faced with the problem of multiple causal and contributing factors. Although single factors have often been isolated and studied separately with the hope that these were causally sufficient variables, such uni-disciplinary studies have not been notably successful in dealing with mental illness.

Since mental disorders present the problem of multi-faceted etiology, we feel that it is essential to develop a model of the research procedure necessary to an investigation involving several

sciences. The disciplines involved — such as anthropology, neuro-psychiatry, psychology, biochemistry, ecology, physiology — must first study and analyse a single syndrome, and in the course of so doing, build up a research model that can be applied to the study of other mental disorders. To develop such a research model, the group under study must be small enough to be dealt with practically, but large enough to be statistically devisable, and, if possible, it should be a sufficiently isolated group to simplify the problems of defining genetic, ecological and social boundaries. Such a selected group of people would provide the opportunity for a pioneer interdisciplinary study of not just "mental illness," but a specific disease entity. As anthropologists have traditionally in the past gone to some primitive group to study culture processes operating on a simpler level than that of industrial society, we too therefore propose to seek a simpler research setting for study.

The Eskimos of the Thule District of Greenland are an isolated group that is numerically small, has in some respects undergone less cultural change than many other regions of the modern world, and has been characterized by a distinctive mental disorder known as *perdlerorpoq* (*pibloktoq* in the writings of PEARY, MACMILLIAN, BRILL, GUSSOW and other American authors). This syndrome has caught the attention of several investigators but has as yet not been sufficiently studied. None of the works on this disorder have been based on deliberate field investigations; all have been founded on the observations of explorers, traders, or transients scientists who had neither time, training, nor interest to observe carefully and to describe in necessary detail even the overt symptomology.

BACKGROUND

The Polar Eskimos of the Thule District of Greenland first came to the attention of the European world in 1818 when Sir John Ross in his search for the northwest passage entered Smith Sound. Scottish whalers following Ross's voyage sailed into the Melville Bay-Smith Sound region. They established contact with the Polar Eskimos and carried on a lively trade and added a

few of their genes to the hitherto genetically isolated population. But the contact with whalers was a seasonal event and was from time to time interrupted by difficult ice conditions. Not until the search for the survivors of Sir John Franklin's lost expedition was the Thule District used as a base for exploratory operations. Kane in 1854-1855 (1856), Hayes in 1860-1861 (1872), and Hall in 1872-1873 (Davis, 1876) wintered in the Smith Sound region and were in close contact with several Eskimo settlements. When Peary in 1891 began his attempts to reach the North Pole, the Polar Eskimos were brought into close, continuous contact with European culture. In 1909, Knud Rasmussen set up the Thule Trading Post in Wolstenholme Fiord. Under the benevolent direction of Rasmussen, Danish material goods were introduced to the Eskimos in substantial quantity. Several scientific expeditions, American as well as European, have used the area for a theatre of operations. Today near the former Eskimo settlement of Thule, huge jet bombers and transports land at the American airbase, while seventy miles to the north, at the settlement of New Thule (formerly Kanak), the resettled Polar Eskimos hunt seal and walrus as did their ancestors of the past.

The Eskimos of the Thule District have grown accustomed to many of the material goods of Europe, but have not, like the Greenlanders to the south, done so at the expense of their own culture. Due to wise management on the part of the Greenland Administration (which has exercised authority in this district since 1937) and a plentiful supply of blue fox as a trade item, the Thule Eskimos have material security envied by their southern countrymen (Malaurie 1954: 461). Though flour, sugar, tea, and a few other European foodstuffs appear in the Eskimo larder, the staple of food is still the flesh of sea mammals. The supply of these animals still determines the health and welfare of the group. At times, this food source can be deadly, as in the case of trichinosis-infected walrus taken off the coast of West Greenland (Roth 1950), botulism from spoiled meat (Bertelsen 1940: 213), or toxic reactions (Bøje 1939) from the meat of the Greenland shark and from other creatures that eat pteropods at certain seasons of the year.

The Polar Eskimos, although they are subject to the vicissitudes of a harsh environment, have through their material and social culture made a highly successful ecological adjustment. This adjustment, however, may not have been without cost. Among this group some individuals suffer from the mental disorder *pibloktoq*.

This disorder may be the price some individuals pay for living in such an area under a "primitive" subsistence economy.

Pibloktoq was first referred to by name in American literature by Mrs. Josephine Peary (1893: 125) who reported a case from McCormick Bay, Thule District, Greenland on April 18, 1892, on the occasion of her husband's (Robert Peary's) first contact with the Polar Eskimo. This disorder was subsequently noter by Peary on his following expeditions of 1898-1908. The expedition of 1908-1909 on which Peary successfully attained the pole was also notable for the high incidence of Eskimo women stricken by disorder while wintering on board the ship Roosevelt anchored off Cape Sheridan, Ellesmere Island (Peary 1910, MacMillan 1934, Borup 1911). *Pibloktoq* victims were again seen by the members of the Crocker Land expedition of 1913-1917 (field notes in the American Museum of Natural History). Fortunately seventeen photographs of an Eskimo woman suffering from an attack of *pibloktoq* were taken by MacMillan and the American Museum of Natural History preserves this invaluable record. During the Danish Thule and Ellesmere Land expedition 1939-1941, Niels Rasmussen was present during an attack of *pibloktoq* in one of the young Eskimo men while a party was out on the trail (private communication). Thus the record of observed cases extends from 1892 to 1941. Recent correspondence with Danish officials reveals that the disorder still occurs, albeit with unknown frequency, in the population.

Pibloktoq apparently may afflict others than Eskimos in these latitudes. Kane's crew while on the brig Advance, anchored in Rensselaer Harbor, north of the Eskimo settlements, suffered severely from scurvy and also from what Kane characterized as "an anomalous spasmodic disorder, allied to tetanus" (1856: 180). Dr. Hayes, Kane's surgeon, also mentioned "a strange epilepto-tetanoidal disease" that occurred among the crew (Hayes

1883: 341) and severely hampered their activities. Possibly this disorder may afflict animals as well as humans. Several authors (Kane 1856: 157, Hayes 1883: 341, Peary 1917: 205), in describing "fits" among the sled dogs, list symptoms of running wildly, snapping, howling as if in fear, diving into the water, and convulsive seizures. The same generic term *pibloktoq* is reportedly applied by the Eskimos to these canine attacks.

THE PIBLOKTOQ SYNDROME

The syndrome is not well defined in the literature and the descriptions are particularly vague in the prodromal stage. There is a fair account of the high point of the attack stage, but the beginning and terminal phases of the attack are poorly outlined. The following is a composite description of the syndrome drawn from the sources cited above:

Prodromal stage: The individual is withdrawn, quiet, does not respond to questions, is irritable, avoids light. So often is this stage not mentioned that commonly the behavior of the individual at this time must not be particularly noteworthy to others.

Attack stage: In sudden excitement, the individual may begin to scream or sing incoherently or mimic animal sounds. He may become violent, overturning furniture, destroying food and skins, tearing at his clothing or pulling it off. At this point the individual, if confined in an igloo, apparently experiences a great urge to get outside. Once outside, he runs in his nudity wildly over the tundra, ice or snow fields shouting obscenely at pursuers, gathering useless objects (some of which are thrown at pursuers), and plunging into snowdrifts or wading in icy water. The individual may also place himself in danger of falling by scaling cliffs or ice bergs. The attack stage may last from a few minutes to thirty minutes or more.

Terminal stage: The individual is exhausted and flushed, sometimes falls into convulsions, and generally drops off into a deep slumber or "stupor". In mild attacks this terminal stage is not reported. Sometimes the individual will resume his former activities with hardly a pause to reorient himself.

Recovery: Following the attack, and rested from his exertions if the attack has been strenuous, the individual is again normal and can resume his activities as before. There is reportedly no memory for the event.

A compilation of reports indicates that some Eskimos have repeated attacks while others seemingly may undergo only a single attack in a life time. Both adult men and women suffer from *pibloktoq*. We have no case histories of juvenile affliction.

It is peculiar, and perhaps owing to inadequate reporting, that there is no native theory of disease origin described for this disorder. The conduct of the victims is apparently rationalized as a mild disruption of behavior that can occur to anyone. That the disorder is not considered highly unusual is suggested by the seemingly dispassionate attitude of the individuals watching an Eskimo woman during her attack in photographs taken by MacMillan in 1914. Rasmussen (1915) noted that the afflicted person was warily followed by a relative to see that no harm befell him and that he did not harm others. One woman known to suffer chronically from *pibloktok,* however, was put in a special avoidance category: children were frightened of her. The Eskimos of Greenland formerly would rid themselves of an insane or extremely troublesome individual by execution or abandonment. *Pibloktoq* does not seem to have fallen into this extreme category but it is conceivable that if an individual had repeated several attacks over a short duration of time, he would be placed in the "insane" rather than *pibloktoq* category and accordingly would be summarily disposed of. Today psychotic individuals are sent to hospitals in the south of Greenland.

ETIOLOGY OF PIBLOKTOQ

The writings of Robert Peary (1907-1910) brought the *pibloktoq* syndrome to the attention of A.A. Brill, a disciple of Freud, who interpreted the disorder in terms of early psychoanalytic theory (1913). Brill considered *pibloktoq* to be a form of hysteria and his major etiological hypothesis is sexual (in the psychoanalytic sense) deprivation. This theme is carried forward by Gussow (1960) who regards *pibloktoq* as an expression of the Eskimo temperament reacting to psychological insecurity. Related to these views is the commonly held stereotype of the Eskimos as impulsive, labile, and unstable emotionally (Bertelsen 1940: 218).

Earlier investigators of "arctic hysteria" who dealt with Siberia and the Far East tended like Novakovsky (1924) to explain mental disorder in terms of such vaguely defined environmental conditions as the "long Polar night" (Bogoras 1909, Czaplicka 1914, Hall 1918, Huntington 1924, Jochelson 1908, 1926). These works, lamentably fragmentary in their coverage, were nevertheless forerunners of what might be termed an ecological approach to the study of this mental disorder. Two Scandinavian investigators have suggested more definite ecological theories, emphasizing nutritional deficiencies among primitive Eskimos. Arne Høygaard made an extensive year-long study of the nutritional and health status of the Angmagssalik Eskimos in 1936-1937, and noted that "hysterical fits" (very possibly *pibloktoq*) "were frequent, especially in women." He noted (and other studies have confirmed) that "the food of Eskimos is poor in calcium, which is essential for the nervous system" (Høygaard 1941: 72). The veterinarian, Baashuus-Jessen, reviewing the problem of canine hysteria in the Arctic ("dog-pibloktoq"), suggested dietary, vitamin, and mineral deficiencies, and also mentioned the possibility of disturbances of calcium balance (Baashuus-Jessen, 1935). The psychiatrist, Alexander Leighton, has also suggested hypocalcemia as a plausible diagnosis (private communication).

But we cannot here undertake to review the entire literature on "arctic hysteria," interesting as such a study would be. This literature is, unhappily, so uneven in quality and so scanty of eye-witness accounts that some students of the north, playing the role of doubting Thomas, have questioned whether the phenomenon of "arctic hysteria" actually exists at all. But the photographs of the Crocker Land expedition have solved this last problem; at least among the Polar Eskimo, the syndrome of *pibloktoq* does unquestionably occur.

PROGRAM FOR THE STUDY OF PIBLOKTOQ

Proceeding from the knowledge that an episodic mental disorder known as *pibloktoq* does occur among the Polar Eskimos, it is now necessary to formulate a program of study that will bring us measurably closer to understanding its course and cause.

This program should, however, for reasons indicated in the Introduction, in its strategy be of wider application than any one research project. The initial steps in such a general program are as follows:

(1) Collation of data on the reported symptoms, and associated circumstances or attacks ("associated circumstances" including such things as occasions on which attacks accurred, personal history and characteristics of affected persons, cultural and ecological settings syndrome, etc.).

(2) Comparison of the specific symptomatological and circumstantial information with known clinical syndromes.

(3) Selection of the several alternative diagnoses compatible with the symptomatological and circumstantial information, or the formulation of a descriptive diagnosis or diagnoses if no established clinical entity appears to be adequate and the ranking of these diagnoses in terms of their relative probability.

Once a list of ranked alternative clinical diagnoses has been established, the next steps will be:

(4) Differential diagnosis confirmed by more intensive observation and interviewing.

(5) Pursuit of the etiological processes implicated by the confirmed diagnosis.

Supporting the central stream of investigation must be a continuous process of recording cultural, social, personal, and ecological information from documentary sources and in the field, and the collation of this material with data already obtained, by the "jig-saw puzzle" method. It is extremely important that at no point shall the rational program of the investigation be diverted by the private biases, theoretical prejudices, and accidents of competency of particular persons. Whatever skills are necessary must be recruited in the form of already-trained personnel or added in the form of training of already-recruited personnel. The insights of the relevant disciplines, when not represented on the staff, should, if possible, be obtained by technical consultation rather than by seminar.

A brief and spartan outline of the procedures under items (3), (4) and (5) in the investigation of *pibloktoq* is given in Fig. I (page 258) If administrative support and transportation are available, we intend to put this program into effect in the field in the near future. The proposed field study will concentrate initially on testing the hypocalcemia hypothesis, which is ranked first for three reasons: (1) a state of hypocalcemia is

adequate to explain the symptoms; (2) the diagnosis of serum calcium deficiency is compatible with several other pieces of evidence (a tendency toward nose bleeds among Eskimos; the known mineral composition of Eskimo diets; the lesser total annual exposure to vitamin-D_3- forming ultraviolet solar radiation in high latitudes; and the high incidence of muscular cramps, especially in children, despite the absence of rickets or osteomolacia); and (3), the hypocalcemia hypothesis can be more quickly disposed of, favorably or unfavorably, than any of the others. Before any clinical chemical testing can be done, however, the household demographic survey must be conducted, in order to classify the population (or, more properly, the sample who can be reached) into *pibloktoq* prone (P+) and *pibloktoq* — free (P—) groups. In the course of this survey, as much information as possible will be obtained on the genealogy and personal history of both P+ and P— individuals in order to develop the historical dimension of the *pibloktoq* record and thus, to provide data both for the evaluation of our genetic hypothesis and for the further specification of the symptomatology and surrounding circumstances of the *pibloktoq* attacks. Neuropsychiatric interviewing and serological tests for calcium, glucose, and possibly other factors will then lead toward the differential diagnosis, and concurrently with the clinical studies, ethnographic and ecological inquiry will be directed toward a detailed description of community history, the annual cycle of subsistence economy and the dietary, the native conception of disease (including *pibloktoq*), and other phenomena necessary to a maximum appreciation of the total cultural and ecological matrix in which *pibloktoq* occurs. Obviously enough, *complete* coverage of all of these factors would be impossible even in many seasons of field-work; but on the other hand, it is essential to maintain a wide perspective which can turn attention, whenever one central stream of investigation seems to demand it, to studies of ecological relations anywhere from plankton to man and to studies of socio-cultural relations anywhere from personal life histories to community organization. In order to help maintain this perspective we are consulting actively with specialists in neuro-physiology, marine biology, electro-encephalography, and other relevant fields.

Fig. I.: OUTLINE OF PIBLOKTOQ RESEARCH PROGRAM

Alternative clinical & descriptive diagnoses	Hypocalcemia	Psychomotor epilepsy	Spontaneous functional hypoglycemia	Psychogenic hysterical fit	Food poisoning	Encephalitis
Etiological processes which might be responsible for each clinical condition	Low-calcium, high-protein and potassium diet, possibly aggravated by low vitamin D_3 intake in winter months and by mild hypoparathyroidism	Inbreeding as a result of physical isolation of band of 300 persons over several generations (c. 1600-1818)	Severe depletion of liver glycogen as result of low carbohydrate diet and insufficient gluconeogenesis from protein	Emotional conflict resulting from impact of situational stresses on persons with history of relevant trauma	Eating of shark and other flesh containing toxic substances ("nerve poisons") during hunger periods	Endemic virus infection readily spread in crowded quarters
Investigation priority rank	1	2	3	4	4	4
Over-all research design	Classification, on the basis of a household survey, of adult population, or a sample thereof, into those with a history of past and/or current *pibloktoq* attacks (P+) and those without such a history (P—).					
Research operations necessary for differential diagnosis	Detailed case histories, with questioning by neuro-psychiatrically trained interviewer, and observation of any pibloktoq attack accuring during visit, or check against characteristic clinical signs necessary for differential diagnosis of the attacks (e.g., presence or not of amnesia for attack, Chvostek's sign, carpopedal spasm, pupillary contraction, etc.).					
Research operations necessary to select and validate etiological process	Measurement of serum Ca and serum K in P+ and P— individuals; studies of diet, ultraviolet radiation, food distribution patterns, etc.	Kinship and genealogical studies; electroencephalography of P+ and P— individuals	Measurement of blood glucose level in P+ and P— individuals; studies of liver function, adrenocortical function under stress,	Depth interviewing of P+ and P— individuals, supplemented by life histories and psycho-cultural analyses	Dietary history of P+ and P— individuals; chemical studies of tissues of suspected sea creatures, etc.	Cultivation of virus from P+ individuals

SUMMARY

The general strategy of investigation of mental disorders in their ecological and cultural settings demands a new type of programmed and centrally coordinated interdisciplinary research. The problem of *pibloktoq* ("arctic hysteria") among the Polar Eskimo offers an opportunity for anthropologists to develop a model for such investigative programs. The *pibloktoq* research program is intended as a guide for a planned research project. But beyond the special study of *pibloktoq,* we hope that the general strategy of anthropological-clinical investigation outlined in this paper will provoke our anthropological colleagues to broden their conception of research possibilities in comparative psychiatry.

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BIBLIOGRAPHY

BAASHUUS-JESSEN, J., "Arctic Nervous Diseases." *Veterinary Journal,* vol. 91: pp. 339-350, 379-390 (1935).

BERTELSEN, A., "Det saedvanlige Grønlandske Sygdomsbillede." (The General Pathological Situation in Greenland) part III of Grønlandsk Medicinsk Statistik og Nosografi, *Meddelelser om Grønland,* Bd. 117, No. 3 (1940).

BOGORAS, W., *The Chuckchee.* American Museum of Natural History, Memoir 7 (1909).

BORUP, G., *A Tenderfoot With Peary.* Frederick A. Stokes Co., New York, 1911.

BRILL, A.A., "Pibloktoq or Hysteria among Peary's Eskimos." *Journal of Nervous and Mental Disease,* Vol. 40, pp. 514-520 (1913).

BØJE, O., "Toxin in the Flesh of the Greeland Shark." *Meddelelser om Grønland,* Bd. 125, No. 5, pp. 3-16 (1939).

CZAPLICKA, M.A., *Aboriginal Siberia.* Clarendon Press, Oxford, 1914.

DAVIS, C.H., *Narrative of the North Polar Expedition U.S. Ship "Polaris."* Government Printing Office, Washington, 1876.

GUSSOW, Z., "Pibloktoq (Hysteria) among the Polar Eskimo: An Ethnopsychiatric Study." in *Psychoanalysis and the Social Sciences,* W. Muensterberger (ed.), (in press).

HALL, H.U., "A Siberian Wilderness: Native Life on the Lower Yenisei." *Geographical Review,* Vol. 5, No. 1, pp. 1-21.

HAYES, I.I., *The Land of Desolation,* Harper and Sons, New York, 1872.

— *An Arctic Boat Journey,* Houghton, Mifflin, and Co., Boston, 1883.

HØYGAARD, A., *Studies on the Nutrition and Physio-Pathology of Eskimos,* Skrifter Utgitt av Det Norske Videnskaps-Akademi I Olso, Mat.-Naturv. Klasse, No. 9 (1941).

HUNTINGTON, E., *The Character of Races,* Charles Scribner's Sons, New York, 1924.

JOCHELSON, W., *The Koryak,* American Museum of Natural History, Memoir 6 (1908).

— *The Yukaghir and the Yukaghirized Tungus,* American Museum of Natural History, Memoir 9 (1926).

KANE, E.K., *Arctic Explorations,* Vols. I and II, Childs and Peterson, Philadelphia, 1856.

MACMILLAN, D.B., *How Peary Reached the Pole,* Houghton Co., Boston, 1934.

MALAURIE, J., "Possible Consequences of Recent Economic and Social Developments among the Eskimos of Thule." *UNESCO International Social Science Bulletin,* Vol. 6, No. 3, pp. 460-466 (1954).

NOVAKOVSKY, S., "Arctic or Siberian Hysteria as a Reflex of the Geographic Environment," *Ecology* Vol. 5, pp. 112-127 (1924).

PEARY, J.D., *My Arctic Journal,* Contemporary Publishing Co., New York, 1893.

PEARY, R., *Nearest the Pole,* Doubleday, Page and Co., New York, 1907.

— *The North Pole,* Frederick A. Stokes Co., New York, 1910.

— *Secrets of Polar Travel,* The Century Co., New York, 1917.

RASMUSSEN, K., *Foran Dagens Øje,* Gyldendalske Boghandel, Copenhagen, 1915.

ROTH, H., "Trichinosis in Arctic Animals," *Polar Record,* Vol. 5, No. 39, pp. 474 (1950).

WALLACE, A.F.C., "The Significance of the Biological Approach in Psychiatry for Anthropological Theories of Mental Illness," (In press).