

Circumpolar Health-Related Problems

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The 1967 Symposium on Circumpolar Health-Related Problems, held at the University of Alaska from 23 to 28 July, was sponsored by the Arctic Institute of North America under a grant from the National Institute of Allergy and Infectious Diseases, Washington, D.C., and, in the words of the Executive Director of the Institute, it was "an unqualified success."

The majority of the 105 speakers and guests came from Canada and the United States, but Denmark (including Greenland), Finland, Norway, Sweden, and the U.S.S.R. were also represented. The papers presented at the Symposium related to pulmonary diseases, virus diseases, zoonoses, environmental stresses on human behaviour, physiology, anthropology, nutrition, and current and potentially hazardous contamination of the environment.

At the opening session, participants were reminded that the main feature affecting public health in the Arctic was, of course, climate. Low temperatures aggravated problems of nutrition, water supply, sewage disposal, and created other difficulties. It was pointed out that population expansion and economic development were retarded by the environmental conditions, yet the very fact that the population was sparse in the Arctic meant that success in the task of eradicating disease could be achieved more readily and quickly there than in the densely populated areas of the world where the same diseases were still prevalent to a marked degree. However, a much greater effort towards eradication was essential.

Tuberculosis was still considered to be a major problem in some arctic populations, because of its close association "with the conditions of living, general state of health, and nutrition." However, encouraging reports had been received from Alaska, Canada, and Greenland which had emphasized the magnificent progress that had been made due mainly to "breaking the chain of infection by early detection of the disease, removal of cases to the hospital, and specific chemotherapy of patients."

In Alaska, there had been a decline in new tuberculous infections from 303.4 per 100,000 in 1953 to 113.1 in 1965 (the overall U.S.A. figure in 1965 was 25.3 per 100,000).

In Greenland, from 1955 to 1965, the incidence of tuberculosis had been reduced by 90 per cent as a result of intensive case-finding and active chemotherapy. Nevertheless, the rates in Greenland continued to be 20 times higher than comparable rates in Denmark.

It was stated that similar progress had been made in Canada, but tuberculosis

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continued to plague a number of Canadian Eskimo communities; Eskimo Point on the western shores of Hudson Bay was cited as an example. The place had been ravaged by the disease in 1963, and despite constant effort by the health service, cases continued to develop, and 13 active cases had been reported in 1966.

In reviewing serological surveys of arctic populations and viral causes of birth anomalies and defects, one of the speakers said that the Arctic was a "happy hunting ground" for scientific research in virus diseases; this was partly because the family units were small and thus afforded sampling advantages found nowhere else.

Some of the virus diseases discussed were hepatitis, tickborne encephalitis, coxsackie, and influenza. In the past, there had been exceptionally severe epidemics of the last-mentioned disease in isolated communities, but with the advent of air traffic over arctic routes it was thought that such occurrences would become less frequent; populations were acquiring a more homogeneous resistance to influenza.

Among the numerous diseases transmitted by animals to man, special attention was given to the helminthozoonoses, particularly in the northern U.S.S.R., where planned sanitary measures for their control had been in operation for several years and some progress had been reported. However, the great difficulty in instituting effective control measures against the infestation of potential food supplies, particularly those derived from fish and sea mammals, was emphasized. In a discussion of helminthic infections, a survey in Northern Fenno-Scandinavia was mentioned as having given evidence of trichinosis in the dog, polar bear, polar fox, the walrus, and the bearded seal. Among other zoonoses touched upon were hydatid disease, tularemia, and arctic rabies. In connection with the last-mentioned disease, one of the speakers described the advantages claimed for new types of living and killed antirabies vaccines that had recently been developed.

Environmental stresses on human behaviour were considered, as well as physical adaptation to cold and altitude. It was explained that both the insulating fur of the larger arctic land mammals and the fur clothing of man conserved body heat to such a degree that little more effort was needed for them to keep warm in the Arctic than in other climates. The remarkable part of adaptation to cold was thought to be the regulation of body warmth in the extremities. To reduce heat loss in the feet, legs, eyes, and noses of animals, these thinly insulated parts were cool and might be as cold as the freezing temperature of water. For instance, the large, bare webbed feet of an arctic gull in ice water were near that temperature and thus no heat was wasted as would be the case if its feet were warm. Similarly, it was pointed out, the duck's bare feet, the dog's bare foot pads, and the skin of the pig and seal, though cold, were adequately sensitive and well integrated through nerves and circulation with the warm interior. Human faces, hands, and feet were also adaptable in the sense of operating without injury over a considerable range of temperature, but this range was only half that for which native animals were adapted. The village-dwelling arctic native appeared to be less affected by pain and general disturbance from cold than the indoor-dwelling urban white man; it seemed that by constant training, and perhaps through racial inclination, Eskimos and Indians living in their native manner were "vascular athletes who could most effectively and economically distribute the considerable

heat generated in their well-clothed bodies." Most injuries from cold experienced by city-dwellers were caused by intermittent exposure without adequate protection. This might build up a cold sensitivity causing sensations of numbness and extreme cold in the hands and feet with only moderate cold exposure. Cold exposure might also induce neuropathy, and two cases were cited in which palsy had been induced by prolonged exposure.

Another speaker described pilot tests carried out on the mountaineers who, in 1967, made the first successful winter assault on Mount McKinley. These had demonstrated that mental acuteness, as measured by subtraction problems and the repetition of a series of digits, suffered a marked impairment at 18,000 feet.

Current and potential hazardous contamination of the northern environment was also discussed and there was a slight difference of opinion as to the seriousness of the problem. There was, however, unanimity in considering waste disposal and the protection of pure-water supplies from contamination as questions of vital importance to all inhabitants of the North.

During the week of the Symposium, there were two other events of interest to participants: the arrival of the Middle North Tour described in the December 1967 issue of *Arctic*, and the dedication on 26 July of the Arctic Health Research Laboratory at the University of Alaska, to which all participants in the Symposium were invited. In his dedication address, the Surgeon General of the United States, Dr. William H. Stewart, outlined the history of the centre and some of the services it had already rendered. He and other speakers pointed out that there was still much to do. The infant death rate in Alaska had been reduced by 31 per cent and tuberculosis by 86 per cent, but the health status of Alaskan natives was still many years behind that of other Americans. Life expectancy at birth was 60.5 years, compared with 70.2 for all other races in the United States. The "magnificent" laboratory was fully equipped for research in all phases of microbiology and physiology and would allow the centre to expand its already extensive study aimed at the control of disease, and the improvement of housing and sanitation in the native villages.

The Symposium ended two days after the opening of the new laboratory. Its success had been due not only to the excellence of the scientific papers presented, but also to the fact that all the nations concerned had been represented, thus ensuring that the discussions on health-related problems were truly circumpolar.

Although no formal decision was taken for the convening of another series of meetings, there was general consensus that the benefits resulting from the Symposium had been such as to justify planning for another dealing with health matters in circumpolar nations.