ARCTIC HEALTH INSTITUTE

Alaska Department of Health
1949

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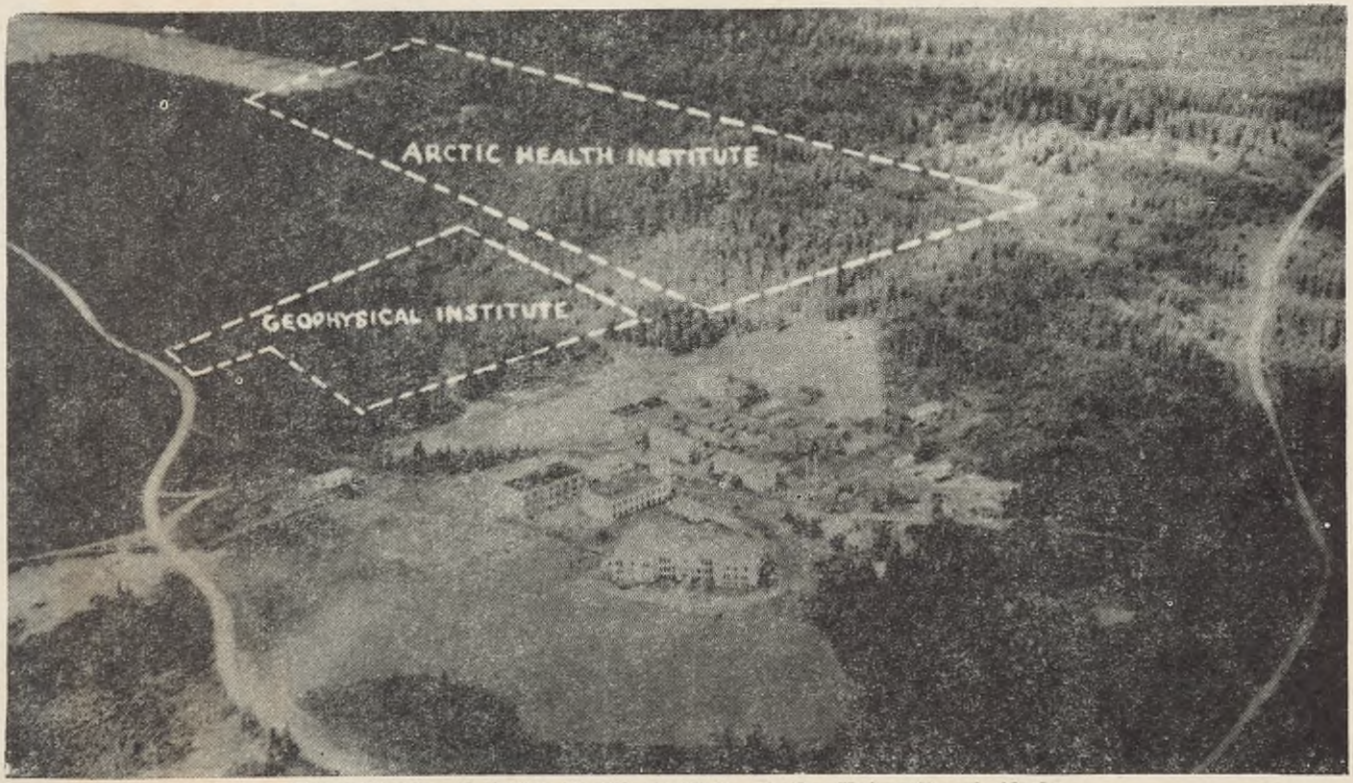

Proposed site of Arctic Health Institute at the University of Alaska

ARCTIC HEALTH INSTITUTE

The difficulties and delays experienced by all Nations in their attempts to establish a stable population and a sound economy in Arctic areas can be traced almost entirely to the faulty conditions of health and sanitation which are typical of these areas.

Inability to overcome these inadequacies of health and sanitation are, in turn, caused by a lack of specific knowledge concerning man's adjustment to the conditions which exist in Arctic areas. Little scientific information is available regarding the operation of physical laws and ordinary biological processes under conditions peculiar to Arctic regions.

Such information can be gained only through painstaking research and experimentation on a long term basis. To be of value, such research must be of a scientific caliber, conducted on the spot under existing conditions, by trained specialists from many fields, with the necessary facilities and equipment to do a thorough job.

THE NEED FOR AN ARCTIC HEALTH INSTITUTE

Research in Arctic health has been long delayed by lack of any suitable facilities which would enable qualified scientists to carry on a program of investigation of sufficient length and scientific thoroughness to produce conclusive results.

Scientists capable of carrying out such a program will not and cannot generally afford, either professionally or financially, to undertake the necessary research activities in Arctic areas at the present time, nor so long as adequate facilities and equipment are lacking.

In all of the Arctic area which lies within the Western Hemisphere, there is no facility or institution capable of meeting the basic needs of such an intensive program. Of the four countries which possess vast holdings within the Arctic, none, save Russia, has established research centers in such areas. Coincidentally, only Russia has succeeded in establishing a city of a quarter of a million population within the permafrost area.

The obvious need for the development of a well-equipped Arctic health research institute has long been recognized, and has frequently been expressed by leading authorities in Government, medicince, biology and other fields.

Research specialists in various fields have been asked to prepare lists of topics pertaining to Arctic health which they feel merit thorough investigation. The following statements, taken from letters submitted by scientists now engaged in research in their respective fields, indicate the opinion of these experts concerning the need for the establishment of an Arctic research center and the variety of research problems in need of investigation.

Epidemiological Studies

"Frost defines epidemiology as 'the science which will give, firstly, a picture of the occurrence, distribution and the types of the (infectious) diseases of mankind, in distinct epochs of time and at various points of the earth's surface, and secondly, will render an account of the relations of these diseases to the external conditions surrounding the individual and determining his manner of life'. Epidemiology is largely a closed book in Arctic regions. It is known that the epidemiological pattern of certain diseases varies remarkably from that of the same disease in temperate climates. The factors responsible for this variation must be discovered before effective methods for prevention or control may be instituted.

"Scientific investigation of health problems in the Arctic should include the following types of epidemiological work:

1. **Laboratory investigation.** The two great sources of communicable dieseases of man are man himself and lower animals. More precise knowledge is needed of the agents responsible for disease in Alaska. This would require laboratory facilities for the study of parasitic, virus, and rickettsial infections as well as diseases of bacterial origin.
2. **Investigations of epidemics in the field.** Careful inquiry should be made of epidemics in Arctic areas in

order to determine the fundamental epidemiological characteristics of disease under Arctic conditions. The factors to be considered should include the influence of age, sex, color, season, occupation, community sanitation, nutrition, the common and usual sources of infection, the degree of communicability of the disease, the infectiousness of the case, the role of the carrier, the severity of infections, mortality rates and methods of the control.

3. **Analysis of epidemiological data.** The analysis of data collected at the time of routine epidemiological investigation should play an important role in epidemiological studies.
4. **Imported diseases.** As far as is known, most of the common communicable diseases of the temperate zone may manifest themselves in the Arctic. The greater the migration to Alaska, the more probable this will be. Diseases which are transmitted from man to man more readily under crowded conditions, from close association with domestic animals, or from eating inadequately cooked meat, may be expected to be of major importance."

Tuberculosis Studies

"There is a great need for epidemiological studies in tuberculosis in the Arctic. Such studies would require various technical services which could be made available through the establishment of an institution for research. In view of the relatively high prevalence and the high mortality rate from tuberculosis in Arctic areas, it is essential that studies be undertaken to determine possible reservoirs of infection, including a careful search for animal and other possible reservoirs of infection, other than human.

"Because of the isolated nature of many of the Arctic communities, an excellent opportunity exists for the study of the evolution of the disease amongst groups (native) previously free of tuberculosis and native groups into whom tuberculosis-free outsiders are introduced. Such studies would have enhanced value where the population

groups are so tightly knit and where there is so little movement of the people in that group, that there is little danger of their being lost from observation.

"Studies of the bacteriology of tuberculosis should be performed, particularly those leading to the determination of the types, strains, variations and mutations, which might be found in Alaska. Some statements have been made that the tubercle bacillus in Alaska is different from the organism which is seen in the States. This should be definitely be determined. If it is true, then the role of this organism in causing clinical disease should also be assessed. Possibly there are several strains with varying characteristics which can be found amongst Alaskans. This work would be better done in Alaska because of difficulty in shipping live organisms.

"Bacteriological studies should also be made to determine the susceptibility and resistance of the strains found in Alaska to the various antiseptic and therapeutic agents employed.

"The work of the Institute should be coordinated with the work in clinical facilities in the Territory to secure information concerning various therapeutic agents, including those now in existence, those now on trial, and those which may be useful in the future. It is also possible that present therapeutic methods must be varied for this group of people for whom tuberculosis is a more acute disease.

"Certainly, studies should proceed on the role of the various elements in the diets common to the various groups in Alaska in maintaining adequate nutritional status as well as in contributing toward resistance. Such studies can best be undertaken in Alaska, utilizing foods derived at the source, on experimental animals housed in Alaska.

"A study should be conducted to determine the factors which result in non-pulmonary forms of tuberculosis; for example, tuberculosis of the bones and joints and tuberculosis of the skin. These forms are more common proportionately in Alaska than they are in the rest of the United States.

"The Arctic Institute could undertake, in cooperation with the Department of Health, an evaluation of the various immunizing agents now being advanced for the creation of resistance in people exposed to tuberculosis."

Venereal Disease Studies

"If it is possible to establish a research institution in Alaska there are a number of ways it could be valuable in venereal disease control. The following are venereal disease problems which should be investigated.

1. **Serology of syphilis.** Determine the true incidence and prevalence of syphilis in the different racial stocks. There is evidence that Indians give a higher rate of positive blood tests for syphilis than can be accounted for by syphilis. Such a study would fit into studies being conducted and contemplated in Central America and north into Mexico and the United States. These studies may be instrumental in determining the cause of biologic false positive tests and may provide a way of eliminating them.
2. **Resistance of the gonococcus to penicillin and the incidence of non-gonorrheal urethritis in the male.** When treating large numbers of patients with urethritis the problem frequently arises as to which cases are caused by the gonococcus and which by other organisms. When this differentiation can not be made, claims are made by physicians of the occurrence of penicillin resistant gonococci. This injures the control program. It is important to be on the alert to discover penicillin resistant strains if they do occur. Gonorrheal urethritis is easily controlled with penicillin while other types of urethritis frequently are not affected by this drug.
3. **Other venereal diseases.** To what extent do lymphogranuloma venereum, chancroid, and granuloma inguinale occur in Alaska. To determine this it is necessary to have high quality laboratory service.
4. **Clinical research.** Syphilis affects various racial stocks differently, e. g., predominance of cardiovascular involvement in the American Negro, neurosyphilis

in the white European stock. It is desirable to study the effect of the disease on the Alaskan Indian and Eskimo. In order to successfully carry out studies of this type it is necessary to have a laboratory of research caliber.

"As studies indicated above are undertaken other problems needing investigation will develop. It is important to any venereal disease control program to have access to a laboratory capable of research work to study new problems as they arise."

Parasitological and Entomological Studies

"**Amoebiasis** is an intestinal disease of worldwide distribution; its prevalence increases in areas with poor sanitation. Low temperatures are known to extend the viability of the infective cysts, by means of which the disease is spread. A recent survey in a community of 900 persons above the Arctic Circle is said to have revealed 60% positive for Endamoeba histolytica, a prevalence 3 to 10 times as high as that encountered in temperate and subtropical areas. This amazing claim should be investigated. If confirmed, the details of transmission should be explored.

"Diarrhoea and dysentery are said to be prevalent in certain areas of Alaska especially along the Bering Coast. The respective roles of E. histolytica and bacteriological etiologues should be determined. To explore this communicable problem would require bacteriological and parasitological laboratory facilities, and competent field epidemiologists.

"**Giardiasis.** The distribution of giardiasis is worldwide; its transmission is dependent upon unsantitary conditions. It is probably pathogenic for children. It has been demonstrated that the presence of this disease interferes with the absorption of fat and that it may, therefore, prevent the utilization of fat-soluble vitamins A and D, a circumstances of some significance in the Arctic region. The prevalence of giardiasis in Alaska should be determined, especially among children, and its effect on nutritional deficiences appraised. This would require the

same exploratory facilities mentioned above in connection with amoebiasis, to be used by biochemical and nutritional experts.

"**Helminth Infections.** Little is known of the prevalence or even the occurrence of worm infections in Alaska out it seems probable that these might be of considerable magnitude. It is known that natives are infected with certain species of Diphyllobothrium, but its prevalence and distribution as well as the manner of infection are unknown. It is probable that trichnosis also exists in Alaska. Population suveys in different parts of the Territory should be undertaken to determine the incidence and distribution of worm diseases and epidemiological studies made to determine the manner of infection.

"**Insects.** The high incidence and vicious biting habits of mosquitoes and flies is considered a serious problem in the Territory of Alaska. Although insect-borne diseases are not known to be extensive, the annual severe incidence of pest mosquitoes and blood sucking flies interferes markedly with human efficiency and is a virtual public health problem.

"Mosquitoes are a serious problem over extensive areas. From Nome, eastward across Alaska and southward down the Alaskan panhandle, mosquitoes are excessively abundant, generally beyond any number known except in the very worst areas in the United States. They were a major problem during construction of the Alcan highway. The tundra, where the mosquitoes breed, is studded with small seepage pools, snow-water pools and hummocks of moss, bunch grass and willows. Constant seepage and melting snows during the mosquito season constantly renews the countless little pools, requiring frequent application of insecticides. The frozen ground complicates drainage problems.

"The insect control problem is further complicated by blackflies, deerflies and gnats which breed in running streams and moisture saturated ground. At least 19 species of blackflies, eight of 'punkies' and a number of deerflies are known to be present.

"It is proposed to make a thorough investigation of insect problems related to public health and outdoor working conditions. Where investigation shows the intensity of the problem to be of such magnitude as to adversely affect the health, well-being and livelihood of the inhabitants steps should be taken to inaugurate control measures. It is anticipated that insect control will be necessary in the vicinity of approximately 15 major population concentrations."

Studies Relating To Animal Reservoirs of Disease

"The two most important points of a veterinary public health research program in the Arctic would be: to determine the prevalence of animal diseases communicable to man, and to establish control procedures which would include adequate quarantine regulations.

"The incidence of animal diseases in Alaska is not accurately known. It is known that there is a sizeable population of dogs, cattle, reindeer, fur animals, and migratory birds. Animal diseases that have been recognized in Alaska are tuberculosis, rabies, brucellosis, and salmonellosis. Preliminary investigations will be aimed at determining the incidence and prevalence of these diseases.

"The Scandinavian and Russian Veterinary Research Institutes have carried on considerable investigation of animal diseases in the Arctic and near Arctic regions. The Scandinavian conditions have not deviated very much from those found in temperate climates because of the influence of the Gulf stream on that peninsula. Russian investigations have uncovered many problems that do not exist in temperate zones. These investigations have reported the presence of animal encephalitis and pasteurella infections. The most important pasteurella disease of animals found in Siberia that affects man is tularemia. This disease has been found in many types of rodents, birds, sheep and swine; also, occasionally in dogs. Plague, another pasteurella disease, is confined only to rodents, has been reported in the U.S.S.R. area adjacent to Northern Manchuria and in Mongolia.

"Preliminary studies in Alaska should include the survey of animal tuberculosis in cattle, reindeer, and dogs. It is important to keep in mind that the interchange of tuberculosis is not in one direction from animal to man but may occur from man to animal and in turn to man again. To do such work it will be necessary for tuberculin testing, autopsy of reactors, and bacteriological and pathological examination of infected tissues. To determine the incidence of rabies and differentiate it from other encephalitides of dogs, diagnostic facilities will have to be provided. It is important to remember that many types of salmonellosis disease exist in a subclinical or carrier form in animals. Even though the incidence of these diseases may not be sizeable at present in Alaska, all efforts should be made to eradicate them before there is an increased animal population which will extend the reservoir that the increasing human population will contact.

"The storage of food in the Arctic has been a difficult problem and for that reason diseases caused by toxins or bacterial contamination should not be overlooked. The toxins of streptococcus, staphylococcus, and clostridium origin are the most important.

"The most extensive animal disease work is being carried on in the U.S.S.R. veterinary schools and research institutions in northern Russia and Siberia. Inasmuch as there is no free exchange of scientific information between these two institutions in the western world, it is necessary that adequate facilities be established for such work. Dr. Vilhjalmur Stefansson has pointed out in an early book of his, "By 1930 leadership in polar exploration has passed from west Europeans and North Americans to the Union of Soviet Socialist Republics". To develop the knowledge that will put us on a scientific par with the research work of Russia, an institution should be established at the University of Alaska for permanent study. The Veterinary Public Health Program will be a very important part of such an operation."

Nutrition Studies

"There is a marked paucity of scientific information,

either observed or experimental on human biology in the Arctic regions. Previous studies on the relation between food and low temperatures have concerned themselves with exposure under highly artificial conditions, at relatively great physiological stresses and for short periods of time. The information on the nutritional problems of existence at low temperatures for months or years is meager. Under proper conditions these problems could and should be investigated.

"The food and nutritional factors in survival and acclimatization in Arctic regions may be investigated through studies on native population groups as well as on newly arrived populations. Problems which might be investigated include:

1. Food factors related to survival in exposure, and in acclimatization to prolonged cold.
2. The nutritional factors in disease whose incidence varies markedly with climate and in those unique in cold environment, (e. g., frost bite).
3. The difference, if any, between newcomers to Arctic regions and natives with respect to physical and nutritional status, performance, adjustment mechanisms, and resistance to cold.

"Studies should also be undertaken to determine:

1. The effects of prolonged cold on growth, longevity, and maintenance metabolism with relation to food intake.
2. The effects of prolonged cold on body requirements or calories, proteins, minerals, and vitamins.
3. The effect of the proportion of fat, protein, carbohydrate in the diet on resistance to cold.
4. The role of the specific dynamic action of food in heat conservation of the body.
5. The basal energy needs and variations with climates.
6. Energy expenditures during polar stresses.
7. The effects of solar radiation on the skin and eyes, (e.g., snowblindness), and their influence on vitamin requirements and metabolism.

"In addition, the problems concerning food supply, food preservation, preparation and general food technology

are of vital importance, as is the preparation of optimal food rations for survival use in catastrophies where water supply may be a crucial problem. It would be important to study the psychological or emotional stability of men as affected by frequency and type of feeding and to study the entire problem of feeding in the field. All these are extremely rewarding and necessary fields of investigation if Arctic colonization is to be a reality."

Dental Studies

"Preliminary results of rather limited investigations on the incidence of dental caries in Alaska indicate the incidence of this disease is very low in primitive groups which have had but limited contact with modern civilization. On the other hand, the incidence of this disease is very high among children of groups whose contact with modern civilization has become extensive during recent years. It would appear that detailed epidemiological studies designed to determine the factors responsible for the wide differences in caries incidence in the natives of the various areas might prove highly profitable in tracking down some important factors relating to the cause of dental caries.

"At the present time, there are indications that periodontal disease among the natives of Alaska is almost nonexistent but that contact with civilization is effecting a change in the situation. It would appear that a study of periodontal diseases among the different populations of Alaska might prove highly profitable and might materially assist in uncovering some of the basic causes of these diseases.

"Because of the extremely low temperatures under which dental equipment, supplies, and materials must be stored, manipulated and exposed, studies should be fostered to determine the desirable modifications that will give maximum effectiveness in the Arctic area."

Studies in Physiology

"Fundamental studies of human physiology and man's acclimatization to prolonged low temperatures, wide varia-

tions in daily and seasonal amounts of sunlight and exposure to other climatic factors peculiar to an Arctic environment are of primary importance to the applied sciences in the public health field.

"Opportunities for research in functions of the human organism in the Arctic have been so limited in the past that only isolated phenomenon have been attacked and often under limiting and artificial conditions which are not representative of the inter-relation of climatic factors as they actually occur in the Arctic regions. Long range programs in these fields have not been feasible through lack of permanent facilities, both as regards space and equipment. The establishment of an institute for research in health and in the Arctic area should provide a real beginning for the investigation of more than expedient problems and should lay the foundations for a body of facts on which applied sciences may draw in the future for ready solution of current problems. Thus, the program of the Institute, over and above the epidemiological and health engineering programs, should have definite provision for research, either directly or by sponsoring visiting investigators, in studies which are not directed to a specific solution but which elaborate the biological principles under the influence of this drastic environment.

"It is suggested that research may be carried on by the Arctic Institute of Health in the general areas outlined below. The specific examples illustrating these areas are not intended as research projects of exclusive character, indeed they will need, in all probability, an inter-disciplinary approach, especially if rapid strides are to be made. The advance of any field should not be dependent on the work of single investigators as such, but rather on pooled mental and technical efforts which, relatively independently, explore the parameters of each problem.

"Functional studies:

1. The maintenance of body temperature by organic response of circulation and metabolism has been the subject of active research in the military applications. Much fundamental information regarding the adapt-

ability of these mechanisms in natives and whites remains to be obtained. These data will be useful in general health regulation and of great significance to persons attempting settlement for civil reasons in the Arctic. The problems of comfort in clothing and adaptability to protection as well as functional freedom is an applied problem which must rely for its basic information on the physiologic relationships established by such a study of the several organ systems which effect temperature regulation of the body. The effects of metabolic factors are of obvious importance as corollaries. Selection of individuals for colonization and specific duties will be greatly enhanced by such knowledge.

2. A study of insensible water loss from the body as a skin function under Arctic conditions is closely correlated with 1 as regards the organ systems involved, but it is an attribute which must be faced in dealing with the same general problem of clothing since evaporation and the consequent establishment of various degrees of humidity of the space adjacent to the skin are undeniable. The areas of normal variation and racial differences, especially as related to diet, are of primary interest.

3. The relation of respiratory response to extensive cold and the correlated behavior of the mucosal surfaces of the respiratory tract—especially in relation to resistance and to infection by virus or bacterial agents is of great bearing on the possible prophylaxis in relation to the several communicable diseases now seriously threatening the Alaskan population. First approaches to this problem may be made on a very fundamental level in studying respiratory behavior at different temperatures and the concomitant surface temperatures in the upper respiratory passages. Studies of the circulatory response under these conditions could readily be included.

"It is possible that coordinated projects may deal with identical material in these experimental approaches and

thus permit direct correlations which may be of considerable value. It is important, however, that sufficient latitude in selection of studies and specific approaches be left to the individual investigators, while careful selection be exercised in the implementing of the staff of the laboratory especially in respect to caliber of scientific ability."

Environmental Sanitation Studies

"Lack of fundamental knowledge of the many factors affecting environmental sanitation in the Arctic and Subarctic areas of Alaska is a serious deficiency which will delay most advantageous use of these areas. Worthy of careful consideration in normal times, in a period of world stress our lack of fundamental knowledge about the area could well become a matter of grave national concern.

"Of the more obvious problems involved in environmental sanitation (in the Arctic) those briefly outlined below are the most important, and the ones which should be attacked on a scientific basis as soon as possible. All of these would be most worthwhile projects for any institute which might be formed for the study of Arctic health.

1. **Water Supply.** Our entire concept of water supply must be revised when Arctic areas are involved. Permanently frozen ground exists from a few inches or feet below the surface to great depth. Therefore, water is not obtainable from surface or underground sources except during a few months of the year when surface thawing provides limited quantities, the quality of which is usually bad. During the winter months ice is the most frequent source of water. Scarcity and cost of fuel preclude anything but the most simple of water supplies under these conditions. There is need for investigating thoroughly this entire subject, in order that the basic facts may be known and the most feasible means of meeting the problem may be revealed. Some work has been done in this field by the military forces; chiefly, of course, from the point of view of field operations. This work might possibly be of considerable value in determining the course

of future research. There can be no doubt that very little progress will be made in the way of developing the potential resources of the Alaskan Arctic until some means is found of providing the people involved with somewhere near an adequate supply of safe water.

2. **Excreta Disposal.** As in the case of the water supply, fundamentally different problems must be faced in the disposal of body wastes in the Arctic. Water-carried sewerage systems, except under very special and isolated cases, have not been used, both because of the lack of water and because of the need for heating the sewers to prevent freezing. Only the most primitive methods of excreta disposal have been employed in most sections of the Arctic. Many outbreaks of disease in Arctic villages have resulted from the use of water obtained from surface pools which have been polluted with fecal material. A solution to this problem, which may be applied generally, has not been found, yet its importance to life in the Arctic can hardly be overestimated.

3. **Refuse Disposal.** In at least one area of northern Alaska indiscriminate dumping of garbage and general refuse has led to infestations with rats and the potential health hazards associated with those rodents. Flies capable of spreading infection breed prolifically during the summer months in the refuse from native villages and camps. Disposal of refuse by the so-called "sanitary fill" method is out of the question because of the permafrost conditions and the generally flat terrain. A simple, practicable method of disposing of general refuse—(one which can be applied in the loosely organized native villages as well as in the more highly developed communities)—is greatly needed.

4. **Insects.** Although isolated studies in some parts of Alaska have been made, our knowledge of insect populations is extremely limited there. For most of the Arctic regions we probably do not have anywhere

near a complete list of existing species of mosquitoes and other blood-sucking insects. Without this fundamental information we should be greatly handicapped if an insect-borne infection, perhaps a mosquito-borne encephalitis, should appear. Regardless of whether any direct connection between insects and health exists or may appear, there can be no doubt whatever that the pest varieties hamper all activity during the warmer months. This has been so severe, in fact, that various mining and other companies have employed entomologists to try to solve the problem in certain local areas. During the war the army carried out a few minor control projects, but relatively little study was given to the problem in a balanced way. Qualified entomologists should delve into this field exhaustively, both to recommend practical methods of pest-insect control where feasible and, perhaps more important, to build up our fund of knowledge of insect species present.

5. **Shelter.** This word, when applied to Arctic life, has a deeper meaning than anywhere in the temperate zones. Most native shelters today are far less efficient from the point of view of conservation of heat than those used before contact with the white man. Copying of the white man's dwelling, built entirely above the ground surface with no modifications to compensate for additional heat lost thereby, has produced structures which are not at all well adapted to the climate. Until the recent studies by the army of unit type structures with provision for adequate regulation of internal temperatures and for maximum conservation of heat, no real thought had been put on this problem, one of the most serious in Arctic life, both for the Eskimo and the white man.

"The connection between inadequate shelter, resulting in the crowding of many persons into a single small shack, with the health of a population is perhaps nowhere so clearly shown as among the Eskimos.

"Concerted and intensified study of this matter should take place. It seems likely the type of dwelling which may eventually prove to be most suited to this climate will embody fundamental differences which may only appear after the problem has been delved into scientifically."

Training Program

"It is felt that a basic part of the proposed program for the research institution should be the training of all the basic types of Public Health personnel utilized in Arctic health. It is proposed to provide short intensive periods of field training for public health workers in order to acquaint them with new preventative and public health methods applicable to Arctic regions. Such courses are considered to be essential in order to rapidly put into effect new public health methods which are developed in the wake of new scientific discoveries. The lack of basic training of many of the public health workers in State and local health departments is a fundamental weakness of the public health structure today. It is impractical to give many of these workers formal public health training. The best solution to the problem is to make available to them short courses in that field of public health in which they are to earn their living.

"Even public health workers who have been fortunate enough to obtain formal training require a period of practical field training in order that they may translate the theory which they have learned into actual field practice. It is proposed that field training courses conducted at the institution would require from three weeks for sanitarians to six weeks for health officers and public health nurses. Consideration should be given to other types of training. An important example would be the training of hospital and health department laboratory personnel.

"It is felt that the training program should be developed as a cooperative project with the Alaska Department of Health; technical personnel from the Department of Health would be utilized in the teaching program. The training program in all aspects would be coordinated with the operating program of the Department of Health."

WHAT HAS BEEN ACCOMPLISHED

In recognition of the long standing need for the development of research facilities in an Arctice area, the Territory of Alaska has taken steps toward the establishment of such a facility by introducing into the 81st Congress, through its Delegate, the following Resolution requesting authorization of an appropriation to establish an Arctic Health Institute:

HOUSE JOINT RESOLUTION 7*

Authorizing an appropriation for construction of buildings and facilities in or near the University of Alaska for research in Arctic health.

Whereas the Territory of Alaska now constitutes one of the principal areas of our Nation in need of economic development and is of increasing importance to our national defense and security; and

Whereas the full potentialities of this area cannot be realized until substantial numbers of additional persons can be induced to establish permanent residence there; and

Whereas migration to that area on an adequate scale is not likely to occur until health conditions, as well as social and economic conditions, can be made satisfactory; and

Whereas comprehensive studies made by responsible bodies, such as the American Medical Association and the American Public Health Association, have revealed alarming health and sanitation deficiencies in Alaska which seriously undermine the health of the present population and constitute a serious hazard to others who may establish residence there; and

Whereas a serious obstacle in the way of correcting these health and sanitation deficiencies is the lack of specific knowledge regarding the operation of physical laws, biological processes, and human adjustments under circumstances peculiar to Arctic regions; and

Whereas the Public Health Service is prepared to conduct and assist in the conduct of research in Arctic health problems, and the medical departments of the armed forces and other governmental and nongovernmental agencies are prepared to cooperate in

*Introduced on January 3, 1949

such research, if adequate facilities are made available; and

Whereas the area in which the University of Alaska is situated, because of its unique Arctic location and because of the university's established scientific departments, provides a logical location for permanent research facilities for the conduct of Arctic health studies; Now, therefore, be it

RESOLVED BY THE SENATE AND HOUSE OF REPRESENTATIVES OF THE UNITED STATES OF AMERICA IN CONGRESS ASSEMBLED,

That there is hereby authorized to be appropriated a sum not to exceed $7,775,000, for the acquisition of land and the erection and equipment thereon of suitable and adequate buildings and facilities for an Arctic Health Institute, including necessary living quarters for personnel, for the use of the Public Health Service in carrying on reseach and other activities pursuant to the Public Health Service Act (42 U.S.C., ch. 6A), with particular emphasis on health problems pertaining to the Arctic regions, and in cooperating with the medical departments of the armed forces and with other public and private agencies in carrying on such activities. The Federal Works Administrator is authorized to acquire, by purchase, condemnation, donation, or otherwise, a suitable and adequate site in Alaska, for such buildings and facilities, which site shall be selected on the advice of the Surgeon General of the Public Health Service, and may be located within the grounds of the University of Alaska, notwithstanding any limitation in the grant of such grounds to the University, and to erect thereon, furnish, and equip such buildings and facilities. The amount authorized to be appropriated in this joint resolution shall include the cost of preparation of drawings and specifications, supervision of construction, and other administrative expenses incident to the work: PROVIDED, That the Federal Works Agency shall prepare the plans and specifications on recommendation of the Surgeon General, make all necessary contracts, and supervise the construction.

DONATION OF SITE

In further recognition of the need for and desirability of bringing about the establishment of an Arctic Health Institute in Alaska, the Board of Regents of the Univer-

sity of Alaska have donated land adjacent to the University campus as a possible site for the institution.

Copy of Resolution Adopted by Board of Regents of the University of Alaska, October 5, 1948

"Whereas the development of Alaska is vital to the health, industry, security, and continued well being of the people of the United States, and

"Whereas those who engage in the development of Alaska need, to insure success, the best information and advice obtainable through research on problems of health, suitable food, proper sanitation, good water, correct clothing, safe sewage disposal, comfortable housing, and all other factors important to the forging back of the Arctic frontier, and

"Whereas the development of Alaska is an Arctic development in an area of low temperature unparalleled in the history of the United States, and

"Whereas the University of Alaska at 64° 51′ 21″ North latitude is a center of research and education, and

"Whereas the University of Alaska desires to cooperate to the fullest extent with the Federal Government in order that the Institute of Arctic Health shall be advantageously located for the proposed research,

"Now, therefore, be it resolved that the following described area be, and hereby is, offered to the Federal Government for the purposes heretofore set forth.

A tract of land lying in the north half of Section 6, T 1 S, R 1 W, Fairbanks Meridian, which is a portion of the property of the University of Alaska, and more particularly described as follows:

Beginning at the Southeast corner of property leased to the United States Coast and Geodetic Survey which lies in the Northwest quarter of Section 6, T 1 S, R 1 W, Fairbanks Meridian, thence South one hundred fifty-two and seven tenths (152.7) feet on an extension of the eastern boundary of said United States Coast and Geodetic Survey property, thence North eighty-nine degrees fifty-five minutes (89° 55′) east one thousand seven hundred twenty-five (1,725) feet parallel to and on the North side of existing road, thence North six hundred twenty-two and one half (622.5) feet, thence West one thousand

seven hundred twenty-five (1,725) feet to a point on the eastern boundary of aforesaid United States Coast and Geodetic Survey property, thence South along said eastern boundary four hundred seventy-two and three tenths (472.3) feet to the point of beginning.

"The foregoing resolution having been introduced by Regent LEO F. RHODE who moved its adoption received the affirmative vote of all of the seven members of the Board present at the meeting. Of the eight members who constitute the Board of Regents one was absent from the meeting. Certified to be a true and correct copy."

/s/ MRS. LUTHER C. HESS
Mrs. Luther C. Hess
Secretary

Attest:
/s/ ANDREW NERLAND
Mr. Andrew Nerland
President

(UNIVERSITY OF ALASKA)
(CORPORATE SEAL - 1935)

RESEARCH BEGUN

Under a special Congressional appropriation entitled "Disease and Sanitation Investigations, Territory of Alaska", passed in June 1948, preliminary steps have been taken toward setting up a research program in certain phases of Arctic health under the auspices of the U. S. Public Health Service. The activities included in this program are necessarily limited by the available facilities and the willingness of research workers to come to Alaska and to tackle investigations under existing conditions. Until such time as adequate working facilities and equipment can be provided, this program will fall far short of its ultimate goal, namely, to gather complete and detailed information concerning the effects exerted by Arctic phenomena on human health and existence to be applied in solving existing problems.

Recommendations

1. It is recommended that in order to promote sound research in Arctic Health problems, definite action be taken to make the establishment of an Arctic Health Institute a reality.

2. It is recommended that the proposed Arctic Health Institute be located within the permafrost area at a spot easily accessible to available modes of transportation in close proximity to potential centers of development.
   The site offered by the University of Alaska meets these requirements admirably and with the additional advantage that both the Institute and the University would benefit mutually through the association. The already established and growing facilities of the University and its academic atmosphere would undoubtedly serve to interest and attract specialists in many fields.
3. It is also recommended, in view of the relative isolation of the site, that the proposed Institute be developed as an independent self-sustaining establishment. Tentative plans include facilities for generating power, for storage of equipment and supplies, and for housing at least a portion of the contemplated personnel, as well as the essential laboratory, office and library facilities.
4. It is recommended that planning for the Institute be made on a sufficiently broad scale to permit the development of a well-rounded program of research through the provision of such special facilities and equipment as may be required for specialized projects in various fields of medicine and biology.
5. It is recommended that the research program of the proposed Arctic Health Institute be planned and developed with sufficient scope to include problems in all aspects of medicine and biology relating to human existence in an Arctic environment. It is specifically recommended that such problems as housing, food and clothing be given consideration in the basic programs of sanitation and disease control investigation.
6. In order to permit some degree of correlation and exchange of information in Arctic research activities, it is also recommended that, as a matter of policy, the facilities of the proposed Arctic Health Institute be made available to all qualified research workers interested in studying problems relating to Arctic health.