

ALASKA'S HEALTH: A SURVEY REPORT
To
The United States Department of the Interior
By
THE ALASKA HEALTH SURVEY TEAM
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Frank F. Tollman, Elberton J. Tiffany
THE GRADUATE SCHOOL OF PUBLIC HEALTH
UNIVERSITY OF PITTSBURGH
1954

The original of this ground-breaking 1954 report on the state of health in the Territory of Alaska resides in the Alaska State Library in Juneau, Alaska. In 2010–2012, it was digitized by the Alaska Department of Health and Social Services' Public Information Office. The PDF is searchable.



1953: Tuberculosis hospital established in Anchorage: In Anchorage, the Alaska Native Service, part of the Bureau of Indian Affairs, opened a 400-bed hospital with a tuberculosis wing. In the early 1950s, the statewide death rate for Alaska Natives was 653 per 100,000 cases. To help combat the high rate of tuberculosis in Alaska, the Indian Health Service built a new hospital in Anchorage which included a tuberculosis wing. (Photo courtesy of Indian Health Service/U.S. Department of Health and Human Services)

Note: Optical character recognition was used to create a searchable PDF. Typography has been preserved as much as possible. Some editorial changes were made for easier reading (e.g., “per cent,” the style of the day, has been changed to “percent,” “x-ray” has been changed to “X-ray”).

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INTRODUCTION

Origin of the Survey

Early in 1953, the Department of the Interior was seeking a survey of health conditions, resources and programs in Alaska, the purpose of which was to improve the effectiveness of existing programs serving the population of the Territory. The Department had been asked to make a survey by the Legislature and the Governor of Alaska. Joining with the Department in its desire for a survey were others interested in Alaska's health, among them the Department of Health, Education and Welfare.

The Department of Defense subsequently expressed an interest in the survey, tendering all possible assistance and cooperation, because the health of Alaska's civilian population obviously has a bearing upon the health of the military forces stationed there.

A preliminary outline of the proposed survey was forwarded to the Graduate School of Public Health of the University of Pittsburgh in May, with the expressed hope that the School would consider the possibility of undertaking such a survey. A conference in Washington, D.C., was suggested and subsequently held on June 2, 1953. Attending were members of the Graduate School of Public Health, officials of the Bureau of Indian Affairs, the Division of Territories and other units of the Department of the Interior.

The initial outline submitted to us by the Department of Interior on May 27 contemplated a survey being organized and conducted and a report submitted during 1953. After reviewing the scope and magnitude of the proposal and considering the number of specialists needed, we suggested a modified program which the Department approved.

The program suggested involved an initial survey in Alaska during the summer of 1953 extending for a period of not less than six weeks' with continued staff analysis and consultation on a part-time basis during 1953 and 1954. A final survey was to be made in Alaska during the summer of 1954 after which a full report would be submitted to the Secretary of the Interior not later than October 1, 1954.

Other terms of reference, specifically detailing the purpose of the survey, were that: "The survey shall cover health programs conducted by the Federal and Territorial Governments and by voluntary and private organizations and the administrative interrelationships of their operations. Specific attention shall be given to the health problems of the Alaska native population. It is intended that in addition to an analysis of the general health services available to Federal and Territorial health service beneficiaries, the Contractor will review and report on the adequacy and effectiveness of existing resources and services.

"More specifically, the work shall include but not be limited to:

1. The collection and analysis of available data on the general health and hospital problems of the native and other populations with specific data on tuberculosis, pneumonia, maternal and child health and crippled children's services, mental health, dental services,

and other major health problems including an evaluation of the 'Socio-economic and environmental factors contributing to these problems.

2. A description and analysis of existing programs, facilities, and services, Federal, Territorial, and private, available to meet these health problems and the legal and administrative arrangements under which they operate.
3. The preparation of immediate and long-range recommendations on medical programs, hospitals and other facilities, and services required to meet both general and specific health problems and on the organizational, administrative, and financial arrangements for Federal, Territorial, and non-governmental responsibility and participation."

Terms of the agreement, as summarized here, were set forth in detail in "Alaska Health Survey Agreement" (Government No. 14-20-650-55) dated June 19, 1953.

Methods of the Survey

In addition to the initial Washington conference, other similar conferences were held in May and June with officials in the Department of the Interior, the U. S. Public Health Service, the U. S. Children's Bureau and the Bureau of the Budget. Primary purpose of these conferences was to assemble information and plan the 1953 itinerary.

The survey agreement provided that prior to undertaking the initial and final field survey in Alaska, the School would submit for approval of the Secretary of the Interior a "time and program schedule, a survey plan and proposed staffing for the survey," The program for the initial 1953 survey contemplated that a team of four members of the faculty of the Graduate School of Public Health would undertake the initial survey which would be in the nature of a reconnaissance. Members of the 1953 survey team were Thomas Parran, James A. Crabtree, Antonio Ciocco, and Walter J. McNerney.

Once in Alaska, the survey plan called for a general orientation regarding problems of the Territory: the identification of sources of information; evaluation of available information as to pertinence, completeness and accuracy; first-hand observations of the health status: problems and services being rendered; decision concerning additional information needed in the interval between the two surveys with specific attention to the problems of the native population.

Although the team traveled together and traveled extensively in the Territory, each team member concentrated upon certain problems. Professor McNerney, for example, took responsibility for studying individual hospitals, their internal operations, financing and relationships with other health agencies and institutions.

Professor Ciocca was concerned primarily with evaluating the important problems about which more information was needed, evaluating existing data, becoming familiar with pertinent research programs and formulating a design of the interim studies and the 1954 survey.

Professor Crabtree concentrated upon the organization, program and facilities of the Alaska Department of Health, including relationships of that department with other agencies.

As chief of the party, Dean Parran took responsibility for the overall program, and in addition concentrated upon the programs of the Department of the Interior, of other federal agencies and of the voluntary health agencies.

The team arrived in Juneau on July 21, 1953, following consultations in San Francisco with officials in the regional offices of the Department of Health, Education and Welfare. Before returning to Juneau in early September, the four-man party traveled more than 6,000 miles within the Territory. Locations visited included Sitka and Mt. Edgecumbe, Anchorage and Palmer, Fairbanks and Fort Yukon, Umiat, Point Barrow, Kotzebue and vicinity, Nome, Bethel and vicinity, Kodiak and vicinity, Seward, and Cordova. More than 300 people were interviewed by one or more members of the team.

Interim Recommendations

On September 16, 1953, a number of recommendations regarding conditions believed by the survey team to require prompt action, were brought to the attention of the Department of the Interior and were discussed verbally with Department officials on September 17 and 18.

The four major recommendations submitted at that time were, in summary form:

1. ***Alaska Native Service Anchorage Hospital.*** It was urged that this hospital should be staffed, opened and operated at full capacity without delay. Since the Department of the Interior at that time had been unable to recruit physicians to staff the hospital, it was urged that the Department of Health, Education and Welfare be requested to assign at least the minimum nucleus of the personnel required to operate the hospital; that the Surgeon General of the Air Force should be asked to make available the medical officers stationed at the 5005th Air Force Hospital for consultation to the ANS Anchorage Hospital; that part-time specialists in psychiatry and in pediatrics available from the Alaska Department of Health (ADH) should be used; and that specialists' services in the Anchorage community likewise should be utilized.
2. ***Native Village Sanitation.*** Because of the almost complete lack of sanitation in all of the native villages visited, immediate steps should be taken to improve conditions initially on a demonstration basis and involving as a first step the training of native sanitary aides.
3. ***Medical and Health Personnel.*** The grossly insufficient personnel for health care to the natives in the north and northwest sections of Alaska, and the entire absence of such personnel over large geographic areas and for substantial population groups was pointed out and the use of personnel from the U.S. Public Health Service was suggested for the field hospitals in these areas. Moreover, it was suggested that additional training programs for auxiliary native health personnel, especially nursing and dental aides, should be developed at the ANS Hospitals at Anchorage and Bethel.

4. ***Commitment of the Insane.*** Active support of the Department of the Interior was urged in securing passage of legislation for much-needed revision of the present archaic and sometimes inhuman laws dealing with the commitment of the insane in Alaska.

We pointed out that these recommendations by no means covered the whole field of study nor the needs observed. It was our impression that many of the observed difficulties were traceable to the lack of a firm and consistent policy on the part of the Department of the Interior as regards the Alaska natives.

In the preliminary report, we raised questions for later answering regarding (a) the possibility of admitting "non-natives" to ANS hospitals; (b) the need for additional hospitals and health centers; (c) the extension of existing contracts between the Alaska Native Service and the Alaska Department of Health for further activities in public health, and the desirability of greater continuity in these contracts; the possibilities of transferring the health functions of the ANS in Alaska to the U. S. Public Health Service; a comparable transfer of social welfare responsibilities for natives from the ANS to the Alaska Department of Public Welfare.

In a Progress Report, submitted as an appendix to the recommendations of September 16, 1953, arrangements were reported for certain interim studies to be carried out. These studies included the population changes in 103 native villages during the years between 1946 and 1952; the sickness observed among native out-patients of four selected ANS hospitals; and the prevalence of eye, ear, nose and throat conditions and of dental caries among the natives. A number of studies were also outlined in relation to tuberculosis, including the use of drugs in treatment of tuberculosis in persons not hospitalized. Action taken on this latter point is discussed later.

We shared with the Department of the Interior our impressions and questions raised following the initial survey. These were concerned with the lack of dependable facts relating to the population; the high rate of sickness and death; the weak and unstable economic base, which for the years immediately ahead may not show great improvement: the need for developing a greater sense of community responsibility, almost totally lacking in native communities; the relative responsibility for the sharing of expenses for health care by the Federal and Territorial governments; the difficulties of applying Stateside professional standards to Alaskan conditions; and the optimum rate at which traditional policies toward the natives can be changed best to help them move from their present condition to full equality as regards their economic, political, social and health status.

Recommendation for Chemotherapy in Tuberculosis.

Because of the transcendent problem of tuberculosis in the native population, the lack of hospital beds, and the continued dissemination of the infection from known cases of tuberculosis, especially those awaiting hospital admission, we convened a conference in Pittsburgh on November 7-8, 1953, to consider what steps should be taken. This conference was attended by

more than 20 persons, including tuberculosis experts, as well as persons experienced in health administration and knowledgeable of conditions in Alaska.

During the months preceding, several reports had appeared of favorable results in treatment of patients in the United States with some of the newer anti-tuberculosis drugs on an out-patient or ambulatory basis. For example, in Cleveland, the list of persons known to have tuberculosis and awaiting hospitalization were given treatment with the result that one-fourth of them recovered to such an extent that they did not need hospitalization. In New York City, in a series of 100 chronic and infectious cases with poor prognosis, one-half of them became non-infectious and otherwise improved after one year of such treatment. More than 60 percent of a substantial series of Pittsburgh patients treated on an ambulatory basis were reported to have had the disease arrested.

At the Pittsburgh conference, these and other reports were heard. The emergency situation in Alaska, especially in the north and west portions, was reviewed and it was agreed that an emergency program should be started immediately in this area which would not alter traditional control methods, current or contemplated, but would supplement them.

A proposal was submitted to the Department of the Interior on November 23, 1953, reporting on the Pittsburgh conference and outlining the proposed program in some detail. The proposal was circulated as a confidential document to all of the participants in the conference. (Appendix A.) Replies were received from practically all of them which were forwarded to the Department on December 2, 1953. General Agreement was expressed, differences of opinion involving primarily details of administration and procedure.

It was significant that the tuberculosis consultants with the widest experience in ambulatory treatment supported the program strongly, as did those who had first-hand experience with the health problems of Alaska. As a result, we urged that the proposed program "be inaugurated as promptly as possible."

It should be recorded here that an arrangement was worked out between the Bureau of Indian Affairs and the U. S. Public Health Service for a program to be conducted by the Arctic Health Research Center and the Alaska Native Service. An appropriation of \$100,000 was made available for the fiscal year beginning July 1, 1954, to put the program into operation.

1954 Field Surveys.

The "time and program schedule" for the 1954 field survey in Alaska was submitted to the Department of the Interior on February 20, and approved on March 29. Later, additions to the survey team were suggested and approved.

The general plan involved more intensive investigations of problems examined and uncovered during the 1953 survey, using competent consultants to deal with such problems as (a) control of tuberculosis and other infectious diseases, (b) maternal and child health and crippled children, (c) hospitals and medical care, (d) public health nursing, (e) social services, (f) sanitation, (g) laboratory services, and (h) mental health.

Drs. Parran and Crabtree, from the 1953 survey team, returned to Alaska in the summer of 1954 with a selected group of specialists. Dr. Samuel M. Wishik, Professor of Maternal and Child Health in the School, visited Alaska in April and May to study the maternal and child health and crippled children's programs, and to collect additional information regarding nutrition and health education.

Dr. Ciocco remained in Pittsburgh and continued his studies on problems of demography and health statistics; Mr. McNerney continued to assemble additional data on hospitals and medical care. Dr. John R. McGibony, Professor of Hospital and Medical Administration in the School, helped in organizing material on Alaskan hospitals.

In addition to the Pittsburgh faculty members special consultants dealt with particular problems as listed below:

Native Culture: Dr. Margaret Lantis, anthropologist and author; trustee, Arctic Institute of North America; consultant, U. S. Air Force. (Dr. Lantis, at our request, prepared a monograph "Alaskan Eskimo Acculturation. ")

Nursing Services: Miss Ruth Freeman, Associate Professor of Public Health, School of Hygiene and Public Health, Johns Hopkins University; formerly National Administrator, Nursing Services, American National Red Cross.

Medical Social Services: Miss Virginia Insley, Medical Social Consultant, U. S. Children's Bureau (services made available through courtesy of the Bureau).

Control of Tuberculosis and other Infectious Diseases: Dr. James E. Perkins, Managing Director, National Tuberculosis Association; chairman, Executive Committee, National Health Council.

Dr. Joseph B. Stocklen, Superintendent, Sunny Acres Sanatorium, Cleveland; Tuberculosis Controller, Cuyahoga County; Member. Board of Directors, National Tuberculosis Association.

Hospital and Medical Care: Dr. Dean A. Clark, Director, Massachusetts General Hospital; formerly, Director, Health Insurance Plan of Greater New York.

Sanitation: Mr. Clarence Sterling, Chief Sanitary Engineer, Massachusetts Department of Health; formerly Chief of Health and Sanitation, Office of Inter-American Affairs.

Laboratory Services: Dr. E.J. Tiffany, Medical Officer in Charge. Diagnostic Bacteriology Unit, Communicable Disease Center, U. S. Public Health Service.

Dr. Paul Kabler, Sanitary Engineering Center. Cincinnati, Ohio. (Dr. Tiffany and Dr. Kabler expanded a periodic survey. at our request, of laboratory services in Alaska to include the Alaska Native Service hospital laboratories, and gave us a full report.)

Mental Health: Dr. Frank F. Tallman, Professor and Head of the Department of Psychiatry, University of California in Los Angeles; formerly State Commissioner of Mental Health of California (did not visit Alaska but inspected Morningside Hospital and submitted a report; Drs. Parran and Clark and Miss Insley also inspected the hospital).

As in 1953, the 1954 survey team traveled widely in Alaska, although the travel was not made entirely as a unit. All members visited Juneau, Anchorage, and Fairbanks. Among

communities visited by smaller groups, listed geographically, were Ketchikan, Angoon, Sitka and Mt. Edgecumbe in the southeast; Palmer, Seward, Kenai, Seldovia, and Homer in the southcentral; Fort Yukon, Tanacross, Tanana, and Tok Junction in the interior, Dillingham, Kanakanak, Bethel and vicinity, Akiak, Kipnuk, Holy Cross, Eek, Unalakleet, Nome, Wales. Shishmaref and Kotzebue and vicinity in the Eskimo country from the Alaska Peninsula to the Arctic Ocean.

Transfer of Responsibility Under Public Law 568.

During the course of the 1954 survey, H.R. 303 became P.L. 568, transferring to the Department of Health, Education and Welfare the responsibility for the health and medical services to Indians including Alaska's aborigines, from the Department of the Interior, Bureau of Indian Affairs, represented in Alaska by the Alaska Native Service. Beginning July 1, 1955, the Department of Health, Education and Welfare, through the U. S. Public Health Service, will undertake its responsibilities.

Since some parts of this report had been drafted before enactment of the new law, we have not referred in most of the text to the new circumstances. Therefore, our recommendations as to desirable actions of the Alaska Native Service in dealing with health care of the natives, apply with equal force to the U. S. Public Health Service.

In a later section of this report, we discuss some of the problems involved in the transition.

Most of those participating in the 1953 and 1954 surveys submitted individual reports on their areas of concentration. Some of these are presented in full here; others have been edited and excerpted, and woven into the pattern of the full report of which they are now an integral part. For the Alaska Health Survey Report which follows, the Graduate School of Public Health of the University of Pittsburgh, under terms of its agreement with the Department of the Interior, assumes full responsibility.

CHAPTER I

Alaska: Unfinished Business

In this report, we seek to portray Alaska in terms relevant to its health problems, to describe them quantitatively where possible, and to suggest how resources now and potentially available to its people can be mobilized to secure the degree of health and fitness necessary for Alaskans to become more socially useful citizens.

The survey of Alaska's health by the Graduate School of Public Health, University of Pittsburgh, was requested by the Department of the Interior. It was conducted during 1953 and 1954 by a team of 18 specialists with a diversity of skills. Most of us traveled extensively in the Territory, observing problems at first hand and interviewing many Alaskans in all walks of life. The field observations have been supplemented by analyses at our School of much of the raw data collected.

This chapter contains, in summary, only the major findings of the survey, the essential conclusions and principal recommendations. All are discussed in detail in the several succeeding chapters.

Alaska's early history records the exploitation of a remote colony by Russian and American adventurers and official neglect by both of its natural and human resources. Once an aboriginal population of an alien culture, its early health history records devastating epidemics and decimation by diseases which followed the white man's arrival. Neither Russian nor American appeared to have any sense of responsibility for the impact of the infections and brutality he brought with him upon the population which initially accepted him in friendship.

The Russian, Alexander Baranof, Governor of Alaska, is quoted as saying: "God is in Heaven and St. Petersburg is far away." Substitute Washington for St. Petersburg and this is the epitome of Territorial Government until a generation ago. In some respects, Alaska still is at the end of the line.

Alaska: Two Worlds.

That Alaska is a land of vast geographic and regional diversity is agreed by all observers. For purposes of this summary, we oversimplify all other descriptions and coin the terms, "Native Alaska," to designate the area north and west of the Seward-Fairbanks; Railbelt, and "White Alaska," as applying to the Railbelt and the southeastern section, since they represent extremes in the health status of their citizens.

White Alaska, with a relatively young, vigorous, generally urbanized population, shows a record of life-expectancy as favorable as that in the majority of the states. Its problems are those of every new and growing country. There is a substantial amount of migration — in and out — because of seasonal employment and the tourist trade. It has few social and cultural institutions.

It needs economic incentives to attract more permanent settlers. Citizen interest in its political, economic and physical development often is frustrated by the combination of absentee ownership of its natural resources and absentee government of its local affairs. The health problems here are essentially political, administrative and fiscal.

In tragic contrast, the indigenous peoples of Native Alaska are the victims of sickness, crippling conditions and premature death to a degree exceeded in very few parts of the world. Among them, health problems are nearly out of hand. If other Americans could see for themselves the large numbers of the tuberculous, the crippled, the blind, the deaf, the malnourished and the desperately ill among a relatively small population, private generosity would dispatch shiploads of food and clothing for Alaska alongside the cargoes setting out for Korea; doctors and nurses would be mobilized and equipped with the urgency of the great hospital units in wartime; the Alaskan missions would not need to beg for support. Flood victims in Europe and famine victims in India are the prompt beneficiaries of generous United States Government assistance, but our own year-in-year-out victims of hunger, disease and exposure are unpublicized and still "far away."

Up to now the Alaskans have been denied the opportunity of securing better health services for themselves, since this type of practical self-help cannot be dissociated from economic self-sufficiency and freedom of political action, at least on local issues. With the great bulk of its natural resources — 98 percent of its land area owned by the Federal Government — not subject to local taxation, with the great proportion of its industry owned by non-residents uninterested in the development of the Territory, the obvious result is dependence upon the Federal Government.

Federal-Territorial Relationships.

Within the traditional concept of federal-state relationships, it seems an anomaly to find a large federal agency administering direct community service. Yet this has gone on for nearly a century in the states where there are substantial numbers of American Indians. It is merely more conspicuous in Alaska where the proportion of aboriginal peoples is so much larger in proportion to the total population.

The Alaska Native Service (ANS) is the operating arm of the Bureau of Indian Affairs, Department of the Interior. Its legal basis rests upon the treaty with Russia for the purchase of Alaska in 1867 which stipulates that the United States will provide for the aboriginal populations the same care and protection as that afforded to indigenous tribes in this country. For many years Native Alaska was the domain of the ANS, whose program contained almost nothing in disease prevention or control because of the overwhelming need for immediate medical care of patients with ever-recurring and frequently preventable diseases.

The Alaska Department of Health (ADH) has been occupied with White Alaska and its more familiar problems such as communicable disease control, public health nursing, municipal sanitation and the control of industrial wastes. Only in fairly recent times has there been any

indication that the two agencies operating separately realized that they were failing to meet the total health needs of Alaska, in spite of relatively high expenditures by both.

That ANS and ADH are beginning to appreciate their interdependence is shown by the increasing number of contracts and agreements negotiated between them for mutual services; although some of the contracts are unduly complicated due largely to bureaucratic restrictions.

Partly through ANS funds provided to the ADH under contracts and agreements for services to natives, the base of health activities in recent years in Native Alaska has been somewhat broadened. This broadened base has been made possible also by a special "Alaska Grant" made by the Congress annually since 1948. Field activity is fairly extensive in tuberculosis control, maternal and child health, care of crippled children, and public health nursing and is largely within the domain of the ADH. Medical and hospital care continues to be the main preoccupation of the ANS. Environmental sanitation, health education, nutrition and preventive medical services for the natives continue to be a "no man's land" where little if anything is done.

We place particular emphasis on better coordination of the two programs. Later chapters cite repeated examples of waste and inefficiency because there is so little coordination now. The bulk of the six million dollars now spent annually for health services by the two agencies is devoted to native problems.

The inordinate costs of doing business of any kind in Alaska can be appreciated only by those with knowledge of its climate, terrain, vast distances, scattered and isolated communities, weak systems of transportation and communication, and its precarious economy, at present based chiefly on military expenditures.

Second only to the unanimity of feeling as to the need for reform in the procedures for committing the insane, among well-informed and public spirited Alaskan citizens the opinion heard most frequently was the desirability of pooling the resources of these two principal health agencies and placing them under a single administration. If effected wisely, there is no doubt but that such a merger, would result in more services more economically rendered because of unified policy and simplified administration. To accept this point of view in principle, however, is one thing; to put it into effect is quite another. It will require careful appraisal of myriad administrative details and precise planning for the orderly sequence of transition. Even more fundamental to its success is willingness on the part of both the Territorial and the Federal Governments to remove traditional barriers from the road ahead.

The first requirement will be to abandon the time-worn, outdated and irrational concept that federal responsibility is in some peculiar way measured by the amount of "native blood" flowing through a person's veins; and instead, to accept the concept first, that all citizens of Alaska are entitled to the fullest opportunity for health care that can be provided, and second, that for the years immediately ahead, this total responsibility, in its public aspects, must be shared equitably between the Federal and Territorial Governments. What the federal share should be in the future will depend upon what proportion of Alaska's resources, now withheld, are released to Alaska for her development. At present federal contributions are too low; also many federal restrictions

are too onerous for any "non self-governing territory" to endure without protest. Unless these points of view are fully accepted and become a clear element of public policy, the bureaucratic roadblocks thrown in the path of orderly progress and consolidation may well be insurmountable.

Underlying Considerations.

In accordance with the provisions of our contract with the Department of the Interior, we studied not only the health services and programs of Alaska but also those related situations which condition health functions.

Every thoughtful person knows that health cannot be acquired or maintained in an economic or social vacuum, Man has elemental requirements at a higher level than brutish survival. Food, clothing, housing, availability of professional skilled health services, education to create some understanding of the conditions underlying health and disease and some motivation for improving them — these, taken together, constitute the sine qua non of positive health, which is much more than the absence of disease. In these terms, the health security of many Alaskans is precarious; that of the natives is critical.

At this point, two questions are obvious: First, is the rapid but orderly development of Alaska sufficiently important to the national interest to require from all responsible branches of the Federal Government a sustained and consistent policy to strengthen the Territory? Second, is it national policy to save the 35,000 natives now on a marginal or sub-marginal subsistence level?

These questions may exceed the limits of an academic health survey but are basic to a practical solution of Alaskan health problems.

In terms of his productive life or his degeneration and death, the more urgent of these questions concerns the native. Upon him falls the greatest burden of preventable disease, unnecessary crippling and premature death in all Alaska.

In terms of building the potential of Alaska to stand on its own feet and assume in time the capacity to deal with all but emergency problems, the first question is urgent. Upon its answer depend the alternative consequences of the increasing dependency and vulnerability of the most sensitive area on our national frontiers or its capacity to increase productivity and participate actively in its own defense and ours.

Some Basic Recommendations.

All of the recommendations in this Chapter rest on the premise that every Alaskan is entitled to the same assurance of life and health which is inherent in the citizenship of every state. For the Alaskan, as any citizen, such assurance can be fully realized only through the political and economic stability of his homeland. As fundamental steps toward improved health status, we urge:

1. That Alaska as a whole be given more of its own resources to further its health and economic development.

2. That for its public services generally, it seek diversification of fiscal support, and a greater degree of administrative consolidation.
3. That the continuing partnership with the Federal government impose fewer restrictions upon Alaska's powers of conducting its local affairs.
4. That Alaska acquire more effective local political instruments for public health and related public services.
5. That the plight of the native be understood for what it is — the slow death of once proud and self-sufficient races. To survive they need health care, food and housing; to become self-respecting men and self-sufficient citizens they need education, employment, vocational and professional training to supply at least their own community services and increasing opportunity to participate in public affairs.
6. That more hospital beds and more personnel, especially physicians and dentists, be provided promptly to meet the present acute needs of the native population.
7. That personal and economic incentives, to the extent possible and feasible, be provided to encourage the permanent settlement of natives in communities of such size and accessibility as to afford educational and health services.
8. That insofar as it bears on public policy, the concept be accepted that food is medicine. No opportunity should be lost to utilize available food to strengthen native resistance against the diseases to which he is now so vulnerable.
9. That the personnel problem be met with candor and courage. Shortages of personnel characterize the situation in the health agencies. They have not demonstrated an ability to recruit and retain the requisite professional staff. The only permanent solution of the problem is to make conditions of employment competitive with those in the states in terms of salaries, opportunities for professional growth, and general working and living conditions. In the meantime, it is important that arrangements be worked out for the fullest possible use of military personnel, consistent with military needs, particularly to help staff the institutions.
10. That there should be constant alertness to opportunities for improving Alaskan health through other agencies than Alaska Native Service and Alaska Department of Health. The establishment of an effective planning body on a Territorial-wide basis should be encouraged to deal with such matters as:
 - (a) The strengthening of welfare services under a single administration, with more active participation of the ADH in health and medical care aspects; adoption of standards and practices of eligibility, benefits and payments that are uniform for all Alaskans and not stratified into native and non-native categories.
 - (b) The expansion of vocational rehabilitation services and bringing them into intimate relationship with health centers and hospitals, especially the larger hospitals in Anchorage and Mt. Edgecumbe.

- (c) The use of public education facilities including the University of Alaska, to bear more directly upon the health needs of the Territory through such programs as health instruction, school lunches, and extension activities. In the laudable efforts of the Territory to take over gradually the educational responsibilities of the ANS, the new teachers in the Territorial schools should not abandon the valuable non-academic functions previously carried on by ANS teachers until native competence has been developed to deal with them.
- (d) The encouragement and further development of the National Guard, exploiting its health potentials through instruction in health, first aid, sanitation and community leadership.

Emergency Actions.

In Native Alaska where, understandably, the need for treatment of acutely sick people has been so great over the years that no real beginning has been made in improving village sanitation or on public health programs to prevent a large proportion of the prevailing diseases, careful plans should be laid for an all-out attack on tuberculosis, chronic eye and ear diseases, infant mortality, dental diseases and malnutrition.

Environmental sanitation (safe water, proper disposal of sewage and hygienic housing) utterly lacking in the villages, is a powerful instrument in eliminating to a considerable degree the causes of much sickness and many deaths. On this sector, the first and most important step is for a well trained and properly oriented field staff to get service programs under way. The trained native would be invaluable in this type of service.

Tuberculosis is the Alaskan scourge. Only by a "crash" attack carried on with increasing intensity during the next five years will it be possible to break the back of this Number 1 killer of young men and women andcrippler of children. Such a program involves not only the full-scale employment of all proven methods such as systematic case finding, the hospitalization of every person needing it, but the immunization of infants and the extensive use of anti -tuberculosis drugs which are widely used in the states to break the chain of infection.

Dental disease is practically universal among the natives. To combat it effectively requires a field staff of enough dentists and ancillary personnel to provide necessary treatment and a program of prevention directed at the younger groups. Through fluoridation, nutrition and education the problem can be whittled down to more manageable proportions in another generation.

Malnutrition, if not a disease in itself, is a major physical handicap and contributes to disease. There is no doubt but that it is a major factor in tuberculosis and in dental decay. It is often a factor in infant mortality, Building upon the exceptionally well-administered but limited experience in the-use of surplus foods during the past year in Alaska, an extended program making full use of the huge surpluses glutting the American market would prove itself a potent

weapon in the fight against disease. *Food for health*, however, may have even greater efficacy in the prevention of disease.

Health education is, perhaps, one of the most significant factors in the attack upon all illness. Responsibility for it should never be relegated solely to an ancillary worker. Alaska is no place for the fragmentation of specialties. Every doctor, every dentist, every nurse, every teacher and every technical assistant has the responsibility and should have the capacity to promote health education as a vital part of the professional task.

Mental disease, *per se*, is not a major health hazard in Alaska, although the unduly high incidence of homicide, suicide and alcoholism reveals distressing aspects of instability. Not the all-out attack, as upon tuberculosis, is indicated here, but bringing up to civilized modern standards the inhumane and archaic procedure for the diagnosis and commitment of the mentally ill. If properly presented, well-timed and strongly supported, a modern commitment law should be passed in the next session of the Congress. In addition, responsibility for administering present laws dealing with the care of mentally ill Alaskans should be transferred to the Public Health Service, a procedure consistent with the rationale of Public Law 568.

Alaska continues to be a costly dependent because the rest of the country has been improvident and short-sighted about Alaska. The Congress has not been ungenerous; but federal policy through a succession of administrations has been vacillating and unpredictable. Excellent programs have been initiated only to be stopped short of fruition because of lack of funds, lack of efficiency, lack of personnel, loss of interest at Washington or any combination of them. Until we correct glaring injustices to the most vulnerable and potentially most valuable asset, *Alaska is unfinished business*.

Further Measures.

To deal realistically with the difficult but not insoluble problems of health, certain principles must be understood and certain measures not only undertaken but followed through:

- I. It must be made clear to the Congress that under existing conditions, the immediate steps toward the solution of Alaska's health problems are beyond the present fiscal competence of the Territory. As one spends money to make money in a promising business enterprise, in the long pull it will prove economical to the taxpayers of the United States to invest the funds necessary now for shifting the balance in favor of human survival during the immediate critical struggle with disease and death.
- II. If waste of resources and effort is to be averted, it is necessary to abolish such artificial criteria as "preventive vs. curative" or "white vs. native" as the dividing line between Federal and Territorial obligations for health. Neither the ADH or the ANS can remain aloof from the necessity to supply services in sanitation, health education, preventive medicine and nutrition in Native Alaska where there is a concentration of need; neither can ignore the human need for dental service, medical care and hospitalization.

- III. Professional skills, in addition to those of public health nursing, must be utilized in the field to a much greater extent and deployed for accessibility to the native communities. The total task of the nurse and the teacher is beyond their own professional competence. Community programs must achieve reasonable balance, employing the services of medicine, nursing, dentistry, engineering and education, with full citizen support and participation.
- IV. Organizational adjustments on the part of both the ADH and the ANS are necessary. With the passage of time the pattern recommended here may require further modification; measures needed in the immediate future include:
- A. Subdividing Native Alaska into six Health Service Districts, five of which would comprise the natural trade areas for ANS hospitals at Point Barrow, Kotzebue, Bethel, Kanakanak and Tanana; the sixth, the area served by the hospital and health center at Nome.
 - B. Designating each of these hospitals as the center or headquarters for its respective district, and staffing each with persons having as minimum, the skills of medicine, dentistry, nursing (hospital and public health), sanitation, and health education. With the possible exception of Nome, where the hospital is not under official auspices, each should have a minimum of two physicians, one of whom should serve as director of the total District program.
 - C. Providing sufficient field personnel, especially dentists, nurses and sanitarians, with travel budgets adequate to permit service in keeping with the needs of the villages, and providing reasonable amenities, including offices in or adjacent to the hospital, and the best possible living accommodations at a reasonable cost to personnel.
 - D. Improving personnel policies as to salaries, promotions, work conditions, living conditions, professional advancement, leave and recreation. This will make it possible to recruit and to retain more competent people for remote and isolated posts.
 - E. Once the District is staffed and its program and budget approved in broad outline in Juneau, **authority should be given to operate with a maximum of discretion.**
 - F. Developing the two larger hospitals at Anchorage and Mt. Edgecumbe into real medical centers, in order to provide more highly specialized care as well as to give professional leadership to the peripheral field installations.

Alaska's Own Tasks.

The preceding [sic] recommendations call for some measure of joint action between Alaska and the Federal government. There are, however, certain urgently needed steps that should and

can be taken by Alaska on its own behalf. While explained in more detail in the chapters which follow, a few are summarized here:

First, the public health laws of Alaska should be codified, and new legislation enacted: (a) to grant licensing authority to the ADH for dealing more effectively with problems of environmental sanitation; (b) to prohibit commercial prostitution; (c) to liberalize employment policies in terms of salaries and other inducements so that more competent personnel can be recruited and retained; (d) to strengthen the system of vital statistics registration; and (e) to create more effective local jurisdictions for local health services.

Second, the fine work of voluntary and religious agencies should be encouraged in every way possible. At the same time it must be brought into and kept in close concert with official programs, especially those of health, welfare and education.

Third, the ADH should change its current pattern of over-centralization to the practical minimum of decentralization.

Fourth, planning bodies, broadly representative, on Territorial, regional and local bases, should be created and used as instruments for the more effective mobilization of resources to meet health needs.

New Tasks of U. S. Public Health Service.

It was not until shortly after our return from Alaska during the current summer that Public Law 568 was enacted transferring the health activities of the Bureau of Indian Affairs (including those of the ANS) to the Public Health Service. It had the support of the two Departments involved and was strongly urged by the Governor of Alaska. This law was particularly timely. It was welcomed warmly by Alaskans because by far the largest expenditures for health services (those of the ANS) become the responsibility of an agency exclusively concerned with public health, with a long experience in joint federal-state health enterprises. Hence, the prospects should be enhanced for closer collaboration and earlier unification of federal and territorial health services.

Although the transfer does not take place until July 1, 1955, it would seem important that budgets for the fiscal year 1955 -56 take into consideration the facts presented and suggestions made in this report. Many details of planning for the change of administration in Alaska need to be started at the earliest possible date to ensure smooth and orderly transition.

In planning the programs, the advice of Alaskans — especially native Alaskans — and of others who are especially knowledgeable concerning Alaska conditions would be particularly valuable.

One of the more complicated programs involved is at Mt. Edgecumbe, where hospital care and formal education now are intimately related. It is urged that the great value of this close working relationship be kept constantly in mind during the transition, and that every effort be continued to strengthen it.

As the Public Health Service, by reason of newly acquired responsibilities under Public Law 568, moves into closer partnership with the Territory, it should keep constantly in mind both the need and the opportunities for upgrading its field and institutional programs, both the new and old. By developing outstanding medical centers in Anchorage and Mt. Edgecumbe, with close integration of the several smaller field centers; by the creation of health service districts in which the total health needs of the people define the limits of the job; by utilizing the special resources of the Arctic Health Research Center for problems requiring special research and demonstration; and by working and planning in close collaboration with the ADH, the USPHS will be able not only to advance Alaska's health directly, but to translate this experience for the advantage of other peoples, especially in "underdeveloped countries" where many of its personnel are assigned.

General Conclusions.

The Territory as a whole is currently a military economy; it is underpopulated and underdeveloped. It still shows the scars of an exploited colony. Despite many enlightened citizens who have demonstrated competence repeatedly in the art of good government, it is in the position of enforced dependency upon the Federal government for its social, economic and political life. A fifth of its population, through no fault of its own, is economically depressed, culturally unstable, socially insecure and riddled with disease.

Alaska's health and well-being is purchasable. The Territory is blessed, moreover, with unique and diversified resources (mineral, forest, water, land, sea, scenic and recreational). The wise use of these resources can build its strength.

It is understandable that members of the Congress, hard-pressed by their own constituents, should fail to give top priority in its crowded sessions to the problems of non-voting Alaskans thousands of miles away. They maintain no powerful lobby to present their case in Washington. In the interest of preserving the national honor and conserving the national wealth and safety — for without effective manpower in our northernmost outpost, Alaska is our Achilles heel — the Departments of Defense, of Interior and of Health, Education and Welfare, by whom Alaska's acute needs are known so intimately, must press Alaska's cause before our highest legislative body.

Several members of our study group have participated actively in the important task of bringing aid to the "underdeveloped countries." It has been a rewarding experience to see firsthand what American technical skills, intelligently adapted to the specific objective, can do to invigorate and upbuild hapless, hungry, dying people in foreign lands.

We believe sincerely in what our program of technical assistance is doing and attempting to do to make friends and allies for the United States. We believe sincerely also that the United States will stand in greater honor in the free world if we practice what we preach to other nations and if we apply our technical skills more fully to the grave problems in our northern backyard.

Alaska is unfinished business. It is our laxity as citizens which is reflected in Congressional indifference. There has been tolerated for too long the disgraceful burden of disease we know how to prevent. In health, as in their many other human problems, we must help Alaskans to help themselves.

CHAPTER II

The land and the people

Introduction

It is difficult for the uninitiated to know or to understand Alaska. One cannot really know the country until he has flown the "bush" lines and watched the beautiful and sometimes monotonous landscapes unfold endlessly below; or until he has visited a "rat" camp and observed native muskratting operations; or until he has conversed with a wise old Eskimo whose friendliness and honesty are concealed under a leather-like mask.

It has been said of Alaska that it is "too big to be little, and too little to be big." It is a strange yet essential truth that Alaska should embrace these two opposing qualities. Even stranger, perhaps, is the fact that frequently the same characteristics which make Alaska big also tend to make it little.

Nothing in Alaska — certainly not its public health — can be isolated and discussed as a separate entity. The Territory is diverse, each phase of its life and economy closely interrelated and each dependent upon the other.

If public health is to be viewed in its proper perspective, it is essential that it be viewed against a background of the many factors which contribute to the lack of it or to its availability, to its failure or to its success. With that thought in mind, this description of the land and the people is presented in the hope that it will help make Alaska and its peculiarities more understandable.

History

Historically speaking, Alaska goes back some 200 years, to a time when most of western North America was an uncharted wilderness. While a few hardy bands of people clung tenaciously to claims they had staked out in the eastern portion of the shiny New World, a group of Russians were staking out another claim far to the west and north.

That claim was Alaska and the Pacific northwest. The Russians, who started from St. Petersburg in 1725, were led by the Danish sea captain, Vitus Bering. It was mid-July 1741, on his second voyage, that Bering, seeking the legendary Northwest Passage in reverse, was the first white man to discover Alaska. When his party returned — Bering died of scurvy en route — and told of the riches that were available in "Al-ay-ek-sha," the Russians were not long in capitalizing on their new find.

Russian traders and trappers moved into the region, systematically exploiting the new country. Moving up the Aleutian Chain, they depleted the country of furs, practically exterminating the sea otter. They enslaved the Aleuts and made war on the Indians. Thus did the

Alaska native have his first taste of the white man's civilization and exploitation. Unfortunately, it was not to be his last.

Alaska Under the United States.

By the long sea routes or overland by covered wagon, on horseback or afoot, restless America had pushed westward. The glitter of gold at John Sutter's mill in northern California — not long before it was Russia's southernmost trading post — had carried our already bulging western frontier to the Pacific Coast.

Russia, which brought disease, civilized poverty, waste, and racial intermixture as well as some religion and culture to Alaska, and was to leave her mark indelibly on the countryside and the people, was ready to liquidate her North American holdings in order to prevent them from falling into Britain's hands. After lengthy negotiations between the Czar's representatives and the controversial Secretary of State, William H. Seward, formal transfer of Alaska to the United States was made on October 18, 1867, for the sum of \$7,200,000, or about two cents an acre .

Once it was known that the United States had bought Alaska, a vast hue and cry sprung up all across the land. Fueled by Seward's political and journalistic enemies, Alaska soon became known as "Seward's Folly," "Walrussia," or "Icebergia." When the brief tumult died, the United States tucked Alaska away and forgot it. From the time of Seward's purchase in 1867 until 1884, Alaska had no real government. Law and order were maintained by whatever governmental unit — if any — happened to be on hand. variously the United States Navy. the Army and the Treasury Department; on one occasion, two of His Majesty's ships were the only source of law and order.

In 1884, Congress passed an Act creating the District of Alaska, providing for a Governor, a district judge and four lesser judges (commissioners).

This brought Alaska under the jurisdiction of the Secretary of the Interior, who was given special powers to watch over mining claims and to educate the children with an authorized appropriation of \$25,000 annually. Capital of the Territory was still at Sitka where it had been under Russian rule. At long last, Alaskans could legally marry; they could acquire, transfer and deed property; and they could legally punish crime.

And, as Hully says in his *Alaska, 1741–1953*, "Under the act of 1884 Alaska became in some measure a political preserve for the payment of small debts owed by big politicians to little ones."

Alaska's Rediscovery.

Alaska was dramatically rediscovered in the late 1890's. Gold brought prospectors into the Territory by the thousands. With them came others, some to stay and help settle Alaska, many others to turn a quick fortune and return to the States.

Of those who came, whatever their motive, relatively few were successful. Meager grubstakes quickly ran out and hundreds of fortune-seekers found themselves stranded and penniless in an unfriendly climate. Villages and towns, spawned of the raucous lawlessness of the boom, sickened and died almost overnight, the quiet throes of death more merciful than the noisier pangs of birth. Only a few remain today, stark and dramatic symbols of this, the most colorful and lusty period of Alaska's history.

Alaska was given a criminal and civil code to help cope with the rush for gold and subsequent problems. In 1906, Alaska was given permission to elect a delegate — voteless — to Congress. On August 24, 1912, Congress passed the Organic Act and Alaska had its own Legislature. With this Act, Alaska became a territory and Juneau became its capital.

Hampered as it was by Congressional limitations, this first Legislature passed some good and liberal laws. Its first act when it convened in 1913 was to enfranchise women — an action which didn't come in the States until seven years later. The law-making body couldn't make any basic land laws; had no voice in regulating fisheries or wildlife; could incur no indebtedness nor bond itself without prior consent of the Congress; and was not allowed to have its own judiciary.

Alaska Again Rediscovered.

Alaska was due for yet another "discovery," after the Japanese attack on Pearl Harbor in 1941, when this country had its back to the wall.

General William "Billy" Mitchell had once declared, while pleading the cause of air power: "He who holds Alaska holds the world." His declaration went unheeded. Perhaps the full truth of his statement is debatable, but the strategic importance of Alaska in defense of the United States was to be brought home with devastating force and Mitchell's words were to return to haunt us.

As late as 1939, only one military installation existed in the Territory of Alaska, and that an obsolete post dating from the gold rush days located near Haines at the upper end of the Inside Passage on Alaska's southeast coast. It was manned by 200 Americans without benefit of a machine gun or antiaircraft piece, depending for mobilization upon a harbor tug more than 50 years old.

Then in June 1942, Alaska was dramatically rediscovered, this time by the Japanese. The Rising Sun emblem waved over Kiska and Attu Island in the Aleutian Chain — an enemy was on American home soil. The United States, heretofore lethargic, swung into belated action and quickly fortified Alaska with a modern defense system.

That war may have some beneficial results is proved without doubt in Alaska. As then Governor Ernest Gruening put it in 1951: "The role of war as the great destroyer is familiar to everyone, but less has been said of war as the great constructor. Needed physical improvements, the acceleration of vital research, important inventions, the development of new surgical and medical remedies, all are speeded by war — a sad commentary, no doubt, on our 'civilization'."

Alaska Looks to the Future.

There can be little doubt that Alaska is on the threshold of a new day, moving from a phase described as transient to one featuring permanence. A whole generation of Alaska-born enthusiasts is growing up and newcomers arriving have far different purposes in mind than did their predecessors in the late 1890's.

And World War II did much for Alaska. It brought new and modern airfields, new facilities for communication, new people and many modern improvements. A network of roads was developed in the interior, some industries were established that do not depend upon a seasonal product for operation, and other important developmental programs were started.

Alaska is expanding on the legacy of war, doing the best it can to provide a sound basis for its own future. The next several decades of Alaska's future contain many imponderables. How bright the future is depends to a great extent upon the ability of the Territory and the people to control and develop their own resources, enabling them to provide a sound, economic base, decent housing, safe food and water supplies, proper sanitation, and adequate health care at reasonable rates.

Geography

Physically, Alaska is both beautiful and monotonous. Largest peninsula on the North American continent, it varies from the endless tundra "plains" of the Arctic Slope to the magnificent Mt. McKinley, highest mountain in North America towering more than 20,000 feet in the northern sky.

A vast landmass area approximately one-fifth the size of the United States, Alaska consists of about 586,400 square miles and has a coastline of about 34,000 miles, almost three times that of the United States.

Superimpose a map of Alaska on a similar-scale map of the United States and the Territory's size and dimensions become clearly evident. Alaska covers our great Midwest — all of Wisconsin, Illinois, Minnesota, Iowa, Missouri and Kansas, half of Nebraska, South Dakota and North Dakota.

Alaska's northernmost tip, Point Barrow, extends a few miles into Canada above Duluth; the Aleutian Chain dips down into northern Mexico and continues on until the western tip rests on the shores of the Pacific Ocean midway between Los Angeles and San Francisco. Alaska's southeastern coastal area extends down to Charleston, South Carolina.

Despite its huge glaciers and snow capped mountains, Alaska is not a frozen wasteland, but features a wide range of topographic and climatic conditions which support a varied pattern of agriculture, industry and other sources of livelihood.

For purposes of this discussion, Alaska can be divided into three major geographic regions — the Pacific Mountain region, the Central Plateau region and the Arctic Slope region. Later in dealing with Alaska's health problems, we discuss the country as comprising two separate and distinct areas — two "worlds."

Pacific Mountain Region.

This region extends from Ketchikan in the southeast to Attu Island at the far end of the Aleutian Chain. The Pacific Mountain Range breaks into two branches at about the Canada-Alaska demarcation line, one branch going down the Kenai Peninsula and coming up again as Kodiak Island, the other forming the Alaska Range which extends all the way down the long and desolate Aleutian Chain.

The southeastern coastal region is a labyrinth of inlets, fiords, islands and passages. Villages are isolated by landmasses, many of them backed up against rugged mountains which seem to rise up directly out of the sea to their snowy heights. Here are found the great forests of spruce, hemlock and cedar; here too is the world's largest salmon-packing center at Ketchikan, and the Territorial capital at Juneau. Other major population clusters are Wrangell, Petersburg, Skagway, Sitka and Haines.

The southcentral section of Alaska contains some of the Territory's highest mountains, rising 15,000 feet and more, among them Mt. McKinley in the Alaska Range. There are rather extensive agricultural endeavors underway here producing a wide variety of products. Here are the cities of Valdez, Cordova, Anchorage, Seward and Palmer; and here too are the beginnings of Alaska's two great land routes to the interior, the Alaska Railroad and the Richardson Highway.

The southwestern portion of the Pacific Mountain region includes the Alaska Peninsula, the Aleutian Islands, Kodiak Island and the Bristol Bay area. The Alaska Peninsula extends down into the Pacific Ocean and finally becomes the Aleutian Islands which continue like a chain of stepping stones far out into the ocean to a position further west than Hawaii's and directly north of New Zealand. They are largely uninhabited, trees are non-existent and the only vegetation is moss, grass and bush.

Tucked close to the underbelly of Alaska is Kodiak Island, a green garden spot largely undeveloped, the home of the Kodiak bear — the great Alaskan brown bear.

In the Bristol Bay area there is a great salmon-fishing industry. To the west are the deltas of the Yukon and Kuskokwim Rivers which drain a large share of the Alaskan interior. The population is predominantly native, living in small scattered villages usually near the coast or a river. Inland from Bristol Bay, the countryside is somewhat wild and still relatively unexplored. Largest communities in the southwestern area are Kodiak, Unalaska, Bethel, Dillingham and Naknek.

Central Plateau Region.

North from the Alaska Range to the Brooks Range, and from the Canadian Yukon Territory to the Bering Sea lies the vast Central Plateau of Alaska. A broad expanse of plateaus and

lowlands, it is dotted occasionally by mountain groups and drained by such large rivers as the Yukon, Kuskokwim, Porcupine, Tanana and Koyukuk.

Much of this country has an elevation of 300 feet or less. The soil supports trees, shrubs and a widely dispersed population. The subsoil, however, is permanently frozen — the permafrost — throughout most of the region from a depth of a few inches to several feet.

Facing Siberia across the Bering Strait is the Seward Peninsula, a major gold-mining area of Alaska. This is an area of short summers and long winters. Access by the sea is possible only during four months of the year because ice conditions prevent ocean navigation the remainder of the year.

There are few population centers in the Central Plateau Region of Alaska, Fairbanks being the hub of activities in the interior, and Nome the population center of the gold-mining activities on the Seward Peninsula.

Arctic Slope Region.

North from the Brooks Range to the Arctic Ocean is the Arctic Slope region — bleak, barren and deserted, a generally unpleasant area. This is the Alaska which can be found in most people's imaginations. It is the land of the tundra and lakes, the treeless plain [sic], broken here and there by rugged mountains, and is strictly isolated by weather conditions a good portion of the year. The larger Eskimo settlements are the coastal villages of Barrow, Wainwright, Point Lay, Point Hope, and Kotzebue.

General Climatic Conditions

As great as are the differences in Alaska's terrain, so too are there great differences from one area to another in climate and rainfall.

In southeastern Alaska, for example, temperatures are moderate with relatively narrow seasonal ranges. Summers are cool and winters mild. A heavy annual rainfall — averaging as much as 150 inches — nourishes the forests and feeds the salmon-carrying streams. This weather description holds fairly true for the southcentral region too, although the latter has less rain and its winters are colder with much more snow.

Compare this with seasonal ranges of Alaska's interior plateau. Featuring hot summers and very cold winters, this is the region of temperature extremes. Fort Yukon, for example, has recorded 100 degrees above zero and 78 degrees below; Fairbanks has reported 99 degrees above and 66 below. This region has little precipitation, usually averaging about 15 inches annually, giving it a semi-arid climate.

Down the Aleutian Chain, fog and low clouds dominate the summers, and in the winter high winds and storms sweep the islands every four or five days. There is heavy rainfall in the Aleutians and summer temperatures are moderate.

On the Arctic Slope, the climate is cold and dry. Barrow has about five inches of annual precipitation — mostly snow — and usually records snowfall in some degree each month of the year. Barrow has a mean January temperature of -17 degrees, and the ice breaks up only enough to allow ocean shipping for about six weeks during the summer.

Generally, Alaska's climate surprises visitors, who expect the Territory to be very cold with heavy snowfall. The southeast portion of Alaska has been compared on a year-round basis to Seattle, and the interior to Montana or the Dakotas.

Temperature Effects on Health.

Where Arctic and sub -Arctic temperatures prevail, however, they have profound effect upon health in Alaska. These effects are both direct and indirect, and the indirect effects perhaps being of greater magnitude and more far-reaching.

The most serious direct effect upon public health is the difficulty encountered in providing housing and heating and maintaining safe water supplies and efficient waste disposal systems as a result of the permafrost.

Less directly, perhaps, but in nonetheless real fashion, temperature affects health by permitting seasonal employment only; by limiting the agricultural potential both in quantity and diversity to only a fraction of that needed for a balanced economy; and by creating seasonal and sometimes unpredictable levels of food shortages .

Temperature also limits transportation and communication to such a degree as to enforce upon many communities excessively long periods of isolation. These communities are thus removed from the usual flow of commerce, and are therefore deprived of the advantages of fresh food supplies and prompt, effective and efficient health service.

Resources

Opportunities for economic development in Alaska appear to be good because there is believed to be available a vast, valuable and relatively untouched supply of natural resources in the Territory. Our discussion of resources here utilizes statistics and other material from the Alaska Development Board, the Alaska Field Committee, the Alaska Recreation Survey particularly.

Fishing.

Largest industry in Alaska is fishing and fish processing. The total value of all fisheries products prepared for market since 1867 is over \$2,000,000,000. Annually, the product is worth approximately \$100,000,000, about 85 percent of which can be traced to one type of fish — the salmon, The salmon catch has dropped off appreciably over the past several years, which has

dealt a severe blow to the economy. However, Alaska has other commercially important fish including the halibut, herring and cod.

The fur seal, hunted almost to extinction once but now repopulated on Pribilof Islands through federal conservation programs, is the only sea mammal remaining in Alaska's waters that has commercial value.

Estimates show that perhaps as many as 30,000 people are seasonally engaged in commercial fishing and fish processing activities in Alaska. And, on a non-commercial basis, fishing supports a large segment of the native population because it provides food for the individual and the village.

Minerals.

Although the Territory has not been explored extensively by qualified geologists, many believe that Alaska may be a huge, untapped reservoir of minerals. Significant mineral resources listed by the Bureau of Mines as existing in Alaska are antimony, asbestos, barite, chromite, coal, copper, fluorspar, garnet, gold gypsum, iron ore, jade, lead, limestone and marble, mercury, nickel, petroleum, platinum, sand and gravel, sulphur, tin, tungsten and zinc.

Since its purchase from Russia, Alaska has produced about \$1,000,000,000 worth of minerals, most of this being gold and copper. Gold has been the principal mineral by far, accounting for over two-thirds of the total mineral production.

Prior to World War II, minerals were Alaska's second largest source of income. Mining practically ceased during the war, however, and is just now beginning to recover some of its pre-war status.

Known mineral deposits in Alaska are hard to reach in many cases and expensive to produce. Although there is little doubt that a mineral era is in the Alaskan future, the high transportation and labor costs may retard it for some time. However, the Alaska Development Board points out that a 100-ton-a-year tin plant is to be doubled in size; an investment of \$500,000 is being made to produce chromite; and an annual output of 1,500,000 tons of coal annually should be reached by 1954.

Iron ore is being exhaustively studied as is petroleum. A number of oil companies are currently interested in Alaskan oil possibilities, and several millions of dollars have already been expended in the search for petroleum. Between 1944 and 1953, the United States Navy carried on extensive explorations on its Petroleum Reserve Farm which is 37,000 square miles in area. The production of gas and oil may one day be a leading Alaskan industry.

Rachel Louise Carson, in her book, "The Sea Around Us," says in part: "There are vast oil deposits in all these areas ... The Arctic is one of the unproved frontiers of the petroleum industry, but oil seepages in northern Alaska, on islands north of the Canadian mainland, and along the Arctic coast of Siberia hint that this land recently raised from the sea may be one of the great oil fields of the future."

Agriculture.

Although Alaska: will probably import somewhere near 90 percent of its foodstuffs from the United States, agricultural production is increasing and some outstanding experiments are underway.

Of Alaska's land area — about 365,440,000 acres — only about 2,000,000 are suitable for cultivation. In 1949, about 15,000 of these acres were classified as croplands, and only about 7,000 of these were actually yielding crops according to the Alaska Field Committee.

Limiting Alaska's agricultural potential are a variety of factors, including permafrost which covers perhaps 60 percent of the Territory, inhospitable topography, adverse soil conditions, and short growing seasons in much of the territory. Agricultural areas which produce outstanding crops and which have helped make Alaska known as something other than a land of snow and ice are found in the Matanuska Valley, the Tanana Valley and the Kenai Peninsula.

Products of the Alaska farms are oats, barley, potatoes, cabbage, rutabagas, berries, and hardy vegetables. Some livestock — mainly dairy cattle and chickens — is raised.

Current research into the problems of production and marketing will be of benefit to Alaska's agricultural future, but farming will probably never be one of the basic industries of the Territory. Greater population, however, would probably be an inducement to more production for local markets.

Forests.

About 60 percent of Alaska is covered by forests. The interior forests are chiefly spruce, birch, cottonwood aspen and larch, and it is estimated that the stand of board feet numbers about 350,000,000,000.

Alaska's coastal forests in the southeastern section are contained almost totally in two national forests, the Tongass and the Chugach. They are estimated to contain about 85,000,000,000 board feet. Forests here are chiefly hemlock, spruce and cedar.

The forests, perhaps, offer Alaska its first, major industry not dependent upon a seasonal product. A new multi-million dollar pulp mill has just opened in Ketchikan which will eventually employ some 750 people and support an overall population of 3,300 in the immediate area. A new plywood plant at Juneau will employ 120 people.

Timber ranks third behind fishing and minerals in Alaska's economy, the average value of sawmill cutting standing at about \$9,000,000. It has been estimated that Alaska could supply more than 20 percent of the total annual pulp requirements of the United States.

Because much of the forested portion of Alaska is near potential cheap power and transportation, it is expected that further extensive development of this industry will be forthcoming and will provide a much needed stable, year-round industry to the overall economy.

Water Power.

One of the strongest economic potentials in Alaskan economy is water power. In the coastal region of southeastern Alaska, where the mountainous terrain and heavy precipitation combine to form many short, swift-moving streams, a survey has shown there to be 200 potential water-power sites capable of producing an average output of over one million horsepower.

It has been estimated that the undeveloped water power resources in Alaska could generate a firm power output in excess of 50 million kilowatt hours per year. Before this resource can be developed, however, a great amount of investigation must be accomplished and a large amount of investment capital obtained. .

Several large corporations in the United States are interested in developing industries in Alaska because of close proximity of tremendous potential hydroelectric power.

Transportation and Communication.

Although improvements are currently underway in Alaska's transportation system, it still remains as one of the greatest deterrents to the Territory's economic growth.

Air transportation was developed early in Alaska. It provided Alaska's chief mode of transportation and has contributed much to its development. Passengers and freight are carried to all corners of the Territory by commercial airlines and bush pilots. Alaska is said to have some 1,400 pilots, 270 airfields and 30 seaplane facilities. In 1951, mail and freight flown within Alaska mounted to 8,610 tons, and intra-Alaska air passenger miles reached 80,564,000.

Alaska's first highway — the Richardson — was built in 1904, and since that time a well-conceived but limited network of highways has been constructed to connect the southcentral portion to the interior. The network connects the principal cities of Valdez, Anchorage and Seward with each other and with Fairbanks in the interior, and all with the United States and Canada over the Alaska Highway constructed during the period from 1942 to 1944.

Total highway system under jurisdiction of the Alaska Road Commission consists of approximately 1,000 miles of primary or "through" roads, 1,200 miles of secondary or "feeder" roads, and 1,300 miles of local roads. Most of these roads are not hard-surfaced, but such surfacing is underway or contemplated for the most important stretches of road by 1955. Most of the highways are kept open all year long.

There are two railroads in Alaska, both carrying passengers and freight. Together, they have a total mileage of 560. First railroad to be built was the White Pass and Yukon Route, beginning at Skagway and terminating at Whitehorse in the Canadian Yukon Territory. Only 20 miles of its 111-mile run is in Alaska.

The Alaska Railroad was begun in 1915, and completed on July 15, 1923. The railroad's main line runs from Seward to Fairbanks, a distance of approximately 470 miles, but total mileage with the road's branches is about 540. The Alaska Railroad played a major role in defense operations during World War II. It carried 15 times as much freight in 1952 as it did 20 years before, setting a new record of 1,355,080 tons.

Steamships of several companies carry passengers and cargo in and out of Alaska's many seaports, venturing as far north as Kotzebue during the summer and to the Alaska Peninsula in winter. There are no major dock facilities west and north of Seward. Altogether these steamships carried 39,020 passengers in 1952.

Some river transportation still is conducted in Alaska, on the Tanana, Yukon, Koyukuk, Innoko and Kuskokwim Rivers. River boats operate primarily to supply miners, missionaries, prospectors, traders, trappers, natives and fishermen along the waterways. They can run only from May until September of each year because of freezing conditions.

Alaska is well-tied to the outside world by telephone and telegraph service, both systems under the auspices of the Alaska Communication System established by Congress in 1900 and operated by the Army Signal Corps. Calls may be made to most points within the Territory by radiotelephone.

The radio is sometimes the only link these people have with the outside world, and most of the people in primitive Alaska are reasonably near effective radio contact with larger population centers. Alaska is perhaps one of the few areas in the world where medicine is practiced by radiotelephone. The school teacher in the remote village radios for instructions in treatment of specific injury or illness — often the only medical care practiced in these villages.

The day of the Alaskan "pony express," the musher and his dog team, is fast disappearing on the interior mail routes. Taking its place and the place of mail boats along the rivers is the airplane which now covers almost all the mail routes in Alaska, carrying mail within the Territory as well as to the United States.

Tourism.

The tourist industry in Alaska has grown considerably since completion of the Alaska Highway and other tourist incentives. According to a survey completed for the National Park Service, 70,000 people entered the Territory by all means of transportation during the period from June 1 through September 30, 1952.

Of this number, the survey showed, more than 20,000 were classed as tourists. Almost 9,000 of them were from the Pacific Coast, with just over 6,000 from California alone.

Over half the tourists traveled-by steamship, the remainder by highway and air in that order. Air and highway tourists spent an average of two weeks in Alaska, while steamship travelers averaged less than seven days, on land.

They spent a total of \$6,336,424, approximately 76 percent of which went for transportation. They spent \$1,078,308 of the remainder, or about 17 percent, for food, lodging and souvenirs.

According to the National Park Service's survey, most tourists are enthusiastic about Alaska. The industry will undoubtedly increase as facilities and accommodations demanded by tourists are made available in greater quantity and better quality.

The Economy

General.

Alaska's economy, while it is still relatively unstable and unhealthy, has enjoyed a boom period since 1940. It is normally based almost wholly on raw materials and is highly seasonal by nature. The four major industries — fishing, mining, lumbering and construction — are almost completely inactive from October through March each year.

The Alaskan Development Board believes the economy is becoming stronger, pointing out that while only 42 new corporations were formed in the Territory in 1945, 228 new corporations registered in 1952. The board further pointed out that federal income taxes had risen from \$16,000,000 in 1948 to about \$41,000,000 in 1952.

Alaska has 21 main banks and seven branch banks with deposits of approximately \$128,000,000. The assessed value of property in the incorporated cities was about \$180,000,000 in 1953, increasing from a little over \$55,000,000 in 1945.

Certainly Alaska has proved a good buy for the United States. The \$7,200,000 which was paid for the Territory has been repaid from production 486 times over since 1867. Total of products shipped to the United States since that time is \$3,500,000,000.

Strongly underlying and supporting the economy since 1940 has been the defense spending for construction and other federal construction expenditures. Defense construction has been going on since 1940, reaching a high of about \$300,000,000 in 1943. Defense spending continues in Alaska, totaling \$117,000,000 in 1953. A serious curtailment of military construction would be a severe blow to the Territory's economic structure.

Cost of Living.

The cost of living in Alaska is much higher than in the United States, and the high prices are generally attributed to the high cost of transportation from the States.

According to a press release from the Alaska Experiment Station at Palmer, dated July 6, 1953, the cost of 19 food items in Alaska — based on prices in Seattle at 100 percent — was 144.6 percent in Anchorage and 167.1 in Fairbanks. The Bureau of Labor Statistics and the United States Department of Labor has computed for 1951 the following relative differences in the cost of consumption goods, rents, and services in Ketchikan, Anchorage, Fairbanks and Seattle as the base.

	Relative Importance	Cost in Seattle: 100			
		Anchorage Feb. 1951	Fairbanks Feb. 1951	Ketchikan Dec. 1951	
Food	35.8	137	147	129	
Apparel	14.7	119	125	111	
Miscellaneous	28.6	125	130	116	
All items	100.0	140	147	122	

All items less housing		129	136	121	
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Labor Force.

Statistics on Alaska's labor force point up dramatically the seasonal nature of the economy, showing the violent changes in the number of people employed in Alaska from month to month. The Employment Security Commission in its report to the governor in 1952 showed that covered employment that year — those employees covered by social security — varied from a low of 19,595 in January to 49,538 in August.

These violent fluctuations were caused by seasonal restrictions in construction, manufacturing (which is mostly fish processing) and mining. Other industries such as service, wholesale and retail trade, transportation, communication and utilities remain fairly stable throughout the year. There is much union activity in Alaska, most of the industries being covered by union organizations. With the exception of the airlines and the Alaska Railroad which have company unions, organizations are members of the AFL, CIO or UMW.

It should be remembered that this discussion has to do with a money economy, which is not the general economic picture throughout Alaska. Many areas outside of the metropolitan centers such as Anchorage, Fairbanks, Juneau and Ketchikan, operate largely on a moneyless economy, making any economic comparisons infeasible. There may be a minimum amount of cannery work or perhaps some mining in these areas, but the general economy is based on the individual's and the community's success in hunting and fishing and in living off the land.

Government and Politics

Because Alaska is a Territory, its government is part local and part federal, with a governor appointed by the President for a four-year term, by and with the advice and consent of the Senate. He is the ranking official of the United States Department of the Interior, under whose jurisdiction the Territory has been since 1884.

Alaska has a bicameral Legislature composed of 16 members in the Senate and 24 in the House, which has little actual control over the Territory's day-to-day life or its future. Legislators are elected on the basis of political parties, at biennial elections. While the Governor may veto any bill passed by the Legislature, a two-thirds vote of all the members of each house can override his veto.

Alaska has no counties — although the act of 1884 patterned the government after the county system in Oregon — but is divided, instead, into four Judicial Divisions, each without population or geographic unity. From each Division, four senators are elected to the Legislature for four - year terms, the twenty-four representatives being apportioned among the four Divisions according to population, they each serving for a period of two years.

Every two years, Alaskans elect a Delegate to the Congress of the United States. First provided for in 1906, the Delegate is still handicapped because he has no vote. He does,

however, represent the Territory, speaks on the floor, introduces bills and does some committee work.

Alaska's judicial power is vested in the United States District Court, and in probate and justices' courts. Each of the four Divisions is presided over by a judge appointed by the President. Probate and justices' courts are designated by judges in each Division, all presided over by commissioners appointed by the judges. These commissioners act as United States commissioners, coroners, ex-officio justices of the peace, recorders and probate judges. Incorporated municipalities have magistrates' courts to handle cases arising under local ordinances.

Alaska cannot participate in adoption of federal laws having to do even with its own jurisdiction because its voteless delegate to Congress lacks political bargaining power. Having no vote in the electoral college, the people cannot participate in the election of the President and the Vice President.

In short, Alaskans have little voice in their own government. They have little to say about the activities of the Federal Government in the Territory, of which more than fifty agencies with jurisdiction over some phase of Alaskan affairs were in existence by 1946.

Congress imposes many restrictions upon Alaska's government. It is still impossible to purchase land outright in the public domain in Alaska because about 99 percent of the land is federally owned. Many land withdrawals made by the Federal Government have been forgotten or ignored. It is difficult to get good men to accept commissioner posts because the positions are unsalaried. Transportation rates to Alaska are high but requests for reductions have continually met with a lack of success. The Federal Government still controls fisheries, allowing fish traps to exist which are now outlawed in Oregon and Washington.

Federal Government Participation.

In the degree to which the Federal Government participates in the everyday public affairs of the citizen, Alaska is unique. The uniqueness of Alaska is in the fact that it is not only a Territory but that a substantial portion of its population is also aboriginal, and therefore legally entitled to many direct services.

Since federal responsibility is not exclusive, one finds both the federal and territorial governments directly and intimately involved in greater or lesser degree — with responsibilities clearly or vaguely defined, in programs discrete or seriously overlapping — in practically all major areas of public service, notably health, education, welfare, transportation, public works, conservation, justice and public safety.

Federal activity in health services almost to the exclusion of everything else centers around the provision of medical and hospital care. Except for the insane, the military forces, veterans and beneficiaries of the Public Health Service, federal health services are limited to the native population.

Territorial activity, on the other hand, encompasses at least in theory the traditional limits of public health on a Territory-wide base, with responsibilities for medical and hospital care centered around only certain particular categories of the population such as the indigent, tuberculous, crippled and those with certain chronic diseases.

This dual responsibility for health care, where one of the parties — in this case federal— is subject to all the restrictions inherent in a remote bureaucracy, and where the other — the territorial — suffers from a lack of resources and of basic political instrumentalities, is a major concern of this study. So too are the questions that flow from it as to how best the total resources of the partnership can be mobilized and employed in health interests of the entire territory.

Fiscal Policies and Taxation.

Alaska's development has been seriously restricted by taxation barriers imposed from the beginning by Congress. The Organic Act of 1912 states that "no tax shall be imposed upon the property of the United States," and a goodly share of Alaska — about 99 percent, to be exact — is United States property.

The same Act also forbids the Territory or any municipal corporation from creating or assuming any bonded indebtedness. Further, it stipulates that "no tax shall be levied for Territorial purposes exceeding one percentum upon the assessed valuation of property therein in anyone year, and no incorporated town or municipality may levy any tax for any purpose in excess of two percentum of the assessed valuation of property within the town in anyone year."

Within taxing areas remaining, the Territorial Government has developed a tax system. In 1949 and 1951, the Legislature revamped the antiquated system and enacted a number of statutes which constituted a more comprehensive and modern tax program, including an income tax on persons — 10 percent of federal — and corporations, a general property tax excluding public domain, a uniform business license tax on occupations and several others. According to ex-Governor Gruening, this was "perhaps the most important chapter in Alaska's experience in self-government."

What the new program did was to tax many individuals and groups which profited from Alaska but which heretofore had paid no taxes to help maintain essential public services. Following these tax laws, the Territorial revenue rose to \$17,000,000 in the next biennium, more than three and one-half times the average biennial yield under the previous system for the period from 1941 to 1946.

There is rather general consent that Alaska needs more local governmental units, of which there were only 48 in 1951, but there are no universal ideas on how it can be achieved. The lack of an adequate tax base is one of the major difficulties currently preventing more local government.

[2012 editor's note: This next section is interleaved with the Parran Report in the photocopied folder. Perhaps it is a late addition or an amendment to previous text.]

ACCULTURATION AND HEALTH

Revised by the author,
Dr. Margaret Lantis
February 1963

Original reference in:
ALASKA'S HEALTH, A SURVEY REPORT
(Parran Committee)
The Graduate School of Public Health
University of Pittsburgh, 1954

NOTE: Lantis's original text, which this replaces, is not included in this digitized version of the Parran Report./DHSS Public Information Office.

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Introduction

"Nothing is more tragically devastating in actual consequence than one's own ideals, fine as they may be, when they are accompanied by ignorance and resultant provincialism and blindness with respect to people and cultures acting upon, or proceeding from assumptions different from one's own." (F.C. Northrop, "The Meeting of East and West," Macmillan, 1954.)

The ethnography of disease and medical care among native Alaskans has been studied in each of the four indigenous groups: the Southeastern Indian: the Indian of the Interior, the Aleut, and the Eskimo. Anthropologists have reported on the concepts and practices relating to health, disease and medicine among each of these groups. Every administrator or professional health worker the older States who is to serve in Alaska should know these data; not only because they are intrinsically interesting but particularly because without such information the best planned programs in the future, as they have in the past, are likely to accomplish much less than is possible in reducing the incidence of premature death and preventable disease.

The Southeast Alaskan Indian

What has come to be known as the Northwest Coast culture extended from the tribes of Oregon — perhaps from northwest California — to Haines and Klukwan, north of Juneau. The

two large Alaskan tribes in this group were those of the Tlingit and Haida Indians. The related tribe of the Tsimshian, now centered in the village of Metlakatla, on Annette Island, came from British Columbia somewhat later (1887). At present, the villages of these S.E. Indians are scattered from Yakutat and Skagway to Ketchikan.

These people from ancient times have been skilled in woodworking. Best known for their memorial totem poles, they also built large wooden houses (with several families living in each), large boats, carved wooden dishes and trays, as well as masks and trinkets. Their social system was elaborate, with tightly-knit clans, hereditary chiefs, war chiefs and other officials superimposed upon clearly defined lower classes including slaves — the entire system based upon the wealth from what was then their own abundant natural resource, the salmon. Their leaders were as proud and competitive as stateside industrialists. It is not surprising that they, too, became clannish, highly competitive and suspicious of one another's motives, or that prestige among them was rated by possessions and titles.

In certain respects, the Tlingit, the Haida and the Tsimshian have made a smoother transition into the 20th century than have any other of the Alaskan peoples. As the commercial fisheries took over their source of wealth, they could at least find employment utilizing their traditional skills of sailing and fishing. Further, they had concepts of money, lending, and interest. Because their basic attitudes toward money and economic competition had much in common with that of their new masters, they had less difficulty in accepting the new system of wage-earning and profits.

Nevertheless, although their way of life has changed, many of the old attitudes toward life remain and much that is deep-rooted in their concept of relationships to one another. People in the United States may lead lives physically quite different from their English, Scotch, Irish or continental European ancestors, but many basic ideas of religion and other non-material aspects of their culture have changed little. In the same way, southeast Alaskan villages continue their own cultural pattern overtly in regard to kinship and family obligations and covertly in regard to the hazards of life, whether man-made or as the result of disease or accident. White man's goods have come to many Indian villages but not many permanent white residents. There has been some intermixture of races but less of their philosophies. In such a situation, the old feelings about disease persist even though the pharmacopeia and the techniques of healing have changed.

The folk concept of disease and healing among the Indians, in common with that of any isolated and unlettered whether Balkan peasants, Arab or Mongol nomads or Lapp reindeer herders, emphasized what we now call magic, both black and white.

Disease with localized symptoms (pain, inflammation, tumor, etc.) was caused, in their old belief, by some object intruded into the patient by an enemy; in other words, by sorcery. Cure was attempted by the shaman (the medicine man) invoking his spirit-helper to aid him in destroying this evil. Singing and dancing until possessed by the spirit and thus strengthened, the shaman struggled with the spirit of the sorcerer or with the disease itself and after a dramatic

performance would "pull out the sickness." The object thus extracted was sent away without displaying it to the bystanders.

An alternative explanation of illness was that the patient's soul had been lost, a terminology not unfamiliar to Christians. After a fright, the soul, a self-determining entity, might wish to leave the body. No one might be aware of this impending tragedy until the shaman while dancing (if among the Tlingit), or after drinking salt water (Haida), or while dreaming (Tsimshian), would see the disembodied soul. In that event, or even if he only suspected that the soul was lost, he would send his spirit-helper to search for, capture and return the soul to the patient.

For minor ailments there was such practical treatment as the sweat bath. Some herbs were used for healing, as distinguished from their ritual uses. An infusion of devil's-club bark, for example, was a violent emetic that helped to purify an individual for the beginning of hunting or some other ceremony, yet had obvious therapeutic uses.

Ritual cleanliness was essential for luck, for success. Failure to go exactly through the procedures of cleansing would result in poor fishing and general misfortune.

The principle of contagious magic was widely accepted among Southeastern Indians. Consequently, any body discard, whether nail-pairings or excrement, was kept concealed. If, for example, one's hair-cuttings were found and burned by an enemy according to the protocol of witchcraft, one might in turn be burned, either fever or fire.

Certain ancient practices were connected with "life crises"—the milestones of physical change from birth to death. For childbirth, the parturient was secluded in a special hut, attended by a midwife or kinswoman. "White" contagious magic could be effected on the umbilical cord. If buried, for instance, on a goal trail in the mountains, the boy to whom it belonged would become a surefooted and successful hunter of these animals. The mother, returning to the clan house after the ritual period, was required for a time to observe tabus as to certain items of food and drink. Such tabus were based on the belief that the woman was unclean and might contaminate important food sources as well as affront supernatural powers. At puberty, a girl, too, was secluded and restricted by tabus for a ritual period.

Among the southeastern Indians there was no extreme fear of contact with dead bodies. Nevertheless, if men had been powerful in life, their bodies were believed to be powerful in death. Their ghosts were greatly feared. A memorial totem pole was erected. To the southward, the belongings of the deceased and even parts of his corpse were considered powerful amulets or charms to insure successful hunting. A potlatch for all the years of known history among these Indians has been their great ceremonial. The potlatch, in memory of a dead chief, ranked high as an occasion for gift-giving. It involved feasting, dancing and public ritual, as well as the ceremonial distribution by the host of many gifts to his own and other clansmen. It has been termed a primitive social security system of the Indian since one who received gifts had an implied obligation to give others in future to his benefactor.

Perhaps the most important continuing segment of the old culture is the clan organization. No one should underestimate its numerous functions, especially in the Tlingit villages. Tlingit

society is divided into two groups termed "moieties" by anthropologists. Functioning as large kin-groups in which membership is inherited through the mother, it is not only matrilineal but also exogamous, in that a young adult is expected to marry outside his moiety. Even today in conservative villages, young people may be smartly dressed in clothing from Juneau or Seattle, yet not having much fun because too many present are of the same moiety and may not even dance together.

Each moiety is divided into clans and the clans into lineages or houses. There are clan chiefs and house chiefs, both assuming responsibility and exerting authority. On important matters the system still operates. To know how to use it is of advantage in initiating any community program, such as health care. Both the leaders of families (lineages) and the leaders of clans must be consulted and convinced of the inclusive benefits of any proposed action, since they exert both direct and indirect influence upon the members of their kin-groups.

The Tlingit, Haida and Tsimshian (Metlakatla) Indians have a traditional concern about health and are willing to spend money to get it, even though their earnings have diminished with the smaller salmon runs. An economic survey, sponsored by the Bureau of Indian Affairs, but conducted by outside specialists, obtained detailed reports for the year ending July 31, 1948, of income and health expenditure by families in the seven places in southeast Alaska shown in Table 1.

Table 1

Village	Tribe	No. Families In sample	Average Family Expend. for Medical Care	Percent of Total Family Expend.
Metlakatla	Tsimshian	50	\$191.06	5.9
Hydaburg	Haida	33	220.70	7.7
Klawock	Tlingit	51	138.00	7.1
Kake	Tlingit	25	149.26	6.1
Sitka	Tlingit	30	110.85	3.6
Angoon	Tlingit	25	58.27	3.1
Hoonah	Tlingit	37	111.78	4.8
Average all Villages			\$145.52	5.7

A comparable study was made of 13 white families in Juneau for the year 1943-44. It showed an average expenditure of \$143.00 for medical care as against \$145.52 in the Indian Villages where, because of smaller incomes, this constituted 5.7 percent of their expenditures and spread over larger families (5.4 persons average). The white families, on the other hand, used 4.8 percent of their total outlay for medical care and numbered only 3.45 persons in the average family. Moreover, only a portion of the total Indian expenditure could be applied to the purchase of medical services, drugs, and appliances. Except for Sitka, none of the Indian communities surveyed was near a physician or dentist; consequently transportation costs by boat or plane must be deducted from the total expenditure specified for medical care.

When one considers the size of the average Indian family, the low income, and the fact that medical services are provided without charge by the Federal Government plus services by the Alaska Department of Health and Welfare, one begins to appreciate what these people are willing to do for themselves. While it is true that these same Indians spent more money for funerals and feast (potlatches) than outsiders might think proper, it is equally true that such family and clan expenditures to honor their kinsmen help maintain the pride and stability of the clan and the living family. It has been said that those who have nothing to honor in their past can anticipate a future without honor.

A first conclusion, then, is that the Alaskans of southeast Indian descent are not a people indifferent to disease. They do not take it for granted, as do so many races of fatalistic tradition. They are accustomed to seeking causes for their maladies and, if possible, averting illness. Programs of both preventive and clinical medicine can be made far more effective if fully discussed with the family and clan leaders — frequently their judgment as to details of operation may mean the difference between success and failure — and explained in terms symbolic of their own culture.

Relief costs appear to be rising all over the north: Canada and Greenland report the same trend as Alaska. In these circumstances, it is unwise to overlook either the family code or the social organization which has, in the past, helped to keep the southeast Indians independent and self-respecting. It is realistic to accept the clans and "houses" (families) as already available and valuable social tools. The clan can buy equipment and service for its own members; better still, give such facilities to the whole community in a modern equivalent of the ancient and honored potlatch. Taking advantage of competition between rival leaders — or perhaps arousing new competition — will be understood locally where sanctimonious talk about "the common welfare" will neither be understood nor acted upon. Emulation of a rival, or shame at being outstripped by him, are powerful weapons in this society. The objectives of such competition should be adult and practical. Poster-making contests are more appropriate to the school room.

In any culture based on a strong family organization, the family elders often feel that clan property, clan solidarity and survival are more important than the happiness and welfare of anyone member of the clan. In traditional societies we cannot expect people in transition to behave as free agents. Since Natives in Alaska are not always in fact accepted socially by the white population or given equal economic opportunity in the land of their inheritance, it is important that they feel sure of their place in their own social system. Clan elders can make decisions and take action designed to protect their youthful members and to strengthen the clan as a whole, as well as for reasons of affection in which they are not wanting.

If properly interpreted, several modern techniques of health should strike a responsive note among the southeast Indians. Clean and well-kept homes long have been regarded as symbols of status. Yet routine exhortations of the sanitarian, if unrelated to Indian family pride in their past prestige, may have little personal appeal. Sometimes clan leaders can be motivated to help those members who because of poor health have little energy, avoid responsibility and live in filth.

However, clan leaders also may be unresponsive because they already have cast out these individuals who shamed the clan or burdened it beyond reason.

The old idea of self-purification can be utilized. People can be reminded that those who expect to succeed must be free of disease. Just as formerly people could purify themselves by bathing in the sea, fasting and rubbing themselves with plants, so today there are specific means of ridding oneself of physical contamination.

The old concept of disease as an intrusive agent can be used. Slides and movies showing bacteria and parasites and their probable ingress to the body should be especially effective here. The health instructor must be alert, careful, and thorough, since partial information may suggest to the Tlingit or Haida listener only that malicious people deliberately infect others. The Southeast Alaskan Indians are more fully educated than the other native Alaskans and can absorb a lot of information.

For hospital patients with prolonged illnesses, psychiatric and medical social workers are essential, providing they are thoroughly grounded in the intricacies of the matrilineal moiety system.

Not infrequently, plans for the convalescent and even his will to cooperate and get well depend upon the plan's acceptance or rejection by his kin.

In southeast Alaska, there are many good tools at hand. We have attempted to suggest only a few of the more obvious.

The Indian of the Interior (Athabaskan).

From the prehistoric to the present, the vast interior of Alaska has been occupied by branches of that large stock, the Athabaskan. (Some anthropologists substitute p for b, and c for k). Except for settlements around Cook Inlet, these were inland people. Their whole way of life was conditioned by the forest. Where they had frequent contacts with the Eskimos, each people borrowed freely from the other as regards externals, although there is little evidence to indicate any merging of fundamental attitudes.

The Athabaskan stock, which also has many Canadian tribes, stretches from the Copper River valley, the upper Tanana and upper Yukon, westward to the Koyukuk River, the Holy Cross area of the Yukon valley, Stony River on the Kuskokwim, and the Lake Iliamna region. Data presented here are drawn for the most part from studies of the villages of Kenai — Iliamna — Susitna. It is believed, however, by anthropologists that the basic beliefs and organizations described are, with a few exceptions, also characteristic of Athabaskans many miles away in the interior.

Among these people the old culture has broken up more unevenly, more disastrously, and has resulted in more demoralization than in southeast Alaska. Consequently, generalizations are more difficult in reference to the contemporary status of the Athabaskans in all areas.

Originally, the kin-structure resembled that of the Tlingit exogamous moieties divided into matrilineal clans. Although the old rules of marriage and kin-obligation are respected less fully

than in the southeast, there still is likely to be a strong maternal influence in the family. In the old days, the mother tended to be the boss of the household and young boys were sent to a maternal uncle for training and toughening.

Recently it has been common practice in the Ft. Yukon area, fostering the authority of the wife and of a young married couple to live for a period parent with the wife's parents, or at least in their village, before establishing an independent home of their own. Yet today, as earlier, the chieftainship was handed down from father to son.

Shell-bead money was used in some places and people were interested in amassing furs and food, but there seems to have been less preoccupation with wealth and status than in southeast Alaska. In addition, there was more sharing. A century ago or less, a Tanaina settlement would have its one regular meal of the day in the evening on a communal basis with each family providing it in turn.

The Athabaskans of south and west Alaska had a useful institution involving partnerships between individuals. These might be long-standing associations with important mutual obligations which must be honored. There were also more or less temporary and less formal associations for mutual assistance in hunting or in trading between villages, even between the Eskimos and the Indians. Among the Tanaina, the formal partnership, known as "slocin" was entered into voluntarily by two relatively wealthy men of different moieties in different villages.

The "slocin," in Indian terms, was David to one's Jonathan. He was the person through whom one made permanent social and political contact with the opposite moiety. When a chief visited the village of his slocin, he was received with highest honors. Presents were exchanged. The potlatch usually was given in his name. A man never quarreled with his slocin, nor was he hypocritical. When a slocin was sick he sent for his partner, who always came. If death intervened, the body was kept for his arrival. Less formally defined, the partnership institution nevertheless still survives, especially among Eskimos of west and northwest Alaska and some Indians of the same regions.

The Spartan toughening of Athabaskans was an essential part of their ancient training for adulthood and of their daily lives. The Tanaina purified themselves not only for the start of a big hunt or other special ceremony but as a regular regimen. From the time a boy was turned over to his maternal uncle at about the age of six, he was inured to every hardship of cold and forced labor with the view to an ultimate development of physical strength and power. Of endurance. This may account for the once successful adaptation of the interior Indian to his environment of snow and severe cold, with clothing and housing that, compared with the Eskimo's, was flimsy.

Ritual cleanliness was not the same as daily cleanliness. From their self-imposed and rigorous routine, nevertheless, we can arrive at two significant conclusions: First, when people want something very much and believe they know how to get it, they can practice severe self-discipline; and second, this training had the positive goal of strength and hardihood. Many elements in the Athabaskan culture engendered fear and negativism; this was positive and constructive.

Both the natural and the supernatural world were threatening to the Tanaina and their kin. Evil shamans were feared, but more anxiety was focused upon animal spirits and malevolent monsters and less than in the southeast upon the possible witchcraft of neighbor, or even relative. The Nakani, or Big Indian — more human than supernatural — was deeply feared. It is thought that his mythology might have arisen from ancient and forgotten raids by one tribe against another and attacks by murderers and outcasts upon the lone hunter or straying child. Such fears persist long after real danger have subsided, especially in a situation of continuing insecurity.

Hazardous and uncertain as was the existence of the Athabaskan in primitive times, his insecurity has been greater and his chances for survival have lessened since the seizure of Alaska by the white races. After the Russians came into the Cook Inlet region in 1786 the Indian population decreased by more than half. Part of this was accounted for by a series of epidemics. As with other relatively isolated peoples, the Indians had no immunity to the infections brought in by the white man, whether measles, tuberculosis or the venereal diseases. In addition, the white people demanded far more of certain marketable furs than had been required previously by the tribes for subsistence, with some small surplus for trading. Thus, for a while the old hunting-trapping life was reinforced rather than reduced. It had been customary, apparently, that not only adult male hunters but whole families ranged the forests widely, under the harshest conditions. There were so many accidents and so many unexplained disappearances in the woods that even children from an early age felt anxiety. It is probable — odd though it may seem to the layman — that their specific fears in regard to semi-human or wholly supernatural beings actually became the emotional defenses which enabled some of them to live on. For we are told by psychologists that it is better for people to live with a focused anxiety — one to which they give a specific name and against which they can devise protective measures — than with a diffuse, generalized anxiety about which they can do nothing.

Tabus, magic of all varieties, ritual songs, rigid protocols for the training of children and for their protection and that of the tribe through the life crises from birth to death, all gave what most religions give, a certain security through appeal to the powers beyond and greater than the human. Their search for security not only gave impetus to religious practices but also to attempts to heal disease and to prevent it in a situation that held many dangers. Except for sporadic employment opportunities, their security has scarcely bettered during the century since the U. S. displaced Russia as the owner of Alaska.

Like the southeast Indians, the Indians of the interior believed that sickness could be caused by some object intruded into the body of a patient. Although some spirits might gain entrance of their own volition, more frequently it was thought that some bad shaman had sent the evil spirit.

Any "unnatural" condition of the body, such as menstruation or the state immediately following childbirth or death, indicated that the person in such condition could bring danger to other people and was the occasion for rigorous tabus.

Great ingenuity was used to ensure the comfort and promote the growth of infants, who were nursed from one to five years, diapered with moss, bathed in a hollowed-out log, dusted with

soft, powdered charcoal to prevent abrasions, carried on the mother's back in skin bag or a birch bark cradle chair.

Nearly all Indian families made much of their young children and seldom punished them or forced them to act against their own wishes. An orphaned child usually was adopted by a related family. If not, he would be cared for by a chief with full protection for his status in the clan and his individual rights, if he were linked by blood or adoption to some powerful family. Occasionally, a woman would adopt a boy for support in her old age. If later he shirked his duty to his foster mother he would be ostracized.

There were female shamans as well as male among the Athabaskans. On the Yukon, women were expected to consult the female shamans not only for healing of illness or injury but also for charms to bring success in fishing and other matters of importance. It is known that women doctors (not always shamans) used several folk medicines such as: grass roots or spruce bark to be chewed for a cough; a poultice of nettle for rheumatism, coltsfoot, either chewed or the infusion drunk by a patient with tuberculosis who had blood in the sputum; Artemisia tilesii for the healing of a cut, also applied as an abdominal bandage after a sweatbath to cure colds.

Some faith was placed in amulets, but it was the lucky stones and lucky songs which were felt to have the stronger magic. Generally such songs were considered gifts from the supernatural revealed in a vision, or they might commemorate a vision. They were the essence of the individual's spiritual power and the basis of his good fortune.

The tradition of rapid recovery after treatment by a shaman contrasts with the lack of drama in contemporary medical treatment and the slow recovery from ailments such as tuberculosis. Moreover, when these Indians first met latter-day physicians, they strongly objected to surgery. Perhaps, like the Aleuts, they believed that the soul might flow out with great loss of blood. Perhaps they feared sorcery which might be practiced on anything excised from the body. Where the tribal traditions are still remembered, even in part, there may still be antagonism and fear among elderly patients that is the worse for being wordless.

The Athabaskans, apparently, are less torn by social conflict than the southeastern Indians. Their struggle is with an ever-threatening external world. In the 30-year period between the purchase of Alaska by the U. S. and the gold rush, when there were practically no white men in the Alaskan interior, the Indians experienced a peaceful and constructive period. The mining of gold, however, created a demand for their services at fantastic rates of pay which they had no concept of using and there was an inadequate supply of useful goods for which money could be spent. White men introduced them to the drinking of whiskey (a vice for which the Indians had no mores of control); disease and demoralization of the Indian communities followed.

After the gold rush some of the Indians in the Yukon region were able to get work on the river boats; others were employed by the sawyers who supplied wood for fuel. Twenty years later, however, this summer employment was lost when the Alaskan railroad and later the airplane made river transportation unprofitable. The only source of cash income that remained was trapping and, in some places, mining. Just at this time, unfortunately, when Indians most

needed a firm economic base, the demand for fox furs dropped to the point where a hard winter's work was no assurance of income. Then the herds of caribou began to decrease and in several areas changed their range, so that this old supply of food and clothing was greatly reduced. The natural resources of the land upon which these people had depended no longer were sufficient for their needs. In the villages where schools had been established, the children were expected to be adequately dressed. Many Indians over the years had become dependent upon the white man's foods, which there was now no money to buy and which could not be cooked in the baskets and birch bark vessels a few remembered how to make. Tending the long traplines which brought so scanty an income involved great physical hardships and revived the old fear of dangers that hide in the forest.

From the 1930's to the '50's, not only was their economic position precarious but their status in the Alaskan hierarchy was sub-marginal. Most of their communities were small, weak, and derided by the whites. Although there were few permanent white settlements, many small white mining communities had appeared along the Copper, the Tanana and the Yukon rivers and, later, along the lines of the railway. Unlike the gold rush with its frantic need for manpower in a new country, these mining camps did not need the Indians' skills and, knowing nothing of them, did not respect them, unlike southeastern Alaska where the salmon industry needed Indian fishermen and northwestern Alaska where the whites were dependent upon the Eskimo's techniques for living in the Arctic .

It eats at a people's vigor and its will to live when the means of subsistence grow steadily less, when the old social system is disorganized and there seems no place for them in the new. Most of the old tabus are gone from dally life but many may remember that they were better off when such practices were observed.

A frequent defense against despair is fatalism . If one is not sure what to do when confronted by apparently overwhelming disaster, a common human reaction is to do nothing. Yet even now the scattered and disorganized Athabaskans could organize and manage their affairs if given a helping hand and the beginning of an opportunity. Several strong missions in this area — Ft. Yukon, Holy Cross and others — have taught them to provide useful services for themselves and have extended much relief. One possible error is to be balanced against the good works of the missions. Some missionaries tend to keep their converts passive and dependent. They are like over-protective mothers who cannot trust the judgment or believe in the strength of their adult children. We have enough examples of that in our own population to know it is neither the way to develop confidence nor to stimulate initiative.

Once the relationship is established, it is hard to break. Nevertheless, missionaries, teachers and nurses who are successful in gaining the confidence of the Indians should be persuaded by their superiors to take a longer view, to use every modern technique for regenerating their beneficiaries to a degree of self-sufficiency and responsibility rather than limiting their objectives to the day-by-day relief of spiritual and bodily needs, acute though these may be.

There is much in the history and tradition of the Indians of the interior to prove their capacity for self-discipline for an end they understand and believe essential. Their ideas will be forthcoming if solicited sincerely and listened to with respect. They can be included gradually in the planning for their own welfare. They can assume at first small, then larger responsibilities which, in time, they can plan as well as execute. Too frequently the Indian is merely directed to do this or do that without any attempt to discover whether the order makes sense to him or whether, indeed, because of its conflict with his tradition and experience it may seem degrading.

Usually there is much more to work with in a "folk" culture — even a broken one — than the outsider thinks. The real tragedy is when he does not care enough to try.

The public health worker must say truthfully that the condition of many Athabaskans is so deplorable it requires more than the best of health and medical care to improve their lot perceptibly. They need, probably most of all, useful and stable employment to pay for the necessities of life. It is easy to understand why these people once among the hardiest of the northern races, now are noticeably depressed in the autumn and dread the winter — not because of the coming of the long twilight and the harsh cold, but because of the certain lack of food when they most need it to cope with the traplines and the constant threat of accident and illness.

It seems incongruous that Americans, who have been critical during the past hundred years of the deficiencies in colonial policies of other nations, have been oblivious of the destitution, demoralization and death among the native peoples of Alaska, which has been an American responsibility since 1867. As a first step, white Alaskans must use their considerable ingenuity, in cooperation with well-oriented professional workers, to make a place for the Indian in their communities and to treat him like the proud human being he is.

Health workers, particularly, must be on guard against easy generalizations about the Alaskan native races. Some Indians are undependable, some are lazy, many are malnourished, sick and disheartened. The former and the latter are not mutually exclusive. Really expert social workers are needed, with the backing of every Federal agency having to do with the native population as well as responsible departments of the State government. These social workers should have a background of training and experience to enable them to understand the problems and viewpoint of the Indian families as they would attempt to do for any families in the United States.

On one problem of the Athabaskan there has been a tendency to generalize without adequate data. Good investigation by public health nurses and medical social workers would produce valuable information as to the number of pregnancies and the causes of termination before term, the attitudes toward large families and defective children, as well as the actual status of kin sharing in the support and care of children.

Medical care for the Indian can be made much more impressive to him and can engender his confidence and cooperation. The reaction to antibiotics is often more swift than recovery after the administrations of a powerful shaman. Well-advised exercise after surgery frequently speeds the healing of the patient and, if properly interpreted, gives him the opportunity to share the

credit for his own cure. Before-and-after pictures of patients, X-rays, and bacteria cultures should help not merely in education but in the public's and patient's reassurance and conviction of modern medicine's power.

Quarantine of an infectious person can be understood by one who remembers the tabus supposed to protect the clan, especially if the similarity is presented to him.

Where the system of partnership has not disappeared, they may be invoked to get aid for the sick or injured. Traditional kin responsibilities or the mutual assistance pact of partners may be quietly reactivated in some villages by sympathetic understanding of the good in these relationships, but not if there is too much conversation with too many people on the subject. The Whites, unfortunately, use the old Indian partnerships as an alibi for not assuming responsibility themselves. One hears so often of the outpatient who is a stranger in town: "The Indian always finds a cousin or somebody who will take care of him."

To be thrust into an overcrowded home in the worst section of a strange town with the only person upon whom the patient has any claim — or the only one who will honor a traditional claim — is not good for the patient or the community.

There is no rule that can be applied everywhere. Continuation of the old sense of mutual responsibility by the clan and through the surviving partnerships is frequently a good thing in the home village. It may not be a good substitute for the modern organized community's assistance of the sick away from home.

The Aleut.

If the situation of the interior Indian is poor, that of the Aleut — at least on his home territory in the Aleutians — is desperate. Many of them regard themselves as a dying race. From a population estimated at about 16,000 before the discovery of Alaska by the Russians, they now number somewhere about 2,000. The prehistoric eastern boundary of the Aleut people may have been near the present line which runs from near Egegik on the north side of the Alaska Peninsula to Chignik on the south side. Until World War II, the most westerly Aleut settlement was on Attu. The islanders did not return there after the war but settled, for the most part, in Atka village. Other communities, evacuated to southeast Alaska for the duration of the war, were sent home and helped to rebuild their villages.

The two villages on the Pribilof Islands, administered by the U. S. Fish and Wildlife Service, maintain populations having an adequate income as well as a well-supervised sanitation and health program. In this they differ greatly from other Aleut communities and will not be included in our comment.

In language and culture the Aleuts are an ancient offshoot from the Eskimos, with the addition of certain cultural elements from eastern Asia and others from the Tlingit Indians. There are good reasons for speaking of an ancient well-developed, rich North Pacific culture, with a diffusion of ideas both eastward and westward. Its depletion is one of the tragedies of white conquest in this part of the world.

Discovered in 1742, the Islands were receiving wintering parties of Siberian fur hunters in the Middle Aleutians by the 1760's. In another 20 years, they were virtually conquered. The Russian-American Company, in effect the government of Alaska for the next 60 years, received its first charter in 1802. The Russian Orthodox Church is still the only church in most of the island villages and in several settlements on the mainland. Russian concepts and superstitions as to disease, death and healing are commingled with those of the old time Aleuts.

Although more to their disadvantage than to their advantage, except for the southeastern Indians living in towns such as Juneau, no other aborigines in Alaska have changed so much from their pre-white status and way of life.

In ancient times there were three classes: chiefs and their noble relatives, commoners, and slaves. Originally, a chief inherited office from his father. Today he is supposed to be elected. However chosen, he still is the most important person in the community. Because of this old precedent, among other reasons, modern versions of the town council have not functioned well in some villages where they are supposed to be the governing bodies .

Due to the decrease in population as well as loss of morale, it has often been difficult to maintain responsible community leadership and organization. A village can become so small that it is only a network of personal relationships.

During the 18th and 19th centuries, the Aleuts died in epidemics and from mistreatment by the Russians. Today they die from accidents, respiratory diseases and the other causes common in outlying areas of Alaska, abetted by poor nutrition, heavy drinking and perhaps small will to live.

In the early 1930's, despite the depression, Aleuts still had sufficient income from their blue and silver fox furs to buy food to supplement the native diet. Since the evacuation and return, there has been almost no income from furs, and, for those who could not go to the mainland or the Pribilofs for wage work, little other income. (One exception was the sheep farming business on Umnak which hired local help.) More recently commercial fishing has increased, especially for the mainlanders.

Households are complex; in part, at least, because of the high mortality which makes premature widows and widowers and leads to remarriages with various combinations of step-parents and step-children. There are many orphans, or at least there have been until recently.

Like the Athabaskans, the Aleuts originally were trained and hardened physically in a rigorous regimen which long since has disappeared. There remains among the older people an interesting residual of their ancient customs. They have a knowledge of anatomy which is remarkable among non-literate peoples. This obviously dates back to the period when, as a part of white-magic ritual, autopsies were performed and the morphology of humans and sea-mammals compared. It is claimed that their once frequent practice of acupuncture is pre-Russian in origin. Today, when modern medication is not available, fox fat still is used to heal wounds and abrasions. Suturing has been done for a long time, which is not surprising, since the Aleut women once were excellent seamstresses with fine bone needles and sinew thread. Even

recently, since excessive bleeding is greatly feared, a ragged wound that is hard to close has been filled with bird-down to assist clotting.

When the Russians introduced what is called in the United States the "Finnish bath," the Aleuts welcomed the innovation and still maintain it, as do some Eskimo and Indian communities in Southwest Alaska.

Enough of the old lore has survived to indicate that the Aleuts made use of a variety of herbs for the easing of pain and for general healing. Yarrow, matricaria, artemisia, pond weed (menyanthes), fresh-water algae, avens, ragwort and clubmoss are examples, among others, from their primitive pharmacopeia.

The Aleuts traditionally value cleanliness. Some families achieve it in their homes in spite of the preponderance of rain, fog and general dankness. Those enfeebled by illness or dispirited by poverty make little attempt at sanitation which is especially difficult because of the terrain. The disposal of fish offal in village streams and the eating of raw fish help to maintain cycles of intestinal larvae.

A few of the white school teachers have tried deliberately — and many have done so unwittingly — to make the young people ashamed of their race and their culture, to encourage them to go where they will have greater educational and employment opportunities.

Some Aleuts have resettled, but the result for most is dissatisfaction and discouragement, since they do not have the money or the opportunity to make money which would enable them to live as they are told they should. The same thing is true as regards their artifacts. The Aleuts formerly made good boots from the hide of sea-mammals, gut parkas for the rain, as well as kayaks. Today these skills have fallen into abeyance. For example, there probably is not a single usable kayak in the Aleutians today. Consequently, their meager cash income must be spent on things they once made for themselves, leaving little for canned milk and other food that is seriously needed since they have been taught also to believe that most of the foods of their country are without merit. When any people go through a rapid cultural change, both good and bad customs disappear and both good and bad customs emerge, although many proponents of the new order who have been sent to the Aleuts apparently are convinced that all change will be an improvement.

According to Russian Orthodox doctrine, survivors were taught not to mourn but to accept a death in the family. A mother was reprimanded if she wept for her dead child. In two hundred years of this conditioning, the aboriginal fatalism was continued and intensified.

It has been observed in an Aleut village that unless a patient is moribund, the response to any question about him invariably is "Better." This code of forced cheerfulness leads to improvidence and makes planning and action for health care difficult.

Like the Athabaskans, the Aleuts feared malevolent beings — some of them identified with white men — and folk tales still are told of kidnapped women and children, thievery and murder by these beings. The emotional mechanisms are clear. To a people who are few and weak in a

frightening world, over-frequent accidents and disappearances cannot be accepted rationally. The mind creates supernatural explanations and supplies scapegoats.

Potentially, the Aleuts are better off than the Indians in the north interior. Aleutian winters are less bitterly cold; fish, shellfish, sea-mammals and, on some islands, reindeer are available. Because severe storms may last a week or more when no boat should venture out among the reefs and riptides of the Islands and since fog as well makes travel dangerous, it is important that these people be encouraged to lay in for the winter good supplies of dried or salt fish and meat.

Information now is becoming available as to the nutritional values of Alaska's native foods. Such dietary studies should be encouraged and supported. Their findings should be put into the public's hands and not be reserved for reports at scientific conventions and publication in scientific journals. Too few white people realize how deficient is the present Aleut diet and even fewer are seriously concerned about it, although the good effect of the school lunch program has been revealing to teachers.

New sources of income for the Aleuts and new opportunities for production should be investigated. For example, sheep can be raised successfully in the Islands. Rabbits and chicken were introduced into the Islands after World War II. But a people who have been hunters and fishermen for thousands of years cannot be expected to become husbandmen overnight. They are intelligent. Give them good instruction and a real incentive and they will learn. But without adequate instruction or initial supervision, they found it easier to eat the rabbits and the chickens than to tend them.

As we have attempted to show briefly, health and medical care, though an important part, is only a part of the Aleuts' urgent needs. The first criterion of potential assistance should be a screening and training of the technical personnel, to make sure that every government employee sent to the Aleutians has at least a socially wholesome attitude toward them and preferably some familiarity with their culture and history. They need to understand, without getting sentimental, the historical responsibility for the Aleuts' low morale, low income, and low energy. Every such employee should have demonstrated his capacity to understand the human and economic needs of any poor, small, isolated communities, and especially villages that see themselves as the last fragments of a once capable race.

White administrators and technicians can do their best teaching by example, especially as to habits and practices the Aleuts are able to imitate. They have dealt with the white race for more than 200 years — for more than a century with the Russians and for almost a century with Americans — and have a long memory for the discrepancy between words and deeds. Two centuries of misfortune have made them increasingly timid. They need leadership. Most of them are quick to emulate anyone worthy of respect.

The anthropologist does not suggest that an old culture should be preserved intact or that it should be resurrected from remaining bits and pieces. What is important is that it should not be derided. It is always possible to select some admirable elements for praise. *Using the criterion of well-being in the local Alaskan setting* — not in the setting of the states back home — it always

is possible to discriminate between those customs which have, in principle, something admirable and which may be adapted to present needs and those customs which are disruptive and present an obstacle to adjustment.

It is difficult for the modern health worker to realize that among traditional Aleuts sickness must not be mentioned. Always the emphasis must be placed upon maintaining or regaining health and strength. Among the older and conservative people, the person who talks about illness is suspected of bringing it about through witchcraft. Even the more modern young people who no longer entertain such beliefs may feel uneasy when the subject is brought up.

It seems difficult for people with a mission not to feel they must do all the talking. Actually, they can establish confidence much sooner by listening. By taking the time to meet all sorts of people and elicit their opinions on all kinds of subjects, the professional health worker is much more likely to learn what troubles both the patient and the community. He can learn who has the most influence, what are the rivalries, and how to use both for a sound action program.

The Aleuts can be proud of their ancestors who were a skillful people, remarkable hunters and fishermen, travelers and geographers. The Aleut of today can most profit by skilled technical assistance which is administered by those who will reestablish his pride.

The Eskimo.

According to archaeological evidence, the Eskimos have been in Alaska at least 5000 years. Permafrost has preserved the remains so that one may see the extent of that past culture, indicating that ideas were received by cultural diffusion from as far away as the Kurile Islands and Japan. In addition, during a warm period about 900 years ago some Eskimos, a maritime people proficient in whaling, pushed eastward from north Alaska. Archaeological traces of their type of culture, known as Thule, have been found on the second tier of islands north of Canada. These islands have been uninhabited in our day until the Canadian and American governments joined in setting up weather stations there during the past ten years.

The Thule people spread down and through the first tier of islands, encountering the Dorset Eskimos, who had occupied the eastern American Arctic for many generations. The Thule followed the Dorset to northeast Greenland, where the ice cap recedes from the shore.

Anatomically, linguistically, and culturally the Eskimos of the northwest coast of Alaska down to Seward Peninsula are clearly different from those south of the Peninsula, the northern people linked by language with the Canadian and Greenland Eskimos. Modern St. Lawrence Islanders, on the other hand, are related to the Siberian Eskimos.

No genetic deterioration is implied by the decrease of territory now occupied by the Eskimos nor by the loss of certain skills and elements of culture, such as ceramics. Apparently they left the high Arctic of Canada and northern Greenland because of worsening climate and decrease in the sea mammal population. Their withdrawal up the Labrador coast from the Gulf of St. Lawrence probably was due to the advent of white explorers and settlers. Developing skill in

making of wooden utensils, the Bering Sea Eskimos lost interest in pottery, which is hard to make without brick kilns. Eskimos are a practical people about most of the material in life.

Everyone who has come to know the Eskimos really well not only likes but admires them. During the past 3,000 years and more they have observed and experimented in their habitat have developed a remarkable technology for dealing with it. It would be a tragedy for the rest of us if this were lost.

The Eskimos had been getting some metal tools in trade for a long time from across the Bering Strait, but there was no continuing white influence upon the people of the east Bering Sea and the lower reaches of the great rivers until, during the 1830's, the Russians established posts at St Michael and on the Yukon and Kuskokwim rivers. The influence of the crews of whaling ships on northern Eskimo coastal villages was more widespread and harmful.

Presumably, the Russians brought smallpox with them, for a devastating epidemic (the first recorded) struck during the same period.. Smallpox was followed by a series of epidemics against which the Eskimos had no defense: measles, diphtheria, tuberculosis, and finally influenza. With more than a 50 percent reduction in their numbers, arrival of a conquering people and massive impact of new goods and strange customs, the Eskimos have displayed remarkable resilience in being able to maintain the basic elements of their own culture.

Exceptions must be noted for the Pacific Eskimos who are nearly extinct around Prince William Sound, entirely gone from Cook Inlet, and so modified on Kodiak Island that they are not recognizably Eskimo and do not consider themselves as such. The Brooks Range Eskimos, also, of the northwest interior, are few in number. This report deals principally with the Eskimos of the islands in the north Bering Sea and those inhabiting a fairly wide strip along the coast from Bristol Bay to Pt. Barrow.

The most common house of the aboriginal Eskimo was semi-subterranean with a frame of drift logs or whale bones covered with sod and having an underground entrance that served as a cold trap. With or without a seal-oil lamp, it could be kept warm enough for warmly dressed people, even with outside temperatures at 30 degrees below zero. A house that can be kept habitable with so little fuel is a necessity for people in a treeless country where driftwood is often scarce and animal oils are needed for food.

By modern American standards, the interior of such a house was dark and dirty, as were the sod huts of some of our forbears when they broke ground on the prairies. Attempts at cleanliness were made, however. Among some groups around the Bering Sea, the walls and benches were covered with matting which could be changed when torn and dirty. In the daytime, furs used for bedding were rolled back against the wall. On St. Lawrence Island and at Bering Strait, the interior of the winter house was lined with walrus skin.

Except in the middle of winter, Eskimos moved to a succession of camps for hunting and fishing. If a house is crowded and hard to keep clean, it is wise to leave it for part of the year.

Nowadays the Eskimos are persuaded to build permanent houses and live in them the year round. They are difficult to heat even to a low level. Imported coal and fuel oil are very

expensive. To the visitor, these frame houses with windows look more healthful than the old split-log, whalebone and sod huts, but lacking a plentiful water supply, they are often unsanitary. The Eskimos very much need good housing, but it must be functionally adapted to the climate and the needs of the people.

Prior to the permanent presence of white men there was in every Eskimo winter village, a community house or kashim (variously spelled "kazigi," "kashgi," etc.) which "was vital to the social practices of the Alaskan Eskimo, for in it was centered much of their cultural life. It touched the daily lives of all the people intimately throughout the entire winter season serving as a hostel, club, workshop, school, theater, and church. "Because of its religious function — actually a minor one — the early missionaries encouraged its destruction. By their successful efforts, the village lost the major force which had made it a functioning community and failed largely in providing a substitute.

In northern Alaska, people dipped into the common pot while eating. In the lower Yukon-Nunivak region, each person had his own wooden dish. The further south one goes, the more fastidious become eating habits. By either technique of eating, there was less contamination of vessels than when unwashed cups are used by several family members, a common occurrence today.

Some writers have portrayed complete communalism among the Eskimos, which is erroneous. Prosperous people and poor people were among them. In time of food scarcity, there would be a more general sharing of what little was available. According to the code, the successful hunters provided food for the community; if they were really good men, they supplied food to orphans and elderly people. Rather than promiscuous sharing, assistance followed the lines of kinship and formal partnership, not unlike that of the early Athabaskans. Partnerships between two people were entered into — or might be inherited — on differing bases in different localities; but they were everywhere and they were important, amounting in some places to a complex network which included every person in the community. They functioned not only as alliances to promote business and friendship, but also as insurance and mutual aid societies. When the Alaskan Eskimo ceases to recognize his obligations in the extended-kin group and in his partnerships, a whole series of welfare and economic institutions must be set up to replace them.

The old life was less drab than today. There were occasional "starving times," but when people had their usual food, they had energy and foresight. They showed a capacity for organization. In the Bering Sea region, preparations preceding the big winter festival and the festival itself lasted 15 days or more. There were games and athletic contests, feasting, ceremonial singing, dances as intricate as a ballet and requiring much skill. There was an exchange of gifts and the display of new clothing.

The shaman was an important person upon whom the community depended but whom it often feared. Spirits appeared to him in visions and gave him special power. It was believed he

could perform miracles. When in a trance, the shaman's soul went on a journey in which it might see, for example, the evil shaman who had caused an illness.

A layman, too, might have visions but less often. Perhaps a song would be revealed to him or the inspiration for a song he would compose. Because of their supernatural origins, "power-songs" were of great importance in healing, preventing accidents and averting danger. They were to the Eskimo what prayer is to the devout Christian. Even today the Eskimos love to sing hymns, perhaps they are felt to have the religious power of the old songs.

When there was sickness or other misfortune, such as failure of the hunters to get seals, the shaman might learn — presumably by spiritual means but probably through observation and gossip — that a member of the group had broken a tabu. The sinner would be called upon to confess, which he or she usually did. If the misfortune continued, others would be urged to confession until things were set right with the spirits who inflicted the punishment.

The Eskimos of today have responded freely and emotionally to the exhortation of missionaries to confess, privately or publicly, according to the denomination. This suggests that as individuals they are concerned not only about their own souls but that they feel a common guilt for the continuing misfortunes of their families and their communities.

Amulets were believed to have great power. They were worn on the body or fastened to equipment such as the harpoon lines on the kayak. Anything transportable might be used since it could be endowed with power by association with a supernatural episode or sign.

The white man and the Eskimo have different attitudes regarding heat. The

Eskimos probably were right in feeling that sweating is dangerous in a severely cold climate. School teachers commonly provide over-heated classrooms for Eskimo children who come from homes that cannot be kept so hot or from what may be very cold conditions on the trail and in hunting camps. Eskimo families who can afford fuel oil now enjoy very warm houses, so that young people especially undergo rapid changes of temperature as they go about their work and play.

The Eskimo has seen to it that his foot-covering is adequate and he knows how to take care of it. In the east Bering Sea area, for example, each person made his own insoles of dry, coarse grass which were removed at night to be dried. If the supply of grass permitted, these were thrown away every three or four days and new insoles substituted. (Today, felt insoles are used.) It was considered more important to keep the feet dry than to keep them warm.

The Eskimo pharmacopeia on the north coast was meager. In Southwest Alaska home remedies were more common. (Since this has been presented in detail elsewhere, it will not be repeated here.) Because of the large proportion of concentrated foods in their diet, with little roughage except when they are eating berries, constipation has been and still is a common complaint among older people — often constipation alternating with diarrhea. Medical personnel are concerned regarding the latter while Eskimo adults are likely to worry more about the former.

Before the Eskimos had access to canned or dried milk, a child would be suckled for at least three years. Typical Eskimo parents are gentle, patient and permissive with their young children.

They are shocked by the comparatively harsh discipline and control in white families. They instruct by the telling of folktales which dramatize the success that comes from good action and the failure that comes from bad. Not only because of a genuine affection but also because they were supposed to be the reincarnation of recently deceased elders, children were — and usually still are — treated with both indulgence and respect.

Eskimos believed that a person who died a violent death would go to a pleasant sky-world while those who died from sickness or senility went to a gloomy under-world, although not Hades in the sense of a place of punishment. This belief seems typical of the Eskimo. If they live according to their code, they are a self-reliant people, do not complain of their maladies and are without overt hypochondria. Through their legends, children acquire the values of realism, self-direction and pragmatism.

The Eskimo is well-mannered. He is tactful, closely observant, and likely to imitate the speech and mannerisms of others — although he sometimes ridicules them in private. All this good socialization apparently is achieved by repression. He appears to be an extrovert but is not the psychologically simple person that most white people assume him to be. There seems to have been a moderately high incidence of mental disease among Eskimos for a long time.

Although a typical Eskimo community, like that of any other race, shows a range of intelligence from high to low, there is a concentration in the “above average” category, compared to the average for white communities in the United States. Certainly Eskimos appreciate factual instruction and have shown a capacity to profit by it.

In dealing with the health and medical problems of the Eskimos, it should not be assumed that they will automatically understand and welcome vaccinations and other preventive measures. One of their traditional explanations is that illness is due to an evil foreign agent in the body, a vary material “pain” sent into one. They were initially dubious about the good of any injections, but now accept them. To old people it can be explained that the procedure is like wearing a charm to ward of some particular illness except that now the charm is placed within the body.

A tone of condescension is fatal. The adult Eskimo is not a fool but an extremely shrewd and observant human being. Even a good explanation is completely negated by the tone which says, “This isn't really true but it's a good enough story for people like you!”

Except in the most extreme emergency, there should be no rough handling of a child. Even though a nurse may need to work fast to get back on the ship or to catch the next plane before a storm comes up, she will endanger future cooperation if she clutches a screaming child, jabs a needle in his arm and pushes him back with a look of disgust for parents who can't control their children.

It is a mistake to take advantage of the Eskimo's docility. Most of them are impressed by the apparent wealth, assurance and authority of white people. They do not want to oppose such powerful people. But in personal matters such as the care of the sick, they will not comply with orders they do not understand or which seem to them unreasonable. Before health programs are

undertaken, it is necessary to talk with — not at — the group involved, to make sure it understands and approves the plans presented.

To get enough to eat and to obtain a nutritional balance, it is necessary for the Eskimos to utilize all local food. Fortunately, many still do enjoy the traditional diet. There are, nevertheless, a large number dependent on "store food" after a period of paid employment where such food is available. Many Eskimos are too poor to buy eating utensils for each member of the family. If tubercular patients are given chemotherapy in their home villages and not hospitalized, the provision of such household items, and of soap to wash them, which is relatively inexpensive and helps to avoid contamination, should be sought, perhaps through the voluntary health agencies.

The small and widely scattered Eskimo communities have been a matter of concern to Alaskan officials because of the difficulty in supplying them with health, education and other services. With and without government urging, over the past hundred years there has been a slow consolidation of native villages, inevitably speeded up in consequence of epidemics. Most anthropologists, after study of the situation, recommend against any attempt to force further consolidation of the remaining villages. The alternative should not be "just leave them alone." It should be a custom-tailored job of technical assistance to utilize known natural resources.

The Eskimo's capital is his mechanical skill, geographic knowledge, and the personal traits of endurance, patience and self-reliance. So long as he does not have access to a large industrial economy, he must keep the capital of his old economy.

Alaska does not yet have the kind and quantity of industry to keep large numbers of people employed the year around, as do many of the States. The Eskimo seems to get along best with a combination of paid employment and subsistence from fishing, hunting, and trapping. Although he can spend many days alone on a trapline, or a single family will, if need be, spend weeks alone in a fishing camp, Eskimos tend to be gregarious. There is not total sharing but there is more sharing among them than in almost any segment of U.S. society. They find it hard to understand why white people who have so much share so little with other people.

No kind of livelihood is good if there is no margin beyond the bare necessities. Nevertheless, if the alternatives for the Eskimo are not having enough to live on in a strange town and not having enough to live on in the home village, the latter is both socially and psychologically more desirable for him.

It is highly desirable for the village to be improved. It can be improved in housing and in health standards as well as in local organization for community controls and services. So long as the indigenous peoples remain in their traditional home region, with wise leadership they can acquire real competence in modern technology, as they have shown their ability to do on white man's projects. In the village they can still maintain their old knowledge of the country, some of their old skills and, where traditional natural resources continue to be available, their old ability to support themselves in part in a non-monetary economy. The latter is essential as a hedge

against the fluctuations and withdrawals of paid jobs in the white man's industries and construction projects.

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DEMOGRAPHIC CHARACTERISTICS OF ALASKA

General.

Health services in Alaska and elsewhere, to be successful, must be organized and provided on an individual community basis. Moreover, they must be adapted to the size of the community, to its geographic location and to the age, sex, ethnic stock and other traits of the people who inhabit the community.

In this section we present original data and summarize the available — although often inadequate — data which describe quantitatively those aspects of the population which are intimately connected with health problems such as distribution, composition and growth. These aspects must be given due consideration in planning any solutions to health problems.

Among these aspects, the pattern of growth, particularly the growth among the native communities deserves careful examination. An understanding of this pattern, we believe, can throw new light on the expectations for Alaska's future.

Distribution of Population.

Alaska is sparsely settled with a population, according to the 1950 census, of 128,643 persons. Spread these persons over a land area of 571,065 square miles and we have a population density of 22.5 persons per 100 square miles, or about one two-hundredth of the density of the States.

Essential feature of Alaska's population distribution is the existence of many small villages, mostly unincorporated populated places, scattered over a wide area, and only a few urban centers. Nearly one-half of the 287 places named in the 1950 census have a population of only 25 to 99 persons, and an additional 30 percent have a population between 100 and 199 persons. Thus, the village size of greatest frequency is that having less than 100 persons.

There are only six urban centers in Alaska — places with 2,500 or more persons. Most of the urban centers are located in the south and the southeastern portion of the Territory. In a recent analysis of the 1950 census report, Albrecht and Kester point out that three areas of population concentration may be described for Alaska:

1. The southeastern Alaska "panhandle" where there is a population of 28,200 persons in an area of 34,400 square miles.
2. Anchorage and the area within a radius of 75 miles of the city in which there are 38,500 persons in less than 18,000 square miles.
3. Fairbanks and an area within a radius of 20 miles of the city which contain some 18,000 persons. Therefore, as of 1950, the remaining one-third of Alaska's population — approximately 44,000 persons — was spread over more than 500,000 square miles in villages typically of less than 100 persons, separated from other villages of similar size by distances up to one hundred miles or more.

Composition of the Population by Ethnic Stock, Age, Sex, Employment Status, and Education.

Ethnic Stock. The native population — aboriginal stock — enumerated in 1950 was 33,863. Most numerous was the Eskimo with 15,882, the Indian next with 14,089, and the Aleut with 3,892. With the exception of 1,972 non-whites — Negro, Japanese, Filipino. etc. — the remainder, 92,808, was white. Aside from the substantial number of natives, their geographic distribution is especially pertinent for this study. The two maps prepared by Weiss, Figures 1 and 2 [on pdf, not duplicated in this document], bring out effectively that the natives live primarily in the scattered villages mentioned, while the whites are concentrated in the more urbanized centers.

Employment Status. In 1950, some 20,000 males 14 years of age and older were in the labor force but not in the civilian labor force. They were military personnel stationed in Alaska, and represented one-fourth of all the male population.

Certainly the military, together with their dependents, swell the size of the population of Alaska. In many respects, however, this group does not constitute a load for the organization and provision of health services since it brought with it the facilities and personnel required for adequate medical care. In fact, as is mentioned in a succeeding chapter, military health activities give considerable assistance to the solution of the health problems of the Territory.

Among the 25,000 employed white males in the civilian labor force, the highest proportion — 20 percent — is employed in the construction industry. Another 16 percent is employed in federal public administration, another seven percent in forestry and fisheries, and seven percent in railroads and railway express. Thus these four categories of industry employ 50 percent of Alaska's male population in the civilian labor force.

Among employed native males, hunting and trapping is traditionally first and employs 28 percent of the males in the civilian labor force. Forestry and fisheries employ 21 percent, and 14 percent are employed in the manufacturing of food and kindred products.

The large proportion of white males employed in construction work points up the significance of military installations in determining the size and growth of the white population. When we recall that a large proportion of the male population is employed in federal public administration, we become increasingly aware of the importance of federal enterprises in the Territory's economy.

Occupations of the natives, on the other hand, reveal that they are still dependent upon hunting or fishing or some utilization of the wildlife of the land and sea to earn their living.

Education. Only a few of the adults in the white population of Alaska are without schooling, less than one percent of the enumerated population 25 years or older in 1950. The great majority — 95 percent — have more than six years of elementary school education. In contrast, nearly 30 percent of the non-white adults, mostly natives, 25 years and older have no schooling at all, and

only 30 percent have gone beyond the sixth grade. Undoubtedly, the inclusion of other color-groups underestimates the high degree of illiteracy among the natives.

Age — Sex. There is nearly an equal number of males and females in the native population, and as Figure 3 illustrates, an age distribution characteristic of a population with high fertility and high mortality. Among the whites, there are 186 males for every 100 females, and the age distribution is characterized by a substantial number of young adults. Thus, the age distribution reflects the substantial proportions of Alaska's population composed of military personnel, construction workers and temporary immigrants.

Growth of the Alaska Population.

General. The population of Alaska grew slowly from 1880, when the first census was taken, to 1929, during which 50-year period it did not quite double. Since 1929 — and particularly since 1939 — there has been a highly accelerated increase in population. That acceleration has been such that during the period from the last census in 1950 to 1953, the population is estimated to have increased from 128,643 to 205,000 — an astounding 59 percent.

The pattern of growth is illustrated in Figure 4. Not until the census of 1890 were there more than a handful of white persons enumerated in the Territory. By 1900, the number had risen to nearly 35,000 because of the gold rush, and thereafter until 1950, it remained fairly constant fluctuating within a range of $\pm 6,000$. This indicates that the preponderance of whites in the population was composed, not of settlers who "raised families," but of more or less temporary immigrants.

The tremendous increase in population since 1939 — and especially since 1941 — reflects the progressive development of military installations. As of July 1953, military personnel alone constituted nearly one-quarter of the Territory's total population and nearly one-third of the non-native population. In addition to service personnel and their families, development of military installations has brought into the Territory many construction workers who form a large proportion of the employed population, along with their wives and children.

We have no way of estimating the size of the workers' families. For one military installation, however, we have the calculation that each military has, on the average, 0.8 of one dependent in Alaska. If this figure could be projected to all 50,000 military in the Territory, it would mean that 40,000 of the estimated 117,000 civilians in 1953 — exclusive of natives — are dependents of the military.

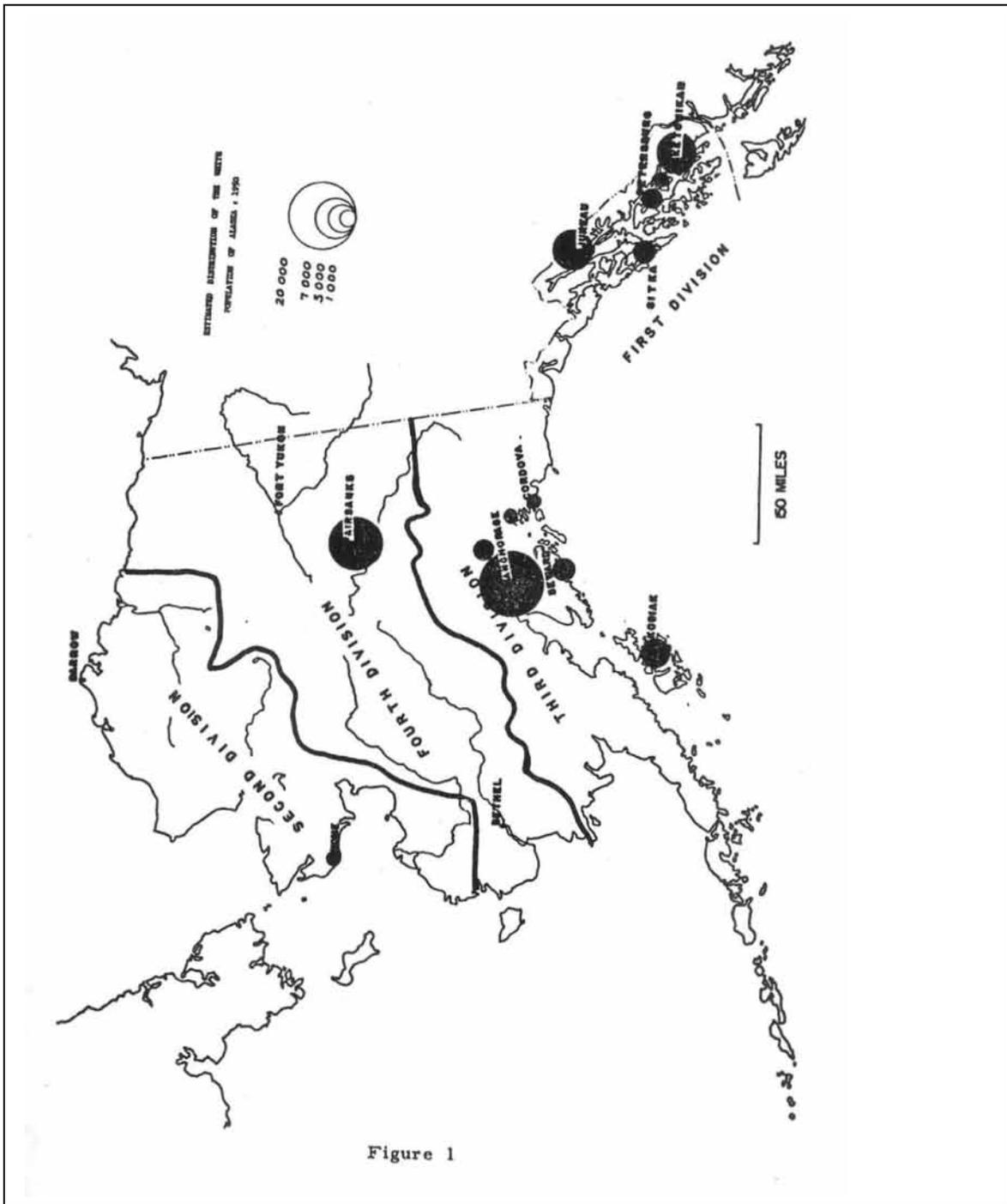


Figure 1

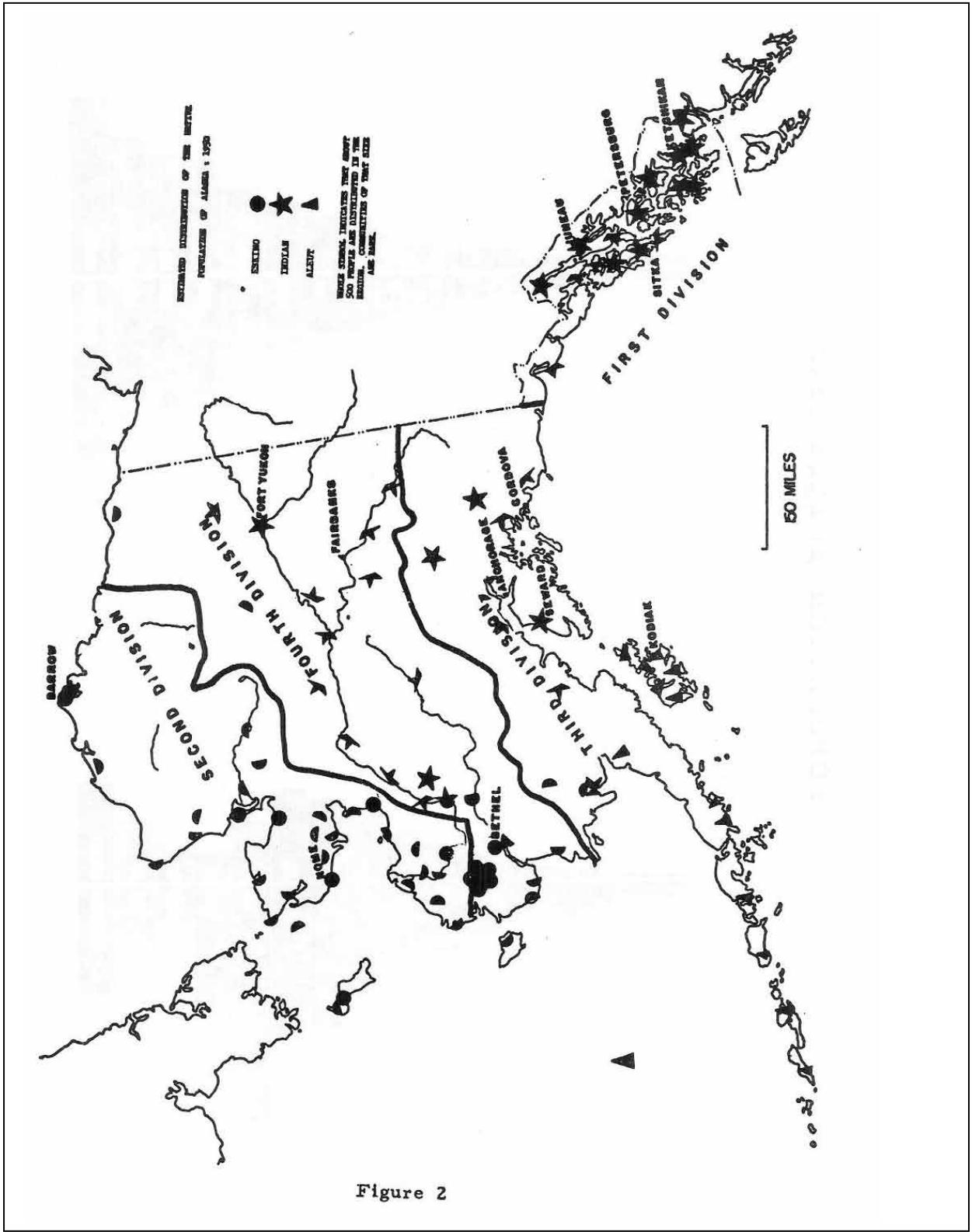


Figure 2

POPULATION, ALASKA, 1950

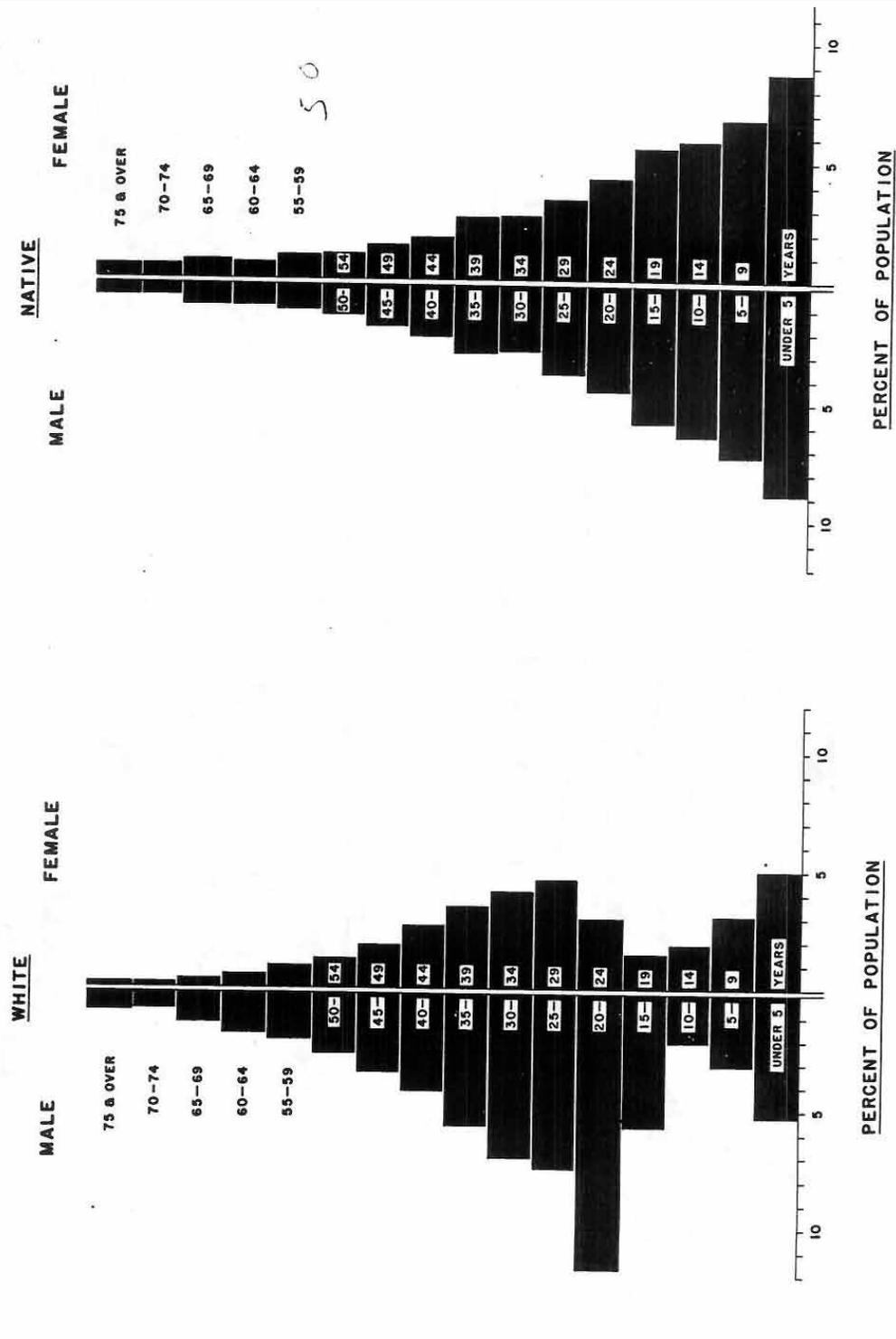
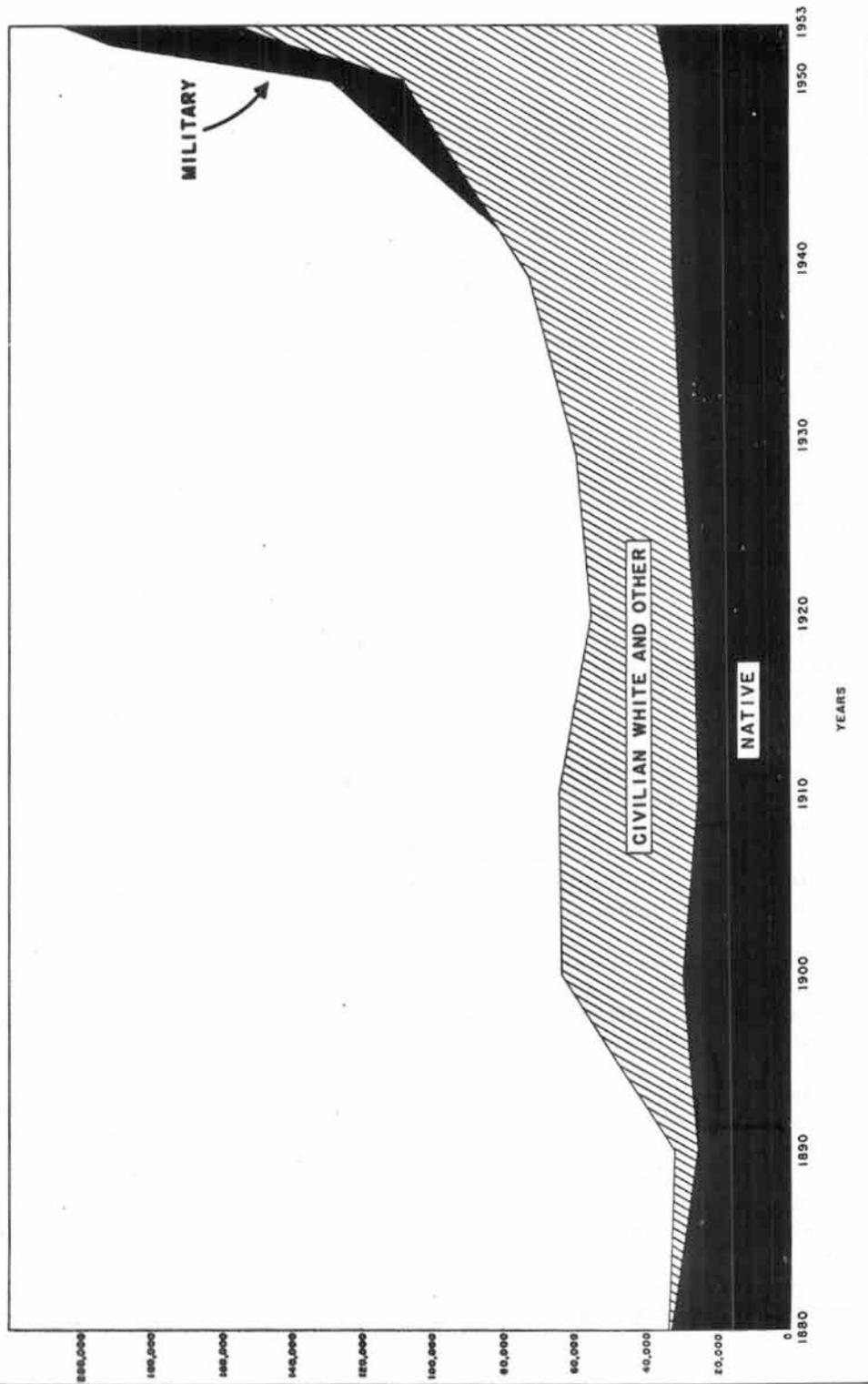


Figure 3

POPULATION OF ALASKA, 1880-1953



LIVE BIRTHS PER 1,000 MARRIED WOMEN BY AGE, ALASKA AND UNITED STATES, 1950

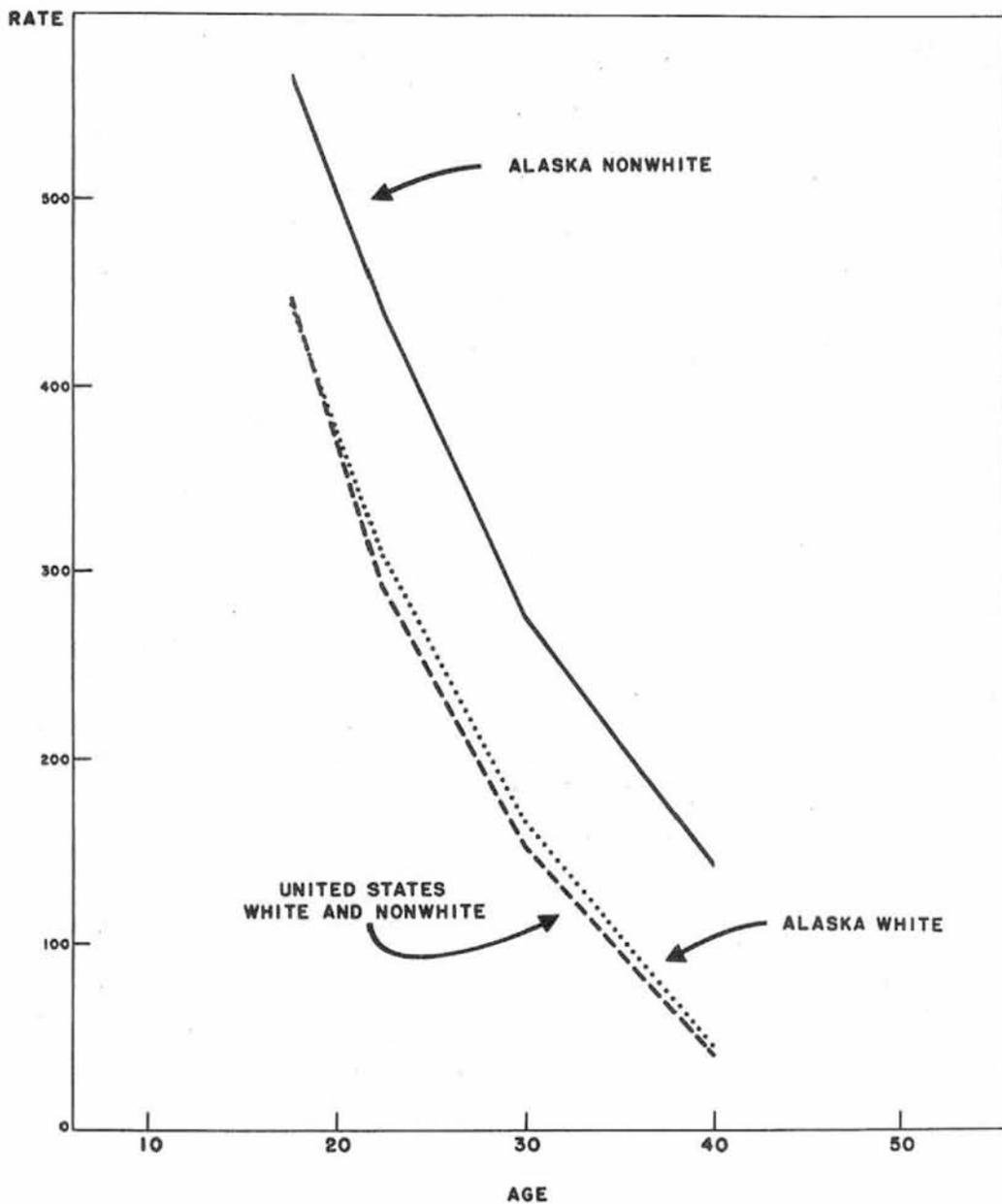


Figure 5

Growth of the white population in Alaska, then, is directly related to the development of military installations. Estimates of future public health requirements in terms of population size must take into consideration the permanency of the military personnel and the demands of the dependents of the military on community resources, and the permanency of civilians building installations or building and operating community adjuncts to them such as schools, stores and recreational facilities. Currently, it appears that dependents of the military while making few demands on local physicians and hospitals near the posts, are, however, responsible for a substantially greater load on the community in connection with environmental sanitation, housing and other services.

According to census enumeration, the native population remained practically stationary in size from 1880 to 1950. This could reflect a true situation resulting from a mortality equal to a high or low natality. It could also reflect assimilation of the natives, or be a census artifact due to under-enumeration or change in definition of the term "aboriginal stock."

For all natives the census enumerations record an increase of only 1,405 persons between 1939 and 1950, less than 4 per 1,000 annually. A more rapid growth has apparently occurred in recent years; vital statistics registrations show that births have exceeded deaths in the natives by about 1,000 each year since 1950.

Migratory Movement. The importance of immigration in the growth of Alaska's population in recent years is strikingly demonstrated by estimates of the Alaska Development Board and the Alaska Department of Health. They calculate that during the period January 1, 1950, through December 31, 1953, a total of 454,229 civilians entered Alaska while only 419,191 departed, resulting in a net increase of 35,038 persons in the Territory.

They estimate also that during the same period, the difference between births and deaths amounted to 15,528. Thus, of the total calculated net increase of 50,666, 70 percent was due to immigration. Whether or not this immigration is permanent or temporary is not known.

In terms of public health problems which may result from such movement it should be remembered that this migration is seasonal, the immigration peak occurring in June and the emigration peak in August. Even though we may be dealing with transients, the movement is of such a nature that in recent years 15,000 to 20,000 persons have entered the Territory during the peak months — a substantial load relative to permanent population.

Natural Increase. The natural increase of the population — difference between births and deaths — provides about one-third of the increase during the period 1950-1953. While in 1950 the mortality for Alaska as a whole was only slightly higher than that of the States, (discussed in detail in Chapter III), the birth rate equaled 29 per 1,000 population in contrast to 24 for the States. The higher birth rate in Alaska was found for whites as well as for natives — 25 per 1,000 population in the former and 40 in the latter.

In part, this higher birth rate may be attributed to the younger age of the Alaska population. It should also be noted that among the whites especially, there is a high proportion of married women. In fact, when we examine the relative number of births to white married women by specified age classes, we find little difference between Alaska and the States, Figure 5. However, the reproductive pattern of the non-whites — mostly natives — was different, with higher fertility at all ages than observed among the married women of the States or among the Alaska whites.

In considering the demands which births make on public health and medical care facilities of the Territory, it should be kept in mind that for the whites the majority of the births occur to wives of the military. In fact, in 1952, all registered births, other than those among natives showed that for 2,110 births the fathers were military and for 1,886 births they were not.

The Native Villages. How to provide adequate health services to the many villages scattered over more than 500,000 square miles is the major problem facing both the Alaska Native Service and the Alaska Department of Health. An answer to this question, especially for purposes of future planning, requires an understanding of the trend in the growth pattern of the populations in these villages — the number of villages increasing in size, remaining stationary or decreasing; the extent to which mortality, natality, emigration and immigration is related to population changes. The analysis summarized here is an attempt to obtain some definite knowledge on the question.

From an examination of changes reported by the censuses of 1939 and 1950 in the number of villages according to size, there is no clear indication of any trend toward urbanism on the part of the native. During that time, the number of towns with a population of more than 1,000 jumped from eight to 15. This accounts for the bulk of the increase in population between the two censuses, but reflects the white immigration already mentioned.

In the 1950 census there were 141 places listed with 25 to 99 inhabitants as against 102 in 1939. This is due to the inclusion in the 1950 census of 47 places not mentioned in 1939. As a result, we find 8,300 persons living in villages of less than 100 in 1950, compared to 5,800 in 1939.

If we assume the predominant population of villages of less than 100 to be natives, then it would seem there is no evidence of either the disappearance of the small village or a general trend toward urbanism on the part of the native. Bearing on this inference are findings that only nine of the 102 villages under 100 listed in 1939 increased in size to about 100.

Furthermore, as of 1950, only 1,933 natives lived in urban areas. Of these natives, 1,657 were Indians, 234 Eskimos and the rest Aleuts. When we recall that the Indian lived originally in some of the areas that have become urbanized, while the Eskimo and Aleut did not, it does not appear that up to 1950 the natives had been attracted in large numbers to urban centers.

Changes in Village Population and Size.

In seeking data to elucidate the important question of what is happening to the native population — whether or not it is reproducing itself or dying out — we observed in the villages visited that the Alaska Native Service school teacher conscientiously and interestedly maintained a household roster of village inhabitants. A copy of that roster corrected for changes due to births, deaths and migration or counts made from the corrected roster was periodically sent to Juneau. With cooperation of the Division of Education of the ANS and with the help of the Bureau of Vital Statistics of the ADH, we were able to obtain copies of these records for 103 villages, many covering a span of time from 1946 to 1952. These records constitute the material on which the following analysis is based.

These rosters are said to have been the main source of census enumeration for 1950 in the villages concerned. Therefore, data obtained from them cannot be used to check accuracy of the census report. Comparison of total population of these villages with that reported by the census shows the agreement expected. Actually, the roster indicates a population approximately 2 percent higher than that reported by the census. It should be remembered, however, that census covers only a point in time — presumably April 1, 1950 — while the roster includes the population residing in the household for all or part of that year.

The 103 villages on which we have counts for two or more years beginning with 1946–1948 had, at the initial period, a population of 16,692 of whom all but a few were natives. Thus, these villages contain about one-half the native population. Between the initial period and the final period in 1950-52, an average of 4.9 years later, the population had increased to 17,425 for an average annual gain of 9 per 1,000 over the initial period.

This rate is more than double that observed for the total native population between 1939 and 1950. However, the comparison may not be entirely valid because records we have include proportionally more of the larger villages than those smaller ones inhabited by the natives. And, as we shall see, the rate of growth differs according to size of village.

Among all the 103 villages, 53 showed an increase during the period of record, 41 decreased and nine did not change. This finding is consistent with that reported on changes observed in all villages between 1939 and 1950. More small villages, of less than 100 persons, increased in size than did larger villages. We find that 20 of the 33 of the small villages under 100 population increased, in contrast to 20 of the 47 medium-sized villages of 100–199 inhabitants, and 13 of the 23 large villages with 200 or more inhabitants — actually between 200 and 400 inhabitants with one exception.

Thus, it would appear that villages of all size show positive growth. Amount of growth actually has been greatest in large villages. The growth rate in large villages during the period of records has been, on the average, 21 per 1,000 annually of the initial population. In small villages it has been 5 per 1,000, and in the medium-sized villages it has been negative, a -6 per 1,000.

Although large villages demonstrate an increase when considered together, there is considerable variation in the growth pattern for individual villages. At the positive extreme we

find that Bethel increased an average of 24 percent annually between 1946 and 1950. At the negative extreme, Afognak decreased on the average by about seven percent per year during the same period.

Only four Indian villages of the southeast are included in this group of larger villages and all of them showed sizable increases. All of the seven large villages that declined in size are Eskimo or mixed and are about equally divided between the north and south portions of the Territory.

From examination of the data so far we can infer that small villages are persisting, but that the increase in population is primarily found in large villages. Population of villages between 100 and 199 persons, on the aggregate, seems to be on the decline. Growth patterns observed result from the interplay of natality, mortality and migration, the elements of growth.

For a preliminary determination of how each of these elements of growth has contributed to the increase or decrease of populations of native villages, we selected a sample of one out of six villages at random from the 103 villages and followed each individual in each family from year to year on the roster.

Among the 17 villages thus selected, data regarding movements were partially incomplete in four, so that for most of the following analysis we shall use the records of 13 villages. While births were clearly identified on the records deaths were not. Therefore, in this preliminary analysis we cannot be certain regarding either death or out-migration rates, except we know that together they give us a measure of the out-movement of people from villages studied.

Data on the 13 villages refer to 10,412 persons-years, those on the 17 villages to 13,483 persons-years. In Figure 6 we summarize the findings of this analysis. For all villages the average annual birth rate is 39 per 1,000, nearly identical to the birth rate obtained from vital registration. The death rate cannot be determined exactly, but is between nine and 32 per 1,000 population.

Differences in both in-migration rate and birth rate account for the fact that some villages increase while others show a decrease. This is illustrated in Figure 6 where for a sample of the villages we compare those that have shown (a) large increase, an average of three percent or more annually; (b) have not changed, i.e., have varied within a range of less than three percent in the five years; and (c) have shown a large decrease, an average loss of three percent or more in population per year.

As we would expect in communities such as these Alaska villages, characterized by a primitive economy, where an increase occurs it results primarily from the movement into the village of persons from other places. Accordingly, the in-migration rate is found to be highest in the villages with a large increase, lowest in the villages with a large decrease. It is very surprising to find, however, that the birth rate varies also in the same direction; it is also highest in the villages with large increase and lowest in the villages with large decrease in population. In this group of villages the birth rate is not very high by any standard and is well below that observed for the native population in the territory as a whole.

The remarkable differences in birth rate among the three groups of villages is not due to any difference in age distribution of women. This is clearly seen in Figure 7 where we compare age specific birth rates. For each age group, women in villages with a large increase have a higher average birth rate than women in villages with no change or a large decrease. For the age group 25–35, average birth rate to women in villages with a large increase is nearly 4 times that of women residing in villages with a large decrease. Other reasons for the sharp differences in birth rates among the villages could be differences in exposure to risk of pregnancy due to absences of the husband on hunting and fishing trips, or in reproductive wastage — abortions and miscarriages. We have no information on either possibility. In view of the cultural level of the populations of these villages we need not even consider possible differences in the use of contraceptives.

The importance of birth rate as a determining factor in the growth of these villages is significant. It means that in some villages either social customs or disease conditions are keeping the birth rate down. It means also that in other villages with extraordinarily high birth rates, more rapid growth could be anticipated if the mortality were reduced.

Size of village is also related to the growth rate and to the growth pattern. The large villages (200 or more persons) have had the highest rate of growth, the small villages of less than 100 persons the lowest. Furthermore, as is apparent in Figure 8, in small villages that have had a large increase, in-migration accounts for the major portions of the growth, while in large villages with similar growth rate, a high natality has had a preponderant effect on the increase.

These differences between large and small villages deserve careful consideration. Growth of large villages has taken place not only through in-migration but also through a high birth rate. This would indicate that the population of the large villages has the reproductive vigor to develop a more stable and larger community, and perhaps evolve an economy dependent on employment other than hunting, trapping and fishing. On the other hand, the small village of less than 100 depends for its growth on in-migration; in this sample, one half of it from larger villages and one-quarter from villages of 1,000 or more. These small villages have persisted for some time, perhaps because of their geographic location, and will continue to exist only so long as they can compete with other areas in offering an opportunity for making the simplest kind of living.

Summary.

The following appear to be pertinent findings on the distribution, composition and growth of the Alaska population:

1. Alaska has a sparse population, spread over a large area. The typical village contains less than 100 persons and there are only a handful of urban communities — primarily in the south, south central and southeastern parts of the Territory.
2. The white population is concentrated in the urban centers, while the natives of aboriginal stock inhabit the rural areas for the most part.

3. The bulk of the employed white male population is composed of military personnel stationed in Alaska, of construction workers, and of employees of federal public administration. The majority of the native males are employed in hunting, trapping, forestry and fisheries.
4. There has been a remarkable spurt in the growth of the white population of Alaska beginning with World War II and related to the development of military installations. In addition to military personnel and construction workers, families of both groups have been brought into the Territory. Dependents of the military, it is believed, form a substantial portion of the population.
5. In each of the four years beginning with 1950, more than 100,000 civilians on the average have entered the Territory. A slightly smaller number has departed leaving a net increase of some 50,000 for the four-year period. The movement is seasonal with the immigration peak in June and the emigration peak in August.
6. Until 1950, the growth of the native population has been very slow according to reports of census enumerations. There is evidence to indicate that between 1946 and 1952 the annual growth rate is twice as high as that observed between 1939 and 1950.
7. The increase of the native population has taken place for the most part in villages of 200 or more persons and has been due to a high birth rate. Although populations of villages with less than 200 persons have shown little increase in size, at least the villages of less than 100 persons continue to exist; in fact, they show few signs of disappearing. In spite of a low birth rate the population of these villages is maintained by immigration from larger villages.

Notes and References

1. Data on the population of Alaska unless stated otherwise, are from U.S. Bureau of the Census. U.S. Census of Population: 1950, Vol. I, Ch. 51; Vol. II, pt . 51, U.S. Government Printing Office, Washington, D.C. 1952. .
2. Estimates of the 1953 population of Alaska are from U.S Bureau of the Census. Current Population Reports, Series P-25, No. 97, August 6,1954.
3. Estimates of the migratory movement in Alaska are from: Estimate of Alaska Population, Jan. 1, 1950 – July 1, 1953. Revision No.1. Released cooperatively by the Office of the Governor, Alaska Development Board, Bureau of Vital Statistics, Alaska Department of Health. Aug. 1, 1954.
4. References cited: Albrecht, C.E. and F.E. Kester. The effect of population on health problems of Alaska. (In press). Weiss, E.S. Tuberculin sensitivity in Alaska, Public Health Reports, Vol. 68, pp 23-27,1953.

AVERAGE ANNUAL RATE OF POPULATION CHANGE IN SELECTED NATIVE VILLAGES, ALASKA, 1946-1952

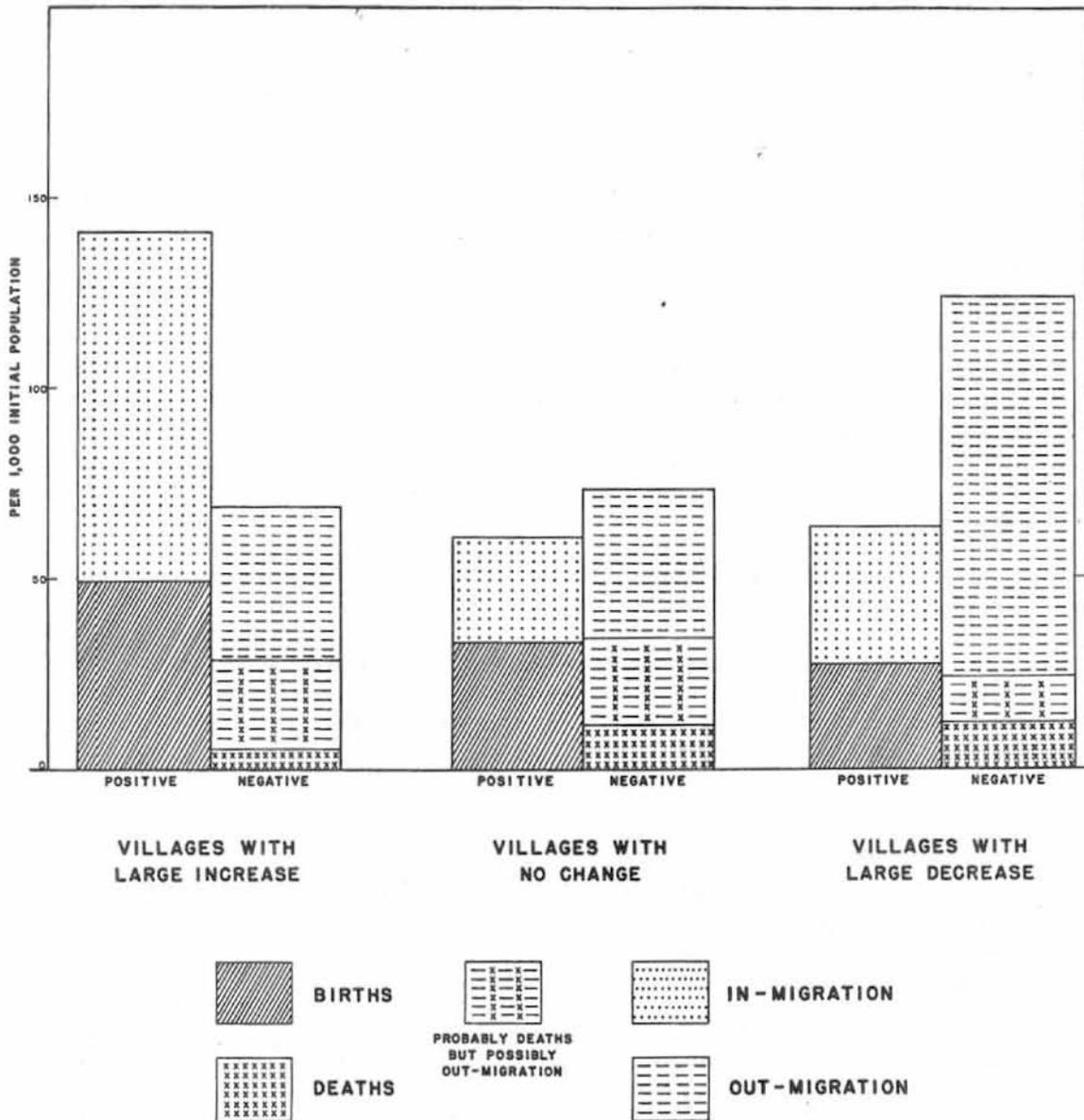


Figure 6

AVERAGE ANNUAL LIVE BIRTH RATE FOR 17 ALASKAN VILLAGES, 1946-1952

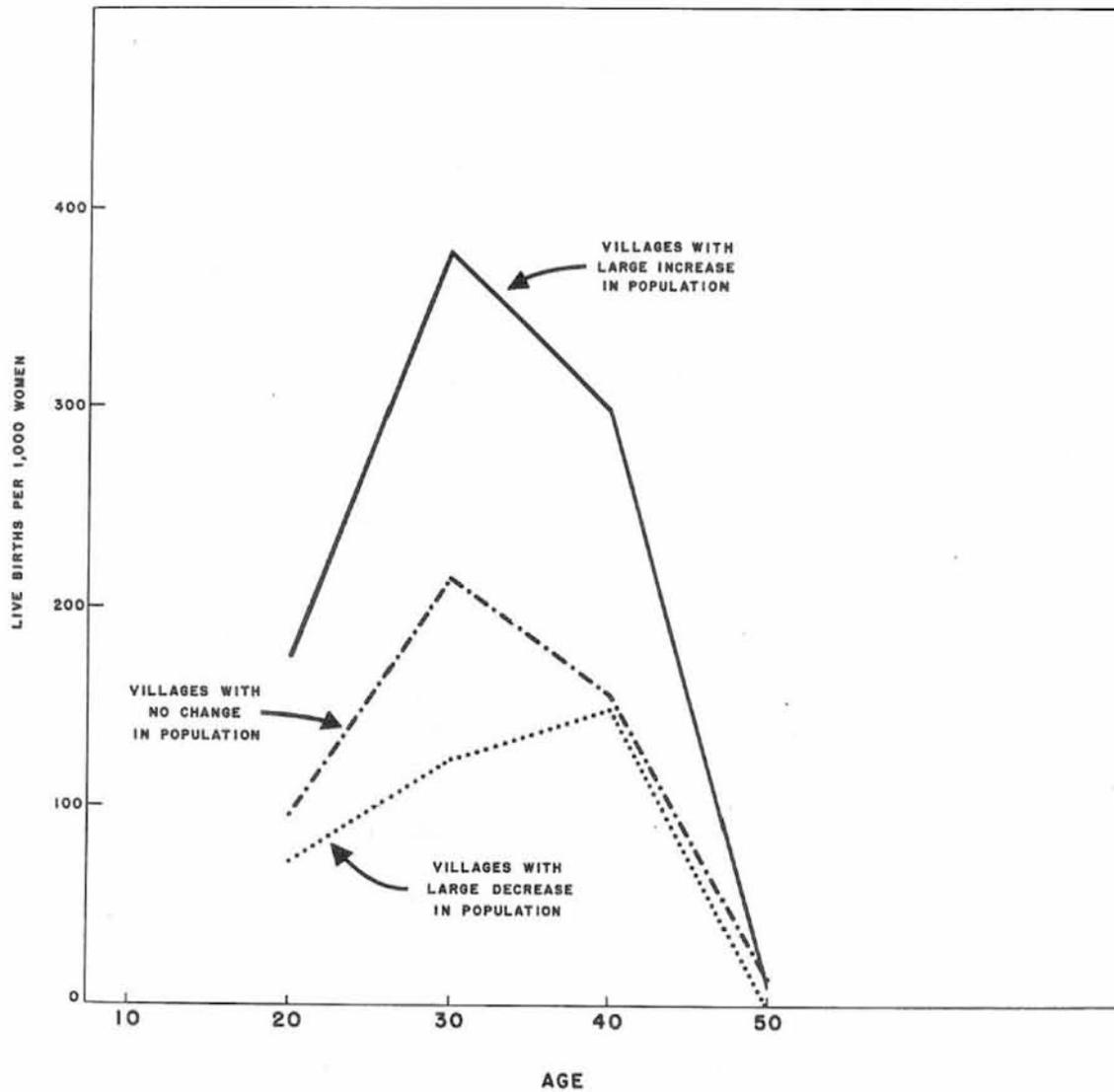


Figure 7

AVERAGE ANNUAL RATE OF POPULATION CHANGE IN SELECTED NATIVE VILLAGES WITH LARGE INCREASE, ALASKA, 1946-1952

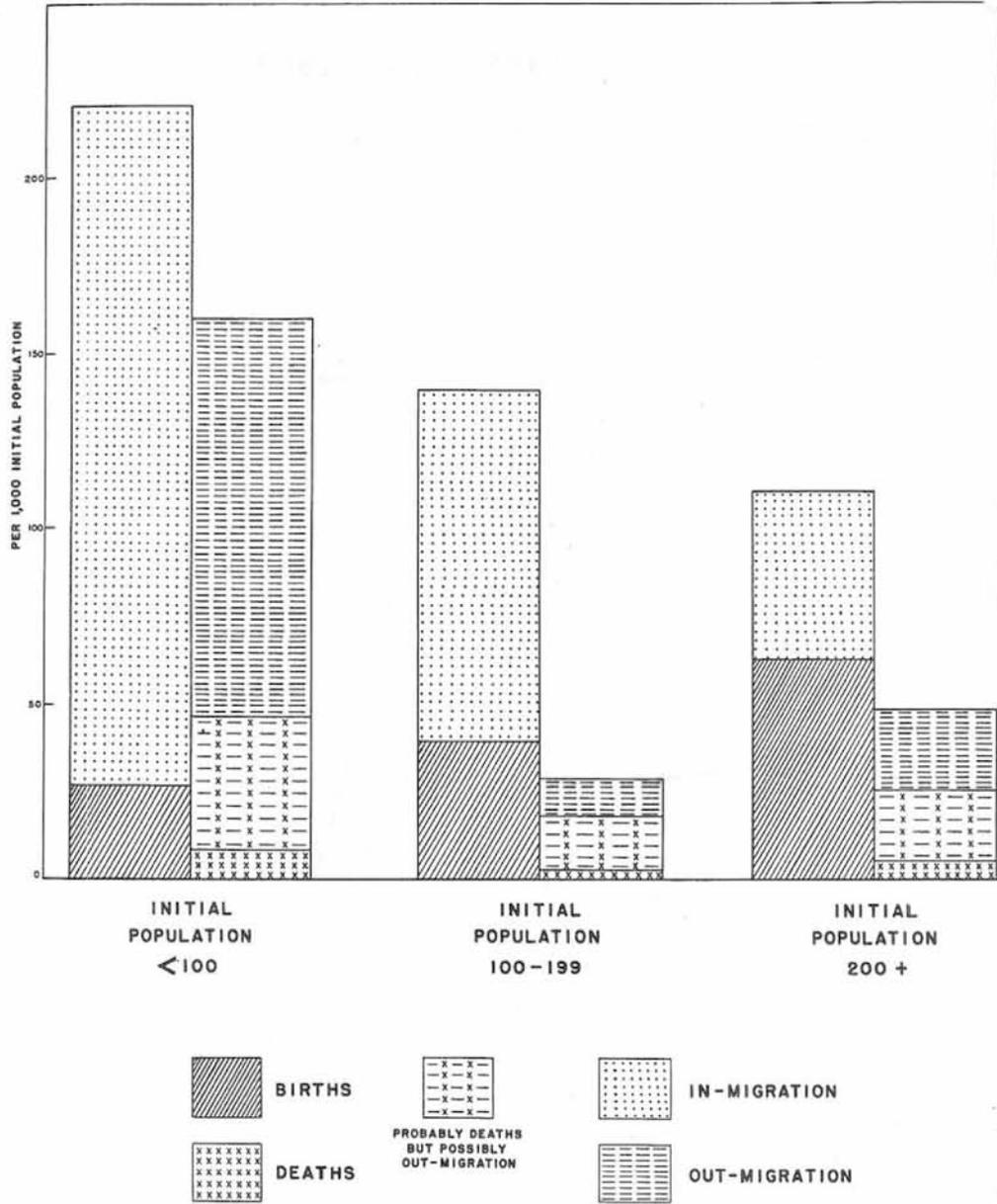


Figure 8

CHAPTER III

Health Conditions In Alaska

Introduction

Health conditions of the Alaska natives* [*When the term "native" or "native population" is used in this report, we refer not to all persons born in Alaska, but only to the aboriginal peoples — Indians, Eskimos, and Aleuts.] — especially those living in areas where there are few whites — are deplorable and resemble in some degree the conditions found in the United States at the turn of the century. The natives who live and work with the white population, on the other hand, fare much better in matters of health than do their counterparts in more remote areas. The health conditions of Alaska's whites are comparable to those of whites in the United States, their problems being of no greater magnitude than those of the whites in the States.

Perhaps the most effective method to describe these conditions is through statistics, the true measure of human suffering and the subtle delineator of shocking inadequacies and inequalities that sometimes exist among peoples. Our statistical comparison of Alaska's health conditions to those in the United States is not made so much because it is an ideal statistical comparison, but because it is the United States which must bear responsibility for the conditions that exist in the Territory.

A relative appraisal of health conditions in Alaska requires careful consideration of such important factors as (a) the inadequacy of data on population, mortality and morbidity, (b) the peculiar composition of the population with respect to age and sex of settlers from the States, and (c) the presence of a substantial number of military personnel with their families in Alaska.

That latter point has extreme importance in our discussions of the health conditions in Alaska. Of the 129,000 persons in the latest census in 1950, and upon which the mortality and morbidity are members of the military, all selected, young, healthy adults. Some of them have wives and children in Alaska. The number of these dependents is not known but may reach 15,000 to 18,000. The health care of the military and their dependents is, of course, excellent, and if they are stricken by a serious disease they may avail themselves of medical facilities in the States. Obviously, this group of from 35,000 to 38,000 people must be taken into consideration when we make any statement concerning the health conditions in Alaska.

Mortality

General Mortality. The crude death rate for Alaska in 1950 was 9.7 per 1,000 population, hardly different from the 9.6 per 1,000 rate of the United States. But a more accurate view of the health conditions in Alaska emerges when we examine the crude death rate of the natives — the Aleuts, the Eskimos and the Indians — which in 1950 was a remarkably high 17.0 per 1,000, nearly twice that of the rate for the population of the United States or Alaska generally.

Undoubtedly this is an underestimate of the native death rate. Nevertheless, it effectively reveals that the health status of the native is far inferior to that of the population of the United States, and also to the Alaska whites whose crude death rate was only 7.1 per 1,000 population for the same period.

The higher mortality of the Alaska natives as contrasted to the mortality of the whites and non-whites in the States and the whites of Alaska becomes strikingly more apparent when we examine the age specific mortality rates shown in Figure 1. For the groups below 45 years of age, mortality of the natives is two to three times as high as that of the States non-whites, and three to four times as high as those of the States whites and the Alaska whites.

Reflected also in Figure 1 is the favorable position of the Alaska whites, whose mortality rates are only slightly higher than those of the States whites. This favorable position, however, may be more apparent than real. We have attempted to calculate the age specific mortality rates of the white male civilian in Alaska by excluding the estimated numbers of military personnel and their deaths in 1950. The results, as shown in Figure Z, reveal that the white male civilian of Alaska has a higher mortality than the white male of the United States in all but one age group.

The higher mortality of the Alaska civilian males is relatively greater for the age group 25-44 years, in which we find a rate double that of the males in the States. Difference in mortality between Alaska and the States is not so marked for the age group under five years. It should be remembered that the Alaska population of this age group is swollen to some extent by infants and children of the military, who may be expected to have a low mortality rate.

DEATH RATES BY AGE AND RACE, STATES AND ALASKA 1950.

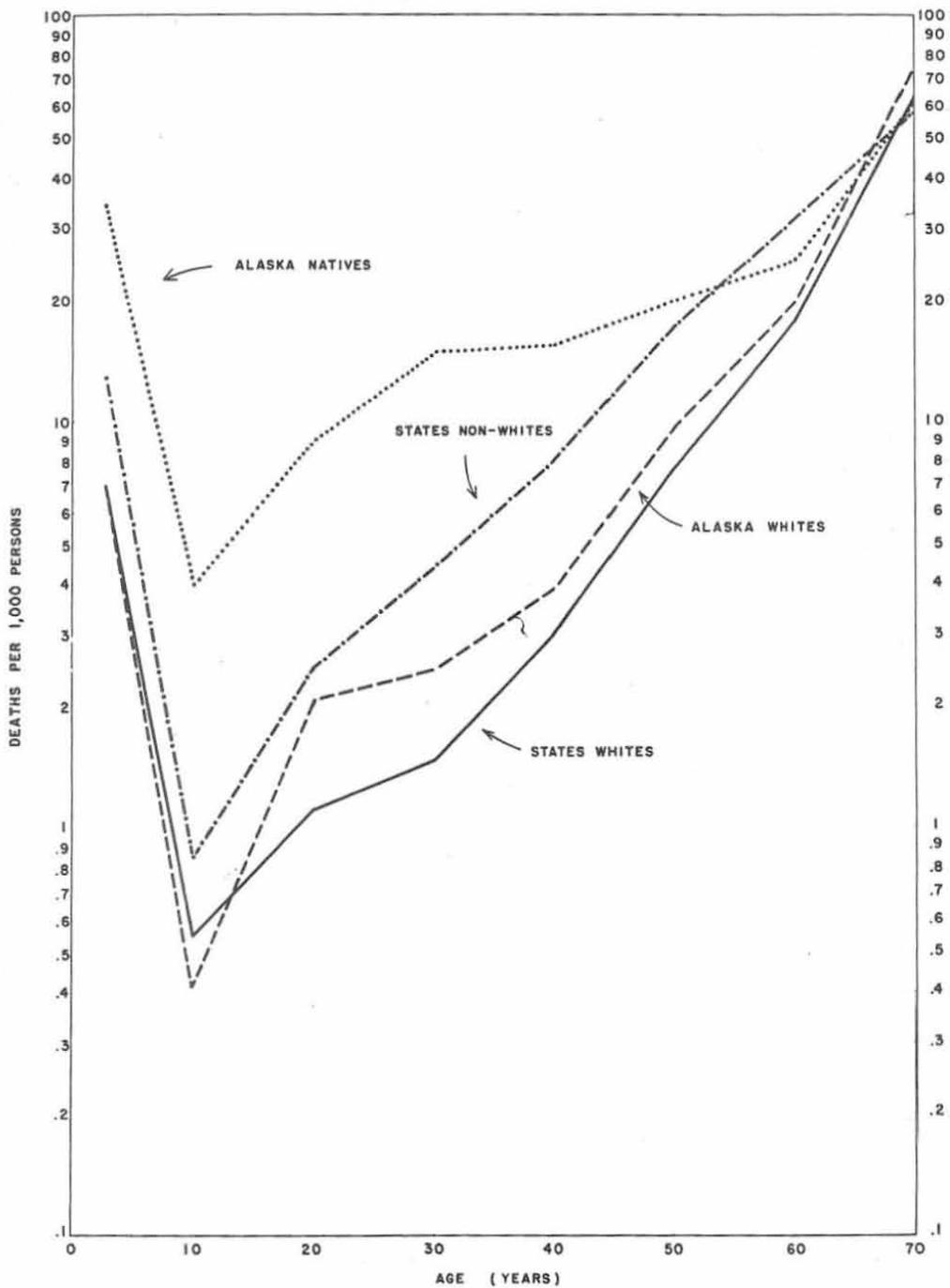


Figure 1

DEATH RATES BY AGE, CIVILIAN WHITE MALES
STATES AND ALASKA, 1950

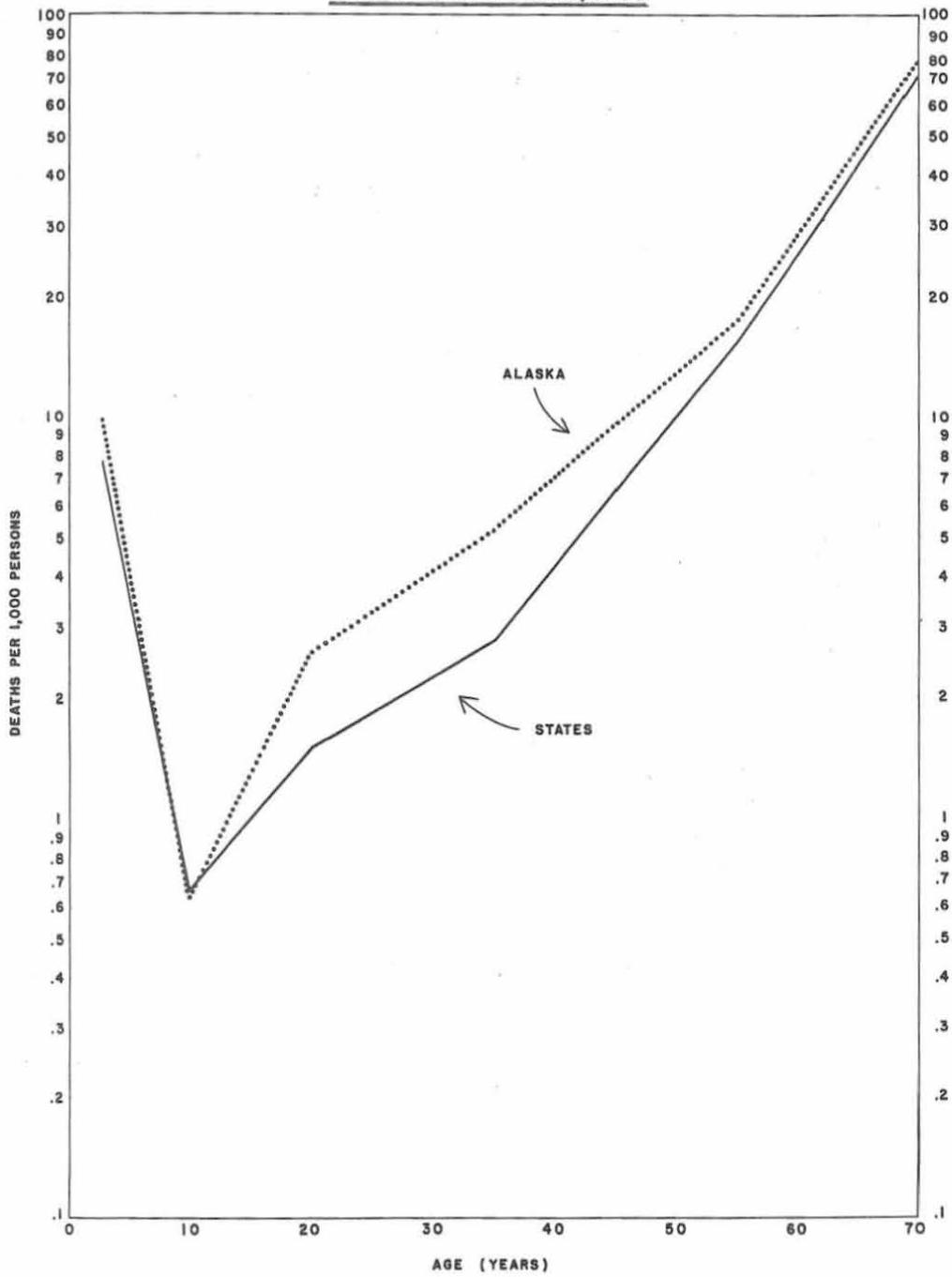


Figure 2

Infant Mortality. One of the most sensitive measures of achievement in the control of environmental hygienic factors as related to disease is the infant mortality rate — the number of deaths under 1 year of age per every 1,000 live births.

The infant death rate in Alaska generally in 1950 was 52, nearly twice the rate of the United States which was 29. Among the Alaska whites, the rate was only 24 per 1,000 live births — again, this group including births and deaths of the military.

On the other hand, the native infant death rate in 1950 was a phenomenal 101 deaths per 1,000 live births under one year of age, a rate about equal to that reported in the United States in 1900. The native rate is more than three times that observed in the United States in 1950, and four times that observed for the whites of Alaska.

To a large extent, infant mortality indicates the effectiveness of community health activities and facilities. These data show that for the whites of the Territory health activities and facilities — when we include those of the military — were as adequate as activities and facilities in the United States. Not so, obviously, for the native population.

Bearing on the widely different death rates of the whites and the natives is the varying infant mortality in Alaska's geographic divisions. In examining these geographic death rates, it should be emphasized that our data refer to place of occurrence of the births and deaths. Mortality in localities having hospitals or facilities which attract ill persons with difficult medical problems will naturally appear higher than if we only considered residents.

Infant mortality rates by division are presented in Figure 3. In the Third (Anchorage) and First (Juneau) Judicial Divisions, is found the lowest general and infant mortality for 1950. These are the areas in which the bulk of the white population in Alaska is concentrated, where there is a greater degree of urbanization and higher population density. Contacts between whites and natives have been more intimate and of longer duration than elsewhere in the Territory. Differences in mortality between whites and non-whites in these two divisions are of the same order as those found between whites and non-whites in the States.

Differences between whites and non-whites in the Second and Fourth Judicial Divisions, however, are of a substantially larger order of magnitude. These divisions contain many aggregations of natives in areas where few white contacts occur and, it should be emphasized, where public health activities at best are somewhat primitive. In these divisions, general and infant mortality rates of the natives in 1950 were more than twice as high as those of the whites.

Causes of Death. The 1950 population of Alaska differed from the population of the United States not only in terms of total mortality, but also in the frequency of specific causes of death. These differences are revealed in Figure 4, which presents data on selected major causes of death for the Alaska whites and natives and the United States whites. A comparison of data on Alaska whites with States whites reveals:

1. Suicide and homicide, together with accidents and senility and ill-defined causes, are reported more than twice as often as causes of death among the whites of Alaska than among the States whites.

2. Mortality rates from diseases of the heart, from cancer and intracranial lesions of vascular origin were definitely lower among the Alaska whites.
3. Deaths from congenital malformation and diseases of early infancy, tuberculosis, influenza, pneumonia and other infectious diseases occurred with about the same frequency in both whites of Alaska and the United States.

Alaska's white population is younger than the white population of the States. Moreover, it includes a disproportionate number of males of military age. Some variations in health conditions could be due to differences in age and sex composition between the two white groups.

We examined this point by applying our estimated age specific mortality rates of Alaska's white male civilians to the age distribution of the white male population of the States. It was found that age differences apparently do not contribute significantly to higher mortality in the Alaska population from accidents, homicide, suicide, senility and ill-defined causes. It would appear, however, that heart disease mortality was somewhat higher among Alaska's whites if differences in age composition are taken into account.

The higher mortality from senility and ill-defined causes among the Alaska whites may reflect poor vital statistics reporting. Similar high rates from accidents, homicide, and suicide and alcoholism (See below) are undoubtedly related to the working and living conditions and to behavior problems which characterize migrants to a new country. A matter for further investigation is the extent to which the slightly higher mortality from heart disease of the Alaska whites is related to these same conditions.

Tuberculosis causes more than one-third of the native deaths with a rate 30 times that of the whites; other infectious diseases and diseases of pregnancy and childbirth 10 times that of the States whites; influenza and pneumonia a rate about seven times as high; and higher rates for diseases of early infancy.

Not indicated in Figure 4 is the rate from appendicitis, equal to 14 per 100,000 among the natives and two per 100,000 among the States whites. Also not shown is the group of causes in the category of gastritis, gastro-enteritis and colitis, amounting to 14 per 100,000 among the natives and only four among the States whites .

Natives and whites of the Territory have in common a high mortality rate from accidents — about the same for both groups and approximately three times that of the whites in the States. They also have in common the high suicide and homicide rates. Not shown in the figure because obtained from special data furnished by the Alaska Department of Health is the mortality from alcoholism which occurred in 9 per 100,000 among both Alaska natives and whites. In the States, deaths from this cause occurred in only 1.5 per 100,000 in 1950. Otherwise, frequency of the several causes of death among the natives of Alaska is strikingly different from that of the whites of Alaska or of the States. With the exception of the death rate from suicide, which is lower than that of the Alaska whites, and from alcoholism which is the same, mortality from all causes mentioned was substantially higher in the Alaska native population than in the whites of either the States or Alaska.

The overall high mortality from alcoholism, accidents, suicide and homicide indicates the probable effects of the difficult environment of the Territory. As stated before, the high rate of senility and ill-defined causes indicates poor vital statistics reporting , as well as inadequate diagnostic facilities.

Low standards of living, inadequate public health services and medical care, are evidenced in the high mortality in infancy, the high mortality from tuberculosis and infectious diseases such as whooping cough, measles, pneumonia and influenza, from diseases of pregnancy and childbirth, from gastro-enteritis and colitis and from appendicitis.

CRUDE DEATH RATE AND INFANT MORTALITY RATE JUDICIAL DIVISIONS, ALASKA, 1950

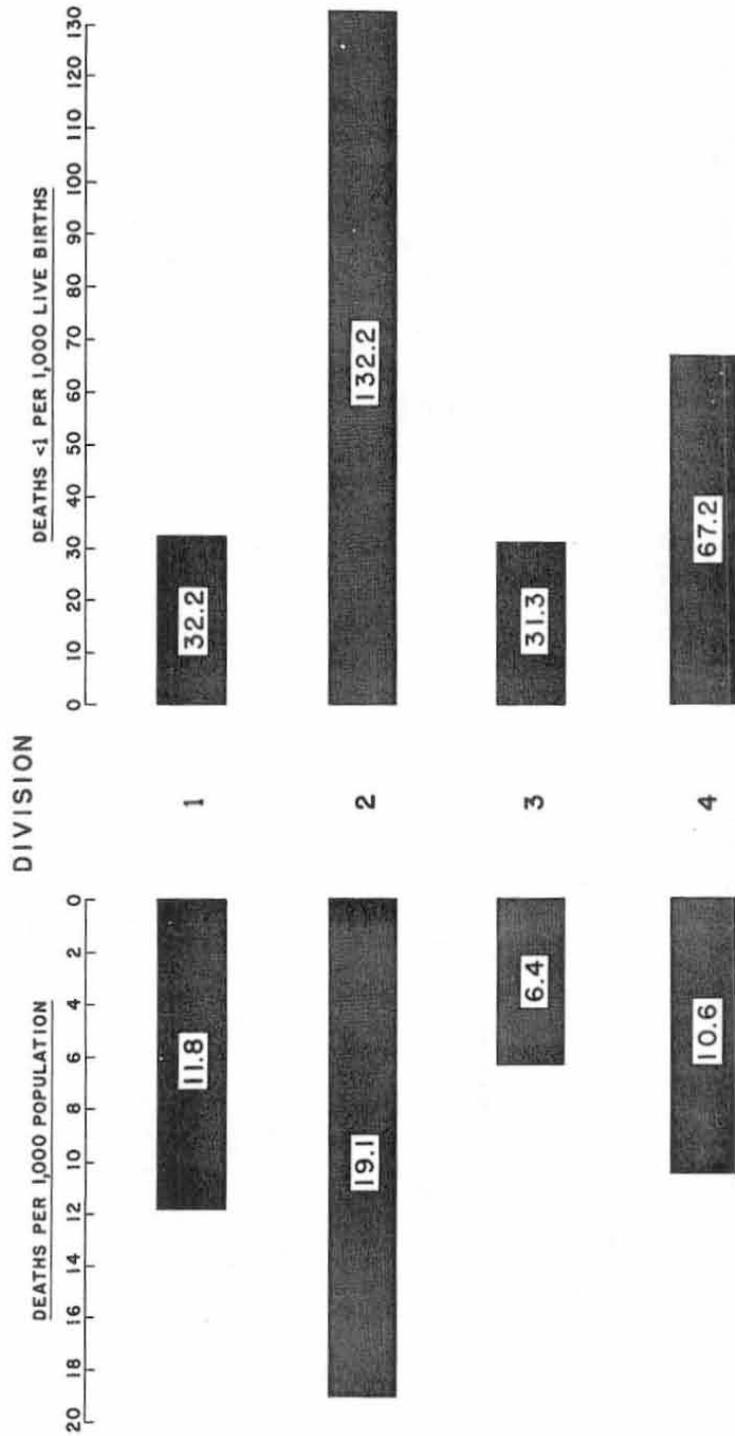


Figure 3

**DEATHS FROM SELECTED CAUSES
AMONG ALASKA WHITES AND NATIVES AND STATES WHITES 1950.**

DEATHS PER 100,000 PERSONS

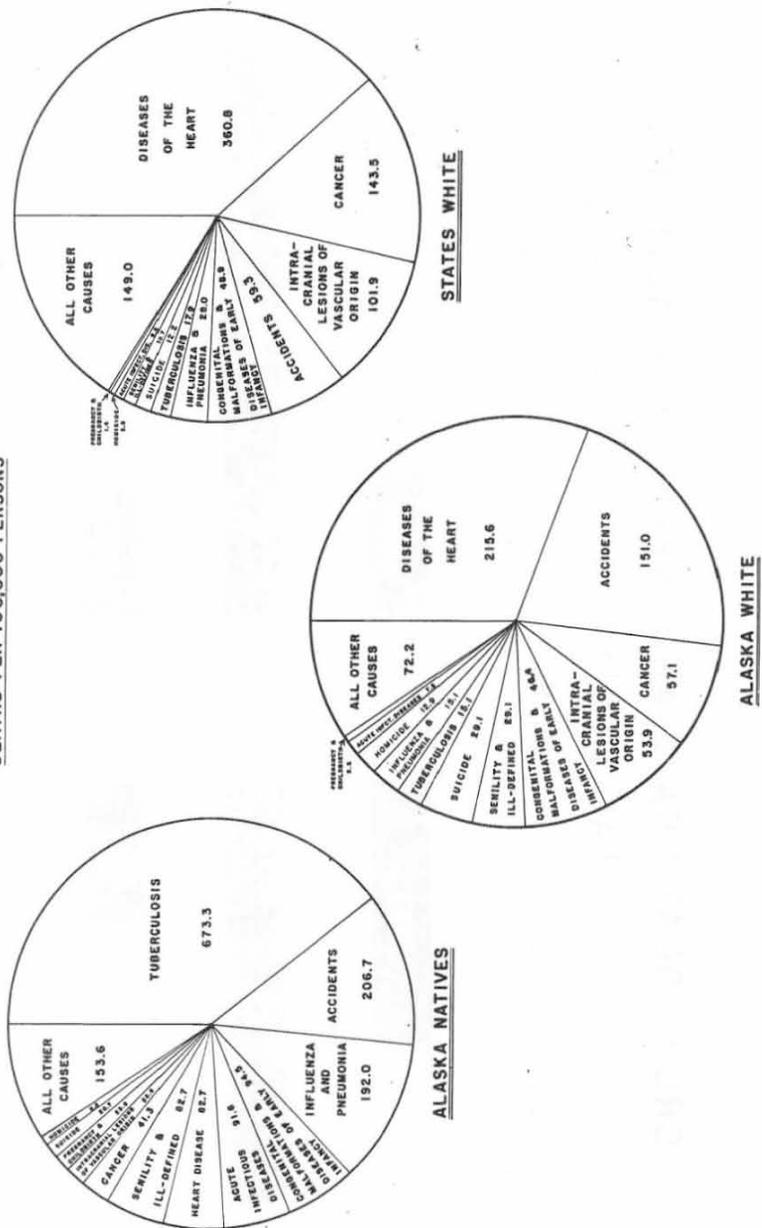


Figure 4

Discussion of Mortality. Considering the differential mortality among the whites and natives of Alaska and comparing the findings with corresponding data for the States, we must make the following inferences:

1. Health problems of the whites in Alaska are apparently no more extensive than those of the whites in the United States, with the exception of those involving alcoholism, accidents and homicide and perhaps heart disease. Credit for the relatively good condition of the Alaska whites with respect to mortality is due in part to the fact that they are a group which brought with it to Alaska the standards of living and hygiene it had known in the States. It is also due in considerable part to the public health and medical care facilities made available to this population, particularly to that large portion of the population which receives care and health supervision from the military. It should be remembered that the natives living in the white, urban areas, also fare much better than the natives living in remote, outlying areas.
2. Health conditions of the natives, especially those living in areas where there are few whites, are very poor and resemble in some degree the conditions in the States some 50 years ago. At that time, at about the turn of the century, we had only limited knowledge of sanitation, hygiene, prevention and curative health measures. As this knowledge increased and was applied, mortality from the causes now so prevalent among the Alaska natives was materially reduced among our own population. The current prevalence of these diseases among the natives in Alaska indicates clearly that we have not yet been able to transmit that knowledge or the means of applying it to the Alaska native groups.

Communicable Diseases.

The data on the incidence of communicable diseases in Alaska are known to be too inadequate to provide any further clarification of the high mortality from infectious diseases. The Alaska Department of Health is aware of the inadequacies of its statistics and in publishing them states: "The data below represent trends rather than accurate statistics." The following is a summary of the communicable diseases reported to the Alaska Department of Health in the last four years.

It is clear from these tabulations that certain figures such as those on pneumonia and diarrhea and gastro-enteritis are too low to be consistent with the mortality noted on the next page or with the morbidity data presented later. On the other hand, the few cases of tetanus and typhoid reported may actually measure the value of the active immunization program of the Alaska Department of Health. This is described in a subsequent section in which will also be discussed the meaning of the trends of poliomyelitis and in gonorrhoea and syphilis.

Notwithstanding their incompleteness, the data of Table 1 are impressive in pointing up the annual occurrences of outbreaks of one or the other diseases and the high proportion of the population that is probably involved in each of the outbreaks. The explosiveness and rapid extension of even minor infectious diseases are reflected in high mortality, and, in turn, reflect

the lack of immunity, overcrowding, poor hygiene and nutrition, and inadequate health care which characterizes Native Alaska.

Sickness Among Natives.

To gain further insight into the health conditions of the Alaska natives, we sought to determine how much and what kinds of illnesses occur among them. A household canvass was, of course, not feasible. Therefore, we analyzed out-patient services given to residents of Barrow, Bethel, Kotzebue, and Tanana during September, 1953, and March, 1954, by the Alaska Native Service hospitals there. The findings for March, 1954, are so nearly identical in all respects with those of September, 1953, that for simplicity in presentation we shall limit our discussion to the latter.

Table 1
 Alaska Department of Health, Juneau, Alaska, Section of Preventive Medical Services
Epidemiological Report
 Fiscal years ending:

Disease	June 30, 1954	June 30, 1953	June 30, 1952	June 30, 1951
Chicken pox	435	523	414	585
Conjunctivitis	303	134	136	103
Diarrhea	13	0	12	212
Diphtheria	1	120	2	0
Fish tapeworm infestation	1	0	0	0
Encephalitis	0	0	1	2
Gastro-enteritis	0	57	7	18
German measles	61	176	341	97
Gonorrhoea	252	298	743	539
Impetigo	288	159	40	8
Infectious hepatitis	84	5	384	28
Influenza	614	1,422	888	559
Measles	3,183	159	1,039	802
Meningitis	0	6	10	6
Mononucleosis	2	1	5	1
Mumps	1,005	397	209	177
Pertussis	1	132	87	80
Pneumonia	20	49	24	37
Poliomyelitis	98	129	25	73
Rheumatic fever	2	3	5	21
Ringworm	20	2	34	7
Roseola	11	20	0	0
Scabies	2	16	22	29
Scarlet fever	23	9	43	17
Strep. Sore throat	96	55	69	40
Syphilis	14	40	132	108
Trichinosis	7	0	0	0
Tuberculosis	1,072	540	525	350
Typhoid fever	6	5	1	6
Undulant fever	0	3	0	0
Vincent's angina	2	0	1	8
Weil's disease	0	4	5	0

The Alaska Native Service hospital is the sole source of medical and health service in these villages. It can be reached by the residents without inconvenience and its services are available without cost. Native trust and appreciation of the services received leads us to assume that when he has an ache or pain he will not hesitate to demand help at the hospital.

Illness Rates. Records obtained from these four hospitals show that during September, 1953, the total population of the villages — 2,373 persons according to the latest estimate — paid 1,889 visits to the out-patient services. In other words, 94 visits per 100 residents, on the average, were made to out-patient clinics of the hospitals during that month. The magnitude of this rate is fully realized when we note that in Pittsburgh, with its wealth and medical facilities, only 28 visits per 100 persons were made to physicians and clinics or received from physicians during a month in 1952. The high rate of out-patient visits is additional evidence of the willingness of the natives to take advantage of medical services when such services are available.

The 1889 visits during September, 1953 were made by 786 persons, i.e., 33 percent of the population of the four villages combined. As has always been observed in all times and places, a larger proportion of the female population (38 percent) than of the male (29 percent) made these visits. The proportion of the population attending the out-patient services is higher in children than in adults. This is shown in Table 2 in which we also present data on the frequency with which the comparable age groups in the Arsenal Health District of Pittsburgh report both illnesses and disorders with or without medical attention, demand for medical services for health examinations, and the like, that have occurred during a month.

The attendance rate of the residents decreased from 62 percent of the children under five years of age to 14 percent of the persons 45 years and over. As is seen from the Arsenal Health District data, such an age decrease corresponds to the pattern observed here. However, the proportion of young children and adults who attended the out-patient clinic during the month is high by any comparable experience that has been reported. The data for March, 1954 (not presented here) reveal almost identical percentages giving the impression that the high demand for medical services reported above may not be an isolated instance.

Table 2

Age group in years	<u>Four Alaska Villages</u>		<u>Arsenal Health District</u>	
	Attendance at out-patient clinic, September 1953		Illness, injuries or demand for medical services during month prior to July 1952	
	Number of residents ¹	Percent who attended clinic ²	Population in sample	Percent who reported illness, injury or demand for medical service ²
Under 5	418	62	757	32
5-14	626	39	1,507	19
15-44	1,009	22	4,224	15
45 and over	320	14	2,764	22

All ages	2,373	33	9,252	19
¹ Based on latest household rosters.				
² Includes persons who obtained immunizations, physical examinations, prenatal, postpartum and other health examinations.				

As is the case in Pittsburgh or any other community, not all of the outpatient visits were made to seek therapy. Some were made for immunizations, X-rays, pre- and post-partum examinations. Nevertheless, excluding visits for these reasons, we still find an average of 80 visits per 100 natives to the out-patient services of the four hospitals during September, 1953.

The visits for therapy were made for 572 illnesses. Thus, there were recorded 241 illnesses per each 1,000 residents of the villages during that observation month.

As basis for crude comparison we can use a household canvass conducted in Pittsburgh in June–July, 1952. Purpose of that canvass was to learn the number of disease conditions or disorders of all degrees of severity — from those with mild discomfort without disability or request for medical attention to those with hospitalization — during the previous month. From this canvass, there were recorded only 156 illnesses per 1,000 persons, as compared to the 241 per each 1,000 in the four native Alaska villages. It would seem, then, that the illness rate of the natives of these villages is at least one and one-half times that of the residents of Pittsburgh or a similar city.

Kinds of Illnesses. Illnesses for which the natives sought therapy represent the whole range of conditions and diseases in the International list. Figure 5 shows the rates for the major categories of disease conditions for which outpatient visits to the Alaska Native Service village hospitals were made. For purposes of general information, Figure 5 also presents findings of the Pittsburgh household canvass.

A look at the data in Figure 5 brings out:

1. In order of frequency, the most important categories of conditions for which the native sought medical attention are infective and parasitic diseases, respiratory diseases, accidents, and diseases of the nervous system and sense organs. Conditions included in these four categories together comprise more than two-thirds of the illnesses. These categories occur with a much higher frequency for the Alaska natives than for those persons cooperating in the Pittsburgh survey. In the latter survey, these categories comprise less than one-half of the total illnesses.
2. Categories which include primarily the chronic degenerative diseases are of much less importance among the Alaska natives. The rates for such diseases are equal to or lower than those observed in Pittsburgh.

Too much emphasis should not be placed on comparisons of the Alaska natives with Pittsburgh residents. Observed differences in rates have to do with the age composition of the population, the availability of diagnostic facilities, season of the year, and the technique of collecting and recording information.

However, the differences in morbidity are consistent with the differences in mortality between Alaska natives and the population of the States, pointing out clearly that the natives have many more health problems than do the people of the States; that they are problems which affect principally the children and young adults.

When we examine more specifically some of the conditions included in the major categories, we find (Figure 6) that acute infectious diseases occurred in 45 per 1,000 residents and approximately one-sixth of the illnesses reported. Measles was the most frequent disease in the September data; mumps in the March data. Acute upper respiratory infections are next in order. The rate for these infections is somewhat higher than that observed in Pittsburgh.

The accident rate among the Alaska natives is nearly twice that observed in Pittsburgh despite the extensive exposure to industrial hazards in the latter. The rate for tuberculosis is very high, naturally, and about 20 times that observed in Pittsburgh. This ratio agrees with that found in comparing the mortality of the Alaska natives with that of the population of the States.

Combining those conditions classified as gastro-enteritis and similar illnesses with symptoms referable to the gastro-intestinal system, we obtain a remarkably high rate of approximately 20 illnesses per 1,000 persons. The rate for similar conditions in Pittsburgh was only two per 1,000. Although inadequate sanitation in native villages leads one to expect such high rates of illness for these conditions, poor communicable disease reporting has not previously shown the actual extent of the situation.

Figure 6 also shows that inflammatory diseases of the eye, as well as diseases of the ear and mastoid process, comprise the bulk of conditions included in the category called "diseases of the nervous system and sense organs." These conditions — important from the standpoint of frequency — are lost sight of when we examine mortality data.

Discussion. An analysis of the records of out-patient visits to the Alaska Native Service hospitals in Barrow, Bethel, Kotzebue, and Tanana shows that:

1. The natives of the villages utilize these services to a much greater proportion than physicians and clinics are utilized by the residents of Pittsburgh or other similar communities.
2. Accounting for most of the illnesses are acute communicable diseases, acute upper respiratory infections, accidents, tuberculosis, gastro-enteritis and gastro-intestinal symptoms, inflammatory diseases of the eye, and diseases of the ear and mastoid.
3. The overall sickness rate is approximately one and one-half times that of the City of Pittsburgh.
4. These findings clearly indicate that natives utilize available medical facilities to a greater extent than does a metropolitan population — due in part to a higher sickness rate. These natives are not the strong, healthy specimens that we usually associate with primitive peoples. On the contrary, they have considerable sickness, and except for accidents and acute upper respiratory infections, about which we know little in terms of effective

control, the bulk of the higher sickness is a consequence of the high incidence of those diseases which we do know how to control. The fact that the rate is high for such diseases reflects the great need for increased public health efforts in applying the knowledge we now possess.

ILLNESS RATES, FOUR ALASKAN VILLAGES AND THE ARSENAL HEALTH DISTRICT OF PITTSBURGH

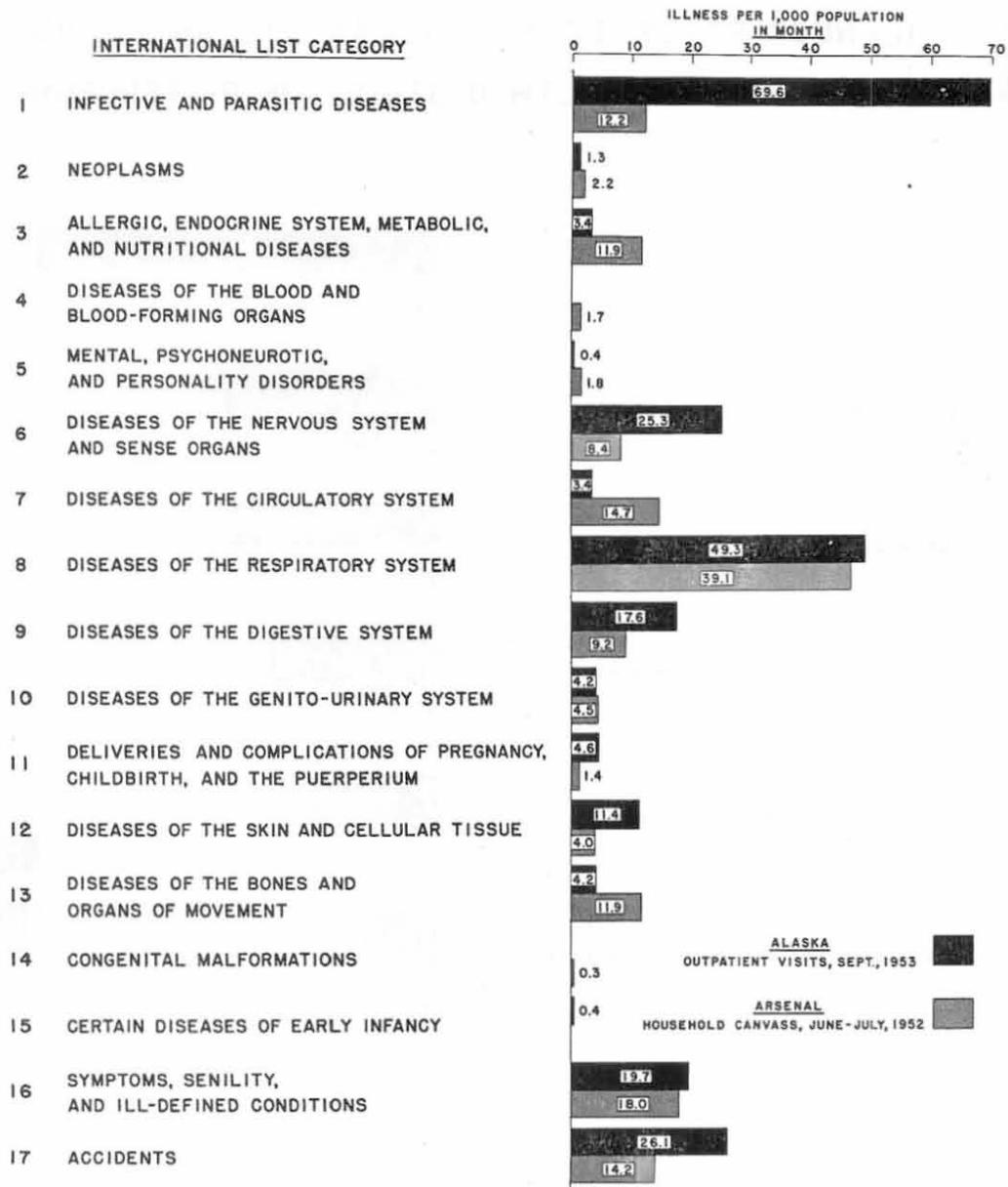


Figure 5

ILLNESS RATES, FOUR ALASKAN VILLAGES AND THE ARSENAL HEALTH DISTRICT OF PITTSBURGH

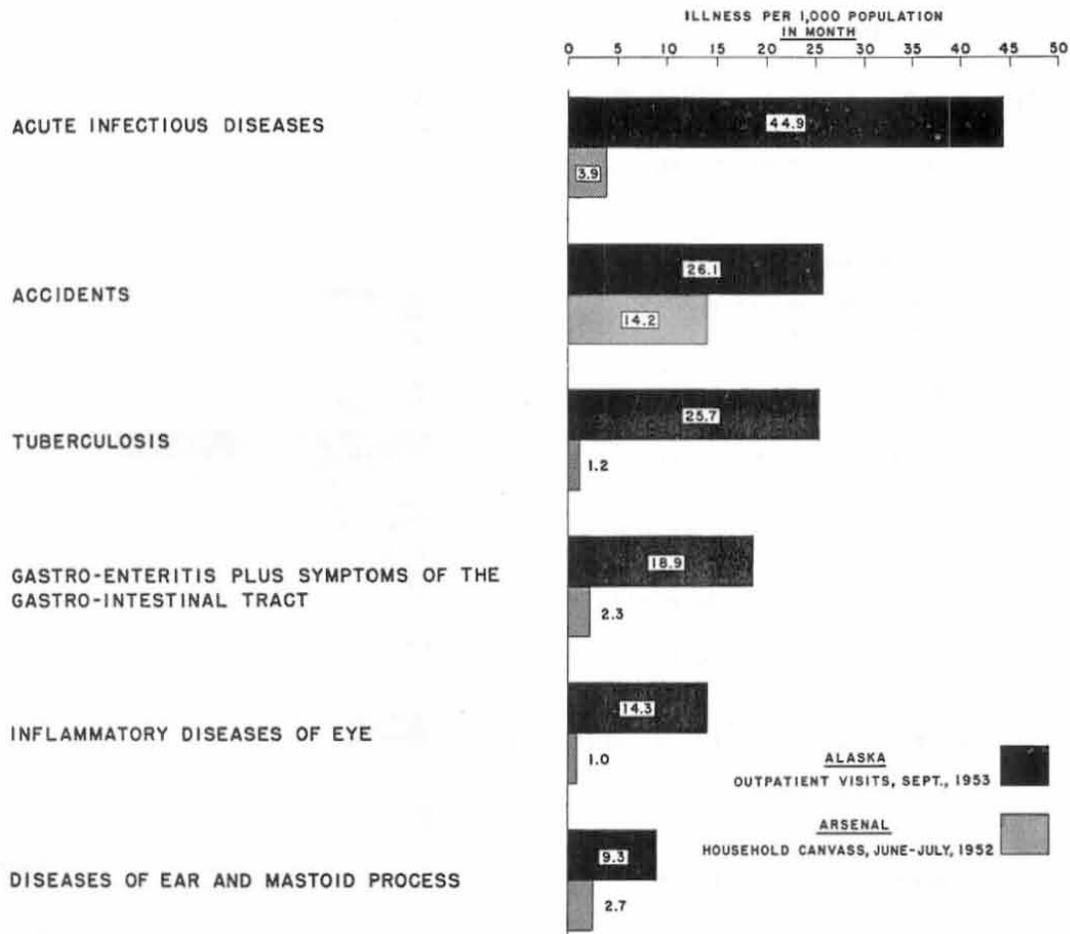


Figure 6

Specific Health Problems

Tuberculosis. Tuberculosis is not indigenous to Alaska. It was introduced by the white man some two hundred years ago, according to reports of early missionaries, traders and explorers. It has apparently been an important cause of death ever since.

The true gravity of the tuberculosis situation was brought forcefully to public attention when current public health activities were initiated in the Territory. When the Alaska Department of Health was reorganized in 1945, tuberculosis control became one of its major programs. Since then, data on the prevalence of the disease have been widely publicized.

If we could accept at face value the 1950 tuberculosis mortality rate given earlier it would indicate that tuberculosis deaths occurred eight times more frequently in relation to population in Alaska than in the States. Even more significant from a public health standpoint is the fact that the unusually high mortality is concentrated primarily among the Alaska natives. While the mortality rate for the Alaska whites in 1950 was about the same as that of the whites of the States, the native mortality was about 30 times that of the whites.

Tuberculosis mortality is high among all age groups in the native population, but it is particularly high in childhood. Figure 7 shows the age specific rates for 1950 for the natives and total population of the States. The tuberculosis mortality rate for natives under 14 years of age is more than 100 times that for the same age group in the States. For natives 45 years of age and over, on the other hand, mortality is only 20 times that of similar age groups in the States.

Data on which these rates are based refer to deaths in Alaska among residents and non-residents. Deaths of Alaska residents taking place in the States are not included. Obviously, then, a comparison of native and white death rates in the Territory is not entirely valid. An examination of geographic differences in tuberculosis mortality within the Territory is also difficult, since the two large sanatoria at Sitka and Seward admit patients from all parts of Alaska.

An adjustment of 1950 deaths by residence has been made by the Bureau of Vital Statistics of the ADH. Results, summarized in Figure 8, bring into sharper focus the concentration of high tuberculosis mortality among the Eskimos in the western and northwestern sections of the Territory.

Lowest mortality, of similar magnitude as that observed in the States, is found in the southeastern "panhandle" and the southern portion of the Railbelt. Rates are high in the rest of the Territory, where the population is predominantly native, but not so high as in the Eskimo country.

An accurate evaluation of tuberculosis mortality trends is impossible at present because adequate data on both mortality and population in the recent past is lacking. A 1943 estimate indicates that tuberculosis mortality for the natives was about 841 per 100,000, an extraordinary figure if true. By 1950, the rate had fallen to 673 per 100,000, by 1951 it had dropped only slightly to 625.

TUBERCULOSIS DEATH RATE BY AGE, ALASKA NATIVES
AND UNITED STATES TOTAL POPULATION, 1950

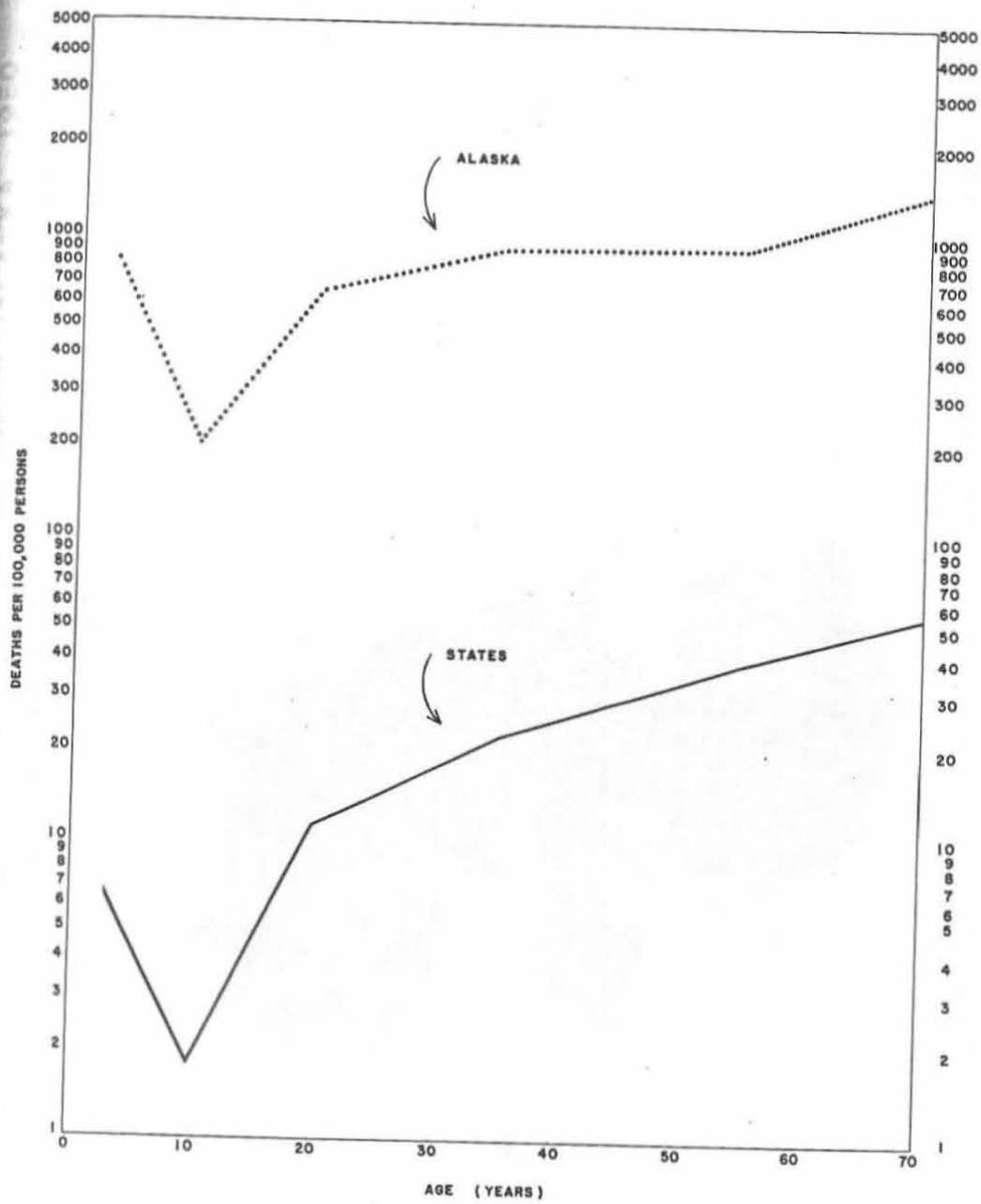
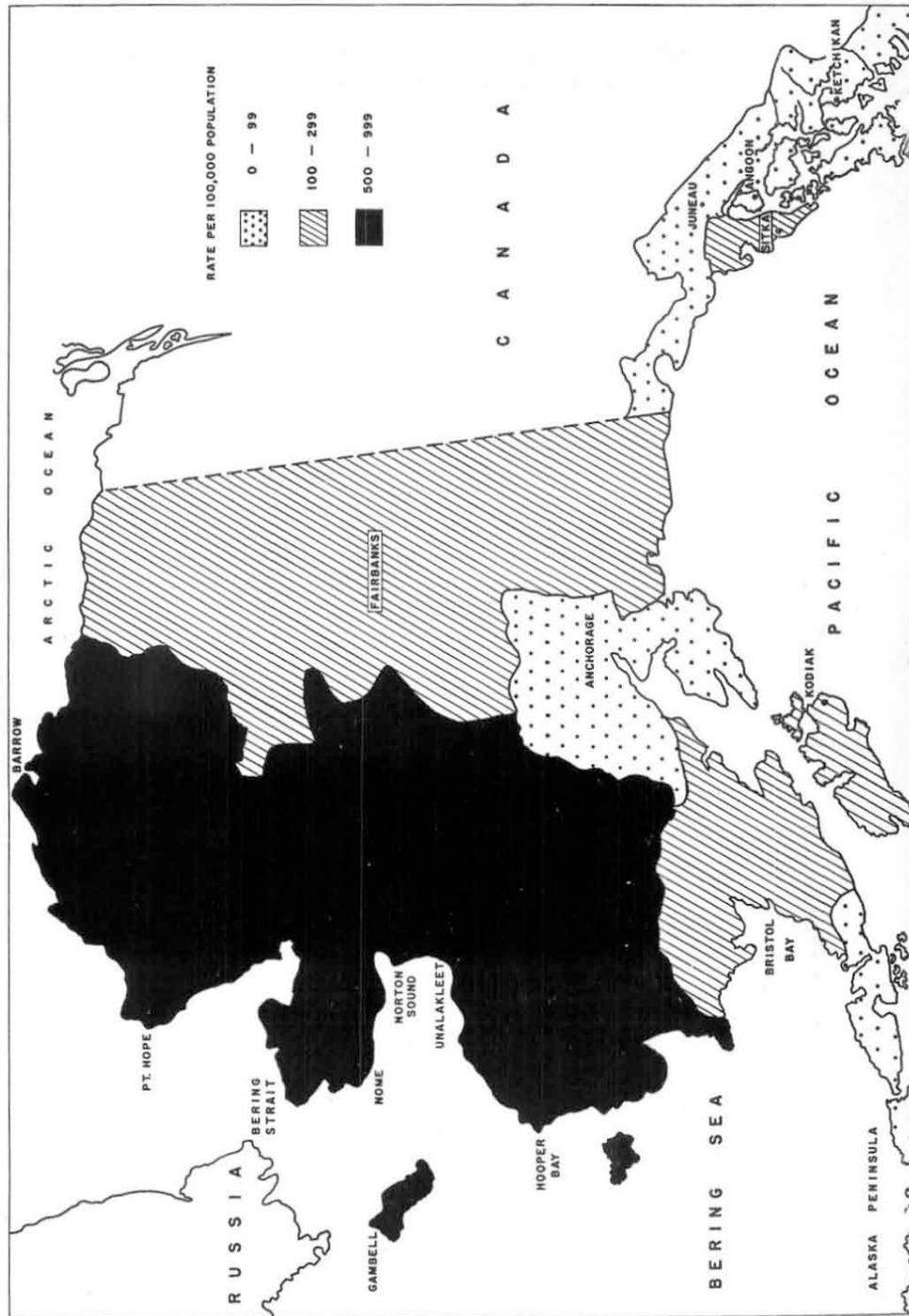


Figure 7

TUBERCULOSIS DEATHS BY LOCAL AREAS. ALASKA, 1950



But, according to data provided by the Bureau of Vital Statistics of the ADH, the rate had fallen markedly in 1952 to 459 per 100,000. What's more, provisional figures for 1953 also supplied by the same office indicate a further rapid decline to 300 per 100,000.

If we are to accept these latest figures, we can only conclude that in 10 years the mortality from tuberculosis has declined to nearly one-third of its original rate; and that in the past three years, it has been halved. If we do not wish to accept the figures, then, we must assume that the high rates of the past were consequences of poor vital statistics registration.

Regardless of how we view these figures, we must remember that efforts toward hospitalizing more and more tuberculosis patients must have borne some fruit. On the basis of experience elsewhere, we could expect a slight decline in mortality rates during the past decade.

And, even if the provisional rate for 1953 is at all close to a true estimate of the rate, it still indicates a sizeable problem among Alaskan natives — a problem far and above any experience we have had in the States.

Even if we question the magnitude of mortality rates on the basis of inadequate mortality data, there is even more striking evidence to show that tuberculosis is rampant in Alaska among the native population.

First, there are data of Weiss, formerly of the Arctic Health Research Center, on tuberculin sensitivity tests among children. He has summarized findings of the tests made during the period from 1948–1951 when the ADH was engaged actively in an extensive BCG immunization program. The data in Figure 9 are extracted from the Weiss report.

Because observations are limited to a few selected villages in each area, it is unsafe to generalize too far. The findings indicate that among the Eskimos and the Indians of the interior, the proportion of positive reactors is higher than has ever been reported for any population group anywhere.

Since we assume that a positive reaction is an indication of exposure to tuberculosis, it would appear that in the population observed nearly every child has been exposed to such infection by the time he is eight years old. This exposure rate points to the very high prevalence of the disease in this population.

Data on white children compare with those reported for school children of the States. Dr. John Gentry, Anchorage health officer in 1953, reported in a personal communication that a survey conducted that year revealed that seven percent of the high school children were positive reactors, a figure within the range of the percentages observed in the States.

The number of active cases now on the tuberculosis register provides a second source of corroborative data. The Alaska Department of Health has demonstrated considerable enterprise in uncovering cases of tuberculosis as reflected in the numbers shown on the register.

The latest report, (March 15, 1954) reveals that there are 2,606 persons with active or probably active tuberculosis listed on the register. If we assume the population as of January 1, 1953 to be 146,000 persons, the rate then is 1,785 per 100,000. Of the 2,606 persons, 243 are white and 2,363 native. The rates are 222 and 6,474 per 100,000 population respectively.

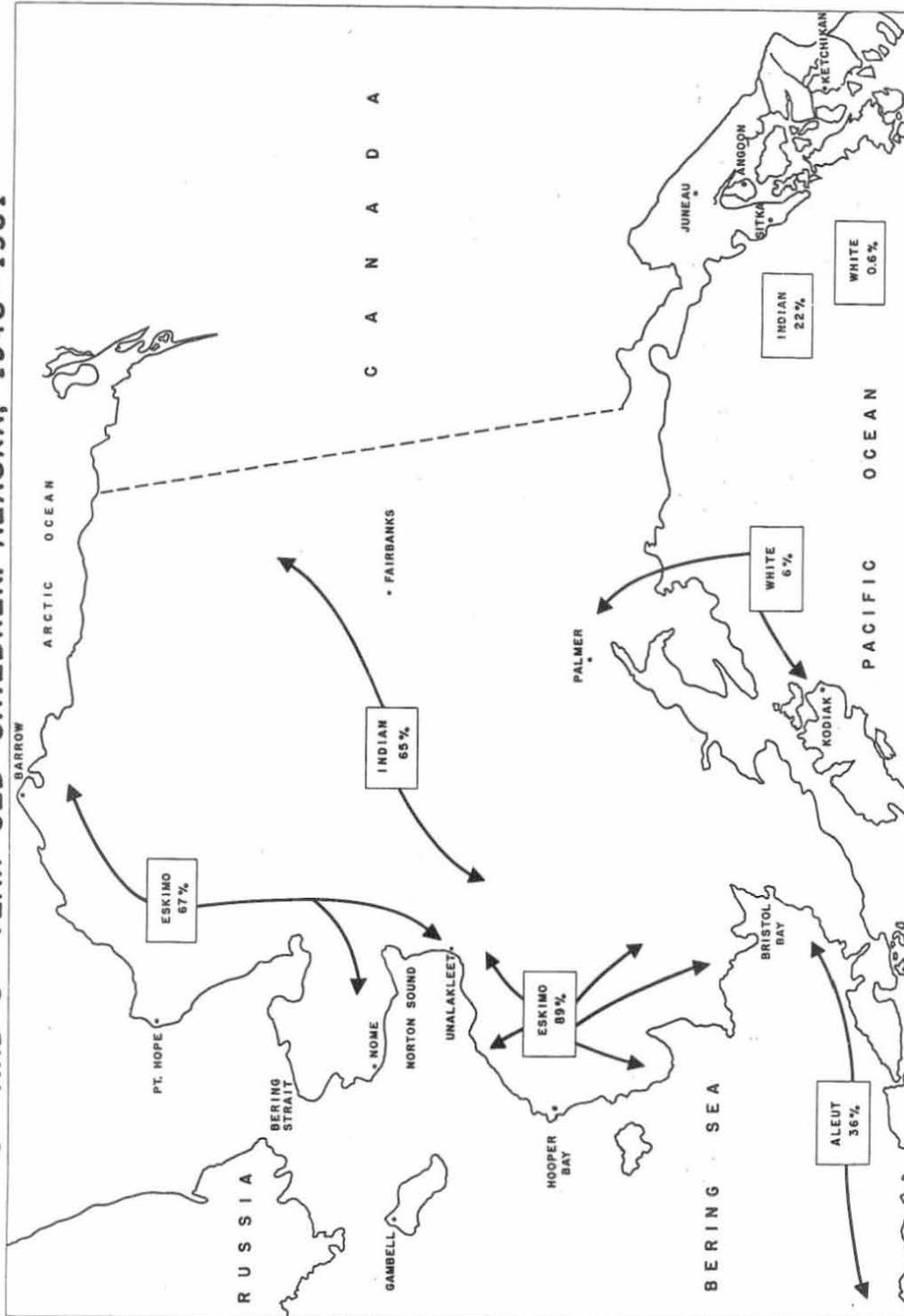
The rate for whites — 222 per 100,000 — is not greatly different from that of 151 per 100,000 reported by the Public Health Service for the States in 1952. The native rate is outside any range ever observed, and indicates that over six percent of the native population is listed on the register as having active or probably active tuberculosis.

When these data are examined in relation to geographic location, we note the same characteristics of distribution observed for tuberculosis mortality. The highest rate, nine percent, is observed in the Second Judicial Division, while the lowest rate, three percent, is observed in the First Judicial Division.

This same point is further supported by data which we obtained on the prevalence of changes in chest X-rays of a sample of Alaska National Guardsmen. Having learned that all National Guardsmen at the 1953 encampment had been X-rayed, we asked that a sample of about 200 films be chosen at random from the files arranged alphabetically. These films were read in Pittsburgh by Dr. C. Howard Marcy, who summarized his findings as follows:

1. Evidence of tuberculosis is observed in 40 percent of the films reviewed.
2. Probably active tuberculosis is noted in 10 percent of the films. One should bear in mind that these X-rays were taken on presumably healthy individuals within the age range of 18 to 43 years. As a comparison of sorts, only one percent of the selectees examined in World War' II demonstrated tuberculosis.

**PERCENTAGE POSITIVE TUBERCULIN REACTORS AMONG
5 - AND 8 - YEAR OLD CHILDREN. ALASKA, 1948 - 1951**



Eye, Ear and Throat Conditions.

Eye Defects.

The outpatient records of the four ANS hospitals discussed earlier revealed a high rate of inflammatory conditions of the eyes.

A high prevalence of corneal scars among Alaska Indians and Eskimos was first reported in 1940, according to a review by Fritz and Thygeson. Since then it has been established that the majority of these cases were due to phlyctenular kerato-conjunctivitis (PKC).

While the precise cause of PKC has not been established, one of the currently accepted theories is that it is an allergic response to the tubercule bacillus . Whatever its cause, it is reported to be widespread in parts of Alaska, and frequently leads to visual impairment.

Fritz reported that scars attributable to PKC were observed at Mt. Edgecumbe in 35 percent of the children in summer school; in 45 percent of the children at the Orthopedic Hospital; and in 25 percent of the patients in the Tuberculosis Sanatorium. In the general population, however, the prevalence is presumed to be much lower.

It is difficult to arrive at a measure of the prevalence. Fritz has made several surveys of more than 70 native villages and has kindly turned over his data to us. While he made an effort to examine all persons with visual or otologic impairment, he actually saw only about 25 percent of the population. The significance of the rates in terms of the total population, then, is not clear. He recorded detailed information regarding the number and age of persons examined for 14 villages having a total population of about 2,400 persons of whom 581 had been seen. PKC was observed in 9 out of 178 children under 15 years of age, or 5.1 percent, and in 35 out of 403 persons over 15, or 8.7 percent. Thus, PKC was observed in a total of 7.6 percent of the population examined.

Furthermore, from Fritz's material on 73 villages in which he recorded whether or not the subjects examined had eye handicaps — acute PKC and/or opacities — such handicaps were found in 22 percent. Prevalence among those examined varied according to the predominant aboriginal stock. It was 34 percent in the Eskimo villages, 18 percent in the Indian villages and 14 percent in Aleut villages.

If we assume the persons examined constituted a representative sample of the total population, the above percentages would be an estimate of the actual prevalence of the disease. If, instead, the persons seen came for examination because of their defect, then the percentages are about four times the true prevalence rate.

Ear, Nose and Throat Conditions.

Data on sickness in the outpatient records of the four ANS hospitals revealed a high incidence of ear infections. Fritz's observations in the 14 villages bear this out.

He observed that in these villages, 93 out of 581 persons examined, or 16 percent, had acute or chronic otitis media or deafness. Among 178 children under 15 years of age, 28 percent were said to have these defects.

Even with the high incidence of acute ear infections, these percentages appear exaggerated. Perhaps the persons examined constituted all those that had ear involvement in the population. If such be the case, then the true prevalence rates would be four percent of the total population and seven percent of the children under 15. This is still a high rate when we consider that among members of low-income, farm families in the States, Gover and Yawkey reported that three percent had acute and chronic otitis.

From observations in the 14 villages Fritz concluded that 151 out of 581, or 26 percent of all persons examined, need tonsillectomy and adenoidectomy. Among children under 15 years of age, this percentage rises to 49. His criteria for this need were: tonsils that meet in midline adenoids that completely obstruct the mesopharynx in persons with severe scarring of the eardrums; complicating suppurative otitis media and/or mastoiditis; marked hearing loss with colds; or repeated earaches with colds.

From data already presented on sickness among the natives, one would expect a high prevalence of nose and throat conditions. Moreover in 1940, removal of the tonsils was recommended in approximately 20 percent of the members of the low-income farm families studied by Gover and Yawkey. The degree of involvement, of course, may not be comparable.

Dental Caries

Neither the mortality nor the morbidity figures reflect it, but the natives of Alaska have generally the lowest dental status of any of the population groups of this country. And, apparently, the deterioration of the teeth has been a recent phenomenon.

Dr. R.M. MacKenzie, former Director of Oral Health Activities for the Alaska Native Service, reports that when he first entered dental practice in the Territory in the mid-1920's: "I was impressed by the fact that almost all natives over the age of 50 possessed relatively good teeth, while most persons under that age showed a marked degree of caries and disturbances of the associated soft tissues of the mouth. Since that time the condition has not changed in any manner, other than in the age range. It now is most unusual to find a normal or nearly normal mouth in any native patient. Startling degrees of caries progress are not uncommon, even to the enforced extraction of all of the permanent teeth for children fourteen years of age."

Statistics collected at our request by the Alaska Native Service bear out this statement. Figure 10 shows data on the number of decayed, missing and filled teeth (DMF) in children six to 15 years of age in Barrow (Eskimo) and Ketchikan (Indian), and compares them with rates based on Indian children in the States examined in 1929 and 1932, and on Hagerstown, Md., children in 1937. The latter is still considered typical of the rates among white children in the States for the pre-fluoridation period.

It appears only too clear from Figure 10 that the caries attack rate among Alaska natives is much higher than in the white or Indian children of the States. From the ages of 8 years and older, Alaska native children are found to have on the average 2 and 3 times as many DMF permanent teeth as the white children of Hagerstown.

Discussion of Specific Health Problems.

While we cannot state with desired precision the magnitude of the **tuberculosis** problem in Alaska, it is safe to say that it is undoubtedly tremendous. Apparently the problems are localized almost entirely in the native groups of west and north of the Railbelt, and the disease apparently has assumed epidemic proportions in some villages.

The problem is essentially a native one, but we cannot say that it is or will be limited to this group and will not affect the white population should closer contact be established. Evidence as to the trend is inconclusive, but it is difficult to imagine that the prevalence of a disease so widespread could be markedly diminished by the control measures which have been taken to date.

Data on the presence of **eye, ear, nose and throat defects** in the Territory were not collected with due regard to scientific field methods. Therefore, a correct estimate of the prevalence of these defects cannot be made. There is no question in our minds but what PKC is an important problem or that ear, nose and throat defects are highly prevalent.

If the incidence of PKC is related to tuberculosis, prevention naturally will depend on the control of that disease. We cannot prevent the high prevalence of eye, ear, nose and throat defects until we learn how to prevent acute upper respiratory infections. We should at least minimize their effects through better therapy.

The dental health of the natives of the Territory is bad, with a high rate of caries attack beginning at an early age. The effects of poor dentition on the health status generally is difficult to evaluate, but it is probably considerable.

Conclusions

Although much of the data on Alaska's health conditions are fragmentary and incomplete, they are sufficient to reveal a situation which is grim and which does not redound to the prestige of public health in this country.

In the scattered small villages of the Territory, we find that children and young adults are subject to a high rate of disability and mortality from infectious diseases, some of which is due to lack of immunological resistance, but much of it is the consequence of inadequate health service, compounded by ignorance and poverty and all of their effects.

In that portion of the population which lives in the more urbanized centers, has the advantages of education, is conditioned to hygienic and sanitary practices, and has health care available either in the Territory or the States, we find mortality from most preventable diseases comparable with that in the States. However, we find here much higher mortality rates from homicide, suicide, alcoholism — all manifestations of social stresses and emotional instability.

Detailed discussions of the problems of health and disease mentioned are given in the succeeding chapters together with guiding principles for their solution. Here, it should be pointed out that the situation warrants imagination and bold experimentation in applying these principles. Because it has taken us 25 years to reduce tuberculosis in the States to its present rate, for

example, does not mean that the program in Alaska need be geared to such a long time period. Nor should we assume that because we are unable to reduce upper respiratory infections in Stateside communities we should disregard the problem in Alaska.

The health conditions revealed by the available data point to the need for, and opportunity of increasing, our understanding about the (a) special factors associated with the incidence and course of the disease conditions, and (b) special public health methods most appropriate to the unusual physical, biologic and social characteristics of Alaska . One such study has been recommended as part of the program on the use of chemotherapy as a public health measure to reduce the spread of tuberculosis. Others can be conceived with respect to diet and dental caries, treatment of upper respiratory infections and ear infections, and with respect to all of the problems in the fields of prevention, treatment, health education, and medical care administration which are present in the Territory.

We strongly recommend that in planning and organizing each program, special consideration be given to its potential value for the improvement of health in Alaska and also to the contributions such programs can make to our knowledge of public health in general.

AVERAGE NUMBER OF DMF PERMANENT TEETH PER CHILD

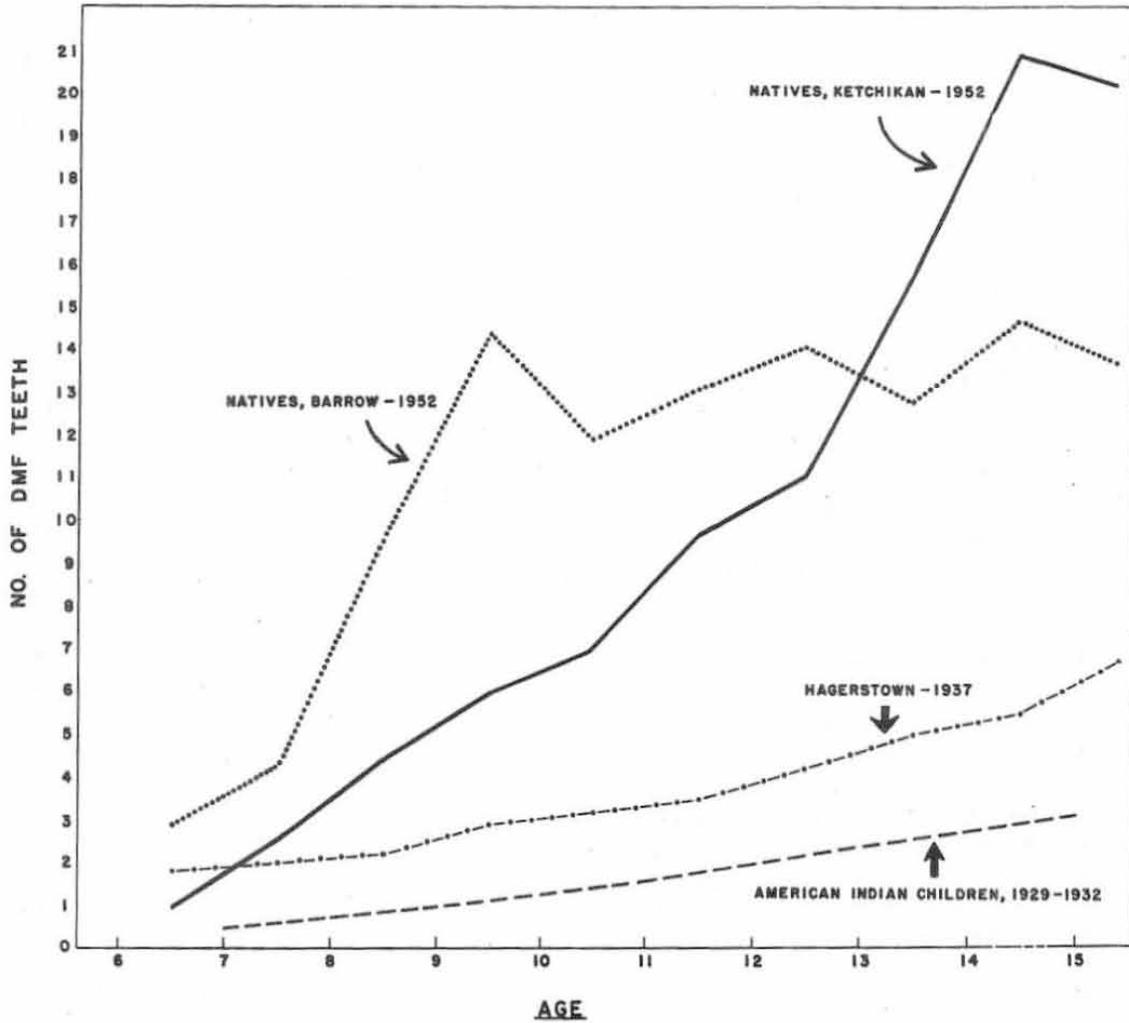


Figure 10

1. Unless otherwise stated, the figures on deaths for 1950 and 1951 in Alaska are from special tabulations prepared for us by the National Office of Vital Statistics, Public Health Service, U.S. Department of Health, Education and Welfare.
 Statistics on mortality in the States are from Vital Statistics — Special Reports National Summaries, Vol. 37, No. 11, Nov. 2, 1953, and Vol. 38, No. 4, April 16, 1954. National Office of Vital Statistics , Public Health Service, U. S. Department of Health, Education and Welfare.
2. Estimated number of white male civilians in 1950:

<u>Age (in years)</u>	<u>White male civilians</u>
Under 5	4,870
5–14	4,791
15–24	4,640
25–44	15,277
45–64	8,682
65 and over	2,609
TOTAL	40,869

To estimate the number of male civilian deaths the following steps were taken: (a) calculate the military death rate for 1951-52 using mortality data furnished by the Bureau of Vital Statistics of the Alaska Department of Health, (b) apply these rates to the assumed number of military in 1950, (c) subtract the results of (b) from the male white deaths for 1950.

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CHAPTER IV

Health agencies

The Alaska Native Service

Background

In the treaty with Russia of March 30, 1867, in Article III, a direct reference to the status of native race of Alaska reads as follows: "The uncivilized tribes will be subject to such laws and regulations as the United States may, from time to time, adopt in regard to aboriginal tribes of that country."

The Alaska Native Service (ANS) is the operating arm of the Bureau of Indian Affairs in Alaska and the Bureau, in turn, is a part of the Department of the Interior. The Juneau Area Office is one of eleven such area offices of the Bureau.

Historically, health services for the Alaska natives go back to 1914 when the first medical program was established in the Bureau of Education, the governmental agency working among the natives at that time. Educational services, however, were authorized as early as 1887 — with Sheldon Jackson as the first chief — and between that time and 1914 some doctors and nurses were employed. In 1910, at the request of the Commissioner of Education, a medical officer from the Public Health Service was assigned to Seward to supervise the work of the few physicians then employed.

About 1917 the Bureau of Education placed a medical boat on the Yukon and, with the help of two nurses, the boat visited 74 camps and towns along the Yukon in a two-month period that summer. Unhappily the physician, Dr. J.W. Houston, fell overboard and was drowned. When the pandemic of influenza hit Alaska in 1918, a party of 10 physicians was assigned by the Public Health Service to combat the disease.

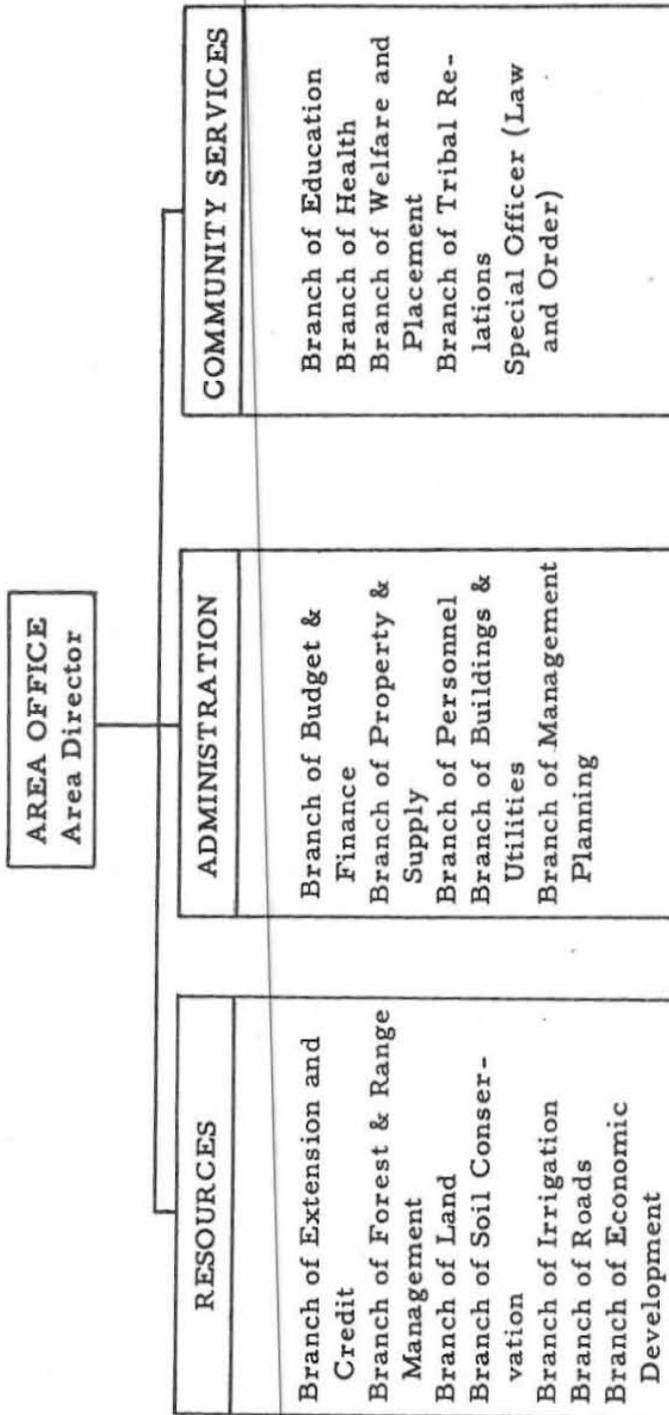
During the first decade of this century, many reports were received from teachers and others of the: prevalence of disease, especially tuberculosis, trachoma, and syphilis, among the natives in Alaska. Health surveys were made by medical officers of the Public Health Service in 1911, 1912, and 1913. Although the first hospital for treatment of natives was constructed in Juneau in 1916, the Bureau of Education earlier had improvised three hospitals in schools and provided the salaries of several physicians and nurses. At this time, also, all schools were supplied with a medicine chest containing simple supplies and remedies and a medical handbook explaining their uses.

In 1931, all services for Alaska natives were transferred to the Office of Indian Affairs. At that time there were five ANS hospitals and for the Eskimo territory six doctors and 15 nurses. Again there are reports of a floating medical unit on the Yukon.

The Bureau of Indian Affairs has stated its objective in relation to native health generally as follows: "In the field of health it is the objective of the Bureau to raise Indian health standards by (1) direct services and (2) securing cooperation of Indian individuals and groups and the local

and state governments In a long-range program which will both raise and maintain Indian health standards and at the same time will permit gradual withdrawal of the Federal Government from the program."

AREA OFFICES WHICH ARE NOT CONSIDERED
AS CONTAINING AGENCY FACILITIES
(Sacramento, Juneau)



Note: Branches indicated are staffed according to problems of particular area. Most areas will not have all specialists indicated above. Area director acts as superintendent in the performance of certain functions.

Figure 1

Organization

Organization of the Juneau Area Office of the Bureau of Indian Affairs is shown schematically in Figure 1. Activities performed by the office are grouped by three major headings — Resources, Administration and Community Services — which are in turn subdivided into branches which ordinarily parallel the structure of the Washington Central Office. The Branch of Health, under the Division of Community Services, is the one with which this particular section of our report will be most concerned.

Heading the Alaska Native Service is an Area Director appointed by the Secretary of the Interior. Examples of some of the functions which are centralized under his direction in the Juneau Office are:

1. general ledger control accounting.
2. purchasing and procurement except emergency requirements, and
3. personnel administration , including appointments and actions.

Another example of a centralized activity in Juneau is the responsibility for construction and repair of buildings.

The organizational plan is an application of the conventional "line" and "staff" arrangement. Each staff officer is responsible for technical advice and assistance to insure that his special field of activity is carried out at the subordinate levels . There is only one installation — Mt. Edgecumbe — organizationally similar to that found on Indian reservations where the superintendent has general administrative supervision over the school, the hospital and other activities carried on there.

Budget and Expenditures

Table I gives the tentative budget allowance for 1955 for the Alaska Native Service. "Hospitals, disease preventive and curative services," which is the "Health Branch," has the largest budget among the several branches of the ANS — some \$5,507,631 of the total budget of \$8,603,964.

Table 1
Bureau of Indian Affairs
Juneau Area

Appropriations and Activities	Tentative Allowance, 1955
HEALTH, EDUCATION AND WELFARE SERVICES	8,603,964
1. Hospitals, disease preventive and curative services (Health Branch)	5,507,631
2. Educational assistance, facilities and services	2,572,333
3. Welfare and guidance services	505,284
4. Relocation services	-----
5. Maintaining law and order	18,716
 RESOURCES MANAGEMENT	 379,692
1. Forest and range lands	11,422
3. Agricultural and industrial assistance	98,273
8. Management of Indian trust property	49,997
9. Repair and maintenance of buildings and utilities	220,000

*The missing numbers are not applicable to Alaska; no appropriations.

Shown below is the budget for the Health Branch for the fiscal year 1954 and tentative allocations for 1955:

	<u>1954</u>	<u>1955</u>
Bureau hospitals (including equipment)	\$4,110,500	\$4,364,058
Non-Bureau hospitals and medical fees	610,892	501,098
Practical Nurse school	87,320	77,320
Public health services	266,039	432,993
Health program direction and administrative facilitating services	131,960	132,162
Total	\$5,206,711	\$5,507,631

The "Bureau Hospitals" include six small general hospitals -- located at Barrow, Bethel, Juneau, Kakanak, Kotzebue and Tanana — and the two medical centers at Mt. Edgecumbe and Anchorage. The Alaska Native Service also has contracts for furnishing care to its beneficiaries with 15 of the 16 non-native hospitals in the Territory, including the 5005th Air Force Hospital at Anchorage. In 1953, \$160,000 was spent for hospitalization of non-tuberculosis patients in the 15 hospitals under contract. (A full discussion of hospitals is found in Chapter V.)

It should be recalled that care of mental patients is provided at the Morningside Hospital, Portland, Oregon, from another appropriation administered by the Division of Territories of the Department of the Interior. The appropriation for this purpose in 1954 approximated \$800,000. (A full discussion of mental health is found in Chapter VI.)

Medical fees are paid by the ANS to specialists in the Territory for service to patients. Several physicians are paid on a part-time basis for service to its beneficiaries in Fairbanks, Nome and Anchorage.

The item listed in the budget of the Health Branch for "Public Health Services" has been increased from \$266,039 in 1954 to \$432,993 in the current fiscal year. This increase is due primarily to two new programs recommended in 1953 by the University of Pittsburgh and put into action by the ANS:

1. The amount of \$100,000 is earmarked to initiate a chemotherapy program in the native villages to combat tuberculosis.
2. An amount of \$60,000 is set aside to implement a sanitation program in the native villages.

A substantial amount of the balance under the item of "public health services" is spent under contractual arrangements — authorized by the Johnson-O'Malley Act of June 4, 1936, which gave authority for broader ANS contract arrangements with public or private agencies in discharging its responsibilities to the native population. These contracts, between the ANS and the Alaska Department of Health, principally cover the costs of public health nurses. Eleven nursing stations — with 12 nurses — are covered by such contracts. For five of these stations, the ANS pays all of the cost of operation; for the remaining six stations, the ANS pays one -half of the cost and the ADH pays the remaining one-half. The Alaska Native Service continues to maintain, in addition to the above contract stations, three itinerant public health nurses with headquarters at Kotzebue, Nome and Unalakleet. The total public health nursing program is discussed in Chapter VI.

The final item in the budget, "Health program direction and administrative facilitating services," includes both the cost of personnel in the Health Branch of the Juneau Office — one chief medical officer, two supervising nurses, one hospital administrator, one dentist (position now vacant), and clerical staff — as well as the estimated share of the Health Branch in general administration, budget and accounting, purchasing and personnel service. During 1954, these costs amounted to \$56,927.

In a later discussion of the ANS hospitals and their per diem costs, it must be remembered that there are substantial items included for patient travel, travel of attendants for ill patients, and also the cost of freight. Most of this latter item is paid as a proportionate share in the operation and maintenance of the SS NORTH STAR.

Budget and accounting activities are carried on in the Juneau central office where an allocation is made at the beginning of each year subject to later revision if necessary. At the end of each month, the budget officer of the ANS, with a ten-day lag in time, provides a statement of expenditures and encumbrances for each hospital to the chief of the Health Branch . We have been advised by the budget officer that these monthly statements reflect quite accurately the fiscal position at each hospital, with the exception of charges for freight, vessel services and patients' travel.

1956 Budget Estimates

Each spring, the Juneau Area Office of the Alaska Native Service submits to the Department of the Interior a budget estimate for the fiscal year beginning twelve months after the ensuing July 1. No ceiling is imposed on the amounts which may be submitted in this estimate. Table 2 represents the estimates made in the spring of 1954 for "Hospitals, disease preventive and curative services," the Health Branch of the ANS. The estimates include a detailed breakdown of activities listed in Table 2, together with a justification for all substantial increases.

Table 2

Health, Education and Welfare Services, Bureau of Indian Affairs, Juneau Area
HOSPITALS, DISEASE PREVENTIVE AND CURATIVE SERVICES

Operating Expenses by Sub-Activity	Estimate 1954	Estimate 1955	Estimate 1956	Change
A. Indian Service Hospitals	\$4,110,500	\$5,397,550	\$6,296,750	\$899,220
B. Practical Nurse School	87,320	87,320	87,320	---
C. Non-Bureau Inpatient and Outpatient Services	610,892	409,848	520,250	110,402
D. Public Health Services	266,039	265,803	837,916	572,113
E. Health Program Direction	75,235	88,7735	88,735	---
F. Facilitating Administrative Services	56,927	56,925	56,927	---
Total Operating Expenses	5,206,913	6,306,183	7,887,898	1,581,715
Equipment	12,500	9,550	50,050	40,500
Program Cost	5,219,413	6,315,733	7,937,948	1,622,215

As seen in Table 2, the estimates for 1956 represent an increase of \$1,622,215 over the estimates submitted for 1955. Since the tentative allocation for 1955 amounts to \$5,507,631, the 1956 estimates represent a \$2,431,000 increase over the funds prospectively available for the current fiscal year of 1954.

While we are not in a position to make a detailed analysis of the cost estimates, we are convinced that substantial amounts of additional appropriations are required to carry out effective health services explained in other parts of this report. The additional funds are needed to:

1. broaden the ambulatory chemotherapy program against tuberculosis;
2. utilize to the fullest available beds in Alaska for the treatment of tuberculosis;

3. provide additional hospitalization of tuberculosis patients in the State of Washington as required;
4. organize a comprehensive program to improve oral health;
5. create health center districts around the field hospitals west and north of Juneau;
6. expand the training program for practical nurses and other subsidiary nursing personnel, including a new program of training at Anchorage; and
7. train additional natives as sanitation aides.

Of the items above listed, 1, 5, 6, 7, and 8 should be carried out through Johnson-O'Malley contracts with the ADH, and the remainder should be planned and operated as cooperative undertakings.

The items listed above and those which follow under "New Construction" are not inclusive but are intended only to point out some of the obvious shortcomings.

Estimates for New Construction

Estimates submitted by the Juneau Area Office in the spring of 1954 for the fiscal year 1956 included the following items for new construction:

Kotzebue	New hospital	\$2,238,000
Kotzebue	Duplex apartment	80,000
Tanana	Duplex apartment	90,000
Kanakanak	Improvements	27,000
Mt. Edgecumbe	Sidewalks, street, etc.	79,000

Total estimates for new construction — including schools — were slightly more than \$7,000,000. Funds appropriated for construction but unspent are as follows:

1. Surplus at Bethel, possibly to be used for quarters, \$400,000.
2. Surplus at Anchorage — \$250,000 to \$550,000, depending upon adjustments of claims by contractor.

It is felt that Anchorage's surplus funds should be used to construct additional and much-needed quarters for professional personnel.

A careful review should be made of the available and requested construction funds. Quarters for itinerant public health nurses are an urgent requirement in a number of locations. For purposes of economy, these quarters should be combined with needed clinics and health centers, and should be located close to or as an integral part of the hospital in those villages where an ANS field hospital is situated. A new hospital at Kotzebue is badly needed to replace the present dilapidated and inadequate structure.

Personnel Policies

Since enactment of Public Law 568, in July 1954, relieves the Department of the Interior of responsibility for public health and medical problems in Alaska, no detailed comments are offered as to present shortcomings in policies in the Department as regards professional personnel.

The Department of the Interior has been unable to provide personnel to serve the Alaska natives in the great expanse of territory north and west of the Railbelt.

Later in this report, we present a number of recommendations concerning a more liberal personnel policy in order to attract competent personnel in sufficient number for service at isolated posts.

Employment of Patients and Ex-Patients

The present Civil Service rules make it difficult for patients to be given part-time employment in hospitals, especially needed for convalescent tuberculosis patients, for such periods as will not prejudice their progress towards recovery.

There is much work in and around hospitals which convalescent patients can do, and a policy that would give them part-time employment in such work would serve several purposes. It can become an adjunct to therapy and serve to condition the patient gradually toward full-time employment. The patients' morale would undoubtedly be improved if they were attended in part by their own native people, especially people who have recovered. Every effort should be made, then, to give full-time employment in hospitals to patients upon discharge, and to train them for other useful tasks in the health field.

All this does not imply the lack of need for well-trained nurses in supervisory positions, in operating rooms and a few for ward duty to care for seriously ill patients. But the native is a good worker, and labor turnover perhaps would be less than among the non-native employees. Evidence presented later in this report shows that the high rate of turnover among hospital personnel and other health employees is a constant phenomenon in Alaska.

Comments on General Administrative Policies.

In the first place, too — much authority is centralized in Washington. Many decisions are made there which should be made in Juneau or at the field stations. For example, the total estimated bed utilization and the authorized number of beds to be occupied in each ANS hospital is decided in Washington. While it is recognized that Washington budgetary practice is based upon the number of days of patient care to be provided in government hospitals. either the Juneau office or the hospital director should receive a firm budget figure at the 'beginning of each fiscal year, with instructions to provide the maximum number of days care consistent with reasonable professional standards.

More authority should be delegated in the Juneau office to the chief of the Health Branch. It is presumed that under Public Health Service direction, a competent medical officer will be in charge of all of its health services to natives in Alaska. It is presumed also that both authority and responsibility will be delegated in parallel to the maximum possible extent. This delegation is of considerably more importance than in Stateside operations because of the vast distances involved.

Transition from Interior to Health, Education and Welfare.

The public health and medical problems of the Alaska native become the responsibility of the U.S. Public Health Service under PL 568 on July 1, 1955.

Since the Juneau Area Office has been operated as a unit, with many common services provided for the several branches, a substantial amount of unscrambling will be necessary. This task should preoccupy the attention of those responsible at an early date.

In particular, the budget for fiscal 1956 will need to be prepared carefully after a careful analysis of current allocations of costs. Also, a Johnson-O'Malley contract or a comparable inter-departmental agreement will need to be developed for Mt. Edgecumbe. This latter is necessary so that proper allocation of costs and responsibility can be made as between the newly separated hospital activities and the other activities which will remain under the Department of the Interior.

ANS Services Related to Health.

A study of "welfare and guidance" services and "educational assistance, facilities and services" is not central to our terms of reference. But, since services of public health, education and welfare are so interdependent and all in turn are so intimately related to comparable services rendered by the Territory, they deserve some discussion here.

The Welfare Branch.

This Branch of the ANS provides general assistance to the unemployed, to persons awaiting certification by the Alaska Department of Welfare and to the physically handicapped. In general, the Welfare Branch gives no aid to those natives who are entitled to assistance under the joint federal-state social security programs. Assistance was given to 189 physically handicapped persons in 1953, of whom 100 were tuberculosis patients. Expenditures in 1953 under this category amounted to \$178,098.

Care of children in boarding homes and care of handicapped children attending special schools — for example, the blind and deaf — is a responsibility of the ANS welfare branch. In 1953, the number of persons aided was 1,303 and the number of families 645. Boarding home care was provided for 187 children at a monthly rate of \$30 to \$75. Seven children were receiving training in the Washington State School for the Deaf.

With the prospective increase in hospitalization of tuberculosis patients, a substantial additional load will be placed upon welfare funds, both of the Alaska Native Service and the Alaska Department of Public Welfare. This load will involve providing care for children not in their homes — boarding care — and for aid to dependent children in cases where the wage earner is hospitalized or where the mother is hospitalized and the children must be boarded out.

Welfare services of the ANS and those provided by the Alaska Department of Public Welfare seem to us to represent an even greater degree of administrative duplication than do the health and medical services of the Federal and Territorial Governments. This duplication is described in more detail in another section of this Chapter.

Appropriations to the ANS for welfare are grossly insufficient to meet any except the most dire emergency needs of the natives. With a deteriorated economic situation among the native groups, actual starvation seems in prospect for the 1954-55 winter unless an emergency food program is put into effect or substantial increases in funds for welfare are made available. We recommend an all-out program to deal with this emergency in Chapter VII.

There seems to be adequate provision in present law for the Alaska Native Service to enter into a Johnson-O'Malley contract with the Alaska Department of Public Welfare concerning welfare activities among the natives. In such case, the latter organization would assume full administrative responsibility for welfare activities throughout Alaska. Fiscal responsibility would be shared as at present between the Federal and Territorial Governments.

Branch of Education.

The Alaska Native Service operated 91 day schools for native education, and two boarding schools. One of the boarding schools is at Mt. Edgecumbe — a vocational high school — and the other at Wrangell, chiefly for orphaned children. Enrollment figures and average daily attendance for the 1952-53 school year are shown in Table 3:

Table 3

School	Enrollment	ADA*
Mt. Edgecumbe Boarding School	619	553
Mt. Edgecumbe Hospital School	125	78
White Mountain Boarding School**	64	63
White Mountain Day School	55	53
Wrangell Institute	202	194
Totals	4,974	4,353
*Average Daily Attendance		
**Now closed		

The Juneau Area director reports that although -educational opportunities are available for approximately 5,000 school children among Alaska's natives, there are approximately 1,220 children of school age in remote areas with no school facilities available. To meet some of these needs, thirteen "instructional aid schools" were operated in 1952-53 with an enrollment of 400. Five additional such schools were opened in 1953-54.

These schools are taught by a "qualified native" who lives in the village, and teaches in a village improvised classroom. In most of the communities served, it is necessary to initiate an English-speaking program. If a village gives promise of being permanent, a regular school is usually planned.

Under Johnson-O'Malley contracts, the Territorial Department of Education currently operates 21 schools, formerly under the ANS, with a total enrollment of more than 600 pupils. No additional transfers are contemplated during the year 1954-55.

Although it is said that educational standards are higher in Territorial schools, teachers do not perform many functions formerly carried on by the ANS teacher s. Included were the reporting of health status of the community by radio. acting as postmaster, giving first-aid and medicines and rendering other paternalistic functions.

Everyone agrees that the natives should be encouraged and trained to carry on vital community activities for themselves. However, the transition in some localities has been quite abrupt. We believe the Territorial Department of Education should modify its policies during a period of transition, at least, with emphasis upon speeding the transition and taking positive steps to stimulate native leadership.

One of our most lasting impressions of the native villages is the fine and devoted work being done by the teachers in ANS schools. Typically they are a husband and wife combination, at least one of whom is a qualified teacher, the other acting as a technical assistant and performing many needed chores. As pointed out elsewhere, the only medical care available to natives over large reaches of the Territory is being given by the resident native teacher and by the itinerant public health nurse who may visit the village only for a few days once or twice yearly.

Prior to 1954, the Bureau of Indian Affairs conducted an Indian Service summer school at Brigham City, Utah, where all new teacher replacements for ANS schools were given

orientation. Further orientation is given to such teachers in the Juneau office while they are en route to their stations, For the first time this summer, a course was given by the University of Alaska and attended by about 70 ANS teachers.

In the ANS schools, either breakfast or lunch usually is served which frequently represents the only adequate meal a child has during the day. Obviously, this dietary supplement has been an important factor in child health. Therefore, it is a matter of deep concern to us that in the schools operated under Johnson-O'Malley contracts, a school lunch is not provided by the Territorial Department of Education. A strong recommendation has been made to the Commissioner of Education that a school lunch program be developed in these schools, as well as throughout the Territorial school system.

Summary

In our Interim Report of September 16, 1953, we pointed out that over the years the policies of the Bureau of Indian Affairs have not been consistent in dealing with the aboriginal populations. This has resulted in uncertainty on the part of field employees as to what those policies were at any given time. With the new responsibilities to be assumed by the Public Health Service an unusual degree of inter-agency coordination will be required both as regards overall policy and in field operations. While the need for a concerted policy is particularly acute during the transition period, it will have continuing importance if the natives are to be well served and our tax dollars economically expended.

ALASKA DEPARTMENT OF HEALTH

General Considerations.

In Chapter 11 of this report, detailed discussion is devoted to some of the broad problems peculiar to Alaska. These problems are "peculiar" in the sense that Alaska itself is unique in size, terrain, climate, distances, demographic pattern, isolation of communities, lack of communication and transportation facilities, sparsity of social institutions, deficiency of tax base, inadequacy of local political instrumentalities, precariousness of basic economy, and in the inordinate costs of doing business in the Territory. Alaska is also unique in its relations with the Federal Government.

We discuss the magnitude of the health problems facing Alaska in Chapters III and VI, particularly with respect to the native population — problems that, by common consent, have been compounded over and over again during nearly a century of official neglect. The history of concerted efforts on the part of the Territory to deal with its health problems is very short indeed. These, on a modern basis, date from 1945 when the Alaska Department of Health (A.D.H.) was reorganized.

It is important that these general considerations be kept clearly in mind because they provide the necessary perspective in which comments that are to follow should be viewed. We cannot help but be impressed with the phenomenal progress made when we consider:

1. The magnitude of the health problems that have been permitted to accumulate over the years.
2. The complexities of the many factors unique to Alaska that either enhance the problems or limit opportunities for solution except at prohibitive costs.
3. The fact that the ADH in its present form, has been in existence for less than a decade.

Although the Department has serious deficiencies — both in organization and program — it has a record of accomplishment for which the Governor and his predecessor, the Commissioner of Health and his staff, the Legislature, and the Territorial Board of Health all deserve the highest commendation. No state health department in the United States has made such relative progress within a comparable period.

Three broad areas in which the Department's record during this short span has been especially notable are in the obtaining enactment of basic legislation, the educating and informing of the citizen concerning health problems of the Territory, and the acquiring of financial support for the Department's work.

Historical.

As stated earlier, the modern role of the Territorial government in health matters is of recent origin. It was not until 46 years after Alaska was brought under protection of the American flag, in 1913 that the Governor was authorized to serve as Commissioner of Health and the Territory took official cognizance of public health.

Six years later, the Legislature created the Office of Commissioner of Health, enacted a series of laws that constituted the public health code, appointed a physician to serve as Commissioner on a part-time basis, and provided for the appointment of three deputies also to serve part-time.

However, 17 additional years were to elapse before any budget to speak of was provided. It was done through the grant-in-aid provisions of the Social Security Act in 1936, permitting establishment of four operating units — Communicable Disease Control, Maternal and Child Health, Public Health Engineering, and Public Health Laboratories.

Unsuccessful efforts were made in legislative sessions of 1939 and 1941 to create a fully-organized Department. Success was finally achieved in 1945 when a Department was established, including a Board of Health which in turn selected and employed Alaska's first, and still incumbent, full-time Commissioner. With characteristic energy, zeal and devotion of the crusader; he has applied himself to the task of building and organizing services and facilities necessary to meet some of the most urgent health needs of the Territory.

Basic Legislation.

The statutory basis for public health protection in the Territory including organization and function of the Alaska Department of Health is essentially sound except for a few important details. By the Act approved March 2, 1945, the Department was established and "charged with the duty of administering the laws and regulations relating to the promotion and protection of the public health, control of communicable diseases, programs for the improvement of maternal and child health, care of crippled children, hospitalization of the tuberculous and such other duties as may be conferred upon it by law." A Board of Health was created, consisting of the "Governor and four members appointed by him. one from each Judicial Division of the Territory, one of whom shall be a member of the Territorial Medical Association at the time of appointment."

The Board of Health has traditional functions of formulating general policies, adopting rules and regulations consonant with law, and establishing minimum standards for personnel employed by the Department. In addition, it has authority over qualifications for and appointment of the Commissioner. It does not have executive authority, the latter being vested by law in the Commissioner. The Commissioner's appointment is for a four-year term which is not coterminous with that of the Governor.

An indication of the vigor with which public health matters were brought promptly into focus is the fact that a special session of the Legislature was convened a year later — in 1946 — to deal exclusively with two matters. One of these was a comprehensive approach to the tuberculosis problem, and an appropriation of \$250,000 was made for this purpose.

Another indication of the attention which the political leadership of the Territory gave to health matters is that during the four regular legislative sessions held since that time more than thirty acts have been passed dealing in substantive ways with one or more phases of public health. Taken together, they are very comprehensive, dealing with such diverse matters as

enrichment of flour and bread, water pollution, slum clearance, the labeling of food and drugs, child caring institutions, communicable disease control, licensure of practitioners of the healing arts, environmental sanitation, vital statistics, mental disease, licensing of hospitals, and acquiring local units for the administration of health services.

New Laws Needed.

In statutory terms, the Department needs strengthening in several respects, among them the codification of existing health laws, extension of licensing authority, registration of vital statistics, liberalization of personnel policy, acquiring more effective jurisdictions for the administration of local health services whereby an optimum degree of local support and determination can be achieved, and the adoption of a fiscal year coterminous with that of the Federal Government. A discussion of each, in the order listed, follows:

1. **Codification.** With the accretion over the years of the several legislative enactments, it is inevitable that inconsistencies as well as gaps would occur. While these are not of great urgency at the moment, it would be highly useful if the aggregate of laws could be brought together into a modern public health code.
2. **Licensing.** Except as applied to hospitals and related institutions, licensing authority has never been given to the Department. Considerable extension of such authority is needed to deal with a wide variety of problems now of legitimate concern to the Department, especially in the fields of environmental sanitation, the sanitary control of food and related products, certain aspects of the hygiene of housing.
3. **Vital Statistics.** Although the Commissioner of Health by law is the Registrar of Vital Statistics for the Territory and the Health Department exercises jurisdiction over all aspects of custody, recording and analysis, the actual collection of birth and death records is a responsibility of the several United States Commissioners. The great weakness in the vital statistics system is not in the Department at Juneau, where recording and analysis of the records is done with skill, but in the field — the local communities — where reporting is so incomplete and validity of data so questionable.

It is believed that the system could be greatly improved if local registrars were appointed by the Commissioner of Health and if he were authorized to define the boundaries of the districts. This would give him the authority required properly to perform these important duties.

4. **Personnel Policies.** Those of the A.D.H. are in harmony with the principles of the merit system. Salary schedules are too low when all conditions peculiar to Alaska are taken into account. During the legislative session of 1949, an Act established a Public Employees Retirement System. This was a forward-looking step, and being a contributory system it provided for pension and other benefits in keeping with modern personnel policy. Municipal employees were also eligible to participate in the plan wherever the policy for such participation was approved by local referendum.

This Act was repealed in 1951 and employees of the Territory and its subdivisions and their dependents and survivors, became eligible for benefits under Old Age and Survivors Insurance embodied in the Federal Social Security Act.

Rate of turnover of personnel is high in all Territorial agencies including the Health Department. The problem is particularly serious in the case of physicians throughout the Territory, and of all other personnel assigned to work in areas outside larger municipalities.

5. Professional isolation, lack of decent living accommodations, and meagerness of general amenities are all serious deterrents to maintaining professional and technical personnel in the field assignments. There is urgent need for special legislation directed towards removing these deterrents.
6. **Local Health Units**. In the area of local health jurisdiction, legislation is inadequate and somewhat vague. An Act passed in 1949 established "health units for every community or settlement outside of incorporated towns," with a Board of Health composed of the president of the School Board and two citizens. In "native villages and communities" where such a Board might not be practicable, the Commissioner of Health may delegate to a representative of the ANS the "authority and power" granted to such local boards. The act is silent as to what such "authority and power" are.

The same Act further authorizes establishment, by action of the Territorial Board of Health, of **Health Districts** to be composed of two or more contiguous **Health Units** or these plus one or more contiguous incorporated towns. A Board of Health for the **Health District** is appointed by the Territorial Board of Health. Under this Act, Health Units and also Health Districts are "responsible to and under the supervision of the Commissioner of Health" of the Territory, as regards all matters of budget and expenditures as well as of program and personnel.

The Act does not endow either the Health Unit or the Health District with taxing authority. Since the Act is silent in respect to what other authority and power either may have, it can be interpreted that, in essence, either is merely an agent of the Territorial Board of Health. Only one local Health District which serves Anchorage and its environs has been established under this Act.

The Legislature in 1951, recognizing that some type of governmental framework was necessary for development and maintenance of the many public and quasi-public services and facilities needed in heavily populated and growing areas outside incorporated towns, enacted legislation authorizing establishment of another unit, the Public Utility District. Such a District, under a Board of Directors, is empowered to construct and operate a wide variety of utilities and community facilities including water works, sewer systems, hospitals and garbage disposal systems. In addition, "The Board of Directors, by resolution or ordinance, shall have the power and authority to provide for public health." While this Act gives the Public Utility District taxing authority, it is silent on the meaning of "power and authority to provide for public health," with

respect to jurisdictional relationships with the Commissioner of Health and the Territorial Board of Health.

The problem of creating local political entities competent to deal realistically with the many aspects of public service is urgent, yet extremely complicated. It is not limited to public health but affects all areas of public service.

The Alaska Legislative Council has this overall problem under continuous study and in its Publication No. 21-6, July 1954, discusses the limitations of the three existing types of local government (Municipal Corporations, School Districts, and Public Utility Districts) and suggests seven alternative types for consideration by the Legislature. It recognizes that each alternative, as applied to the Territory, has certain advantages as well as some disadvantages. Indeed, in some parts of the Territory, none may be applicable at the moment.

However, the concept of an overall multi-purpose unit of government appeals to us as the most desirable one in which to place local health services. Whether it would be in violation of the Congressional prohibition of counties is a legal question that has not been tested. We would strongly recommend that this type of unit be seriously considered for all areas in the Territory giving promise of local competence.

1. Fiscal Year. A common criticism of the ADH is that its budget, finance, and encumbrance control system is so highly centralized, and that, with "fund availability" subject to so many changeable circumstance's including delayed passage of Congressional appropriations, that a continuous long-term program on a local level is next to impossible. This is a serious criticism, and has a considerable degree of validity. Yet it arises in part out of factors outside the Health Department's control. In health as in many other services, the Territory is heavily dependent for financial support upon the Federal Government. Hence, the fate of the Department is determined year-by-year largely by action of the Congress on appropriations.

There are three separate and distinct "years" to be dealt with "fiscally" in Alaska: (a) the budget year of the Federal Government, July through June, (b) that of the Territorial agencies which is the calendar year, January through December; and (c) the appropriation year of the Legislature which is from April through March.

Unless there are over-riding considerations to the contrary, the Territorial Government should adopt for its agencies the fiscal year coinciding with that of the Federal Government. This would undoubtedly add reliability to the budgeting process, simplify budgeting and accounting, and give more stability to the service programs.

Organization.

Earlier mention has been made of the composition and duties of the Territorial Board of Health, including its authority to appoint the Commissioner of Health and of the fact that all executive authority over the Department is vested in the Commissioner.

Chart 1 shows in broad outline the organizational pattern of the Department as of June 1, 1954. It will be noted that in addition to the Office of Commissioner of Health and several bodies and boards, there are six sections and these in turn are further divided into 14 divisions, bureaus, or units, all of which when taken together constitute what might be termed "headquarters" or "central" organization. In addition there are three regional offices, in Juneau, Anchorage and Fairbanks, which together cover the entire Territory and through which some of the headquarters services have been decentralized. These services are in part direct, but in large measure, supervisory and consultative. Finally, the chart shows District Health Departments and Local Health Units.

ORGANIZATIONAL CHART - ALASKA DEPARTMENT OF HEALTH

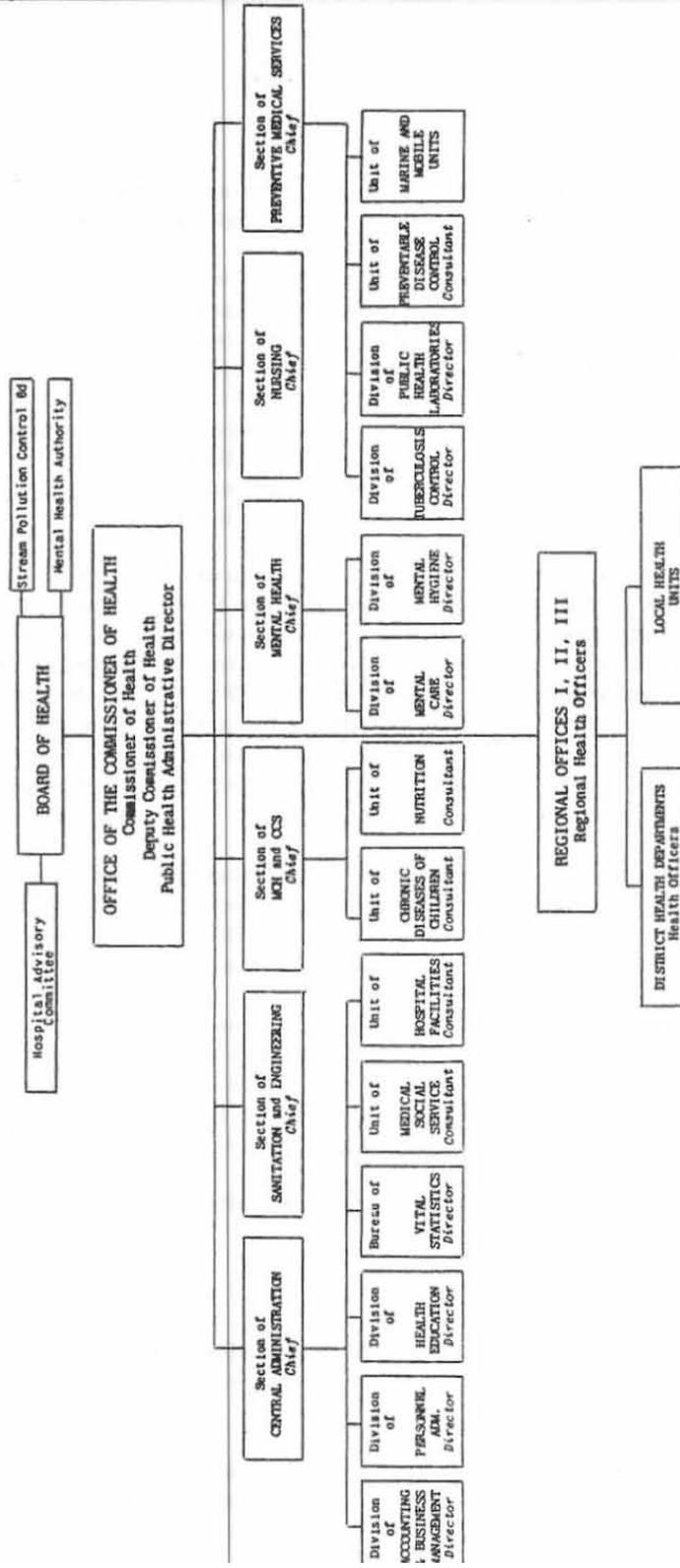
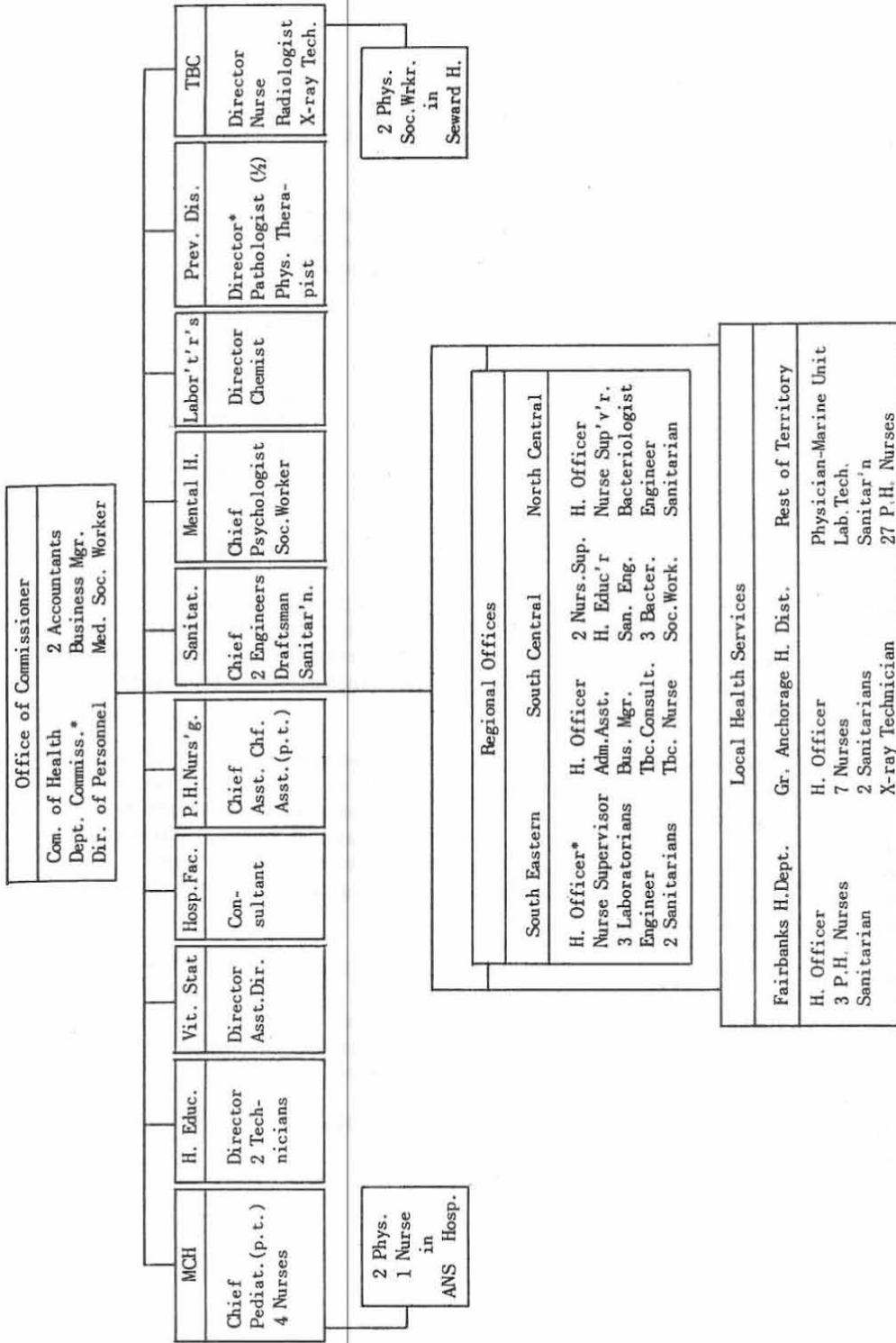


Chart 1

Effective June 1, 1954

Positions Included In Budget Of Alaska Health Department, 1954-1955



*Same Person

Chart 2

Conceptually, the organizational pattern is in line with what would be expected in the ordinary progressive state. We might question certain details, such as whether the number of sections might not be reduced from six to three or four by placing Maternal and Child Health and Crippled Children's Services under Preventive Medical Services; transferring Public Health Laboratories and Public Health Nursing over to the Section of Central Services; and expanding the Bureau of Vital Statistics to include overall statistical services for the Department as a whole. Such details are matters of judgment and to a degree are debatable. They are not, in our view, of over-riding importance.

Actually some of the administrative units shown in the preceding chart are, up to now, only "paper entities," in that some of them have no staff whatever, and certain others have to rely upon personnel covering other positions. A notable example of such spread is in the case of the Deputy Commissioner of Health who currently serves also as a Section Chief (Preventive Medical Services), and as Director of Two Divisions (Tuberculosis Control and Preventable Disease Control). For all practical purposes, there is no unit of Nutrition (shown under the Section of M.C.H. and C.C.S.), nor Division of Mental Care (Section of Mental Health).

A more accurate picture of the organizational pattern can be shown by taking all budgeted positions (professional, technical and executive) and distributing them over organizational units grouped in a slightly different way than as shown on the official organizational chart. This has been done as shown in Chart 2.

Starting at the top of the chart and reading down, one finds that there are 45 "headquarters" positions budgeted, six of which are for assignments to hospitals), 26 in regional offices (at least a third of which are entirely consultative and supervisory), and only 46 in local health services (37 of which are for public health nurses, only three for physicians and two of these currently vacant.)

Further comments on organization will be made after discussing briefly budget and expenditures.

Budget.

We have mentioned the fine record of the Department during less than a decade in acquiring financial support both from the Territorial Legislature and from the Congress.

For the biennium 1945–1947, Territorial appropriation to the Department was about \$250,000; for 1947–1949 it was \$550,000; for 1949–1951 the figure was \$985,000; and for 1951–1953 it had risen to about \$1,000,000 — a truly remarkable achievement for an area with a total population of considerably less than 150,000.

[insert Chart 2 here on pdf]

For the biennium 1951-1953, the Territory appropriated for all purposes a total of approximately 18 million dollars. Major items, here rounded off, were distributed as follows among departments and agencies:

Education and support of Schools	\$8,000,000
Welfare	3,000,000
University of Alaska	2,500,000
Health Department	1,000,000
School Buildings	500,000
Fisheries	400,000
Mines	225,000
National Guard	150,000
Agriculture	100,000
Highways	65,000

In addition to Territorial appropriations, substantial sums have been available to the Department through Public Health Service and Children's Bureau grants. These have been greatly augmented during the past six years by a special Alaska grant authorized by the Congress initially in 1949. (See section dealing with Arctic Health Research Center.)

Total funds available to the Department since its reorganization in 1945 are impressive. They are shown in Table 4. Amounts shown as Territorial funds are not the same as those shown earlier as Territorial appropriations. Territorial funds as here listed include, in addition to actual appropriations of the Legislature, local funds, ANS funds transferred to the Department through contracts for services, and certain voluntary agency funds turned over to the Department and disbursed by it.

If considered by Stateside standards, and only in relation to population of the Territory, these figures would be quite impressive. However, such standards are not applicable here either in terms of the purchasing power of the dollar, character of services included in the Department's program, or the general conditions that serve as barriers to smooth, effective operations.

The Department has budgeted expenditures for the fiscal year 1954-1955 in the approximate amount of \$1,700,000.

Table 4
Amounts, by Sources, of Funds Available to the ADH for
Expenditure for Fiscal Years, 1946 to 1954.

Fiscal Year ending 6/30	Territorial Funds	Grants from PHS & C.B.	Total
1946	\$141,500	\$272,750	\$414,250
1947	242,300	424,800	667,100
1948	430,100	507,400	937,500
1949	421,300	1,261,300	1,682,600
1950	542,300	1,220,900	1,763,200
1951	555,000	1,172,000	1,727,000
1952	617,200	1,088,400	1,705,600
1953	669,500	1,019,100	1,688,600
1954	715,000	947,500	1,662,500

In order to portray more clearly the manner in which the funds are allocated, we have included here two tables. Table 5 shows amounts allocated to the titles contained in the Department's official budget. In Table 6 items numbered in the previous Table have, in some instances been grouped together to show approximate figures according to broad functions and programs. From the latter (Table 6), it will be noted that insofar as specifically identifiable programs and activities are concerned, tuberculosis control claims the largest share of the budget (nearly one-third), followed by public health nursing (about 15 percent), and administration and maternal and child health (each with about 12 percent). These four account for slightly more than two-thirds of the total budget.

Marine units and local health departments account for the next largest item, approximately 14 percent, followed by laboratories, environmental sanitation, vital statistics, mental health, and others in much lesser amounts.

Table 5
Budget Of Alaska Department Of Health
 Year Ending June 30, 1955

1. <u>General Administration:</u> Bd. of Health, Personnel, Commissioners Office, Management, Merit System Training		\$172,202
2. <u>Tuberculosis:</u> a) Headquarters	\$41,187	
b) Staff Seward San.	14,500	
c) Mobile x-ray Unit	48,896	104,583
3. <u>Maternal & Child Health</u>		
a) Headquarters	19,976	
b) Exam. of School Children	13,500	
c) Staff Mt. Edgecumbe	40,748	
d) Chr. Dis. of Children	50,000	124,224
4. <u>Vital Statistics</u>		58,841
5. <u>Mental Health</u>		47,451
6. <u>Preventable Diseases</u> (General, Polio, Biologics)		40,776
7. <u>Misc. Clinic Services:</u> a) Tuberculosis	23,000	
b) MCH & CC	14,900	37,900
8. <u>Sanitary Engineering - Juneau</u>		37,592
9. <u>P.H. Laboratories - Juneau</u>		29,534
10. <u>Health Education - Juneau</u>		26,633
11. <u>Medical Social Service:</u> a) Headquarters	9,168	
b) Seward San.	6,627	15,795
12. <u>Hospital Facilities - Juneau</u>		9,758
13. <u>Purchase of Care in Hosp.:</u> a) Tuberculosis	260,000	
b) CC, E.N.T., etc.	52,400	312,400
14. <u>Public Health Nursing:</u> a) Supervisory	28,104	
b) Field Service	196,069	224,173
15. <u>Marine Units (net)</u>		144,000
16. <u>Three Regional Offices:</u> a) Medical & General	35,420	
b) Nursing	39,738	
c) Laboratory	66,214	
d) Sanit. Eng.	38,326	
e) Tuberculosis	29,140	
f) Health Education	9,240	
g) MCH & C.C.	7,457	225,535
17. <u>Local Health Departments:</u> a) Anchorage	66,000	
b) Fairbanks	26,106	92,106
TOTAL		\$1,703,503

Table 6
Budget Of Alaska Department Of Health 1954-1955 By Broad Functions

Function	Refer to Table	Amount		Percent of Total
Administration	(1, 16a)	\$207,622	\$207,622	12.2
Tuberculosis - General	(2a, 2c, 16e)	119,223		
Tuberculosis - Med. Care	(2b, 7a, 11b, 13a)	304,127	423,350	25.0
Mat. & Ch. Hlth. - General	(3a, 3b, 16g)	40,933		
Mat. & Ch. Hlth. - Med. Care	(3c, 3d, 7b, 11a, 13b)	167,216	208,149	12.3
P.H. Nursing - Supervisory	(14a, 16b)	67,842		
P.H. Nursing - Field Serv.	(14b)	196,069	263,911	15.5
Sanitation - Supervisory	(8)	37,592		
Sanitation - Field Serv.	(16d)	38,326	75,918	4.4
Vital Statistics	(4)	58,841	58,841	3.5
Mental Health	(5)	47,451	47,451	2.8
Preventable Diseases	(6)	40,776	40,776	2.4
Health Education	(10, 16f)	35,873	35,873	2.1
P.H. Laboratories	(9, 16c)	95,748	95,748	5.6
Hospital Facilities	(12)	9,758	9,758	0.5
Marine Units	(15)	144,000	144,000	8.5
Local Health Depts.	(17)	92,106	92,106	5.4

The following summary includes data taken from Table 6, rearranged to show approximate expenditures distributed over three broad categories of (a) administration, supervision and consultation; (b) medical and hospital care, and (e) more direct public health services. We have included under the latter item (e) the total budgets for Mental Health and Public Health Laboratories, and all of the budget for Sanitation except that for the Juneau Office.

<u>Administrative, supervisory, consultative</u>		Total	Percent of total
Administration	\$207,622		
Tuberculosis, General	119,23		
Mat. & Child Health. General	40,933		
Pub. Hlth Nursing, Supervisory	67,842		
Sanitation, Supervisory	37,592		
Vital Statistics	58,841		
Preventable Diseases	40,776		
Health Education	35,873	\$608,702	35.7
<u>Medical and Hospital Care</u>			
Tuberculosis, Med. Care	304,127		
Mat. & Child Hlth, Med.Care	167,216		
Hosp. Facilities	9,758	481,101	28.3
<u>Direct Public Health Services</u>			
P.H. Nursing, Field Serv.	196,069		
Sanitation, Field Serv.	38,326		
P.H. Laboratories	95,748		
Mental Health	47,451		
Marine Units	144,000		
Local Health Departments	92,106	613,700	36.0

Examination of these data, together with the record of past expenditures, brings out the relatively large "headquarters" expenditures for overhead, administration, supervision and consultation; the relatively large amounts devoted either directly to or in support of medical and hospital care (concentrated on the native population); and the relatively small proportion that can be identified as going directly into "grass roots" for preventive services designed to improve the public health.

Table 6
Budget Of Alaska Department Of Health 1954-1955 By Broad Functions

Function	Refer to Table	Amount		Percent of Total
Administration	(1, 16a)	\$207,622	\$207,622	12.2
Tuberculosis - General	(2a, 2c, 16e)	119,223		
Tuberculosis - Med. Care	(2b, 7a, 11b, 13a)	304,127	423,350	25.0
Mat. & Ch. Hlth. - General	(3a, 3b, 16g)	40,933		
Mat. & Ch. Hlth. - Med. Care	(3c, 3d, 7b, 11a, 13b)	167,216	208,149	12.3
P.H. Nursing - Supervisory	(14a, 16b)	67,842		
P.H. Nursing - Field Serv.	(14b)	196,069	263,911	15.5
Sanitation - Supervisory	(8)	37,592		
Sanitation - Field Serv.	(16d)	38,326	75,918	4.4
Vital Statistics	(4)	58,841	58,841	3.5
Mental Health	(5)	47,451	47,451	2.8
Preventable Diseases	(6)	40,776	40,776	2.4
Health Education	(10, 16f)	35,873	35,873	2.1
P.H. Laboratories	(9, 16c)	95,748	95,748	5.6
Hospital Facilities	(12)	9,758	9,758	0.5
Marine Units	(15)	144,000	144,000	8.5
Local Health Depts.	(17)	92,106	92,106	5.4

The same relative lack of service at the "grass roots" is shown when considered in relation to personnel. Budgeted positions for all professional technical and executive personnel throughout the Department total 118 for the current fiscal year. Using the three broad categories just summarized, these personnel are distributed as shown in Table 7:

Table 7					
Budgeted Positions (Professional, Technical, Executive), 1954–1955					
Medical	Nursing	Sanitation	Other	Total	Percent
Administration, Supervisions. Consultation 6	8	4	15	33	28.0
Medical &: Hospital Care 6	5		5	16	13.5
Direct Field Public Health 6	41	10	12	69	58.5

Personnel.

Earlier we mentioned the merit system applicable to most appointed employees of the Territorial Government, including those of the Health Department. Positions in the ADH are classified with respect to both duties and salaries. Salaries, while reasonably liberal by Stateside comparisons, are low in relation to cost-of-living in Alaska. Outside of the larger towns, living accommodations are meager as well as expensive. and indeed in many instances primitive. Professional isolation and a great dearth of social and cultural amenities typify most field assignments.

Inability to recruit and retain professional and technical personnel to work for Alaska's health is a most serious problem. The high rate of personnel turnover and long vacancies of important positions are at the very root of many inadequate services. This is especially true as regards physicians; it is serious also for nurses and others. Since 1949, under the special grant to Alaska, the Department has relied more heavily upon the Public Health Service for the loan of personnel to staff many of its strategic positions. This condition of dependency is unhealthy.

The seriousness of the current situation is emphasized in Table 8 which comprises data obtained and compiled from ADH files:

Table 8				
Turnover of Professional, Technical and Executive Personnel				
(Exclusive of Public Health Service Personnel)				
Alaska Department of Health				
Fiscal Year	Average No. per Mo. Persons on Duty	Number During Year		Percent Separations
		Accessions	Separations	
1950-1951	86	30	27	31
1951-1952	91	26	27	30
1952-1953	84	25	25	30

The fact that for each of the three years nearly one-third of all employees on duty were "new employees" — employed during the year — raises serious questions concerning the Department's basic personnel structure.

Vacancies vary between the several professional categories, being exceedingly great for physicians, and followed in order by nurses, sanitary engineers and sanitarians, and others. Budgeted positions by categories of personnel and numbers and percentages of vacancies for the fiscal years 1951, 1952, 1953 and 1954 are shown in Table 9:

Table 9																
P = Physicians N = Nurses					S = San. Eng. & Sanitarians O = All other prof. & tech. personnel											
Budgeted Positions	1951				1952				1953				1954			
	P	N	S	O	P	N	S	O	P	N	S	O	P	N	S	O
	20	53	16	39	17	57	14	38	21	57	13	40	18	55	11	38
Vacancies	9	20	4	11	9	26	3	8	9	19	3	6	8	17	3	2
Percent of Vacancies	45	28	25	30	53	46	21	21	43	33	23	15	44	31	27	5
Total positions	128				126				131				122			
Total vacancies	44				46				37				30			
Percent of total vacancies	34.4				36.5				28.0				24.6			

From Table 9 it can be observed that the gradual overall improvement from 34.4 percent of vacancies in 1951 to 24.6 percent in 1954 is accounted for entirely by professional and technical groups other than physicians, nurses and sanitation personnel who are the keystones in any health program. Vacancies for physicians, nurses and sanitation personnel were fairly constant over the four-year period being on the order of nearly one-half, one-third, and one-quarter respectively of the budgeted positions.

The rate of separations or of vacancies is serious, but the time lag in filling of vacancies is also very important. Data relevant to this aspect of the problem, consolidated to represent the total four-year experience, are shown in summary in Table 10:

Duration of vacancy	Physicians		Nurses		Sanitation		Others		Total	
	No.	Man	No.	Man	No.	Man	No.	Man	No.	Man
	Vac.	Mos.	Vac.	Mos.	Vac.	Mos.	Vac.	Mos.	Vac.	Mos.
12	20	240	11	132	3	36	8	96	42	504
11										
10			2	20	1	10			3	30
9			3	27			2	18	5	45
8										
7	4	28	3	21					7	49
6	1	6	5	30	1	6	1	6	8	48
5			8	40	1	5	2	10	11	55
4			9	36					9	36
3	3	9	12	36	2	6	2	6	19	57
2	2	4	12	24	2	4	3	6	19	58
1	5	5	7	7	3	3	5	5	20	20
1			10	5			4	2	14	7
Total	35	292	82	378	13	70	27	149	157	889
Av. Per Yr.	73 mos.		94 mos.		18 mos.		37 mos.		222 mos.	

For the combined four years experience, the 35 vacancies for physicians averaged eight to nine months and 20 of them were for the entire year; for nurses, the average was about four and one-half months, and almost one in seven was for a full 12 months; for sanitation and other personnel, the vacancies averaged about five and one-half months.

Total amount of service lost by the Department because of vacancies averaged 222 man-months per year. or the equivalent of 19 persons lost annually for the entire year. Alaska can ill afford these losses. They represent more than twice the working force assigned by the ADH to the critical areas north and west of the Railbelt, where disease and death among natives still is rampant. More precisely the annual losses are the equivalent of full year services of six physicians, eight nurses, two sanitation people, and three others.

Comment.

In terms of health needs, Alaska is made up of two almost different worlds. One is a reasonably well-developed area extending from the southeastern tip north and west to include the Railbelt, the strip along the Seward-Fairbanks railroad; the other the undeveloped remainder of the Territory, which we term "Native Alaska."

On careful study of the organizational pattern of the ADH, including ways and directions in which its resources have been deployed, it appears to us that both in Washington and Juneau, insufficient account has been taken of the magnitude of differences between these two "worlds."

The ADH has attempted to establish an organizational pattern — which by Stateside standards is modern and progressive — and apply it to the Territory as a whole. It is our view that any such pattern adaptable to one of Alaska's worlds is not applicable to the other.

For the Developed Areas.

The present type of organization is more nearly suited to the developed area in the southeast, southcentral and along the Railbelt. This area, although having at present a precarious economy, does approach some Stateside standards in general development and stability. Its population is predominantly white and urbanized, the white man's economy is firmly entrenched and acculturation of the native is considerably advanced.

Here the public health problems, though differing in details, are not dissimilar to those in the States, and are amenable to solution through employment of processes, techniques, methods and organization currently used in the States.

Here organization and services can more safely be contained within traditional limits because they can be backed by other community resources such as private physicians and dentists, community hospitals, voluntary health agencies, and a variety of other social institutions.

Here the basic weakness is the lack of local political instrumentalities to provide an appropriate share of local support for public services generally, including public health. This weakness is especially apparent in the wide spectrum of social pathology so prevalent in the "no-man's-land" fringes beyond the municipal limits of such communities as Fairbanks and Anchorage.

For the Undeveloped Areas.

The contrast between the developed and undeveloped areas is spectacular. The latter comprises two-thirds of Alaska. Here the climate is extremely rigorous; communities are small, isolated, and lacking in economic self-sufficiency; families are large, houses are small, crowding is inevitable; environmental sanitation, in the modern sense, is completely absent.

Here there is an almost complete absence of community organization and resources, no private physicians to speak of, no dentists, no community hospitals, no voluntary health agencies, no social institutions. Here the population — except for Nome — is predominantly native, and within limits, migratory. As a competitor for position and status in white man's terms the native is weak and vulnerable and is heavily dependent upon public services for practically all elements of health care including medical and hospital care.

Here in Native Alaska public health problems are nearly out of hand, and it is for this area that the ADH is most poorly equipped in organization and service, to deal with the most urgent health problems of the Territory. Here are found over 90 percent of Alaska's tuberculosis deaths; here more than 10 percent of all infants die during the first year of life. Here is almost universal prevalence of serious dental disease, the great bulk of the Territory's nutritional

deficiency, the vast majority of its crippled children, and the heaviest concentration of people with serious hearing and vision defects. Here there is almost complete absence even of elementary sanitation.

The total of ADH personnel assigned to this vast region of Native Alaska is only nine public health nurses. Heroic as their efforts are, their services are extremely meager when considered in relation to need. To the work of these nine nurses there can be added, as additional services of the Health Department, occasional itinerant clinics held sporadically in certain selected communities and villages but rarely more often than once yearly.

Despite efforts of these few nurses to do essentially preventive and educational work, in keeping with traditional concepts of public health nursing, they are in fact largely preoccupied with urgent matters of elementary medical care.

Except for the few scattered hospitals in the area operated by either the ANS or church missions, these devoted nurses and ANS teachers bear the brunt of responsibility for total health care that the villages receive.

Marine Units.

Beginning in 1947 and continuing through June, 1952, the ADH attempted to provide some semblance of general health services to isolated areas through boats equipped with medical, dental and nursing personnel and appropriate supplies. Visiting the villages not oftener than once a year, and remaining an average of three to five days, their services between 1947 and 1952 included emergency medical and dental care, chest X-raying, immunizations and the like. During the first two years the M/S Hygiene was in service; two additional ones, the M/V Health and Yukon Health, were put into service for the fiscal years ending June 30, 1949–1952.

Areas principally served by these three floating units were the southeastern peninsula, the Aleutian Chain, and the Yukon River Basin.

These boats were not in use from July 1952 to the time of our survey. However \$160,000 was appropriated by the Congress to put two of them back into service during the fiscal year 1954–1955. We have not seen them in operation. We sought to make a judgment based on records of unit costs. These were not available. However, original costs of the boats plus alterations totaled about \$233,000. Average annual operating costs on a full season basis, including dry docking and repairs, were for the M/S Hygiene about \$76,000, for the M/V Health, \$100,000, and for the Yukon Health, \$39,000. This represented an annual expenditure almost equivalent to the total amount budgeted in the year 1953–54 for public health nursing, and three times that budgeted for engineering and environmental sanitation.

The placing of two of these boats back into service during the current fiscal year at a cost of \$160,000, specifically earmarked by the Congress, and reducing thereby the Special Alaska Grant for other purposes by \$93,000, raises a serious question in our minds as to whether the same expenditure could not produce more effective results by strengthening other services of the Department, especially medical, nursing and engineering. It seems to us particularly unfortunate

that Congress should have required reactivation of two Marine Units at a cost of \$160,000, when this necessitated withdrawal of \$93,000 from other budgeted purposes.

Relationship With the Alaska Native Service.

The Alaska Native Service traditionally, but unwisely in our view, has confine its health program largely to curative and restorative services. As an example, for the first time in the history of the ANS a sanitary engineer was added to its staff during the current fiscal year. The ADH, on the other hand, in keeping with practices of state health departments generally, has not identified itself primarily with problems of medical care except for certain special categories such as the tuberculous and the crippled, but rather with the more traditional and less controversial areas of public health jurisdiction.

The existence of the two agencies working cooperatively with their separate fields of emphasis clearly defined conceivably could be rationalized for the developed area of the Territory where both programs could be backed by other community resources. However, for the undeveloped area Native Alaska radical changes are needed. Problems here are much too elementary for anyone to attempt to draw a jurisdictional line between public health and other elements of overall health care. They are too urgent, services too costly, resources too limited, and administrative complexities too great to permit the waste inherent in fostering any such distinction.

Solutions Involve Team Concept.

If the most urgent problems in this area are to be met realistically, to the extent that their solution is within the competence of the health sciences, the basic skills of public health — medicine, nursing, engineering, medical social work, and health education — must be taken to the field and be backed by institutional resources. The total of these must be brought together as a team working under clearly defined leadership.

If persons with these skills are to be recruited and retained in the field, conditions of employment such as salary, living accommodations, opportunities for professional growth and development and the like, must be competitive. The problem of living accommodations is especially serious throughout the area. It is wholly unrealistic to expect the peculiar scenic, climatic, and recreational attractions of Alaska to draw and hold permanently a requisite of competent professional staff. Strong as these attractions are, they are offset by an extreme dearth of social and cultural amenities and, of greatest importance, professional isolation.

For the team concept to be fully developed, resources of the ADH and the ANS should be pooled, placed under a single administration, and the program decentralized into regional activities.

Regional Approach.

For the area here in question, it is recommended that six regions be established centering around the five ANS hospitals at Point Barrow, Kotzebue, Bethel, Tanana and Kakanak. Each region should comprise an administrative unit for the total health services rendered. The hospital would be the focus for the total program, providing both living and office accommodations for the staff.

Each unit would consist of a minimum of two physicians, one of whom would be designated as director of the total program. Field public health personnel would be assigned as indicated and would include as a minimum those with skills in nursing, sanitation and health education. Each unit would be as nearly self-contained as possible and with as wide a degree of administrative autonomy as would be consistent with overall program and fiscal policy.

The timing of this action should, of course, be dictated by the rapidity with which the many complicated details can be arranged. Suffice it to say that arrangements in this direction should proceed as rapidly as possible. Under broad powers of the ADH on the one hand and the provisions of the Johnson-O'Malley Act on the other, there is adequate statutory basis for this type of cooperative program.

Service to Remote, Isolated Villages.

Even with this degree of decentralization and regionalization, scores of small native villages will still be remote from the centers and thus not readily accessible to technical and professional personnel, especially during periods of difficult travel. Direct personal health services rendered by the professional staff on a continuing basis throughout the year is simply out of the question for a large number of these villages.

This poses a question for which we see only two alternatives. Either the people in these most isolated villages should be encouraged to concentrate into fewer and more accessible communities, or those that are most isolated must continue to go without services of professional caliber and suffer the consequences of sickness, crippling and premature death.

The first of these alternatives involves considerations that exceed the terms of reference of this study. Such considerations, however, in our view cannot be ignored as a matter of public policy. We would venture the suggestion that whatever social and economic incentives there are within the competence of the Federal and Territorial Governments to create, be applied in the direction of a sustained orderly development of larger, more accessible communities in this area at the expense of more isolated tiny villages.

Realizing on the other hand that any such concentration of population will come about slowly and that the population movements will be erratic, we strongly recommend that every effort be made to develop a program of training the native to the point where, in every community, responsibility for the mere elementary aspects of health care, hygiene and community sanitation can be assumed by the native or at least more fully shared with his government.

While training of this character would be at a modest educational level, it would need to be semi-institutionalized. The staff and facilities recommended previously for the regional units could well provide the bases for this training program.

ARCTIC HEALTH RESEARCH CENTER

General.

Of the several federal health programs in Alaska, other than that of the Alaska Native Service, that of the Arctic Health Research Center has the greatest potential for the welfare of the Territory as a whole.

Prior to World War 11, not only was there a great lack of interest in Alaska generally, but even within scientific circles very little concern was expressed over the fact that our knowledge of the health problems peculiar to low temperature areas and of biological adaptation to Arctic environments was extremely fragmentary.

The war, however, caused a shifting of the nation's security interests with a focus, partially at least, in the direction of the far North. At this point the U.S. Public Health Service, recognizing great gaps in our knowledge concerning the natural history and behavior of disease in Arctic regions, began to advocate a research program in this field. It was reasoned that an understanding of the hazards to health and knowledge of ways to eliminate them would contribute to settlement, development, and stability of Arctic areas no less than it had already done for many tropical regions of the world.

By a happy coincidence, the Department of the Interior in 1947 engaged an Advisory Committee, named by the American Medical Association, to study the "overall medical conditions in the Territory." This team consisted of Doctors Harry E. Barnett, Arthur Bernstein, Jack Fields, George Millis, and Joseph Silverstein. The team toured the Territory for three weeks and submitted a report titled "Medical Conditions in Alaska."

Recommendation II, of the team's report, was as follows:

"An Arctic Institute for the study of the Arctic and its bearing on health, sanitation, nutrition, engineering construction, food, clothing, and footwear is recommended. This should be set up at the University of Alaska with Federal funds, and it should coordinate the efforts of the armed forces and the various federal agencies. The resultant effects on the civilian economy and on efficient means of heating, construction, sewage and water supply would be a boon to Alaskan development and defense."

As a result of these and other interests, the Congress invited the Public Health Service to submit a proposal which resulted in passage by the Congress of a special appropriation titled, "Disease and Sanitation Investigations, Territory of Alaska" This appropriation, passed in June, 1948, was the first concrete action taken towards establishment of the Center.

Organization and Functions

The Center, although labeled a research agency and having research as a major interest, was given much broader responsibilities under the appropriation language. As a consequence, its activities up until now have covered three general fields: (a) administration of grants-in-aid to the Territory to meet special health needs, (b) provision of technical assistance, through the assignment of public health personnel to the Health Department, and (c) research.

Expenditures of the Center have been more than a million dollars annually since 1949, substantially more than half of which each year has gone toward the support of the Alaska Department of Health. Distribution of funds according to the three categories of activity is shown in Table 11.

Table 11

Fiscal Year	Totals in Dollars	Aid to Alaska Health Dept.		Total	Direct Activ. Res. & Admin.
		Spec. Grant	Tech. asst.		
1949	\$1,115,000	\$715,500	\$170,236	\$885,736	\$229,264
1950	1,317,000	740,500	150,763	891,263	425,737
1951	1,259,000	708,000	138,608	846,608	412,392
1952	1,229,179	630,000	132,700	762,700	466,479
1953	1,107,500	540,000	118,000	658,000	449,500
1954	1,082,000	540,000	108,000	648,000	434,000
1955 (est.)	1,062,000	540,000	102,000	642,000	420,000

Since 1950, there has been a slight reduction of the budget each year affecting principally, however, aid to the Department of Health. Expenditures going directly into research activities have remained quite constant.

Special grant funds are referred to in another section of this Chapter. The item referred to above as Technical Assistance includes expenditures for Public Health Service personnel — physicians, public health nurses, sanitary engineers, and others — assigned to the Center but in turn "loaned" to the Health Department for service in the latter's program.

It was planned initially that the Center be located in Fairbanks in physical proximity to the University of Alaska. The University, by Resolution of the Board of Regents in October, 1948, offered a large tract of land adjacent to the campus for use as a site for the building. However, the Center did not have funds for construction. With the lack of a facility and the shortage of housing and other housing accommodations for a staff in Fairbanks, it was decided to locate the Center in Anchorage.

While there are some advantages to the Anchorage location, there are possibly even greater ones in Fairbanks. Two principal attractions of Fairbanks are (a) opportunities for more intimate association with the University, and (b) a climate more nearly typical of the Arctic.

The Center is an administrative entity in the Bureau of States Services of the Public Health Service. It is under the immediate direction of a chief medical officer and is organized into the

several Branches of Animal Borne Diseases, Bacteriology and Parasitology, Biochemistry and Nutrition, Entomology, Environmental Sanitation, and Physiology.

Although its present quarters are minimal and far from adequate, its staff has shown great ingenuity in adapting to them and the quality of research work is extremely good. It has an excellent library, in fact the only one of its kind in Alaska.

Research

Publications originating from its staff during the past five years total about 150, and deal with both field and laboratory research in the several areas connoted by titles of the organizational units.

Studies currently in progress reflect the diversity of its staff's interests. In Animal Borne Diseases they include investigations on the incidence, prevalence and distribution of echinococcus, trichinosis, diphyllobothrium, and other parasitic diseases; in Biochemistry and Nutrition, an assessment of the nutritional status of Alaskans, the nutritional value of Alaskan foods, the effects of low temperature on metabolism, nutrition and growth, and the like; in Entomology, biologic studies on the several biting insects indigenous to Alaska; in Environmental Sanitation, a variety of investigations on the design, operation and efficiency of sanitary installations — water and sewage particularly — best suited for Arctic regions; and, in Physiology, fundamental studies of metabolism in both plants and animals in Arctic temperatures.

During the past two decades, the Federal Government, principally under the provisions of the Social Security Act, has been brought into close and intimate partnership with all states and territories with respect to health and welfare services. This has necessitated the establishment of regional offices through which federal responsibility in these and related fields has been decentralized. The region of which Alaska is a part has headquarters in San Francisco to deal with the "states relations" phases of the programs of the Department of Health, Education and Welfare. There is a director of each regional office, representing departmental-wide interests. In addition, there are regional representatives of constituent agencies within the department, including the Public Health Service, Social Security Administration, Children's Bureau, and Office of Vocational Rehabilitation. These regional staffs provide quite diversified skills available to the states and territories in their budget and program planning.

Because of the remoteness of Alaska and possible other reasons, the chief of the Center, in addition to his duties as director, also serves as deputy to the director of the San Francisco Regional Office of Health, Education and Welfare, and regional representative of the Public Health Service on all matters involving Alaska.

Comments

The research program of the Center deserves full commendation, insofar as it goes. The Center already has made outstanding contributions in selected fields, fields that are important not

only with respect to fundamental biological phenomena, but also to the basic economy and development of the Territory. These and related studies should be continued and expanded.

In our view, the principal weakness in the Center's program is in the fact that there has not been parallel progress in the pursuit of problems more directly related to human health in Alaska.

Native Alaska, with its Arctic and sub-Arctic climate, its poverty, isolated communities, lack of sanitation, inadequate health services, all adding up to extraordinarily complex health problems, provides a unique opportunity to investigate the manner in which these conditions influence health and disease and to explore and test ways and means of applying existing knowledge toward improving the health of the people within the area.

We would therefore recommend that the general purposes of the Center be redefined so that its functions in the general area of routine services to the Territory become highly restricted, but that its research activities be expanded to include not only a broader spectrum of specific health problems, but also demonstrations of and pilot approaches to the administration of local health services and medical care.

More specifically, this would mean:

1. Relieving the director of his responsibilities as representative of the regional director of the Department of Health, Education, and Welfare, as well as regional director of the Public Health Service, and restoring the more traditional direct communication between the San Francisco Regional Office and the Territorial agencies.
2. Expanding the program of the Center to include:
 - (a) greater emphasis on the epidemiology and natural history of diseases known to be major problems in Alaska,
 - (b) environmental sanitation in rural Alaska,
 - (c) housing especially in "Native Alaska," and
 - (d) demonstrations in the field of administration of health and medical care services.

To gear the program of the Center more closely both to operating problems in the field and to other research activities of the U. S. Public Health Service, there should be periodic consultations at Anchorage with representatives from the Alaska Department of Health, the new services for natives of the USPHS, the Communicable Disease Center in Atlanta, the Sanitary Engineering Center in Cincinnati and the National Institutes of Health. This could be accomplished either through the device of an advisory committee which would meet periodically or through an announced policy by the U. S. Public Health Service of holding periodic consultations on the work of the Center.

Moreover, closer coordination between the Arctic Health Research Center and the "Permafrost" project of the U. S. Army Engineers, the Aero-Medical Research Laboratory of the Air Force and other agencies which are engaged in health research in the Arctic should be effected.

There is still another contribution which the Center makes to Alaska that, though vague and nebulous, is of great importance to the Territory. This is in its role as simply a member of the

scientific community of the Territory. Despite its modest proportions, it looms quite large within the perspective of Alaska's current aggregate of scientific institutions. Within these terms alone its impact upon the processes of growth, stability and maturity of the Territory, though not measurable, is undoubtedly very great. Within the same terms, it merits encouragement and support.

OTHER TERRITORIAL AGENCIES WITH HEALTH PROGRAMS

The University of Alaska

The Alaska Agricultural College and School of Mines, located in the outskirts of Fairbanks, opened for instruction in 1922 and awarded 98 degrees during the next 13 years. In 1935 it became the University of Alaska with a Board of Regents as its governing body. The 14 degree granting departments in 1953 granted 30 degrees, all except two being bachelorships. Five-year courses are featured in several branches of engineering. The majors of 1953 graduates were: Engineering 10; Anthropology, five; General Science, six; Wild Life Management three; and others six.

The Agricultural Experiment Station of the University operates experimental farms adjacent to the campus and at Palmer in the Matanuska Valley, with a fur farm at Petersburg. There is an Agricultural Extension Service and a Mining Extension Department; a Summer School at Fairbanks and a Community College at Anchorage. A Geo-physical institute, established by an Act of Congress in 1949, functions as a department of the University. Its well-equipped laboratories, constructed by federal funds, are devoted to scientific research in natural phenomena of the Arctic. The Territory pays for the basic operating expenses of the Institute; its research programs are financed by grants and contracts.

It is our impression that the University has vigorous leadership. Several departments are strong; the physical plant is mediocre; the museum and library are excellent. If one can judge by the casual comments of citizens, it is well thought of in Alaska. We were told by the University President that all three of its recent premedical graduates have been accepted in Stateside medical schools.

The summer school courses, provided initially in 1954 for about 70 teachers from Alaska Native Service schools are a valuable contribution.

The University follows a liberal tuition policy. No tuition is charged to its regular students who are legal residents of Alaska, Washington, Oregon, British Columbia or of the Yukon Territory.

It is of first importance that more Alaskans receive the proper education to do Alaska's tasks. Assuming equal ability, the resident Alaskan requires less adaptation to the climate and the people require less expensive orientation for the problems and, as a rule, take more pride in rendering needed services.

It seems probable, too, that there would be much less waste in personnel turn-over than there is now among imported professionals. While it would not be feasible at this time to establish graduate professional schools at the University, every effort should be made to enable more high school graduates to pursue college training there in any field. A system of full University scholarships to worthy residents of the Territory might prove an inducement.

As educational facilities for the natives improve, more of them will qualify for enrollment at the University of Alaska. Only a few students now are of native or mixed blood. As more natives

receive undergraduate degrees, some of them should be enabled to go on to train as graduate nurses, dentists, physicians, and sanitary engineers, as well as for other needed professions.

At present, there are three to four pre-nursing students each year attending the University. One of our long-range recommendations is that the University take the initiative, in conjunction with the Alaska Nurses Association and the Alaska Hospital Association, in developing a sound and practical program of nurse training. Basic science courses could be given at the University and the clinical instruction given at affiliated hospitals, governmental and others.

We have gained the impression that many Alaskans of all racial stocks, whether in metropolis or remote village, are anxious to acquire more education in a wide variety of fields. The success of the Community College in Anchorage is one example.

In Homer, we had the good fortune to learn firsthand of a remarkable self-study program of community needs, the priorities set up for them and methods worked out for reaching the goals. Practically the entire adult population participated actively in these studies and discussions and reached a substantial consensus on the action programs needed to make it a better community. In the process of self-analysis Homer discovered much hidden talent both in the wise judgments of many of its citizens heretofore not vocal on community affairs. For example, some 14 well qualified trained nurses were found.

Most of them were married and each originally reluctant to volunteer her professional skills for medical emergencies in the community where there was no physician. Such emergencies had been cared for, if at all, by air transportation, organized by Civilian Defense Volunteers, to Anchorage 150 miles away. They found also a "housewife" with more than a decade of experience as a top statistician in a federal service who was willing to make a competent analysis of the survey data.

Homer's unique contribution should be brought to the attention of many other Alaska communities. It suggests to the University an opportunity to assume leadership in developing an extension program designed to promote community self-study and community organization.

In villages large and small, we talked with many people of diverse educational backgrounds about many matters other than health per se. Whatever the level of formal education, we found a zeal for more contact with the outside world and for opportunities to increase their knowledge, both in depth and breadth.

These discussions and impressions were not central foci of our studies. We claim no special competence in educational affairs but we believe at least one suggestion should be explored by the appropriate authorities of the Federal Government in Alaska and the University of Alaska. We have reason to believe that in several communities citizens' committees would be deeply interested.

An "extension service," or "an adult education program," using all modern methods of communication and instruction, would make it possible for the University of Alaska to extend its present services much more widely to all of the great area it serves. Here is a vacuum which needs to be filled. Properly organized and intelligently administered, it might do more than a

staff of trained psychiatrists to minimize both "cabin fever" and its frequent concomitant, alcoholism.

All who have been in Alaska gathering data for this report believe that Alaska has a great future. The possibilities of that future can be expedited by Alaska's own institution of higher learning in meeting the unique needs of the people it serves.

The University of Alaska is a sound base upon which to build for the technology and culture which Alaska needs.

Territorial Department of Education

Organization

School health and health education are discussed in Chapter VI, and the education of natives also is covered in Chapter IV. Since education may determine to a great extent the effectiveness of a health program either as to its operation or its utilization, this report would be incomplete without comment upon the functions and problems of the Territorial Department of Education.

The Board of Education for the Territory, created in 1917, is composed of five members, one from each Judicial Division and one member-at-large. Members are appointed on a non-political basis by the Governor for overlapping terms of six years, subject to approval of all members of the Legislature assembled in joint session. The Board appoints a Commissioner of Education, who is ex-officio secretary of the board and the chief executive of the department. Staff members of the department are recommended by the Commissioner and approved by the Board.

Functions

With two exceptions, functions of the Department of Education are comparable to those of a similar department in one of the states. In Alaska this Department has responsibility for the entire cost of construction, maintenance and operation of some 61 rural schools. Five of these are located on military bases and operated under special contract.

In addition, as has been pointed out elsewhere, the Alaska Native Service is responsible for operating a system of schools for the native population. Beginning in 1951–52, five schools previously operated by the ANS were taken over by the Territorial Department of Education under Johnson-O'Malley contracts; since then the operation of 16 additional schools has been assumed by the Territory.

Types of School Districts

In addition to the rural school system, Alaska law provides for three types of school districts:

1. City School Districts whose boundaries correspond with the city's corporate limits. Every incorporated city constitutes such a district, of which there are 19 in Alaska. In two very small districts, schools are not operating.

2. Incorporated School Districts which are authorized in any town, village or settlement outside the limits of an incorporated city. Only one is in operation since rural schools are completely financed from Territorial funds.
3. Independent School Districts which include an incorporated city and adjacent settlements, not embracing more than 600 square miles. Two such districts were organized in 1947 — Anchorage and Fairbanks — and to date there is a total of eight.

Territorial funds reimburse local authorities in amounts varying from 85 percent to 75 percent of the operating expenses of those schools not directly operated by the Territory; schools with the larger enrollments receive the smaller percentage reimbursement. No reimbursement is given either for new building construction or for repairs to old buildings. The Alaska Public Works, however, does bear 50 percent of construction costs subject to approval of the project and availability of funds.

Enrollment

Alaska has some 30 public, private and denominational schools offering high school programs accredited by the Department and the University of Alaska.

Pertinent information concerning the total enrollment, as well as the number of eighth grade and high school graduates for the last two school years, has been furnished by the Territorial Department of Education, and is shown in Table 12. Not included in the table is enrollment in schools operated by the Alaska Native Service. This information is contained in our earlier discussion of the ANS Branch of Education.

Table 12
Territory Of Alaska
Department of Education
1952–53 School Year

	Total enrollment	8th grade graduates	High school graduates
Incorporated District Schools	17,744	864	419
Rural Schools	3,688	118	23
Rural (Johnson-O'Malley Schools)	411	17	0
Military Base Schools	2,456	119	14
Private and Denominational Schools	1,378	58	20
TOTALS	25,677	1,176	476

1953–54 School Year

	Total enrollment	8th grade graduates	High school graduates
Incorporated District Schools	19,463	953	537
Rural Schools	2,710	144	23
Rural (Johnson-O'Malley Schools)	664	20	0
Military Base Schools	4,863	109	16
Private and Denominational Schools	1,311	58	30
TOTALS	29,011	1,284	606

Appropriations

Territorial appropriations to cover all educational purposes in Alaska for the current and preceding biennium were as follows:

	<u>1951–53</u>	<u>1953–55</u>
Schools (public)	\$7,907,592	\$10,689,000
University of Alaska	2,241,655	2,972,000
School Buildings	500,000	700,000
Department of Education	170,000	248,100

In each of the two biennia, the four appropriations together represented approximately 60 percent of the total Territorial appropriations for all purposes.

Schools and Health — Joint Planning

By and large, the Territorial Department of Education is doing an excellent job. It is improving the physical facilities and sanitary environment of its school plants and grounds and cooperating well with the Alaska Department of Health. Smooth working relationships also exist between the Territorial Departments of Education and Health in respect to school health services.

There is, however, less participation of health personnel than would be desirable in the formulation of the health education curriculum. A closer working relationship between health and education officials would result in a better alignment of parallel needs. Health officials could suggest appropriate emphases as well as the scope and content of the health education curriculum.

During the recent progressive transfer of schools from the Alaska Native Service to the Territorial Department of Education, a number of problems have been recognized. Of particular interest to public health is the difference between the policies of these two agencies concerning the scope of the school teacher's responsibilities and the provision of school lunches. Regardless of what pattern is ultimately decided upon, it is obvious that the transition should be smooth and should not permit an hiatus in community service.

In one village, where the transfer from ANS to Territorial responsibility was scheduled to take place only two months later, no one in the community knew how, if at all, health and other non-academic activities previously carried by the ANS teachers were to be rendered. It was certain that the new Territorial teacher would not carry those responsibilities. Inter-agency planning should have prepared the community for the change and arranged alternative plans for handling essential community activities.

The Johnson-O'Malley contracts call for such planning. At best, the new teacher will be placed in a difficult position. It is natural that the native villagers will continue to make extracurricular demands upon the new teacher in the manner to which they have become accustomed.

In addition, the Territorial Department of Education should make sufficient allowances for the spouses of teachers. It seems unlikely that remote and relatively isolated teaching assignments can be filled with any reasonable degree of continuity, profit to the service or wholesomeness to the teachers themselves unless this factor is given full consideration.

School lunches, provided in ANS schools and frequently the only good daily meal the native child receives, should be continued in the schools transferred to the Territory and should be introduced in other rural schools as well.

Vocational Rehabilitation

Complete health care is like a spectrum. It begins with prevention and ranges through diagnosis and treatment and ultimately to rehabilitation — last but far from least of the major branches of medicine although almost entirely neglected until recently. Much-needed advances

should be promoted by recent actions of the Congress authorizing funds to expand vocational rehabilitation programs and to aid in constructing rehabilitation centers.

Needs in Alaska

There is great need in Alaska for such a program because of the undue prevalence of crippling conditions and of tuberculosis. Yet the job is exceptionally difficult because of the present paucity of occupations in native villages which require less than full vigor.

The task of rehabilitating handicapped persons for useful, paid jobs is complicated by the fact that so far such jobs have not been available for more than a few of the able-bodied adults of the native population. Certain possibilities are opened up, however, by the nature of the village economy in which, if it is self-sustaining, all persons physically able must hunt, fish or in other ways attempt to find a livelihood on the land or from the sea. This means that no one is left to carry out other important duties and community services on a full-time, year-round basis. Consequently, the village has been dependent upon the outside world for many services which it could otherwise provide for itself. This, of course, is practical only in the event of a solid program for upgrading and improvement of the native villages which is recommended elsewhere in this report.

In the concept of vocational rehabilitation, it is fundamental that the handicapped individual be given more than the usual amount of vocational training in order to help him compensate for the disability which keeps him from competing with others on equal terms. In other words, his greater skills should give him greater security in the job.

There are two alternatives to be considered. First, should the objective be to rehabilitate the disabled native so he may perform a new function in the home village; can one rely on the village's capacity to accept him as a partially contributing member of its society? Or, second, is it better to train him in a vocation for which there are demands in the larger community, although foreign to him and his village experience? The latter choice necessitates helping to transplant him and his family to the new environment, guiding him through the intricacies of job placement there and assisting the newcomers in their adjustment to life in the town.

The answer in almost all circumstances should depend on the individual himself — on his capacities and temperament. A new service such as the Alaska vocational rehabilitation program should be prepared to work out new, experimental procedures in screening candidates and in testing their mental and psychological capacities. By trial and error, and by use of the best skills in the rehabilitation armamentarium, those in charge of the program should be given opportunity to work out their own best solutions.

Organization of Program

After a false start in 1946, an active vocational rehabilitation program operating under Public Law 113 finally got underway in Alaska in 1953. It is not yet in full operation. The combined

Federal-Territorial budget is limited, being \$50,000 a year for service and \$12,000 for administration, vocational guidance, testing, etc.

In spite of the short time it has been operating under serious budget limitations, the Vocational Rehabilitation Division appears to be doing an excellent job. By 1954, 266 persons had come to its attention, of whom 63 were placed directly upon a pending list, 22 were rejected for reasons of ineligibility or infeasibility, and 74 were under consideration for acceptance. Eighty-three were under active care, training or in trial employment. Because of the short time involved, only 22 persons had completed their training; 17 of these were successfully employed. Sixty-five percent of the Division's caseload has been native; it is their rehabilitation which is emphasized in this report.

By far the largest number of clients have been patients with tuberculosis. Plans have been developed to integrate rehabilitation into early stages of hospital care, particularly at the Seward Sanatorium. The attempt is to dovetail the client's abilities with the capacity of the community to offer employment opportunities.

Limited funds available to the vocational rehabilitation program have been supplemented to a small extent by the Territory, the ANS and other agencies. Almost at the beginning of the 1953 - 54 fiscal year, cut-back of federal funds necessitated complete shutdown on intake of new clients for the remainder of the year.

A question in respect to vocational rehabilitation applies to other public services in Alaska. To what extent is it appropriate to use Territorial funds for native clients? Although vocational rehabilitation funds are only one-third from the Territorial and two-thirds from the Federal Government, there is reluctance on the part of Territorial officials to use their funds for natives' assistance. Conversely, the ANS has been reluctant to provide medical care outside of its own hospitals.

It is clear that average cost per rehabilitated individual must be large in Alaska. Vocational training must overcome deficiencies in the individual's previous education, training and vocational experience as well as in his everyday opportunities for contact with and observation of various types of work. Training facilities and shops such as those at the Seward Sanatorium were developed entirely by funds of the Women's Division of the Methodist Board of Missions. When medical specialists are unavailable in Alaska, patients must be sent to the States for diagnosis and recommended treatment, as is necessary when training facilities are not available. Six patients are now in this category.

As might be expected, a substantial majority of the cases were referred for rehabilitation by the Seward Sanatorium and Mt. Edgecumbe. A few were referred by the Veterans Administration, private physicians and others. A majority of the service was purchased at Seward Sanatorium and Mt. Edgecumbe. At Seward a particularly good program has been started; of the 40 tuberculosis cases so far accepted there, 20 have been rehabilitated.

In the early stages of a new program such as this, it is wise and economical to spend funds on investigation of most desirable methods before moving ahead at full speed. Many unknowns

remain, such as adaptability of standard vocational aptitude and intelligence tests to the Alaskan population and setting. And always the per-patient cost is greater in a small program than in a large one, because the same basic overhead must be maintained in both.

Content of Rehabilitation Program

There are certain weaknesses in the program other than those imposed by budget limitations. One is the relationship between the Vocational Rehabilitation Division and other Territorial agencies and also with the Alaska Native Service. Both the ANS and the Territorial Department of Public Welfare felt that the Rehabilitation Division had erred in accepting some clients well known to these agencies without full consultation. The Rehabilitation Division itself, however, has urged that regular case conferences be established with other Territorial agencies and the ANS. This seems to us to be an excellent suggestion.

There has been relatively little effort at physical restoration in the program so far; possibly because of medical care already available to natives through the ANS, but possibly also because this phase of the program has not been pushed. There is need for more regular medical consultation from both the ANS and the ADH.

Under a new written agreement for joint work with the ANS, the Rehabilitation Division will have the basic responsibility for planning rehabilitation service for ANS clients, for psychological and vocational testing, vocational counseling, and guidance. The ANS will pay as much as legally permitted for the health, welfare, and education services. It is not clear which agency is to take responsibility for placement. There is work for both on this phase. The operation of this agreement will, in effect, increase budgets for the rehabilitation service through payment by the ANS, which will in turn benefit from the expert services of the Rehabilitation Division.

On the whole, we feel the program badly needs more funds. Expansion is necessary, with some changes in present programs, and with much more attention to in-hospital rehabilitation than has been possible up to now.

Under Public Law 482, Alaska is entitled to receive, beginning in the current fiscal year, the sum of \$50,000 annually for construction of rehabilitation facilities. This construction should be located close to and desirably as an extension of the Anchorage and Mt. Edgecumbe medical centers. There is need also for a full-time branch office in Anchorage to serve the north and west parts of Alaska with itinerant coverage for Seward.

The content of the training program should be geared to meet local needs. First as a social necessity and second as an economic necessity, the Eskimo, for example, should be taught skills which his own village can use. Such a policy by no means should exclude the native with sufficient ability from acquiring higher education if he so desires, as well as a diversity of skills usable only in larger centers of population.

The whole program requires careful appraisal of the individual as well as of community needs. Among the most important occupations for which the native should be given vocational

training are those involving better health care for his own people. This includes such occupations as dental technician and sanitary aide, as well as training in first aid, immunizations, clerical occupations, radio communications and the like.

Every practicable assistance should be given to the development of a vigorous vocational rehabilitation program in Alaska. As in most communities, it would be economically sound in the long run in terms of reduced tax expenditures for care of the chronically disabled and an increase in his purchasing power. It is especially necessary in Alaska, however, because of the unhappy coexistence of large numbers of patients with long-term illnesses of a disabling nature and the potential needs of the villages for trained workers.

The average tuberculosis patient is an ideal candidate for vocational rehabilitation. It is unlikely he will be robust enough to pursue old working patterns upon return to his community, so new skills must be learned. Also, fruitful participation in constructive learning builds an emotional climate contributing to recovery.

Recommendations

1. First-rate rehabilitation centers should be constructed at or near the Anchorage and the Mt. Edgecumbe medical centers.
2. Territorial appropriations for vocational rehabilitation should be increased progressively as the program develops and matures. In the years immediately ahead, excellent opportunities exist for the active rehabilitation of patients being treated in hospitals for tuberculosis and other chronic conditions.
3. A branch office of the Vocational Rehabilitation Division should be established at Anchorage.
4. When the program has attained sufficient size and momentum as a result of increased appropriations from Federal and Territorial Government sources, consideration should be given to establishing the Division as a separate department in the Territorial Government.

Alaska National Guard

The Alaska National Guard is a potential constructive force for strengthening community organization and improving village health conditions; therefore, a brief account of its organization and present status seems appropriate.

Background

In July 1948, the National Guard Bureau authorized formation of two Scout Battalions in Alaska and, shortly thereafter, two Infantry Battalions. In 1952 a Headquarters Alaska Air National Guard at Juneau and an Air Base Squadron at Anchorage were authorized. The two native Scout Battalions have headquarters in Nome and Bethel respectively. In the Nome area there are units in 32 villages with an enrollment of 456; in the Bethel area, 28 units with an enrollment of 542.

The mission of the Scout Battalions is constant surveillance of western and northwestern coastal areas, prompt reporting of all information of a military nature, assisting in emergency rescue missions, and augmenting certain activities of the Army relative to development of Arctic and subarctic clothing, survival and tactics. The mission of the Infantry Battalions is to become proficient in winter and mountain warfare and to augment the Army in ground defense of Alaska. We shall be concerned here primarily with the native Scout Battalions.

Organization and Training

The Governor is the Commander of the Alaska National Guard, which is under immediate direction of an Adjutant General. A property and disbursing officer is appointed, subject to approval of the Secretary of the Army. He is required to be a recognized officer of the National Guard or of the Officers' Reserve Corps. He is accountable for federal property issued to the Territory, for the handling and accounting of federal funds allotted, as well as the purchasing and contracting activities for the Federal Government. In addition, a group of regular army personnel is assigned as an instructor detachment, assisting also in the organization of new units, administration, and the receipt and distribution of supplies.

Following the outbreak of war in Korea, efforts to organize the National Guard, and especially the Scout Battalions, were speeded up. The Federal Government took emergency action to provide supplies and equipment for them and to assist in providing armories for housing local units. However, in 1954, the Adjutant General told us that his supervisory organization still is inadequate to handle such things as payrolls, which are at times several months in arrears; that housing of village units is quite deficient and, in all except four locations, is entirely lacking.

The Scout Battalions receive a special type of training designed to fit them for their unique tasks. Like other members of the National Guard, they hold a minimum of 48 two-hour drill sessions per year or give equivalent service, and attend fall and winter encampments of two weeks each. In addition, they have executed with credit a number of unusual and arduous maneuvers assigned them. Each Scout receives minimum pay of \$87 per year for his services.

The two Scout Battalions comprise many of the ablest young men in the whole Eskimo area. They have demonstrated as Scouts the natural qualities which should be an important source of future community leadership and should furnish good candidates for further training in health skills such as sanitation and first aid. Because of the major importance of health in determining their survival as a race as well as the survival of the Scout Battalions, we urge that all Scouts be given added training in the elements of health and sanitation as a part of their military training.

Needed Armories

Every effort should be made to provide adequate armories in each of the 60 native villages where there is a Scout Battalion unit. The Federal Government is prepared to pay 75 percent of

construction costs of Territory-owned armories. Adequate armories in the villages would serve a much broader function than that of the military. They could become centers for community leadership and community life. Each armory should have a proper water supply, to be made available for community use where other safe water is lacking.

The armories might well represent the modern equivalent of the ancient kashim, or community center, which was the central factor for traditional community life in every Eskimo village. The first missionaries termed these kashims "houses of the devil," and ordered them destroyed, since such religious rites as were practiced by the Eskimos were carried on there. Missionaries of all creeds failed to realize that the kashim housed the group activities which made the village a functioning unit. Neither the school, the hospital, nor the mission has succeeded fully in taking its place as a community center. This fact — and many students of Eskimo culture agree — contributes to the present lack of community organization and central leadership in Eskimo villages.

Praiseworthy efforts over the years — stemming from Washington and based upon longer experience with the indigenous Tribal Councils of the American Indian — have attempted to promote comparable Village Councils for the Eskimos. That the efforts have not been fully successful is understandable when one considers their earlier cultural patterns.

Tuberculosis in Scout Battalions

On March 12, 1954, upon recommendation of the Commander-in-Chief of the Alaskan Command, Secretary of Defense Charles Wilson brought to the attention of the Department of Health, Education and Welfare "a condition that is wasteful in manpower and of considerable significance to the National Defense of the United States as provided by the Alaskan Command."

Secretary Wilson's letter read in part:

"Two battalions of natives were organized for use as scouts throughout the sparsely settled portions of the Territory of Alaska. The First Battalion consists of Eskimos from the coastal plains between Barrow and Unalakleet. The personnel of the Second are from the coastal plains between Unalakleet and Dillingham. They are obviously the only military personnel who could, in time of emergency, live off the land and exist in this barren, frozen territory. They have had considerable military training in camps and are considered a most valuable adjunct to the security of this entire area.

"When these scout battalions were initially organized, about 1300 Eskimos applied. Approximately 40 percent were rejected as being physically unfit at the time of application. Of those whose applications seemed acceptable, 120 more were physically disqualified. Most of the above were disqualified because of tuberculosis. Statistical data secured during scout encampments reveal the following:

Year	Battalion	Number Reported to Camp	Number Rejected for Tuberculosis	Percent
1951	Both	250	30	12.0
1952	1st	350	30	8.6
1953	1st	375	33	8.8
1953	2nd	452	43	9.5
Total		1,427	136	9.5

"It is appalling to note that at each encampment approximately 10 percent are found to have active tuberculosis. Those are men who were uninfected at the time they were accepted in the Alaska scouts. This obviously is wasteful and makes serious inroads on the defense potential in this area."

After describing the health services previously rendered by "health ships" and the fact that their services were discontinued because of lack of funds, Secretary Wilson continued:

"We realize the condition as outlined above is an overall problem and not limited to the scout battalions of the Alaskan National Guard. However, due to its significance to the scout battalions and to other military personnel stationed in the Alaskan area, the Department of Defense will support your efforts to obtain sufficient funds for the reinstatement of the Marine Health Units for public health purposes in the remote regions of Alaska."

The letter from Secretary Wilson was acknowledged by Acting Secretary Nelson Rockefeller, under date of April 5, 1954, in which he reported that the special Alaska appropriation to the Public Health Service for grants-in-aid and technical assistance had been reduced by the Congress from \$779,500 in 1949 to \$540,000 in 1953.

Mr. Rockefeller brought Mr. Wilson's letter to the attention of Secretary Douglas McKay, Department of the Interior. In a reply dated June 3, 1954, the Assistant Secretary of the Interior, Mr. Orme Lewis, stated that recommendations were being made for additional case-finding efforts, including use of health ships as well as vigorous use of land and air units. He stated also that the Department of the Interior had presented a supplementary budget estimate, requesting additional funds for the contract purchase of about 500 sanatorium beds in the State of Washington to accommodate Alaska native patients suffering from tuberculosis.

Further information concerning tuberculosis in a native Scout Battalion is contained in a letter dated June 22, 1954, from Col. James E. O'Malley, M.D., to the Adjutant General of the Alaska National Guard. Colonel O'Malley reports the X-ray findings of chest films of the members of the Scout Battalion made in November 1953:

"There were approximately 340 films made of the chests of the members of this group. From this group, 35 films were immediately removed and transferred to the files of the Alaska Department of Health because of obvious tuberculosis infection. The remainder consisting of 303 additional films were reviewed by me at my leisure and in these I found no

less than 14 additional cases of tuberculosis infection which could under the provisions of AR 40.115, paragraph 51-54, be of sufficient degree of severity to warrant their rejection from military service . . .

"The result of this survey from a military standpoint or the standpoint of national defense gives us some shocking information concerning the physical fitness of most valuable groups of citizens of Alaska. These individuals who we examined constitute the most alert, most intelligent, most patriotic people living in this section of the country. Their services in a time of emergency would be most valuable. However, it is easily seen that the employment of native troops with such a high rate of tuberculosis infection would be most hazardous for any supporting groups with which they might come in contact.

"The repeated and regular examination of our native population by means of X-raying of the chest is not sufficient to either prevent the further spread of or to lower the incidence of this dread disease. It is respectfully suggested that some means be found to prevent the spread of tuberculosis by education, by improving the general economic situation, by providing medical treatment consisting of our new antibiotics and chemotherapy. And lastly, by an intensive campaign to hospitalize all persons who are infected with tuberculosis. In this manner many of the infected individuals would be taken out of their respective communities and given the benefit of intensive therapy under supervision."

The facts recorded by Secretary Wilson and Colonel O'Malley speak for themselves. They recall as relevant a slogan of World War II: "Let's Keep our Men as Fit as our Machines."

Recommendations

Recommendations are made in other sections of this report for measures to improve the health and vigor of the native populations, especially in the interior of Alaska and in peripheral areas where Scout Battalions (Eskimo) contribute uniquely to the national defense.

The following recommendations relate directly to the contributions which we believe these two battalions of the Alaska National Guard can make to better defense and to better health. The two are inseparable.

1. The Legislature of Alaska should make appropriations at each session to provide without delay its share (25 percent) for the construction of adequate armories for all units of the two Alaska Scout Battalions.
2. Armories should be of generous size, provided with safe water and other sanitary conveniences. When not in military use they should be made available for the many useful community functions not now possible in the villages because of the absence of such a facility.
3. During required drill periods and at other times, actual instruction should be given on the subject of health and how each Scout can help attain it for himself, his family and his community.

4. In villages with well-organized Scout units, the non-commissioned and commissioned officers should be asked to suggest suitable candidates for training (which we are recommending) as sanitation aides and for other community service.
5. The Secretary of Defense should order, through his National Guard Bureau, extra periods of service and pay for the two small Scout Battalions in Alaska. These additional hours of service are needed immediately, and during the next years in order to:
 - a. help in carrying out the most urgent of our recommendations which relate to "Food and Health" in Chapter VII of this report, and
 - b. get more training in community leadership, without which there will be a less effective native population to contribute either to the community's peaceful development or to its military defense. Both are important.

Alaska Department of Public Welfare

General

A comprehensive assessment of the health situation in any community touches upon welfare services in many ways. Effective welfare services complement health activities and often reduce the size of the health problem. Ineffective or inadequate welfare services may nullify some of the value of health programs and increase the need for them. For these reasons, this report highlights certain aspects of the welfare situation in Alaska without attempting to treat the subject exhaustively.

It is evident that efforts are being made to bring health and welfare agencies closer together on the Territorial level. Close working relationships in advance planning as well as in solving problems as they arise are essential if the total health needs of the Territory are to be met and if the welfare services necessary to maintain health and to prevent disease are to receive adequate financial support.

The Alaska Department of Public Welfare (ADPW), created by the Legislature in 1937, is responsible generally for governmental social welfare activities in the Territory. The main exceptions to this are the Pioneers' Home and Alaska Native Service activities in the welfare field.

The Board of Public Welfare in the Territory is the policy-making body and is composed of the Governor and four other members — one from each of the four Judicial Divisions — appointed by the Governor and approved by the Legislature. The Board appoints the Director, who is the executive officer of the Department and who is responsible for administration of the various programs and for appointment of personnel under the Alaska Merit System.

The central office in Juneau consists of Divisions of Social Services, Business Management, and Accounts and Statistics. The Territory is divided into five welfare districts with headquarters in Ketchikan, Juneau, Anchorage, Fairbanks and Nome and another office at Seward. Each

district office is staffed with a qualified social worker, and four have full-time child welfare workers as well.

It is obvious that the Department of Public Welfare is operating under tremendous difficulties similar to those of the Alaska Department of Health and other Territorial agencies. To deal with outlying areas that cannot be given adequate service from the district offices, the ADPW utilizes part time lay "fee agents," approximately 170 in number. Professional staff members from the district offices must cover tremendous geographical areas to supervise the local agents, and yet have extremely limited travel funds. Intervals between visits to the communities are often measured in years rather than months, limiting supervision in great part to correspondence. At the time of this study, the welfare representative in one Judicial Division had not visited a large, remote section of his district for five years.

The fact that the ADPW has been able to accomplish a remarkable amount in the face of these difficulties can be attributed in large part to the standards of training and experience for its professional staff. It is obvious that these standards must be maintained.

Programs

Programs of the Alaska Department of Public Welfare are patterned after those in the States. They include old age assistance, aid to the blind, aid to dependent children, general relief, child welfare and responsibilities under the Juvenile Code.

The **old age assistance program** is financed both by Federal and Territorial Government funds. During the period April 1, 1951, to March 31, 1953, there were on the average 1,654 old age assistance payments made each month, averaging \$56.74 per person. Frequent comments were heard in Alaska concerning the substantial effect which old age assistance has had on the status of the aged in native villages. In many instances, cash payments to old people represent the largest money income in the family.

The program of **aid to the blind** was established by the Alaska Legislature effective September 1951, and is financed jointly by Federal and Territorial funds. In March 1953, the caseload was 45 and the average payment was \$54.67. It is likely that the cost of this program will grow as the availability of such payments becomes generally known, especially among the natives.

Aid to dependent children is also financed jointly. On the average, 749 families and 1,749 children received this assistance each month during the period April 1, 1951, to March 31, 1953. Average grant for a family was \$73.81 and per child was \$31.61.

Criticism of this program was voiced by some persons, it being alleged that such aid encouraged illegitimacy. It was said that the grandmother frequently encouraged a girl not to marry, since payments on behalf of several dependent children would represent a financial windfall for the family. Further inquiries indicate that this may be true only in exceptional cases.

An analysis of the causes of dependency in the aid to dependent children program shows that illegitimacy accounts for 14.2 percent of the cases, (personal communication from the Director

of the ADPW). By comparison, a study covering 31 states made by the Social Security Administration in June 1948 showed that among non-white families, illegitimacy accounted for 30.8 percent of the cases aided. This same study revealed that in 50 states — including Alaska and Hawaii — illegitimacy among aid to dependent children cases averaged 10.6 percent. The Alaska rate was exceeded by four states and was approximated within one percent by three others. Considering that formal marriage among Alaska's natives is a relatively recent phenomenon, the factor of illegitimacy in aid to dependent children in Alaska is smaller than might be expected.

Death or disability of the parent from tuberculosis accounts for more than one-fourth of the payments made in the aid to dependent children program. Additional families and children in Alaska will require aid under this program as the rate of hospitalization for tuberculosis patients increases.

Policies with regard to determination of eligibility for aid to dependent children need to be reviewed to determine whether the absence in the villages of readily available medical judgment concerning the health status of the parents is delaying or obstructing grants to eligible families. A study recently made by the Department of Public Welfare of cases on the Department of Health waiting list for tuberculosis hospital care revealed that 110 families (including 322 children) were not receiving financial assistance.

Payments under the program of general relief come entirely from Territorial funds. They include payments for subsistence needs, medical and hospital care and burials. To qualify, a person must have resided in Alaska for one year and not be eligible for the same type of aid under other welfare programs.

The subsistence program provides food, shelter, clothing or boarding care up to a maximum of \$60 per person per month. In the year ending March 31, 1953, there were on the average 144 persons receiving subsistence payments each month. Of these, 44 were children who were not eligible under any other program and who received boarding care. Average payment to all was \$32.09 per month.

Assistance allowances under the ADPW's present minimum standards seem particularly restrictive, since they are calculated at a marginal or sub-marginal level of subsistence. This is of considerable concern because malnutrition underlies many of the important health problems of the population. Even the stated minimum allowances have been cut 10 to 20 percent because of lack of funds.

Payments for hospital and medical care are limited to life -saving emergencies and to permanently bedridden patients. To further conserve funds, low fee schedules are set up for physicians and relatively low rates are paid to hospitals. The latter vary from \$8 per patient per day in the southeast to \$9.50 in Anchorage, \$10 in Fairbanks and \$11 in Nome. In most instances, payments are far below cost to the hospitals.

In the biennium ending March 31, 1953, more than one-half (\$237,000 or 56.8 percent) of the total appropriation of the ADPW for general relief was spent for hospital and medical care.

Most of this (53.4 percent of the total) was paid to hospitals and the remaining 3.4 percent to physicians. Most payments were on behalf of beneficiaries on general relief, but a small portion was spent on beneficiaries of other welfare programs.

In June 1953, the director conducted a study of patients on general relief in hospitals for three months or more. It showed that a total of 28 such patients were then receiving care at a monthly rate of approximately \$7,000, of which the patients' families paid \$1,246.

There is no physician connected with the administration of the medical care program of the Department. Discussions have been held between the ADPW and the Alaska Department of Health concerning possible transfer of responsibility for medical and hospital care. The latter department objects to such a transfer, however, on the grounds that it might jeopardize funds for both departments.

Several types of **child welfare** activities are carried by the Department. Administrative costs are paid in part from federal grants administered by the Children's Bureau. A legislative act of 1951 brought the supervision and licensing of children's foster homes and institutions under the Department's authority. (Children's institutions are discussed briefly in Chapter V of this report.)

Foster care is an important part of the Department's total program. About 50 percent of the staff time is devoted to child welfare work and a sizeable portion of this directly or indirectly to foster care.

Finding foster homes for Alaska's native youngsters is unusually difficult. Tuberculosis creates the greatest single need for foster care; also, in some population groups it is not easy to find a foster home where there is no tuberculosis, or to place a child in a foster home when it is uncertain whether the child himself is tuberculous. Other factors contributing to the difficulty in finding foster homes are the transient nature of the white population, housing shortages in larger communities as well as in villages, seasonal and semi-nomadic practices, and resistances to accepting foster children from other ethnic or tribal groups.

Universally in Alaska the native people say that the greatest single factor which stands or will stand in the way of a patient's accepting hospital care is not distance, difference in culture or resistance to medical advice but anxiety about care of the family. Services to assure that parents can feel confident and comfortable in leaving their children and that their wishes regarding care will be respected insofar as possible must be set up if hospital care is to be accepted and effective. In addition, this will require earlier communication between health and welfare agencies for adequate advance planning, coordination of social plans with medical plans, regular arrangements for communication between hospitalized patients and their families and prompter social services in the field to meet family problems which may arise at home during hospitalization.

As will be described in Chapter V the ADPW has taken steps to regulate and license children's institutions. At present, it is also studying the problem and setting up regulating machinery for foster homes. The ADH is not sufficiently involved in planning the health aspects of supervision and regulation of foster homes or in implementing such plans.

Some evidence was seen of health related need for more services to prevent and treat problems of **juvenile delinquency**. While the problem exists to some extent in villages, it is much more extensive in cities, especially among young native girls who come to cities without their families. These are matters of concern to both health and welfare authorities. In the public health field they are most closely related to mental health, maternal and child health and venereal disease control.

The Juvenile Code gives the ADPW responsibility for care and custody of children committed by the courts. In March 1953, 399 children were being cared for in institutions and elsewhere under the Code. The 1951 legislative act also authorized subsidization of receiving homes for the temporary care of children committed.

Budget

In Table 13, the appropriations available to the Department of Public Welfare for two biennial periods are given.

During the 1951–53 biennium, the ADPW received federal grants totaling \$2,147,426. The largest item, of more than \$1,000,000, was for old age assistance.

Table 13

	Appropriated 1951–53	Appropriated 1953–55
Old Age Assistance	\$1,224,000	\$1,138,320
Aid to Dependent Children	575,000	600,000
Aid to the Blind	57,000	30,000
Children's Receiving Home	20,000	20,000
Relief of Destitution	450,000	500,000
Juvenile Code	320,000	350,000
Administration — DPW	250,000	325,000
Expenses — BPW	5,000	5,000
Total	\$2,901,000	\$2,968,320

The 1953 session of the Legislature appropriated only 70 percent of the amounts requested by the Department of Public Welfare. The Board of Public Welfare, following its meeting in Juneau in July 1953, issued a statement pointing out that the "old age assistance program is the only program operated by the Department which appears to be adequately financed at this time." It forecast that a reduction of approximately 2.0 percent in all grants would need to be put into effect. Cutbacks fluctuating between 10 and 2.0 percent have been in effect during the past year.

Relationships Between ADPW and Other Agencies

The existence of two official welfare programs in Alaska — one under the Territorial government and the other under the Alaska Native Service — introduces a great deal of

confusion and additional procedural steps. Carbon copies, correspondence, telephone calls, telegrams and personal interviews ensue in the process of defining agency responsibilities and eligibility of clients for financial help from one or another fund.

The eligibility of a particular individual applying for relief frequently is difficult to determine. For example, if the father is white and the mother native, the family is not eligible under ANS rules. But, if the father abandons the family, is hospitalized or jailed, the native mother and her children are eligible under the ANS program. The definition of an individual as a native or non-native can change from day to day, depending on such factors as the length of time since a native mother was deserted by her white husband. Standards differ between the ANS and the ADPW as to eligibility for relief and size of allowances.

This confusion seems all the more pointless in view of the fact that 68 percent of the total expenditures of the ADPW are spent for assistance and services to natives. Based upon new cases during a six-month period, March to August, 1952, it was estimated that natives' share of the different expenditures was:

Old Age Assistance ... 58.0%
Aid to the Blind ... 97.6%
Aid to Dependent Children ... 95.8%
Juvenile Code ... 83.1%

The relationships between the ADPW and health workers also leave much to be desired. If spread of communicable disease is to be checked, a system for exchange of information between health and welfare agencies must be devised that will be effective and will extend into districts and villages. At present, through placement of children or plans for joint living arrangements between families, whole groups of children are being exposed to tuberculosis. In some instances this may be due to reluctance to share information on medical diagnoses with lay agents in villages but seems more likely to be due to infrequency of visits to villages by public health nurses and social workers (particularly the latter), to differences in the boundaries for districts of health and welfare professional staffs and to the fact that welfare district staffs do not have headquarters in a sufficient number of centers out of which public health nurses work.

Recommendations

1. The serious duplication of administrative costs and the interference with public service caused by confusion and delay in determination of respective agency responsibilities prompt the strong recommendation that the social welfare program of the Alaska Native Service be administered by the Alaska Department of Public Welfare under appropriate contracts.
2. Uniform basic standards for the native and white population should be established in respect to eligibility for welfare services, size of allowances and payment to hospitals,

physicians and other vendors of service purchased by the official welfare agency or agencies.

3. The presently stated minimum standards (which the Department of Public Welfare cannot meet because of lack of funds) should be studied with active participation of health personnel to determine their adequacy from a health standpoint. Funds should be made available immediately to meet the present minimum standards and additional funds should be provided if higher standards are found to be required for health reasons.
4. Local lay welfare agents, desirably before employment, should be better informed regarding the duties they are to perform. A program might be set up at the University of Alaska for training local villagers for apprenticeship as lay agents and for selective preparation of some for more advanced professional education. The budget of the Department should be increased to permit expansion of the professional staff, more extensive travel, closer supervision of local lay welfare agents and attendance of local agents at training sessions.
5. Trained all-purpose community social workers should be placed in the major peripheral centers being recommended in this report for combined hospital-public health operations. This would enable better coordination of procedures and exchange of information between welfare and health workers. Until health and welfare districts are made coterminous and trained social workers are located in the field centers, periodic personal conferences should be held between district social work staff and field nurses.
6. Medical care for indigent persons should be expanded, and a medical care program should be developed also for those who are medically indigent but not requiring other welfare aid. Health aspects of the services should be administered by the Department of Health and social aspects remain the responsibility of the Department of Public Welfare
7. Increased appropriations should be made for general relief, aid to dependent children and other Department of Public Welfare programs to provide for the additional caseload that will unquestionably result from increased hospitalization of tuberculosis patients.
8. While accepting the current belief that, under Stateside conditions of housing and health, foster home care is usually better than institutional care for most children and unquestionably better for infants and preschool age children, realistic modifications of this concept must be made in Alaska for the time being. Especially where hospitals maintain a tuberculosis service for adults, the children of those patients could be cared for in groups either in units attached to the hospital or located nearby, which would enable periodic visiting opportunities. (An example of such a situation is the proximity of the Jessie Lee Home to the Seward Sanatorium.)
9. The Department of Health should participate more fully in the health aspects of regulating and supervising foster homes. In its current plans for setting up regulatory machinery for foster homes, the Department of Public Welfare should rely more upon education as to standards and requirements than upon licensing procedure.

OTHER FEDERAL AGENCIES WITH HEALTH PROGRAMS

The Military

The activities of the military in the field of health are, of course, directed primarily at maintaining the well-being of its personnel. However, its work in preventive medicine, dentistry, and medical care affects the well-being of the whole population of the Territory. One obvious reason is that military personnel and their dependents constitute nearly one-half of the population. Another reason is that the medical staff of the U. S. Navy and of the Air Force, especially, is numerous and includes many physicians well-trained in the important medical specialties lacking in the Territory. Finally, research, conducted by and for the military in Alaska and elsewhere on health problems of low temperature areas, contributes substantially to basic knowledge on health and disease.

Data to describe the total impact of the military on health and medical activities in the Territory were not always obtainable. In Chapter V and in sections of this report we discuss the military hospitals, their size, occupancy, in-patient and out-patient admissions and staff and the activities concerned with sanitation, epidemiology and other aspects of community health. With respect to the hospitals, it is pertinent to note that nearly half of the in-patient admissions are non-military, most of them dependents but including some natives and other non-military; and that at Anchorage there is a medical prenatal clinic, the larger of the only two thus far established in the Territory.

The military medical personnel, specialists in particular, serve as consultants to their civilian professional colleagues in such places as Anchorage and Fairbanks. In other places, such as at Nome and Bethel, military physicians have assisted in providing in-patient and out-patient medical care in the hospital. They give health services to the communities of the Territory not only by these services and by the traditional venereal disease and sanitation control measures, but also by the provision of care to the population of villages in which outbreaks of infectious diseases occur. During the winter 1952–53, for example, two medical officers and three nurses were sent to Bethel with supplies to assist in the control of a diphtheria outbreak.

Figures are not available regarding the extent and frequency of these activities except for the services given by the Sea Air Rescue missions. The Air Force gives medical support to the ANS through evacuation of acutely ill persons from remote villages to hospitals. During one seven-month period, October 1952 through May 1953, there were 25 such flights to evacuate patients to the 5005th Hospital. A flight surgeon accompanied most of the flights; in many instances a doctor-nurse team was employed. The Coast Guard performs a comparable service from its Kodiak base for the Aleutians. The U.S. Army, Air Force, Navy and Coast Guard collaborate in carrying out these missions which are aimed at assisting civilians, as well as military personnel,

in need of transportation to a hospital for emergency care. Usually, these missions involve the rescue of persons residing in isolated parts of the Territory outside the routes of commercial airlines. Depending on the gravity of the clinical problem, these persons are transported either to a civilian or military hospital.

The military medical personnel in general demonstrate an active desire to participate in the medical care and health work of the community; they have been liberal in their interpretation of the regulations regarding emergencies and care to dependents. Their desires and efforts are not always appreciated by some members of the medical profession in the Territory and by authorities in Washington, and questions have been raised about the propriety of some of these community activities.

We strongly urge, therefore, that the Alaska Military Command join together with the ANS, the ADH and the Alaska Medical and Dental Societies to explore the means by which the time and skills of the military medical and dental personnel, the beds and facilities in the military hospitals and clinics, can be used best to the advantage of the civilian population when not fully required for the military personnel.

Benefits that would accrue from maximum utilization of the military health personnel and facilities for civilians are many. Assurance that their dependents can obtain good quality of care will maintain the morale of the troops; contact with local physicians will offset in part the professional isolation of the private practitioners of the Territory. Last, but not least, good health care will be provided where today there is none.

Veterans Administration Medical Care

General

Because the Veterans Administration has no hospital facilities in Alaska for its 11,000 veterans, non-service connected disabilities can be treated in all the Alaskan hospitals under contract arrangements. Veterans with medical needs may receive in-patient care in any civilian hospital and in the 5005th Air Force Hospital in Anchorage. If no emergency exists and necessary treatment is not available in Alaska, a veteran may be sent to suitable facilities in the States. Veterans with service connected disabilities — medical or dental — requiring ambulatory care may receive treatment from private and designated physicians working on a fee basis with the VA, or from the part-time salaried physician in Anchorage.

Caseload

The Veterans Administration has a fairly substantial caseload in Alaska with approximately 1,500 veterans drawing service-connected awards there at the present time. From 25 to 30 percent of these are natives. In all, the VA pays approximately \$500,000 a year for in-hospital care in Alaska, plus about \$135,000 for out-patient care and salaried medical staff.

There were 1,595 veterans admitted to Alaska's hospitals in 1953, and there were at all times approximately 60 to 70 individual veterans in hospitals including tuberculosis cases. Average length of stay in general hospitals was 13 days. About 60 percent of these patients were hospitalized in non-governmental hospitals, 33 percent in the 5005th Air Force Hospital, and most of the remainder in the States.

With respect to Alaska's neuropsychiatric cases, of which there are about 20 per year, the VA hospitals in the United States accept only service-connected cases. Non-service-connected cases, therefore, are sent to Morningside Hospital. About 20 tuberculosis cases are sent to VA hospitals in the States each year. Altogether about 120 veterans in all groups are sent to the United States annually for medical care or rehabilitation reasons — less than 8 percent of Alaska's total hospital admissions of veterans.

Payment for Care

The VA pays for in-hospital care in non-governmental hospitals on the Government Reimbursable Cost Formula, and pays the ANS and Air Force \$17 a day. It pays for out-patient service on a fee-for-service basis and pays physicians for in-patient service in non-governmental hospitals in the same manner. Specialists' fees are paid to some physicians not certified by any American medical specialty board but who are considered specialists by the VA medical director and the general public. The VA also pays for rehabilitation service for both service-connected and non-service-connected disabilities in the Seward Sanatorium.

Data supplied by the VA in Washington on out-patient medical and dental care received by Alaska veterans in 1953 show the following:

Medical Services:

- Applications — 219
- Patient-visits — 1,706
- Average cost per visit — \$13.69

Dental Services:

- Applications — 978
- Examination of cases completed — 378
- Average cost of services per case — \$130.84

The medical director of the VA program states that the number of veterans for which he is responsible has been increasing because many veterans have recently come to Alaska to seek jobs. He believes that about 700 more veterans with claim files come into Alaska each year than go out. Since the new financial statement has been required of non-service-connected cases, hospitalization for this group has been decreasing. This has not resulted in much saving of money, however, since the reduction has been mostly in treatment of less expensive conditions.

In our judgment the VA program is working quite satisfactorily. The reimbursement policy for hospitalization, medical and dental care seems fair and adequate. In respect to the first, the

VA is in good position to urge better accounting to the hospitals. The present policy of making use of available beds is sound.

The fee schedule for private physicians — while it averages about 20 percent above Stateside — is not much out of line with other fee schedules in the Territory. We heard no complaints of veterans being unable to obtain care when they needed it.

It would seem unnecessary to establish any veterans medical facilities in Alaska at the present time.

The Alaska Railroad

When the Federal Government started to build the Alaska Railroad in 1915, the town of Anchorage came into being as a headquarters construction camp.

From the beginning of its operations in 1923, the railroad has provided medical and hospital care for its employees. Until recent years it operated a hospital and clinic at Anchorage and in emergencies purchased care at Seward and Fairbanks. Since the Anchorage hospital was closed a few years ago, physical examinations and care have been provided by purchasing it from local medical groups and hospitals at agreed rates.

Annual costs between 1950–1953 varied from \$93,000 to \$96,000. These amounts, broken down for 1952, showed that \$50,900 was spent for physicians' and nurses' pay, \$12,654 for medicines and \$31,883 for hospital care. During 1952 there were 175 hospital admissions — of which 48 were injuries — and 1,320 hospital days of care. In addition, employees made 5,392 dispensary visits and had 2,593 physical examinations.

The Alaska Railroad Medical Association.

The 1954 medical care scheme operates under the auspices of an organization known as “The Alaska Railroad Medical Association.” This Association is legally independent of the railroad itself and has a voluntary membership of 98 percent of the railroad's employees.

All employees automatically become members upon completion of ninety days employment unless they request to be left out. The association is governed by a Board of Trustees which includes the general manager of the Alaska Railroad who serves as chairman, four members appointed by him, the chief surgeon appointed by the chairman (with voice but without vote), and four members elected by the eight unions serving the railroad.

The railroad has some 1,550 to 1,950 employees, depending on the season, and about 1,520 of these have joined the Association. Members pay \$3.50 a month by payroll deduction. The railroad paying an additional \$3.50 a month on behalf of each member. This is, incidentally, the only example we know of where a federal agency is permitted to make a payroll deduction or an employer contribution toward medical care.

Benefits include payment for services in the home, office, or the hospital if given by any of the physicians or in any of the hospitals which have contracts with the Association. Most of the

physicians and the non-governmental hospitals in Fairbanks, Anchorage, Palmer, and Seward are under contract to the Association and the subscriber may choose among them.

There are a number of exclusions. In the first place, the railroad and the U.S. Employees Compensation Commission pay direct to hospitals and doctors for the care of the on-the-job injuries. The Association's plan does not cover care of contagious diseases or of tuberculosis and neuropsychiatric disorders (after diagnosis), or of pregnancy or conditions arising therefrom, or alcoholism. Refractions and dental care are not included. There is a limit of one year of care for anyone condition.

The Association pays hospitals on a negotiated flat per diem rate which approximates cost in each case, except that (a) at the Seward General Hospital it pays \$15 a day for board and room and pays extras in addition, (b) at the Palmer Community Hospital it pays for board and room plus extras at 10 percent below regular charges; and (c) in Whittier, where there are no private physicians or hospitals, the members go to the Army Dispensary and Hospital and the Association pays the Army approved charges, presumably the inter-government exchange rate for hospital care.

The railroad runs ambulances on its tracks and has one motor ambulance in Anchorage. Use of these ambulances is available to members of the Association without charge.

Physicians are paid on a fee-for -service basis on a graded fee schedule. Typical fees are:

Office calls, first	\$5.00
subsequent calls	3.00 –5.00
House calls	10.00
Complete physical	10.00
Consultations of specialists	10.00
Appendectomy	200–250
Gall Bladder	300.00
Gastro-enterostomy	300.00

Laboratory fees are also paid:

Complete blood count	7.50
Sedimentation rate	3.00
Urine	2.50
BMR	10.00
Chest x - ray 14" x 17"	10.00
Gastrointestinal series	30.00

Dependents of Association members receive no direct benefits from. The Association but are entitled to get medical and hospital care at rates which are said to be from 10 to 25 percent below usual charges. In other words, they obtain care for approximately the same fees as members of the Association, but no pre-payment is involved. Members may keep up their membership when they are on furlough or retired, the railroad continuing to match members' contributions.

Administratively, the Association is managed by one full-time employee who keeps the books and membership lists. Each month he sends a list of paid-up members to everyone of the medical groups with which the Association has a contract.

Summary.

This interesting medical care program has not been going long enough to make possible an adequate evaluation. Up to the time of our visit, the Association had reported costs as well within the amounts computed and, indeed, was beginning to accumulate a nice reserve — at that time \$30,000. Demands for care are, however, increasing, as one might expect, and it is not certain whether this surplus will continue to accumulate. There is provision in the by-laws for increase in dues if the expenses exceed the income and for a reduction in contributions or increase in benefits after a special reserve of \$25,000 accumulates.

Presumably the quality of care received is approximately the same as that received by the rest of the population of the cities served by the railroad since the same doctors and hospitals are used by all concerned. The physicians seemed well satisfied with the arrangements at the time of our visit.

The major weaknesses in the plan are first, the numerous and somewhat undesirable exclusions which may be modified if the surplus continues to be so large; and, second, the potential increase in utilization to a point where funds are inadequate. It is impossible to judge at this time which, if either, will prevail.

Fish and Wildlife Service

Health care of the Aleuts in the remote Pribilof Islands of St. George and St. Paul, the home of the fur seal, is given under the supervision of the Fish and Wildlife Service of the Department of the Interior.

The once plentiful fur seals had almost disappeared by 1911 when a convention was entered into between Russia, Japan, Britain and the United States to outlaw killing of the seals at sea and otherwise protect them. The United States was given responsibility for management and upbuilding of the herd which has increased from 130,000 to 3,500,000 and a new agreement, reached in 1942 provides that Canada shall receive 20 percent of the skins, the United States 80 percent.

About 65,000 surplus animals are killed each year, the skins being processed, tanned and dyed in St. Louis, then sold at public auction (\$1,375,000 in 1948).

Thus these natives are not only guaranteed by federal law priority in the “killing and curing of the skins taken” but the Secretary of the Interior is also authorized to “furnish food, shelter, fuel, clothing, and other necessities of life to the native inhabitants of the Pribilof Islands and to provide for their comfort, maintenance, education, and protection.”

In a report (The Pribilof Report — 1949) submitted to the Department of the Interior in 1949, a committee appointed to study living conditions reported in substance that: the natives enjoy economic security; the population of 335 on St. Paul Island was increasing; there was only one active case of tuberculosis; the school systems on both islands compare favorably with those in the best native communities in the Territory; the free hospital and medical facilities are adequate, the 10-bed hospital at St. Paul had no patient at the time; housing on both islands was excellent, having been built by the Federal Government; there is no basis for impression that the natives are not free to come and go as they please; the cash wages paid take into account the free housing, medical care, etc.; while the furnishing free of many necessities of life has resulted in a healthy and well-fed people it has tended to discourage individual initiative, both economically and socially; the serious conditions in the Bering Sea are a striking contrast with those on the Pribilofs.

Because of the reported lack of health problems, none of our group visited the Pribilofs. The numerous reports about them demonstrate that standards of native health rise as a secure economic base and good health care are provided.

It should be noted that a medical officer at St. Paul has been provided by the USPHS during recent years and in 1954 an additional one at nearby St. George. Even though there are frequent difficulties in travel between the two islands because of weather conditions, we question whether the additional physician is needed full-time at St. George. This is a matter for the Public Health Service to consider as it deploys its limited medical personnel for health care for all natives in Alaska. Also, more frequent rotation of the health staff in this isolated area should be provided.

Coast Guard

In 1886, the U. S. Revenue Cutter Service — which became the U. S. Coast Guard in 1915 — sent the Cutter BEAR to Alaskan waters. Two years later, Dr. W.D. Bratton of the U. S. Marine Hospital Service was the first of a long series of medical officers to serve on the BEAR and on other Coast Guard vessels of what was termed the “Bering Sea Patrol,” a summer cruise of two to three months yearly which, among other purposes, was intended to give “all possible medical care to the natives.” Since 1920, a dental officer has been included in its professional staff.

What medical care is “possible” depends upon several factors, some such as weather, not being under control. Non-medical emergencies frequently result in cancellation of a scheduled stop for medical service, even though the need may be desperate at the coastal village dropped from the planned itinerary.

When the U. S. Coast Guard Cutter STORIS was at Unalakleet in 1953, we had the opportunity of talking with its medical and dental officers giving service there for a three-day period. When we returned to Pittsburgh, the medical officer who had served both on the NORTHWIND of the Bering Patrol of 1951, and the STORIS of 1953, stopped off to give us relevant information. Later, the Coast Guard sent us reports on medical and health aspects of the

1953 Patrol, which indicate small benefit to the Alaskan native and little credit to the present status of this 66-year old service so acutely needed by the coastal villages.

More than 1,400 X-rays were taken during the 1953 cruise of the STORIS which lasted slightly more than two months. More than 1,000 natives received some medical Or dental care. On paper, this is an excellent record. The medical officer, however, was realistic in questioning the value of these mass X-rays: first, because the X-ray machine on the ship did not operate properly and at times the quality of the films was too poor for accurate reading; second, because of the difficulty in obtaining accurately the name of each patient which is imperative in order to match each film with earlier X-rays in the Alaskan tuberculosis case register and to identify new cases. In addition, he felt that corpsmen and others who operated the X-ray machine were being exposed to a radiological health hazard, yet he had not been provided with the simple devices which determine the degree of such hazard.

It was necessary for the Alaska Health Department to supply the X-ray films. Nor was the STORIS supplied with anything approximating an adequate stock of essential drugs or other acutely needed supplies. To quote the medical officer: "The entire function of the dental department was endangered several times by critical shortage of the 2" x 2" surgical sponges for use to stop oozing after dental extractions. Stop-gap supplies were obtained from the Navy at Kodiak and Adak, and from a dentist in Nome, and the supply which had been so urgently requested in July did not reach the ship until the STORIS returned to Adak in September. The generosity of the Navy at Kodiak and Adak, and of Dr. Rabeau in Kotzebue, provided most of the penicillin and much of the other items which were used during the patrol. Without the assistance of these other agencies, the medical and dental departments would have been impotent beyond imagination this summer ...

"On the basis of my experiences on the NORTHWIND during the 1951 Bering Sea Patrol and on the STORIS in 1953, I expect that the medical officer or the 1954 Patrol will see and examine many, many pathetically ill natives for whom he will be unable to provide any medical help."

The total cost of medical supplies expended by the STORIS, per se, in 1953 was \$237.65 for 20 villages. This included dental amalgams, dental X-ray films, antiseptics, and penicillin required to fight epidemics of pneumonia and of measles with complications at Pt. Hope and Wainwright. It is fortunate that other services were generous enough to supplement, as they could, the appalling shortages of what is supposed to be a federal health mission.

We can attest personally to the fact that the STORIS in 1953 had an able skipper as well as competent and devoted professionals — doctors, dentists and corpsmen. The Coast Guard District commander in Juneau displayed real interest in the health mission of the Bering Sea Patrol. The facts we quote have been sent us from U.S. Coast Guard Headquarters by its Chief Medical Officer, assigned to this post with rank of Rear Admiral by the U. S. Public Health Service.

It is not our business in this report to ferret out which of the Services involved, or which of their departments, is to blame. To those in our study group who once had some responsibility for the health missions of the Bering Sea Patrol, it is incomprehensible that the 1953 cruise of STORIS, because so tragically under-supplied, was able to make only partial use of competent personnel and to serve so few of the natives in need.

Recommendations

1. The Commandant of the Coast Guard and the Surgeon General of the Public Health Service should inquire immediately why its medical and dental services to Alaskan coastal villages are sent out with defective equipment and lacking essential medical supplies. Both could be supplied at a fraction of the cost of personnel and would represent a minuscule part of operating the ship.
2. Basic equipment and adequate supplies should be provided to enable a proper short term, emergency (annual) medical service to be given to some 20 or more coastal villages each year during a period of one to three days in each.
3. Since the USPHS will be responsible for total health care of natives in Alaska as of July 1, 1955, the Surgeon General should decide without delay whether it is more profitable to expend scarce professional manpower, working with inadequate equipment and supplies on the Coast Guard summer cruise or to base it upon land.

Voluntary Agencies With Health Programs

Voluntary programs in the field of health have a long and distinguished heritage in Alaska starting with the sustained and devoted work of early church organizations. Currently there is an active and growing group of voluntary health programs in the Territory, many of which are extensions of national voluntary and church organizations in the States and which follow similar activities. The solicitation of supporting funds from the Alaska community has helped to engender local understanding, interest and participation in health.

The voluntary health organizations in Alaska fall into three major categories: church groups, fraternal and civic clubs, and agencies devoted to specific disease classifications such as the Alaska Tuberculosis Association. Church groups carry responsibility for most of the non-governmental hospitals of Alaska. Both Catholics and Protestants either own and maintain or are instrumental in the operation of practically every voluntary hospital in the Territory.

The hospitals deserve and need additional financial support to improve facilities and service. Without losing their autonomy, they could easily fit into a territorial regional hospital plan as well as lend themselves to help bring hospital medical services more closely together with public health activities, especially where they are located in communities outside the more populous centers.

In general, the fraternal and civic clubs are concerned with projects of relatively small scope and expense, such as a scholarship fund for nurses, incidental assistance to patients, and the like. Among others in this group are the Alaska Federation of Women's Clubs, the Rotarians, the Kiwanis and other service clubs, the American Legion and the Veterans of Foreign Wars.

In the third group of voluntary health organizations are found such agencies as the Tuberculosis Association, Crippled Children's Association, Cancer Society, Heart Association, National Foundation for Infantile Paralysis and Mental Health Association. These organizations, to various degrees, have underwritten medical and hospital expenses, provided equipment for official and voluntary institutions, contributed to salaries of health workers, promoted educational programs and paid for travel of professional personnel and patients.

Some of the associations work closely with hospitals and official health agencies, while others are more individualistic in their planning and activities. The Alaska Crippled Children's Association (ACCA), one of the most active of the group, well-illustrates the possible contribution of the voluntary agency to public health in Alaska, but also points up the temptations and pitfalls. During the first few years after its founding in 1946, the ACCA turned over approximately \$120,000 to the ADH to help strengthen services for crippled children, but has made no contribution since about November 1952. The earlier wholesome pooling of funds and efforts of the ADH and the ACCA seems to have deteriorated into rivalry and antagonism. Because of the dearth of professional workers, Alaska cannot afford competitiveness and duplication in public health services.

The ACCA has succeeded in interesting people in all parts of the Territory in the needs of crippled children and has stimulated in some villages their only real community-wide effort in recent years. However, we were told by several devoted citizens who have taken responsibility for fund raising in one or another community that they and their co-workers have had little voice in the policies of the ACCA.

The enduring strength of any voluntary health agency and its contributions to the community rest upon a combination of dynamic leadership and wide participation of interested citizens in the affairs of the agency. Fund raising should remain a means to furnish better health service and not an end in itself. The concept should be accepted that confidentiality of medical information about individuals receiving health service must be maintained while at the same time fund raising appeals need to be supported with human interest material.

The contributions of voluntary agencies should be made in the light of overall needs of the total health picture rather than the fortuitous interests of one or another group. Rigid earmarking of funds and limitation of professional personnel's time to a specific diagnostic category are especially wasteful in a context of scarcity. The official program should on its part be flexible in procedures and planning so that the parallel efforts can dovetail harmoniously toward their common goal. The continued and greater participation and support of the voluntary health organizations is essential to Alaska's health and welfare.

CHAPTER V

Health Facilities And Personnel Institutional Facilities For Health Care

Hospitals

Introduction

In 1806, Count Nikolai Rizanov — chief shareholder in the Russian American Company — sent the company's general manager in Alaska, Alexander Baranof, a list of recommendations. The last of 13 recommendations read: "The colonies must have adequate medical services and hospitals."

In 1841, Sir George Simpson, Governor-in-Chief of the Hudson's Bay Company visited Sitka. In describing the settlement he reports: "There were two hospitals in all Alaska, one of 10 beds at Kodiak and one of 40 beds in Sitka. In its wards, and in short, in all the requisite appointments, the Sitka hospital would be no disgrace to England." He also reports dining with two doctors, among others, and further "that hemoptosis was a common complaint."

Of the period around 1860, Bancroft records that for the sick there were hospitals at Sitka and St. Paul. In 1860, the former was maintained at an expense of about 45,000 rubles; at the latter the outlay was greater. Of the 1,400 patients admitted into the Sitka hospital in 1860, only 22 died. There was also a hospital for the treatment of skin diseases at the sulfur springs near Sitka.

To the best of our knowledge the first hospital established under American rule was St. Ann's at Juneau in 1886. In 1904, the White Pass and Yukon Railroad built a hospital in Skagway, and in 1910, St. Joseph's in Fairbanks was established. The first hospital for the care of Alaska's natives was built in Juneau in 1916.

In 1954, there were 2.9 hospitals in the Territory. Eight were operated by the Alaska Native Service, 11 by nonprofit corporations, four by the military, three by municipalities, one by a private corporation, one by the Territory, and one by the Fish and Wildlife Service.

Total beds numbered 2,399 (including new USAF hospital at Fairbanks), of which 1,474 were general, 797 tuberculosis, 60 orthopedic, 50 chronic and 18 mental. The ANS and the Bureau of Fisheries hospitals are primarily for the native population; those operated by nonprofit corporations, private corporations, municipalities and the Territory are devoted in large measure to care of the white urban population; those operated by the military serve mostly military personnel and their dependents.

In the discussion that follows, comments will deal first with the hospitals and their programs according to categories of ownership, second with considerations involved in a plan for a territorial-wide system, and third, the financing of hospitals.

Alaska Native Service Hospitals.

Responsibility for the eight ANS hospitals rests with the Branch of Health, a part of the Division of Community Services. Functions of budget and finance, property and supply, personnel, buildings and utilities, and management planning applicable to all the hospitals are performed centrally by the Branch in Juneau.

Hospital operation is governed by policies and standards embodied in the Indian Affairs Manual. It deals with construction, personnel management, professional care, diets, plant maintenance, sanitation and safety, transportation, organization, supplies and equipment, records and reports and the like, almost in ecclesiastical detail. Pronouncements of policy are commendable and in keeping with Stateside practice, but they are impracticable when applied to Alaska. As such, they are impediments rather than guides to effective administrative practice, and should be rewritten.

Hospital costs, including care purchased by contract and a share of administrative costs, were 87 percent of the expenditures of the Health Branch in 1953–1954 , and 52 percent of those of the entire Division of Community Services. Only about 8 percent of the budget of the Health Branch was devoted to Disease Control Services.

Hospital Statistics.

There are conflicting data between the reports from the Area office in Juneau and the field concerning the number of actual beds available. The numbers shown in Table 1 are based on data gathered in the field. The table also shows for each of the hospitals the numbers of general and tuberculosis beds considered acceptable under Territorial standards established pursuant to the Hill-Burton Act.

Despite the relatively recent dates of establishment, five out of the eight ANS hospitals have no acceptable beds. Also notable is the paucity of mental beds and the complete lack of chronic beds.

Table 1
Number of Beds in ANS Hospitals, 1954

Location	Date Estab.	Gen. Beds /Total ACC*	TB Beds /Total ACC*	Ortho Beds	Bass.	Mental Beds.	Total Beds
Anchorage	1954	82/82	300/300			18	400
Barrow	1939	13/0			4		13
Bethel	1954	38/38	12/12		10		50
Juneau	1916	30/0	26/0				56
Kanakanak	1941	19/0	30/0				49
Kotzebue	1931	10/0	25/0				35
Mt. Edgcumbe	1947	50/50	210/111	60			320
Tanana	1941	22/0	14/0				36
Total		264/170	617/423	60	14	18	959

*Acc. means acceptable, according to 1953 State Plan.

Utilization figures are shown in Table 2, the data having been secured from the Juneau Office of the ANS.

The average length of stay and degree of occupancy vary widely. Also, at the time of this survey, there was great variation in the types of services. For example, obstetrical patients were being admitted but no surgery was being done at Kanakanak; at Kotzebue there were no deliveries but surgery was being performed. Similarly, at some hospitals out-patient services were active, at others they were not.

Fiscal.

Accounting is done largely in the Area Office at Juneau. Although recent changes were made in the general classification of accounts, out-patient services and depreciation are still unidentified as accounting items. Consequently inpatient costs are overweighted by out-patient expenses and are capriciously affected by equipment expenses. In addition, travel of patients and boarding home expenses are erroneously included in patient-day costs.

The accounting should be revised to include a more detailed chart of accounts and an accrual system.

There was a wide range of costs in 1952 and 1953 among the hospitals. In 1952, the average cost per patient-day was approximately 25 percent higher than patient-day costs for comparable-sized hospitals in the United States.

Table 2
Utilization Figures, ANS Hospitals, 1952

Hospital	Beds	Discharges*				Av. Length of stay ***	In-Pat. Days*	Percent occupancy
		Total	Deaths	Death rate	Total deaths			
Anchorage	Gen. TB							
Barrow	Gen. TB	375	6	1.6%		7.64	2,653	56.2
Bethel	Gen. TB	442	11	2.5		8.37 16.0	3,453 NA**	95.0
Juneau	Gen. TB	621	5	0.8	1	10.4 24.6	14,028 NA**	76.8
Kanakanak	Gen. TB	375	6	1.6		12.7 148.2	9,781 NA**	54.7
Kotzebue	Gen. TB	172	3	1.7		22.9 375.1	13,625 NA**	106.6
Mt. Edgecumbe	Gen. TB	687	7	1.0		62.7 479.8	93,736 NA**	63.4
Tanana	Gen. TB	239	4	1.6		17.6 257.1	10,511 NA**	96.0
Total Annual		2,910	42	1.4	1		147,787	71.2
*General and TB are combined under General. **NA means not available. ***Exclusive of newborns								

A breakdown of costs by object class shows that the ANS hospitals are roughly equivalent to similar hospitals in the States. Salaries, for example, tend to run between 60 and 70 percent of total operating expenses. Travel and transportation, when combined with other contractual services, account for about 10 percent of total expenses. This is an indication of how costly it is to do business in Alaska. The costs of those items would be even greater if a much needed expansion of out-patient services were put into effect.

Staff Organization. Each hospital position is carefully described in Civil Service terms as regards job description and specification, and a definite place on an organizational chart. The typical organization for the small hospital consists of a Medical Officer in Charge (MOC) with overall responsibility for the hospital and direct responsibility for medical care, maintenance, clerical, laboratory and X-ray functions, and a head nurse, second in command, responsible largely for nursing, housekeeping and dietary functions. Many non-professional positions are filled by natives. Organization of the larger hospitals is on conventional lines but modest scale.

Staffing.

Vacancies in 1953 ranged from seven to 25 percent of budgeted positions for the several hospitals, physicians being the group most seriously in short supply. In 1953, two hospitals — Barrow and Kanakanak — were without physicians and Mount Edgecumbe had only four out of eight provided in the budget. The opening of the Anchorage hospital was delayed because of inability to recruit staff. The Bethel Hospital has had four changes in the position of MOC over the past eight years, the Point Barrow Hospital four over a two-year span, and Mount Edgecumbe three over a three-year period.

In Alaska, as elsewhere, the Bureau of Indian Affairs has had to rely heavily upon the 'Public Health Service for the loan of physicians to staff its hospitals and related services. Currently Public Health Service officers occupy positions of Area Medical Director, MOC's at Mt. Edgecumbe, Juneau, Kanakanak and Kotzebue, and as staff physicians at Mt. Edgecumbe and Anchorage.

The range of special skills found in the ANS hospital program is limited. For example, within the entire system there is no radiologist, no pathologist, few if any social workers, dietitians, physical and occupational therapists, and no medical record librarian. Persons with these skills are especially needed for Mt. Edgecumbe and Anchorage, who could also serve as consultants to the smaller hospitals of the ANS as well as to others in the Territory to strengthen them in these respects.

While the proportion of positions unfilled at any one time is serious, the rate of turnover is equally so. During the year 1952–53, rates of turnover ranged from a low of 24 percent at Kotzebue to a high of 135 percent at Mt. Edgecumbe, averaging about 75 percent for all hospitals combined. This situation, quite obviously, is a great deterrent to achieving a stable, effective program of service.

Salaries.

Salaries of nurses are reasonably competitive. As a consequence, the staffing situation is reasonably stable. The situation in respect to physicians, on the other hand, is next to impossible. They are grossly underpaid under Stateside standards and they will continue to be in short supply for needed service in Alaska so long as salary and other inducements are so immoderately limited. From the standpoint of Alaska's health, the great tragedy is in the fact that employment inducements have not been provided to secure the one group that is basic and central to the total effort in health care.

Buildings and Facilities.

Under standards adopted by the Territory for conformance with provisions of the Federal Hospital Survey and Construction Act, (Hill-Burton), 94 general beds, including all beds at Barrow, Juneau, Kanakanak, Kotzebue and Tanana were classed, in 1953, as non-acceptable;

194 tuberculosis beds, including all at Juneau, Kanakanak, Kotzebue and Tanana, and 99 at Mt. Edgecumbe were also considered non-acceptable. The bases for non-acceptability were very similar for all the hospitals in question: wooden frame structures with narrow corridors, containing poor layouts, and with Quonset appendages used variously for TB care, storage, and/or living accommodations; small diagnostic X-ray room and laboratory inadequately staffed; pharmacy staffed only by a nurse; meager space for out-patients; and a cramped operating room.

Steps should be taken immediately to correct these basic conditions. Referring back to Table 1, it will be observed that the ANS operates only 170 acceptable general beds and these are confined to only three locations, Anchorage, Bethel and Mt. Edgecumbe. The remaining 94, one third of the total and on which much of Native Alaska is completely dependent, are in structures that are not only crowded and disorderly, but actually dangerous as fire hazards.

Groups Served.

In the course of the survey, data were obtained showing the number and location of communities served by the several ANS hospitals. While, as would be expected, the bulk of patients is drawn from the immediate and adjacent communities to that of the hospital, the coverage of each hospital is quite broad. Despite the barriers of distance — as much as 300 miles for some villages — we would not recommend at this time the construction of additional ANS hospitals, but we would urgently recommend the expansion and modernization of existing ones, and a broadening of functions as a part of total reorganization, recommended in Chapter IV, to more effectively serve their several trade areas.

Contract Hospital and Medical Care.

Approximately 12 percent of the health expenditures of the ANS is for the purchase of hospital and medical care from other hospitals and physicians, 1 percent for physicians, and 11 percent for hospital care. Three fourths of the latter amount is for the care of the tuberculous. Per diem charges range from \$9 to \$20. In general the care is as good if not better than that rendered in the ANS hospitals. This important and valuable service should be extended and strengthened. Authority to utilize it better should be extended more fully to the field personnel.

Comments.

1. The weaknesses of the ANS hospital program are numerous and fundamental enough so that a strong case can be made for turning the responsibilities over to another agency such as the USPHS.
2. The number of unfilled positions and the turnover rate among key medical personnel are both excessively high. As a result there is lacking a solid core around which to build either a preventive or treatment program.
3. The bonds of communication are weak among the various components of the ANS hospital and medical program and with allied programs, facilities, and personnel within

and outside the ANS. Relationships between the ANS hospitals and educational programs, welfare agencies, private practice, and military and civilian hospitals should be better defined and organized.

4. The ANS hospital and medical program has become incontrovertibly involved in "dike-plugging," curative measures at the expense of a sound, well-balanced community approach involving prevention and early diagnosis as well as remedial care.
5. The hospital program is marked by wide variation in local utilization figures, effective services, and working standards.
6. The ANS has taken very little leadership within the Territory in respect to raising standards of hospital and medical care generally.
7. Several ANS hospitals are fire hazards and outmoded for the practices of modern medical care, in respect to design and equipment.
8. The ANS hospital program lacks chronic, convalescent and nursing home facilities as well as an active rehabilitation program.

Military Hospital Facilities.

With the completion of the new USAF hospital now under construction at Anchorage, the number of hospital beds under military auspices will almost equal those for the rest of the Territory.

Present rates of occupancy are generally low, and from one-quarter to one-half of those hospitalized are non-military personnel, most of whom are dependents.

The only military hospital providing care for ANS beneficiaries in any substantial way is the USAF Hospital in Anchorage. Here the daily native census averaged about 20 in 1953.

While we visited military installations at Anchorage, Fairbanks and Kodiak, and discussed hospital programs with appropriate officers, we did not make as extensive and detailed enquiries concerning them as the other hospitals in the Territory.

Our impressions are that they are well housed, staffed and equipped. They provide a considerable amount of emergency care to civilians (accidents, etc.) and within past years especially the Air Rescue Service has made a noteworthy contribution.

Physicians from the hospitals as well as from some of the field installations do a considerable amount of consultation work in neighboring communities. Since many of them are the only specialists of their fields in the Territory, the continued and expanded utilization of them in whatever ways they can contribute to bettering the general health should be encouraged.

Once the ANS hospitals come under the management of the Public Health Service, a program of mutual aid between the commissioned services should be seriously considered. Traditional relationships between the Public Health Service and the Armed Forces make this suggestion entirely feasible.

Municipal, Territorial, and Other Government Hospital Facilities.

The institutions in this category include three municipal hospitals at Petersburg, Valdez and Wrangell; the Pioneers Home at Sitka, operated by the Territory; and the small hospital in St. Paul Island operated by the Fish and Wildlife Service. Taken together they have only 43 general beds, 15 bassinets, and 41 chronic beds, the latter in the Pioneers Home.

While important to the communities they serve, they clearly are not a major factor in the hospital system of Alaska. In general, they are poorly equipped, meagerly staffed and have a very low rate of occupancy — except for St. Paul Island, the population they serve is predominately white.

The municipal hospitals need financial assistance for both capital and operating purposes. The Pioneers Home should be brought under closer supervision by the ADH, and should devote more of its energies to problems of rehabilitation. Consideration should be given to the desirability of transferring the hospital at St. Paul Island to the Public Health Service.

Voluntary and Private Hospitals.

These comprise the hard core of hospital service for white Alaska. There are 12 in all, 11 non-profit and one privately owned. They have an aggregate of 478 general beds, 92 bassinets, nine chronic, and 177 tuberculosis. Of the latter, 150 are in the Seward Sanatorium. Just slightly more than half of the general beds meet standards of acceptability, and only the 10 tuberculosis beds at Nome are acceptable within established standards.

With the exception of the Hudson Stuck Memorial at Fort Yukon, they are all located in communities that are essentially white, the communities ranging in size from about 750 (Skagway) to 60,000 approximately (Anchorage).

The Seward Sanatorium is under the general management of the Board of Missions of the Methodist Church, but its medical staff is secured through funds made available by the ADH. Since it deals exclusively with the care of the tuberculous, its principal revenues come from the ADH and the ANS, as per diem charges for patient care.

Except at Juneau and Anchorage, occupancies of all the general hospitals are low. Costs per patient-day vary widely as do types and intensity of service.

Out-patient departments are active in only a few of the hospitals. Of the ten where data were gathered by us, four reported no out-patient visits, the ambulatory work being done by the doctor and public health nurse in their offices. In the other six hospitals the number of OPD visits ranged from 498 to 2,533 in a year, most of these being classified as emergencies.

Since there is no pathologist in Alaska, autopsies are rarely, if ever, performed. Also with no radiologist in the Territory, radiation therapy is done on an extremely simple and modest scale.

The condition of physical plants also varies widely. Of the 11 that we visited, five are fire-hazards (Ketchikan, Cordova, Fort Yukon, Seward General and Seward Sanatorium). The best structures are at Anchorage, Kodiak, Nome and Palmer.

With bed capacities ranging from 10 to 30 for seven of the hospitals, and only four with more than 50 beds (all but one with less than 100), the general pattern of organization, staffing service and the like is almost self-evident. By and large, they are workshops for the physician in the strictest sense of the term. With limited resources, limited staff, and meager facilities, they are preoccupied with day-to-day care of the sick that come to their doors. They deal superficially, if at all, with problems of prevention, social service, rehabilitation, and education. Only two of the eleven general hospitals have health center facilities occupied by a public health nurse.

The future of the voluntary hospitals in Alaska is a matter for sustained study. They need help beyond that of finance; they need leadership particularly with respect to meeting their obligations for education, rehabilitation and the care of the chronically ill. Assistance of such professional organizations as the American Hospital Association, the Joint Commission on Accreditation should be sought to help them plan their course over the next several years.

Financing Hospitals.

At present, hospital construction in Alaska is financed by the Department of the Interior and the Department of Defense for ANS and military hospitals respectively; by the Alaska Public Works Agency (APW) matching municipal funds for official local hospitals; by the ADH matching funds of voluntary nonprofit institutions with both Territorial and Federal appropriations, the latter under the provisions of the Hospital Survey and Construction Act (Hill-Burton); and by church groups and other bodies.

In 1955, Alaska will receive \$200,000 (the minimum) of Federal funds under the original terms of the Hill-Burton Act, and an additional \$300,000 under its new provisions to help finance the construction of diagnostic and treatment centers, chronic disease facilities, rehabilitation facilities, and nursing homes.

The APW program operates under a 1949 congressional authorization of \$70,000,000 and is applicable in part to public hospital construction on a 50 percent matching basis. The total program includes schools, roads, educational facilities and the like.

The Territorial Board of Health is authorized by law to provide financial aid to those municipalities, communities and associations for which any attempt at complete financing would entail great hardship, including matching funds to be used with those from the Federal Government. In March 1953, \$435,000 was appropriated for these purposes and by September the Board of Health had pledged assistance to the construction of hospitals in Petersburg, Sitka, Homer, St. Ann's, Glen Allen, and Cordova.

In all cases, whether the hospital is church or community-sponsored or municipal, local contributions necessarily are small. Few local groups including the churches can afford to construct hospital beds in Alaska without liberal outside help.

Excluding the federal hospitals, the great bulk of the general hospitals derive more than half of their operating revenues from patients classed as "private." The ANS contribute s a substantial

share to those at Nome and Fort Yukon. Hospital insurance is not currently a major factor in the financing of hospital care. Further extension of hospital insurance should be encouraged.

In the absence of endowment income, hospitals in Alaska and elsewhere face the dilemma of mounting costs in the face of limited revenues. All hospitals lose on their contracts with the Territorial health and welfare agencies. Payments received from the ANS, the VA and the US PHS reasonably approximate actual costs. An appropriation is made biannually by the Territory which partly reimburses hospitals for care rendered to indigents or to others for which no payment was received.

The Hill Burton program is not well adapted to meeting the needs in Alaska for hospital construction. Where so much weight is given to the population factor in determining the amount of funds available, the total of Alaska's share during any one year is not sufficient to cover even 50 percent of the cost of anyone general hospital.

Rather than suggest that the Hill Burton Act be further amended to meet the peculiar needs of Alaska, we would recommend that federal funds for hospital construction be authorized also in the special Alaska health grant made annually by the Congress and referred to in more detail in Chapter IV. Certainly the Territory must continue its active support of hospital construction.

The hospitals should develop suitable and valid systems of cost accounting and apply actual costs to the formula of reimbursement of all contracting agencies.

A Territorial Hospital Plan.

In 1947, the Territorial Legislature passed a law requiring the ADH to license and inspect hospitals. The Act required that: "No person or governmental unit shall establish, conduct or maintain a hospital in the Territory without a license; every hospital shall make an annual report of its activities to the Alaska Department of Health; the Alaska Department of Health with the advice of an advisory council shall adopt and enforce rules and regulations and standards to promote safe and adequate treatment of patients; and the Alaska Department of Health shall make inspections and investigations as deemed necessary." Regulations governing standards applicable to various types of hospitals were subsequently (1949) adopted by the Alaska Board of Health. Hospitals were defined to include "general hospitals, specialized hospitals, homes providing chronic and convalescent care or terminal care, maternity homes, rest homes, and nursing homes, providing domiciliary type of care. The standards are in great detail and in many respects quite unenforceable under existing conditions.

Administration of this licensing function rests in the Unit of Hospital Facilities in the ADH, where it is a part of the broader activities of the Department dealing with the program made possible through the provisions of the Hospital Survey and Construction Act. (Hill-Burton)

The Territorial Plan for Hospitals. Preparatory to participation in the Hill-Burton program, the Legislature in March 1946 authorized the ADH to make a survey of all hospitals and health center facilities in Alaska, and to formulate a plan for all future hospital construction. In 1949, a Territorial Plan was drawn up, this marking the initial participation in the Hill-Burton program.

The plan follows closely the over-all pattern used by many states. It was revised in 1953 to bring the program in conformity with more reliable population data and in its revised form includes all hospitals with the exception of military, measures bed acceptability, sets up hospital service areas, briefly touches on a regional coordination plan and utilizes standard formulas to determine general, tuberculosis, mental, and chronic bed needs and also needs for public health centers. Prior to 1955, the modest amount of \$200,000 per year of federal funds was available to Alaska to implement the program, the federal share for each project being 50 percent.

The plan to conform with Hill-Burton provisions follows a Stateside pattern. That the plan is not very workable is further evidence of the fact that Stateside patterns are not applicable as an approach to many of Alaska's health problems. The principal weakness of the plan is in the formula which uses the ratio of hospital beds to population to determine needs.

Everyone agrees that more hospital beds, especially general and chronic, and more public health center facilities, are needed. The number of general beds needed, however, will be greater or less depending on what is done to provide needed health centers, nursing homes, diagnostic facilities, rehabilitation centers and such other programs. If these needed ancillary facilities are provided, their use will permit the general hospital to concentrate the use of its beds in the care of the more acute illnesses requiring the highly skilled care which can be provided in a modern, well-equipped hospital. It is to be expected that Alaska will take full advantage of the current provisions of the amended Hill-Burton Act to acquire these much-needed supporting facilities.

As Alaska comes into a position to influence the over-all distribution and utilization of all its hospitals, it should seek:

1. To assure access to all hospitals, regardless of ownership, to all citizens on the basis of needs.
2. To secure improvement of all hospitals to the point of insuring safety for the patient and the highest quality of medical care within the means of the institution.
3. To have at least one hospital, centrally located, that would be a real medical center in every sense of the word, and thus serve as a leading force in upbuilding hospital services generally, including research and education.
4. To acquire a balance between the numbers and sizes of hospitals and other institutional facilities such as nurses homes and health centers.
5. To encourage expansion of hospital and medical care insurance to the point where no citizen would be deterred by an economic barrier from obtaining the medical and hospital care he needs.
6. To assist all hospitals to develop better balanced programs including preventive services, health education, social services and rehabilitation.

Other Institutional Facilities

Nursing Homes

There are no nursing homes as such in Alaska and the deficiency, by common consent, needs to be corrected. There are facilities in Anchorage and Fairbanks, primarily for the natives, that serve as stopovers for transient patients, provide beds for pre- and post-operative, clinic and convalescent patients and have other boarders as well; but this admixture could hardly be properly called a nursing home. The functions of a medical nature should be separated from the boarding functions and put in their proper perspective in an expanded program as an adjunct to hospitalization of patients with acute illness.

For the white population, the non-profit and municipal hospitals should be encouraged to build nursing homes and operate them in close working relation with the hospital program. Money for such construction will shortly become available through the new Hill-Burton program.

In respect to the native population, particularly in the peripheral areas, nursing homes should be built by the USPHS as an extension of the services of the field hospitals. Here they could provide care for patients not requiring active hospital treatment. Much of the care could be given by natives trained as health aides under medical and nursing supervision of the hospital.

The general purpose of nursing homes is to relieve the general hospitals of those patients not requiring use of expensive facilities and services, yet to provide for such patients a more suitable environment. Many of these now suffer at home under harsh circumstances.

The ultimate effectiveness of nursing homes will depend largely upon how imaginatively they are integrated into Alaska's total hospital plan.

Children's Boarding Homes

Exclusive of Alaska Native Service residential schools at Wrangell and Mt. Edgecumbe, there are 31 known children's institutions in Alaska caring for six or more children each — the number used in the Department of Public Welfare's (ADPW) definition of a boarding home. All are under auspices of religious organizations. They have a capacity of 1,194 children. In April 1954, there were 882 children residing in the homes, no institution holding more children than its legal capacity.

In 1951, the Territorial Legislature passed an Act on Licensing of Boarding Homes on the basis of which the ADPW established regulations and requirements for licensing. Regulations were drawn up with full cooperation of the institutions, and they have already succeeded in raising the quality of care. Between November 1, 1953, and April 1, 1954, the Department had completed processing 18 of the 33 institutions for licensing covering 78 percent of the children.

We visited representative boarding homes, small and large, in different parts of the Territory. Few had physical facilities that could be considered modern or even desirable. Some were fire

traps. Children were housed in basements and attics although legal capacity was not exceeded, in fact, crowding was commonly observed.

However, the care given in these institutions tends to be far better than the physical plant. Although some boarding homes are understaffed, attitudes toward children are wholesome, appropriate work outlets exist, diets are adequate and educational service is provided principally through the Department of Education.

It is difficult to know at what level standards for care of children in institutions should be set in the light of the very poor condition of many homes and communities from which the children come. When a choice exists, a poor home is obviously better than a poor institution; but too often in Alaska no choice exists because there is no home. Hence, emphasis should be placed upon rapid improvement of existing institutions from the standpoint of their physical plants and as well as their health and social services. Some progress already is being made. The Department of Public Welfare is attempting to raise standards and will no doubt continue to do so as progress seems possible in meeting them. Progress in licensing is going on at a reasonable rate for a recently initiated activity.

Health Personnel

This section is devoted to a discussion of selected key health personnel in Alaska. One important theme of this report is the essentiality of securing more and better trained people dedicated to the task of improving Alaska's health.

Physicians

In March 1954, according to the Alaska Board of Medical Examiners, there were 86 physicians practicing in Alaska, excluding military physicians. Nine of the ANS physicians were not licensed and not required by law to be. Fifty-seven of the physicians, or 66 percent, were in the four largest urban centers, i.e., Anchorage, Fairbanks, Juneau and Ketchikan; nine were certified by specialty boards.

It would be extremely hazardous to attempt to relate the number of physicians to a population base and make comparisons with Stateside figures, since most of the military dependents receive care from military physicians and another poorly defined group goes back to the States for medical care. Generally it can be said that more physicians are badly needed in the government services (ANS and ADH) to give further substance to the presently weak public health and medical care programs, and further to expand these programs.

The number of certified specialists is small by any measure. Since a coordinated scheme of medical care relies ultimately upon strong medical centers, well trained physicians should be attracted especially to the two centers we are proposing.

Patterns of Medical Practice.

The government facilities are staffed by full-time physicians on salary, except that the Juneau ANS. hospital relies heavily on private contract physicians.

In the non-governmental areas most physicians engage in individual private practice with the exception of those in Anchorage, Fairbanks, and Juneau where group practice predominates, with two groups in each place.

A small group consists of five general practitioners all with special interests; each doctor has his own clientele but referrals are frequent because the physicians play both the role of general practitioner and specialist; the case loads are heavy, ranging from 80 to 130 patients a day; the facilities are among the best in the Territory, and are well staffed by technicians and nurses.

Recruitment.

Government programs outside the military have had an extremely difficult time attracting qualified physicians. In part this is understandable. For the average medical school graduate, Alaska is remote and unfamiliar, and duty in the hinterlands is bound to place many restrictions on family life, professional development and social contacts. Far too little is being done, however, to offset these factors. The salaries offered are low, living quarters are inadequate, orientation procedures are practically nonexistent, and opportunities for travel at government expense to conferences, professional meetings and the like are minimal.

Outside the government programs, recruitment is largely based on personal contacts or fortuitous circumstances. If the level of medical care is to be improved in Alaska more key specialists with teaching and research potentials are required.

Medical Associations.

The principal organization of physicians outside the operating units is the Alaska Medical Association. There is also an Anchorage Medical Association, and the official Alaska Board of Medical Examiners. The latter functions like the typical state licensing board.

The Alaska Medical Association is potentially an influential body. To date it has not exerted strong leadership, due in part at least to the physical characteristics of the Territory which make meetings and other group activity difficult. It is hoped that the Association will plan periodic post-graduate educational programs, utilizing consultants from the States and also become active in helping solve both Territorial and community health problems.

We urge that the Alaska Medical Association develop a much needed program to bring professional stimulation to the isolated physicians.

Dental Personnel

The 1954 Directory of the American Dental Association lists 43 dentists in Alaska, excluding the military service and ANS. Of these, 29 are located in Anchorage, Fairbanks, Juneau, and

Ketchikan. The others were distributed among 13 towns and villages. The ANS employs seven dentists who can barely scratch the surface of the dental needs of the native population they try to serve. Many areas of Alaska are without the ready services of a dentist, including areas as well developed as Cordova and Valdez. Even in the larger centers we heard complaints about the difficulty of getting a dental appointment. It can safely be said that more dentists are needed without and within the government services, but particularly the latter. (This point is developed further in Chapter VI, "Dental Health.")

Recruitment and Licensure.

The ANS has had little trouble in recruiting dentists; the main concern is how to secure a larger budget for the dental program. Without it they cannot make effective inroads against the enormous amount of disease and defect.

Since 1930, according to the Board of Dental Examiners, there have been 111 applicants for license in the Territory. Sixty-nine were licensed and 42 failed initially, although some passed later. Also, some who passed did not settle in Alaska. We heard widespread criticism of the practical examinations given to applicants for dental licensure. Some of them who had passed a state board have been rejected for practice in Alaska; others rejected in Alaska later have passed a Stateside board.

We tried to get at the facts, but since most of the failures resulted because the applicant did not demonstrate sufficient competence in the clinical tests to suit the examiners, he was failed. No survey team nor Legislative committee can question this type of grading in individual cases. However, we suggest two measures, either of which should help to correct the present serious shortage of dentists:

1. The Alaska Board of Dental Examiners should ask the American Dental Association to provide a consultant of recognized competence as an examiner to participate in the clinical part of the tests.
2. Any dentist licensed to practice in any State and certified by the licensing board of that State as being of good moral character should be granted a license to practice his profession in Alaska. This probably will require legislative action.

Only by adopting one or both of these suggestions can the dental profession establish public confidence in its policies and procedures.

Dental Associations.

The major association of dentists in the Territory is the Alaska Dental Association. This body must assume a more energetic role in helping to solve the total dental health problems of Alaska.

Dental Assistants.

One of the few formal training programs for health personnel in Alaska is for dental assistants, operated by the ANS at Mount Edgecumbe. In 1953, five dental assistants were graduated and four were in training. We were disturbed to learn of the planned reduction in this program. It should be expanded to train more native personnel, affording as it could an effective way of dealing with some of the urgent dental problems, especially in the peripheral areas.

Nursing Personnel.

(See section on "Nursing Service," Chapter VI.)

The secretary of the Alaska Nurses' Association (ANA) listed 397 registered graduate nurses and 25 licensed practical nurses as of April 1954. This listing did not include several employees of the Federal Government nor an unknown number not actively engaged in nursing.

Over 40 percent of the registered graduate nurses were located in four cities in Alaska and over 80 percent of the licensed practical nurses were located in Sitka and Mount Edgecumbe. The concentration of registered graduate nurses in Anchorage, Fairbanks, Juneau and Seward reflects the size of the population these centers serve.

As with any category of professional personnel, it is difficult to assess the adequacy of the supply of nurses in Alaska. A closer look at the figures of the ANA reveals that of the 397 registered graduate nurses listed in April 1954, 60, or 15 percent, resided outside Alaska. If the ANS and ADH nurses are added to the 337 residents of the Territory, one gets the impression there is no severe overall shortage; but as pointed out earlier, there are too few public health nurses in the field.

Recruitment.

In the non-government institutions nurses seemed to be in good supply. The turnover was appreciable in some of the more remote areas, but replacements were not seriously lacking. By contrast, both in the ANS and the ADH the percentage of unfilled positions and the turnover were both relatively high. These agencies found it particularly difficult to recruit nurses for duty in the peripheral areas and once there to keep them on the job long enough to fully understand the nature of the local problems and to be fully accepted by the natives.

Nurses Associations.

The primary group representing nurses in Alaska is the American Nurses' Association, started in 1950. By 1954, there were 200 active members and 28 associate members. The main activities have centered around increasing membership and promoting economic security. A few years ago the nurses at the Providence Hospital walked off the job in protesting low salaries and other conditions of employment. The breach was finally closed with a contract including required membership in the ANA after 60 days, salary increases, improvement of employment

conditions and an arbitration procedure for grievances, the ANA being the bargaining agent for all graduate nurses employed by the hospital.

The ANA is making concerted efforts to develop some solidarity in the nursing ranks. The efforts should be continued and pointed more toward upgrading patient care through such devices as in-service training, postgraduate institutes, coordinated efforts with the hospital and medical associations, and perhaps the inauguration of a three-year nursing school.

Nursing Education.

The only formal nurses training in the Territory is at the School of Practical Nursing at Mt. Edgecumbe, which opened in 1952. The course covers a period of one year, including four months classroom work and demonstration and eight months hospital training of which two months is in obstetrical training at Tacoma. Boys and girls, 17–35 years old, are eligible provided they are physically able and have completed eight grades. A stipend of \$30 a month is paid each student.

In 1952 seven students enrolled and six completed the course. In 1953, 34 students enrolled. Some of the graduates have been employed at Mt. Edgecumbe; others are working in the Bethel, Anchorage, and Tacoma hospitals.

We feel that this vitally important program should be strengthened and expanded; that another should be started at the Anchorage Medical Center; and that other programs of a similar nature should be established for allied skills.

Hospital Administrators.

There are three formally trained hospital administrators in Alaska — one at the Seward Sanatorium, one at Mt. Edgecumbe, and one in the Juneau Area Office. Many of the hospitals would benefit greatly from more skilled administration, especially since clinical skills are in short supply and administration becomes of secondary consideration; in fact, many of the more impelling health problems in Alaska are rooted in lack of good administration.

Association Activity.

Hospital administrators first gathered to discuss common problems in January 1953 when the Alaska Hospital Association was fanned. A board of directors was elected, committees appointed and in 1953 for the first time, a delegate was sent to the annual meeting of the American Hospital Association.

Currently the Alaska Hospital Association is working toward hospital accreditation by the Joint Commission, a standardized accounting system and forming local hospital councils. This type of activity is sorely needed and we strongly urge it be continued.

Other Health Personnel In the Native Village.

Paradoxically one of the most crucial cogs in the health machine devoted to care of the native is a person not trained in health matters and employed primarily to do quite another job, i.e., the village school teacher. Between sporadic and often widely spaced visits by the doctor and public health nurse, the teacher embodies most if not all of the available health services. Under the ANS program an effort is made to supply each teacher with a medicine chest and a radio for communication with the nearest medical personnel. With only this equipment and little or no orientation the teacher struggles heroically against a depressing amount of sickness and accidents.

The teacher frequently is sent to the field without even rudimentary training in first-aid and sanitation, without standing orders to cover medical contingencies, without proper radio equipment in some cases, and without a proper system of patient referrals. Understandably, frustrations occur.

As reported in the preceding Chapter, the Alaska Department of Education is taking over the operation of many of the ANS village schools with the understanding that the new teacher will not continue to perform many nonacademic tasks previously rendered.

This new development underscores a theme that runs throughout this report, which is to train the natives in various ways to help themselves. On the basis of past experience we confidently expect that the natives will accept the challenge to leadership. Courses should be started immediately to train native health aides, sanitarians, midwives, special casework aides, nutritionists and the like. The training courses for practical nurses should be centralized at Anchorage and Mt. Edgecumbe and supplemented by shorter courses for aides at the field hospitals nearer the home environment. The vocational rehabilitation program could be nicely geared into these training activities.

While these programs are developing the school teachers should be given short courses in first-aid, sanitation, and simple medical techniques since they are essential members of the health team. Teachers in all of Alaska's rural schools find as good citizens that acceptance of health responsibility on many occasions is inevitable and they, too, should be encouraged to attend these courses.

Other Health Skills.

As has been mentioned, dietitians, social workers, medical record librarians and therapists are vitally needed in certain areas. Since it seems unlikely that they will be attracted to the Territory in any great quantities for some time, they should be added to the staff of the larger institutions for intramural work and this service utilized also for regionalized teaching.

Summary and Recommendations.

Recruitment of personnel both in numbers and skills represents a major problem in Alaska. We believe the personnel policies suggested below will prove helpful in attracting and maintaining qualified persons to the public health services; these measures would cost a fair amount but we believe this cost will be more than compensated by increased energy, skill, and interest on the part of the professional staff, with resulting easier recruitment and much lower turnover.

Much better salaries should be paid to physicians. In areas not covered by private practitioners consideration should be given toward permission for part-time private practice by the government physician.

Comfortable, sanitary and cheerful housing is required for physicians and their families, for hospital nurses, and above all, for public health nurses.

Full moving expenses from any point in the United States to the duty station for physicians and their families, for nurses, and other professional employees should be provided.

Thoroughgoing, formal orientation of personnel is essential before they are sent to the field, particularly as regards the native cultures, and as regards procedures, methods of communication, and the like.

Rotation should be offered on a regular, pre-arranged schedule with moving expenses of professional personnel paid from field hospitals to medical centers and the reverse.

Attendance of professional personnel should be authorized with expenses paid, at least once a year at agency conferences and refresher courses; to a professional meeting of their choice in Alaska; and at least every few years, to a professional meeting or refresher course of their choice in the States.

An annual vacation should be authorized for all professional personnel away from their stations but in Alaska, with travel expenses paid.

More frequent field visits from the center are needed, not only of administrative superiors but of consultants and specialists to keep the field staff in closer touch with recent scientific and technical developments.

More emphasis should be placed upon training natives for skilled technical (and, later, professional) work in many fields related to health. We were constantly struck by the competence, industry, skill, and intelligence shown, especially by the Eskimos, whom we have seen.

As indicated in a previous section, as educational facilities for the natives improve more of them should be able to qualify for study at the University of Alaska and elsewhere, and to take further training as graduate nurses, dentists, physicians, sanitary engineers, etcetera.

Also, as long as the school teachers are required to take an important part in health activities — and we believe this will be necessary for a long time to come — we urge that during their initial orientation and periodically thereafter, courses should be given in first-aid, sanitation, symptoms of prevalent diseases and simple medical techniques. We believe such a course

should be a part of every village teacher's preparation. A good beginning was made in the summer of 1954 with the lectures given at the University of Alaska's Summer Institute.

In conclusion, it is also pointed out that government alone cannot be expected to solve all the problems. There is a great need for stimulation, leadership and cooperative action to include not only the private physician, dentist, nurse and other professional personnel — both on an individual and association basis — but of greatest ultimate importance, the intelligent citizen regardless of race.

CHAPTER VI

Health Problems And Services

LABORATORY SERVICES

Laboratories of Alaska Department of Health

Organization.

The Division of Public Health Laboratories is a part of the Section of Preventive Medical Services. It consists of a central laboratory at Juneau and three regional laboratories at Ketchikan, Anchorage, and Fairbanks. The Department of Health was undergoing, in 1954, a degree of reorganization affecting, in the case of the Laboratory Division, channels of authority with respect to individuals in charge of the district laboratories.

Until October 1952, a limited amount of laboratory service was rendered to some of the outlying coastal areas by means of the Mobile Units — motor ships equipped and staffed as mobile clinics and laboratories. However, these units ceased operations, at least temporarily, as of that date.

Geographical Coverage and Populations Served.

In 1950, the census-enumerated population of the Territory was 129,000, distributed approximately as follows by the areas served by the four ADH laboratories: Juneau, 13,000; Ketchikan, 28,000; Anchorage, 60,000; and Fairbanks, 28,000. Although there has been an increase in total population since 1950, it is not possible at this time to allocate portions of this increase to the four geographical areas.

The following tabulation of air-mile distances gives some conception of the areas covered by the four laboratories, and also suggests some of the difficulties encountered — particularly in cold and stormy weather — in transporting specimens even to regional laboratories from many of the smaller communities.

Approximate air mile distances from Juneau	
Ketchikan	250 miles
Anchorage	600 miles
Fairbanks	600 miles
Nome	1,000 miles
Barrow	1,140 miles
Adak	1,600 miles

Distances of such magnitude and the sparsely scattered population are justification for regional laboratories.

Budget.

The expenditures for Laboratory Services for the fiscal years 1953 and 1954 were slightly in excess of \$100,000 each year. This represents a substantial increase over the previous biennium when the expenditures per year were slightly in excess of \$60,000. The amounts which are directly chargeable to laboratory services approximate 6 percent of the total budget of the Alaska Department of Health.

Kind, Volume, Distribution, and Costs of Diagnostic Service.

In several categories of work, a number of "examinations" must be made on each specimen. The number of "examination" is therefore from one and one-half to two or more times as great as the number of "specimens." The number of specimens is the better index of service, rendered; the number of examinations is the better index of work required of the laboratory staff.

Trends. Work which has received increasing emphasis during the past four years is as follows:

- Juneau: Tuberculosis, sanitation, chemistry, enteric bacteriology.
- Ketchikan: Enteric bacteriology, parasitology, sanitation, gonococcus identification.
- Anchorage: Tuberculosis, sanitation, gonococcus smears.
- Fairbanks: Tuberculosis, sanitation, gonococcus smears.

The remaining usual categories of public health laboratory work appear to be declining in demand or staying at a rather constant level.

There has been a marked decrease in enteric bacteriology work in the Anchorage Regional Laboratory. This assumes particular importance in view of the rapid growth of population in the area, the insanitary conditions prevailing in suburban areas, and the stated — but perhaps not officially reported — incidence of intestinal disorders, particularly at certain times of the year.

The large number of specimens for diphtheria examination in the Anchorage Laboratory in 1953 is a reminder that communicable disease is not permanently under control, and that the public health laboratory must remain prepared to assist in diagnosis when needed.

The considerable amount of work in blood grouping and typing is worthy of note, and is related to the maintenance of a "walking blood bank" carried out as a part of a civil defense program.

Distribution of Service and Costs per capita.

For the Territory as a whole, the numbers of specimens per capita have been as follows:

	<u>FY 1951</u>	<u>FY 1953</u>	<u>FY 1954</u>
Specimens/capita	1 every 1.2 persons	1:2.5	1:2.5
Service Index*	79.1%	38.9%	39.3%

"Service Index" is the percentage equivalent of that portion of the population utilizing the laboratory.

The per capita costs of the laboratory service, derived from the Division's budgets, were 64.3 cents for 1953 and 65.2 cents for 1954. If one adds to the 1954 budget the item for rent actually borne by the business management section of the Department, the cost per capita is 69.3 cents. These per capita costs are three to 10 times greater than in many states and are directly related to the difficulties in trying to provide comprehensive service to a small population scattered over a very large area.

The costs per specimen examined in the four laboratories for 1954 are estimated to average \$1.78: in several states costs per specimen approach or exceed \$1.00.

Specimen Load per Technical Worker. The heavy load of work carried by the staff of the Division is indicated by the following:

<u>Specimen Load per Technical Worker</u>		
	<u>FY 1953</u>	<u>FY 1954</u>
Juneau	5,354	6,428
Ketchikan	3,777	4,200
Anchorage	9,981	12,340
Fairbanks	8,987	11,235

Table 1
Number of Specimens Examined A.D.H.
Totals for the Laboratory Division

	FY 1951		FY1953		FY1954	
	Specimens	%	Specimens	%	Specimens	%
Syphilis serology	25,781 ²	28.9	15,325 ³	30.4	16,828	27.5
Agglutinations	364	0.4	337	0.6	164	0.2
Diphtheria	249	0.2	1,221	2.4	67	0.1
TB smears	6,577	7.3	6,575	13.0	8,638	14.1
TB cultures	6,438	7.2	5,428	10.7	7,086	11.5
GC smears	1,509	1.6	1,091	2.1	1,402	2.2
GC cultures	521	0.5	412	0.8	477	0.6
Enteric Bact.	793	0.8	384	0.7	464	0.7
Misc. Bact.	3,053	3.4	643	1.2	742	1.2
Mycology	0		5		5	
Parasitology	413	9.4	326	0.6	488	0.7
Blood ABO	20,363	22.8	6,544	11.0	7,522	12.2
Blood RH	16,908	19.0	5,407	10.7	7,434	12.1
Other clinical	?		214		215	
Rabies	?		3		14	
Virus	0		591	1.1	0	
Sanitation Labora.	4,477	5.0	4,808	9.5	7,630	12.4
Antibiotic Sensit.	?		147		675	1.1
Chemistry	1,685	1.8	853	1.6	1,412	2.3
Totals	89,131		50,314		61,263	
Marine Units	Included above		7,335			
X-rays, Marine U.	5,174					
Totals	94,305		57,649			

1. These are the totals of figures for the four regional laboratories projected from 6 months to 9 months actual available data. They are, therefore, estimates.
2. The figures available for the total laboratory service for fiscal year 1951 included, without separate identification, the specimens processed by the laboratories of the Mobile Marine Units. These specimens were largely syphilis serology, blood grouping, blood counts and urinalysis and X-rays. Therefore, the totals shown for 1951 are greater than the sum of the totals for the 4 regional laboratories. The X-rays are separately identified.
3. During the first 9 months of fiscal year 1953, a total of 7335 specimens — mostly serology, blood grouping, blood counts, urinalyses, and X-rays — were examined in the Mobile Unit Laboratories. The Mobile Units were then discontinued. Consideration of notes 2 and 3 here modifies somewhat the impression of sudden decrease in serology and blood grouping work.

Relation to Immediate Neighborhood and to Native Populations.

As stated earlier, each laboratory serves the population of its entire region. In Ketchikan laboratory in fiscal year 1953, 80 percent of its work was done for residents of that city although according to the 1950 census, only 55 percent of the population of the region lived in the city. During that year, 23 percent of the work load was specimens from Alaska natives — mostly Indians. In the Fairbanks laboratory, more than half of the tuberculosis specimens come from out of town — from distant points like Nome, Barrow, and Kotzebue. It was not uncommon for specimens from such points to be in transit for as much as four days to a week or more.

Relationships with Hospitals.

The two large ANS Hospitals at Mt. Edgecumbe and Anchorage, with a large tuberculosis service, do their own tuberculosis laboratory work. Otherwise, little bacteriology is done in any of the hospitals, and these rely heavily upon the ADH laboratories (all regions) for bacteriological consultation, and service. No separate record is kept in any of the regional laboratories of the volume of work received from the various hospitals, but the quantity in the course of a year is substantial and the service is at present available to these hospitals from no other source.

The Ketchikan regional laboratory does all the syphilis serology and bacteriology for the general hospital there.

The Juneau laboratory does syphilis serology, sputums for tubercle bacilli, and occasional bacteriology for the small ANS hospital in Juneau, some bacteriology for St. Ann's Hospital in Juneau, and serology confirmation and bacteriology reference for the large ANS hospital at Mt. Edgecumbe.

In Anchorage, the regional laboratory performs the syphilis serology and at present most of the general bacteriology for the new ANS hospital; it does the same for the local Providence Hospital.

The Fairbanks regional laboratory performs a similar service for the local St. Joseph's Hospital and for the three ANS hospitals and one mission hospital in the northern regions.

Transportation of Specimens.

Transportation of specimens is commonly accomplished by air mail, although they may go by boat or by dog sled. Transportation is not always prompt in getting the specimens to the laboratory; and delays of 48 to 96 hours are not unusual. Freezing and thawing of specimens is also an obstacle to good work.

Relation to Reported Incidence of Disease.

It has been of interest to observe the relationship between the frequency of cases of certain diseases officially reported to the Department of Health, and the volume of diagnostic laboratory service rendered for the corresponding disease categories.

In 1953, 781 new cases of tuberculosis were reported and 6,575 specimens of sputum were examined in the laboratories; 243 cases of gonorrhea were reported and 1,091 specimens were examined; 1,387 cases of influenza were reported and 591 specimens were examined; only 2.0 cases of enteric diseases were reported and 384 stool specimens were examined for enteric bacteriology. Undoubtedly enteric infections are greatly under-reported, and laboratory examinations are resorted to less often than desirable. Of particular interest is the official report of only one case of diphtheria in 1953 — the same year in which the Anchorage laboratory alone reported 1,204 specimens examined with over 40 microscopically positive for the diphtheria bacillus. Official reports in Alaska, like in many states, are not indicative of the true index of disease incidence.

Laboratory Quarters.

The quarters in all four laboratories are neat and well kept and show good housekeeping practice. In all cases, except at Anchorage, they are cramped, and need more space.

General Comments.

Here we attempt to summarize both the good features of the laboratory services and their weaknesses. That any comprehensive, modern laboratory service operates to serve the whole vast area of Alaska is of credit both to the Commissioner of Health and especially to his director of laboratories:

Good Aspects of the Program.

1. Regionalization of facilities and high utilization (the equivalent of nearly 40 percent of the civilian population).
2. Performing for local and ANS hospital s their diagnostic work and consultation, their syphilis serology, both confirmatory and complete, for certain of them.
3. 3 The costs, of 69 cents per capita and \$1.76 per specimen, although greater than in the States are not unduly high in view of the population distribution and distances.
4. High caliber of the staff, with low rate of turnover of technical personnel.
5. Close association between the Anchorage regional laboratory and the Arctic Health Research Center.
6. The emphasis placed upon tuberculosis diagnostic work with routine cultures as well as smears on the majority of specimens submitted.

7. The emphasis placed on enteric bacteriology at the Juneau and Ketchikan laboratories and particularly the investigation at Ketchikan of the part played by sea-gulls in the contamination of the unchlorinated water supply.
8. The blood grouping and typing program as an adjunct to the "walking blood bank" for civil defense.
9. The comprehensive antibiotic sensitivity testing service (except for the tubercle bacillus) offered at Juneau and Ketchikan.
10. The two publications now in process of preparation:
 - a. A brochure to orientate and inform physicians and nurses on public health laboratory services available and their use and limitations.
 - b. A Laboratory Manual revision for use of regional laboratories.
11. The refresher training which a number of the staff members have managed to acquire since coming with the Division.
12. The present efforts to decrease delay in delivery of specimens and to prevent freezing by special arrangements with post offices and pilots.

Weak Aspects of the Program

1. The Laboratory Division is not always informed nor consulted in regard to changes in Health Department planning which affect its work. For example, a program of tuberculosis case finding by a mobile X-ray unit along the highway system was scheduled for the summer of 1954. It was estimated that from this survey would come 3,000 to 4,000 sputum specimens for laboratory examination. Although this survey might require more than a year for completion, this number of laboratory tests is considerable, and equals 50 to 65 percent of the present yearly load of such specimens being processed in all division laboratories. The Laboratory Division heard of this project indirectly; it had not been officially alerted and had been given no basis on which to plan. Similar instances of lack of coordination are said not to be infrequent.
2. In 1954 there was no program of evaluation in syphilis serology, yet the ADH is legally responsible for such a program. A consultant from the Venereal Disease Research Laboratory has dealt with this matter in detail, and it appears such a program will soon be inaugurated.
3. The Director can make few visits to the regional laboratories because of budget limitations.
4. No laboratory animals are maintained, and therefore no animal inoculations are made.

Areas of Technical Weakness

Maintenance of Regional Laboratories.

The trends of volume discussed earlier and the fact that the Ketchikan and Fairbanks Regional Laboratories have been closed for extended periods during the summer with their work going temporarily to the other two laboratories, raise the question of whether one or both of the first mentioned laboratories should not be discontinued. It should be borne in mind that these regional laboratories were established some years ago to bring service nearer the populations concerned and to minimize delay in submission of specimens. Even today, with improved air-mail and transport service, an additional 200 miles of distance occasionally delays specimens and contributes to their unsatisfactory condition.

Also, the situation in Alaska differs from that in the States in that, Stateside, many city, hospital and private laboratories offer a considerable service in bacteriology. In Alaska the four Territorial laboratories are the only source of reliable bacteriology. There are no private laboratories in Alaska and the general hospitals either do no bacteriology for their patients or rely heavily on the Territorial laboratories.

In the two large ANS hospitals at Mt. Edgecumbe and Anchorage, bacteriology is mostly confined to tuberculosis work and they should undertake without delay their own laboratory work of all kinds. In at least one of these potential medical centers there should be a qualified pathologist.

It is our view that each of the four regional laboratories are needed under present circumstances.

Need for a Pathologist.

There is no practicing civilian pathologist in Alaska, and the few autopsies performed — outside of the military — are performed by physicians; the organs or tissues are sent to pathologists in Seattle. The consulting pathologist to the ANS who is chief of the service at the U. S. Marine Hospital, Seattle, has expressed the view that there would be enough work in Alaska to keep a full-time pathologist busy. We share this view.

Laboratory Services in Local Hospitals.

We were able to visit only a limited number of the hospitals in Alaska: the ANS hospitals at Mt. Edgecumbe, Anchorage, Juneau, and Tanana, and the newly opened hospital at Palmer.

It would seem that the two large ANS hospitals at Mt. Edgecumbe and Anchorage should eventually do their own clinical laboratory work, resorting to the Territorial laboratories only for consultation and final confirmation of some procedures, such as those relating to enteric bacteriology.

In regard to the voluntary hospitals of intermediate size such as St. Ann's at Juneau, Ketchikan General, Providence at Anchorage, and St. Joseph's at Fairbanks, the problem is different. Hospitals of this size cannot be expected to maintain fully trained and competent bacteriologists. Hence, it is more efficient for these four hospitals to rely entirely upon the Territorial laboratory system for all, or the greater part, of their serology and bacteriology.

Laboratory service for the numerous smaller hospitals and their out-patient departments is a difficult problem. It is out of the question to expect to staff them properly; therefore they must continue to rely upon the Health Department Laboratories for most of the bacteriology they require.

Recommendations

1. The ADH should maintain, for the time being at least, all four of its laboratories, and make such adjustments in staff and space as may be necessary to allow compliance with all reasonable requests from physicians and hospitals for bacteriological-serological-parasitological diagnostic services.
2. These laboratories should effect better coordination with the other Divisions of the Health Department in planning activities or projects that involve laboratory service.
3. The Director of Laboratories of the ADH should visit the regional laboratories at least once a year.
4. The laboratory staff at Fairbanks should be increased; possibly also at Anchorage.
5. The planned program of evaluation and approval of laboratories for syphilis serology should be put into effect.
6. A laboratory training, evaluation and consultative service should be developed cooperatively between the ADH and the ANS and the latter's successor, the USPHS. This would result in the strengthening of the total laboratory services in the Territory.
7. Adjustments should be made in basic salary schedules for laboratory personnel to approach more nearly competitive levels.
8. At least one laboratory in the Territory (desirably of the ADH, but failing that, in the ANS hospital at Anchorage) should maintain facilities for animal inoculations.
9. The Laboratory Manual for regional laboratories should be revised and a brochure in laboratory services for physicians should be published.

Laboratories of the Alaska Native Service

Four of the eight hospitals in the Territory operated by the ANS, (Anchorage, Mt. Edgecumbe, Juneau and Tanana) were visited in connection with this phase of the survey.

Mt. Edgecumbe Medical Center

This hospital, devoted primarily to the care of tuberculosis patients, has 230 tuberculosis beds, 60 orthopedic beds and 20 general beds.

Quarters.

The main laboratory room in which clinical chemistry and microscopy is done appeared well appointed and was perhaps large enough for the three technicians presently employed. However, additional space will be needed in the event the expansion of service which we believe to be desirable is undertaken.

The separate bacteriology laboratory in the orthopedic wing of the hospital does have the real advantage of separating the bacteriological work — mostly relating to tuberculosis — from the more populated and crowded clinical laboratory. This bacteriology-tuberculosis laboratory, occupied by the one technician devoting full time to this work, is barely adequate in size for the work now being done. There appears to be no convenient and appropriate space for the installation of a bacteriological safety hood, and it would be awkward to expand by very much the general bacteriological work. Still a hospital of this size should not have to send much of its bacteriological work to outside laboratories. There are currently no equipped quarters for laboratory animals.

Laboratory Staff.

The laboratory currently is under administrative supervision of a member of the resident medical staff, who has had some training in pathology and who performs infrequent autopsies. The technical staff of the laboratory includes one supervising technician, one medical technician, three bacteriologists and one laboratory helper.

Work Volume.

It is only within the past year that there has been an organized system of records and reports. The total number of specimens processed in this laboratory over the eight-month period of September 1953, through April 1954, was 17,434. Of this total, 70.2 percent was in the field of clinical microscopy and chemistry and the remaining 29.8 percent in microbiology. Of the specimens in microbiology, 69.6 percent related to the tubercle bacillus.

In volume, there was a monthly average of 451 specimens for tuberculosis work and 1,727 specimens for other bacteriology and clinical microscopy and chemistry. With the present staff of one full-time worker in tuberculosis and three on the remaining specimens, the daily workload per person is 19 specimens in tuberculosis work and 25 in the clinical laboratory — general bacteriology work.

In tuberculosis work the processing of 19 new specimens a day, with follow-up observations on cultures from previous days, is about the maximum that can be expected from one person if the work is to be done properly.

Laboratory Procedures in Tuberculosis.

Both smears and cultures for the tubercle bacillus are done routinely on specimens of sputum from all new admissions to the hospital. When diagnosis has been confirmed, sputum specimens are examined once a month by smear only. Specimens from patients following thoracic surgery are examined every two weeks by smear only. On other patients, cultures for the tubercle bacillus are done only on special request; no animal inoculation tests are performed nor are antibiotic sensitivity tests made.

There was recorded by this hospital laboratory over a six-month period a lower percentage of positive cultures than of positive smears. Even though the specimens were not "paired" in all cases as they should have been, these results are not in accord with those expected. Moreover, the percentage of positive cultures, varying from 11 to 23 percent, seems surprisingly low. The techniques of collecting and culturing the specimens should be checked constantly.

The bacteriologist in charge of the tuberculosis laboratory seems to be doing good work under some handicaps of space and work load. Any notable increase in volume of work would require additional help and space, particularly in regard to incubators.

Anchorage ANS Hospital

This hospital of 400-bed capacity is new and of modern construction.

Laboratory Quarters and Equipment.

The laboratory quarters are located on the main floor and consist of a suite of seven rooms in addition to the nearby autopsy room. The space allotted to bacteriology, serology, histology and to washing and sterilizing is quite inadequate; some doors having been blocked by installation of necessary equipment; space allocated to the Pathologist's office and laboratory is not now overcrowded; the space available to the clinical and chemical laboratory is perhaps adequate and appears well appointed.

The bacteriology laboratory has no provision for bench space for microscopy, no appropriate place for a bacteriological safety hood, and barely space enough for the two incubators now installed. The sterilizing and washing room contains a small autoclave, a small sink without adequate drain boards, a drying oven, leaving a relatively small bench area which may be available for media preparation.

On the sixth floor, while space was planned for animal quarters but was not so equipped, no provision was made for the installation of cage sterilizers.

We cannot escape the impression that these laboratories have been planned without particular thought to probable needs in bacteriology, even though the hospital is primarily devoted to tuberculosis patients.

Laboratory Staff.

The laboratory is under the temporary supervision of a member of the medical staff of the hospital. It seems doubtful that the budgeted staff of seven technical and professional persons will be large enough for the services required by a 400-bed hospital.

Laboratory Procedures in Tuberculosis Work.

The work in bacteriology has not developed to a point where we can comment on procedures except in regard to diagnostic work in tuberculosis.

It is the intent of the hospital to have three specimens of sputum examined for tubercle bacilli from each new admission. A plan has been drawn up to allow for monthly sputum check-ups on every patient by a staggered schedule at the rate of 20 a day, or 400 a month. All specimens, regardless of whether they are admission or follow-up, are subjected to both microscopic examination and culture. No animal inoculations are available at present, and no antibiotic sensitivity testing is as yet available.

Tanana ANS Hospital

This is a small hospital of 40 beds located in a community of about 250 population on the bank of the Yukon River, about 130 air-miles from Fairbanks. The hospital has one physician, a staff of nurses and a nurse-technician, the latter doing X-ray and laboratory work.

Routine laboratory work of limited scope is done in a room estimated to be 10 x 22 feet in size. No record has been kept of the monthly volume of work. The bacteriology equipment consists of a small centrifuge, a microscope, a very small incubator (1 cu. ft. inside space), simple broth and agar media, and a few stains.

A small amount of simple bacteriological service could be made available in a field hospital of this size by the acquisition of adequate supplies, a larger incubator, and some training for the nurse-technician.

Juneau ANS Hospital

This is a 62-bed hospital with 26 tuberculosis beds, located in the same city as the central laboratory of the Alaska Department of Health. The laboratory is in charge of an X-ray technician.

The routine laboratory work consists of blood counts, urinalyses, sedimentations, coagulation time determinations, some ABO and RH blood type determinations, occasional blood

chemistries for non-protein nitrogen and glucose levels, occasional sulphonphthalein renal function tests, and occasional smears for the gonococcus. The following types of work are referred to the Territorial laboratory: sputums for the tubercle bacillus (about 50 a month), syphilis serology (about 120 a month), occasional bacterial culture specimens and those for antibiotic sensitivity testing.

A system of monthly records of the laboratory work-load has only recently been inaugurated. The volume of work is far too great to be done adequately and reliably by a lone technician.

Present Pathology Service — ANS Hospitals

There has never been a qualified pathologist in Alaska. Pathological specimens from private sources are sent by physicians to pathologists in the States. No figures are available on the volume of this referred service.

A program for the provision of some pathology service for the ANS hospitals was inaugurated in November 1953, with the appointment of the Director of Laboratories of the U.S. Public Health Service Hospital in Seattle, as a consulting pathologist to the ANS. This consultation service comprises the examination of autopsy material and surgical pathology.

Reference is made elsewhere to the Territory-wide need for a competent pathologist.

Recommendations.

1. The position of "Pathologist and Director of the ANS Hospital Laboratory System," with headquarters at Anchorage, should be filled. This person would at least direct and guide the program in ANS hospitals and be available for consultation to other hospitals.
2. The Mt. Edgecumbe Hospital laboratory should have a qualified director.
3. More space should be provided for bacteriological work at the Anchorage Hospital, possibly utilizing space in the basement.
4. The two major ANS hospitals at Mt. Edgecumbe and Anchorage should make every practical effort to do their own work, referring a minimum to outside laboratories.
5. ANS field hospitals such as those at Juneau, Tanana, Bethel, Kotzebue, should continue to send the greater part of their bacteriology to outside laboratories, either ANS or ADH. However, a program of in-service specialized training might allow the present technicians to perform reliably a small variety and number of microscopic and cultural examinations. Such a program of in-service training either under ANS or ADH auspices should be considered for these smaller hospitals whether governmental or private.
6. There is need for a traveling consultant in clinical laboratory and X-ray techniques, who will be able to visit smaller hospitals at stated intervals, and be on special call for "trouble shooting." to observe techniques, give advice and even local training, to help give better local laboratory service in the isolated areas.

Incidence of Enteric Disease in Alaska.

While sanitation needs are apparent to even the most casual observer, it is often difficult to secure sufficient emphasis in any program unless the problem can be measured. In the case of sanitation, incidence of enteric diseases is probably one of the best indicators.

Unfortunately, enteric diseases are not diagnosed because of the lack of medical personnel and are not reported when diagnosed. Thus, statistically they do not appear to be the problem they actually are. The only good source of material on the subject of enteric diseases in Alaska is a paper presented at the Third Alaskan Science Conference in September, 1952, by Frank P. Pauls, Director of the Regional Laboratory of the Alaska Department of Health in Anchorage.

Public Water Supplies.

A public water supply is defined by the Alaska Department of Health as one that supplies 25 or more people. Only 34 systems serve communities having a population in excess of 100. Only six of these could be considered satisfactory at the present time. Four or five additional ones would be capable of delivering satisfactory water if operated properly.

In regard to water treatment, only Fairbanks has a water filtration plant and this is primarily for iron removal; 18 other water supplies are chlorinated and Anchorage not only chlorinates the water supply received from Ship Creek but began fluoridation in May 1954. Statistics relative to various public water supplies are shown in Table 2.

Semi-Public and Public Water Supplies.

Water for semi-public and private supplies is obtained from a number of sources. In some cases shallow wells, and in other deep-drilled wells are used. Wherever permafrost occurs, deep-drilled wells must penetrate below it to reach water. In most cases where permafrost is penetrated the water contains a large amount of organic matter and objectionable quantities of iron and manganese. At some points where permafrost has been penetrated by deep wells along the coastal areas the water is highly mineralized, containing in one case 86,000 parts per million of chlorides making it unsuitable for water supply purposes.

In many other communities not having public systems, water is taken from either wells or rivers and is distributed by means of tank trucks. In some cases the operators of these tank truck services claim they chlorinate the water. However, effectiveness of this chlorination practice is questionable.

There are about 16 bottling water and beverage plants in operation at the present time. Periodic bacterial analysis of samples from all public water systems are made by the laboratories of the ADH. An effort is made also to have an inspection of each water supply system at least once a year by a sanitary engineer or a sanitarian of the ADH.

Present legislation is adequate to safeguard the operation of water supply systems. The lack of personnel, however, makes it almost impossible to supervise them satisfactorily. Legislation

permits the ADH to order objectionable conditions corrected or necessary works installed. However, since only 28 communities are incorporated, enforcement of such legislation is very difficult.

There is, however, one weakness in basic legislation in that once a system is established, there is no authority to prevent the owners from discontinuing services if they feel the ADH is making too many demands upon them for needed improvements. Legislation should be enacted requiring approval by the ADH of such things as the sources of supply and methods of treatment, for the establishment of municipal supplies and water companies. Once established, such systems become public utilities and should not be discontinued at will and without proper regard for the public interest.

There is little or no control over the operation of bottling plants. A visit to several of these showed that even in cases where the source of supply was a safe one, the method of handling, cleaning and washing bottles was often unsanitary. All plants bottling either water or beverages should be licensed by the ADH to insure compliance with good sanitary practices.

Table 2
Public Water Supplies in Communities with Population in Excess of 100

Community	1950 Population	Ownership	Source	Extent of Distribution System	Treatment	Comments on Sanitary Status
Anchorage	30,000*	City	S	City fairly well covered.	Cl., F.	Requires additional Treatment & Supply
Angoon	429	Community	S	Limited	None	Requires Cl.
Annette Village	302	CAA	S	-	Cl.	Satisfactory.
Bartlett	150	Alaska Gov.	-	Sufficient	-	Takes water from Sewer
Chilkoot Barracks	125	Private	S	Adequate	Cl.	Questionable. Need replacements.
Cordova	1,165	City	S	Limited	None	Rehabilitation required.
Craig	374	City	S & G	Limited	None	Unsatisfactory
Douglas	699	City	S	Adequate	Cl.	Questionable
Dutch Harbor	173	Abandoned Gov.	S	Adequate	Cl.	No responsible oper.
Fairbanks	18,000*	City	G	Limited**	Cl. Iron Removal	Satisfactory. Expansion program in process
Haines	338	City	S	Adequate	Cl.	Unsatisfactory operation
Hoonah	563	City	S	Adequate	Cl.	Unsat. operation
Hydaburg	353	City	S	Limited	Cl.	Unsat. operation
Juneau	5,956	City	S & G	Adequate	Cl.	Satisfactory
Kake	376	City	S	Limited	None	Unsatisfactory
Ketchikan	5,305	City	S	Adequate	None	Requires treatment
Klawock	404	City	S	Limited	None	Inadequate sources
Kodiak	1,710	City	S	Adequate	Cl.	Requires additional treatment
Metlakatla	817	City	S	Limited	None	Requires treatment
Mountain Point	109	Community	S	Limited	None	Unsatisfactory
Nenana	242	Alaska RR	G	Extremely limited	Cl.	Unsatisfactory
Nome	1,876	Mining	G	Extremely limited	None	Summer Supply Unsatisfactory.
Palmer	890	City	G	Adequate	Cl.	Satisfactory
Pelican City	180	Private	S	Limited	None	Unsatisfactory
Petersburg	1,619	City	S	Limited	Cl.	Unsatisfactory oper.
St. George Island	187	Department of Interior	S	Limited	-	Unsatisfactory oper. Need better source.
St. Paul Island	359	Department of Interior	S	Limited	Cl.	Need better source.
Saxman	167	Community	S	Limited	None	Unsatisfactory
Seldovia	437	Community	S	Extremely limited	None	Unsatisfactory
Seward	2,114	City	S	Limited	None	Treatment plans in Process.
Sitka***	3,132	City	S	Adequate	Cl.	Satisfactory
Skagway	758	City	S	Adequate	Cl.	Questionable operation.
Valdez	554	City	G	Adequate	Cl.	Satisfactory
Wrangell	1,263	City	S	Limited	Cl.	Questionable operation.

S - Surface Water
G - Ground Water
Cl - Chlorination
F - Fluoridation

*Estimated population as area of city has been enlarged since 1950 census.
**Serves about 3,000 persons
***Includes Mt. Edgecumbe, Population 1,147

Public Sewerage Systems.

Sewerage systems have been installed in about 15 communities, the sewage collected therein being discharged directly to rivers or tidal waters without treatment. There are no municipal sewage treatment plants in Alaska. There are, however, several small sewage treatment plants constructed in connection with housing developments; major U. S. Army and Air Force installations also have treatment works. The latter are not always competently operated. As a result large quantities of improperly treated sewage are discharged into streams and tidal waters.

The majority of outfall sewers discharging into tidal waters terminate near the shoreline. Since the wide tidal range is approximately 30 feet in some localities, objectionable conditions occur during the low tide when sewage is deposited upon open tidal flats.

Governmental Aid for Water Supply and Sewerage Development.

The Alaska Public Works Act authorized the Department of the Interior to make available \$70,000,000 for construction of public works in Alaska. This money can be used for constructing water supply and sewerage systems when dollar for dollar matching funds are made available by the local communities. To date approximately \$30,000,000 has been appropriated for all types of public works under the original authorization. In addition to the matching fund provision, the Federal Government will buy the public works bonds issued by the municipality at 2 percent interest.

Difficulty in utilization of this money is due to the fact that there are only 28 incorporated municipalities in Alaska and many of the improvements are needed by communities which are unincorporated and therefore do not have financial ability to underwrite their portion of the loan.

Certain Territorial or Federal Government agencies, have established water supply systems without approval of the source of supply or the distribution system by the ADH. It is customary for federal agencies in the States to submit their plans to proper state authorities for approval prior to installation. This approval is particularly essential in Alaska since many federal agencies have constructed sanitary works and operated them for a period. Later they abandoned responsibility for operation but the water and sewerage systems continued in operation for service to the remaining population.

Thus, there are created unapproved water supply systems over which the ADH has little authority at a later date to correct unsanitary practices.

Shellfish.

There are numerous shellfish producing areas in Alaska, the principal variety of shellfish being the butter clams (*Saxidomus gigantous*). However, many of these clams from certain areas are infected with the dinoflagellates of the genus *Gonyaulax*. This organism is the same as that causing mussel poisoning. It is a health hazard because the consumption of infected butter clams may result in paralytic shellfish poisoning.

Surveys are being made by the ADH in cooperation with the Fish and Wildlife Service of the Department of the Interior at its fishery products laboratory in Ketchikan. Epidemiological investigations are made by the Arctic Health Research Center of reported cases of paralytic shellfish poisoning. One such case was under investigation at the time of our visit. The case with diagnosis confirmed by the Center had occurred at False Pass in the Aleutian Islands.

It has been found that toxicity of the siphons of the butter clam is usually several times greater than that of the bodies. The toxicity of the siphons, however, shows marked fluctuations from month to month, which is not the case in regard to the toxicity of the bodies. Contrary to findings in mussel poisoning, the toxin is present in butter clams during every month.

An idea of the difficulties encountered in attempting to prevent consumption of shellfish containing toxin is realized when we consider that these clams are found along about 6,000 miles of beaches, or approximately one-quarter of the entire coast of Alaska.\

Milk Supplies

Milk is available to Alaskans in a variety of forms. Some is produced locally, and the number of dairy farms having increased from 60 to 80 in the last five years. At present there are 16 pasteurization plants in the Territory. However, the bulk of milk comes from the northwest states or Canada. It is shipped as frozen milk, milk powder, evaporated and condensed milk, frozen concentrated milk, sterilized can milk and fresh fluid milk.

In addition, there have been several plants installed for the manufacture of reconstituted milk. For example, the Matanuska Creamery is reconstituting milk made from non-fat milk powder plus butter fat. The reconstituted milk is then pasteurized, cooled and bottled so that the finished product has about 3.25 percent butter fat content. This milk is sold entirely to the Air Force at a contract price of 23 cents a quart. This milk is not available, however, to the general public in Fairbanks for, in an effort to encourage development of local dairy farms, the price of fresh fluid milk in Fairbanks is maintained at 47 cents a quart.

Industrial Waste Disposal.

The most important industrial waste disposal problem in the Territory is from the fish canneries located along the coastal areas. This industry cans salmon, halibut, herring, crab, shrimp and shellfish. Plants are usually located along beaches or constructed on pilings on the edge of tidal estuaries. Due to curtailment of the fishing season, however, only about 90 of 200 existing canneries were operating during the 1954 season.

It is customary at the plants to discharge the gurry and washing from equipment and floors, together with sewage and other wastes, directly into the tidal waters. Due to the wide tidal range this frequently causes objectionable conditions along exposed flats.

A new industry — the manufacture of paper pulp — has recently been initiated in Alaska. A mill has been established on Ward's Cove immediately north of Ketchikan where a magnesium

bisulphite method of paper pulp manufacture is being used. This modern mill cost approximately \$54,000,000. To reduce the amount of industrial waste being discharged into Ward's Cove, a large portion of the waste is evaporated and burned as fuel with recovery of some of the chemicals. Additional pulp mills are being considered in the Sitka, Juneau and Petersburg areas.

Water pollution control studies have been made, principally at Ward's Cove in the Ketchikan area, but these activities have been stopped since no appropriations are available to carry on the work.

Garbage and Refuse Collection and Disposal.

One thing that strikes the visitor to Alaska is the indiscriminate disposal of garbage, refuse and junk. In most cases these wastes are disposed of along river banks or shore line. A number of municipalities operate open dumps.

In Anchorage, an attempt was made to operate the dump as a sanitary land fill but due to improper operations it soon reverted to the open dump status. Consideration is again being given to using the sanitary land fill method of disposal.

The open dump method has created a tremendous rodent nuisance in Fairbanks. Conferences have been held among members of the ADH, representatives of the U. S. Public Health Service and city officials there to inaugurate a proper garbage and refuse collection system, a rodent eradication program and operation of the Fairbanks dump as a sanitary land fill.

In Ketchikan, conversion of the open dump into a sanitary land fill operation has been discussed.

There are no incinerators in use except at several small housing developments and hospitals. Undoubtedly one of the reasons for the indiscriminate dumping of junk is that there is little salvage value from waste metal products because cost of transportation is so great that reclaiming is uneconomical.

Housing.

Alaska has immediate need for improved housing in white communities as well as in the native communities. There are no minimum standards for housing.

However, some impetus has been given to better housing by programs of the Federal Housing Administration and Veterans Administration, both of which require compliance with certain standards before guaranteeing mortgage loans. The ADH is required to approve water supply and sewage disposal facilities on any premises financed by these two agencies.

This places a heavy burden upon the too limited staff of the Division by requiring them to devote so much of their time to approving private water supply and sewage disposal installations. Local sanitarians, where available, should be permitted to do this under the guidance of the sanitary engineering staff.

Plumbing, Heating, Lighting and Ventilation.

There is a plumbing code in use for public buildings in Alaska, and plumbing must be approved by the Alaska Department of Health for such buildings. The Department also advises on heating, lighting and ventilation practices for public buildings but has no specific authority in this field.

Industrial Hygiene.

The Division of Sanitary Engineering of the ADH made a survey of industrial hygiene conditions in cooperation with the U. S. Public Health Service and found that approximately three-quarters of the workers were exposed to industrial health hazards.

These problems were found principally in saw mills, aircraft maintenance shops, canneries, cold storage plants and mining industries. Development of other pulp mills similar to the one in Ketchikan, and plywood mills similar to that in Juneau, will undoubtedly create additional industrial hygiene problems.

General Sanitation.

The ADH attempts to examine water supply and sewage disposal facilities at summer camps, roadhouses, eating establishments and trailer parks, especially along the rapidly growing Alaska Highway. More emphasis should be placed upon maintaining good sanitary conditions along highways to protect the traveling public.

Laboratory Control.

All laboratory work of the ADH is done by the Division of Public Health Laboratories. This includes water, milk, food and shellfish analyses. Standard methods are used in regard to milk, water and shellfish. The equipment appeared to be satisfactory and the recommendations made by Dr. Paul Kabler of the Robert A. Taft Sanitary Engineering Center as a result of his visit in May 1954 are being followed in regard to the use of the brilliant green bile as a confirmatory media in water bacterial examinations.

Sample bottles are sent from the laboratories to suppliers of water as a routine procedure. In the event that additional sanitarians and sanitarian aides are established in various local centers in the Territory, it might be well to work out a cooperative arrangement with the ANS whereby the bacteriological examination of water would be made in the ANS hospital laboratories to assist the sanitation staff in its activities.

Sanitation in Permafrost Area.

The problem of housing, water supply, sewage and waste disposal is particularly critical in the permafrost region. In approximately 60 percent of the total area of the Territory — or

370,000 square miles — the ground remains frozen to varying depths throughout the entire year. Permafrost may extend from within a few feet of the surface of the ground to a depth of 1,000 feet or more.

The depth at which permafrost starts below the surface of the ground depends to a large extent upon the type of cover material. In areas where ground cover is thick with trees and moss, it is probably only a few feet below the surface during the summer; in areas containing relatively little vegetation permafrost recedes to a greater depth.

However, during winter months there is a seasonal frost penetration from the surface of the ground which may either make a direct contact with the permafrost level or permit a non-frozen layer between frozen strata. For example, in the Fairbanks area, seasonal frost has frozen water in mains 10 feet below the surface of the ground although that is a rather rare occurrence.

Permafrost makes difficult the construction of stable foundations for buildings, and various methods of foundation construction are being explored. The melting of permafrost by heat losses from buildings causes unstable conditions so that many buildings are constructed upon wooden piles inserted into holes drilled into permafrost. In one case refrigeration has been used to stabilize the soil under a foundation.

Obtaining a supply of water becomes a serious problem, especially locating suitable sources and obtaining ground water from wells where frost extends to any considerable depth. Wells have been drilled successfully through this material. However, the drilling process is difficult and expensive since the ground temperature is constantly below freezing making it necessary to heat any liquid in the drill hole with steam or some other means.

The same difficulty arises in disposal of sewage. When sewers are located in the permafrost area there is danger that they will freeze or that higher temperature of the sewage in the pipes will cause unstable soil conditions and thus cause failure in the sewer system.

The Army, in constructing military installations, has utilized the so-called "Utilidor." This is simply an underground tunnel in which the sewer pipe, water mains, steam lines, electric and other utility conduits are placed, thus preventing freezing of water and sewer pipes. However, the cost of the "Utilidor" is very great. It is not economically justifiable in normal communities.

The problem of providing a satisfactory water distribution system in the permafrost area is a great one. However, the new water supply system for the City of Fairbanks is a fine example of what can be done as a result of extensive research and careful planning. As the result of studies made by engineers at the Arctic Health Research Center, it was found that a normal water distribution system could be utilized using a single main in the street but with continuous flow dual service pipes to each house. It was found that, if water in the "mains and service pipe was maintained at a velocity of not less than two feet per second by circulating pumps placed upon the distribution system, water could be distributed without freezing in the mains.

Water for Fairbanks is obtained from two gravel-packed wells drilled through permafrost, located near the Nenana River. Water pumped from the wells enters a filtration plant for iron removal, is chlorinated and then pumped into the distribution system. During certain times of the

year, when temperature of the water is near freezing, it is possible to add heat to the water through a heat exchanger from an adjacent power plant.

In design of the Fairbanks water system, underground storage tanks were placed at various points upon the system for fire protection purposes, even though it seemed somewhat questionable and costly to use such tanks in place of elevated storage tanks. As a matter of fact, there is an elevated storage tank located at the Alaska Railroad yards within one-half mile of the municipal water filtration plant which is successfully operated without freezing.

Sanitary problems in the tundra, along the westerly, northwesterly and northerly sections of Alaska, are most critical.

Here the native villages are small, and usually without water supply or sanitary facilities. Water may be obtained directly from the river, collected in cisterns from roof water or obtained from melted snow and ice. Due to permafrost, toilet facilities are lacking. It is common practice to dispose of human wastes into 50 gallon oil drums which, when they are full, are carted out upon the tundra or thrown into the sea or river.

Due to scarcity of lumber in many areas, houses are small, often underground and partly covered with earth to conserve fuel. The amount of living area per person is small.

Thus, the native here has three major problems in the field of sanitation — namely, difficulty in securing a safe water supply, the lack of proper sewage disposal, and housing conditions that foster the spread of disease.

Usually there is a schoolhouse in the village operated either by the Territorial Department of Education or by the ANS. However, many of the schoolhouses suffer the same lack of sanitary facilities as does the private home.

Natives residing along the coastal area frequently move en masse from their villages during fishing season to establish fishing camps upon one of the major rivers to catch salmon and dry it for their own use and the use of the dog teams. Families move with most of their possessions in open boats which are usually equipped with outboard motors. Sanitary conditions at some of the fishing camps are poor, but in some cases they are better than those in the original villages. It was interesting to note that in some of the fishing camps the women had transported their gasoline-operated washing machines with them.

Bethel — A Typical Community in Permafrost Area.

Bethel is located in the permafrost area on the north shore of the Kuskokwim River some 80 miles above its mouth. It has a commercial airport as well as an auxiliary landing strip for smaller planes and is a deep water seaport for ocean-going boats.

It has a population of 651 and is headquarters for an area of about 80,000 square miles. The ANS maintains a modern 69-bed regional hospital here which was just recently opened. The Territorial Department of Education maintains a combined high school — the only high school in the area — and grammar school.

The water supply for Bethel is distributed by a private operator by means of a tank truck. Water is pumped from the river into a wooden, elevated tank at a point located about one-half mile downstream from the village. From the wooden tank the water flows into the tank truck and is then peddled to residents. The water is discharged from the tank truck through a hose into 50 gallon drums at a cost of \$1.50 per drum. This water is used by all residents, at the schoolhouse and the National Guard Armory and was formerly used at the ANS hospital.

Garbage and human waste from the village is thrown into the river and flows downstream toward the water intake. In addition, the river has encroached upon its banks, causing some of the bodies in the local cemetery to be carried downstream. On one occasion a report was circulated that the intake to the pump was stopped by an arm. While we are not so concerned about the danger of disease from the dead as from the living, this is not a pretty picture. The operator of this water service states that he puts a few drops of "Clorox" in the tank truck on each trip, but that is debatable. Service is maintained during winter months when the pump is moved out upon the ice in the river, which is about four or five feet thick, and water can be taken from a point nearer the town.

When the new hospital was built in 1953 a well was drilled some 467 feet deep and water was successfully obtained from below permafrost. Permafrost at that point was 427 feet in depth. Water from the well is pumped into storage tanks, then through sand pressure filters, then chlorinated and a satisfactory water supply is now available for the hospital.

One individual in Bethel, an airline pilot, has drilled a well about one mile from the hospital where permafrost was only slightly over 100 feet in depth. He is awaiting installation of a new electric generator to provide a groundwater supply for his house.

Bethel is an unincorporated village with few financial resources. Government agencies could improve the situation by providing a safe water supply at their own installation. For example, a well could be installed by the Territorial Department of Education at the high school, or the Alaska National Guard could install a well at its armory. Danger of drinking contaminated water would then be reduced if such wells were used as the source of water for water cart service, even if a distribution piping system was not installed.

Government agencies have a definite responsibility to include a safe water supply and adequate sewage disposal facilities in their plans wherever buildings are constructed. Obviously it is important to the Alaskan National Guard that its members be healthy and free from enteric diseases if they are to be utilized in the defense of the Territory.

Research needed.

It is clear that many of the sanitation problems found in the "Arctic" portion of Alaska cannot be dealt with effectively through the use of conventional measures.

There are several federal agencies carrying on research work in Alaska that has a bearing upon many of these problems, notably the Arctic Health Research Center (AHRC), Agriculture Experiment Station, Geological Survey, and U.S Army Engineers.

AHRC. The research activities of the Center having to do with sanitation have centered around the problem of public water supply and sewage disposal in permafrost areas, well construction and ground-water flow in frozen soils, shellfish poisoning, and the design of light weight equipment for aerial spraying of adult mosquitoes.

Agriculture Experiment Station.

The U.S. Department of Agriculture maintains an Agriculture Experiment Station in Palmer in the Matanuska Valley. At that station a study regarding types of native materials to be used for housing in cold climates has been carried on and small experimental houses have been constructed using three general types of materials:

1. Conventional frame construction using shipped-in, finished materials of commercial grade with two-inch commercial batt-type insulation.
2. Log construction using logs sawed and squared on three sides to approximately six-inch dimensions with no other insulation.
3. Frame construction of sawed, unfinished native lumber, using a fill type insulation of either packed uncut moss, cut native moss or sawdust.

Electrical heating units were placed in each experimental cabin and the amount of electrical current required to maintain the cabins at an inside temperature of 70° F measured. Effects of insulation in various parts of the buildings, the use of double doors, and other factors were studied also.

A progress report on these studies can be found in Bulletin No. 17, dated November, 1953, published by the Alaska Experiment station, Palmer, Alaska.

Geological Survey Research Program.

The Alaska Geology Branch of the U.S. Geological Survey has established an engineering geology program to provide information applicable to engineering needs in frozen areas. This station is located at the University of Alaska.

In addition, a laboratory is maintained by the Geological Survey in Palmer. Principal activities of this laboratory are to make mineral analyses of ground water collected from wells and to study sedimentation rates of sediment and turbidity found in glacial streams.

Army Engineers Project "Permafrost."

The U.S. Army Corps of Engineers has a project called "Permafrost," located some five or six miles north of Fairbanks. Here studies are made upon the use of materials in airplane runways in a permafrost area, effect of various types of soil cover upon the depth of permafrost below ground surface, methods of preventing freezing of water in wells drilled through permafrost, primarily through the use of compressed air, and the study of concrete and hollow

tile foundation construction. The possibility of undertaking a study on the effect of sewage and sewage flow in permafrost was being considered.

Despite the excellent work that each of these agencies is doing, there are many problems of environmental sanitation in the Territory that require additional research. We suggest the following as needed projects:

1. Further study on sewage disposal for private homes and small installations by the use of a septic tank with subsurface disposal of the effluent in permafrost areas.
2. Research in regard to the proper slope for laying sewers and house connections in permafrost areas.
3. A study of community sewage disposal in permafrost areas by the use of the lagoon method. During winter, such lagoons would be ice covered and in the summer, with long daylight hours, biological growth would be prolific resulting in reasonably good purification of sewage.
4. Research in regard to the use of sanitary landfill for garbage and refuse disposal to determine if it is necessary to cover the material during extremely cold seasons of the year.
5. Study to determine the area required per person for healthful housing in relation to fuel consumption and body comfort.
6. Study of development of an aluminum housing unit. There are approximately 8,000 Eskimos living in areas without wood available readily for house construction, indicating that some other material should be developed that would be durable if not more economical.
7. A study of heating for Eskimo homes which would be more effective than present methods. For example, placing the heating unit below the floor level for better utilization of heat.
8. A study of methods of sewage disposal in the Arctic area for individual homes not having running water.

We gained the impression that there is relatively little liaison between the several federal agencies working on these sanitation problems, as well as only very limited contact between any of them and the ADH. We believe the ADH should establish a close working relationship with all these agencies, especially the ABRC. Also the federal agencies themselves could profitably approach many of their problems as joint enterprises.

Difficulty in Acquiring Sanitary Engineers for Alaska Department of Health.

One of the big difficulties in development of better sanitation in Alaska is the lack of trained personnel in the division of Sanitation and Engineering of the ADH.

The present staff has done an outstanding job. However, unless additional personnel can be secured and duties of the few sanitary engineers realigned, existing conditions will continue indefinitely.

Assignment of Public Health Service officers to the Division of Sanitation and Engineering cannot be a permanent solution. Pay scale for engineers is entirely inadequate. In fact, the engineer receives the same pay as the sanitarian and nurse which is out of line with practice in every state. The pay scale for public health nurses and sanitarians in the ADH is justifiably above the average in the States. However, salaries of sanitary engineers are below average for those in the States. An increase of from 35 to 75 percent would be necessary to make them comparable.

The only source of sanitary engineers is the States. Unless remuneration is sufficient, the sanitary engineer from the States is not attracted to Alaska because of the expense of living, high cost of transportation for his family and household effects, lack of proper program permitting some contact with professional organizations in the States, and the natural need for the family to visit relatives living in the States from time to time.

Many engineers would welcome the challenge of the Alaska job but they can only undertake it if the remuneration permits them to break even. For example, in the Division of Sanitary Engineering of the State of Massachusetts the salary for a sanitary engineer, who would have the competence and experience to be a regional engineer in Alaska, is about \$3,000 more per year than that offered in Alaska without considering any of the above-mentioned factors or the much higher cost of living.

Employment and Training of Local Sanitation Staff.

Due to the lack of sanitarians in the ADH, the few sanitary engineers in the service are doing many tasks that could ordinarily be done by the sanitarian. These include routine inspection of premises for water supply and sewage disposal facilities for certification to the Federal Housing Administration or the Veterans Administration for home mortgage loans, routine inspection of camps, overnight cabins, eating places, milk pasteurization plants, nuisance complaints and activities that ordinarily do not require engineering competence.

Under the regional sanitarian, trained sanitarians should be established at the principal centers in the region. These area sanitarians should have charge of sanitarian aides who could be natives with sufficient field training to enable them to concentrate their efforts on four basic problems — safe water supplies, proper sewage disposal, sanitary refuse disposal and healthful housing.

These aides, following training at the area center, would work in their own and adjacent villages, directly under supervision of the area sanitarian.

It is gratifying to learn that the ANS is embarking upon such a program experimentally by employing in 1954 a sanitary engineer who will train six natives possibly in the Bethel area, to do just this type of work.

Summary and Recommendations.

1. Sanitary conditions generally throughout Alaska are poor. In Native Alaska, almost without exception, they are deplorable.
2. Water supplies are derived from every variety of available source. Of the 34 "public" systems for communities of over 100 population, only six could be considered satisfactory.
3. Very few communities have sewerage systems. There are no municipal sewage treatment facilities. In most all large communities, sewage and industrial wastes are discharged into streams or tidal waters with little or no regard for their effects on other uses of these waters.
4. Garbage and refuse disposal generally is very primitive, consisting usually of dumping upon the ground surface or over river embankments. In the larger communities, this practice results in the creation of excellent harborage for insects, rats and other rodents.
5. Milk and its products are available to Alaskans in a variety of forms. Fresh milk is in limited supply and at high cost to the consumer. The milk sanitation program of the ADH is excellent.
6. The budget of the ADH allocated to environmental sanitation is disproportionately low. Non-competitive salary scales plus insufficient funds for travel of existing staff are the basic weaknesses of the program. These should be corrected.
7. Research in practical problems peculiar to Alaska is urgently needed.
8. Except for a few details, the statutory basis for an effective program of environmental sanitation is adequate.
9. The ADH should be primarily responsible for the coordination and administration of all work in environmental sanitation in the Territory.
10. The training of natives to serve as sanitarians or sanitarian aides in villages should be undertaken on a wide scale.
11. In the total program, and more especially in Native Alaska, concentration of effort for the time being should be put upon the most basic problems, namely, water supply, disposal of wastes and housing.
12. Every hospital, school, armory, or other public building in Alaska located in communities where public water supplies do not exist, should have safe supplies installed and these sources should be made available to the total population of the communities.
13. Licensing authority should be extended by law to the ADH to permit the satisfactory control of public water supply and sewerage systems, quasi public (Federal Government) sanitary utilities, tank truck distribution of water, and the private purvey of bottled water and bottled beverages.
14. The ADH should work closely with the AHRC in the selection of problems for both research and demonstration that have a direct and urgent bearing upon the, sanitary conditions of the Territory.

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Tuberculosis Control

Background.

The earliest record of a death from tuberculosis in Alaska that we have discovered was that of William Anderson, a naturalist and ethnologist, on Captain Cook's expedition in the Bering Sea in August 1778. Cook refers to the "great loss sustained in the death of Mr. Anderson, the surgeon on the 'Resolution' who had been lingering of a consumption for more than 12 months."

In 1841 it was recorded by the Governor-in-Chief of the Hudson's Bay Company "that hemoptosis was a common complaint" at Sitka. Of the period around 1860, Bancroft records "consumption" as among the most fatal diseases.

In the first decade of this century many reports were made by Alaska Native Service teachers regarding prevalence of tuberculosis, trichinosis and syphilis among the natives, and of insanitary conditions in various parts of Alaska. In 1912, 15 percent of the natives on the southern coast showed clinical evidences of disease, as a result of a survey by Dr. Emil Krulish of the USPHS. These findings presumably did not exaggerate the situation, since he said in the same report "there are no water-borne diseases in Alaska."

The first analysis of vital statistics, to our knowledge, was made by Dr. F.S. Fellows, another Public Health Service officer who began his service as Director of the Alaska Medical Service in 1931. Deaths had been reported to Juneau for several years prior to 1927. He assembled death certificates for a five-year period and found a death rate from tuberculosis of 655 per 100,000 of the native population. He attributes the highest rate — in southeast Alaska as probably due to better reporting.

In 1937, the first program of BCG vaccination among infants in a few southeast Alaskan villages was begun — as part of a wider study of the effects of this measure among Indians Stateside — under sponsorship of the Bureau of Indian Affairs and aided by the Phipps Institute and the Public Health Service.

We discuss in Chapter IV the development of the Alaska Department of Health, beginning in 1945. We wish to record at this point that prior to that time, neither the Federal nor Territorial Governments had provided more than a modicum of care for the tuberculous. At that time surplus military hospital beds became available; they were turned over to the Department of the Interior at Mt. Edgecumbe and to the Territory at Seward. At long last some patients — mostly natives — could be given hospital care for tuberculosis.

The Problem.

Although the disease currently is largely confined to the native, it is by common consent the Territory's most urgent public health problem. It is dealt with in more precise quantitative terms in Chapter III.

There is excessive mortality in native infants from military, bone and meningeal tuberculosis and a declining rate in adolescents followed by progressively increasing rates with advancing

age. These facts led to the tentative conclusion early in this survey that the native has a relatively high degree of natural resistance to tuberculosis, and that the excessive mortality he suffers is due primarily to overwhelmingly widespread of infection enhanced by crowding and filth.

During this survey we had the opportunity to examine clinical records and serial X-ray films, and to consult with experienced physicians concerning the resistance of the native. All evidence that we have obtained supports the conclusion that the native now has as much “natural resistance” to tuberculosis as does the white resident of the States.

Weiss of the AHRC reported that in the highest tuberculosis mortality areas in Alaska the percentage of children under 14 sensitive to tuberculin varied from 83.9 percent to 94.7 percent. He stated that in no available report, not even that based on tests of the poorest classes of Chinese children, was there a record of levels of sensitivity exceeding those observed among the delta Eskimos.

Such information is in keeping with the conclusion that the natives' high mortality rate is due, not so much to lack of resistance, but to a high prevalence of tuberculous infection and to living conditions highly conducive to the spread of the disease in family groups. This was a basic observation, indicating that if standard tuberculosis control methods could be followed, the disease should begin to decline in prevalence as it has in the States. It was well-recognized that standard methods probably cannot be fully applied because of geographic and economic conditions peculiar to Alaska. It was thought, however, that such techniques might be modified to meet Alaska conditions.

The next basic question to be answered before any logical plan of attack on tuberculosis could be developed was the degree of cooperation that might be expected from the native.

A degree of skepticism was encountered within some circles as to whether, under conditions prevailing in Alaska, any further constructive action could be taken to solve the tuberculosis problem other than the provision of more hospital beds.

The attitude in the field, however, was not skeptical, but hopeful. Everyone interviewed favored a program of antimicrobials for the patient not hospitalized. The general feeling was that something should and could be done — expressed not only by health workers but also by the general public. It was the consensus that an extensive program of chemotherapy was practical and feasible.

Considering, first, that in community-wide X-ray surveys more than 90 percent of the natives participate (exceeding by far anything ever accomplished in metropolitan centers in the States), and, second, that the number of hospitalized patients leaving the hospital against medical advice is so small (only 30 out of a total of 256 discharged alive from tuberculosis hospitals in 1953), the conclusion is inescapable that the native is highly cooperative and responsive to tuberculosis control methods.

Organization and Program.

Duplication of Services.

In no area of public health activity was duplication of services between the two principal health agencies — the ADH and the ANS — so patent as in tuberculosis control. The need to combine the services of these two agencies, especially as regards tuberculosis, is compelling. A logical solution would be the appointment of a tuberculosis control officer to correlate case finding, hospitalization and follow-up activities for the entire Territory.

Tuberculosis must be approached basically as an overall health problem of the Territory, and not as two separate problems, one of the native and another of the white population. The Territory can ill-afford a continuation of such situations as, for example, Seward Sanatorium where 18 beds were vacant for lack of white patients, yet officers were unable to accept additional native patients because the quota established by the ANS for Seward was filled.

Tuberculosis Association.

The Alaska Tuberculosis Association (discussed later in this Chapter) should continue its efforts to build up the Greater Anchorage Tuberculosis Association, and to establish and strengthen other local associations within the Territory with Fairbanks next on the priority list for such attention.

Medical Terms.

There is no standardization of medical terms. The new terminology of "Diagnostic Standards," 1950 Edition, is not yet in full use and, indeed, often no standard terminology is used. For example, such non-standard terms as "apparently inactive" and "probably healed" were used.

X-ray Interpretation.

This appeared to be of good quality. However, it is unrealistic to expect one person to do the amount of work now being done by the physician at Anchorage reading chest X-rays for the Second, Third and Fourth Judicial Divisions. The narrative form is used in all X-ray reports, which is not conducive to standardization of terms and which is more time consuming than a checklist type of report. Such a record could be developed. It should contain, in addition to patient identification, the (a) diagnosis, if tuberculosis "is present; (b) stage of disease; (c) activity of disease; (d) estimate of infectiousness; (e) indication as to whether the lesion is changing; and (f) recommendation for follow-up care. It is believed that adoption of standard terminology and this type of report would tend to better inform workers in the field.

Diagnosis.

While by usual medical standards, history, and physical examination and laboratory work including X-ray form the basis for all good medical diagnostic work, it must be recognized that under conditions existing in the field in Alaska, use of all methods on every patient is, in many instances, quite impossible. Therefore, heavy reliance must be placed on interpretation of chest X-ray by the radiologist who must, therefore, assume the major diagnostic role in almost every case. Field workers should understand the handicaps under which the radiologist works, and should recognize that 100 percent accuracy is not always possible under the circumstances.

One serious deficiency noted in the X-ray program was the time lag between taking the film and interpretation — the interval frequently being as long as six months. Again, this is probably due to lack of physicians with training in interpretation of chest X-ray films. If the interpretation center were located in some place such as the tuberculosis hospital at Anchorage, the medical staff of the hospital might be used to assist in film interpretation.

Case Register.

There are two case registers in Alaska, one complete register in Juneau and one for the Second, Third and Fourth Judicial Divisions in Anchorage. These appear to be used often as substitutes for patients' clinical records.

We believe that case registers on a local or regional basis are not feasible in Alaska. We recommend that one central case register be maintained, and that a satisfactory clinical record system be established. There appeared to be difficulty in assembling all parts of the patient's clinical record, including X-rays, in any one place. This assembly is essential if the physician reading chest X-rays is to function most effectively.

On March 15, 1954, there were 4,897 cases of tuberculosis listed in the register at Juneau, 3,518 persons with active and questionably active tuberculosis listed, of which 801 were in the hospital and 2,717 at home.

Unfortunately, there was no record as to how many of the group of 3,518 had definitely active tuberculosis. Only 391 had positive sputa reported within the twelve months prior to March 15, 1954; however, 696 had negative sputa and for 1,630 cases, the sputum status was unknown. Exact status of the disease of the 2,717 patients outside the hospital could not be determined, but it is believed that many of them did not have definitely active tuberculosis.

A basis for estimating needed tuberculosis beds has been adopted recently by the Department of Health, Education and Welfare. According to this formula needed beds are equivalent to one and one-half times a two year average annual number of newly reported cases of active and probably active disease. In Alaska 956 such cases were reported in 1952 and 775 in 1953. On this basis, 1,298 beds are needed of which 898 are now available. (See Table 3.)

The total number of patients needing hospitalization is not as great as would appear on first examination of the register. Problems involved in conducting routine examinations undoubtedly

contribute greatly to the difficulties in making a definite diagnosis in many patients with disease of undetermined activity.

Case Finding.

Tuberculosis case finding especially in Native Alaska presents unusually difficult problems. None of the towns and villages are served by through roads or railroads. Consequently, all transportation is by water and air.

X-ray Facilities.

At present there are four methods of conducting X-ray surveys in Alaska:

1. Ocean-going vessels are used incidentally to do X-rays and conduct other health work in the course of performing regular duties of transportation and U. S. Coast Guard services. These vessels are the NORTH STAR, the ANS supply ship, and the STORIS, a U.S. Coast Guard vessel. In 1953, the NORTH STAR took 1,571 films and the STORIS 987 films in the Second, Third and Fourth Judicial Divisions. This represents a valuable contribution to the tuberculosis control program, but it would be an expensive service if it were not incidental to other important duties performed by these ships.
2. A serious deficiency in the heavy reliance upon boats is that only coastal villages or villages on large rivers can be served and, in parts of the area, these only seasonally.
3. Hospitals serve a useful function as X-ray centers. The natives appear to be most cooperative and will often go long distances for chest X-rays. However, in Nome, the general hospital was taking chest X-rays on an average of only four patients daily. Whatever the cause for limiting this needed service, it should be corrected at once.
4. Air units have been used to a very limited extent for X-ray work. Technicians are expected to work with makeshift equipment, however, so that a high percentage of films — in one instance 93 of 465 — are technically unsatisfactory. It is believed that satisfactory portable X-ray units, transportable by air and able to reach almost every village in the Territory, could and should be developed. Operation should be less expensive than that of the coastal vessels operated exclusively for health services.
5. The one land mobile X-ray unit currently in service is very useful in X-raying persons residing along the highways and railroads.

There should be a master plan for conducting chest X-ray surveys. It should be concentrated in areas of high mortality and high morbidity regardless of whether the areas are accessible by water, air or road. Plans should be developed to obtain equipment to X-ray these areas systematically. As financing permits, X-ray coverage should be extended to all areas.

X-ray coverage of the Second, Third and Fourth Judicial Divisions — the only Divisions on which information was available — appears to be good as to quantity (with 15,664 films taken in

1953), but with poor distribution in relation to the remote villages with serious tuberculosis problems.

Laboratory Work.

Good laboratory work and in particular the adequate examination of sputum specimens is a valuable adjunct to chest X-ray. Laboratories at Fairbanks and Anchorage were inspected and the quality of work appeared to be good. However, there is not sufficient personnel in the Fairbanks laboratory. Unfortunately, great difficulty is experienced in the collection of sputum specimens.

Hospitalization and Treatment.

The role of hospitalization in tuberculosis control has always been a major one. Chief functions of the hospital have been isolation and treatment.

With the advent of tuberculosis antimicrobials there has been a tendency to minimize the hospital phase of care for the tuberculous. This policy, if carried too far, will undermine any tuberculosis control program. The tuberculosis hospital is the best place for the treatment of the tuberculous in the vast majority of cases, particularly in instances where home conditions are poor. With therapeutic agents of known efficacy available, however, every attempt should be made to employ these agents in the treatment of all patients for whom there are no hospital facilities.

The number and location of beds currently occupied by Alaskans for the treatment of tuberculosis are shown in Table 3.

Table 3
Residents of Alaska Hospitalized for Tuberculosis

HOSPITALS	PATIENTS
Anchorage	275
Firland Sanatorium, States	4
Hudson Stuck Memorial	10
Juneau Alaska Native Service	23
Kanakanak	23
Kotzebue	28
Laurel Beach Sanatorium, States	8
Marine, States	3
Maynard McDougall	6
Mental-Morningside, States	15
Mt. Edgecumbe Sanatorium	249

Riverton Sanatorium, States	13
Seward Sanatorium	154
Tacoma Indian Hospital, States	62
Tanana	14
Veterans Hospital, States	7
Miscellaneous, States	4
TOTAL	898

In addition, the new hospital at Bethel has just opened. There will be approximately 35 beds there for the care of the tuberculous.

As previously noted, there is a deficit of at least 400 beds in Alaska. Every effort must be made not only to fill all available beds in Alaska but also to obtain additional beds in outside areas wherever feasible. A surplus of beds exists at present in the State of Washington, and if arrangements can be completed, as contemplated, such beds should be used. No construction in Alaska for tuberculous beds should be planned now except to replace obsolescent structures in strategic areas.

Mt. Edgecumbe Medical Center.

Part of this facility is new. Main defect in the organization of the hospital is lack of medical personnel. A thoracic surgeon has not been available since March 1953. No modern tuberculosis hospital can function effectively for long without the services of such a person.

The hospital has a large orthopedic service where patients with orthopedic tuberculosis are treated. The service appeared to be excellent.

ANS Hospital, Anchorage.

This is a new hospital which was opened in November 1953. At the time of our visit there was a question as to whether budgetary deficiencies might cause drastic curtailment of services. A surgical service was being organized, and if this hospital can be properly staffed, the center of tuberculosis control operations might be located there. This would give the benefit of a trained medical staff to assist in times of peak survey X-ray loads.

It might also prove useful if the Director of Tuberculosis Control for the Territory could be located at the hospital where the major concentration of hospitalized patients will exist.

Seward Sanatorium.

A full and effective program is being conducted at this institution, including an active surgical program. Development of a department of rehabilitation is noteworthy. Average

duration of patient stay — two and one-half years — is lengthy but undoubtedly is based on an attempt to prevent relapse. However, it is hoped that an adequate follow-up program with access to out-patient chemotherapy can be developed in the Territory permitting a more rapid turnover of patients.

Bethel ANS Hospital.

A new hospital has been opened here to replace the one which burned several years ago. As yet it does not have a full complement of patients. Beds for the care of the tuberculous will be available along with general hospital beds, and tuberculosis treatment will include the use of antimicrobials.

In combined general and tuberculosis hospitals such as this, an effort should be made to plan treatment of the tuberculous patient so he may be admitted to a surgical hospital if response to antimicrobials is not satisfactory.

Kotzebue ANS Hospital.

This hospital is similar to the one at Bethel, except that it is obsolescent and needs replacement.

Maynard McDougall, Nome.

This is a private hospital caring for six tuberculous patients. Antimicrobials are used in treating tuberculosis.

ANS Hospital, Juneau.

This is a combined general and tuberculosis hospital, operating similar to the institutions at Bethel and Kotzebue.

The above hospitals are typical of Alaska institutions for the care of the tuberculous. While a network of hospitals exists and, in many instances very satisfactory care is being given, the lack of medical personnel is extremely serious. Salaries for medical personnel are definitely substandard. In a number of instances tuberculosis beds are vacant because of staff shortages.

Although high medical and nursing standards are laudable and desirable, the seriousness of tuberculosis in Alaska requires that public health considerations be paramount. It is recommended, therefore, that all available beds in the Territory be utilized even where full utilization may mean a compromise on quality of medical and nursing care. At least such utilization means a clean warm bed and good nutritious food, and the breaking of contact between a spreader of disease and members of his family and community.

A further consideration in making this recommendation is that with new methods of treatment, the relative value of strict bed rest is probably not as great as it was. This matter is being studied carefully at the present time in a number of places in the United States. Until and unless such studies indicate otherwise, it seems justifiable — in an epidemic area such as Alaska — to hospitalize more patients even without increasing personnel by allowing the average patient to do more things for himself with respect to daily hospital routines.

Fuller utilization of current tuberculosis hospital beds might also be accomplished by using more modest facilities for convalescent patients as “way stations” from the hospital back to the community.

Classification of Patients.

The present system of classifying patients for admission to tuberculosis hospitals should be abolished. A priority list, of course, must be maintained and periodically reviewed. Classifications are confusing and continue to give the erroneous impression that Alaska is following procedures used a quarter of a century ago in the States, based on the premise that hospitalization was primarily for the cure of incipient cases of tuberculosis rather than a means of removing tuberculosis spreaders — frequently far advanced cases — from the community.

All definitely active cases of tuberculosis should be recommended for hospitalization. Such cases will then fall into three groups:

1. those awaiting hospitalization and indicating a willingness to enter the hospital when a bed is available;
2. those who are not in the hospital and who need hospitalization but state they will not go; and
3. those who are in hospitals.

Patients in the first two groups should be placed in a priority where criteria are based primarily on the degree of public health menace each case under consideration poses.

Exclusion of Pregnant Women from Hospitalization.

The current policy of the ANS to exclude pregnant women from hospitalization should be eliminated. This policy — to the advantage of neither the mother nor the infant — apparently was put into effect because of difficulty and frequently heavy expense of arranging for the infant's care if born in a hospital many miles distant from the mother's home. The policy is obviously a poor one from the standpoint of tuberculosis control. If the mother's home is some distance from the hospital, it should not be too difficult to place the infant in a foster home near the hospital.

Follow-Up.

Like case finding, follow-up is difficult because of distances. However, it is imperative that a system for administration of antimicrobials for the convalescent out-patient be instituted. This would save hospital beds and help to insure against relapse. It is now customary to administer tuberculosis antimicrobials for periods of two years.

The organization of a system of therapy for convalescent patients would require a period of patient education before discharge from the hospital and a system of distribution of pharmaceuticals. Arrangements should be made whereby convalescent patients are X-rayed and have sputum examinations not less than every six months for periods of approximately five years from time of discharge.

Outpatient Treatment.

A program of treating known active cases of tuberculosis with antimicrobials should be started at once. It is probable that isoniazid alone will be the easiest to administer. However, on technical grounds, it is recommended that wherever feasible, isoniazid and para-aminosalicylic acid be used in combination. On the other hand, where use of the combination is not feasible, isoniazid alone should be used as extensively as possible.

The use of streptomycin and isoniazid as the treatment of choice is widespread in Alaska. Since this combination is little more effective, according to the Public Health Service Cooperative Study, than the combination of PAS and streptomycin or PAS and isoniazid, it is to be questioned whether the chance of developing resistance to the two most effective antimicrobials should be taken routinely.

A suggested program for using antimicrobials for outpatients has been developed by us in collaboration with the Public Health Service, the ANSI and the ADH. The outline of this program is contained in Appendix A of this report.

Other Tuberculosis Control Measures.

Rehabilitation.

Physical restoration of patients is proceeding as has been noted previously in this report. It has been reasonably satisfactory insofar as it has gone. Mental, vocational and economic rehabilitation is accomplished on such a small scale that for all practical purposes it can be said that little has been done. The rehabilitation work at Seward Sanatorium is encouraging. Adequate social service for the tuberculous is needed throughout the Territory. While a few fine workers appear to be doing excellent work, there are far too few.

If gains made in the medical attack on tuberculosis are to be consolidated, rehabilitation programs must be established at Mt. Edgecumbe and Anchorage as has been done at Seward. There are probably no groups in the States among whom a tuberculosis rehabilitation program would accomplish as much as among Alaska's natives.

Standard rehabilitation techniques used in the States would not be entirely applicable in Alaska; this aspect of the problem urgently needs research.

Use of BCG.

It is recommended that BCG vaccine be used in accordance with recommendations of the American Trudeau Society. This means that so far as the natives are concerned — and in many places this would pertain to the non-natives as well — BCG vaccine would be given to all those who do not react to tuberculin, i.e., the first dose of PPD or equivalent. This is now the stated policy of both the ADH and the ANS, but in most communities in Native Alaska coverage of the population is far from complete.

Public health nurses throughout the Territory are doing a conscientious job of immunizing the population against smallpox, diphtheria, whooping cough and typhoid. There is no apparent reason why they could not perform tuberculin tests, using the patch test in children twelve years of age and under and giving BCG to non-reactors. Even itinerant public health nurses usually remain long enough in a village to follow such a procedure.

It is now the policy to give BCG to native infants born in ANS Hospitals. Actually, such immunizations are frequently omitted, the excuse being that the infant is required to be isolated in the hospital for a six-week period following the administration of BCG, thereby causing difficulties in hospital administration.

Although it is preferable to follow such a policy when possible, it is more important that the infant receive the BCG immunization even when such isolation is not possible. It is recommended, therefore, that BCG be given even in instances where new-born native infants cannot be isolated for a six-week period following vaccination.

Factors of Non-Specific Resistance — Nutrition and Housing.

Epidemiological and experimental studies indicate the important role that adequate nutrition plays in establishing and maintaining body resistance to the development of tuberculosis. Precise knowledge as to what nutritional elements are responsible for promoting this resistance is not available at the moment, although protein and vitamins A and C seem particularly important.

Specific deficiencies in native diets, especially among the Eskimos, also have yet to be determined precisely. Studies along this line are being conducted at the present time by the Arctic Health Research Center.

It is a known fact, however, that many natives toward the end of winter actually do not have enough to eat, even though cases of actual starvation are probably rare.

With tremendous food surpluses and stocks of surplus farm products in the States, it should be possible to work out a plan by which these surplus food stocks could be used among the natives in Alaska to raise and maintain nutritional levels at a point that would substantially decrease their susceptibility to tuberculosis. While this proposal is dealt with in greater detail

later in, this report, the point to be emphasized here is, that insofar as tuberculosis is concerned, food is medicine. Adequately nourish and house the native, and, in a generation, the need for the maintenance of hundreds of expensive beds for tuberculosis will, in all probability, vanish.

Improvement in nutrition may be quite as effective in tuberculosis control as the mass dispensing of anti-tuberculosis drugs. As a matter of fact, the biological mechanisms involved in the two procedures may be quite closely related.

Housing in Alaska is generally deplorable, particularly for the native. Improved housing would help reduce the transmission of tuberculosis by reducing the intensity of exposure when an open case of tuberculosis occurs within a household. One of the most urgent needs of the Territory is a realistic program of housing for the native: realistic in terms of design, construction and costs of maintenance. This is a field where research is greatly needed.

Education for Tuberculosis Control — Public and Professional.

The ADH, ANS, and the Alaska Tuberculosis Association should continue their cooperative efforts to inform all citizens concerning the nature of tuberculosis, the problem it presents, and what they as citizens can do to help bring the disease under control.

The Alaska Tuberculosis Association in particular should see that the citizen is properly informed about the problem, and the programs of the official agencies toward its solution. It should assist in achieving passage of adequate laws and appropriations to facilitate and expedite control of the disease in the Territory.

Official and voluntary agencies should promote jointly a better understanding of tuberculosis and modern therapy among the practicing physicians in the Territory. An effort should be made to hold seminars and panel discussions and have papers read on various aspects of treatment and control of tuberculosis in connection with the annual meeting of the Alaska Territorial Medical Association.

The ADH should consider distributing a bulletin to physicians throughout the Territory concerning the treatment of tuberculosis, especially chemotherapy outside of the hospital.

The Alaska Tuberculosis Association should consider the advisability and practicality of establishing a Trudeau Society as a medical section to guide the Association medically and to sponsor the professional medical education program here suggested.

Because of the importance of the public health nurse in tuberculosis control in Alaska, similar attempts should be made to keep public health nurses informed as to the most advanced thinking in tuberculosis therapy and control. Opportunity should be provided for nurses and physicians in tuberculosis work to attend joint conferences.

Costs

Costs of tuberculosis control in Alaska are high. Those of a more effective program will be higher. Whatever they are, they are less than what the long range costs to the Territory will be if the disease is permitted to spread throughout the Territory.

An indication of the annual costs of the program is gained from Table 4, which shows estimated expenditures of the ADH and the ANS for fiscal year 1953–1954.

Of the total expenditures (\$3,597,972) for tuberculosis control in 1953–54, 92.6 percent (\$3,362,748) was for hospitalization.

It is not possible from the data available to identify the several other phases of the program and apply cost estimates to each of them. There is general consensus, however, that 15 percent or more of every tuberculosis control budget should be spent for case finding and follow-up. This is not to imply that less should be spent in Alaska for hospitalization.

Table 4
Estimated Expenditures for Tuberculosis Control in Alaska, 1953–1954
(Exclusive of Vet. Admin., P.H.S, Private Expenditures, Voluntary Agencies)

A. By Territorial Health Department (Does not include many hidden costs such as overhead)		
Direct Expenditures — specific for tuberculosis		
Div. of Tuberculosis Control	61,225	
Anchorage Branch Office	42,599	
Orthopedic Service, Edgumbe	37 ,400	
Med. Soc. Service, Seward	6,348	
Clinic Services	23,000	
Purchase of Care in hospitals	260,000	\$430,572
Allocated Costs (Estimates)		
P.H. Nursing (1/4 of 273,500)	68,400	
Clinic Service, CC (2/3 of 23,000)	15,000	
Laboratory (1/4 of 100,000)	25 ,000	108,400
B. By Alaska Native Service (Exclusive of general overhead, North Star, etc.)		
Direct Expenditures		
Edgumbe (88% of hospital)	1,760,000	
Anchorage	335,000	
Payments to non-ANS hospitals	440,000	2,535,000
Allocated Costs (Estimates)		
Kotzebue hosp. 2/3 to Tbc.	137,000	
Bethel hosp. 1/20 to Tbc.	10,000	
Juneau hosp. ½ to Tbc.	112,000	
Kanakanak hosp. 2/3 to Tbc.	160,000	
Tanana hosp. 40% to Tbc.	70,000	
“P.H. Services. 50% to Tbc.	35,000	524,000
TOTAL		\$3,597,972

To hospitalize all known, active cases of tuberculosis in Alaska, a great deal more money will be required. However, case finding and follow-up programs will require an even greater percentage increase of funds. It is by spending money in these latter two phases of the tuberculosis control program that money is eventually saved in the expensive phase, i.e., hospitalization.

Summary and Recommendations

Tuberculosis is the most serious public health problem in Alaska. Its urgency is enhanced by the fact that tested measures of known effectiveness have not been applied in sufficient degree to solve the problem.

Tuberculosis is primarily a problem of the: native population, but if permitted to spread unchecked, it will eventually become a problem of both native and white.

The Alaska native is cooperative. He has resistance to tuberculosis comparable to that of the white resident of the States. The control of tuberculosis in Alaska is essentially a problem of money and organization. It will require more money than is now being spent, but not vastly more.

It can be logically expected that if appropriate measures are taken at once and are sustained, tuberculosis will be reasonably well controlled in Alaska in ten years, possibly in less time.

In this connection, we make the following recommendations:

1. All relevant activities of the ADH and the ANS should be coordinated and consolidated administratively.
2. BCG should be used on a wide scale.
3. Antimicrobials should be made available: and used for the treatment of every person in the Territory with active tuberculosis who is not in a hospital.
4. All tuberculosis beds in Alaska should be occupied; and when all are filled, arrangements should be made to hospitalize remaining patients with active tuberculosis in areas having surpluses of beds.
5. The present system of priority for admission to tuberculosis hospitals should be abolished; and the exclusion of pregnant women from admission to tuberculosis hospitals should be discontinued.
6. An adequate system of post-hospital treatment with antimicrobials should be developed, making it possible to decrease the length of hospital stay.
7. Increased funds should be made available for hospitalization of all known active cases of tuberculosis and a proportionately larger share of the tuberculosis control budget should be spent for case finding and follow-up than has been spent for these purposes in the past.
8. A program should be developed for distribution of surplus foods on the basis of need, particularly to those persons residing: in areas of high tuberculosis morbidity and mortality.
9. Arrangements should be made to secure additional medical personnel to assist in the interpretation of X-ray films, and a check type of X-ray report should be developed.
10. Only one case register for the entire Territory should be maintained.
11. An improved outpatient clinical record system should be developed and all records including all X-rays be available to the radiologist when X-rays are being interpreted.

12. The vessels, "North Star" and "Storis," should continue their incidental work as marine X-ray survey units, and the land mobile X-ray unit continue to be used. Research should be undertaken to develop satisfactory X-ray units transportable by air.
13. A master plan of chest X-ray survey needs to be developed, concentrating on the high morbidity and mortality areas.
14. An adequate surgical service should be developed in the hospital at Mt. Edgecumbe.
15. Administrative headquarters of the tuberculosis control program should be housed in the Anchorage Hospital.
16. Salaries of medical personnel should be increased to a realistic level.
17. Rehabilitation programs should be established at Mt. Edgecumbe and Anchorage Hospitals; a research program to study the rehabilitation problems of the Alaska native should be developed.

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Control Of Other Communicable Diseases

The early history of disease in Alaska, like that of many other aspects of its growth and development, is fragmentary and not extensively documented.

It can be assumed that the white man brought with him to Alaska most of his infectious and communicable diseases, many of which were new to the area.

The Russians record in 1836: "A terrible visitation of smallpox swept the country, introduced by ships ... in the fur trade ... 3,000 natives died before any vaccination was attempted ... Whole villages were depopulated."

The Gold Rush brought smallpox and other epidemics. At Nome, in the spring of 1889, it was estimated that one-third of the men had typhoid fever.

In the Klondike during the winter of 1897–1898, another report records that at least one-third of 7,000 men "were tainted with scurvy and hundreds of deaths ensued The next year, 3,000 of the 16,000 inhabitants were ill, 500 of them with typhoid. Scurvy, pneumonia, meningitis, and dysentery added to the horror."

The disease situation was so serious in 1900 that an executive order was issued by the President, extending the provisions of the National Quarantine Act to Cape Nome and Dutch Harbor, and quarantine officers were assigned to these places. Smallpox was especially prevalent at this time.

Another report records that the Russians "spread the venereal diseases widely among the natives with whom they were in contact as did the crews of the whaling ships during the latter part of the nineteenth century. Epidemics of measles and whooping cough were both particularly fatal to the natives, each having a frightful mortality."

While the general situation is much more favorable today, communicable diseases continue to be a serious health problem in the Territory.

As in the States, it appears that the most commonly reported diseases are respiratory, communicable diseases which cannot be or are not immunized against extensively — such as chickenpox, German measles, influenza and measles. Those against which there is an effective vaccine (immunization is extensively practiced in Alaska against smallpox, diphtheria, pertussis, tetanus and typhoid) are reported in very small numbers. The only exception to this was a high reported prevalence of diphtheria in 1952–1953, due to an epidemic in the Bethel area in late 1952. Measles and whooping cough may cause serious, local outbreaks in remotely located villages.

Diseases of Special Interest.

Gastro-intestinal infections.

The officially recorded incidence of "diarrhea," enteritis and other gastro-intestinal infections is absurdly low. It can be accounted for only on the basis that the diseases are not reported — indeed in most instances probably not diagnosed. A low prevalence of diseases in this category is

simply incompatible with the primitive state of environmental sanitation in the native communities. The extensive campaign of immunization against typhoid, together with reasonably good water supplies in the largest communities, appear to have brought the prevalence of typhoid fever itself to a low level.

Poliomyelitis.

There appears to have been an actual increase in prevalence of paralytic poliomyelitis in recent years as elsewhere in the United States, even after allowing for improvement in recognition by physicians and possible over-diagnosis. The Territory-wide morbidity figures of recent date are weighted heavily by an extensive outbreak in Ketchikan and vicinity. This area of about 10,000 population, reported 93 cases from July 1952 to March 1953, inclusive. Two were fatal, 20 were bulbar, and only 10 were non-paralytic. Sixty-eight of the 93 cases occurred in October and November, 1952.

At the time of our visit to Seward (population about 2,000) on July 7 and 8, 1954, four patients with paralytic poliomyelitis were in the Seward General Hospital. Two were females, ages 6 and 17; and two males, ages 8 and 27.

Venereal Diseases.

Impressions gained throughout the areas visited was that syphilis has become quite rare with extremely few primary lesions having been seen by physicians in recent years, but that gonorrhea is prevalent. However, with the ease and success of penicillin treatment of gonorrhea it seems likely that the current decrease in reported cases of gonorrhea is due principally to less complete reporting.

Other Diseases.

There are a number of other communicable diseases of importance in Alaska. Rabies is prevalent among wolves and foxes. A particularly serious type (alveolar hydatid disease) of echinococcosis exists on St. Lawrence Island (mouse, fox and dog cycle) with the result that importation of dogs from the Island is prohibited. Trichinosis may be acquired from eating underdone bear meat, pork not being a serious vector in Alaska. Fish tapeworm is a problem in some parts of the Territory, especially the Kuskokwim area.

Organization and Administration.

Problems discussed in this Chapter pertaining to difficulties arising from the tremendous area inhabited by very few people, and the organization of administrative local health units and health districts in Alaska, are pertinent to the control of other communicable diseases as well as to tuberculosis.

Reportable Diseases.

Diseases which are required by law to be reported by physicians are amoebic dysentery, bacillary dysentery, smallpox, plague, yellow fever, cholera, typhus fever, leprosy, typhoid fever, malaria, undulant fever, rheumatic fever, scarlet fever, measles, chickenpox, diphtheria, infantile paralysis, encephalites (infectious), rabies, coccidioidomycosis, botulism, ringworm (dermatophytosis), tapeworm infestation, cancer, cerebrospinal meningitis, erysipelas, whooping cough, glanders, mumps, puerperal septicemia, tularemia, trichinosis, tuberculosis in any form, trachoma, epidemic influenza, other epidemics, gonorrhoea, syphilis, chancroid, lymphogranuloma venereum, granuloma inguinale.

The American Public Health Association's handbook, "The Control of Communicable Diseases," has been adopted by the Alaska Board of Health as its official communicable disease regulations.

Professional Personnel Shortages.

Many extensive areas in the Territory are without a physician. Even in some of the larger communities such as Seward, the few local practicing physicians prefer not to serve as local health officers and feel that communicable disease problems could be handled adequately by a local public health nurse, a local sanitarian, and periodic supervision by a regional public health officer.

The plan of the Commissioner of Health, to have the area covered ultimately by regional or district health units, is commendable. It is discouragingly slow, however, because of the difficulty of attracting and retaining competent public health physicians. The same applies to other professional public health personnel of which there is a frequent turnover and an even greater shortage than in the States.

The result — as in many other public health activities — is that the brunt of the control of communicable diseases falls upon the public health nurses who are doing an excellent job but who also are in too short supply.

When epidemiological investigations are made, public health nurses make them. Follow up of contacts in syphilis and tuberculosis control and searches for typhoid carriers, when made, are done by the public health nurses.

Immunizations.

These same devoted nurses are largely responsible for carrying out the immunization program throughout the Territory against smallpox, diphtheria, pertussis, tetanus and typhoid. With few exceptions they perform the actual immunizations. They are carefully instructed in the techniques involved, and are supplied with detailed charts of immunization recommendations of

the ADH. Itinerant nurses work under the authority of "Medical Standing Orders" of the ADH, which quite properly give them broad powers.

Known completed immunizations — including booster injections — in 1953 were as follows:

Table 5

Known Completed Immunization, 1953	
Smallpox	4,131
Diphtheria (under 1 yr. of age)	1,489
Diphtheria (I thru 4)	2,669
Diphtheria (5 and over)	8,336
Pertussis	6,397
Tetanus	6,590
Typhoid	16,099

Data on the percent of population at various ages immunized against different diseases were not available. The general impression, however, is that Alaska's population has been very well immunized against these diseases except in the most remote regions.

The Problem of Venereal Disease.

The most complicated communicable disease problem administratively, other than tuberculosis, is that of the venereal diseases. The last closing of an officially recognized system of "supervised" prostitution occurred in Juneau during July 1954; in Seward just a few months earlier; and in Ketchikan a year ago.

This by no means is a complete solution, although it is a big step forward. With extensive military forces and relatively few civilian females in Alaska, there is an incentive for prostitutes to live in communities near military bases even though they must operate more or less clandestinely.

A further difficulty in control is that outside the official limits of cities the only other government unit is the Territorial Government with a very limited police force covering a vast area. It is easy, therefore, for taverns and night clubs to move just outside the city limits and not be too concerned with law enforcement.

In both the Anchorage and Fairbanks areas, laudable attempts have been made to get local city government, public health workers, Territorial officials, and officers from the military bases to cooperate in controlling the situation through exchanging information, declaring certain establishments "off limits" to military personnel, and enforcing laws. To assist in this endeavor, three Joint Armed Forces Disciplinary Control Boards have been established in the three areas where military forces are concentrated — Fairbanks, Anchorage and the Kodiak area.

In the last Territorial legislature a bill was introduced, sponsored by the Lions Club of Fairbanks and the American Social Hygiene Association, which would make prostitution illegal.

The bill failed to pass. Anchorage and Fairbanks, however, have city laws prohibiting prostitution.

Helpful assistance is being rendered by the American Social Hygiene Association through its western regional representative who is a consultant to the three Joint Armed Forces Disciplinary Control Boards.

Constant effort is necessary to maintain gains made. Relaxation immediately results in a flare-up of flagrant prostitution and a rise in the venereal disease rate among military personnel.

Control of venereal diseases, as in tuberculosis control, has been handicapped by the marked reduction in funds made available by Congress to the U.S. Public Health Service for grants to states for these particular categories.

Recommendations.

1. The goal of having the Territory ultimately covered by regional or district health units, each headed by a competent, trained public health physician, and with supervising public health nursing and sanitation service and public health laboratory services available through these units, should continue to be pursued.
2. The current immunization program conducted through city health centers and by itinerant public health nurses should be continued, except possibly the present extensive typhoid immunization program which should be carefully reviewed. Perhaps this program could now be restricted to more remote areas. If so this would release a considerable amount of public health nurses' precious time.
3. The list of reportable diseases should be reviewed periodically and only diseases of real public health importance should be included. A sustained campaign of physician education should be conducted regarding the importance of reporting those diseases.
4. As to the venereal diseases, recommendations by the American Social Hygiene Association seem sound and are hereby endorsed. They are as follows:
 - a. Citizen understanding of and interest in solving the vice problem should be promoted through the League of Alaskan Cities, Chamber of Commerce, service clubs, and other citizen groups
 - b. A Territorial law prohibiting prostitution should be passed.
 - c. A vice squad should be established to operate outside the official limits of each city, such squad to function under the supervision of the Territorial Police.
 - d. Additional personnel should be assigned to the Territorial Police, U. S. Marshal's Office and Treasury Agents' Office. An additional Federal Judge would also be helpful to speed up legal action against taverns, etc. Indicated action frequently is not initiated merely because of the known extensive delay which will ensue.
 - e. Venereal disease control officers should again be assigned at the Ladd and Elmendorf Air Force bases.

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MENTAL HEALTH

Congressional action dating back to 1900 provides the basic authority for the long-outmoded Alaskan system of dealing with the mentally ill. The original legislation was an attempt to deal with one urgent problem arising from the onslaught of white men and women upon the Territory during the gold rush. The law has been amended as to detail several times without any substantial change in its general structure. Yet there are few, indeed, of our" self-governing states in this country that have not altered the legal basis of the commitment to institutions and care given to their citizens suffering from mental disorders to keep pace with the great advances in psychiatric medicine during the 54 years.

As a result, the commitment procedure of Alaska today is comparable to the apprehension and commitment of a criminal. For more than half a century the Department of Justice, through the courts of the U.S. Commissioners, has had the responsibility for detaining hearing and committing persons found guilty of the crime of insanity and transporting them to the "asylum" which has contracted for their keep.

The Act of June 6, 1900, authorized the Governor of the Territory to make such contracts for the care and custody of the insane; the first was with the State Insane Asylum of Oregon. In 1904 this authority to contract was transferred from the Governor to the Secretary of the Interior; since 1909 he has been limited by the requirement that contracts be awarded only to "a responsible asylum or sanatorium west of the main range of the Rocky Mountains."

An Act of 1910 authorized the establishment at Nome and at Fairbanks of a "detention hospital for the temporary care and detention of the insane ... until transported to the asylum by law for their permanent care and cure." Unfortunately, funds were not appropriated for the proposed hospital at Nome. The frame structure erected in Fairbanks was never operated as a hospital, in any sense of the word. A. U.S. Marshal later branded it as less adequate and less safe than the jail and it was never replaced after it was destroyed by fire.

The Morningside Hospital of Portland, Oregon, was awarded the contract for the care of insane Alaskans in 1904 and has retained it to date. After 1915 no other institution has submitted a bid for the contract; its terms since then have been arrived at by negotiation.

The Department of the Interior has requested two reports on mental health during the past five years. The first committee made a careful study of the whole situation relevant to mental health and illness in Alaska, and reported in detail to the then Secretary with recommendations for action; the second was only an inspection of the hospital in 1952.

As conditions in Alaska have altered very little since 1949, when the report was prepared for the Department by an able committee under the chairmanship of Dr. Winfred Overholser, an outstanding psychiatrist, we decided that it was unnecessary to have psychiatrists conduct another field survey in the Territory at this time. We did, however, make thorough inspections of Morningside Hospital in August and September 1954 and present the results later in this section.

The Overholser Committee Report.

Since this report served as a baseline for our own observations, we shall summarize it briefly.

Appointed in 1949, the committee was requested by the Department of the Interior to: make a survey of mental health conditions in Alaska; study present methods and their legal basis of committing, detaining and transporting insane patients, with particular reference to the problems in isolated villages; investigate the feasibility of establishing one or more mental health clinics; "evaluate the need for constructing a complete psychiatric hospital in Alaska;" make recommendations both for immediate changes in present operations and for "a sound long-range program to provide the best possible treatment for mental patients in Alaska in line with modern psychiatric and medical practice."

After inspecting Morningside, the Committee spent approximately three weeks in Alaska and covered a large cross-section of the Territory including both larger centers and remote native villages. They held public hearings in six places.

In regard to Morningside, the Committee observed "that only custodial care is provided at the present time, and as such it is reasonably good as compared with the poorer mental state hospitals. The facilities as a whole are overcrowded, but not so seriously as in some state institutions. The patients appear to be well fed and sympathetically treated ... Practically no psychiatric treatment is afforded the many patients who urgently need such treatment. The professional staff is inadequate numerically and professionally to provide the required treatment. The current rate of payment, \$3.538 per day (in 1949–50) is too low to provide an adequate professional and nursing staff. Although the physical layout of the plant is not good, it is evident that there have been substantial improvements made in recent years, and your Committee was informed of additional betterments planned, such as an improved dining room for the patients."

The Committee felt that the "fundamental principle of contract care in proprietary institutions is wrong. It has long been outmoded in the United States ... It is subject to criticism on sound humanitarian grounds." The Committee recommended: (a) the construction of a modern mental hospital in Alaska of not less than 350 beds, so located (probably in central Alaska) that it will be close to other medical institutions and convenient to transportation; (b) the provision of a 50-bed treatment center at Mt. Edgecumbe for short-term, acute cases; (c) Territorial operation of the facilities when completed; (d) the development, of a comprehensive mental health program by the Alaska Department of Health; (e) the provision of centers for emergency treatment and observation at "most of the general hospitals, to be operated by the ADH in conjunction with the mental health program;" (f) all public mental health services in Alaska to be under the direction of the ADH; and (g) the modernization of the commitment procedures. In making this last recommendation, the Committee referred (in 1949) to model legislation "now being drafted."

Present Commitment Procedures.

During the past two seasons that we have been making studies and gathering data in Alaska, we found much concern about mental health and much discussion of needs among citizens of all

categories. We often heard the cliché: “There are three sides to this problem: our side, Stateside and Morningside.”

As among ourselves, we found many differences of opinion in regard to one or another of their multiple health problems. The one unanimous opinion is to the effect that the present commitment procedures for the insane in Alaska should have been changed long ago. They are archaic, cruel, inhumane and essentially barbaric! In fact, one does not need to go farther than Capitol Hill to hear criticism in the same spirit. The Senate Committee on Interior and Insular Affairs in its report on H.R. 8009, in August 1954, spoke of the procedure as “painfully out of step with good modern practice.”

Public conscience should have prompted the enactment of a modern commitment law long ago. In addition, the Government, many feel, is vulnerable as regards its obligations under the Charter of the United Nations to provide humane treatment of native peoples in territories under its jurisdiction, whether colonized, captured, acquired by purchase, or mandated.

Any adult may file a complaint that some individual is “an insane person at large” with the United States Commissioner, and the United States Marshal takes the accused person into custody and detains him in jail.

A jury of six laymen is impaneled “to inquire, try and determine whether the person so complained of is really insane.” If a licensed physician or surgeon is available, the Commissioner is required to appoint him to make an examination of the accused person and to appear as a technical witness before the jury.

If no physician is available, the Commissioner is authorized to transfer the case for trial in another jurisdiction where a physician may be found.

In actual practice, relatively few such transfers are made. The proceedings resemble a trial on criminal charges. The “defendant” is represented by counsel of his choice or one appointed by the court. Miscarriages of justice are possible — in both directions. A homicidal paranoid can put on an air of sweet reasonableness at times. If he has a shrewd lawyer, it will be entirely possible for him to “prove” his sanity to a jury of six laymen, as might a suicidal manic depressive not at the moment in either extreme of his malady. On the other hand, a friendless native in the throes of a hangover, might prove so unresponsive to questioning or so ignorant of the import of the hearing, that the lay jury might in good conscience adjudge him “insane as charged.”

The Commissioner is authorized to approve the findings of the jury but is not bound by it; but rarely does a Commissioner use his discretionary authority to override a jury verdict.

In 1954, the present commitment procedures are an anachronism. They carry the stigma of criminal accusation and are humiliating whether or not the accused person is mentally ill. If he happens to be in the early stages of mental disorder, the result of the ordeal would be the worsening of his condition. In addition, contrary to the American concept of justice, these court trials for insanity lay the burden of proof upon the accused person.

Efforts to Secure a Modern Law.

Model legislation providing for the commitment of the mentally ill has been adopted in many states and has been recommended to them by the Council of State Governments. The principles of such legislation, adapted to the conditions in Alaska, have been incorporated into a number of bills introduced into the Congress over the past five years. None of them has been enacted in spite of “widespread demand from all segments of the Alaska population,” Senate Committee

Report No. 2486, and from dispassionate professional organizations, such as the American Psychiatric Association and the U. S. Public Health Service.

H.R. 8009, the latest measure to be introduced, was passed by the House of Representatives on July 6, 1954, and was reported favorably, with amendments, on August 13 by the Senate Committee on Interior and Insular Affairs. Unfortunately, the Senate took no action.

In spite of its failure to be enacted into law, there is food for thought in the House and Senate versions of H.R. 8009. Both proposed modernization of the commitment procedures. In addition, the House set current federal appropriations for mental health (\$798,600 in 1954 for contract costs at Morningside) as the maximum for future years. Future financial participation in mental health programs by the Territory was encouraged, but ultimate authority rested with the Secretary of the Interior. Interestingly enough, any changes in the present contract with Morningside Hospital were prohibited; but the restrictive phrase, “west of the main range of the Rocky Mountains,” which was repealed by the House for any future contracts, was reinstated by the Senate Committee.

The Senate Committee version (see Report No. 2486, Aug. 13, 1954) introduced a new financial formula under which: (a) patients now hospitalized would continue to be a charge upon the Federal Government; (b) the care of all new admissions would be paid by the Territory; (c) a land grant would be made of 200,000 acres to be selected by the Territory, all proceeds from which “shall be devoted to the mental health program.”

The New Mental Health Program in Alaska.

The Alaska Department of Health recently organized a very limited mental health program with a staff of three; a psychiatrist, a psychologist and a social worker. Aided by federal grants from the National Institute of Mental Health, a research arm of the U.S. Public Health Service, headquarters have been set up at Anchorage.

Our statistical data show that Alaska needs more mental health services than the average state. The higher death rates among whites from suicide, homicide and alcoholism are significant. Many observations, moreover, by qualified reporters, suggest that although some people come to Alaska for the solace of its wide-open spaces, they may find because of the shortage of housing so much crowding together through the long winters that they may succumb to the disease known to pioneers in all northern countries as “cabin fever.” With only two certified psychiatrists non-military in the Territory — one of them having retired from practice

— it is not possible for mentally ailing individuals to procure professional help for themselves; although many human tragedies might be averted if such help were available.

In our opinion, the new mental health program has gotten off to a good start. This opinion was shared by every physician in Anchorage and elsewhere with whom we discussed the matter. We have, however, a single, mild criticism: We believe — and in this judgment, also, we found concurrence — that instead of spending nearly all of its time with the problems of individual patients, the new mental health team should do more to educate the medical profession and the public generally in the fundamentals of mental hygiene.

Planned for but not yet opened for patients, the 18 psychiatric beds in the Alaska Native Service Hospital at Anchorage are acutely needed. More psychiatrists and other medical specialists are needed throughout the Territory. As health and medical facilities grow in number and improve in quality, there will be more practical inducement to settle there. In the meantime, some serious thought should be given to ways and means of recruiting these essential skills for potentially rewarding areas.

Morningside Hospital.

Having reported above the conclusions the Overholser Committee about Morningside in 1949, a summary of a 1952 inspection will give further background for our 1954 findings and recommendations.

The Schumacher Report.

The second survey of Morningside Hospital requested by the Department of the Interior was made in June 1952 by representatives of the U.S. Public Health Service. The report calls attention to very inadequate housing for female tuberculosis patients and to the "exceedingly poor" dining room. The shortage of professional personnel is emphasized. Although the Department of the Interior maintains as its representative at the hospital a psychiatrist to supervise the treatment and expedite discharges of patients cared for under the contract, only one clinical psychiatrist, with a minimum of training, was available for the psychiatric care of 344 patients. There was but one graduate nurse whose duties were limited to the care of patients receiving shock therapy. There was one registered occupational therapist, no social workers and no nutritionist. The ratio of professional personnel to patients, the report points out, falls far short of professional standards.

The Oregon State Department of Health had not licensed the hospital in 1952 because of unsanitary plumbing cross-connections and conditions in the tuberculosis wards.

1954 Inspection of Morningside Hospital.

This is a private institution caring for the mentally ill located on a tract of about 100 acres — all but 10 acres are in pasture or under cultivation — in the suburbs of Portland. The bulk of the patients are those received on contract from the Territory of Alaska (See Table 6). A few beneficiaries of the U. S. Public Health Service also receive treatment there. The very few remaining patients are committed locally for temporary custodial care, pending transfer to public institutions or Veterans Administration facilities.

Table 6**Alaska Insane — Morningside Hospital**

	1950	1951	1952	1953	1954
Patients, Beginning of Fiscal year	328	348	338	344	348
Admissions	82	52	55	77	
Discharges	29	24	20	39	
Paroled	14	11	8	13	
Escaped	1	1	1	0	
Died	18	26	20	20	
On Home Visit	0	0	0	1	
Remaining, End of Fiscal year	348	338	344	348	

1. **Administration.** The hospital, now licensed by the Oregon Health Department, is managed by the owner and his son, with two assistants whose duties are highly diversified. The male assistant acts as paymaster, maintenance man, farm manager and supervisor of the patients who work on the farm, as well as employing the male attendants and supervising them on the wards. The female assistant serves as housekeeper, employs the female attendants and supervises them on the wards, plans the menus and is in charge of the food service.

2. **Psychiatry.** The psychiatrist responsible for both the physical and mental care of patients is an able and devoted physician. Unfortunately, his substantial training in psychiatry does not meet the requirements for certification by the specialty board in this sector of the medical specialists' guild. At the time of inspection, two young physicians were assisting him in the general medical care of patients.

There is a resident psychiatrist representing the Department of the Interior who does not participate actively in the treatment program. He supervises the assignment of patients to work about the institution and on the farm, the occupational therapy, the dental program and the consultant service — theoretically all standards of service for Alaskan patients — and is responsible for all paroles and discharges.

Since the Schumacher survey, a second registered nurse has been added to the staff. Both nurses are assigned exclusively to the care of patients receiving shock therapy and those with active tuberculosis. Patients in the regular wards are served only by attendants; most of whom have had some previous hospital experience. Their work schedule is unusual; a 48 hour week made up of four consecutive days when they are on duty from 6 a.m. to 6 p.m., then they have three days off duty.

Allowing for days off, vacations and sick leave, the ratio of nursing service personnel to patients is about one to ten, which is similar to the ratio in many of our under-staffed state mental hospitals.

3. **Buildings and Grounds.** The institution presently consists of 10 gray wooden ward buildings with a capacity of 407, now housing 357 patients. All buildings are protected against fire by a sprinkler system. A new ward for women patients suffering from tuberculosis is under construction to replace the very unsatisfactory building now used. The interiors of several buildings have been improved and an attempt is being made to make the living quarters for the patients more attractive and comfortable. The refurnishing and redecorating of the continued treatment service for women patients is now completed. It has comfortable furniture, pleasant wall coverings and makes good use of bright colors.

The children's building is the newest now in use; it is bright, airy and attractive. The plans for the new building to house tuberculous patients are quite satisfactory.

The general maintenance of the institution is excellent. Facilities are clean and free from undesirable odors. The plumbing seemed to be in good condition. The renovation of the patients' dining room, which all earlier reports had criticized, still is incomplete.

Other buildings on the property are those required by the active operation of a dairy, hog-raising, farming and canning. The hospital grounds could be re-planned to provide more pleasant areas for patients than are available now.

4. **Patient Care.** The patients were clean and even the most helpless were decently clothed. Their food was mediocre. What was served resembled items on the written menus in name only.

Each patient admitted is given a careful physical examination with a full laboratory work-up. For complications, there is consultation with a specialist, either at the hospital or in his office. A local dentist is reported to make regular visits to examine the teeth of each new patient and do what corrective work is necessary. The dental equipment in the hospital, however, seemed insufficient for first-class dentistry.

After the new patient is given a regular psychiatric interview, treatment is prescribed. This may consist of electric shock or insulin shock or a combination of both. When indicated, some psychotherapy is used. Necessarily it is limited, with only one, partly trained psychiatrist available for the care of 348 Alaskan patients in 1953. No matter how great his effort, it is impossible for him to do an effective job. At the very least, he should have a qualified assistant. Another limitation is the cultural barrier between the "native" patient and the "white" psychiatrist. Not infrequently this is accentuated by the patient's limited understanding of the English language and the physician's complete ignorance of Alaskan dialects.

As soon as his condition warrants, the patient is assigned to the occupational therapy department, which now is staffed by three therapists, three aides and six students. This department seems to have improved greatly since 1952 and has active and enthusiastic workers. Even patients who mentally are very "regressed" are brought in every day. Some of them gradually become interested in learning to work with their hands and show more alertness and improved behavior.

Patients who prefer it are assigned to work in the laundry, on the grounds or about the farm. Such assignments are termed "industrial therapy." We were told that no such assignments are

made except on the psychiatrist's recommendation. Those whom we observed at farm work seemed to proceed at their own tempo; some working energetically and others doing very little. We saw no evidence that they were under pressure to work.

A special problem — both psychiatric and physical — is posed by the high incidence of tuberculosis among Alaskan patients. At the time of our inspection, 24 men were in the tuberculosis ward; two-thirds of them ambulatory. Sixteen patients, of whom 12 were bed-ridden, were crowded into the old and completely inadequate building for tuberculous women. The treatment of these patients is supervised by a Portland specialist.

According to all earlier reports, the hospital has been negligent in the past in controlling the spread of tuberculosis among employees and patients. We were told that, under the direction of the tuberculosis consultant, plans are being made to remedy the situation through the use of better techniques for patient care and certain architectural changes which will reduce contact with the infection.

Not only persons with psychiatric disorders but also mental defectives are sent to Morningside from Alaska. The former have been ill, on the average, for about two years before admission to the hospital — a much longer period than is found among patients admitted to state mental hospitals here. In addition, about half the admissions are of native stock who come without case records. Without information as to the development of the psychosis and separated by so long a distance — often by language — from the relatives who might supply such information, one must say in all fairness that the psychiatrist at Morningside has an unusually difficult task. As health facilities are developed in Alaska, it will be possible to admit patients more promptly for treatment when the possibility of cure is greater, and to supply the medical information on each case which is so valuable to the clinician.

The hospital maintains a satisfactory record system. We examined a number of patient records, selected at random, and found each one carefully detailed and up-to-date. Exceptionally praiseworthy was the care with which the intellectual level and behavior problems of mentally defective patients has been recorded. In spite of his heavy case-load, the psychiatrist was studying this group with genuine interest. In some institutions this is neglected because the condition of many of them does not respond to therapy.

5. ***Rates of Admission, Discharge and Death.*** Admission rates for the population cannot be accurately determined. The military and their dependents and the transient construction workers undoubtedly obtain admissions elsewhere when mentally ill. Of the 1953 admissions, 18.3 percent were alcoholic psychoses, which is high; 18.3 percent were senile or arteriosclerotic; 51.6 percent were functional psychoses; 6.6 percent were personality disorders; and 3.3 percent were without psychosis. The significant figure seemed to be the high rate of psychotic alcoholism.

The institution's discharge rate per 1,000 patients was 164.3, almost exactly the national rate 164.6 The death rate in Morningside was 60.2 per 1,000 under treatment, while the national rate

was 65.3. This indicates good physical care, particularly because many patients have tuberculosis on admission.

6. **Parole.** It is very difficult to operate a proper parole system for psychiatric cases at a distance such as that between Alaska and Portland, particularly with so few trained people on the Alaska end to do any supervising. This is one of the situations which might be somewhat improved were the institution located in the Territory but, because of the great distances within the Territory itself and the lack of trained personnel there, it would still remain a problem.

1954 Appraisal. In our judgment, the so-called chronic patients at Morningside Hospital are receiving as good, if not better custodial care than is rendered in many state mental hospitals. Every person who is up and about is actively engaged either in occupational therapy or in work about the farm, grounds or buildings, which is known as "industrial therapy."

A limited but creditable psychiatric treatment is employed for patients who are acutely ill with a mental disease. At the time of our visit — and for many months before that, we were told — no patient was under any kind of restraint. The open men's ward was not even locked at night, yet for many years there had been virtually no runaways.

There should be no objection to the practice of selected patients working at household tasks, about the grounds or on the well-run farm, since the tasks do not appear arduous and their hours of work were reported to be reasonable. We were told also that such assignments were on a voluntary basis and were much sought after by the patients, who were deprived of them for uncooperative behavior.

The occupational therapy department is now very good and very active in proportion to the patient population. It is affiliated with two local colleges which teach occupational therapy.

Specialist services are provided by a group of part-time consultants, including 19 physicians, two dentists, and psychologist, many of whom are associated with the University of Oregon Medical School. The diagnostic facilities for tuberculosis seemed adequate but the housing of female tuberculous patients still is extremely bad. Practical control of infectious cases to prevent spread of the infection to employees still seems to be in the planning stage. Clinical records are complete and well kept; the autopsy record is excellent.

If one judged by the written menus, the food served the patients is dietetically adequate. Food actually served, however, is below standard. The renovation of the patients' dining room, a project started several years ago, now appears to be nearing completion, and the new equipment is good. At long last, too, a start has been made on the acutely-needed women's tuberculosis unit, but we were not given a firm date for its completion.

Conclusions about Morningside.

It is the opinion of our mental health consultant, who has had a broad experience in the operation of mental hospitals, that all recommendations made here for the improvement of plant and services at Morningside Hospital could be financed within the present contract rate of about \$6 a day per person. Since we had no opportunity to examine figures on the cost of operations at the hospital, the final judgment on this point should be that of a qualified accountant.

It is our general impression that the Morningside management and personnel wish to do a good job and are willing to accept supervision and guidance. They reacted well to our genuine interest in their problems. It is possible that they have profited substantially from their contract over the years since 1904 — particularly before recent and contemplated improvements — and now can well afford to upgrade their plant and its services without financial hardship.

The people of Alaska need not fear for their friends and relatives who are sent to Morningside at this time. They are getting satisfactory care — not by any means the best obtainable, but far from the worst in state mental hospitals. Although the plant still has many deficiencies and the professional staff badly needs reinforcement, the level of care at Morningside is about what one finds in an average state mental institution.

Recommendations.

1. ***Commitment Procedures.*** The Congress has not been sufficiently informed as to the need for enacting a modern law for the commitment of mental patients in Alaska. Such a law, drawn by competent authorities, has been recommended for enactment by the Council of State Governments. It has been modified to fit the conditions in all areas of Alaska; as modified, it has been contained in legislation considered by the Congress. We have found no valid objections to it. Since full hearings have been held on the subject by the 83rd Congress, enactment should have high priority in the next session.

The Departments of the Interior, and of Health, Education and Welfare, should support such legislation strongly.

2. ***Administration of Contract Care.*** The present responsibility to negotiate contracts for the care of the mentally ill Alaskans, which now is lodged in the Division of the Territories of the Department of the Interior, should be transferred to the U.S. Public Health Service, which has competent professional staff especially in its Mental Health Institute. The present location is remote from a medical setting. In any future contracts, much more detail should be prescribed as to standards of care to be furnished; periodic inspections of performance should be made; and the present arrangements of having a resident psychiatrist — governmentally employed — at the institution should be terminated.

3. ***Sharing of Costs.*** There has been much difference of opinion as to appropriate sharing of costs between the Federal and Territorial Governments for the care of Alaska's mental patients.

So long as the Federal Government has responsibility for health care of the native population, we believe this should include the costs of hospitalizing mental illness. Alaska should gradually assume the cost of providing for hospitalization of its residents unable to pay for such care and ineligible for care at federal (natives, veterans, etc.) expense. To this end Alaska should be authorized to enact its own laws dealing with mental health, not subject to veto by the Congress nor to approval of either the Secretary of Interior or of Health, Education, and Welfare.

To enable Alaska to assume the substantial costs ultimately required, the Federal Government either should provide a land grant as a source of revenue, or should authorize a special appropriation on a descending scale over a period of years.

4. ***Mental Hospital Facilities.*** We do not feel that a new mental hospital is required at this time in Alaska to care for the present number of its patients (about 350). The present small unit at the Anchorage Hospital, however, should be fully activated for diagnosis and classification of patients as well as for intensive treatment. Comparable units should be provided elsewhere, determined by the number of trained psychiatrists who can be encouraged to settle in Alaska.

5. ***Costs of Contract Care.*** We do not feel that, under proper controls, there is anything inherently wrong in utilizing privately owned hospital facilities for the care of Federal Government beneficiaries. Nevertheless, a thorough cost analysis should be made by the government of the operations at Morningside Hospital during the past decade. Only through such a cost analysis based upon accurate accounting is the government in a good position to negotiate the per diem rates at Morningside Hospital by relating the actual cost of services to the per diem payments. Such a cost analysis also would reveal the extent to which the sale of farm products, produced and processed to a large extent by patient labor, have benefited the owners rather than the patients.

6. ***Urgent Improvements Needed at Morningside.*** (a) Morningside should employ a competent psychiatric nurse to select, train and add to the present ward service personnel. This recommendation is imperative and is consistent with good hospital practice everywhere.

(b) The food service must be improved by the employment of a well-trained nutritionist who would have the total supervision of the feeding of patients, including the ordering of the food, its cooking and serving.

(c) A psychiatric social worker should be employed. In addition to the usual duties, she might obtain from Alaskan sources more information about the patient from his relatives and make it possible to plan better for his return home. She might also develop a system of regular reports to relatives through whom the patient would be enabled to keep in touch with friends. Sometimes this might make possible an earlier discharge.

(d) A half-time clinical psychologist should be employed because of the increase of children and mental defectives among Alaska patients. He could be helpful, also, in the psychiatric examination of patients and in their selection for treatment.

(e) A qualified assistant psychiatrist should be employed. The present case-load is far too great for one psychiatrist. It is not possible for one man to give really effective care to so many mental patients.

(f) The staff of the occupational therapy department should be enriched by someone especially trained in recreational therapy.

(g) A better schoolroom should be supplied for the mental defectives who are teachable and for whom a part-time teacher is employed by the Portland school system.

7. *Other Improvements.*

(a) The hospital should give careful thought to architectural changes in order to separate the new women's tuberculosis ward from the infirmary. A small addition to the men's infirmary would provide needed day-room space. A similar addition to the women's building would provide for the passage of personnel, thus keeping the area of infection apart from other buildings and services.

(b) The present arrangement of a psychiatrist in residence representing the Department of the Interior is unsound. It would be better if the hospital were held completely responsible for the program and were inspected by the Department at regular intervals. If the control of the program were placed in the Public Health Service, the Institute of Mental Health would be of great value for advice and supervision.

(c) In the event of future need to replace the present psychiatrist, we suggest that both the Director of Clinical Services and his chief assistant should be diplomates of the American Board of Psychiatry and Neurology.

(d) When or if future contracts are negotiated with Morningside Hospital, we suggest that the Public Health Service, through its Mental Health Institute, prescribe program and personnel in much more detail than is presently the case, and define exactly what type of care the Government expects its Alaska patients to receive in a mental hospital.

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MATERNAL HEALTH

The size of the problem.

The 1950 recorded maternal mortality rate in Alaska was 27 deaths per 10,000 live births, or more than three -times that of the States in the same year. That the actual disparity is even greater was demonstrated by the Midwifery Nursing Consultant of the Alaska Department of Health. During one recent year, she checked all death certificates of women of child-bearing age against birth certificates and found that only about half of the known maternal deaths had been reported and tabulated as such. Even this did not represent the total number, since it did not include maternal deaths associated with unreported fetal death.

A review of the reported maternal deaths over a four-year period, 1949–52 inclusive, showed 22 maternal deaths. Of these, seven were white women, 14 Eskimo, and one Negro. It is interesting that not a single Indian maternal death was reported. Of the eight non-native maternal deaths, only one was not attended by a physician, whereas of the 14 Eskimo deaths, only one was attended by a physician, and one by a nurse. As to causes of the deaths, nine of the 22 were definitely due to hemorrhage; three to eclampsia; two to tuberculosis; two possibly to cardiovascular disease; and six to unknown cause. Hemorrhage out-numbering other causes of death may signify a combination of poor nutritional and hemoglobin status of the mothers and lack of access to blood transfusion when needed.

The two deaths reported from tuberculosis fail to indicate the significance of that disease in respect to pregnancy because deaths from tuberculosis often take place some months subsequent to delivery and are not recorded as maternal deaths.

In addition to sacrifice of mothers and death of infants before birth, the impact of pregnancy wastage is told in terms of early deaths among those babies born alive. The 1950 reported neonatal mortality rate for Alaska was 20.7 deaths per 1,000 live births, almost exactly the same as that for the United States.

These statistics for Alaska as a whole show a maternal health status poorer than the average of the States, but not completely out of line with the lowest states. The problem is brought into true focus, however, when data for Alaskan white and native populations are separated. Here are the comparisons:

	<u>Alaskan whites</u>	<u>Alaskan natives</u>
Births per 1,000 population — 1952	25	40
Percent of deliveries attended by physician — 1952	99.2	48.6
Reported maternal deaths per 10,000 live births — 1950	8.0	60.0
Reported neonatal deaths per 10,000 live births — 1950	17.4	26.4

That the Eskimo not only suffers more than the white, but also more than other native groups again is demonstrated by a maternal mortality rate in the north and west (132 in Judicial Division

II) 13 times that in the Railbelt (12 in Judicial Division II!), and even about six times that in the Chain (24 in Judicial Division IV). During that same year, 1950, no maternal deaths were reported among whites or Indians in the Southeast (Judicial Division 1). For every one hundred Eskimo babies who reach their first birthday, two Eskimo mothers are sacrificed.

Mortality of mothers and infants does not tell the whole story of maternal health problems. It is difficult even to estimate the amount of maternal illness related to childbirth in Alaska. Toxemia and eclampsia do occur, in both white and native women. The high degree of anemia present in almost all native women becomes more severe during pregnancy. Infections seem less common among the native women than one might expect in the face of conditions under which they live and in which childbirth takes place, but postpartum or puerperal infections are reported among hospitalized natives.

With available data, no striking difference in incidence of prematurity is demonstrable between the Alaskan births and those of the rest of the United States.

Congenital malformations among newborn infants and illness during the first month of life also reflect the status of maternal health and care. Among Alaskan native infants the high figures for death from congenital malformations and diseases of early life confirm the reports of great frequency of these conditions observed by professional workers.

Prenatal Care.

White women living in the cities and towns and having financial resources to pay for private medical care receive prenatal care from private practicing physicians unless they are eligible as military dependents to receive such care from military physicians. For example, an Air Force hospital near Anchorage has approximately 500 active patients attending its out-patient obstetric clinic. To our knowledge, there is no non-military prenatal clinic or other organized access to free prenatal medical care in Alaska outside of the Alaska Native Service. Obstetrical care is not included in the medical care program of the Alaska Department of Public Welfare.

Among private practicing physicians, maternity work is apparently not popular. There is not a single Board-qualified obstetrician in private practice in Alaska. Several physicians give major attention to maternity work, chiefly as part of private medical groups. In general, practicing physicians recommend that their patients come to them early in pregnancy and regularly throughout pregnancy. This does not seem to be stressed and there is little evidence that the prenatal medical supervision is anything but routine.

Among the Alaska Native Service hospitals and physicians, the availability of prenatal medical supervision is determined by each local physician, rather than as an agency policy. Recently, the first actual prenatal clinic, as such, in an ANS hospital was opened in Juneau. Where any prenatal care is given in other ANS hospitals, it is a part of the general out-patient clinic.

The ADH and ANS public health nurses give nursing prenatal health supervision in various ways. Scheduled parents' classes are conducted in the four largest cities. The nurses in other

communities hold more informal group sessions from time to time for pregnant women, often together with midwives. Each nurse adapts and modifies, for the purposes of her own communities, such materials as the mothers' class syllabus of the New York Maternity Center Association.

The amount of prenatal nursing supervision given on an individual basis varies depending upon the nurse, the pressure of work and other circumstances. In the larger communities, the nurses make no special effort to find patients, but merely respond to requests or referrals. In communities without medical service where, more often than not, the nurse visits the village on an itinerant, infrequent basis, she gives the best prenatal counseling that she can at the time of her visits rather than in relation to the patients' needs.

Territorial law makes the taking of a prenatal blood test for syphilis mandatory within ten days after the first prenatal visit. When the specimen is sent to an ADH laboratory, Rh and blood type determinations are done routinely in addition to serology, and the findings are sent to the referring physician.

Summary of Prenatal Care. In the smaller villages, prenatal care suffers as do all other health programs without full time medical or nursing service. In other communities, ANS service is limited and variable, the prenatal care of the whites is dependent upon the attention of busy practicing physicians. Clinic or other type of free prenatal care for non-natives is absent, except for military dependents. Individual and group prenatal health supervision and education given by nurses is often excellent, but not sufficiently extensive and does not have adequate community and medical society support. Nutritional deficiency of native women during pregnancy is not overcome under existing programs.

Hospital Obstetrical Care.

Hospital obstetrical facilities in Alaska fall into three categories — military, ANS and others. The military maternity services near Anchorage, Fairbanks and Kodiak are active programs housed in new, modern, excellent facilities and are well equipped and staffed. They are open only to military dependents who by no means tax the capacity of the facilities and staff.

Maternity facilities of the ANS hospitals vary from none at all to excellent small, complete units in the two newest hospitals at Bethel and Anchorage. Similarly, admission policies vary with the interest of the physician in charge of each institution. Some hospitals admit uncomplicated obstetrical patients who come to the door, but do not usually encourage this. Most of the institutions will accept complicated cases.

At the time of this study, the stated ANS policy was to avoid admitting pregnant women with tuberculosis. Because difficulties in placing babies had been encountered, the ANS prefers to wait until after the child is born at home and thus make the family responsible for the care of the baby during the mother's hospital stay.

Natives who live in communities not readily accessible to an ANS hospital usually must pay their own physician's and hospital fees, pay their transportation to an ANS maternity service or go without medical supervision. In a serious emergency, the ANS may pay for care by private contract physicians. Where there is no ANS hospital but there is a contract arrangement with another hospital, such as in Nome, the hospital rates are more expensive than the ANS likes to pay. The bill for private maternity care would run about \$300 per case which is obviously prohibitive for most native families. Transportation to the nearest hospital often is possible only by costly airplane services.

When a maternity patient lives some distance from an ANS hospital, particularly in an area or at a time of the year when transportation is uncertain, if she wishes to be nearer in order to be sure to get in on time when delivery impends, she also must pay for board and rent during the waiting time. She is fortunate if able to stay with relatives in the community.

The suggestion has been made that small villages set up small two or four bed units for general medical in-patient care or more specifically limited for maternity purposes. The public health nurse would be in charge of the unit when she is in the village. At other times, some designated lay person in the community would be in charge. This does not seem to be a desirable solution. It would result in poor level, so-called hospital care instead of an improved standard of home delivery.

It has also been suggested that there be attached or near each ANS hospital a small unit where women could stay for a week or two while awaiting delivery. These would not be hospitals in any sense, but would permit relatively inexpensive waiting by women from remote, inaccessible villages.

Facilities in voluntary and private hospitals vary from one extreme to the other, just as in ANS hospitals. A number of hospitals doing maternity work fall below what should be considered minimal standards in respect to adequacy of facilities, separation of infected cases, opportunities for isolation, and availability of nursing service. One hospital has general medical, pediatric and obstetric patients intermingled on three different floors — all covered on the night shift by a single nurse!

One hospital in the Territory has its own blood bank. The others have no means of blood transfusion or use the so-called "walking blood bank." Under this plan, each hospital supposedly has a copy of the blood types of people in the community listed by name. When the hospital needs blood, it calls upon an individual with the appropriate type. When necessary, blood of rare types can be obtained from the King County Hospital in Seattle, but obviously this takes time and because of weather and transportation is not reliable.

As is the case in other parts of the United States, anesthesia on the maternity service is far less adequate than for surgery. Larger hospitals which have medical or nursing anesthetists for surgical purposes do not have such for maternity cases. Smaller hospitals have no specific personnel. In most ANS hospitals, there are no specific personnel for anesthesia.

Relative inaccessibility of maternity hospital care becomes a problem for white persons who live in predominantly native communities where the ANS hospital is the only service, since it accepts non-native cases only in emergencies. Sometimes obstetrics is liberally defined as an emergency.

There is no program in the Maternal and Child Health Division of the ADH for promoting standards or regulating hospital maternity services. Any such responsibilities that may exist rest in the Hospital Facilities Unit, in which there is insufficient participation by the Maternal and Child Health Division.

Summary of Hospital Obstetrical Care.

Hospital maternity services are inadequate. Admission policies are variable and too restrictive; adequate arrangements for transportation before delivery do not exist.

Midwifery.

The importance of midwifery as a problem in Alaska is not fully stated in the fact that 15 percent of deliveries still are not attended by a physician. The problem exists exclusively among native women, less than half of whom have medical attendance at childbirth. Alaska has no trained midwives in the sense of the Scottish or British pattern of nurse-midwife training.

Midwifery practice in Alaska deviates from that in many other parts of the world in a number of other respects. One is that the midwives, from reports, seem to do more meddling than is usually the custom among non-professional midwives. Another feature is that very few villages have a person who can be called the "village midwife." Usually several women and sometimes men in a village are called in for deliveries rather than having the work concentrated in one or two pairs of hands. Also, because of the small clusters of population in widely scattered locations, a very small number of children are born each year in anyone village, so that no one person obtains an extensive midwifery experience. In 1950, 356 different non-medical persons did approximately 700 deliveries, an average of only two apiece.

The ADH furnishes a delivery box which contains equipment and sterile supplies. This is available in a large proportion of the villages and can be called for and used by any individual when in need.

In view of the high tuberculosis rate among natives, some persons acting as midwives are likely to be infected. In 1950, the midwifery nursing consultant cross-checked the names of signers of birth certificates with the Tuberculosis Register and found that 36 different persons who had signed birth certificates that year were listed as having active tuberculosis. As a result of this inquiry, these persons were given a high priority for hospital admission because of the hazard they constituted.

What is the solution to the midwifery question? Is it similar to that of the southern states of the United States and other parts of the world, where the health department selects the most

competent and reliable among the women in the community who do midwifery, trains her and helps build up her prestige to the point where she is accepted as the community's regular midwife? Such a pattern might be applicable to Alaska.

However, reasons may be advanced for spreading the midwifery education to include as many of the village women as possible, whether those women are to act in the role of midwife or are going to have babies themselves. (Fathers, too, should be taught because they often do the deliveries, sometimes while the family is on the move.)

In view of the absence of medical examination for many women delivered by midwives, complete lack of medical supervision of the midwife's work as well as the inadequacy of training of the women doing the midwifery, it is essential that close nursing supervision of high quality exist in Alaska. Unfortunately, this is not the case.

The ADH has one midwifery nursing consultant (now on maternity leave), who has developed an excellent manual for midwives. The manual is one of the best we have ever seen, and is available to certain so-called "midwives" and to the public health nurses throughout the Territory. From time to time, she sends a newsletter to a list of 175 "midwives" giving them valuable information and help and responding to their questions.

The actual burden of nursing supervision cannot possibly be vested, however, in a single individual in the central office in Juneau, but must function through the nurses in field stations. Unfortunately, most of the public health nurses feel that due to a lack of maternity training they are not competent to supervise native midwives. Each nurse should observe at least one delivery by any woman in her district who is more than a casual midwife and should utilize, for educational purposes, deliveries that occur during her visits to a village.

Ideally, every patient in the care of a midwife should be examined by a physician. If this cannot be done, she should be seen at least once by the nurse, which usually occurs at the present time. When seen by the nurse, the patient should be accompanied by the midwife so the nurse can instruct her on management of the case. If it is not practicable for the ADH to recruit only nurses with appreciable previous obstetrical training and experience, then the pre-service orientation should emphasize this work. Supervision given field nurses by the district supervisors should place emphasis upon the same subject.

Contraception.

Contraception is not taught or practiced to an appreciable extent among the native groups. Except for the Catholic groups, religions among the natives do not prohibit contraception. Contraceptive information is seldom given, even to women who are discharged from tuberculosis hospitals. Some native women have expressed desire for instruction on contraception.

Women in Industry.

White women have the usual run of occupations, including teaching and clerical work. Native women are usually limited to employment in certain industries such as the canneries, where they do canning, fish-sliming, waiting on tables, and general cleaning work. There are also a number of small industries such as candy making and box lunch factories.

A pregnant woman has no choice but to work during the season because that is the one time of the year when she can earn money. When labor is scarce, employers have no objection to hiring pregnant women, but are less likely to employ them when there is insufficient work to go around. This necessitates the disguise of their pregnancy as long as they can.

There is no particular program for the working woman, either in the ADH or in the Department of Labor. The ADPW helps by conducting daycare centers for children of working mothers.

Maternal Health — Recommendations

1. The three types of hospitals in Alaska, military, ANS and voluntary, should pool their facilities for obstetrical care, with reimbursements as indicated. Whenever other facilities are lacking, military hospitals should accept natives and non-dependents, voluntary hospitals should accept natives, and ANS hospitals should take non-natives.
2. A program should be established for free prenatal and obstetrical hospital care for white, medically indigent persons.
3. The ANS policy should give high priority to hospitalizing pregnant women with tuberculosis, should separate the babies from the mothers immediately after birth, and should give the babies BCG and keep them in the hospital or otherwise protect them against exposure to tuberculosis for a minimum of eight weeks.
4. Facilities and programs for blood transfusion and anesthesia in hospital obstetrical services should be strengthened.
5. The regulation of hospital maternity facilities by the ADH should be strengthened, with more participation of the Maternal and Child Health Division. Also, better coordination should be developed between it and the Hospital Facilities Unit in planning for hospital construction.
6. Health education of native groups on prenatal care should be strengthened.
7. Pregnant women in marginal or sub-marginal economic status, particularly among the native population, should be given surplus foods of high nutritive value and iron and vitamins as indicated.
8. Maternal and neonatal mortality study committees should be set up jointly between the ADH, the Alaska Territorial Medical Association and the Alaska Hospital Association.
9. Midwifery deserves greater emphasis than it is now receiving, with local field nursing supervision. The midwifery training program should aim at concentrating the training and work upon as few women as possible and giving them suitable status. Where the present

pattern of trying to educate all women in the community is continued for the time being, effort should be pointed at building community acceptance of the concept of designated mid-wives. Where medical and hospital care are reasonably accessible, the physician as well as the public health nurse should participate in midwifery supervision.

10. The Maternal and Child Health Division of the ADH should add to its staff a full time obstetrical medical consultant who would supervise the maternal portion of its program, lead post-graduate education of practicing physicians, participate in improving standards of facilities and programs in hospitals and offer, insofar as possible, personal and radio consultation to practicing physicians on individual cases.
11. When they request it, women with tuberculosis should be given access to contraception instruction.
12. Attention to special problems of women in industry should be given jointly by the Departments of Health and Labor.

CHILD HEALTH

Hospital Care of Newborn Infants.

Hospital nurseries for newborn infants vary in adequacy of facilities and care as do the maternity services, and usually in parallel degree. The military hospitals have excellent facilities and programs.

There is need for better setting of standards and regulation by the ADH, and within the Department better coordination between the hospital facilities and the maternal and child health activities.

Premature Infants.

There are no special units for premature infants in any of the hospitals in Alaska. There is no particular program for home care or nursing supervision of native infants born prematurely in their village homes. Ingenious household devices have been developed which seem reasonably effective for counteracting the premature infant's immaturity in temperature regulation and other constitutional defects. It is impossible to obtain data concerning the survival rate or health and growth sequelae among prematurely born infants.

Illness Among Children.

No hospital in the Territory has beds set aside for communicable disease patients and almost all hospitals resist admitting such patients. The chief pressure is for beds to be reserved for tuberculosis and certain other conditions. The difficulty, therefore, of hospitalizing children with so-called ordinary, though severe, communicable and respiratory disease may in part explain the reported high fatality rates among native children, especially among infants in the first year of life.

Respiratory Infections. Native children have one respiratory infection after another, with chronic nasal discharge, frequent sore throats, secondary ear infections and tremendously enlarged tonsils and adenoids. Pneumonia is very frequent, particularly among infants. It is not unusual for a native infant under one year of age to have an upper respiratory infection and slight running nose one day, extensive pneumonia the next day and be dead on the third, despite chemotherapy. The picture of respiratory infections among these children resembles that uncommonly seen in the United States among children suffering from pancreatic deficiency with a secondary deficiency of fat-soluble vitamins. Whether or not pancreatic deficiency exists in Alaska, it is conceivable that vitamin deficiency alone could account for these conditions.

It is recommended that an intensive service-study be set up in a localized area to include epidemiology of respiratory disease among children as to age, season, and other factors; diet and

nutrition; bacterial organisms, their sensitivity and response to various antibiotics; presence of enlarged tonsils and lymphatic tissue in the nasopharynx; clinical response to different types of treatment, including tonsillectomy and adenoidectomy; and autopsy studies, with special attention to the character of the mucosal lining of the upper and lower respiratory tract. An investment for this purpose could bring tremendous returns in information that might not only prevent disease but obviate the necessity of extensive expenditures in the treatment of ever – recurrent respiratory illness.

Ear Infections. Ear infections are extremely common among the native children, but not particularly so among white children. Running ears are frequently seen in native children as young as several weeks or months of age. Many develop an ear discharge with each respiratory infection. Large numbers of children have chronic eardrum perforations (nine percent among present Mt. Edgecumbe students). Reduction in hearing is common and in some cases severe. One and eight-tenths percent of the present students at Mt. Edgecumbe have severe bilateral hearing loss. Simple, acute mastoiditis is rarely seen.

Health Department studies on the ear discharges show varied types of organisms, the most common being pseudomonas. Next most common is staphylococcus, both hemolytic and non-hemolytic variety, alone or mixed with pseudomonas, and also in lesser frequency the coliform group. Within each of the organism groups there were varying sensitivities to different antibiotics. It is not known how many of these organisms are primary offenders or secondary invaders. Careful serial taking of cultures through the course of attacks might help to answer this question.

Some of the nurses report apparent improvement in cases of chronic ear discharge and reduction in recurrence of ear discharge when children are placed on regular vitamin supplements. This subjective impression is interesting enough to warrant further study.

Because of the relationship between ear infections and nasopharyngeal disease, and because so many of these children have tremendously enlarged tonsils and adenoids, the suggestion has been made that mass tonsillectomy and adenoidectomy, (T & A), supplemented by mastoidectomy in some, is the solution to the problem.

It would be a formidable task if the only solution were mass tonsillectomy and adenoidectomy and mastoidectomy. If that is the answer, a way must be found to do it, but short of aiming at this conclusion, careful and intensive study projects should be set up to determine the efficacy of energetic antibiotic and local treatment of the ears. T & A may prove to be the best solution, but would not solve the problem completely, in view of reports of frequent occurrence of chronic discharging ears in infants only weeks or months old and the unquestioned existence of continued discharge in many children who have had T & A done with the most efficient available surgical technique .

The use of T & A extensively in Alaska must also be considered in the light of reports of generalized malnutrition and marked anemia among the native children, with prolonged bleeding

and clotting times and tendency to severe and at times alarming post-operative hemorrhage. Furthermore, the general absence of qualified anesthetists in the Territory opens the possibility of greater hazard and more severe reactions to anesthesia than would be the case under other circumstances.

Again, a relatively large investment for a controlled study and intensive treatment program concentrated in a limited area might give information that could obviate the necessity of extensive expenditures on a generalized scale.

Eye Infections; particularly phlyctenular kerato-conjunctivitis. Phlyctenular eye disease is widespread among native children, but very unusual among white children. Like most diseases in Alaska, it is more frequent among Eskimos and Aleuts than Indians.

An attack comes on suddenly with extensive inflammatory reaction and produces scars on the cornea, sometimes as early as twelve hours after the onset of the disease. The most commonly held theory concerning the causation of the disease is that it is related to tuberculous infection or tuberculin sensitivity.

Opinion prevails that tuberculin sensitization cannot be the entire story but that non-specific bacterial sensitivity may also be a factor, perhaps aggravated by traumatic agents such as poor eye hygiene, blepharitis and exposure to wind, dust or glare.

Obviously, a careful epidemiologic study is indicated, to include age, diet and nutrition, refractive error, season of the year, respiratory infections, tuberculosis, tuberculin sensitivity, familial and group occurrence, possible methods of transmission, bacterial, viral or fungal agents, climatic and dust factors, and exact location of the lesions on the sclerae.

According to most reports, the disease responds rapidly to cortisone applied topically in the eye, with prevention or minimizing of subsequent scarring. Therefore, prompt recognition and early and adequate treatment are imperative. Again, a plan of community education and of getting the children under treatment in the absence of doctor and nurse must be set up. The ANS has not established clear policies concerning the availability of antibiotic drugs — oral or parenteral — or who is permitted to dispense or administer them and under what circumstances. The Health Department's current guide for nurses greatly restricts the types of medications that the nurse can use or that she might permit a lay representative to dispense in her absence from a village.

The later handicapping effects of phlyctenular disease will be discussed in the next section of this Chapter.

Chronic Disease and Hospital Pediatric Care. Other than tuberculosis, chronic diseases among Alaskan children seem to run the usual gamut of cardiac, renal, neoplastic and other conditions. The Alaska Department of Health, with a special grant of \$50,000 a year from the U.S. Children's Bureau, has for some years been operating a Chronic Disease Pediatric Unit in the St. Anne's Hospital in Juneau, with a usual capacity of about seven children. The program

has without doubt made valuable contributions in diagnosis and medical care for the children placed there, in giving consultation to practicing physicians in the southeast and in making practitioners and agencies aware of the need for specialized pediatric service. The need for continuation of the program should be reviewed.

In the long run, personal, radio or mail pediatric consultation made available to all parts of the Territory would reach more professional workers and indirectly affect more children than the transfer of a relatively small number of children from their places of residence to Juneau. The traumatic effects of chronic illness and prolonged or repeated hospitalization are added to by distant and total separation of a child from family and friends.

Alaska needs specialized pediatric skills. The ADH hopes to encourage the settling in Alaska of one or more Board certified pediatricians who would give part-time service to the Department. Anchorage would seem a logical first location in terms of private practice potential as well as Territory-wide accessibility.

The facilities for hospital care of children vary as much as those of any other hospital service so far described. A few hospitals do have pediatric units, but most make little or no provision for segregation of children. Even the new Bethel Hospital has no pediatric unit, as such. The new ANS hospital in Anchorage gives little consideration to the proper techniques of isolation of different diagnoses among children. Since there is in the Territory no medical school or pediatric department, and only a few physicians with major interest in pediatrics, care of children is, by-and-large, at the general practitioner level.

Social work for children is inadequate in every institution. Volunteers are sometimes used to attempt to keep a degree of contact between the child and his family and community. Recreational facilities are non-existent in most places, and the education of children with prolonged illness leaves much to be desired.

Miscellaneous Childhood Illnesses.

Various other illnesses similar to those in the states are reported among the children of Alaska. Whether or not the subjective impressions of greater frequency of certain conditions among native children in some locations is correct cannot be determined without more complete statistical analysis. Gonorrhoea is said to be quite frequent, particularly among adolescents. Congenital and acquired childhood syphilis also are found not infrequently. Diabetes occurs both among native and white children. Some physicians state that the native children are unusually susceptible to skin infections, such as severe cellulitis, infectious adenitis and lymphangitis, and on occasion require amputation of fingers even in the face of early antibiotic therapy. Whether or not this is a factor of type of organism, dosage, nature of exposure, lack of effective or early therapy or poor nutritional status cannot be said; nor for that matter, whether the situation is really more frequent among the natives than among the whites or the rest of the United States.

Allergic conditions appear to be less prevalent among native than among white children. Enteric diseases occur frequently, often in obvious outbreaks.

Both Salmonella and Shigella have been isolated often from patients with diarrhea. One interesting report from a nurse with long experience in the area is to the effect that she has never seen a convulsion in a full-blooded native child, even when infants have had temperatures as high as 105°.

Accidents constitute another important cause of serious illness among children; burns and dog bites are reported to be the most frequent.

Well Child Supervision.

Well child conferences are held in the 12 communities which have organized nursing districts. In 1953, 2,742 different children were seen in these conferences. In other communities where nurses give itinerant service, regular well child conferences are not usually held, well children being seen together with sick children, as would be expected. In 1953 in these latter communities, 719 infants and pre-school age children were thus seen for well child counseling.

The actual and potential roles of the nurse in well child supervision are: to give immunizations; to advise on diet; to detect or suspect health deviations; and to consult the parent on various other aspects of child rearing and health protection.

The general pattern in Alaska is to hold immunization clinics separate from the regular well child conferences. Immunizations are given against diphtheria, whooping cough, smallpox, tetanus, and sometimes typhoid fever as well. Immunizations are given by itinerant nurses when they visit the villages. The extent to which children of larger communities are successfully immunized varies from a few to nearly one hundred percent. The ADH is not well informed on the adequacy of immunization of the child population through its own services and through other sources.

Advice on diet is given by some of the nurses. In certain of the larger cities, advice on feeding the young infant is considered the special prerogative of the physician, the nurses studiously avoiding the subject despite the fact that many of the babies are not being taken to a physician for well child care. The ADH guide for nurses advises carbohydrate in infant formulas. The pattern now followed by many pediatricians in the United States of omitting carbohydrate fortification entirely from infant formulas would seem more appropriate for Alaska, where ingestion of sweets by native children and adults is excessive.

Recognizing or suspecting deviations in health is probably one of the nurse's most important functions when she is the only professional person who sees the growing child, and when she is the chief source of referral to the physician. In their otherwise excellent materials, the public health nurses do not have sufficient guides on normal child growth and development — physical, mental and emotional — or on common health deviations which may appear in the infant and preschool age child.

Strangely enough, tuberculin testing is not a routine part of the program of the well child conferences or the nurses' health supervision of infants. This would seem to be a desirable

routine in Alaska and possibly BCG immunization could be made a part of well child supervision.

In respect to counseling on other aspects of child rearing, the familiarity of the nurse with the culture of the people and their needs is a paramount factor. More discussions with small groups of mothers would be most helpful and would help the nurses become more quickly and better acquainted with cultural practices and the needs of the mothers.

As would be expected, well child supervision is usually something that nurses do only when they are able to get out from under the immediate day-to-day pressures and demands. The important earlier follow-up that can be done only by learning about hospital and home deliveries varies in method and adequacy from place to place. In few places is there any real attempt on the part of the nurses to follow-up on mothers who are delinquent in responding or coming in. Even in the 12 organized communities, the average number of visits of each enrolled child is only two per year, and in the other communities the average is not much over one. Hence, continuity of health supervision to a large extent is lacking.

The nurse is pretty much on her own in the supervision she gives to well children. In larger villages, there is usually little connection between the well child supervision she gives and the care given by the physician in the hospital. In cities and towns, the relationship between nurse and private physician also is tenuous, since practicing physicians in Alaska apparently have been too hard pressed to develop interest in the well child. For example, one Indian community in the southeast has no refrigeration whatsoever in the homes. Nevertheless, the nearby hospital, in which many of the infants are born, routinely sends the mothers home with instructions for twenty-four hour formulas. If there were any communication at all between families, public health nurse and physicians in the hospital, this situation would be corrected.

Summary and Conclusions on Well Child Supervision.

Since the nurse frequently is the only one who gives health supervision, her role should be defined and accepted and her responsibility recognized as the chief source of parent guidance and source of medical referral of children. This is in contrast with the pattern Stateside where physician and nurse see the child regularly. The nurse should be given appropriate guides and helped in the light of this difficult, multi-purpose role.

School Health.

Two of the three aspects of the total school health program — school health service and school environment — will be discussed here. The third aspect, health education, will be discussed later in this Chapter.

School Health Service. In general, attempt is made in the school health program of Alaska to follow current authoritative practices as recommended Stateside. Except for Juneau, Ketchikan, Sitka and Fairbanks, the school health program is incorporated in the generalized

work of the public health nurses. In those four communities, the general pattern of school health recommended by the ADH is followed rather well and the public health nurses participate in home visiting and other aspects of the work by referral from school nurses.

Wherever organized school health programs exist, a routine has been recently instituted for examination of children in the first, fourth, seventh and eleventh grades. This is in keeping with the current trend of lengthening the interval between routine mandatory screening examinations, and placing greater emphasis on selective examination of referred children. In Alaska, unfortunately, the examinations are usually concentrated at the beginning of each school year and seldom allow the school physician an ongoing role for the remainder of the year. Selective referral by teacher, nurse and others is almost non-existent. When local practicing physicians in some communities are unable to do the examinations, they are sometimes done by military physicians.

Responsibility for the school health program in most villages rests on the shoulders of the nurse and teacher. Usually the nurse takes advantage of the grouping of the children in school and holds the equivalent of a so-called teacher-nurse conference. The nurse examines the children, discusses them with the teacher, and may do certain screening tests such as vision, hearing, height and weight. She includes follow-up in the homes for correction of discovered health defects. Too often, this means merely adding to the community's mountain of unmet and unattainable health needs. In 1951, the Nursing Section of the ADH reported that 17.5 percent of the nurses' 55,000 visits were made for school-age patients. In 1952, the proportion was 12 per cent.

School Sanitation. The environmental sanitation of school buildings and grounds in the Territory varies considerably, from new modern structures in some of the larger communities to almost uninhabitable makeshifts in certain villages. Responsibility for inspection of school sanitation rests with the staff of the Sanitation Division of the ADH. These persons, however, are able to visit the schools quite infrequently — sometimes only once in five years.

General Comments about School Health.

As in other areas, here are evidences of lack of coordination between the Branch of Education of the ANS and its other elements, between the ANS schools and the Territorial schools, between the Maternal and Child Health Division of the ADH and the two school systems, between nurses and teachers, between local health and hospital services and the nurses in the schools, and within the divisions of the ADH itself.

For example, a sanitary inspector may visit a school but not send a report to the school nurse. A child is examined in an ANS Hospital, but the teacher in the same community does not know of the condition or the recommendations.

The ADH developed a manual on school health services without involving either the ANS Branch of Education or the Territorial Department of Education in its preparation until the latest

stage. The Territorial Department of Education, on the other hand, developed a Course of Study Guide for the Primary Grades, including health education, without involving the Health Education Division of the Alaska Health Department.

Child Health Recommendations.

1. The ADH should establish minimum requirements for hospital care of full term and premature infants and sick children. The Maternal and Child Health Division and other appropriate technical units in the Department should participate with the Hospital Facilities Unit in raising standards of hospital care of children.
2. More pediatric hospital units should be developed, particularly for admission of children with complicated communicable disease. These should relate on a regional plan to the pediatric sections of the two medical centers recommended elsewhere in this report.
3. A combined service and study should be set up in a localized area to obtain information on the causative factors and care of respiratory disease among native children.
4. A combined service and study should be set up on an intensive basis to obtain information on the causative factors and most effective methods of treatment of ear disease among native children.
5. An epidemiologic study of phlyctenular kerato-conjunctivitis should be made.
6. The ADH and the ANS should develop a plan and clearly lay down policies and guidelines so that in the absence of the doctor and nurse from the village, materials are available and drug treatment can be given for certain definable illnesses such as rheumatic fever, phlyctenular kerato-conjunctivitis and otitis.
7. The ADH should continue its efforts to employ a pediatrician to give clinical consultation to practicing physicians.
8. Greater emphasis should be placed upon the counseling of parents concerning care of newborn and young infants.
9. Responsibility for health supervision of well children and screening for medical referral should be vested firmly in the public health nurses wherever medical service is lacking; the nurses' duties and scope of work should be broadened accordingly.
10. Where medical service is available, the school physician should act throughout the year as general health advisor to the school rather than limiting his work to physical examinations at the beginning of each school year.
11. Whether or not medical services are available, the nurses should exploit the convenient congregation of children in schools to promote general child health objectives.
12. Health findings in school children should be made known to the teachers so they may help in improving the students' health and in making appropriate modifications in the educational program.
13. Better coordination should be developed among various groups and agencies concerned with the health of school children.

CRIPPLED CHILDREN

The chief handicapping conditions among children in Alaska are (a) orthopedic and other neuromuscular conditions, chiefly tuberculosis, (b) hearing impairment, (c) vision impairment, and (d) heart disease. These will be discussed in sequence, followed by a discussion of administrative relationships.

Orthopedic and Neuromuscular Conditions (Including Cerebral Palsy).

The chief cause of orthopedic handicaps among Alaskan children is tuberculosis of bones and joints. As would be expected, this primarily affects native children. There has been much conjecture concerning the reason why there is so much bone tuberculosis in the absence of the bovine type of tuberculosis organism. It is our belief that bone and joint tuberculosis occurs merely because there is so much tuberculosis present. When the prevalence of other kinds of tuberculosis is reduced, bone tuberculosis, too, will decline.

The lack of close health supervision of seemingly well children means that tuberculosis of bones and joints usually is not diagnosed in the early stages. Due to the insufficient number of available beds, there is a long waiting time before the patient can be hospitalized. As of May 1954, 99 children were on the ADH waiting list for orthopedic care. A wait of two years is not uncommon, even four years in some cases. The tuberculous or other disease process in the bones or joints of the growing child does not, however, mark time.

Most orthopedic patients are sent to the orthopedic service at Mt. Edgecumbe. During the same year period, 75 children were admitted to that service and 76 discharged. This is a good service with a qualified orthopedist and includes the desirable adjunct services such as a well equipped brace shop, bone bank, etc. Social needs of, the hospitalized children, however, are not fully met.

A few children are sent to the States — some to Chicago, others to the West Coast. During the year ending May 1954, 12 children were hospitalized in the States for bone or joint tuberculosis and 22 for other orthopedic or neuromuscular conditions. Hospitals used for this program are accredited for such purposes by their respective State Crippled Children's agencies.

The Alaska Department of Health operates itinerant orthopedic clinics in larger centers in the Territory, chiefly in the southeast and along the Railbelt. During 1953-54, 621 visits were made by children to 27 such clinics, and an additional 736 were made to the orthopedic outpatient clinic at Mt. Edgecumbe.

These specialized clinics assume importance for bringing needed consultation to different parts of the Territory. A single orthopedist carries both the Mt. Edgecumbe service and the itinerant clinics, at times with an assistant.

This is obviously too much for one man to cover. One or both services must suffer. Furthermore, the distance from Sitka to Anchorage, Fairbanks and other itinerant clinic locations increases both the hardship and the cost. While recognizing the advantage of having the same

surgeon conduct the clinics as will care for the patients later in the hospital, this factor should not be paramount.

There is no reason to believe that the prevalence of cerebral palsy in Alaska is different from its prevalence in other parts of the United States. However, Alaskan services for the cerebral palsied are minimal. The orthopedic service at Mt. Edgecumbe is too preoccupied with urgent cases of bone tuberculosis to absorb the care of the cerebral palsied, nor would it be appropriate for them to be added there. The itinerant clinics conducted by the ADH see patients with cerebral palsy on referral, but do not go much beyond the first examination. The Alaska Crippled Children's Association (ACCA) runs an out-patient service in Anchorage which offers physical therapy and speech therapy to a small number of cerebral palsied children. The special education program for the cerebral palsied and for other types of handicapped children throughout the Territory is grossly inadequate.

The immediate need in respect to cerebral palsy seems to be a residential institution, probably located in Anchorage, where children could receive intensive care for one or several years and then be returned to their own communities for on-going management of a less specialized nature. It is unlikely that various parts of the Territory, even where general medical services exist, will be able to develop in their locations full services for the cerebral palsied. Instead, reliance might be placed on short-term residential care, itinerant specialist clinics and visiting physical therapy and speech consultants to the nurses, teachers, lay health representatives, and parents.

Hearing Impairment.

Because of the great number of chronic ear infections, hearing impairment is widespread among native children and adults. At present, deaf children are institutionalized in the States. Other than a small speech program in the ACCA center in Anchorage, there is little service for children who are hard of hearing.

There is great need for strengthening the special education program in Alaska's schools at the central level, with an adequate number of consultants helping local teachers in the education of children with hearing impairment of varying degrees short of deafness. Ordinarily, one would not expect a region with Alaska's population to warrant maintaining its own institution for deaf children. The present numbers of such children, however, could probably fill a going establishment. In view of the capital investment that would be required, personnel recruitment difficulties, hope for reduction in amount of ear disease in the not too distant future and the current trend toward day rather than residential, school care, it seems more economical and wiser for deaf children to continue to be sent to institutions in the States.

Except in the few larger communities, it does not seem practicable to think of individual hearing aids for children who are hard of hearing. It would be costly to fit and train the child to use a hearing aid and to care for it; the success of such a venture would be uncertain. It is suggested, therefore, that instead of trying to fit children of school age with individual hearing

aids, schools be furnished with desk amplifying systems whereby the children who need hearing amplification can be grouped around a single desk with a loud speaker in front of them. This is similar to the system used in classrooms in certain schools for the deaf. The teacher rather than each child would be responsible for the apparatus. That the children would not have the advantage of amplification during the non-school hours seems to be the currently inescapable lesser of several evils.

After reaching adolescence or later, depending upon the circumstances and the cooperation of the individual, the children should be furnished with individual hearing aids, probably through the vocational rehabilitation program. Underlying any part of the program described is the assumption that appropriate medical and surgical care is rendered, as discussed earlier in this report.

Visual Impairment.

Because of the widespread occurrence of phlyctenular disease of the eyes, many native children suffer visual impairment. Among present students at the Mt. Edgecumbe School, for example, approximately two percent fall into each of the following four categories, even after correction:

1. Both eyes involved, with 20/40 or worse in each eye after correction.
2. Both eyes involved, with 20/40 or worse in one eye after correction.
3. One eye only involved, with 20/40 or worse after correction.
4. One or both eyes involved, with better than 20/40 in each eye after correction.

Similar problems exist in respect to visual impairment as those described for hearing loss. Blind children are sent to the States. Programs for those not blind but severely handicapped visually, are inadequate in the school systems. The testing of refraction and the fitting and furnishing of eyeglasses are not available to all communities.

It is suggested that a guide be set up for use of the simple Snellen test of children's vision, and that consultation and supervision be given to teachers in the villages in vision-testing as well as in the special educational needs of children with visual impairment. In addition, all field nurses should be trained both in simple refraction technique and in the fitting of eyeglasses. Each nurse should have a set of test lenses and frames and should learn how to measure interpupillary distance and other elements necessary for prescribing eyeglasses. Nurses should make periodic re-tests of the children's eyes to determine if the glasses need changing. If necessary, eyeglasses should be furnished free of charge through the ANS and ADH.

Again, although not most desirable, it may be necessary in many instances for the eyeglasses to be given to the child only for school purposes and to be kept in the teacher's care at other times. Under most circumstances, the primary purpose of eyeglasses is not to save or protect vision, but rather to help the child in education and in contacts and other

exposures that will help in his growth and development. Use of glasses during school hours would be the most important feature. The teacher could let a child have his eyeglasses for special occasions, such as going to the movies, or to keep under his own or parental responsibility.

A question exists as to the most desirable treatment of persons with severe visual impairment from irregular astigmatism as an aftermath of scarring from phlyctenular disease. One opinion holds that the scleral type of lens gives considerable improvement where corneal opacity is not too extensive. Although this treatment has limitations, such as the poor cooperation usually obtained from children under 16 years of age, the suggestion deserves further attention. Another ophthalmologist with extensive experience in Alaska states that corneal transplant is the preferred treatment. When blindness occurs from severe central opacity, of course, there is no alternative.

Attempts are being made to develop an eye bank in Alaska. This should be carefully studied in respect both to its great potential advantages and its obvious limitations. Corneal transplant should be attempted only when conditions are favorable in all respects and when alternatives do not exist.

Heart Disease.

The exact prevalence of rheumatic fever and rheumatic heart disease is not known, but does not seem unduly great in any part of Alaska. Nor is there any reason to believe that congenital heart disease occurs more frequently than in the States. At present, some patients with chronic heart disease are cared for in the Chronic Disease Unit in Juneau.

Patients requiring surgery for congenital heart disease are sent to accredited centers in the States; during the year ending May 1954, there were eight such children. This program results in a relatively small financial burden to the Territory which bears only transportation and incidental costs, all other costs being borne by federal grants administered by the Children's Bureau. Such children should continue to be sent to the nearest qualified centers outside the Territory.

Administration and Interagency Relationships.

The ADH carries the brunt of the burden of administering services for crippled children in Alaska. Funds are derived from the Department's own Territorial budget, from Children's Bureau administered federal funds, from the ANS, and sometimes from voluntary agency grants. As we have pointed out, uncertainty as to the amount of money that will be available plagues the administering officials. From month to month the ANS contribution is eked out of the Health Division and general agency funds, by some mysterious and indefinable fashion. Voluntary agency grants are almost equally unpredictable. Federal allotments always are exceeded and dependence is placed upon a windfall late in the year from funds unexpended in states more fortunate than Alaska in their crippled children's problem. As much as \$50,000 a year is obtained

in this manner. All in all, the situation is not conducive to continuity or long-term progress in program planning.

Administration of crippled children's services by the ADH is too highly centralized in Juneau. Insufficient freedom of action exists in other offices, such as Anchorage. It is not possible for the ADH to correct the situation completely unless, in turn, the ANS lessens its demands for reports and pretreatment authorization in respect to each patient cared for under ANS funds. This is a part of the unsatisfactory picture inherent in dual responsibility for the same job and is covered more extensively elsewhere in this report.

Transportation of Alaskan children to the States is no easy problem and necessarily carries with it traumatic effects upon the children; in addition, it results in difficulties in communication reports. There is much room for improvement in many aspects of the present system. In general, it would seem desirable for the ADH to develop contractual arrangements whereby the official crippled children's agencies of particular states would handle matters Stateside. This would include accreditation of hospitals, supervision of work done, obtaining and transmission of reports, financing, fee schedules, authorization of discharges, etc. It is impossible from Alaska to maintain contact with the changing situation, personnel and program, or to make prompt response to the immediate needs of each case. In Alaska authority should be vested in the ADH and it would compensate the crippled children's agencies for costs of services rendered in handling the small number of patients involved.

The problem of transporting crippled children is complicated, whether in the Territory or in the States, since the travel usually takes place in several steps; from the village to a larger community like Bethel or Kotzebue, then to another intermediate stop or end-point like Anchorage or Fairbanks, and sometimes a third step to Juneau or to the States. At each stopover, there is a problem of finding temporary quarters. As stated before, certain hospitals should have accommodations available for children in transit, with nursing and attendant care as well as medical supervision when required. This should be far less expensive than the present method, with professional people constantly scurrying around yet rarely ending up with a satisfactory arrangement.

As stated previously, certain medical conditions which are rampant among Alaska's native children are seldom seen in the States. Some of these conditions are almost "medical museum pieces" and would be of great interest to medical centers for teaching purposes. The University of Chicago recognizes this and maintains four or five patients from Alaska without charge at all times. Similar arrangements might be made with a number of other teaching institutions, particularly in the orthopedic, otologic and ophthalmologic departments.

On the other hand, to the extent that qualified direction of a program does exist in Alaska, a certain amount of expansion of the service in the Territory, concurrent with increases outside the Territory, would seem logical. For example, the orthopedist at Mt. Edgecumbe could give further training to a number of associate orthopedists. Similarly, a program of training in eye, ear, nose and throat conditions might be developed at Anchorage. The presently available facilities in one

or another of the military hospitals could offer added training opportunities. Thus, teaching of graduate physicians or resident physicians affiliating from medical centers in the States could go on to advantage.

Crippled Children, Recommendations.

1. The ADH should expand its program of various itinerant specialty clinics and distribute the work load among qualified specialists as they become available.
2. Hospital services for children with crippling conditions should be expanded by enlarging existing facilities, opening new ones or utilizing empty government hospital space according to circumstances and available personnel.
3. A small residential institution for cerebral palsy should be established.
4. The special education program for various types of handicapped children in the public schools should be strengthened.
5. Itinerant therapists — such as physical and speech therapists — are needed to give consultation to other professional workers and to parents rather than concentrating upon direct service to patients.
6. The ANS should provide its financial aid for crippled children on a more predictable basis and should substitute contractual agreements and post-audits for checking its fund grants to the ADH in place of the present indefensible day-to-day and case-by-case authorization.
7. The ADH should decentralize its crippled children procedure and grant more responsibility and autonomy to district offices.
8. The ADH should arrange with official state crippled children's agencies to administer Stateside care of Alaskan children.
9. Attempts should be made to get more medical teaching centers in the States to accept Alaskan children with various types of conditions.
10. An attempt should be made to have medical centers in the States send young resident physicians to Alaska for affiliated training in certain specialties.
11. Insofar as necessary, adequate funds should be made available from appropriate sources for immediate elimination of backlog of untreated crippling conditions in children. A larger investment now will save money later.

NURSING SERVICES

Background.

American nurses have been contributing to Alaska's health for nearly 70 years. Some were church-supported, some were wives of missionaries, others were sent by the Bureau of Education during the early years of its service to natives. They worked intimately with the teachers; they staffed the first improvised hospitals in the schools; and in 1916, began to staff the ANS hospitals as they were built. They served also on the marine units that were operated sporadically on the Yukon beginning in the summer of 1917.

The itinerant nurses traveled by dog-team and later by "bush" plane, experienced dangers and hardships which their Stateside colleagues could scarcely comprehend; they lived under the most primitive conditions. For the most part, they matched the rigors of the environment with a dauntless spirit.

We point out frequently in this report that it has been, and for much of Alaska continues to be, the nurse and especially the itinerant nurse, who, with the village teacher bears the brunt of the battle against disease. They are the unsung heroines; they continue to have a major role in bringing health services to the people of Alaska.

Nursing service in the Territory is discussed under two broad categories, Hospital Nursing and Public Health Nursing.

Hospital Nursing Services.

Alaska Native Service Hospitals.

Each ANS hospital has considerable autonomy as regards nursing policy, a manual issued by the Bureau of Indian Affairs providing some guidance. There is no regularly planned interchange of nursing staff. Appointments and transfers are handled in Washington and Juneau. In the past, nurses in the various hospitals had opportunity to discuss their problems and indicate their interests at meetings of supervisory and administrative staff. These meetings have not been held the past two years.

Procedures are developed separately in each hospital, and are subject to much fluctuation as staff physicians and medical directors change. Staffing patterns are developed independently in each hospital, and there is little or no uniformity either in staff pattern or in the relationship between professional and subsidiary staff.

Practical nurses and aides working under the direct supervision of professional nurses are used in almost all ANS hospitals. They are not permitted to give medications. This restriction results in the use of more nurses than would otherwise be needed in convalescent units such as Alice Island at Mt. Edgecumbe. No uniform staffing formula is applicable to all hospitals

because of the wide differences between them in respect to categories of patients (acute, convalescent, chronic).

In all but one of the ANS hospitals visited, the director believed the personnel ceiling "officially" established at headquarters was too low for adequate patient care. In every instance, it was stated that more professional nurses would be needed if patient education programs were to be extended.

In general, no difficulty was reported in getting either professional or auxiliary nursing staff, but professional turnover is extremely high in all hospitals. Nurses' aides are readily recruited and tend to stay in the small community-type hospital (probably due to lack of other remunerative work for women in those areas), but are less stable in the larger centers. There is difficulty in recruiting and holding supervisors and administrative nursing staff.

Out-patient services are provided in all hospitals, but the amount of care so provided differs widely even in installations of comparable size. The Bethel Hospital, for example, handles between 100 and 150 patients daily, while Kotzebue reports only 20-25 patients. Out-patient services at Anchorage are still unpredictable. Mt. Edgecumbe has an active out-patient department, which includes some patient teaching, especially in maternity. A brief observation would indicate that out-patient services are provided for quite a few trivial complaints, although in most instances the patient could probably be helped for conditions other than the one which caused him to visit the clinic. Record review would indicate that other treatment is seldom given, however, probably due to the great pressure under which physicians must work.

Responsibility between out-patient department and public health nurse is not uniform. Some hospitals refer patients to the public health nurse for well child conferences, mothers' classes or immunizations; others "take care of their own patients." One hospital does immunizations for those entering school, while the public health nurse for that area cares for others who need immunization and those who do not come to the hospital clinic. The out-patient service at Mt. Edgecumbe has a public health nurse on the staff.

On the whole, there is virtually no planned patient teaching. Patient care conferences are sporadic and nurses often fail to attend due to the pressure of other work.

Notations on patients' charts are arranged by service rather than chronologically, making it difficult to scrutinize readily the total aspects of patient care in proper sequence. Social histories in one hospital are kept in the social worker's office and quite apart from the rest of the patient's record. In some hospitals, even the current nurse's notes are not attached to the chart, but are available only in the nursing station.

In some cases an effort is made to group patients by degree of medical and nursing service needed, to permit concentration of professional nursing where the need is greatest.

There are few nurses with specialty training in the hospitals, though most supervisory personnel have had some special training in that field. There are a few nurses with psychiatric training now at the Anchorage Hospital who can be assigned to that service when it is opened.

Voluntary Hospitals. Voluntary hospitals visited reported no difficulty in recruiting staff, though all reported a high turnover rate. Most reported that a year was considered the average length of stay of a professional nurse. Nurses aides are also readily recruited.

Within these institutions are wide differences in the use of auxiliary nursing personnel. Some hospitals use only professional nurses for all patient care, while others use both licensed practical nurses and nurses' aides. While few practical nurses are available, no administrator interviewed felt the need for more than could be obtained.

While needs for personnel, as appraised by hospital administrators, seem to be reasonably well met, certain needs in relation to service seem less well covered. These needs center around patient education, patient referral and improvement of quality of nursing care.

In no hospital visited was there evidence of a planned, cohesive program of patient education. Sporadic attempts are made, usually growing out of the interest of a particular individual or within a particular service. Simple emotional situations such as homesickness and problems of adjustment to hospital foods and routines are handled by social workers at times, but usually with the nurse taking little or no part. Since virtually all patients from small communities, as well as a large proportion of those from the city, have many social problems and pressures and come from environments not conducive to health, the need for patient education is very great.

Patient referral programs are infrequent. Generally speaking, the hospital nursing staff takes little responsibility for securing post-hospital supervision of patients or for obtaining information regarding their pre-hospital care. There is need for planned conferences or correspondence and exchange of information on patient care that will include the various members of the hospital's medical staff and appropriate representatives of community agencies. This type of planning is essential if the hospital stay is to be kept at a minimum.

The techniques and methods of care vary greatly between hospitals, even those under ANS ownership.

With the exception of Providence Hospital in Anchorage, which is attempting to "get more public health into nursing services," the hospitals concentrate on physical care of the patient. Seward Sanatorium (tuberculosis) offers courses in home nursing and nutrition as part of its rehabilitation program. Differences in intensity of nursing care, in techniques, and in use of personnel are very marked. In general — although there are exceptions — the disease and not the patient is the focus of nursing care.

Salaries are lower in the voluntary than in public hospitals. Most of the hospitals reported a constantly changing staff. One hospital reported a "stable staff," but inquiry revealed that of a total of 15, only five had had as much as two years experience in the hospital, and the nurse with the longest service had been there just over three years.

In all the voluntary hospitals visited the nurse administrators, with one exception, had no special preparation in administration.

Public Health Nursing Services.

There are 57 budgeted positions for generalized public health nurses for Alaska; and 47 nurses actually employed as of July 1, 1954. Of this number 44 are employed by the ADH and 3 by the ANS. Of the budgeted positions, nine are in administrative or supervisory positions in the ADH or in local health districts. Twenty-six (including supervisory personnel) are employed in local health units with support provided from both local and territorial funds; 18 are itinerant nurses, each serving a number of villages. Two nurses are assigned to special projects — one to the BCG program and one to the orthopedic unit at Mt. Edgecumbe.

In addition, there are four nurses employed by the Episcopal Mission who carry some responsibilities for community work, seven school nurses and one nurse employed by the Fish and Wildlife Service.

Except for the approximately 1,500 people in the Aleutian Chain and a very small number living in wholly inaccessible places, these nurses provide public health nursing service for the civilians of the Territory.

The ADH renders public health nursing services to Native Alaska through financial support from the ANS. Currently, 12 nursing positions are wholly or partly financed by ANS contracts, and it is contemplated that in 1955 the three remaining ANS positions will be transferred to the ADH. Responsibility for professional supervision has already been transferred to the ADH. This is a fine example of coordination between the two agencies and consolidation of their overlapping functions into a unified administration.

School nurses are employed by local boards of education, and are not under the administrative direction or supervision of the ADH.

The development of nursing services under local sponsorship has proceeded fairly rapidly despite many difficulties in the way of growth of local political entities. Once developed, locally sponsored nursing services are generally quite stable.

Services rendered by public health nurses under ADH and ANS sponsorship differ somewhat in relative emphasis. The ANS services place considerable emphasis on public health nursing as an extension of medical care; ADH nurses consider therapeutic nursing secondary to the preventive job.

The pattern of service also varies considerably between the isolated village and the more developed and urbanized community. In the latter, the service approximates that found in the States, supplementing and extending service and instruction provided by physicians and other health workers, and providing nursing care and health guidance to individuals and groups. In the isolated village, services include many activities that normally would be carried by other professional workers. In the well child conference, for example, the itinerant nurse must take responsibility for health appraisal since it is unlikely that the child will have a medical examination. The broad responsibility of the itinerant nurse is reflected in the "standing orders" of both the ADH and the ANS. In each case, wide latitude is given the nurse because of the lack of direct medical supervision.

Well child conferences are almost universally a part of the public health nursing program. They are conducted on an individual consultation basis in the nurse's office and are generally well attended. In 1953, a total of 5,643 visits were made in well child conferences; in addition, 253 office visits by well children at times other than the regularly scheduled conferences. Prenatal and parents' classes are held in the more populous sections — 322 people were enrolled in such classes in 1953. In villages, the same type of service may be given informally. Individual home and office visits are provided for pre- and post-natal patients and well children.

Midwife training and supervision are carried out in many areas. In some villages there is a well defined pattern which includes a short period of training by the nurse followed by an apprenticeship period during which the "trainee," under a more experienced person, progresses from observation to participation to independent work. In other communities, limited instruction is given to all women who request it, but there are no designated midwives.

Immunizations against smallpox, diphtheria, pertussis, typhoid, and in some areas, BCG immunizations, are a major responsibility of practically all public health nurses, except in the occasional community where they are done by a physician or hospital clinic. In Kodiak, for example, the local physician, who is part-time health officer, opposes the policy of permitting nurses to do immunizations of any kind. Nurses, especially the itinerants, also carry broad responsibilities in connection with tuberculosis control, venereal disease control, and general emergency medical care.

Classes in home nursing (health and first aid in home and village) are taught by teachers and nurses, and a textbook has been developed for use in this program.

The total public health nursing visits in the Territory during 1953 were distributed by the several categories of service as follows:

	<u>Percent of Total Visits</u>
Morbidity	20%
Tuberculosis	18%
Infant Health	15%
School Age Health	12%
Pre School Health	9%
Maternity	9%
Crippled Children Services	9%
Communicable & Venereal Diseases	6%
Adult Health	2%

One-fifth of all visits were made in connection with general morbidity; another one-fifth (approximately) because of tuberculosis; these plus infant health claimed over 50 percent of the nursing visits during the year.

All public health nurses employed by the ADH have had special public health preparation. Supervision is provided through regional offices located in Anchorage, Fairbanks and Juneau. The central office nursing staff exercises overall supervision, and coordinates the nursing program with those of other units within the ADH. Reasonably good liaison between the ADH and the ANS programs is maintained at Juneau, through informal conferences of the respective chiefs of nursing services and by regular exchange of nursing service reports.

There is great variation in the load carried by itinerant public health nurses; one nurse has a population of approximately 600 in two villages, another has approximately 2,000 in 27 villages. A study of four typical "itinerant areas" showed that time spent in villages (including travel to and from) accounted for from 41 to 68 percent of the nurse's total work days, and that the days of service in villages per 100 population ranged from seven to 27. Naturally the time spent in villages is influenced by weather, distance, and resultant costs and difficulties of travel and to some degree, by the extent to which village people come to the town headquarters and receive care there. However, there is a substantial number of villages visited only once or twice a year. Continuity of care and instruction in these villages is impossible.

Generally speaking, the itinerant nurse carries too heavy a work load, her area is too large to be covered adequately, she devotes too much time to office routine because she has little if any clerical assistance, her office accommodations are grossly inadequate, and her living accommodations (especially the ADH nurse) are both atrocious and expensive.

General Nursing Resources.

There is a school of practical nursing at Mt. Edgecumbe. The only one in the Territory, it is limited to native students and has a capacity of 40 students per year. Currently, 26 are enrolled. The school is accredited by the National Association for Practical Nurse Education, and

graduates take the national examinations prepared by the National League for Nursing. There is no school of practical nursing available for non-native women.

There is no basic school of nursing in Alaska, Alaskans desiring nursing education going "outside" for this preparation. The University of Alaska has had a small number of pre-nursing students who enter schools of nursing in the States.

No continuing education courses in nursing are available at present. Courses in related fields are offered by the Community College at Anchorage (an Extension Service of the University of Alaska). The Alaska Nurses' Association is actively interested in promoting some postgraduate work.

There is a very substantial, but unknown, number of nurses in Alaska who are not engaged in professional nursing, but are employed in other pursuits, many of them as housewives. In many white communities without physicians, these nurses are often called on for emergency medical and nursing care. In the town of Homer, with a population of 600–700 (mostly white) there are 14 nurses, all housewives, and none engaged formally in professional nursing.

Comments on Nursing Services.

The usual population-nurse ratios are not applicable as an index of need for public health nurses in Alaska. The unique problems of isolation, distance, travel difficulties and high incidence of disease, yet absence of other professional services place exceedingly heavy demands upon the public health nurse. While there are differences of degree, there is no community in Alaska where the availability of medical care is not limited, where sanitation of the environment is not faulty, and where the need for preventive services including public health nursing is not great.

The itinerant nurse must be the delegate of the doctor, social worker, health educator and sanitarian. She must cope with all varieties, of injury and illness as well as the usual problems of health promotion and disease prevention.

Since there are no voluntary nursing service organizations in Alaska, responsibility for meeting unique community health nursing needs is almost entirely an official one.

Alaska differs from most States not only in the number of nurses it needs, in proportion to population, but also in the content of its nursing service. Therapeutic nursing must occupy a prominent place in public health nursing, and must continue to do so as long as morbidity is excessive and alternative resources to deal with it are not at hand.

Intensive health education and instruction in home and community sanitation are badly needed. This is a responsibility which the nurse must share with others.

High infant death rates among the native population, especially, point up the need for intensive maternal and infant health supervision as well as increased emphasis on the sanitation content of nursing service.

In the more advanced communities, parent education, group work, and mental hygiene must become increasingly important elements in public health nursing service.

Recommendations.

In communities everywhere, the nurse is a prominent participant in practically every phase of organized public health work. In Alaska, especially in "Native Alaska," her role is central. Upon her and the teacher falls the brunt of responsibility for health care.

Nursing, like all other types of health services, has had to adapt itself to the conditions peculiar to Alaska.

In general, nursing service in the Territory is good as far as it goes. It needs to be extended in scope and coordinated more effectively. There are gaps and deficiencies in service and failure of communication, all of which are detrimental to the health of the people.

We make the following recommendations:

1. Planning for total nursing services (hospital and public health) should be community based, rather than agency based. This is essential if nursing service is to be distributed effectively and if available nurse power is to be used with greatest economy. Provision for some planning and clearance structure, with well defined channels for inter-agency communication is essential at both Territorial and local levels.
2. Local planning bodies should be established to provide better coordination, clearance, medical and related support, and program determination.
3. The artificial functional distinctions between public health, school, and hospital nursing should be eliminated, or modified to the point where the focus of responsibility for particular nursing functions can be determined locally.
4. Health needs should be the determinant of content of nursing service. As such, therapeutic nursing must become a part of public health nursing, and preventive services must be added to the role of hospital-nursing.
5. The ANS should develop several nursing plans and policies applicable to its entire system of hospitals in Alaska, to provide for:
 - a. Rotation of staff in and out of isolated areas.
 - b. Consultant services in all phases of nursing.
 - c. A realistic formula for staffing.
 - d. In-service training of staff, including administration as well as nursing practice.
 - e. A unified program for the training and utilization of nurses aides.
 - f. The most efficient utilization and conservation of professional nursing time.
 - g. A record system that will serve better as a guide in patient care.
 - h. A patient teaching program both in hospital and out-patient departments.
 - i. Adequate referral and communication system that will provide faster integration of hospital services with those of others in the patient's community dealing with health care.
 - j. Desirable housing and living accommodations.

6. Wherever possible community nursing programs, such as school nursing, small clinics services, and other public health nursing should be unified and consolidated.
7. An extensive program of training of native women for home care of the sick should be pursued.
8. A thorough re-appraisal of itinerant public health nursing should be made, looking toward:
 - a. Redistricting of areas to more manageable sizes.
 - b. Increase in nursing staff.
 - c. Supplying more nearly adequate clerical assistance to conserve nursing time.
 - d. Provision of reasonable working and decent living quarters.
9. In-service training and education should be extended through the Territory. It is an important factor in job satisfaction as well as in improvement of service.
10. The present systems of records and reports dealing with public health nursing should be simplified and streamlined. This could be accomplished by using machine calculations, reducing the frequency of narrative reports, extending the use of trained clerical people, and using Dictaphones with mailable records.
11. A committee, broadly representative, should be set up under the joint sponsorship of the Alaska Nurses' Association and the Alaska Hospital Association to study whether a basic school of nursing should be established within the University of Alaska.

DENTAL HEALTH SERVICES

This discussion is limited to dental health programs and services as they relate to natives. The Alaska Department of Health has no dental health program, and has never attempted to measure the dental health needs of the population, not even of the white school children in urbanized areas. The recent fluoridation of the public water supply in Anchorage constitutes the only form of dental health program in Alaska.

Oral Health Activities, ANS.

Although the Alaska Native Service has provided over the years some reparative and prosthetic services to its beneficiaries, a unit for oral health activities, to develop a comprehensive dental health program, was not organized until 1951. Such a program was needed; in terms of numbers of persons affected, the dental caries problem among the natives ranks first among their health problems.

In an earlier Chapter, we have shown that the rate of decayed, missing and filled teeth among native children is the highest reported anywhere in this country. It is generally believed that this high prevalence of dental caries results from changes in dietary habits and from increased consumption of carbohydrates, particularly in the form of sweets. Further weight to this opinion is given by reports that the dental caries attack rate is low in those villages in which sweets or other carbohydrates are not consumed on a large scale. Early observations by dentists visiting native villages were in agreement that when native foods were eaten the teeth were excellent, but that they deteriorated badly when the white man's diet was substituted.

If we place the responsibility for the large amount of dental decay on recently acquired dietary habits, it is obvious that no solution of the problem can be anticipated unless these habits are altered, or unless widespread effective, preventive measures are adopted. At the moment, evidence indicates that the natives will not revert to their original diets. Hence, the only hope for a solution of their dental decay problem lies in a more nutritious diet, and a comprehensive health program. The plans for the oral health activities of the ANS are comprehensive enough. Unfortunately, they have been carried out only in small part.

Program. The oral health activities program has among its principal stated objectives: (a) the establishment and expansion of clinic facilities for the care of the natives, with primary consideration given to children of pre-school and school age, expectant mothers, hospitalized tuberculous and orthopedic patients; (b) the training of native dental assistants and dental technicians; (c) the establishment of a central laboratory; (d) the development of preventive treatment and health education. To date, considerable progress has been made in the second and third objectives, a little in the first and hardly any in the last.

Expansion of Clinic Facilities. Beginning in 1952, ANS dental installations have been established at Ketchikan, Juneau, Bethel, Kanakanak, Kotzebue, and Barrow. The community of Craig established its own dental installation. Due to a limited budget, however, no more than three dental officers and three dental assistants have been appointed to staff the ANS installations. As a result, their efforts have been concentrated mainly on extracting and filling teeth in the village clinics where dentists are stationed.

In addition to the field installations, a dental clinic with two dental officers, two dental assistants and two dental technicians recently has been organized in the new Anchorage hospital. There is a clinic at Mt. Edgecumbe, established before 1952, which operates with a dental officer, a dental assistant, and one instructor each for training assistants and technicians.

Training of Dental Assistants and Technicians. From all accounts, this training program is highly successful. It is conducted at Mt. Edgecumbe, and the trainees are selected from the high school students there. The enrollment for these courses has increased continuously since inception of the program. For example, in the first year, two enrolled in the course for dental technicians; by the third year, enrollment had reached 10. All students completing the course have found employment with the ANS and are part of the staff mentioned previously.

Central Laboratory. By expanding existing facilities at Mt. Edgecumbe, a central laboratory has been created for making prosthetic appliances required in the field installations. It has reduced the need for equipment and supplies in the field and has saved much of dentists' time. During the first half of 1953, the laboratory prepared about 125 prosthetic appliances per month. Perhaps its most lasting service is in the training of technicians.

Development of Preventive Treatment and Health Education. It is not surprising to learn that, aside from topical fluoride application to the teeth of students and patients at Mt. Edgecumbe, preventive and health education aspects of the program are not carried out there. The following tabulation of completed dental services for the entire ANS operations during fiscal year 1953, indicates clearly why this objective cannot be achieved with the small number of personnel allowed and also why the program as currently operated cannot hope to meet the dental health problems of the natives.

Completed Services, Fiscal Year, 1953

1. Total patient examinations	8,578
2. Total patient sittings: Adults=7,326; Children=6,831	14,157
3. Carious teeth reported	22,870
4. Total teeth filled	11 ,694
5. Total teeth extracted	14,840
6. Total prosthetic pieces finished	1,325
7. Prophylaxis	1,033

The large number of patient examinations attest to the great work-load which the field dentists must carry (Anchorage hospital was not open at the time). The large number of carious teeth and extractions and the small amount of prophylactic work done, point to the size of the job faced by the dentists and how it dictates the type of dental care they can give. The relatively large number of adults in a program aimed at giving primary consideration to children reflects again the quantity of emergency work that must be undertaken.

The dental officer in charge of the oral health program of the ANS planned to increase the number of dental officers and assistants in order to staff all of the installations; also to form six teams of itinerant dental assistants to visit all villages where there are schools, for the purpose of giving children prophylaxis, sodium fluoride application and instruction in oral hygiene. This plan never obtained budgetary support. Recruitment of the dentists, we were told, would present no difficulty.

Cost of Field Work. During fiscal 1953, the field work (that is, excluding the operations at Mt. Edgecumbe and Anchorage) cost \$110,715, or approximately \$3 per capita. In the States, consumer expenditure alone for dentistry is between \$6 and \$7 annually per capita. The principal items of the budget are: personal services, \$58,371; supplies, materials and equipment, \$26,334; travel, \$16,000; and fees and miscellaneous expenses, \$10,000.

Summary and Recommendations.

The Alaska Department of Health has been remiss in delaying the initiation of a dental health program. To correct this failure we recommend that:

1. Immediate steps be taken to acquire knowledge of the dental health status of that segment of the population not the beneficiary of the ANS. A first need is knowledge about dental conditions of school children.
2. An Alaskan dental health program should be formulated, based on the results of the previous recommendation, and upon knowledge possessed by the ANS.
3. In those areas of Alaska where the natives and whites are intermingled — the urban communities and the southeast — efforts should be made jointly with the ANS to place the program formulated in the second recommendation into operation as soon as possible.
4. Although the objectives of the oral health activities program of the ANS are basically sound, the program has never been given sufficient financial support to meet the tremendous problem of dental caries. Therefore, we recommend that the ANS:
5. Increase immediately the number of dental officers to two for each hospital health center, one to be primarily concerned with clinical emergency and operative work, the other with public health dentistry of the center and of the surrounding villages. (A total of 17 dentists for all of the ANS installations, including the director and dentists at Mt.

Edgecumbe and Anchorage, an increase of 10 over the present number, would still only give a ratio of one dentist for 2,000 natives.)

6. Direct the treatment program primarily at the pre-school and school children — with the topical application of fluoride limited to the 6–12 year old children — making every effort to save the permanent dentition of the young child and to prevent the spread of caries in this age group.
7. Send immediately into the field for service to children itinerant teams of dental assistants to give prophylaxis and to apply sodium fluoride.
8. Train more natives as dental assistants, while exploring the possibility of combining such training with that proposed for health aides.
9. The dentists and dental assistants should join with other members of the health team, in the development of health education through the school teachers and itinerant nurses.

HEALTH EDUCATION

No health program can be meaningful unless the people themselves understand it, want it, and accept it. If it is to be meaningful, the people must embrace and help maintain the health program, must incorporate its concepts and practices, into their daily personal and community life.

Educating the people of Alaska about health presents opportunities and difficulties not usually encountered in the States.

Large cities are chiefly populated by white people, including the military and their dependents. Add to them the construction and other transient or semi-transient workers, who do not readily knit into a homogeneous community, and we have the bulk of Alaska's population. The small native communities are in another world from every point of view. They have a totally different economic pattern; they face the practical exigencies of survival.

The Health Education Division of the Alaska Department of Health, working with extremely limited budget and personnel, is striving to meet a multi-faceted need. Its personnel develops printed materials and audiovisual aids, gives lectures and staff training to professional groups, makes suggestions for the school health education curriculum, and centers its efforts to promote community organization around health problems in the larger centers.

The good work now being done along orthodox patterns must be supplemented by aggressive, courageous and considerably broadened concepts.

Several new directions for effort are suggested:

1. The health education curriculum in Alaska's public schools should be developed jointly by education and health authorities around a practical rather than a traditional concept. Initially it should be conceived to fit the needs revealed. Health education in schools cannot stand by itself. The total education program of Alaska needs to be strengthened. Some small communities now have no schooling at all.
2. An example of effective adult education is that of the Alaska National Guard, which, through its program, has had a surprising impact, relative to the small number of persons involved, on native communities in different parts of Alaska. A page should be torn from this book.
3. The ANS school teachers who are the only source of medical care for many native villages should be oriented properly regarding the purposes of the treatment they give so they can transmit such information to the sick and their families.
4. Adult education and education of the children in school should be tied together in some way so that a wedge is not driven between the two generations.
5. In certain parts of Alaska the radio is the only means of communication. There, physicians in the hospitals give health and first-aid instructions over the radio at a regular time each day, these instructions being heard by shortwave receiving sets in most native homes. This vehicle should be exploited as a great potential for health education. It too should be

correlated with the other facets of the program, specifically the school curriculum, the adult education program, and community organization.

6. In training the native sanitation aide, midwife, dental assistant, and other health aides, emphasis should be placed on the importance and significance of transmitting to the local community the basic ideas underlying the practices and techniques acquired.
7. Health education cannot and does not result from pamphlets, lectures or, movies alone; there must be community organization around subjects of common group interest if health education is to be understood, wanted and accepted by the people. The cultural traditions of authoritarianism among some of the Alaskan Indians and of anarchic community life among some of the Eskimos, for example, must be taken into consideration in an effort to introduce an effective pattern of community action. (See Chapter II, "Acculturation and Health.")

Community organization should be directed toward motivating the community to meet all its needs rather than merely for health alone. Priorities of need, whether they be health or others, must be determined by the people themselves under indigenous leadership. (See Chapter IV, "University of Alaska.")

STATISTICS — COLLECTION AND ANALYSIS

Data on population, births, deaths, and the health problems of Alaska are inadequate. Throughout our report, this opinion has been repeatedly stated by the several members of the survey team who thus have expressed their frustration in not being able to obtain accurate statistics on the magnitude of a specific health problem, the possible factors related to it, and the extent to which progress has been made in meeting it. This statistical inadequacy is in part due to Alaska's unique characteristics; it is due chiefly to poor organization coupled with insufficient personnel and funds to do the job.

Organization for Collection and Analysis.

Alaska Native Service. This agency does not have a unit responsible for statistical analysis in the Territory. The ANS hospitals are required to send to Juneau, monthly reports of their case-load which include data on communicable diseases, and a summary card on each in-patient admission. Field nurses are required to send a monthly report of activities. In Juneau, these and other records and reports are simply stored in files. Yet, with some thought and perhaps some slight modification of form, these records could be used to identify aspects of the health problems of the natives.

The Branch of Education of the ANS requires that each teacher prepare and keep household rosters of the population of each village. These records, which are valuable as source of data on population and its movements, are merely stored in Juneau.

Alaska Department of Health. The Bureau of Vital Statistics is composed of a director (part-time until July 1, 1954, so that the remainder of his salary could be used for a clerk), a chief of records and statistics, and five and one-half clerks.

This Bureau was established in 1949 when the Uniform Vital Statistics Act transferred the responsibility for the registration of births, deaths, marriages and divorces from the office of the Auditor to the Department of Health. Although the Commissioner of Health thus became the Territorial Registrar, the Act did not empower him to appoint local registrars but specifically indicated that these should be the U.S. Commissioners. Since each judge can appoint as many Commissioners as he sees fit, the local registration areas can vary in number and location. The Commissioners see the task of vital registration as a minor one notwithstanding the fact that the fees they receive from the Commissioner of Health are substantial in the aggregate: \$20,000 per year. To make matters worse, the ADH has insufficient funds and personnel to carry out fully its responsibility within the authority that it does possess.

The work of the small staff in the Bureau of Vital Statistics is mainly devoted to routine certification and to indexing and processing accumulated records transferred from the Auditor's office. The need is acute to index and put in order the old as well as the current records, since the demand for proof of birth, death, and marriage has greatly increased in these last years because

of the expansion of Social Security coverage. Under these conditions and with only one part-time qualified statistician available until recently, it is understandable that the Bureau of Vital Statistics has not been able to give much attention to means of improving the registration system, to analysis of data, or to provision of advisory and technical services for other units of the Health Department.

Validity of the Statistics.

The extent and causes of the inadequacy of data on health problems are well understood by those responsible for health statistics about Alaska. Only a few examples will be used to illustrate it.

Population Statistics. Only since 1953 has there been any apparent concern as to accurate and meaningful data on population. The Bureau of Vital Statistics of the ADH now has joined with the office of the Governor and with the Alaska Development Board to produce current estimates of Alaska's population, both military and civilian.

For an appraisal of the incidence and prevalence of diseases, the requirements for services, and for planning programs, current estimates are required also on the populations of urban centers, on the dependents of the military, on transients, and particularly on the natives and their distribution. It is hoped that this cooperative endeavor will seek to obtain such information. We emphasize the need for accurate information on the natives because the accuracy of the 1950 census of this group is open to question.

Births and Deaths. The inadequacy of the vital statistics to a large degree is a consequence of the faulty registration system. The Director of the Bureau of Vital Statistics is aware of the need for more energetic measures to improve the collection of data, since there is obvious under-reporting of births and deaths among the native population.

A routine determination of under-reporting of births is made during census years by searching for birth certificates of infants enumerated in the census. The National Office of Vital Statistics has carried out such determination in relation to the 1950 census and findings indicate that for the white population the birth registration was 98 percent complete; for the native, this percentage was approximately 84; and for one Judicial Division it was 74. A similar measure of under-reporting of deaths is not available. We have, however, two indexes of the quality of the certification. The first is the high rate of causes of death stated to be due to senility and ill-defined causes.

A second measure of the quality of the death certification is given by the proportion of death certificates signed by physicians, which equaled 68 percent for the deaths of 1950. Further examination of the data indicates that only 45 percent of the tuberculosis deaths were certified by physicians, in contrast to 92 percent of deaths due to heart disease and 93 percent of deaths due to cancer. No improvement has been noted between 1950 and 1953. The data for 1953 show that

69 percent of all the death certificates have been signed by physicians but only 36 percent of the tuberculosis death certificates.

Morbidity and other Data on Communicable Diseases. By law (Ch. 118, 1949) the Health Department requires notification of a number of diseases. The inadequacy of reporting has been dealt with in the Section on "Control of Other Communicable Diseases" and will not be elaborated here.

We point out only that the Section of Preventive Medical Services of the ADH has neither the epidemiological nor the statistical personnel to do much about reporting, while the Bureau of Vital Statistics has no responsibility for this function and does not advise on statistical aspects of the problem.

Case Registers. Unavailability of statistical advisory or technical services for the collection and maintenance of health records is reflected clearly in the attempts made so far to develop a case register for crippled children and for patients with tuberculosis.

With reference, to the first, the orthopedist in charge at Mt. Edgecumbe has begun to bring together the records on the children and adults examined on the several surveys he has made as well as the clinical and operative records on those hospitalized. At Juneau, the chief of maternal and child health in the ADH now is seeking to organize a register of crippled children which, in great part, will be based on the records of the orthopedist mentioned. Because of the labor and expense involved in assembling records of this kind, the development of these registers is proceeding slowly and could not be evaluated.

The reasons for having two independent registers are not clear to us. In considering whether or not to establish a case register, it should not be forgotten that this type of records system is a very expensive method of obtaining poor statistics. On the other hand, it is an efficient tool for administrative controls when programs are operated with an adequate organization. Since this is not as yet the case in Alaska, it would seem wise to inquire carefully into the purposes of the registers before settling upon definitive action. These several considerations are particularly applicable to the tuberculosis case register discussed earlier.

Summary and Recommendations.

Lack of adequate data regarding the nature and magnitude of health problems prevents proper planning of health programs. In particular, it will prevent a systematic appraisal of the work done. We believe that the programs undertaken to date in Alaska have brought about improvement; yet the statistical evidence to support this belief is very meager indeed. We cannot determine quantitatively to what extent there has been reduction in tuberculosis and in other conditions which have preoccupied the ANS and the ADH. We cannot assess the changes which have taken place in the health of the native populations nor in the growth of these populations. Furthermore, we shall not be able to assess the effects of the anticipated greater efforts of the

health agencies, nor of changes in the economic and social structure of the Territory unless a base line is established now to indicate the current status.

We recommend therefore:

1. That the agencies concerned with the health of Alaska pool their resources to employ one or more well-trained statisticians whose functions would include: (a) development of simple, inexpensive and rapid methods of obtaining data, exploring particularly the possibility of applying the principles of sampling surveys to selected areas, and (b) critical review of existing administrative requirements for records and reports in order to eliminate those that are useless.
2. That the cooperative arrangement made by the ADH, the office of the Governor and the Alaska Development Board be encouraged to continue to obtain current data on population. This arrangement could well serve as a model for carrying out the recommendation in 1.
3. That legislation be introduced to amend the 1949 Uniform Vital Statistics Act so as to give the Commissioner of Health full authority to establish local registration areas and to appoint local registrars.

In line with these three general recommendations, we specifically recommend:

1. With slight modifications, the rosters maintained by the ANS teachers could provide data to describe the extent and direction of the migratory movement and to estimate the true birth and death rates.
2. That the system of reporting in-patient and out-patient admissions in the ANS facilities be modified in such a way as to provide data on morbidity.
3. That the back-log of work of indexing and filing past birth, death, and marriage certificates be done as rapidly as possible as a special project.
4. That the Bureau of Vital Statistics be reorganized so that the Director can act as a staff officer of the Commissioner and provide consultation and advisory services on records and statistical problems to the other sections and services.

CHAPTER VII

Food For Health

It cannot be emphasized too strongly that much of the ill health of the Alaska native stems from his poverty. Poverty means hunger and malnutrition, increases susceptibility to disease, lack of resistance in recovery from disease, miserable dental conditions, high rate of miscarriages and a shortened life span.

Nutritional deficiency is widespread among the Alaska natives. Some of the data are reported and confirmed by reliable observers. This is supplemented by indirect evidence which falls into two categories: first, insufficient intake of food requirements, and second, manifest health deficiencies.

Insufficient Food Intake.

There are times when native villages go through periods of actual starvation because of the poor fish catch, change of the caribou range or other reason. Short of outright starvation, there are frequent, prolonged periods of poverty and economic privation reducing the food supply drastically. Such periods may extend over an entire year or may be seasonal, year after year. For example, the frozen meat from the winter's hunt may be consumed before the spring catch of fish takes place, and the supply of dried fish may be exhausted before the winter meat is obtained. Early spring seems to be a time of perennial privation. When the native has a source of income, it helps to supplement his living off the land and tides him over "the between season stretches and the lean years."

Certain Villages, especially those along the western and northern coasts, consume large amounts of seal oil, derived from subcutaneous fat. One reporter claims that this oil does not have the vitamin A or D content of liver oil. In any event, the oil when removed from the seal is quite a different nutrient from what it is when ingested because of storage, freezing and thawing, and rancidity, which result in bacterial oxidation and destruction of vitamin values. Dried fish are reported to be low in vitamin A content.

The natives do not now use as much local food as formerly. Too many have lost the habit of eating their native foods. Having been encouraged to follow other white man's customs they copy his food habits also. Nutritionists have attempted to reeducate them to the values of edible plants and vegetables grown locally, but with relatively little success. Studies on fresh fruits and vegetables transported from the States show marked reduction in vitamin C content because of the long period of time required for shipping.

Adult natives and children drink little or no milk after the earlier years. School breakfast and lunch programs vary in nutritional value, depending partly upon what the teacher has in stock; often it consists largely of carbohydrates. Babies usually are breast-fed until the next baby comes

along. From then on, the two- or three-year-old child scrounges food for himself and often gets pushed aside by the older children at this particularly vulnerable age.

Nutritionally Related Health Deficiencies.

A long list of health handicaps may be related to nutritional deficiency and warrant careful investigation. Many native adults are bowlegged, indicating rickets during early childhood. Anemia is widespread. It is particularly noticeable among women and is aggravated during pregnancy. Miscarriage is reported to be frequent; accurate studies on this are needed. Infant mortality is high. Respiratory infections are frequent and severe. Phlyctenular disease of the eyes is widespread and is reported to be seasonal with the highest incidence in February and March. Nurses have seen severe eye involvement clear up spontaneously when a child goes to live at a summer camp. Oozing of blood from the umbilical cord of the newborn infants is reported, despite repeated retying. Surgeons report abnormal hemorrhage after tonsillectomy. Nurses report that infants and young children grow and develop at a slower rate than normal.

Improving Native Diets.

The problem of nutrition does not stand by itself, but is a part of the native's life as a whole. Some suggestions made to us as to needed community action are listed:

1. Teach the families to build ice houses instead of using deep "meat pits" where meat deteriorates and becomes contaminated
2. Re-educate the natives to enjoyment of their local foods by explaining how much better they are than "store food" and assist those who may have forgotten the old habits to distinguish between edible and inedible varieties
3. Encourage small family gardens in areas where this is feasible
4. Improve the school lunch programs, making sure the teachers themselves understand nutritional values
5. Develop a system for distribution of vitamin supplements and minerals to needy groups of natives
6. Introduce large scale distribution of surplus food supplies to population groups in need.

The last suggestion introduces one of the most important proposals in this report; the distribution of surplus foods in needy villages on a larger scale than the limited food distribution program in Alaska during the winter of 1953–54, which is described below. The outlook for the winter of 1954–55 is even more dismal and calls for more heroic measures to combat widespread hunger.

The "Disaster Areas" of 1953–54.

Because of the great decline in the salmon catch in 1953, the Bristol Bay area and parts of southeast Alaska were declared "disaster areas." Emergency steps were taken to provide food by

means of a program sponsored by the Governor. Following a meeting in Juneau, September 29–30, 1953, the Governor reported to Washington on the seriousness of the situation. After a survey of the Bristol Bay area by representatives of the Civil Defense Agency in Washington, and the director of Disaster Service, Pacific area, American Red Cross, it was concluded that assistance was needed at once and that the need would become much more acute by the spring of 1954. As a result President Eisenhower declared Bristol Bay and southeast Alaska to be "disaster areas."

The federal Civil Defense administrator, who was charged with administration of relief in disaster areas, and the Governor of Alaska, entered into an agreement whereby \$40,000 was allocated for transportation and administration, and the Territorial Secretary was designated as coordinator of the program. The Alaska Native Service provided an assistant to help administer it.

By November 30, 1953, the program had resolved itself into two parts: (a) the distribution of surplus food commodities to be donated by the U.S. Department of Agriculture, and (b) a work program sponsored jointly by the Federal Government through Alaska Public Works and the Territory through its highway engineer.

It was decided that the distribution of food could be best accomplished by setting up three areas: (a) southeast Alaska, (b) Prince William Sound, and (c) Bristol Bay.

The work program undertaken in southeast Alaska provided a substantial amount of employment on useful projects. It included the building and repair of docks and wharfs, construction and repair of streets, as well as public works of various other types.

It was ascertained from the U.S. Department of Agriculture that surplus food commodities consisting of butter, cheese, dried milk, canned beef and gravy, and shortening were available without cost and could be donated if a statement were furnished as to the number of persons requiring assistance in the affected areas, and if a responsible committee was named in each community to receive the food and direct its distribution.

Early in December, the Department ear-marked eight carloads of the surplus food for Alaska relief, and paid the cost of delivery by commercial shipping to Alaska ports. An ANS training ship delivered the food to smaller ports; to 17 other towns in southeast Alaska, the food was delivered by plane.

In the Bristol Bay area, shipments were made to Seward, the Alaska Railroad provided free transportation to Anchorage and the Air Force air-lifted the food, making direct deliveries where suitable landing fields were available. To the more remote villages delivery was made both by dog teams and bush pilots.

The emergency food relief program in the two disaster areas in Alaska was unusually successful. It demonstrated what could be done when every available agency cooperated for a worthy goal. More than 300,000 pounds of food were distributed to more than 6,000 people. Volunteer committees in 36 communities performed all field distribution duties. The total transportation and administration costs amounted only to \$6,375. In addition, the Red Cross

spent approximately \$10,000 for relief. Substantial balances remain in the initial budget of \$40,000 designated by President Eisenhower for this program.

One shortcoming was the fact that no cereals were provided. The Governor sought, without success, to have donations of wheat converted into flour by millers and shipped to Alaska. In any future program this major deficiency should be corrected.

Both the school lunch programs in the ANS schools and the emergency feeding program of last winter demonstrate that the natives will eat types of white man's food which are available as surplus.

The Governor, the Territorial Secretary and others who participated in the program have told us that the problem of getting proper distribution in the villages did not prove difficult. In every place, local leadership was found to do the job.

Surplus Foods and Alaskan Health.

The Federal Government has a great surplus of food being stored at high cost. The food is deteriorating. The Congress recently has voted \$10 billion to handle farm surpluses. It has voted for disposal overseas of farm surpluses for the next three years and sums of \$300 million for famine relief and another \$700 million for the sale of surplus commodities abroad. In the same Act are provisions which encourage barter or exchange of agricultural commodities for strategic materials.

The most pressing surpluses are of wheat, butter, cheese, dried milk, and vegetable oils, which are foods of high nutritive value; together they form a balanced diet.

Food is a medicine for the control of tuberculosis and other diseases prevalent among the Alaska natives, many of whom are susceptible to disease because of their chronic state of malnutrition or of semi-starvation. Except in the southeast, the fish catch in 1954 was the smallest in many years. Critical conditions can be expected this winter, and in the coming spring. The Secretary of Defense already has expressed grave concern because tuberculosis is decimating the strength of the Alaska Native Scout Battalions which have a vital role in American defense.

The limited food-relief program sponsored by the Governor in the winter of 1953–54, demonstrated the feasibility of such a program, tested techniques and prevented wide-spread starvation. The need continues to grow. Every good American should applaud the action of the Congress in authorizing \$300 million for famine relief in other countries. But, in all honor, this charity should begin with the relief of native Americans in our own Territory.

The initial objective should be to get large quantities of surplus foods distributed with the least possible delay to the most depressed areas. These supplementary food s, in conjunction with other measures which we are recommending for the control of tuberculosis, should serve to upset the biological balance in favor of survival of the natives and enable them to make a proper contribution to the future in the American Arctic.

A second objective should be to exchange food for work on community projects. Native villages are badly in need of community improvement especially in sanitation, housing, roads, trails, air-strips, National Guard armories , and other community facilities. Native labor and skills are available to make the needed improvements. Planning for this part of the program should start now in one or two pilot plant operations to work out practical and equitable methods. It should be in full operation by the winter of 1955–56.

These emergency programs are proposed for a three year period. At the end of this period the results should be evaluated and future policy designed.

Without doubt, objections will be raised. For example, free food would make the native still more dependent; traders and other merchants could not sell stores of food on hand; relief is no substitute for a sound economic base.

We concede that the emergency program recommended is not a substitute for a sound economy. There is strong reason to believe, however, that it will reduce the present volume of dependency due to illness and premature death, reduce the substantial future costs of hospitalizing tuberculosis patients, increase native strength and vigor, and promote the effectiveness of the Alaska Native Scout units in our own defense. What the merchant does not sell in food — and during the winter and early spring they carry few perishables— he will more than make up by sale of clothing and household equipment also desperately needed by the hungry native.

Moreover, Alaska already has demonstrated its ability to administer such a program with less criticism than states and counties in the United States.

Proposal

An emergency program should be organized at the earliest possible moment to provide as a health measure substantial amounts of surplus foods to the natives in Alaska. As a first step, it is urged that the Secretaries of Interior, Agriculture, and Defense consider the problem, agree upon the broad objectives and methods, seek approval from the President and instruct their technical staffs to work out the logistics to carry it through.

ACKNOWLEDGEMENTS

The Alaska Health Survey was greatly facilitated by the assistance and full cooperation which was tendered to us everywhere.

In Washington, essential data were made available and many facts given us by officials in the Departments of Interior and of Health, Education, and Welfare who are knowledgeable about conditions in Alaska.

Likewise, in San Francisco, the staff of the Regional Office, Department of Health, Education, and Welfare gave us much valuable background information, both historic and current, much of it gathered at first hand.

The Governor of Alaska and the territorial officials gave every cooperation, as did the Area Director of the Alaska Native Service and other federal officials.

A special word of commendation is due the Commissioner of Health and his entire staff for their completely unstinted efforts to assist us at every hand. It was not only the fact of full cooperation, but the obvious spirit in which it was given that made our task pleasant as well as stimulating.

In the same terms of special appreciation, we acknowledge the invaluable aid extended by the Director of the Alaska Native Service and staff both in Juneau and the field, who without exception not only welcomed us warmly but furnished us freely all information in their possession having a bearing on our studies.

Similarly we make particular acknowledgement of the assistance given by the Director of the Arctic Health Research Center and staff. They not only supplied much valuable information, and shared with us their views on the technical aspects of many of Alaska's health problems, but gave fully and freely of their time and facilities which enabled us to accomplish our many detailed tasks with a minimum of delay.

A special word of commendation is due also the Department of Defense and particularly the Air Force and the Navy for providing transportation for substantial parts of our travels in Alaska in 1953, which were to those points not easily or readily reached by other means.

The Territorial Departments of Welfare and Education, the Division of Vocational Rehabilitation, and the National Guard, all gave their full cooperation and assistance.

The voluntary and religious organizations operating in Alaska furnished us with much information regarding the important roles which they are playing.

Members of the survey team interviewed some 400 to 500 Alaska residents, to get their views of the Alaskan scene. To them, we are extremely grateful, for, although we do not quote them in this report, their contributions to our understanding were essential.

In fact, throughout Alaska, we encountered widespread and intelligent interest with respect to our undertaking, were accorded fullest cooperation, and received a warm welcome everywhere.

We deeply appreciate the generosity of the U.S. Children's Bureau and the National Tuberculosis Association; each making available on full salary a staff member to serve as a consultant.

We are grateful to the able consultants listed on the title page whose reports on special phases of Alaska's health contribute so much to this undertaking.

In addition to faculty members of the Graduate School of Public Health who participated in the survey as team members, a great number of other members of the faculty and staff, too numerous to mention here, have given invaluable assistance.

This report is the product of the thinking and views of many people representing diverse skills and experiences, and whose individual reports, papers and memoranda have been drawn on very heavily in the making of its substance. Mr. Max Q. Elder, Director of our University's News Service, assisted in the formidable task of analyzing much published data and editing the entire report.

For the concluding statement in this report, we believe nothing is more fitting than to express highest commendation to the field personnel of both the Alaska Native Service and the Alaska Department of Health. The many whom we met are, without exception, a thoroughly devoted and dedicated group; they are working under difficulties and conditions that can scarcely be comprehended by those who have not visited the remote areas where they serve.

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APPENDIX A

UNIVERSITY OF PITTSBURGH
Graduate School of Public Health
Pittsburgh 13, Pennsylvania

November 23, 1953

Office of the Alaska Health Survey

The Honorable Douglas McKay
Secretary of the Interior
Washington 25, D. C.

Sir:

This is in further reference to the "Alaska Health Survey Agreement" of 19 June, 1953, (Government #14-20-650-55).

In my -letter to you dated September 16, 1953, with attachment of "Progress Report: Summer 1953," certain recommendations were submitted dealing with matters upon which, in our view, prompt action should be taken.

As was also indicated we are continuing to study the findings of our survey with a view of suggesting immediate remedies for the most pressing specific health problems of Alaska.

One of the most serious of the problems affecting the native population of Alaska is tuberculosis.

Soon after our return from Alaska in early September, we discussed this problem with several people within the Department of the Interior, with representatives of the Public Health Service, and with a number of private physicians and others having special knowledge and experience in the field of tuberculosis control. There was general agreement that the problem in Alaska is of such magnitude that every effort should be made to put all existing facilities and programs to maximum use, and that indeed in the region west and north of the "Seward-Fairbanks Railbelt," the problem is so nearly "out of hand" as to call for whatever supplementary measures that reasonably might be expected to exert a favorable influence upon the spread of the disease. Among the measures mentioned was the use of chemotherapy which has proven so successful in this country.

Accordingly, a conference was held -at the School of Public Health, University of Pittsburgh, on November 7 and 8, to consider the desirability of initiating a program of chemotherapy for those persons with tuberculosis and for whom hospitalization is not available.

The purpose of this communication is to inform you of the results of the conference discussions and to submit to you our recommendations concerning a program of action.

The stated purpose of the conference was to obtain the views of persons specially knowledgeable about tuberculosis and also of those having knowledge of Alaska, concerning the desirability and practicability of instituting in Alaska, especially in the regions of greatest need, a chemotherapy program for non-hospitalized persons suffering from tuberculosis.

After reviewing some of the general characteristics of Alaska, notably its size, sparseness of population, lack of communication facilities, and with particular reference to the area in question, the rigorous climate and terrain, the excessive crowding in homes, the almost complete absence of environmental sanitation and the periodic food shortages both in quantity and in nutritional value, it was generally agreed that an emergency situation exists in this area.

The facts appear to be that, on the one hand, ten percent of the native population is listed on the case register as having active or probably active tuberculosis, the recorded mortality rate from the disease among natives is approximately 1% per year, and the undue prevalence of miliary, meningeal and bone tuberculosis in children indicates widespread and massive community infection; while on the other hand, there are only seven small hospitals in the area (some without a physician and none with more than one) with an aggregate of only 89 beds devoted to tuberculosis, and also within the area there are only nine public health nurses, two of whom serve Nome and Bethel exclusively with all the remaining villages served on an "itinerant" basis by the other seven.

The possibility of employing chemotherapy for tuberculous patients outside the hospital under Alaskan conditions had suggested itself by reason of experience elsewhere with chemotherapeutic agents used under hospital and outpatient auspices. The experience with several drugs was reviewed at the conference by Doctors Anderson, Bundy, Marcy, Martin, McDermott, Robins, and Stocklen.

There was general agreement that in the event a program of this character should be instituted, isoniazid (INH) used alone would be the drug of choice; that when used over a sufficiently long period of time it could be expected to reduce the number of bacilli in the sputum with actual conversion to "negative" in a substantial portion of cases; that it can be taken

orally and without undue prospects of untoward reactions; and that utilized on an extensive basis, especially in areas of excessive prevalence, it reasonably could be expected to effect a substantial reduction of new tuberculous infections.

It was pointed out that with widespread use of the drug over a substantial period of time, there would be a certain number of instances where the tubercle bacillus in patients would become resistant to action of the drug, but the majority opinion at the conference was that this eventuality should not be determining on the question of whether a program should be instituted, particularly in view of the fact that other drugs could be employed safely and successfully if such patients later could be treated in a hospital.

The basic question then put to the conference was whether an ambulatory chemotherapy program on an experimental, emergency basis should be instituted in the areas of greatest need, the central purpose of which would be an attempt to reduce the current load of community infection to the point where the problem would more nearly approach manageable proportions. In terms of those tuberculosis control measures of recognized value; and with the understanding that such a program would not alter established programs, current and contemplated, but would supplement them.

Differences of opinion were expressed with respect to various details of a program, particularly on the selection of the persons to receive therapy and the degree of medical, nursing, and hospital supervision which such persons should have while under treatment.

Individual support was expressed for proposals ranging all the way from giving the drug, isoniazid, en masse in isolated villages to a much more restricted program limiting the therapy to persons known to have "positive sputum" and under medical surveillance.

However, there was a considerable degree of unanimity on the part of the conferees in respect to the urgent need for instituting a program in the North and West regions of the Territory under appropriate supervision, and following the general pattern of chemotherapy now under way in New York City, Cleveland, and Pittsburgh. The specific recommendations which follow define the limits of a program that would be in harmony with the predominant views expressed at the conference.

OUTLINE OF PROGRAM

We have formulated the following chemotherapy program to be instituted in Alaska on an experimental emergency basis. This program in no way alters the importance of the recommendations submitted to you under date of September 16, 1953.

Purpose

The central purpose of the program is to determine the extent to which the use of INH (isoniazid) given to unhospitalized tuberculosis patients and suspects in the areas of greatest need will reduce the current load of community infection to the point where the problem more nearly approaches manageable proportions in terms of other tuberculosis control measures, current and contemplated.

Areas of Operation

This program will be limited to the North and West portions of Alaska.

Area A: Villages where hospitals are located or villages in close proximity to hospitals.

Area B: Villages not in the immediate vicinity of hospitals but under the medical care supervision of these hospitals.

It should be noted that we have excluded from this program those villages that do not have established communications with the hospitals. Data on out-patient visits and on radio communications have been used to identify the villages in Area B under medical care supervision of the individual hospitals

VILLAGES AND POPULATION				
Name of village	Area A Close to Hospital		Area B Remote but under supervision of Hospital	
	Villages	Population	Villages	Population
Barrow	1	951	2	302
Bethel	7	1,478	18	2,764
Dillingham	3	858	6	615
Ft. Yukon	1	446	3	265
Kotzebue	2	871	25	4,050
Tanana	1	228	6	609
Total	15	4,832	60	8,605

Methods of Operation

(a) General. Persons on the tuberculosis register, those with positive sputum, and children under six years of age with positive tuberculin reaction but no history of BCG vaccination will receive the designated daily dose of INH for a period of six months. Medical evaluation at the end of this period will determine the advisability of continuing administration of the drug for another six months, hospitalization or other disposition. The effects of the program on the community tuberculosis load will be measured by the end of twelve months; from these findings a decision will be reached: regarding the extent of the program for the second and last year.

(b) Specific. In Area A, i.e., villages located in the immediate vicinity of the hospitals:

1. A mass sputum survey of the population, aged six years and over, will be made at the beginning of the program, after six months and after twelve months. Duplicate specimens will be sought from each person.
2. A mass chest X-ray survey of the total population twelve years and older will be made (exclusive of persons recently X-rayed) at the beginning of the program and after twelve months.
3. All records pertaining to the BCG program will be examined to find children with positive tuberculin reaction but no history of BCG vaccination.
4. Individuals who receive the drug also will be given instructions through the hospital staff regarding possible complications and will receive a sputum examination after three months and an X-ray examination after six months.

In Area B, i.e., in outlying villages under supervision of the hospitals:

1. A mass sputum survey as in Area A.
2. The tuberculosis case register will serve to identify positive and suspect cases.
3. The BCG program case records will be examined as in A.
4. Individuals who receive the drug will receive instructions, etc., as in A but through a field team of physician and nurse.

Evaluation

1. In Areas A and B, the comparison of the prevalence of sputum-positive individuals at the initial period and at six and twelve months after the initiation of the program should provide a measure of the effect of the program on the community-wide load of infection. In addition, information will be obtained regarding the value of the drug as a "converter" of positive sputum under the primitive Alaskan conditions.
2. In Area A, comparison between the initial and subsequent periods in the frequency of positive cases on X-ray should give a means of measuring the changes which have occurred in the frequency of positive cases and in the incidence of new cases. Furthermore, comparison of the X-ray findings with those of the sputum survey will offer data on the difference between the two procedures for screening purposes.
3. In Area B, an assessment can be made of the effects of the drug in terms of the number of persons with positive sputum in the population by examining the changes in the frequency of positive sputum individuals in the population when no drug is given. This assessment may be made by selecting — on the basis of a well-defined scheme — those villages in which the program is to be initiated first and those in which the program is to be initiated later. It is proposed that all, or as many as possible, of the villages in Area B have the mass sputum survey, but that in some villages the program be initiated immediately while in comparable villages the program be initiated only after a second sputum survey six months later.

Integration with current tuberculosis control program

This emergency program will supplement the present and contemplated control activities. It will avoid interference with the BCG program by limiting the dispensing of the drug to children who have not received BCG but have a positive tuberculin reaction. The program will give considerable assistance to the further development of the hospitalization program by identifying those cases which require a regimen either medical or surgical best obtained in the hospital.

Administration

The program requires joint participation of the Alaska Native Service, The Alaska Department of Health and the Public Health Service. It will be carried out under the direction of the Arctic Health Research Center with headquarters in Anchorage.

Personnel

In addition to the staff which the Arctic Health Research Center will need in Anchorage for the planning, direction, and evaluation of the program, we consider that the following personnel will be required:

Two teams, each composed of a physician, nurse, and clerk, with headquarters respectively at Bethel and Kotzebue to carry out the work in Area B.

A clerk in each of the six hospitals mentioned to assist in the additional work involved in record keeping.

Two laboratory technicians at Anchorage in the laboratory of the Alaska Department of Health.

Budget for 1 year

Personnel:	\$60,000.00
Drugs:	\$60,000.00*
Travel for personnel:	\$15,000.00
X-ray films, laboratory equipment and supplies:	\$10,000.00
Miscellaneous:	\$5,000.00
Total:	\$150,000.00

**Estimates of the number of persons who should receive the drug vary from 2,000 to 5,000. The upper figure has been selected for the cost of the drug.*

It is recommended that the Department take the steps necessary to put promptly into effect the program outlined herein. Our group will, of course, be at your disposal in further planning of the program and in evaluating the result.

We have .circulated this letter as a confidential document to the persons invited to participate in the November 7 and 8, 1953, conference at Pittsburgh, with the request that they submit to us any comments they have to offer on the program we are recommending. Replies will be forwarded to you for your information.

Respectfully submitted,
(sig.) Thomas Parran
Thomas Parran, M.D., Dean
In Charge Alaska Health Survey